POWER WORKERS' UNION

July 15, 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

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OF PUBLIC EMPLOYEES,
LOCAL 1000, C.L.C.

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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, environmentally responsible energy to the competitiveness of Ontario's economic sectors.

The PWU believes that IESO processes and initiatives should deliver environmentally responsible 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

List of PWU Employers

Abraflex (2004) Ltd.
Alectra Utilities (formerly PowerStream)
Algoma Power
Aptum (formerly Cogeco Peer 1)
Atlantic Power Corporation - Calstock Power Plant
Atlantic Power Corporation - Kapuskasing Power Plant
Atlantic Power Corporation - Nipigon Power Plant
Atura - Halton Hills Generating Station
Atura - Napanee Generating Station
Atura - Portlands Energy Centre
Bracebridge Generation
Brookfield Power Wind Operations
Brookfield Renewable Power - Mississagi Power Trust
Bruce Power Inc.
Canadian Nuclear Laboratories (AECL Chalk River)
Cochrane Telecom Services
Compass Group
Corporation of the County of Brant
Covanta Durham York Renewable Energy Ltd.
Elexicon (formerly Whitby Hydro)
Enwave Windsor
EPCOR Electricity Distribution Ontario Inc.
Erth Power Corporation (formerly Erie Thames Powerlines)
Erth Holdings Inc
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)
Kinectrics Inc.
Kitchener-Wilmot Hydro Inc.
Lakeland Power Distribution
Laurentis Energy Partners
London Hydro Corporation
Milton Hydro Distribution Inc.
New Horizon System Solutions
Newmarket -Tay/Midland Hydro Ltd.
Nuclear Waste Management Organization
Ontario Power Generation Inc.
Orangeville Hydro Limited
PUC Services
Quality Tree Service
Rogers Communications (Kincardine Cable TV Ltd.)
Sioux Lookout Hydro Inc.
SouthWestern Energy
Synergy North Corporation
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.

The ESAG is tasked with identifying the 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 June 24th, the ESAG held a webinar during which they notified stakeholders of their market rule and manual changes for the interim period, and presented their recommended approach towards uplift charges for ESRs.

The PWU appreciates the focus the IESO placed on cost implications to consumers when they drafted their policy regarding uplift costs for storage. However, the illustrative argument presented by the IESO has not considered a number of complexities that require further investigation. The PWU recommends the following:

Recommendation: Perform a rigorously constructed, cost-benefit analysis of the impact (s) for consumers arising from exempting storage from uplift charges

The PWU is concerned that the IESO's decision to exclude ESRs from uplift charges will result in significant cost implications for consumers. It would be prudent for the IESO to perform a more thorough cost-benefit analysis of these potential impacts before finalizing their decision. Specific attention should be paid to three cost elements: the potential for ESRs to increase uplift charges on other loads; the technical costs implications of distinguishing ESRs from non-exempt loads; and, the potential impacts of uplift charge exemptions on the market clearing price.

1. ESR behaviors may result in greater uplift charges being allocated to consumers.

Uplift charges arise from several primary drivers: congestion management; day ahead and real time scheduling cost guarantees; and, ancillary services. All these cost elements relate either to high demand situations or times when electricity demand changes in unexpected ways. Uplift charges are charged to loads. Whether an ESR is dispatchable or self-scheduling affects the validity of an uplift charge being applied.

The PWU believes that the IESO's logic regarding uplift charge exemptions should apply for dispatchable resources (both charging and discharging) since the IESO would refrain from dispatching them at times when doing so would increase costs to the system. In all cases, ESRs dispatched by the system operator, would provide a service, e.g., an ancillary service and therefore be justified in having their uplift waived.

However, this would not be the case for self-scheduling ESRs, who manage their charging and discharging independently. These resources may charge or discharge at times that, for whatever reason, increase costs to the system that must be recovered through uplift. If the associated uplift costs are not charged to the ESRs, the consequential costs of the self- scheduled ESR behavior will be born by other

ratepayers. If these costs outweigh any benefits that the ESR provides to other ratepayers, they would not be providing a "service" on a net basis. In such cases, the PWU sees no justification for uplift charge exemptions. Self-scheduling ESRs could exercise discretion when charging their resources to avoid times of high uplift, such as at night when prices are also low. The ESRs may not have sufficient visibility or control over times when uplift charges are increasing or being applied raises the need to consider other factors, as the IESO has done.

2. There are cost implications in distinguishing ESRs from other, non-exempted loads.

The IESO considered the possibility of exempting only fuel related costs from uplift charges. However, the IESO stated that there are feasibility concerns when only fuel load costs are exempted from uplift charges, as there may be other loads at an ESR's connection point that may not be eligible for the exemption. Many of Ontario's existing grid-connected ESRs have been deployed for the industrial conservation initiative (ICI). By their nature, these ESRs are connected with other loads, meaning they would need separate metering arrangements to distinguish the associated uplift requirements.

The IESO has presented separate meters and financial proxies as possible solutions. The PWU suggests both approaches represent undetermined costs to the electricity system. These costs would inevitably be recovered from the market, and hence ratepayers, and may have a bigger impact than the uplift charges being discussed. As with the other elements of the energy storage design project with unclear costs, the PWU recommends that a business case be done to determine the cost-benefit to consumers.

3. The impact of uplift charge exemptions on the market clearing price is unclear.

The PWU appreciates that the IESO has considered the consumer cost implications of applying uplift costs to storage. In one scenario, the IESO applied uplift charges to ESRs that get recycled back into the markets thereby increasing costs for the entire market-based supply due to market design. The driving premise of ESR participation in the energy market is the ability to enact energy price arbitrage by charging when costs are lower and selling when prices are higher. The impact of uplift charges manifests when the ESRs try and sell into the market. [1] Two scenarios based on the market needs for capacity illustrate where exempting ESRs from uplift charges may not result in the outcome suggested by the IESO.

Scenario 1: Storage is <u>not</u> the marginal price setter. The costs to consumers will be determined by the price of natural gas-fired generation.

> When ESRs are able to offer electricity at a lower price than competing options, such as natural gas-fired generation, the overall costs to consumers are unaffected as the market cost will be determined by the highest winning bid. Today, most grid connected ESRs participate in the ICI program—their variable energy cost is the off-peak market price when they charge. Currently, the existing system surplus situation, means the arbitrage value that an ESR can derive from the market significantly exceeds the uplift costs. The application of uplifts to ESRs, therefore only impacts the profit returns of the ESR operators at the expense of other ratepayers. Current forecasts suggest that by 2025, natural gas-fired generation may be on the margin most of the time, reducing, but not eliminating, the arbitrage benefit for ESRs.

[1] Uplift charges have no impact on capacity market outcomes as they should be ineligible cost factors.

Scenario 2: Storage is the marginal price setter, costs to consumers are increased.

> After 2025, there may be peak demand times when all-natural gas-fired generation capacity is being utilized, and storage is the only other resource available to meet incremental demand. Storage could conceivably set the marginal price and the recovery of its uplift charges could raise the market clearing price for all generation in the market as the IESO has suggested. In this situation, an uplift charge exemption could conceivably decrease costs to consumers.
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> However, even under peak demand conditions, natural gas-fired generation would only represent about 35% of Ontario's total energy supply mix. The remaining generators are governed by fixed or regulated prices, meaning their earnings above the marginal price would be rebated back to IESO. The cost to the consumer would only be the increase in price on a third of the generation mix – much less than IESO suggests. These peak conditions are also unlikely to occur more frequently than 1% of the time. There may be negligible consumer cost impact, whereas, the risk of uplift charges being exacerbated by ESR charging may more frequently impact costs for other consumers.
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> Given that this IESO scenario may only occur rarely, the cost of undertaking the system changes required to avoid charging uplifts to ESRs may not be justifiable.

These two scenarios indicate that the IESO's conclusion that exemption of ESRs from uplift costs will always result in lower prices for consumers is uncertain and presents significant unmitigated cost risks. The IESO should undertake a proper and rigorous assessment of the various conditions and outcomes associated with exempting ESRs from uplift charges and how this will affect the market clearing price. In this regard, the following factors should be considered: 1) the expected frequency and time duration when natural gas-fired generation is on the margin; and, 2) the periods in which these conditions will be present and how that impacts on other system functions and costs that self-scheduling ESRs will be providing, such as services under the ICI.

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, environmentally responsible 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.