POWER WORKERS' UNION

May 13, 2021

Independent Electricity System Operator
1600-120 Adelaide Street West
Toronto, ON
M5H 1T1

Via email to engagement@ieso.ca

Re: April 2021 Hybrid Integration 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 April 2021 Hybrid Integration Project engagement. 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, low-carbon 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,

Jeff Parnell
President

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List of PWU Employers

Alectra Utilities (formerly PowerStream)
Algoma Power
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

Power Worker's Union Submission to the IESO's April 2021 Hybrid Integration Project Engagement

May 13, 2021

The Power Workers' Union (PWU) is pleased to submit comments and recommendations to the Independent Electricity System Operator (IESO) regarding the Hybrid Integration Project, part of the IESO'S Enabling Resources Initiative. 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-carbon, low-cost energy solutions to enhance the competitiveness of Ontario's economic sectors.

The current interest in hybrid resources (i.e., combinations of storage and generation) is driven by Ontario's capacity gap that will emerge by 2026 and a potential solution by linking storage to the expiring contracts of wind and solar resources. These kinds of hybrid resources are classified in two categories based on the way they participate in the market behind a single connection point—as a single resource, or as separate resources. The focus on market integration of hybrid resources is part of the IESO's broader Enabling Resources engagement.

The hybrid resources concept originated from the IESO's Storage Design Project engagement and was subsequently deferred. The Hybrid Integration Project engagement re-starts this previous initiative and is focused on developing models to enable these hybrid resources to participate in IESO-Administered Markets (IAMs). This engagement will culminate with a Hybrid Integration Vision Document targeted for completion in Q1 2022.

At this early stage, the engagement is focused on finalizing definitions for hybrid resources and developing the next steps in the engagement process. The IESO has requested feedback on: draft definitions; proposed market participation models; assumed implications for investor decisions; and, proposed timelines for this project.

The PWU appreciates the IESO's efforts to broaden the types of energy resources that can participate in Ontario's electricity market while helping to meet Ontario's emerging capacity needs. The PWU believes the following recommendations will contribute positively to the achievement of these important objectives. The IESO should:

1. Maintain a technology-neutral definition of hybrid resources;
2. Develop rules that permits the procurement and participation of low-carbon generation paired with distributed storage;
3. Require hybrids to be dispatchable and de-prioritize treatment of separately controlled co-located facilities; and,
4. Accelerate the schedule to align this IESO initiative with the Annual Acquisition Report (AAR) process and the associated objectives for the mid-term and long-term competitive mechanisms.

Recommendation #1: Maintain a technology-neutral definition of hybrid resources

As previously noted, hybrid resources are defined in broad terms as a single resource i.e., a mix of generation and storage. However, some jurisdictions (e.g., NYISO[1]) have chosen to restrict the definition of hybrid resources to allow only intermittent renewables as the source of generation. New York's

[1] IESO, Hybrid Integration Project April engagement, 2021

approach "picks technology winners" precluding other technologies that could provide lower-carbon, lower cost electricity. Ontario's IESO – consistent with other jurisdictions including CAISO[2] – has instead proposed a technology-neutral definition of hybrid resources which allows any source of generation.

The PWU supports the IESO's decision to adopt a technology-neutral definition of hybrid resources.

Recommendation #2: Develop rules that permits the procurement and participation of low-carbon generation paired with distributed storage

The IESO sees the potential for generation – particularly wind and solar resources with expiring contracts – paired with storage behind a single connection point to help meet Ontario's emerging capacity gap. The IESO has distinguished between "Co-located Facilities" (generation and storage resources at a single facility that participate as separate resources in the IESO market) and "Hybrid Facilities" (generation and storage resources at a single facility that participate as a single resource in the IESO market). While the PWU supports the notion of Hybrid Facilities, the IESO should not restrict the participation of hybrid resources to only those located behind a single connection point.

Studies have shown that distributed storage paired with centralized generation (e.g., generation at one location paired with community storage in several locations) can provide many of the benefits of distributed generation and storage – meeting capacity needs and better utilizing transmission and distribution assets – at a competitive cost.[3] The IESO's treatment of Virtual Hourly Demand Response (HDR) resources in the current auctions could provide a model for this approach. The PWU is concerned that IESO's focus on resources located behind a single connection point may lead to rules which preclude the procurement and/or participation of these innovative hybrid configurations in the IIAMs. This would reduce potential low-cost, low-carbon resource options for helping meet Ontario's emerging needs.

The IESO should include centralized generation paired with distributed storage while undertaking the Hybrid Integration Project engagement and ensure that the rules do not disadvantage these options. Expanding the scope to include these options would act as an incentive for investors to act on this hybrid option.

Recommendation #3: Require hybrids to be dispatchable and de-prioritize treatment of separately controlled co-located facilities

A simplified approach to IAM design would require all hybrid resources to be 100% firm and dispatchable for the capacity being offered i.e., maximizing the extent to which the hybrid resources can be accommodated within the existing market framework. Simplifying the IAM designs could accelerate the timetable enabling the early participation of these resources and could potentially minimize required changes to the market rules.

Such a dispatch requirement would encourage developers to integrate these assets and provide fully dispatchable resources as single entities for any given connection point. This would reduce IESO's IAM design complexity, reduce implementation costs and mitigate the IESO's near term human resources

[2] IESO, Hybrid Integration Project April engagement, 2021

[3] Strapolec, Advancing Ontario's Energy Transition: Electrification Pathways, 2021

challenge. Assumptions to minimize complexity on the IESO's behalf are important given the urgent need to address Ontario's near-term capacity gap.

Options involving multiple IAM participants behind a single connection point should be treated with a lower priority if they add complexity to the IAM.

Recommendation #4: Accelerate the schedule to align this IESO initiative with the Annual Acquisition Report (AAR) process and the associated objectives for the mid-term and long-term competitive mechanisms

Ontario's emerging capacity gap is primarily due to the loss of baseload capacity e.g., the retirement of the 3,000 MW Pickering Nuclear Generation Station.[4] The need to replace this large source of low-carbon capacity is becoming increasingly urgent.

The IESO's AAR initiative is intended to detail the steps and options for addressing this gap while the IESO concurrently develops mid-term competitive mechanisms that will provide near-term solutions to Ontario's sustained capacity challenge.

The degree to which hybrid resources can help make more efficient use of generation capacity and reduce the needs for dedicated peaking capacity could inform the AAR, and vice versa, and help guide the mid-term competitive mechanism process.

Closing

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.

Requested Feedback Areas

Feedback Requested	**Feedback Mapping**
Does the proposed definition of 'Co-located Facility' make sense? Is there anything further that should be considered?	Allowance for co-located facilities should be deprioritized as defined in **Recommendation #3**
Does the proposed definition of 'Hybrid Facility' make sense? Is there anything further that should be considered?	Hybrid facilities are appropriate however consideration should be given to virtual hybrids leveraging distributed storage as defined in **Recommendation #2**
What information do stakeholders need to evaluate the potential of Hybrid Resource	Investors require a clear understanding-scope/timing-of what the IESO requires. The AAR

[4] IESO, Annual Planning Outlook, 2020

investments as we evolve our resource adequacy needs?	and competitive mechanisms provide the best incentives for such investments. mechanism for integration. Simple nearer term solutions as defined **in Recommendation #3 and #4** are helpful
Do the timelines and deliverables for the Hybrid Integration Project make sense?	Timelines should be accelerated as much as practicably possible to support the AAR and mid-term competitive mechanisms by advancing simpler IAMs solutions first. See **Recommendation #4**
Are stakeholders supportive of the objectives and approach detailed in the draft Hybrid Integration Project Engagement Plan?	PWU is supportive of the objectives with caveats on the approach as defined by the PWU's **Recommendations**.