Feedback Form

Long-Term 2 RFP – December 13, 2023

Feedback Provided by:

Name: William K.G. Palmer

Title: P. Eng.

Organization: TRI-LEA-EM

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To promote transparency, feedback submitted will be posted on the Long-Term RFP engagement page unless otherwise requested by the sender.

Following the LT2 RFP engagement webinar, the Independent Electricity System Operator (IESO) is seeking feedback from stakeholders on specific items discussed during the webinar. The webinar presentation and recording can be accessed from the engagement web page.

Please submit feedback to mailto:engagement@ieso.ca by January 15, 2024. If you wish to provide confidential feedback, please mark "Confidential". Feedback that is not marked "Confidential" will be posted on the engagement webpage.

Resource Adequacy Framework and Cadenced Procurement Approach

Topic	**Feedback**
Do you have any comments or concerns regarding the cadenced nature between upcoming LT and MT RFPs?	Discussion needs to consider 3 documents: 1. IESO Resource Adequacy and Long-Term 2 RFP Engagement, issued Dec. 13, 2023, for comment by Jan. 15, 2024. 2. Evaluating Procurement Options for Supply Adequacy, *a Resource Adequacy Update to the Minister of Energy Dec. 11. 2023.* 3. Phasing Out Natural Gas Generation in Ontario, *The IESO's response to the draft Clean Electricity Regulations, Nov. 16, 2023.*
Do you have any comments or concerns regarding the proposed offering of both capacity style and new revenue model style of contracts, based on resource eligibility requirements and system needs?	A different costing formula is needed for generation that can be reliably scheduled 24 hours in advance, to provide additional sustained generation. Such sources should be paid through a different fee structure than intermittent generation that routinely decreases in output on short notice, such as wind or solar.
Do you have any concerns regarding the proposed target setting approach for upcoming MT RFPs?	See comments below regarding concerns for resource availability in the near and far term.
Do you have any comments regarding how best to employ bridging and extensions to contracts to facilitate the success of the Resource Adequacy Framework?	Contract extensions should require consideration if a proponent has demonstrated it meets noise audit requirements. Some have not, and there should be no extension of contracts if compliance has not been fully demonstrated.

LT2 RFP Resource Eligibility and Timelines

Topic	Feedback
Do you have any general feedback on resource eligibility and timelines? (1) Initial Points (the largest generators)	Need to reconsider assumption that "*IESO is addressing overall energy needs going into the 2030's and beyond." (Document 1, page 7), considering that:* • Nuclear may reduce from ~ 9800 MW today to ~ 7300 MW in 2025 as Pickering 1,4,5,6,7,8 enter layup (life extension and refurbishment of Pickering B to 2028 still being assessed by CNSC) Natural gas capability of ~ 11,000 MW, assumes continued availability of Lennox – which is uncertain

Do you have any general feedback on resource eligibility and timelines? (2) Continuation (other generators)	• Hydraulic generation at peak should be reduced below 7500 MW, as some hydraulic generation must be held as a reserve against unplanned circuit or generator outages for system reliability, so the peak available is usually about 5000 MW. • Transmission and distribution connected solar capability at peak varies from summer to winter. Summer solar capability at peak may be 2500 MW, subject to rapid drop, while winter solar capability at peak is usually less than 500 MW and peak often occurs when the sun is low in the sky or has set. • Biofuel may not change to have a capability of about 300 MW at peak, subject to reduction in fuel supply. • Battery supplied 4-hour short term capacity of 2500 MW (10,000 MWh) is not scheduled to be in service until 2028. • Wind capability was assessed by charting daily IESO data for 3 years of Ontario market demand and daily wind generator output. This shows Ontario experiences maximum peak loads in the summer, with quite a daily variation, and a slightly smaller peak in the winter, with somewhat smaller daily variation. During the larger summer peaks, the wind turbine daily output is routinely low. During winter peaks, wind turbine output is often larger, but still subject to large day to day variation. Accordingly, the wind turbine supply available at peak anticipated for 2025 should only be credited from about 100 MW to 1200 MW.
Do you have any general feedback on resource eligibility and timelines? (3) Summary	• The overall capability at peak in 2025 is anticipated to be reduced to 24,000 to 25,000 MW, of which about 11,000 would be supplied from natural gas. This is uncomfortably tight for reliability. Given that the 2023 Ontario market peak demand of 23,476 MW is anticipated to continue to rise, the IESO statement that Ontario is on track to meet peak demands mid-decade is questionable. BESS supply is not anticipated to be commissioned until 2028 to supply 2,500 MW. Ontario will likely need to import power from neighbours to meet peak. Since 2023 peak was sustained over 23,000 MW for 4 hours the BESS would likely be largely depleted by sunset. Recharging the BESS overnight to be available for the next day would maintain loads over 20,000 MW most of the night. Meeting demand in 2025 and the years after will certainly be challenging.

Topic	Feedback
If the potential of repowering an existing facility applies to you, would you be interested in exploring this option further?	N/A
How should the optimal threshold for what constitutes a partial or fully repowered facility be determined and what considerations should be taken into account regarding the repowering of different resource types? Initial comments	IESO documentation states: *"Repowering of wind, which consists of fully or partially replacing old turbines with more powerful and efficient models, would allow existing sites to increase their capacity without increasing their footprint." (Document 2 – Page 8)* • the majority of the initial contracts were signed before the Renewable Energy Regulations required setbacks of 550 metres. Repowering would result in replacing 1.5 to 2 MW turbines with typically 3.5 to 4.4 MW turbines so that often more than 1 larger turbine would be located at a setback of from 400 metres to 500 metres from homes. Turbines with blade lengths of 60 to 65 metres would be located as close as 50 metres from municipal or county roadways. • Considering O.Reg 359/09, these turbines would be non-compliant. O.Reg 359/09 requires a minimum setback of 550 metres, and a noise level at homes of no more than 40 dBA. ○ As an example, in the Enbridge Underwood array, the "Final" assessment for the project approval shows that 18.5% of all residences in the array are located at distances of under the 550 metres specified by O.Reg. 359/09. 41 of the 110 turbines are located closer than 550 metres of homes. The assessment also identified that 15 residences did not meet the 40 dBA limit in 359/09.

Topic	Feedback
How should the optimal threshold for what constitutes a partial or fully repowered facility be determined and what considerations should be taken into account regarding the repowering of different resource types? Further comments	• There are also technical limitations that would be challenged by repowering on the same site footprint. ○ In the Enbridge Underwood array, the inter-turbine spacing of the 110 wind turbines in the array shows turbines are sited as close as 169.0 metres apart. "Repowering" of the 82-metre rotor diameter (1.65 MW) turbines with 125 metre rotor diameter 3.0 MW turbines, would result in blade tips of adjacent turbines as close as 44 metres. • Repowering should require a preparation of a new environmental noise assessment, and meeting all regulations. • Additionally, regulations need to be reviewed in consideration of new, larger wind turbines, with different sound profiles. Repowering, with anything other than the identical turbines, should be considered as new projects and be subject to municipal zoning approval.
What considerations should be taken into account for new-build DERs?	Requires municipal approval, full environmental noise assessment, and compliance with land use requirements.
Please express any interest and opportunities for uprates and/or expansions at any of your existing facilities.	N/A

LT2 RFP Design Considerations – System Congestion and Deliverability Approach

Topic	Feedback
What early system congestion information do proponents need to guide them in choosing the location of their projects and when is this needed by within the procurement cycle?	Siting decisions need confirmation of available transmission capability to transmit from remote sites to the load centres. This favours siting of Distributed Energy Resources (DERs) close to load centres, rather than remotely.
Do you have any general suggestions for how to approach deliverability evaluation in the LT2 RFP?	Locate DERs as close to load centres as possible, such as solar panels over GO or municipal transit parking lots.

LT2 RFP Design Considerations – General Feedback

Topic	Feedback
Do you have any comments regarding the impacts that agricultural land-use limitations may have on project development?	IESO documentation identifies, *"Significant restrictions on using agricultural land could limit opportunities to repower/expand existing facilities, as well as the volume and timeliness of new resources that are needed to maintain reliability. While restrictions on siting based on agricultural land use were previously limited to ground-mount solar PV generation, some parties have called for restrictions to be expanded to include wind." (Document 2 – Page 13)* • A significant government commitment was to return decision making for new energy projects to the municipalities. These statements in the IESO document identify uncomfortable pressure applied to municipalities. Municipalities should be given the right to make their own decisions for siting at distances above regulatory limits without outside pressure. • The Provincial Policy Statement (PPS), including draft revisions presented in June 2023, do not permit wind and solar projects on "Prime Agricultural Land." Municipal comments on BESS proposals identify support to that PPS policy. Only small BESS projects (less than 1 Ha) would be allowed on Prime Agricultural Land.
Do you have any comments regarding what evaluation criteria can be utilized to evaluate project readiness, given tight timelines and reliability needs?	*"Reliability"* has many mentions in the referenced IESO documents. (16 mentions in Document 1, 7 mentions in Document 2, 10 mentions in Document 3.) • The Oxford Dictionary defines "reliability" as "the quality of being trustworthy (able to be relied on) or of performing consistently well. • Applying the term "reliability" to wind and solar PV generation is an oxymoron, given that both wind and solar are variable rather than reliably consistent, and as shown above, wind in particular is demonstrated by IESO data that its availability is often low on Ontario summer peak demand days.

Topic	Feedback
Do you have input on the proposed mechanism for valuing Indigenous participation?	IESO presentations identify that an area of 16 x the area of the city of Toronto will be required for the projects identified in their current plans for new generation siting. This area of 16 x 641 sq. km. (10,256 sq. km.) is greater than the total area allocated to all 128 First Nations in Ontario, which is under 10,000 sq. km.
Are there any other rated criteria that should be considered?	Considering land area use, compare the 10,256 sq.km. identified for the IESO current plans, to the entire Bruce Power site, which produces some 60% of the electrical energy for Ontario, on a site of 9.3 sq. km. (less than 1 / 1000 of the new area the IESO are speaking) yet still has space for an additional 4800 MW of generation. Pricing criterion should consider the ability of a generator to provide power on demand, when needed. On this criterion, wind and solar generation rank low.

Long Lead Time Resources

Topic	Feedback
Does the proposed approach to enabling long-lead time resources enable meaningful participation or sufficient certainty?	No comment
What additional considerations should the IESO contemplate for enabling broader participation from long-lead time resources?	No comment

Revenue Model

Topic	Feedback
As a potential proponent, are you generally supportive of the proposed Enhanced PPA revenue model? Are there any other considerations that the IESO should look into further with regards to the revenue model?	N/A – not a potential proponent. See further comments on IESO revenue model elsewhere under "General Comments / Feedback".

General Comments/Feedback

Topic	Feedback
"Decarbonization" is a recurring theme in both *"Evaluating Procurement Options*" (Document 2) and the "*Phasing our Natural Gas"* (Document 3.) Statements are made such as *"The province's next procurements will make a significant contribution to decarbonizing its supply mix." (Document 2 – Page 10).* *Related comments:*	• Discussion about *"significant contribution to decarbonization*" would suggest that the dominant contributor to Ontario electricity supply is from fossil-based generators. This is inconsistent with the information shown on the IESO website which shows carbon-based generation from gas of 10.4% and biofuel as a tiny sliver of < 1%. • No justification is presented as to the level of the "significant" contribution to decarbonization. Neither does the discussion acknowledge that natural gas will continue to be a critical contributor to both peak demands and to overall energy needs in the future. • Even with a 5TWh increase from 2,000 MW of new non-emitting generation from repowered wind by 2030, followed by two subsequent increases of 1,500 MW of "non-emitting" generation, the contribution of natural gas generation will continue to increase. This is due to the expected increase in the system peak demand and energy requirements, identified as an Ontario TWh annual usage increase from about 140 TWh in 2023 to 175 TWh in 2030's and to 200 TWh by 2050 (IESO Pathways to Decarbonization – Dec. 2022) • The overall contribution of natural gas generation will continue to increase until other new generation that can reliably generate 24 hours a day /7 days a week/52 weeks a year becomes available. While IESO Document 3 mentions new nuclear generation, and credits the first SMR as being in service in 2029 (an optimistic estimate for a new, unlicensed technology), as well as the completion of Darlington Nuclear refurbishment and Bruce Nuclear major component replacement by 2032, the failure to acknowledge this, or studies towards 4800 MW of new nuclear at the Bruce site in the IESO documents 1, and 2 is a regrettable omission.
Discussion of the "cost effective" nature of the IESO proposal is prominent in all documents, suggesting the option chosen will be both cost-effective, and reduce costs.	It is not clear that the IESO has fully considered current information. Wind power development in the United States is currently experiencing cost induced project cancellations. • *"Orsted (ORSTED.CO), the world's largest offshore windfarm developer, energy giants BP (BP.L) and Norway's Equinor (EQNR.OL) have booked hundreds of millions of dollars worth of impairments on their U.S. offshore wind power portfolios, citing spiralling financing costs and supply delays." (Reuters.com Dec. 6, 2023)* • *"New York's offshore wind energy plans delayed as Empire 2 project halted – In a blow to New York's*

	efforts to create green energy sources. They did, however, indicate the possibility of a rebid, at a higher price. (Times Union – Jan 3, 2024) • *"Renewable energy developers connected 1,099 MW of new wind power capacity to US electric grids in the second quarter, a 45% decline from the year-ago period. (Renewable Energy World – Sept. 14, 2023)* • These project delays and cancellations are occurring in spite of the United States "Inflation Reduction Act" which set aside $369 Billion US to support renewable energy, yet the proponents still cite spiralling financial costs. • There seems to be no recognition in the IESO cost estimates for new or repowered wind energy that development of such resources is controlled by a limited number of developers and manufacturers, and that costs follow international pressures. Canada and Ontario learned that to "win" battery storage plants it was necessary to offer large subsidies. Development of wind as yet another renewable energy project is similar, and IESO estimates that wind development costs are going to be reduced to "drive a cost-effective outcome" ignore current realities. • The current proposal to approve 2500 MW (10,000 MWh) of lithium ion battery storage sites before 2030 would utilize over 30% of the annual output of the world's largest (proposed) battery plant, the Volkswagen St. Thomas plant, that is not even scheduled to be in full production until 2035. The majority of batteries supplied for BESS before 2030 will not be domestic production, exporting dollars and jobs. • Having carefully examined the "revenue" model proposed in the "IESO Resource Adequacy and Long-Term 2 RFP Engagement" it is not clear that the model has recognized the need to apply a different costing formula for generation that can be reliably scheduled 24 hours in advance, or that can be called on short notice to provide additional sustained generation if available on "standby." Generation of that nature should be paid through a different fee structure than intermittent generation that routinely decreases in output on short notice, such as wind or solar. It is not clear if the proposed revenue formula will continue to offer the option to such intermittent generators to be paid for not producing, when not required. The latter practice has significant cost impact, and is an irritant to consumers. The revenue model should address this issue clearly.
Overall Conclusion	The IESO proposal requires rework to demonstrate meeting the claimed criteria of being safe, reliable, and cost effective.