

## **Power Workers' Union Submission on the IESO's 2021 Annual Planning Outlook**

**February 17, 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 Planning Outlook (APO). 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.

On January 25th, the IESO described its most recent APO and responded to stakeholder questions. The PWU is supportive of the IESO's effort to forecast system needs and appreciates that the IESO now includes electrification of the economy in its high demand case, as previously requested.<sup>1</sup> The PWU's responses to the IESO's requested feedback regarding the content and structure of the APO are presented at the end of this submission.

The PWU remains concerned that the current APO does not address the evident risks to the affordability and reliability of Ontario's electricity system. The need for new generation and transmission resources is growing faster than the required resources can be reasonably deployed. There is no evident path forward for avoiding brownouts and/or procuring high-cost solutions for mitigating the emerging, urgent resource adequacy risks. These supply challenges will be compounded as the IESO continues to investigate its pathway for reducing the use of natural gas.<sup>2</sup>

The PWU recommends that the IESO should urgently:

- 1) Address the strategic implications of the risks inherent in the APO by transparently characterizing for stakeholders the risks and their mitigation;
- 2) Treat the high demand case as the baseline for planning in the IESO's 2022 Resource Adequacy planning and acquisition activities; and,
- 3) Immediately commence the procurement process for securing the resources required to meet the known infrastructure needs for Ontario's future energy system – low cost, low carbon, long economic life span system assets to get Ontario to Net Zero by 2050.

### **Recommendation #1 - The IESO should urgently address the strategic implications of the risks inherent in the APO by transparently characterizing for stakeholders the risks and their mitigation.**

The IESO's current APO is based upon a number of unsubstantiated assumptions that expose Ontario's electricity system to unnecessary reliability and affordability risks. The clearest example of these unaddressed risks is the IESO's recognition of the emerging resource capacity gap. The APO says Ontario needs to acquire 3.8 GW of new supply by 2030. Currently, the IESO is focused on procuring only a 1000 MW of long-term supply by 2027 and none are planned for the 2030 timeframe.<sup>3</sup> There are evident risks to achieving the above-cited new supply Ontario needs by 2030:

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<sup>1</sup> PWU, Feedback on 2020 APO Engagement, January 2021.

<sup>2</sup> Minister of Energy, Ministerial Directive to IESO, November 10, 2021.

<sup>3</sup> IESO LT RFP Design Webinar, February 2022.

- Stakeholders have demonstrated that the IESO’s current procurement approach for capacity style contracts, proposed contract length, and short lead time effectively rule out most new generation options, particularly, bulk system infrastructure.
- The current LT RFP design will only attract storage solutions given the 1 to 2-year development window provided.
- The short-term nature of IESO’s planned contracting will attract cost premiums.
- Acquiring 3,000 MW of new supply by 2030 is most likely impossible given that any new large-scale infrastructure will take longer to scope, site, and develop.

The IESO has neither recognized these risks nor identified how these risks will be mitigated.

There are many other questionable assumptions in the APO that pose additional risks. These assumptions include: the availability of required resources to be developed in time to meet the forecasted needs; further non-emitting imports are available; the long-term GHG emissions forecast is acceptable; and that demand will be as low as the reference case.

There are challenging locational supply risks to address, e.g. the need for 5-10 GW to supply Toronto from the east due to the retirement of the Pickering Nuclear Generating Station, the evident anti-natural gas generation position of many municipalities, and the absence of alternative Transmission routes into the GTA. Furthermore, demand in the GTA is 25% higher in winter when Quebec is meeting its heating demand and is therefore short of supply.

Increasing dependence on electricity imports also assumes that neighboring jurisdictions will have excess energy to export. Other jurisdictions are facing demand growth and local capacity optimization pressures like Ontario.<sup>4</sup>

Public concerns in Ontario about emissions have resulted in many municipalities passing moratoriums on new gas plants and the government issuing a directive to the IESO to explore an “off-gas” strategy. The APO’s emission forecast is most likely low given its procurement assumptions.

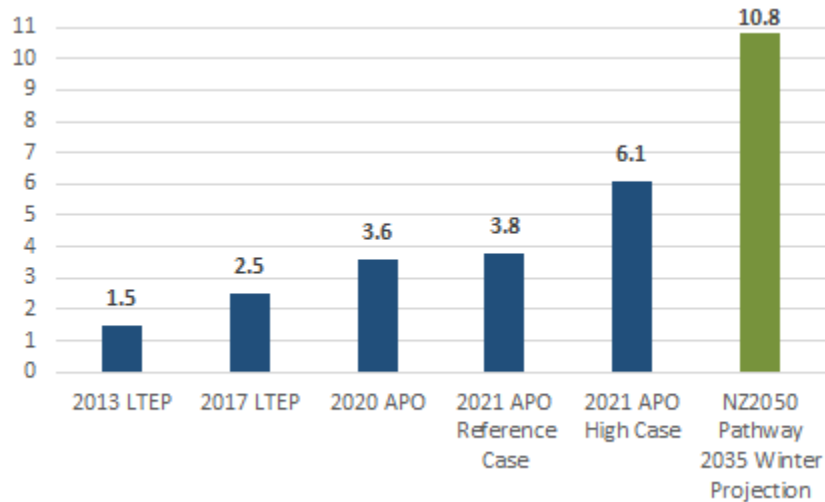
Most importantly, the APO’s demand reference case is unreasonably low as it has not adequately assessed the impacts of electrification. Those electrification assumptions are captured by the IESO’s high demand case—which forecasts a capacity gap that is 60% greater in 2030.

The IESO’s recent 2021 APO highlights a larger shortfall in supply than previously identified. At the January 25 stakeholder meeting, the IESO acknowledged that it has been under-forecasting demand and that the capacity gap is growing. This deteriorating trend in reliability has been evident since 2013 as shown in Figure 1. The forecast gap assumes that all existing resources will be re-contracted. Furthermore, the IESO now acknowledges that, even in the reference case, there is a risk of a shortage of generation capacity and energy production.

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<sup>4</sup> Import option from Manitoba are unlikely to be available to the northwest. See Strapolec report on Extending Atikokan operations. The IESO already prohibits imports from jurisdictions with coal on the margin (e.g. across the proposed Lake Erie tie line)

**Figure 1: Trend in IESO 2030 Capacity Gap Forecast Assuming All Existing Resources are Renewed (GW by Source of Forecast)**



The IESO should address the following for stakeholders:

- The reasonableness of the assumptions underpinning the APO;
- The risks of these assumptions not materializing;
- The impacts if the assumptions are not validated; and,
- The IESO’s risk mitigation strategy.

These critical matters should be clarified by the IESO as soon as possible and in a manner that can be reflected in the IESO’s 2022 Resource Adequacy and Annual Acquisition Report (AAR) activities.

**Recommendation #2 – The IESO should treat the high demand case as the baseline for planning in the IESO’s 2022 Resource Adequacy planning and acquisition activities.**

The aforementioned risks relate to the APO reference case for guiding its AAR activities. While a high demand case has been advanced, it has not been identified as the basis for the IESO’s planning. The APO’s higher electrification case shows a much greater increase in demand which compounds all of the risks inherent in the reference case and increases the capacity gap by 60% as previously shown in Figure 1. However, this forecast is low compared to others that address the significant decarbonization challenge ahead.<sup>5</sup> The IESO has indicated that the electrification of the building heating and industrial sectors has not been included. Both will emerge in the medium-term suggesting that the next APO will show a larger capacity gap i.e., the capacity required for by 2035 for NZ 2050 illustrated by Figure 1.<sup>6</sup>

<sup>5</sup> Strapolec, Electrification Pathways for Ontario to Reduce Emissions, 2021; EPRI, Canadian National Electrification Assessment: Electrification Opportunities for Canada’s Energy Future, 2021; Institut de L’Energie Trottier, Canadian Energy Outlook 2021, 2021; SNC Lavalin, Engineering Net Zero, 2021; IEA World Energy Outlook 2021, 2021; IEA, Net Zero Emissions by 2050 Scenario, 2021.

<sup>6</sup> Strapolec, Electrification Pathways for Ontario to Reduce Emissions, 2021.

Several factors suggest that the high case may also be low, including: future EV adoption incentives by the government of Ontario;<sup>7</sup> demand from Algoma Steel that will materialize in 2025, not 2030 as assumed in the APO;<sup>8</sup> and, the power of the Industrial Conservation Initiative (ICI) program to make it less costly to undertake initiatives such as electrifying building heating and transitioning heavy transportation with hydrogen – much like it provides the incentive for the electric arc furnace conversions. Without planning for the high demand case, Ontario will almost certainly be exposed to brownouts in the next decade.

The IESO's use of the 2021 APO reference case for 2022 resource acquisition planning defers procurement planning efforts for the higher demand case until 2023. While this approach aligns with the release of the Ministry-directed study on gas moratorium and zero emission pathways to inform the December 2022 APO, it defers for yet another year, the time critical planning for requisite for new large-scale generation and transmission infrastructure.

The IESO should address and mitigate these emerging risks to Ontario's reliability in its 2022 resource adequacy and AAR activities to ensure adequate supply is available to address the high case and for potentiality even higher demand in the same time frame.

**Recommendation #3 – The IESO should immediately commence the procurement process for securing the resources required to meet the known infrastructure needs for Ontario's future energy system – low cost, low carbon, long economic life span system assets to get Ontario to Net Zero by 2050.**

Ontario's reliability and emission performance has been underpinned by its existing low-carbon hydroelectric and nuclear generating assets. Facilities of this type take significant time to site, develop, and construct.

Many stakeholders, including the PWU, have noted the limitations and timeline risks inherent in the IESO's procurement approach for securing low-carbon resources to meet the needs in the late 2020s and beyond.<sup>9,10</sup> The Ministry directed the IESO to accelerate its procurement activities.<sup>11</sup> Yet, their procurement timelines have experienced further delays.<sup>12</sup> The Ministry provided a more specific directive regarding these timelines in January of 2022.<sup>13</sup> However, the IESO's procurement timelines are inadequate to develop the nearly 11 GW of capacity required by 2035. It would take at least a decade to site, develop, and operationalize new resources, --whether they are nuclear, hydroelectric, biomass,

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<sup>7</sup> Ministry of Energy, Proposal to Enable a New Voluntary Enhanced Time-of-Use Rate Including Consideration of a New Ultra-Low Overnight Price, 2022.

<sup>8</sup> CTV News, Algoma Steel moving ahead with electric steel furnace transition, Nov. 12, 2021. Retrieved from <https://northernontario.ctvnews.ca/algoma-steel-moving-ahead-with-electric-steel-furnace-transition-1.5664544>

<sup>9</sup> Strapolec, Electricity Markets in Ontario, 2021.

<sup>10</sup> PWU, Feedback on Resource Adequacy September Meeting, 2021; PWU, Feedback on Resource Adequacy November Meeting, 2021.

<sup>11</sup> Minister of Energy, Ministerial Directive to IESO, November 10, 2021.

<sup>12</sup> IESO, Resource Adequacy December Meeting, 2021. Material showed the final LT RFP being issued in January 2023, while the IESO Annual Acquisition Report (AAR) released in July showed the LT RFP commencing in 2022.

<sup>13</sup> Minister of Energy, Ministerial Directive to IESO, January 28, 2022.

renewables, or gas-fired generation. Given these timelines, it is already impossible to meet the projected reliability needs for 2030, with few if any remedial actions available to the IESO.

In response to these kinds of risks, the IESO has side-stepped its own processes and used a bilateral contract to renew Lennox and, as directed by the Government, employed the same mechanism to renew contracts for Brighton Beach GS, Calstock GS and other generators, as well as for new facilities, e.g., Oneida Energy Storage Project.<sup>14,15</sup>

New mechanisms that better mitigate the risks of sustained electricity shortfalls and brownouts in the next decade and beyond are required to accelerate the planning for near-term and long-term procurement processes. The procurement process should commence now to address a capacity shortfall that may already be unavoidable.

The IESO should begin immediately to plan for these assets that are required for 2030 to 2035. This process should start in parallel with the IESO's current LT RFP initiative that is focussed on the near-term needs between 2025 and 2027. The new parallel LT RFP process should recognize the development time required for long-lasting, low-carbon resources, including supportive contract terms. Ontario needs long term, low-cost, low-emitting sources of supply and infrastructure that will help meet the NZ 2050 objectives without incurring price premiums from the existing short-term objectives and policies currently shaping the IESO's LT RFP development process.

## **Closing**

The longer the IESO waits to address the aforementioned risks, the larger the consequences will be for Ontario's electricity system and ratepayers. The IESO should begin immediately to address these risks with its APO, the AAR, and the broader Resource Adequacy framework.

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.

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<sup>14</sup> Minister of Energy, Ministerial Directive to IESO, January 15, 2021, February 22, 2021, August 27, 2021, November 10, 2021, and January 28, 2022.

<sup>15</sup> IESO, February Stakeholder Advisory Committee Meeting, 2021.

**Appendix – PWU Comments to the IESO requested feedback forms**

**2021 Annual Planning Outlook Report – General**

<b>Topic</b>	<b>Feedback</b>
<p>What chapter/section is most helpful?                      Choose all that apply: Demand forecast, supply outlook, transmission outlook, capacity adequacy, energy adequacy, surplus baseload generation, locational considerations, integrating needs, marginal costs, greenhouse gas emissions, other                      Tell us more: What did you like about it?</p>	<p>All are relevant and necessary prerequisites to understanding the challenges and solutions for meeting Ontario’s future electricity needs.</p>
<p>What do you want to read more about?</p>	<p>The strategic implications of the APO and how they will be managed, specifically the uncertainties at play to help stakeholders understand the risks from the plan. Greater clarity is required between the APO and the ARP and ARR—i.e. APO sets the risk profile. Much more discussion is required to address the cost implications of any uncertainties and the plan.</p>
<p>What key factors, uncertainties, and additional considerations should the IESO include in future outlooks?</p>	<p>Building heating, industrial electrification, and the likely acceleration of electrified transportation requires far more substantive consideration. The reference case is too low to be acting as the driver for Ontario’s resource adequacy planning.</p>

**2021 Annual Planning Outlook – Demand Forecast Specific Questions**

<b>Topic</b>	<b>Feedback</b>
<p>For consideration for future assessments, are there any known policy instruments that should be flagged for the IESO Planners?</p>	<p>The IESO should carefully examine the system implications of the ICI (particularly on how it may drive electrification adoption), the need to reduce emissions, and the timing of asset turnover, such as phasing out the gas plants.</p>

Topic	Feedback
Are the assumptions for the electricity demand drivers reasonable?	<p>NO → the reference case is already obsolete-a simple example is the electrification of Algoma Steel’s furnaces by 2025. Even the high case does not model this change until 2030. The 2025 start date is of significant importance to the resource adequacy of the Northwest.</p> <p>Planning in general should focus on the g=high case, which is also low due to the exclusion of aforementioned building heating assumptions, particularly in the periods post 2030, that must be planned for now.</p>
IESO would appreciate any early signaling of known industrial large loads or expansion projects that may increase loads.	<p>The load impact of Algoma Steel, as mentioned above, is not adequately modelled. The NW IRRP process suggests there will be higher demand. The IESO’s approach would benefit from addressing the many recent studies that demonstrate more significant electrification occurring sooner than it has modeled.</p>

## 2021 Annual Planning Outlook – Transmission Specific Questions

Topic	Feedback
<p>In the 2021 APO we improved how we presented transmission issues/locational requirements. Specifically, we consolidated and described the locational requirements due to transmission constraints in Chapter 5 and summarized them in Chapter 6. In the 2022 APO, we look to further improve how the IESO presents this information and, as such, we are seeking feedback on the changes made in the 2021 APO (namely Chapter 5 and the summary in Chapter 6), and/or advice to inform further improvements to how this information is presented in the 2022 APO.</p>	<p>The insights provided are an excellent addition to the APO and support the IESO in continuing to improve their approach. The locational implications are quite important. Of note is that the winter needs east of FETT are greater than the summer needs east of FETT. Winter capacity need is now the driver for this region. The section could benefit from a greater discussion of implications and risks, in particular for the high demand case.</p>

## 2021 Annual Planning Outlook Modules, Methodology, and Supplemental Data

Topic	Feedback
Are the assumptions, inputs, and methodology reasonable?	As per our recommendations above, the high case should be taken more seriously and be used to drive resource planning decisions today.
What information do you want to see more of?	Stakeholders require more explicit details on the assumptions and their implications. For example, the stated EV assumptions lack sufficient detail to properly assess and validate (e.g. why have the 500K vehicle assumptions been made? Why does this not ramp up until past 2035?) The presented GHG emission assumptions should be presented in the context of achieving Ontario's objectives. The current portrayal is misleading. Cost implications need to be addressed. As a minimum the GHG emissions costs due to the EPS should be delineated with what % of gas output will have the price applied and what that price is, and how it will affect the HOEP on the margin.