POWER WORKERS' UNION

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

244 EGLINTON AVE. E.
TORONTO, ONTARIO
M4P 1K2

TEL.: (416) 481-4491
FAX: (416) 481-7115

PRESIDENT
Jeff Parnell

VICE PRESIDENTS
Andrew Clunis
Mike Hambly
Tom Chessell
James Middleton

December 4, 2023

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

Via email to engagement@ieso.ca

Re: Evolving IESO Planning Products (APO/AAR)

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 Evolving IESO Planning Products (APO/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 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).

To minimize the risks of brownouts and the reliable supply of electricity, the PWU recommends that the IESO develop a risk-assessed range of demand, provincially and regionally, identify the baseload and intermediate demand that must be regionally supplied and alter their procurement practices accordingly.

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

cc. Lesley Gallinger,CEO of the IESO
William (Bill) Sheffield, Chair of the IESO Board
James Scongack, Chair of the IESO SAC
Todd Smith, Minster of Energy

List of PWU Employers

Abraflex
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)
Chapleau Public Utilities Corp.
Centre Wellington Hydro
Collus Powerstream
Compass Group
Cornwall Electric
Corporation of the County of Brant
Covanta Durham York Renewable Energy Ltd.
Elexicon (formerly Whitby Hydro)
Enova (formerly Kitchener-Wilmot & Waterloo North)
Enwave Windsor
Epcor Electricity Distribution Ontario Inc.
Erth Power Corporation (formerly Erie Thames Powerlines)
Erth Corporation
eStructure
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
InnPower (Innisfil Hydro Distribution Systems Limited)
Kinectrics Inc.
Lakeland Power Distribution
Laurentis Energy Partners
London Hydro Corporation
Milton Hydro Distribution Inc.
Mississagi Power Trust
Newmarket Tey/Midland Hydro Ltd.
North Bay Hydro
Northern Ontario Wires
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
Synergy North (formerly Kenora Hydro Electric Corporation Ltd.)
Tillsonburg Hydro Inc.
The Electrical Safety Authority
Toronto Hydro
TransAlta Generation Partnership O.H.S.C.
Westario Power

PWU Feedback on the Evolution of Annual Planning Outlook and Annual Acquisition Report

December 4, 2023

The PWU appreciates the opportunity to provide feedback in response to the Independent Electricity System Operator (IESO) October 20, 2023, webinar on the *Evolution of Annual Planning Outlook (APO) and Annual Acquisition Report (AAR)*. The PWU applauds the IESO's acknowledgement that policy urgency is accelerating, as evidenced in recent announcements such as the *Powering Ontario's Growth (POG)* report (which relied heavily on the IESO's *Pathways to Decarbonization* study (P2D)) and the Federal *Clean Electricity Regulation* (CER). The PWU also supports the IESO's recognition that several facets inherent in its APO and AAR processes make the coordination of its activities challenging in the face of these accelerating developments.

The PWU appreciates the IESO's intent to incorporate the AAR objectives within the APO deliverables to better align and accelerate system planning outcomes. There is indeed, as the IESO suggests, an opportunity to evolve the IESO's planning products, streamline their content and better align the release of information as it becomes available. The PWU has previously advocated for the acceleration and alignment of these processes.[1]

The PWU agrees with the IESO's objectives that the AAR activities should provide a more complete picture of future reliability needs and planned actions to meet those needs and that the future integrated APO/AAR materials should include robust discussion of operability, risks, and uncertainties. The PWU agrees with the IESO's assertion that this information is essential to informing investment decisions regarding existing and future assets.

The IESO has requested feedback on: the elements of the APO/AAR that are most helpful; how the APO/AAR processes can be enhanced and evolved; information that is required to inform investment decisions; and, the frequency, timing, and nature of the IESO produced outcomes.

Context

The APO provides essential planning guidance to all stakeholders that have an interest in an ongoing reliable, sustainable, and affordable electricity system. To date, the IESO's system planning has failed to adequately address Ontario's emerging needs and, as a result, the AAR understates the procurement imperatives. The linear process for developing an APO followed by an AAR may have worked during times of slow change in the past, however, electrification induced by climate action is accelerating and increasing the need for more effective and responsive planning.

The PWU suggests that mitigating these rapidly changing planning risks requires realistic demand forecasting with the timing of the AAR/APO release sequence being of lesser importance, assuming it occurs in a reasonable timeframe. Mitigating resource acquisition risk requires clarity with respect to the demand forecast and the nature of the demand that non-emitting supplies must provide over time as the province decarbonizes.

The causes of the emergent risks to the reliable provision of electricity to Ontarians are evident in the IESO's planning process and dogmatic reliance on IESO Administered Market (IAM) solutions which have

[1] Strategic Policy Economics, "Electrification Pathways for Ontario", 2021; Green Ribbon Panel, 2021; PWU Submission on the IESO's 2022 Annual Planning Outlook: Supply Cases, July, 2022.

increased the complexity and costs of the procurements and reduced their efficacy. For some time, the PWU has apprised the IESO and the Ministry of Energy of these risks.[2] The PWU reiterates that the IESO should review and consider these materials carefully

The planning challenges facing the IESO are becoming more evident as the risks materialize. The IESO's Strategic Advisory Council (SAC) has been advocating since March 2022 for the IESO to accelerate and redefine its procurement approaches, with partial success. For example: the 2022 APO does not reflect the outcomes in the concurrently released P2D that were eventually entrenched in the POG six months later; some current regional planning efforts are still using the 2021 APO and others the 2022 APO without duly considering the P2D or POG; and, procurements to this date are still not guided by the POG, practically ensuring the emergence of brownouts in the province by the late 2020s.[3]

Finally, the Ontario government's Electrification and Energy Transition Panel (EETP) will soon be reporting its findings to the Ministry of Energy on potential actions to facilitate the energy transition, secure the associated environmental and economic development benefits and ensure investments across the energy system are made in the interest of ratepayers. There will be a clear need for the IESO planning processes to effectively adapt in a timely manner to the policy direction, urgency and priorities that emerge.

The PWU makes the following recommendations to help evolve the APO and AAR processes to best serve the needs of Ontarians:

1) Provide a timely and consistent risk-assessed demand and reliability forecast for Ontario that considers all material drivers of demand and needed reliability services and do so in terms of the need for baseload, intermediate, and peak/reserve supplies;
2) Present a comprehensive view of the risk-profiled demand for each region in the province and ensure that the regional planning efforts are current with these forecasts, including risks and their mitigation for both demand side management and supply options;
3) Provide risk assessed implications on the range of potential future costs to rate payers; and,
4) Reframe the resource acquisition approach to reflect the upper and lower ranges for provincial level and regional level resource needs for baseload, intermediate, and peak/reserve supply.

Recommendation #1 - Provide a timely and consistent risk-assessed demand and reliability forecast for Ontario that considers all material drivers of demand and needed reliability services and do so in terms of the need for baseload, intermediate, and peak/reserve supplies.

Developing a long-term demand forecast for reference by all energy stakeholders is the single most influential planning reform that the IESO can take to help the economy transition to a reliable and

[2] Multiple PWU submissions to the IESO such as the:
MENDM on Reforming the Long-Term Energy Planning Framework, 2021; Strategic Policy Economics, "Electricity Markets in Ontario", 2020; Strategic Policy Economics, "Electrification Pathways for Ontario", 2021; Green Ribbon Panel, 2021; PWU Feedback on IESO's Pathways to Decarbonization Study to the Ministry of Energy, ERO 019-6647, May 2023.

[3] Power Workers' Union (PWU) Feedback on IESO's Pathways to Decarbonization Study to the Ministry of Energy, ERO 019-6647, May 2023.

affordable net zero electricity system. This would help provide investors with greater clarity (foundation of investor confidence). The IESO has undermined this clarity by: identifying high demand scenarios in its 2021 and 2022 APOs but using low demand reference cases for its procurement planning; and, dismissing the P2D report as just a study and not a planning document. The result is that the formal planning activities using the APO reference demand cases have been understating the need for new supply for many years.[4]

These evident risks have been identified in several past PWU submissions to the IESO and the Ministry of Energy. Studies of the electrification challenges for Ontario in the last five years have consistently forecast the emergence of a greater demand than contemplated by even the IESO P2D study.[5] It is notable that the P2D study self-admittedly declares it is not a net zero assessment.

It is paramount that the IESO present realistic demand scenarios and base their planning and external communication activities on them. In addition to the IESO's under procurement of supply, the absence of a robust demand forecast is also misinforming federal efforts to develop a Clean Electricity Regulation (CER).

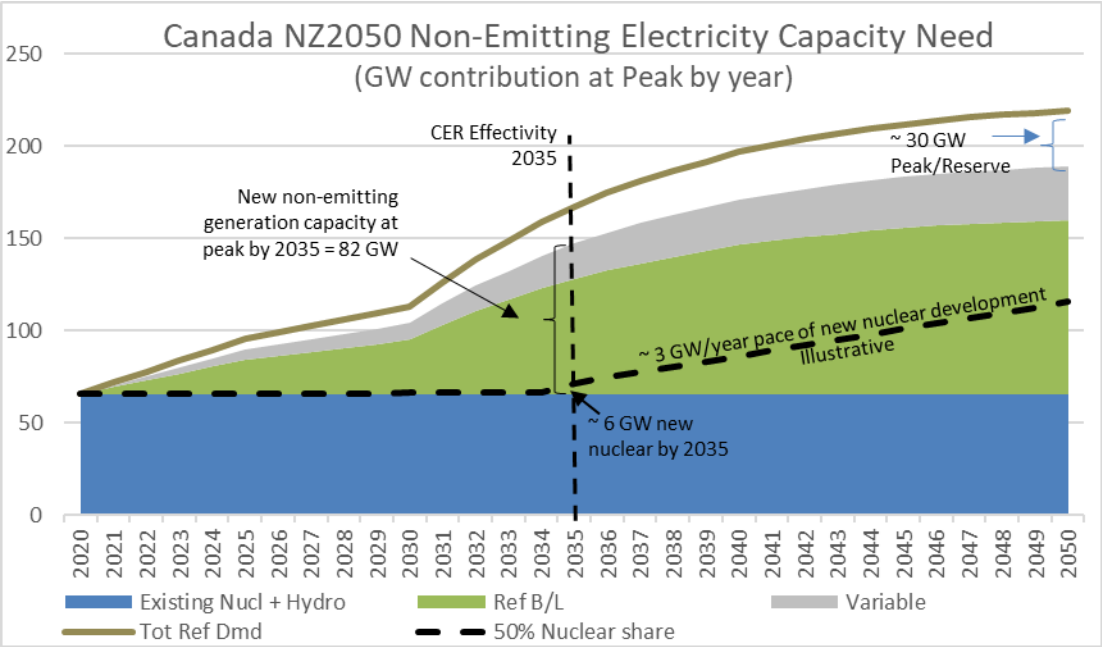
While the IESO has correctly informed Environment and Climate Change Canada (ECCC) that the CER 2035 objectives cannot be achieved in Ontario, the IESO's recommendations set up the next steps in the process for probable failure. For example, the IESO has recommended that the allowable life of gas-fired generation facilities be modified with this recommendation based on the IESO's assessment of the need to maintain a gas generation fleet of at least 8 GW of generation for some time. However, this 8 GW value is taken from the gas moratorium portion of the P2D report, which not only used the outdated 2021 APO reference demand case but lowered it by 2 GW for possible, as yet to be identified, conservation and demand management (CDM) initiatives. The 2022 APO reference demand case is higher than the 2021 APO and the P2D demand projections are higher still. In its submission to the ECCC, the IESO should have articulated the P2D need for up to 17 GW of gas-fired generation, including the potential need to build approximately 10 GW of new gas fired generation capacity over the next 10 years that may need to be operated beyond 2050 – depending on the pace Ontario develops new nuclear capacity identified by the POG. This understating of Ontario's need for gas-fired generation sets the process up for failure in the next round of CER discussions with the federal government. The PWU has better clarified this situation directly to the ECCC.[6]

Over the last several years, the PWU has consistently recommended that the IESO develop a risk-assessed demand forecast and identify Ontario's supply needs based on baseload, intermediate and peak reserve demand. The IESO's planning should consider low and high range demand to ensure the

[4] Strategic Policy Economic, Electrification Pathways for Ontario, 2021.
[5] Strategic Policy Economic, Electrification Pathways for Ontario, 2021; Guidehouse for Enbridge Gas, Pathways To Net Zero Emissions For Ontario, 2022; Power Advisory for The Atmospheric Fund, Scenarios for a Net-Zero Electricity System in Ontario, Nov 2022; Institute de L'energie Trottier, Horizon 2060, Canadian Energy Outlook, 2021; SNC Lavalin, Engineering Net Zero, Canadian Technical Report, Mar 2021.
[6] PWU Submission to the ECCC on Canada's Proposed Clean Electricity Regulations (CER), November 2023.

risks of the higher demand emerging can be mitigated. Previous PWU submissions have advised the IESO on the development of risk assessed demand forecasts.[7]

The PWU submission to the ECCC CER consultation included the Figure below which illustrates another element of the planning challenges.[8] Demand will be rising rapidly before the bulk system non-emitting supply options can be developed, such as nuclear and hydro generation. The national 82 GW gap in 2035 of baseload and intermediate supply will require the ongoing use of significant gas-fired generation capacity, even with the potential energy contribution from renewables. Furthermore, even with the aggressive development of baseload supply assets e.g., nuclear, the ongoing need for gas-fired generation will continue beyond 2050. It is alarming that the IESO is suggesting an even slower pace for nuclear development in its CER submission.



These challenges should be addressed by the IESO developing a "transition" approach that reliably meets Ontario's evident non-emitting bulk generation demands that will be unavoidably dominated by new nuclear capacity, as the IESO's P2D report notes. The investment community needs these demand and schedule signals. The planning urgency is significant, and the consequences of poor planning are already materializing in the form of unavoidable, forecast brownouts in Ontario before 2030.[9]

The IESO must address more effectively and transparently the urgent transition implications of the required new, non-emitting asset development schedules.

[7] Strategic Policy Economics, Electrification Pathways for Ontario, 2021; Strategic Policy Economics, Electricity Market in Ontario, 2020; PWU submission to the MENDM, 2021; PWU submissions to the IESO Resource Adequacy engagements, 2020 to 2022.
[8] PWU Submission to the ECCC on Canada's Proposed Clean Electricity Regulations (CER), November 2023.
[9] PWU Feedback on IESO's Pathways to Decarbonization Study to the Ministry of Energy, ERO 019-6647, May 2023.

Recommendation #2 - Present a comprehensive view of the risk-profiled demand for each region in the province and ensure that the regional planning efforts are current with these forecasts, including risks and their mitigation for both demand side management and supply options.

The second most impactful change that the IESO can make to its APO/AAR process is to ensure the timely integration and internal alignment with its regional planning activities. Currently, the IESO provides regional demand forecast data that aligns with the APO reference forecast and has provided (at least in its 2021 APO) useful data on winter and summer locational supply needs. The IESO should continue these practices but include high and low demand scenarios for each region reflecting the risk-assessed electrification and other factors. A clear picture of the fit between regional demand forecasts and cumulative provincial forecasts should be provided. This provides useful and important locational and need information to investors.

However, the IESO should ensure that its regional planning efforts are using the same reference demand forecasts. Notwithstanding the release of the POG in July of this year, which effectively makes the P2D forecast a policy reference, recent regional planning activities are making use of different APO demand scenarios: some based on the 2021 APO,[10] some on the 2022 APO,[11] and only recently has the IESO indicated that they *may* start considering the POG and P2D forecasts.[12]

Given the low demand forecast reflected in the 2021 APO, the IESO's regional activities are currently underestimating the bulk system needs for transmission and other generation in many areas.[13] Since these assessments tend to require between one and two years to complete, Ontario's regional bulk system infrastructure will not be able to respond to the rapidly evolving needs without far more frequent touch points and alignment of assumptions. The IESO must more effectively integrate its regional planning demand assumptions as it updates Ontario's system demand forecasts.

Moreover, the IESO should consider the regional approaches to demand side management (DSM) and other supply options and how they are affected by many factors: the complexity of regional supply issues e.g., municipal rights on local generation development approvals such as gas-fired generation facilities; impact of OEB regulated rates on demand behaviours;[14] demand smoothing cost effectiveness and performance of DSM aggregators; and, distributed energy resources (DER). It is notable that the PWU identified that the IESO's commissioned DER Potential Study overstated the value and potential of DERs.[15] Also, the PWU has provided advice on how to develop benefit-cost assessments for DER options to improve the effectiveness of its integrated planning.[16] Additionally, the PWU has suggested priority areas for DER, DSM and CDM to the Ministry of Energy.[17]

[10] IESO's Northeast Ontario Bulk System Plan, May 2023; PWU Submission on Ministry of Energy Critical Transmission Infrastructure ERO 019-7336, Sept 8, 2023 identified that the Gatineau corridor end of life assessment used 2021 APO demand forecast for Ottawa and the 2019 APO demand forecast for Peterborough.
[11] Central West Bulk System Plan, August 2023; Burlington To Nanticoke Regional planning, Oct 2023.
[12] GTA North IRRP, Sept 2023
[13] PWU Submission on Ministry of Energy Critical Transmission Infrastructure ERO 019-7336, Sept 8, 2023
[14] For example, Ontario's "Ultra low" overnight rate
[15] PWU Submission to the IESO on the DER Potential Study, October 28, 2022.
[16] PWU Submission to the OEB on Completing a DER BCA Framework - Jan 2023.
[17] PWU IESO's Pathways to Decarbonization Study Submission to the Ministry of Energy, ERO 019-6647, May 2023.

Recommendation #3 - Provide risk assessed implications on the range of potential future costs to rate payers.

The cost implications for rate payers are critical information that the IESO should be including in its APO materials. Previous provincial Long-Term Energy Plans identified the rate impacts for residential and industrial rates. While identifying future costs involves a number of uncertainties, a risk-assessment approach would appropriately surface these cost implications. It is worth noting that the IESO's P2D study provided estimates of possible total system costs for the scenarios it defined.

Rate payers should know the cost implications of the IESO's options. For example, the current municipal debates regarding the ongoing use of gas-fired generation would be better informed by including the cost implications of the alternatives. There is significant misinformation on the costs of various alternatives. Studies have shown that renewables-based solutions will cost twice as much as nuclear based solutions and will still require gas-fired generation facilities.[18] This information would be useful to Ontarians. For example, Nova Scotia recently withdrew its support of the Federal Atlantic Loop transmission project due to the estimated costs of up to $300/MWh for imports from Quebec, which would be five times higher than other domestic options.[19]

Investors also need to understand the cost landscape facing their investments. The PWU previously made this recommendation to the Ministry of Energy.[20]

Recommendation #4 - Reframe the resource acquisition approach to reflect the upper and lower ranges for provincial level and regional level needs for baseload, intermediate, and peak/reserve supply.

The PWU has advised the Ministry of Energy of the need to reform the IESO's procurement practices.[21] The IESO's procurement processes are: cumbersome; time and resource consuming, exposing the required in-service dates for new capacity to unnecessary risks; and, as several analyses have shown, ill-suited for the competitive procurement of the non-emitting generation resources required now by Ontario.[22] The PWU has previously commented extensively on these shortcomings and risks in the IESO's procurement approach.[23]

There is growing analysis and acceptance that shows the electricity market construct is not suitable for non-emitting supplies, given their high fixed and low variable costs. Several analyses have identified viable alternatives to the IESO's current procurement approach that can: mitigate risks, accelerate investor interest; and, reduce the costs of Ontario's energy transition. All of these procurement

[18] Strategic Policy Economics, "Electrification Pathways for Ontario", 2021.
[19] https://www.cbc.ca/news/canada/nova-scotia/clean-power-plan-abandons-atlantic-loop-1.6992765#:~:text=Nova%20Scotia%20is%20abandoning%20the,Minister%20Tory%20Rushton%20announced%20Wednesday.
[20] PWU IESO's Pathways to Decarbonization Study Submission to the Ministry of Energy, ERO 019-6647, May 2023.
[21] PWU Feedback on IESO's Pathways to Decarbonization Study, Submission to the Ministry of Energy, ERO 019-6647, May 2023.
[22] Strategic Policy Economics, "Electricity Markets in Ontario", 2020; Strategic Policy Economics, "Electrification Pathways for Ontario", 2021; Green Ribbon Panel, 2020.
[23] PWU Submissions to the AAR and APO from 2021 to 2022; PWU Submission on the IESO's 2022 Annual Acquisition Report, April 27, 2022.

strategies require replacing the IESO's markets-based mechanism with more sophisticated but simpler procurement processes and associated business models.[24] The PWU's 2021 MENDM submission noted that better specification of Ontario's demand needs—distinguishing between baseload and intermediate demand—would allow the province to act early and prudently to meet its future low carbon energy requirements. Three complementary procurement approaches could improve Ontario's needed procurement of non-emitting supplies: [25]

1. Procure by demand type required (e.g. separately procure supplies to meet baseload, intermediate, and peak/reserve needs);
2. Seek integrated hybrid energy resources; and,
3. Enable the integration of existing assets to achieve Ontario's transition to a NZ electricity system.

The need for alternative strategies is evident: IESO procurements remained challenged to acquire their targeted supply; and, the Ministry was compelled in its POG report to direct the IESO to start looking explicitly at processes to secure the bulk system needs, e.g., new nuclear baseload. As per, the discussion in this submission's Recommendation #3, these procurement strategies should be optimized and integrated in Ontario's regional and overall bulk system planning.

Closing

The PWU believes that the IESO could better prepare Ontario for meeting its rapidly emerging electricity system needs by expeditiously focussing on providing a definitive context for the nature of demand to be supplied, including the impacts of electrification across all of its regions. 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.

[24] Strategic Policy Economics, Electricity Markets in Ontario, 202; Strategic Policy Economics, Electrification Pathways for Ontario; Green Ribbon Panel, 2021.
[25] Strategic Policy Economics, Electrification Pathways for Ontario, 2021.