Innovation and Sector Evolution White Paper Series – Feedback Form

Exploring Expanded Distributed Energy Resource Participation in the IESO Administered Markets: Part I: Conceptual Models for DER Participation

Webinar Date: October 24, 2019

Date Submitted: 2019/11/07	**Feedback Provided By:** Company Name: Energy Storage Canada Contact Name: Justin Wahid Rangooni, Executive Director Contact Email: jrangooni@energystoragecanada.org

Following the October 24, 2019 public webinar outlining the findings of the Part 1: Conceptual Models for DER Participation white paper, the IESO is seeking feedback from participants on the barriers to integrating DERs into wholesale markets identified in the paper, including how those barriers impact participation in the IESO-administered markets specifically.

Feedback received will help inform the second white paper in the series. The second white paper will perform a more detailed exploration of the conceptual models identified in the first paper and identify potential options for integrating DERs into the IESO-administered markets. The second white paper will also identify areas where demonstration projects would be beneficial. The IESO will work to consider and incorporate comments as appropriate and post responses on the engagement webpage.

The referenced presentation and white paper can be found under the October 24 2019 entry on the Innovation and Sector Evolution White Paper Series Engagement Webpage.

Please provide feedback by November 7, 2019 to engagement@ieso.ca. Please use subject: *Feedback: Innovation White Paper Series - Part 1: Conceptual Models for DER Participation*. To promote transparency, this feedback will be posted on the Innovation and Sector Evolution White Paper engagement page unless otherwise requested by the sender.

Thank you for your time.

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Question	Feedback
Are all the major barriers to DER participation in the IAMs (Energy, Capacity, and Operating Reserve) identified in Part I of the paper? Are there any major barriers that are missing?	Energy storage has the ability to provide many benefits to the Ontario energy system that will increase cost-effectiveness, reliability and flexibility for consumers and the electricity system as a whole. Energy storage is a unique resource that can be deployed to ensure value and prevent inadequate or inefficient utilization of other assets in the electricity system by allowing for deferment of future investment in transmission, distribution and generation. Distribution and transmission asset owners can use energy storage to adapt their networks to meet customer needs and manage outages, both planned and unplanned. In this, energy storage has the ability to provide significant value to electricity customers in the immediate and longer terms, with value attributes whether the system is oversupplied or in a capacity shortfall situation. This flexibility and versatility is perfectly suited to help address affordability, cost effectiveness, reliability and resiliency needs to customers and communities across the province. In short, storage reduces electricity waste, lowers overall system costs, and helps consumers and businesses better manage their electricity usage. Because of its unique characteristics as both a load and a generator, energy storage currently faces a number of unintended and inefficient barriers that are limiting its adoption, operation, and ability to meet the efficiency and flexibility needs of the system and consumers. For instance energy storage projects are subject to demand charges and IESO uplift charges, including hourly, daily and monthly uplift changes, IESO administrative fees, and the RRRP surcharge. This is due to the fact that energy storage facilities, whether Tx connected, Dx connected or behind

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	the customer's meter, do not easily fit within the existing framework because, depending on their use, energy storage facilities may provide attributes of load, generation, transmission facilities, distribution facilities, or more. Due to the uniqueness of energy storage (acting as both a generator and a load) makes energy storage resources fundamentally different from other grid connected resources. Therefore, measures should be taken at the outset to revise definitions in various areas of electricity regulation to enable energy storage solutions where they provide value to the system and to customers. Please see below for additional feedback on Energy Storage Canada's recommendations on definition of "energy storage". With respect to other specific barriers that should be addressed in the paper, a key one would be regarding timely connectively of DERs. Currently, there are no standards or guidelines with respect to the connection of DERs and that has created confusion and uncertatinty for DER proponents. Understanding that there may be legitimate technical constraints preventing timely connection – the IESO should consider (in working with the regulator) how to provide clarity to proponents and utitlies alike regarding a standardized connection process, subject to technical limitations.

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How specifically do these barriers prevent you from participating in the IAMs?	Understanding that the IESO's Energy Storage Advisory Group (ESAG) is looking to address barriers related to energy storage within its puview, the following speaks to DERs in general: Chapter 2, Section 2: DERs are not listed as one of the classes of Market Participants. Classes of registered IESO market participants will need to be expanded allow DERs to participate within the IAM. Chapter 2, Section 5: There are no specific prudential requirements for DERs. Prudential requirements should be specifically tailored for DERs. Chapter 4, Section 3 – DER obligations do not exist and should be created for DERs. Chapter 4, Section 5 - Compliance, inspection, testing, and monitoring requirements are not laid out specifically for DERs. Chapter 4, Section 7.3 - Monitoring information requirement for DERs do not exist and should be created for DERs Chapter 5, Section 3 – DER obligations do not exist and should be created for DERs. Chapter 5, Sections 4.2 and 4.3 - may need rule amendments and/or additional rules to permit Ancillary Services supplied by DERs. Chapter 5, Sections 4.4 to 4.6 - may need to be amended to permit broader supply of regulation, OR, and RSVC by DERs. Chapter 5, Sections 4.9 and 4.10 - will need rule amendments specifically for Ancillary auditing/testing of DERs. Chapter 6 – Metering requirements for DERs need to be less stringent

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	Chapter 7 – The current IESO system operations do not consider DERs as part of the IAM. IESO's minimum requirement of generation facilities (including self-scheduling, intermittent generation facilities) is 1 MW. Chapter 9 - needs to be reviewed for changes in settlements resulting from supply of multiple non-energy products from DERs. Chapter 11 - applicable definitions need to be amended and new definitions need to be created (see below for discussion on definition of energy storage)
How significant are each of these barriers in preventing DER participation in the IAMs?	With the ever increasing amount of DERs (specifically energy storage) and advances in modern communication protocols and automation, the barriers identified above should be removed and DERs should be able to interact directly with the IAM. If the barriers identified above remain, then DERs will not be able to effectively participate in the IAM and the benefits to the system that DERs, specifically energy storage, can bring to the system will not be fully realized.

General Comments/Feedback:

The definition of energy storage is an important priority to ensure an effective basis for policy development. While the IESO's Energy Storage Advisory Group identified numerous barriers to energy storage, in order to remove obstacles and give coherence to the process, it is important to provide a clear definition.

Looking at energy storage definitions over the last five years, it is evident that various jurisdictions (including Ontario) have recognized the importance of capturing, as accurately as possible, the varied attributes of storage at different levels of the electricity system.

By looking at various definitions and interpretations across jurisdictions, Energy Storage Canada proposes that the following definition be used in this White Paper (as well all other IESO, OEB and Ministry of Energy releated initiatives):

Recommended Definition of Energy Storage (Ontario)

'Energy storage system' means any commercially available technology that is capable of withdrawing electrical energy from the Transmission or Distribution system, storing it for a period of time, and then dispatching the stored energy by either: (Type 1) Re-injecting the energy back into the Transmission or Distribution system; (Type 2) Using stored energy to displace electricity consumption at a later time; or (Type 3) Converting electrical energy into a storable form of energy or fuel that is subsequently used in sectors such as transportation, gas, or industry. All three types of energy storage systems can also provide ancillary services to the Independent System Operator.

This definition covers all energy storage technologies and applications and provides an inclusive platform for policy development. It also offers latitude for regulations to address barriers across all types, or specific regulations for one type of energy storage solution. For example, regulations for conventional Type 1 energy storage technologies are much further advanced (e.g. FERC 841) and the IESO is focused on this as well with its Energy Storage Advisory Group. Specific regulations for Type 2 energy storage technologies (e.g. thermal) and Type 3 energy storage technologies (e.g. Power-to-Gas

producing hydrogen) may also fall under the regulation of the OEB.

Energy Storage Canada looks forward to further engaging with the IESO through this process and through the Energy Storage Advisory Group and it is our hope that both processes will work in collaboration with one another to ensure consistency.