May 2, 2022

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

Via email to engagement@ieso.ca

Re: Long-Term 1 (LT1) Request for Proposal (RFP) April Engagement

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 ongoing input on the IESO's LT1 RFP design as it progresses. 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 has identified that the LT RFP is introducing several risks to the near- and long-term affordability, reliability, and emissions objectives for Ontario's electricity system. 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

Power Workers' Union Submission on the IESO's April 2022 Long Term RFP Stakeholder Engagement

May 2, 2022

The Power Workers' Union (PWU) is pleased to submit comments and make recommendations to the Independent Electricity System Operator (IESO) regarding the latest update on its design of the Long Term (LT) Request for Proposal (RFP) options. The PWU remains 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, low-carbon energy solutions to enhance the competitiveness of Ontario's economy.

Over the course of the IESO's 2022 LT RFP stakeholder sessions, the PWU has emphasized several themes which remain valid for the current procurement option designs:[1]

- Substantial risk exists that the IESO's LT RFP will not acquire the necessary resources in time, potentially leaving Ontario with insufficient capacity, higher costs, and the increased risk of brownouts and higher emissions;
- The IESO should focus on directly procuring storage to provide long-term flexible capacity to enable the eventual displacement of natural gas-fired generation and/or at a minimum counterbalance the expansion of gas-fired generation;
- The IESO should look at the most effective mechanisms for achieving the new capacity goals and remove procurement criteria related to the Ontario energy market;
    - The IESO's alternative pricing mechanisms are complex attempts to mimic Power Purchase Agreements (PPAs) in an energy market context that entails constant uncertainty and risk, increased operational complexity (and cost) and the associated higher premiums that the IESO has signaled it is willing to entertain.
    - PPAs and Contract for Difference (CfDs) are inferior risk balancing mechanisms compared to regulated models such as how OPG asset costs are managed.
- Flexible timeframes for the resulting contracts should allow for the differing economic life of the proposed assets and allow for technology specific options to optimally reduce ratepayer costs;
- The procurement approach significantly favours gas-fired generation which is facing growing public opposition, higher costs and the risk of stranding assets, especially for baseload applications; and,
- The procurement approach should be optimized so as to minimize transmission system impacts and costs.

The IESO is clearly signaling the urgency of Ontario's pressing capacity needs. The IESO has outlined multiple procurement options for 5500 MW to 6500 MW of effective capacity by 2030, instead of the previous March 2022 target of 1000 MW, and now places urgent priority on the 2025 to 2027 timeframe.[2] With the introduction of the Expedited RFP and Technology Expansion approach for 2025 in-service capacity, the LT1 RFP for 2027 in service capacity, and the LT2 RFP for 2030 in service capacity, the IESO is finally pulling out the stops to address Ontario's reliability needs. The IESO has indicated that it will entertain cost premiums and incentives to help meet these requirements. The PWU believes that the IESO can further reduce the risks to Ontario's electricity system—reliability, costs and emissions—by more broadly identifying and aggressively pursuing mitigation options. In response to the newly

[1] PWU submissions to the IESO on the LT RFP stakeholder engagement sessions, February and March, 2022.
[2] IESO, LT RFP Stakeholder Engagement Session materials, April 20, 2022.

released 2022 AAR, the PWU has identified several such options that are relevant to the LT RFP approach and would help reduce the above noted risks as well as the cost of premiums and incentives:[3]

- Confirm the capacity benefits of renewing the biomass and hydro resources in the north to reduce the need for additional new capacity procurements for in-service operations in 2025;
- Encourage LDC-located storage options and storage at existing generation sites, such as OPG's Pickering Nuclear Generation Station (PNGS) to maximize the benefits of existing distribution and transmission infrastructure;
- Quantify the cost risks of the gas-fired generation biases in the IESO's current RFP designs; and,
- Immediately commence the RFP process for the capacity required in 2030 and 2035 to provide the most flexible timelines for their development and to allow for maximizing the associated societal benefits, e.g., jobs and GDP.

The PWU also adds the following recommendations:

1) The IESO should work with government to adjust the criteria for current and future participation in the Industrial Conservation Initiative (ICI) to allow the IESO to dispatch the associated "Behind the Meter" resources at system peak times;
2) The IESO procurement should explore options for capturing the potential for Electric Vehicles (EVs) to provide demand response and/or peak supply to mitigate capacity needs;
3) Separate the capacity needs for four consecutive hours or less supply from the capacity that must supply for longer periods of continuous supply to maximize the competitive opportunities for non-natural gas-fired generation;
4) Ensure that the Request for Qualification (RFQ) provides flexibility by requiring participants to characterize how compensation can be structured to minimize the costs for ratepayers; and
5) The IESO should objectively evaluate how its market-based mechanisms and constructs introduce barriers to securing the requisite new capacity when needed at the lowest cost and identify mitigating alternatives for this capacity.

Detailed Recommendations

Recommendation #1 - The IESO should work with government to adjust the criteria for current and future participation in the Industrial Conservation Initiative (ICI) to allow the IESO to dispatch the associated "Behind the Meter" resources at system peak times.

The IESO 2021 APO assumes that the ICI program will reduce the top five system peak-hour demand by 1300 MW. This is less than the 1600 MW assumed in the IESO's 2019 APO. Analyses suggest that over 2500 MW of peak shaving capacity may already be installed in Ontario.[4] The IESO also forecasts that the response from the ICI will be constant over the 20-year outlook period in spite of the continual increase in ICI participant adoption of Global Adjustment busting mechanisms. This suggests that significant additional capacity may become available.

[3] PWU submission to the IESO on the 2022 Annual Acquisition Report (AAR), April 2022.
[4] Derived from the costs shifted to Class B customers and the OEB Market Surveillance Panel Assessment of the per MWh benefit of the ICI programs to participants.

Enabling the IESO to dispatch ICI resources would be similar to providing demand response services, potentially with less complexity through the use of intermediaries. This would help ICI participants optimally meet the peaks, reduce their risk of not maximizing the ICI benefits, and help guarantee a required state of charge in the storage assets.

Revisiting the terms of the rate program with government could enable the IESO to unlock 1200 MW of available capacity with no cost to ratepayers, contribute significantly to meeting the currently identified 2025 needs and address Ontario's objectives for the IESO.

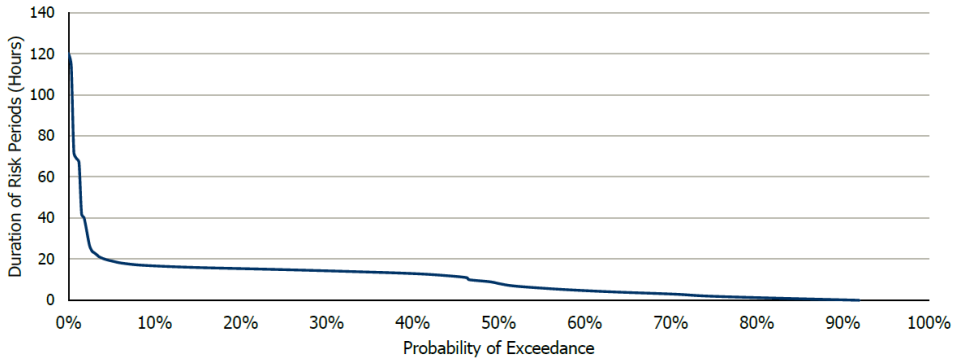
Recommendation #2 - The IESO procurement should explore options for capturing the potential for EVs to provide demand response and/or peak supply to mitigate capacity needs;

On average, EVs could provide ~10 kW per hour of discharge capacity over 4 hours, for a total of 40 kWhs.[5] As little as 10% of the one million EVs expected to be on the road in 2030 could produce 1300 MW of peaking capacity.[6] The dispatch of these assets through an aggregator of home energy management systems could be implemented in similar fashion to demand response. Other forecasts suggest almost 3 million vehicles could be on the road by 2035.[7]

The advent of multiple pro-EV policies and bidirectional chargers represents an opportunity for the IESO. It is conceivable that 500 MW of capacity could be accessible by 2027. Analyses show that EV capacity will be much less costly than gas-fired generation but not likely contractable using the IESO's proposed procurement mechanisms. The IESO should consider alternative approaches for securing this type of capacity.

Recommendation #3 - Separate the capacity needs for four consecutive hours or less supply from the capacity that must supply for longer periods of continuous supply to maximize the competitive opportunities for non-natural gas-fired generation.

The IESO's AAR notes that 30% of Ontario's capacity need requires supply four hours or less as illustrated below. The IESO should specify how much capacity is required along this curve.



[5] Strategic Policy Economics, "EV Batteries Value Proposition for Ontario's Electricity Grid and EV owners", 2020;
[6] Strategic Policy Economics, "Electrification Pathways for Ontario", 2021;
[7] Nuclear Innovation Institute and PlugNDrive Joint Study, June 2021

Segregating the needed capacity by the different consecutive hour energy requirements could provide more flexible procurement options. For example, the IESO could specify how much capacity must be reliably provided for four consecutive hours and how much is required for additional hours. This could enable developers to propose more flexible options.

For example, options such as storage are more cost effective as the consecutive hour energy requirements decrease. This approach would create a more competitive procurement than simply providing gas-fired generation with a competitive advantage via the rated criteria currently being proposed by the IESO. Segregating the capacity by the type of supply has been previously recommended by the PWU, e.g., for baseload, intermediate, and peaking/reserve type capacity needs.[8]

Recommendation #4 – Ensure that the RFQ provides flexibility by requiring participants to characterize how compensation can be structured to minimize the costs for ratepayers**.**

The IESO's challenge in defining the compensation framework for subsequent contracts is to instill investor confidence and reduce costs for ratepayers. This requires the IESO to de-link RFP criteria that impacts investor confidence from criteria related to how the IESO will operationally dispatch the assets. These conflicting objectives underpin the complexity inherent in finding PPA derivatives that will meet the IESO's needs. The PWU has previously recommended that the IESO should be open to regulated pricing models that are not compatible with electricity markets, such as those used for many of OPG's assets.[9]

The IESO's RFQ should include a question(s) about the compensation needs of proponents and leave the RFP open to bidder defined terms without constraints. This approach provides an alternative to the incentives currently being considered by the IESO for the expedited and technology expansion procurement options.

Recommendation #5 - The IESO should objectively evaluate how its market-based mechanisms and constructs introduce barriers to securing the requisite new capacity when needed at the lowest cost and identify mitigating alternatives for this capacity.

A potential barrier to achieving Ontario's needs through the IESO's market-based mechanisms includes the IESO requirement that new capacity function within energy markets – noting that over 90% of Ontario's energy is currently driven by rules based dispatched irrespective of the market price. The PWU has previously advised the IESO of the inherent risks with its market-based approach that precludes the acquisition of non-emitting supplies and requests the IESO to objectively assess the reliability, cost and emission implications of its practices.[10]

---

[8] PWU submissions to IESO resource adequacy stakeholder engagements, 2019-2021; PWU submission to the MENDM LT planning consultation, 2021; Strategic Policy Economics, "Electrification Pathways for Ontario", 2021.
[9] Strategic Policy Economics, "Electricity Markets in Ontario", 2020.
[10] PWU submissions to the IESO Resource adequacy stakeholder engagements, 2020 to 2021; Strategic Policy Economics, "Electricity Markets in Ontario", 2020.

Any such examination should include the objective consideration of the impact of not having PPA type contracting provisions for capacity with high fixed and low marginal costs. The fact that the IESO has noted several challenges associated with its exploration of alternative revenue models for its procurement approach is indicative of this challenge. Their analysis should recognize that the energy market will be healthy for at least a decade as the natural gas fleet operates at record capacity factor levels. The market will be insensitive to new capacity that operates differently, e.g., storage which could be procured at a fixed capacity price and dispatched like demand response.

The IESO should also address how it is trading off societal benefits against the establishment of an "ideal" functioning of the IESO administered market.

Finally, the IESO should use this analysis to reflect carefully on the relationship between the IESO's practices and the current emergent crisis and the applicability of the lessons learned as Ontario decarbonizes its economy. The results of the assessment should be made public.

Closing

The IESO should examine and assess the aforenoted risks associated with its proposed procurement approach, shift to the direct procurement of urgently required capacity, and ensure that Ontario's later capacity procurement needs reflect the energy transition priorities as they emerge over the course of 2022.

The PWU has a successful track record working with others in collaborative partnerships. We look forward to continuing to work with the IESO and other energy stakeholders to strengthen and modernize 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 Ontario's objectives to supply low-cost and reliable electricity for all Ontarians. The PWU looks forward to discussing these comments in greater detail with the IESO and participating in the ongoing stakeholder engagements.