



March 3, 2020

Independent Electricity System Operator
1600-120 Adelaide Street West
Toronto, ON
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Via email to engagement@ieso.ca

Re: Energy Storage Design Project

The Power Workers' Union ("PWU") represents a large portion of the employees working in Ontario's electricity industry. Attached please find a list of PWU employers.

The PWU appreciates the opportunity to provide input on the Energy Storage Design Project. The PWU is a strong supporter and advocate for the prudent and rational reform of Ontario's electricity sector and recognizes the importance of low-cost energy to the competitiveness of Ontario's economic sectors.

The PWU believes that IESO processes and initiatives should deliver energy at the lowest reasonable cost while stimulating job creation and growing the province's gross domestic product (GDP). We are respectfully submitting our detailed observations and recommendations.

We hope you will find the PWU's comments useful.

Yours very truly,

Mel Hyatt
President

Encl.

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List of PWU Employers

Alectra Utilities (formerly PowerStream)
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AMEC Nuclear Safety Solutions
Aptum (formerly Cogeco Peer 1)
Atlantic Power Corporation - Calstock Power Plant
Atlantic Power Corporation - Kapuskasing Power Plant
Atlantic Power Corporation - Nipigon Power Plant
Bracebridge Generation
Brighton Beach Power Limited
Brookfield Power Wind Operations
Brookfield Renewable Power - Mississagi Power Trust
Bruce Power Inc.
Canadian Nuclear Laboratories (AECL Chalk River)
Collus Powerstream
Compass Group
Corporation of the County of Brant
Covanta Durham York Renewable Energy Ltd.
Elexicon (formerly Whitby Hydro)
Enwave Windsor
Erth Power Corporation (formerly Erie Thames Powerlines)
Erth Corporation
Ethos Energy Inc.
Great Lakes Power (Generation)
Greenfield South Power Corporation
Grimsby Power Incorporated
Halton Hills Hydro Inc.
Hydro One Inc.
Hydro One CSO (formerly Vertex)
Hydro One Sault Ste. Marie (formerly Great Lakes Power Transmission)
Independent Electricity System Operator
Inergi LP
InnPower (Innisfil Hydro Distribution Systems Limited)
J-MAR Line Maintenance Inc.
Kenora Hydro Electric Corporation Ltd.
Kinectrics Inc.
Kitchener-Wilmot Hydro Inc.
Lakeland Power Distribution
London Hydro Corporation
Milton Hydro Distribution Inc.
New Horizon System Solutions
Newmarket Tey/Midland Hydro Ltd.
Nuclear Waste Management Organization
Ontario Power Generation Inc.
Orangeville Hydro Limited
Portlands Energy Centre
PUC Services
Quality Tree Service
Rogers Communications (Kincardine Cable TV Ltd.)
Sioux Lookout Hydro Inc.
SouthWestern Energy
Tillsonburg Hydro Inc.
The Electrical Safety Authority
Toronto Hydro
TransAlta Generation Partnership O.H.S.C.
Westario Power

IESO Energy Storage Design Project Submission

The Power Workers' Union (PWU) is pleased to submit comments and recommendations to the Independent Electricity System Operator (IESO) regarding the Energy Storage Design Project (ESDP) being developed by the Energy Storage Advisory Group (ESAG). The PWU is a strong supporter and advocate for the prudent and rational reform of Ontario's electricity sector and recognizes the importance of planning for low-cost energy solutions to enhance the competitiveness of Ontario's economic sectors.

As an IESO committee, the ESAG is tasked with identifying obstacles and possible solutions for energy storage resources (ESRs) to ensure fair competition. The ESAG contributes to the IESO's work plan and list of priorities regarding storage participation in the IESO administered markets (IAMs), and coordinates discussions on these topics. On February 4th, the ESAG released a draft design document detailing the design changes required for energy storage resources to participate in the IAMs in the near term. On February 18th, the IESO met with stakeholders to explain these design elements.

The PWU believes that it would be prudent for the IESO to undertake the following actions with respect to the Energy Storage Design Project:

1. Form a business case for the energy storage design project, including a cost-benefit analysis;
2. Exclude self-scheduling storage devices from the IAMs; and
3. Delay the integration of storage into the IAMs until the benefits of doing so are proven.

Recommendation 1: Form a business case for the Energy Storage Design Project, including a cost-benefit analysis

- a. **The magnitude of the changes warrants a business case.** In the February 18th meeting, IESO stated that integrating storage is the greatest transformation to the IAMs in a long time. This is concerning given that these changes are not motivated by a policy directive, business case or cost-benefit analysis, and as such, it is not clear what their actual benefits would be. IESO should quantify the benefits of integrating storage to the IAMs and judge them against their costs to the system before making such important changes.
- b. **The business case should consider the full implications to the global adjustment (GA).** In the February 18th meeting, IESO stated that they would not consider how integrating storage in the IAMs would affect the GA. The PWU disagrees with this notion and believes IESO should consider the impacts of these changes to the GA, along with other costs that would be created as a result of integrating storage. Such costs would form a necessary component of the cost-benefit case for integrating ESRs.

Recommendation 2: Exclude self-scheduling storage devices from the IAMs.

Because their generation is not dispatched by IESO, self-scheduling ESRs have the potential to create reliability issues for the system. IESO should refrain from integrating these resources into the IAMs until these issues can be addressed.

- a. **The inclusion of self-scheduling ESRs into the IAMs creates potential reliability risks that are likely to outweigh their benefits.** The ability for self-scheduling ESRs to schedule their generation at their own discretion could effectively make them intermittent resources. Adding more intermittency to Ontario's grid would only increase the need for regulation services, adding further costs to the system. This comes at a time when the need for regulation services is already increasing, in part due to the effects of the self-scheduled ESRs that already exist on the grid.
- b. **Ontario's need for regulation services is already increasing.** At a meeting for the OEB's DERs Connections Review on December 16th, a utility stakeholder said that sudden load displacement by large loads can cause voltage problems for nearby customers. This behavior is likely a symptom of an existing use of self-scheduling ESRs in Ontario, where large industrial customers take advantage of the industrial conservation initiative (ICI) by using ESRs to reduce their load from the grid at a few peak hours. It should therefore come as no surprise that at the February 18 ESAG meeting, the IESO said it was now seeking more energy regulation services. At a time when more regulation services are already needed, the IESO should not be integrating into the IAMs resources that will cause further reliability issues.
- c. **Allowing self-scheduled ESRs to both provide real time energy and regulation services could create a self-perpetuating reliability problem.** ESRs increase the need for regulation services, which could be met in part by further self-scheduled ESRs. These new entrants would be driven to revenue stack, and, therefore, enter the real time energy market, creating further reliability issues, and thus further demand for more regulation services. This new demand for regulation services would in turn be met in part by more self-scheduling ESRs. The inclusion of self-scheduling ESRs into the IAMs could therefore cause a self-perpetuating reliability problem, resulting in greater need for regulation services, and adding more costs to the system. Self-scheduling ESRs could therefore drive up costs to fix a reliability problem that they themselves caused, and could have been avoided in the first place.

Recommendation 3: Delay the integration of storage into the IAMs until the benefits of doing so are proven.

- a. **IESO has already stated that allowing storage to participate in multiple markets may be sub-optimal for the system.**¹ This begs the question of why IESO is spending resources on integrating ESRs into the IAMs in the first place. The IESO has also stated that storage should be dispatchable, and that it is only allowing self-dispatch at this time because the IESO's software cannot yet accommodate dispatching ESRs in all cases.^{2,3} These comments suggest that

¹ IESO. Energy Storage Design Project Draft Design Document for Stakeholder Comment. Page 17.

² IESO. Storage Design Project (SDP): Overview of Interim Design Features. February 18th, 2020. Page 35.

³ IESO. Energy Storage Design Project Draft Design Document for Stakeholder Comment. Page 15.

integrating ESRs could be a net cost to the system. If this is the case, then IESO should refrain from doing so until a net benefit is clear.

- b. **There is no urgency to integrate ESRs in the IAMs.** Judging by the design project's aggressive timelines, the IESO appears to consider integrating ESRs as a matter of urgency. The PWU questions whether this urgency is justified. Absent any policy intervention, ESRs will continue to proliferate due to the ICI program. There is no need to provide additional incentives for ESRs to enter the market. IESO has the time to do a business case and determine whether the integration of ESRs would in fact be beneficial and those benefits would be realized by the system.

Concluding Remarks:

The PWU has a successful track record of working with others in collaborative partnerships. We look forward to continuing to work with the IESO and other energy stakeholders to advance innovation across Ontario's electricity system. The PWU is committed to the following principles: Create opportunities for sustainable, high-pay, high-skill jobs; ensure reliable, affordable electricity; build economic growth for Ontario's communities; and, promote intelligent reform of Ontario's energy policy.

We believe these recommendations are consistent with, and supportive of the objectives for supplying low-cost and reliable electricity in Ontario. The PWU looks forward to discussing these comments in greater detail at the IESO's convenience.