April 27, 2022

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

Via email to engagement@ieso.ca

Re: 2022 Annual Acquisition Report (AAR) 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 input on the 2022 AAR. 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 AAR 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 2022 Annual Acquisition Report

April 27, 2022

The Power Workers' Union (PWU) is pleased to submit comments and make recommendations to the Independent Electricity System Operator (IESO) regarding its 2021 Annual Acquisition Report (AAR). 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.

The IESO issued the 2022 AAR on April 8th and has invited stakeholders to comment on the outlined procurement mechanisms or any other aspects of the AAR. The PWU supports the IESO's initiative to address Ontario's urgent pressing electricity generation capacity gap as previously noted by the PWU.[1] This IESO initiative is intended to develop 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 to now place urgent priority on the 2025 to 2027 timeframe.[2] The IESO's four proposed mechanisms are well segregated with respect to the needs being addressed:

- An Expedited RFP to secure, by the end of 2022, 500-1000 MW to be in service by 2025;
- A Technology Expansion approach to secure 500-1000 MW from existing facilities by 2025;
- LT1 RFP to be issued by the end of this year to secure 2500 MW to be in service by 2027 including incentives to deliver by 2025; and,
- A second LT2 RFP to be issued at an undisclosed date to secure 1500 MW to be in service by 2030.

While the IESO is appropriately focused on Ontario's near-term objectives, the proposed approach could undermine their achievement and introduce foreseeable, long-term risks to the affordability, reliability, and decarbonization of the province's electricity system.

The PWU recommends that the IESO consider options to reduce these near and long-term risks:

Near-Term Risks

1. Confirm the IESO's intent to renew the contract for the Atikokan Generating Station (AGS) before releasing the Expedited RFP.
2. Include criteria that enable distributed, IESO-dispatchable storage facilities, optimally located within local distribution company territories by 2025, particularly in the regions east of the Flows East to Toronto (FETT) transmission interface.
3. Include criteria that enable existing site locations for large scale storage by 2027.
4. Reframe the procurement approach to eliminate the bias for gas-fired generation to reduce risk and to facilitate future proofing options.

Long-Term Risks

5. Long-term asset procurements (2027 and beyond) should be structured to address the drivers and changing conditions for the required capacity.

[1] PWU, Feedback on 2021 APO Engagement, January 2022.
[2] IESO, LT RFP Stakeholder Engagement Session materials, April 20, 2022.

6. Demonstrate the appropriateness and consequences of the inherent bias for gas-fired generation in the IESO's current approach.
7. Ensure the designs for the RFPs to be issued in 2022 reflect and address the cost risks associated with the IESO's procurement approach.
8. Immediately commence the procurement process for securing the resources required to meet the known infrastructure needs for Ontario's future energy system for 2030 and beyond – low-cost, low-carbon, long economic life span system assets.

Mitigating Near-Term Risks

The IESO has structured an Expedited procurement mechanism and a Technology Expansion procurement option to help meet the 2025 needs in acknowledgement of the significant risks associated with securing Ontario's near-term capacity. The IESO's surveys also indicated that the available resource options for meeting the 2025 needs may be limited. These circumstances have prompted the IESO to seek feedback on the possible need for incentives that will address these near-term requirements and mitigate the associated risks. This indicates that the IESO recognizes that a premium will have to be paid by ratepayers to mitigate the unaddressed risks that have accumulated over the last ten years.[3] The PWU continues to be concerned that the IESO's proposed approach will favour new gas-fired generation and that a premium will be paid to procure it. The PWU believes the following recommendations will help to mitigate these near-term risks.

Recommendation #1 - Confirm the IESO's intent to renew the contract for the Atikokan Generating Station before releasing the Expedited RFP.

The AAR recognizes that the renewal of contracts for biomass generating facilities in the north, the largest being the 205 MW AGS, has not yet been confirmed. The AAR notes that the capacity of these biomass assets is not considered to be available in the IESO's resource needs assessment. The IESO is seeking a minimum target of 500 MW under its Expedited RFP option to secure needed capacity by 2025 and is prepared to pay premiums to secure it. Expediting the contract renewals for the existing 285 MW of biomass capacity could meet almost 60% of the electricity needs in the north. Analyses have shown that renewing the contract for the AGS is a cost-effective alternative to new gas-fired generation options.[4] This would provide flexible, dispatchable low-carbon, generation that meets all of the IESO's requirements. Modeling also indicates that expanding operations at the AGS would deliver even greater benefits to the IESO and the well-established, local biomass supply chain.

Concurrently, the IESO is pursuing contract renewals for approximately 1125 MW of existing hydro assets (72 facilities) owned by 33 companies.[5] Some of these assets are no longer operating as their IESO or OEFC contracts have already expired. Renewing 125 MW of retired hydro assets along with the biomass assets could address 80% of IESO's immediate needs. Participants in the Expedited and LT1 RFP should be fully aware of the actual procurement need after these factors are taken into account.

[3] PWU, Feedback on 2021 APO Engagement, January 2022.
[4] Strategic Policy Economics, "Extending Atikokan Biomass Generating Station (AGS) Operations", 2022.
[5] IESO, Hydroelectric Program Development & Assessment, IESO Stakeholder Engagement Session, April 20, 2022.

Recommendation #2 - Include criteria that enable distributed, IESO-dispatchable storage facilities, optimally located within local distribution company territories by 2025, particularly in the regions east of the Flows East to Toronto (FETT) transmission interface.

The PWU previously recommended that the IESO target storage facilities for its near-term procurements.[6] Coupled with the above biomass and hydro assets, 100 MW to 700 MW of new distributed storage facilities could satisfy the full range of 500 MW to 1000 MW of minimum capacity being sought by the IESO by 2025. Storage options offer several benefits:

- Storage could be strategically located in LDC jurisdictions, particularly east of FETT to address the IESO's priority locational needs;
- Storage is more easily sited than other forms of dispatchable new generation;
- Storage has a shorter economic life, potentially only 10 years, and hence provides additional flexibility given the longer-term drivers noted below; and,
- The value provided to the distribution and transmission systems may reduce the cost to IESO and help avoid the need for any premiums or incentives.

The IESO should structure its procurement approach to clearly be targeted at enabling and facilitating discussions between developers and distribution companies to develop appropriate storage sites, e.g. LDC supported facilities with IESO dispatch.

Recommendation #3 - Include criteria that enable existing site locations for large scale storage by 2027.

By procuring additional storage to help meet the 2027 LT RFP objectives, including early 2025 requirements, the IESO could reduce risk. The PWU has recommended in previous submissions that the IESO alter its approach to directly secure storage.

The IESO has communicated that about 30% of the required 6000 MW is for periods of four-hours or less.[7] Storage could thus meet up to 1800 MW of the IESO's 6000 MW need for 2030. Any remaining shortfall not addressed by Recommendation #2 above could be secured directly in the first LT1 RFP for 2027.

Additional embedded storage capacity could be secured and/or opportunities to locate storage near existing facilities could be identified, such as the Pickering Nuclear Generating Station (PNGS), to take advantage of the existing transmission system infrastructure. Locating storage on existing generation facility sites could also be encouraged in the Technology Expansion procurement process.

Recommendation #4 - Reframe the procurement approach to eliminate the bias for gas-fired generation to reduce risk and to facilitate future proofing options.

Biomass, hydro, and LDC-optimized distributed storage could fully supply 2025 needs and 40% of the need in 2027. These outcomes would require the IESO to procure these options directly instead of using

[6] PWU, Feedback on IESO LT RFP Stakeholder Engagement Session, February 2022.
[7] IESO, Annual Acquisition Report (AAR), April 2022.

its currently proposed, market-based procurement mechanisms. Tailored procurements, specifically for storage, will reduce risks, preclude premiums, and minimize ratepayer impacts.

The IESO repeatedly indicated that it wishes to develop procurement mechanisms that do not undermine the function of Ontario's electricity market. The attractive near-term solutions noted above cannot be procured using the IESO's proposed market-based mechanisms that separate capacity from energy and rely on energy markets.

The IESO's market-based criteria is unnecessary. During the next decade, Ontario will increasingly depend upon natural gas-fired generation in Ontario, e.g. an order of magnitude more frequently than in recent years. This effectively guarantees that the IESO Administered Markets (IAMs) will function regardless of the near-term procurement outcomes. The IESO should not limit its options for securing urgently needed capacity based on market related criteria – they are unnecessary.

The IESO is able to physically dispatch storage assets without making them subject to the market clearing price process, as it already does for over 95% of the energy that is procured by Ontario's hybrid energy market. Studies show that only 2% of the energy traded in 2019 by Ontario's energy market was price exposed to the market.[8]

The IESO's focus on electricity market mechanisms undermines its ability to take advantage of otherwise available options and reduce the associated capacity gap and procurement risks. The primary reason for this is market-based mechanisms favour gas-fired generation over other options.[9] The IESO should frame its procurement approach to surface more cost-effective solutions that may not be compatible with market structures, e.g. the aforenoted storage options. Key considerations should include: the higher fixed cost of storage and hydro; the higher variable costs of biomass; the benefits of reduced transmission and distribution infrastructure requirements; and, the long-term impacts of carbon pricing costs. Recognition of the longer-term benefits for ratepayers associated with these assets would enable the IESO to better maximize them and eliminate the need for premiums to secure capacity by 2025.

Mitigating Long-Term Risks

The approach to procurements aimed at securing supply by 2025 are driven by the short timelines available and the knowledge that incentives and costs will be borne to enable them. In contrast, the approach to larger capacity needs in the late 2020s and early 2030s should consider how different drivers may come into play, such as public or government disfavour towards the future operation of gas-fired generation, the potential increase in long term operating costs from carbon pricing, the growing risk of stranded asset costs and implications on future procurement flexibility.

Recommendation #5 - Long-term asset procurements (2027 and beyond) should be structured to address the drivers and changing conditions for the required capacity.

The IESO identified a high demand case in the 2021 APO that is not addressed in the AAR. Furthermore, the AAR acknowledges the studies regarding a moratorium on new gas-fired generation and the

[8] Strategic Policy Economics, "Electricity Markets in Ontario", 2020.
[9] Strategic Policy Economics, "Electricity Markets in Ontario", 2020.

electricity system implications of decarbonizing Ontario's economy that it has been directed to conduct by the Ministry. These present the IESO with several important considerations:

- *Higher demand in both the near and long-term.* This will complicate addressing the challenges associated with Ontario's near-term capacity gap and highlight the extent to which new large baseload capacity is required.
- *The provincial moratorium - general public concerns about new gas-fired generation in the long term, and regulatory trends, e.g., federal government full carbon pricing*.[10] These will lead to a need for 10 GW of new low-carbon baseload by 2035.[11]
- *The risk to the availability of low-carbon electricity imports* – i.e., Quebec, Manitoba, and the MISO are all forecasting demand increases and are expected to be energy limited by the late 2020s.[12]

Given these considerations, the IESO should be designing Ontario's procurement mechanisms that would provide long-term, reliable, low-cost, low-carbon electricity resources to meet forecast needs. These include facilitating the shift to low-carbon generation, discounting confirmed and unconfirmed electricity imports, and signalling a need to carefully manage near-term government incentives that may increase demand.

Recommendation #6 – Demonstrate the appropriateness and consequences of the inherent bias for gas-fired generation in the IESO's current approach.

The procurement approach defined by the IESO favours natural gas:

- Ontario's current market structure separates firm capacity payments to generators from the provision of less reliable energy market revenues and does so in favour of natural gas-fired generation over all other non-emitting and associated emerging technologies;[13]
- The IESO does not include carbon emissions in its criteria, the lack of which favours gas-fired generation options. Currently, Ontario has no carbon pricing policy impacting the procurement;
- The IESO's procurements are focussed on peaking supply needs (which the PWU has submitted is inappropriate)[14];
- The IESO's operability requirements require the new assets to provide consecutive output for more than 4 consecutive hours 70% of the time that the IESO anticipates calling on the capacity
- Gas-fired generation will be provided with "flexibility" pricing credits that further distorts its existing price advantage;
- The Expedited procurement will be complete and the LT1 RFP issued in December of this year, i.e., prior to when the results of the IESO's underway studies are available to help inform policy. While the IESO has stated the report outcomes may impact future procurements (potentially the 2030 LT2 RFP), the PWU suspects that the first 4500 MW of new generation are likely to be gas-fired absent consideration of its recommendations in this submission.

[10] Environment and Climate Change Canada, "Clean Electricity Standard Discussion Paper", 2022.
[11] Strategic Policy Economics, "Electrification Pathways for Ontario to Reduce Emissions", 2021.
[12] North American Electric Reliability Corporation (NERC), 2021 Long-Term Reliability Assessment.
[13] Strategic Policy Economics, "Electricity Markets in Ontario", 2020.
[14] PWU Submissions to several IESO Resource Adequacy Stakeholder Engagement consultations, 2020-2021.

The IESO's use of the 2021 APO reference case for 2022 resource acquisition planning defers procurement planning for the higher demand case until 2023. While this approach aligns with the release of the Ministry-directed study on a gas moratorium and zero emission pathways, it defers for yet another year the time critical planning for requisite, new large-scale, low-carbon generation and transmission infrastructure, putting Ontario's long term reliable low-carbon future at risk.

The timing of the pathways and moratorium studies must be considered and the IESO should ensure that the results will be reflected in its December APO and that the AAR will be updated at the same time and be reflected in the LT1 RFP. The IESO must acknowledge that if the results of the Ministry-directed studies demonstrate a case for policies against and away from gas-fired generation, the RFPs will have to be substantially different than what is being proposed today.

Recommendation #7 - Ensure the designs for the RFPs to be issued in 2022 reflect and address the cost risks associated with the IESO's procurement approach.

As previously noted, the IESO has already decided not to disfavour proponents of natural gas-fired solutions. The IESO should consider how emerging policies may potentially disfavour the future operation of gas-fired generation. The introduction of full carbon pricing, such as that which is being modeled in the IESO studies, will substantially increase the long-term operating costs to the detriment of ratepayers.[15]

With the proposed 15-year contract commitments and given the significant capacity under procurement, the IESO will be facing reduced procurement flexibility well into the 2040s. Should policies strongly disfavour the use of gas-fired generation for baseload or intermediate supply, there is a material risk of stranded asset costs that ratepayers will bear.

The IESO should include such considerations in the rated criteria evaluation of the responses to its RFP.

Recommendation #8 - Immediately commence the procurement process for securing the resources required to meet the known infrastructure needs of Ontario's future energy system for 2030 and beyond – low-cost, low-carbon, long economic life span, system assets.

A formative IESO assumption is that, post PNGS retirement in 2025, natural gas-fired generation will be required to provide baseload power. As a result, the IESO is focussed on procuring new peaking capacity resources. This misuses the flexibility of Ontario's natural gas fleet. As the PWU has previously submitted, the IESO should be procuring low-carbon baseload supplies (e.g., AGS, other biomass and hydro assets described earlier) as soon as possible and allow the gas-fired fleet to provide the flexibility the system needs.[16] The benefits of this are more apparent when considering the nature of the energy transition to a decarbonized economy and the associated impacts for Ontario's jobs, GDP, and trade balance.[17]

[15] IESO, Assumptions for the Decarbonization Pathways study, 2022.
[16] PWU submission regarding the Annual Planning Outlook, January 2022.
[17] Strategic Policy Economics, "Electrification Pathways for Ontario", 2021.

As articulated above, gas-fired generation options come with emissions, operating cost, and stranded asset cost risks. With a widely held long-term objective to develop low-carbon baseload generation for the 2030s, the conditions that establish which assets should be favoured in today's near-term procurement become clearer.

Ontario's electricity system reliability and emission performance is underpinned by its low-carbon hydroelectric and nuclear generating fleet. Facilities of this type take significant time to site, develop, and construct. To enable a low-carbon vision, clear market signals should be communicated within the current RFP discussions to incent investor efforts to advance on long timelines for new large-scale, low-carbon infrastructure. The current procurement should strive to enable the optimization of future procurement opportunities in light of anticipated higher demand and the expected short timeline before that demand materializes.

Two risk mitigating options are available. The first procures storage in the near-term as previously described in this submission. The flexibility of storage will be needed in the long term and be valued more when low-carbon baseload supply materializes.[18] The second option involves making the best use of existing sites such as OPG's: the 4800 MW licence at Darlington; repurposing the Pickering site e.g., storage; and, non-emitting technology options at the Lennox and Nanticoke sites that leverage available transmission corridors. All of these options can optimize the impacts on existing grid infrastructure and advance schedules for delivering new capacity while reducing ratepayer costs.

There are no valid reasons for not proceeding immediately to procure the capacity that is needed by 2035. The IESO should issue the 2027, 2030, and 2035 RFPs in parallel in December 2022, as the PWU has previously recommended.[19] This will convey much-needed market signals and help reduce the risk of Ontario facing another procurement crisis like it is facing now with the need for new supply in 2025.

Closing

The IESO should further explore the risks associated with its proposed procurement approach, shift to the direct procurement of urgently required capacity and ensure that Ontario's later capacity needs are reflected in its energy transition priorities that 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.

[18] Strategic Policy Economics, "Electrification Pathways for Ontario", 2021.
[19] PWU submission to the MENDM on Long Term Planning, April 2021; Multiple PWU submissions to the IESO Resource Adequacy consultations, 2020-2021.