ENERGY STORAGE ONTARIO

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April 8, 2016

Submission to the Independent Electricity System Operator (IESO)
Stakeholder Advisory Committee
Preliminary Ontario Planning Outlook

Summary

- **Energy Storage Ontario recommends that the IESO more fully integrate energy storage into its Ontario Planning Outlook.**
- **The IESO's preliminary document highlights significant themes of uncertainty and risk. Stronger consideration of energy storage services into the Planning Outlook is a proactive strategic decision to manage the risks raised in the IESO's demand/supply scenarios. This will also optimize and derive the best economic and operational value out of existing resources.**
- **The proven ability of energy storage services to be responsive, flexible and versatile demonstrates the clear system-wide and economic benefits associated with energy storage.**

Introduction

Energy Storage Ontario is pleased to make this submission to the IESO on the Preliminary Ontario Planning Outlook.

Energy Storage Ontario is the voice of energy storage in Ontario - the advocacy organization representing the broad range of companies engaged in the energy storage business in Ontario. We are the only trade association in Canada focused on advancing the role of and building the market for energy storage. Energy Storage Ontario was incorporated in 2014 and has become an important hub for energy storage in Canada. Through networking, knowledge-sharing, advocacy and stakeholder education, we are forging a stronger industry and demonstrating the value and innovation that energy storage can bring to the system.

Our membership represents all players along the value chain -- technology providers, project developers, power generators, local electricity distribution companies, and NGOs. Together, these companies employ thousands of Ontarians who are working to create opportunities for innovation, economic development and jobs through energy storage.

Ontario Planning Outlook

The IESO has carried out important and comprehensive work in developing the Preliminary Outlook discussion document. Energy Storage Ontario acknowledges the challenges posed in assessing the impact of a range of variables over a span of two decades.

There is an evolving supply mix of assets, all of which demonstrate different operating characteristics, and will pose risks during the transition of the supply mix and as a result of the ageing generator fleet.

In addition, there are challenges predicting future demand when issues arise that may have a material impact on the outcome over time, including the effect of carbon policies and further electrification of transportation.

Recommendation on Managing Risks and Optimizing Assets

Energy Storage Ontario recommends that the IESO integrate energy storage into its planning process as a means to mitigate risk and optimize outcomes in planning and implementation.

The Ontario Planning Outlook discussion document specifies a number of risks, but at the same time focuses on potential opportunities that could benefit Ontario's electricity system in the future. The document raises issues related to how to take advantage of opportunities "as they arise."

Energy Storage Ontario recommends that the IESO could better manage risks by adopting strategic choices from the outset that have proven ability to reduce many of these risks. Rather than monitoring and reacting to the impacts as they occur, the IESO can proactively manage the risks it has identified and take the opportunity to use the range of services available through energy storage.

> ***Integrating energy storage services into Ontario's electricity system is a proactive strategic decision to manage this risk, while optimizing and deriving the best value out of existing resources.***

Energy storage offers a flexible, diverse range of services with the following attributes:

1. Responsiveness
2. Flexibility
3. Versatility

The assets that can execute these three attributes well represent the best risk management tool. And these are the same tools that can help optimize Ontario's existing assets by ensuring we make the best use of intermittent renewable generation and reduce unnecessary manoeuvering of nuclear production.

We also note that during the IESO's planning timeframe, there will be continued technological innovation and cost reduction in energy storage.

Value of Energy Storage

Energy storage, with its diversity of applications, adds value at all points in the energy system from generation to transmission to distribution and behind the meter generation. It increases the value of the energy produced by other sources and adds capacity value to the system.

Energy storage optimizes all the resources on the grid, it lowers greenhouse gas emissions, can help defer transmission and distribution system upgrades, and increase grid resilience and efficiency.

Energy storage systems have the ability, instantly, both to absorb excess energy from the electricity grid and insert required energy back into the grid as required. This permits the following to occur:

1. Utilization of Ontario's persistent surplus of low-emission base load generation capacity produced at night into high value areas on the transmission grid and load centers within the distribution grid for use during periods of high demand during the day.
2. Maximization of the value of current energy generation resources and the maximization of the use of existing transmission and distribution assets through reduced congestion in periods of high demand.
3. Rapid growth of the energy contribution of carbon-free energy from intermittent renewable resources, allowing them to be smoothed out and made much more reliable, thereby allowing a greater percentage of them to be introduced into the electricity system.
4. Deployment of local area microgrids that will provide communities with energy resiliency, improving the reliability of local energy supply during climate change induced weather events.
5. Mass adoption of electric vehicles onto Ontario's roads without the need for a complete redesign of the distribution grid, thereby facilitating "energy storage-based vehicle charging stations".

Call to Action: Integrating Energy Storage into the Planning Process

The IESO should integrate energy storage into the Ontario Planning Outlook as a set of tools and services that provide system-wide benefit and yield economic and climate-related advantages. This is prudent risk management in the changing supply and demand scenarios put forth in the IESO's calculations.

In the 2013 Long Term Energy Plan, Ontario offered important direction on energy storage with its 50 MW procurement. These procurements have made Ontario a leading jurisdiction on energy storage in North America.

Energy Storage Ontario believes this is just a starting point. There is clear system-wide benefit and economic benefits associated with energy storage.

Ontario has many of the necessary ingredients to emerge as a global leader in energy storage, including aggressive GHG reduction and low carbon economy policy objectives. With a view to leveraging the most out of the asset base, energy storage can also reduce the need for nuclear maneuvering, increase the useable output of renewables and reduce the use of the gas fleet – thereby also extending the life of those assets.

Rather than being viewed as a potential opportunity in the future, the services and benefits of energy storage should be integrated more definitively into the current planning process. When there are a lot of balls in the air, the most valuable asset is a good juggler. Energy storage has the unique ability to harness these uncertainties and channel them to complement and enhance the transformation of Ontario's electricity system.

Energy Storage Ontario believes this represents the ideal environment for strategic planning of energy storage in the near and longer term.