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Dear Chuck,

This submission responds to the Independent Electricity System Operator's (IESO's) December 13, 2023, webinar (the "webinar") on the Long-Term 2 Request for Proposals (LT 2 RFP).¹

Power Advisory has coordinated this submission on behalf of a consortium of renewable generators, energy storage providers, and the Canadian Renewable Energy Association (CanREA) (the "Consortium"²).

We would like to thank the IESO for holding the webinar. We believe that it is important for the IESO to continue consulting with potential Proponents to improve the process and to avoid fatal flaws in the LT 2 RFP or LT 2 Contract.

We have the following comments on the proposed LT 2 RFP procurement process.

Revenue Model

The proposed Enhanced Power Purchase Agreement (PPA) revenue model (the "revenue model") will not provide the incentive to proponents to invest in projects in Ontario. The revenue model introduces several risks for proponents that cannot be managed by them. This results in a great deal of uncertainty for proponents and an inefficient transfer of risk, which will only serve to deter investment or lead to vastly higher costs for Ontario ratepayers.

The revenue model is new, untested and does not provide proponents with any revenue certainty. Absent this certainty, proponents will not be investing in site selection and resource assessment to prepare proposals. Considering the magnitude of the supply need in Ontario, this is not the time to be experimenting with new revenue models. For example, the New York Energy Research and Development Authority's (NYSERDA's) recent procurement challenges, discussed at the end of this submission, should provide the IESO caution with proceeding with this revenue model. The IESO should be turning to the tried-and-true revenue models that have been used in the past and that were successful in providing revenue certainty to Proponents while delivering thousands of megawatts of new energy supply resources cost-effectively, which the province now needs more of. We believe that the revenue model presented at the December 13, 2023

¹ See <https://www.ieso.ca/-/media/Files/IESO/Document-Library/engage/long-term-rfp/lt2-rfp-20231213-engagement.ashx>

² The members of the Consortium are: CanREA; Axiom Infrastructure; BluEarth Renewables; Boralex; CarbonFree Technology; Connor, Clark & Lunn; Cordelio Power; EDF Renewables; EDP Renewables; Enbridge; ENGIE; Evolugen (by Brookfield Renewable); H2O Power; Kruger Energy; Liberty Power; NextEra Energy Canada; Pattern Energy; Potentia Renewables; and wpd Canada.



webinar needs to be abandoned and that in its place a PPA with an indexed fixed price that does not depend on market outcomes must be adopted. This is the only way that Proponents will have the certainty they need to invest in LT 2 project proposals.

The revenue model is fundamentally flawed because the monthly Grid Reliability Payment (GRP) is effectively an attempt at a contract-for-differences based on deemed production between the Proposal Price (PP) and the monthly simple average of the Day-Ahead Market price ($DAMP_{avg}$). This creates several troubling issues, as discussed below.

1. Deemed production is based on an annual production factor, but with monthly contract settlement the only parameter specific to the month is the calendar hours in the month. Most qualifying resources (e.g., wind, solar, hydro) will have monthly variations in output. Using a single, static annual average production factor to deem monthly output can lead to material mismatches between deemed production and actual production month-to-month. If the monthly average $DAMP_{avg}$ differ month-to-month, which one would expect them to do, this will create deemed energy revenue mismatches which may not average out on an annual basis.
2. Production factors will need to include an estimation of curtailment. Curtailment is beyond the reasonable control of Proponents. Forecasting long-term curtailment can be challenging and many factors that could increase curtailment (e.g., government procurement of additional generation in zone, loss of load in zone, delay or failure to build adequate transmission, etc.) would be out of the Proponent's control. Congestion risk cannot be transferred to Proponents. This is particularly true within the Ontario hybrid market structure, where new resource investments are determined primarily by government direction to the IESO or through rate-regulated activities that include broader government policy (e.g., new nuclear generation being developed). This risk needs to be retained by the IESO, since as the system operator it is in the best position to manage this risk - not Proponents. The Buyer (i.e., IESO) retaining the curtailment risk has been standard across Canada over the past decade including the Alberta Electric System Operator (AESO) Renewable Energy Program (REP), SaskPower's renewable procurements for wind and solar, Hydro Quebec's wind procurements and most recently within the draft Energy Purchase Agreement (EPA) terms within BC Hydro's 2024 Call for Power. To the extent Proponents are exposed to any curtailment risk, it must be a predefined cap that can be modelled and factored into a Proponent's proposal pricing like past IESO procurements.
3. Using $DAMP_{avg}$ as the deemed average market price implicitly contains the assumption of a baseload production profile. To the extent that the resources' monthly average production-weighted DAM price differs from the $DAMP_{avg}$ there will be a mismatch between a resource's actual market revenue opportunity and its deemed market revenue. The presentation acknowledges the "up-side" for some resources able to shift production but does not acknowledge the "down-side" risk this introduces to other resources. In a decarbonized future, there



is a much higher probability of day-ahead and real-time prices being volatile which will not be reflected in a simple average of DAM prices.

4. The risk between DAM and real-time market (RTM) participation is not addressed with the revenue model. Historically IESO PPAs have provided a hedge based on real-time parameters. The IESO's proposed settlement structure is based on day ahead pricing (and locational pricing). Differences in quantities scheduled in the DAM versus the RTM with their corresponding prices can lead to lower or higher energy market revenues depending on the different scenarios. A revenue model based on real-time parameters should be implemented in these procurements.

The lack of revenue certainty and reliance on market outcomes to determine the quantum of payment under the contract will be a serious impediment to obtaining non-recourse project financing for projects. Further, the proposed revenue model is being developed while the underlying market design is undergoing a significant overhaul with many uncertain and risky outcomes (i.e., uncertainties regarding operational and revenue outcomes after the IESO's Market Renewal Program has been implemented in May 2025). Risk of further market design changes, amendments or failures are insurmountable for financing new resource projects in Ontario. Lenders will not take on market risk in Ontario. No one will fund the projects the IESO is seeking entirely with equity. This means projects will not get developed. This will have dire consequences for Ontario.

Resource Adequacy Framework and Cadenced Procurement Approach

Regarding cadenced procurements, we think that providing certainty and regularity around procurement opportunities is a step in the right direction for the reasons mentioned in the presentation. However, given the overlap of the procurement timing, more clarity will be required on how resources eligible to participate in both LT and Medium-Term (MT) procurements will do so simultaneously. Given the illustrative timelines, with a short amount of time between the start of the LT and MT procurements and significant overlap, the IESO could consider combining the LT and MT procurements into a single process that would allow proponents to efficiently participate in both opportunities.

In concept, having choice of contract style that best serves the resource is attractive. Unfortunately, as designed, neither style will work for solar and wind projects. Details such as contract type eligibility (proponent choice or IESO choice), contract obligations (e.g. what constitutes non-performance and implications on settlement), and how proposals with different contract styles will be evaluated against each other through the procurement will be important for the IESO to provide to get substantive feedback.

In terms of the target setting approach for the procurements, we appreciate why the IESO would want to set a target below the amount of eligible existing resources to promote competition in the MT RFPs. However, if the need exceeds this arbitrary set target amount it would seem counterproductive to restrict opportunities for existing resources in favour of new build resources. It is suggested the IESO explore



additional means to promote competition without arbitrarily restricting opportunities for existing resources to meet Ontario's needs.

We have reviewed the IESO's proposed "bridging" mechanism. Continuing to employ bridging and extensions to contracts will be important to keep existing resources viable to cost-effectively meet future needs and facilitate the success of the Resource Adequacy Framework. If proponents were successful through the MT / LT procurement, we foresee two options.

1. Existing contracts could be extended as part of the contract award for the MT/LT procurement. Any adjustments to contract obligations or pricing should be specified as part of the procurement, which could include bidding in parameters, so both parties agree to the extended contract's terms and conditions prior to the MT / LT contract award.
2. New contracts could contain a bridging period, as part of the contract term, with obligations and pricing for this bridging period specified and could include bidding in parameters during the procurement process. The bridging period would span from the existing contract's expiry to the start of the new contract period providing a seamless transition.

LT 2 RFP Resource Eligibility and Timelines

There should be very few restrictions on eligibility outside of the core criteria of "non-emitting, energy producing resources that are enabled in the IESO-administered markets". It is unclear to us why there is a need to restrict the eligibility of existing eligible resources to repowered resources defined using strict thresholds related to full or partial repowering. Given the IESO need for energy, we believe that the only eligibility concern ought to be that there is a reasonable level of assurance that a facility can produce energy over the contracted term.

The continued operation of existing facilities presents an excellent opportunity to provide cost-effective, non-emitting energy to Ontario. The primary consideration for such facilities should be whether they can reasonably be expected to produce energy over the contracted term and if not, what "repowering" activities need to be undertaken to do so. Other repowering activities which improve efficiency will be reflected in the indexed fixed proposal price.

Regarding the threshold for determining partial or full repowering, we believe that such a threshold should not be implemented, and the focus, as discussed above, should be on whether the existing facility, however modified it is by repowering activities, can reasonably be expected to deliver energy over the contract term. That said, there is an appreciation from members of the Consortium that material investment in existing facilities will be required to enable long term operation. Further specific consultation with stakeholders to develop appropriate long term operation assurance criteria should be undertaken. Criteria should not be based necessarily on capacity increase. For example, should a repowered facility with the same capacity, or perhaps less, because of a smaller footprint and less equipment (because of efficiency improvements in technology) be excluded because of such criteria?



LT 2 RFP Design Considerations - System Congestion and Deliverability Approach

No deliverability assessment should be included in the LT 2 RFP evaluation. Having deliverability evaluated as part of the proposal evaluation process introduced far too much risk, uncertainty for proponents - requiring proponents to commit substantial resources on a proposed project prior to getting an official determination of whether it will pass a deliverability test. Further, through E-LT and LT1, the IESO clearly did not have the resources or tools available to perform the required depth and detailed analysis required to provide clear and concise insight for proponents. In short, the concept of completing a deliverability assessment for long-term assets entering service in 3-5 years and expected to operate over 20-30 years is unobtainable from the start since the foresight required is practically impossible. Instead, we believe that if the IESO is concerned about near-term curtailment, they should set simple specific limits per zone/area for connection to support spreading new generation development throughout the province. Sub-zones/areas could also be used. No analysis on specific connection points should be used as demonstrated through LT1 and E-LT, the IESO has neither the resources or the tools to complete the analysis appropriately and instead needed to offer an ad-hoc approach that led to unnecessary restrictions and ultimately much higher costs for customers. Additionally, proponents would greatly benefit from data on available transmission capacity, congestion, and curtailment in relation to existing infrastructure. Specifically:

- Historically hourly consumption at all transmission stations for the past 3 years;
- IESO's reference case hourly forecast for all transmission stations (i.e., every future node in the province), the forecast can share select years (e.g., 2030, 2040, 2050);
- Normal and emergency transfer capability (i.e., thermal limits) for all transmission circuits and segments;
- Normal and emergency estimated transfer capability for new committed transmission circuits (i.e., all transmission projects that have been identified in an Order in Council); and
- List of all existing generation resources by connection point (i.e., node) and rated capacity (i.e., MW).

LT 2 RFP Design Considerations - General Feedback

As we have said, the proposed revenue model needs to be abandoned and replaced with an indexed fixed price for the output from projects.

Long Lead-Time Resources

The proposed approach could allow long lead-time resources to participate in the procurement processes. It is not clear what the basis for determining how much potential capacity to allocate from future LT procurements to long lead time resources participating in current procurements on how they would be evaluated. Simply put,



other than for the purpose of providing opportunities to long lead resources what benefits do they provide over the shorter lead time resources to justify providing the exclusive opportunity in advance of other resources. Some criteria that ensure these benefits are realized should be introduced.

The Consortium thanks IESO for on-going stakeholder engagement meetings regarding LT 2 RFP and other related stakeholder engagement meetings relating to supply procurements and resource adequacy.

Lessons Learned from Other Jurisdictions

Given Ontario's forecasted supply needs, it is very important for IESO to administer a successful procurement that will best enable projects to be developed in a timely manner. Therefore, LT2 should not experiment with concepts that will unnecessarily place risks to project development and financing - which will ultimately be costly for Ontario's electricity customers.

Further, due to supply chain issues, high input costs, and high interest rates, all electricity supply projects are being tasked, even under recently executed long-term contracts backed by a government entity. For example, the NYSEDA is presently facing procurement challenges and is working with contract counterparties and developers to better ensure that projects will be developed. By some reports, NYSEDA's Tier 1 procurement, as of December 2023, has experienced a contract attrition rate of 8,400 MW or 73%.³ This should serve a clear example of why LT2 and subsequent RFPs and contracts should be effectively designed to best ensure successful project development.

We will be pleased to meet with IESO about this submission at a mutually convenient time.

Sincerely,

A handwritten signature in black ink, appearing to read "Jason Chee-Aloy", enclosed within a thin black rectangular border.

Jason Chee-Aloy
Managing Director
Power Advisory

cc:

Barbara Ellard (IESO)
Leonard Kula (CanREA)
Elio Gatto (Axium Infrastructure)

³ See <https://www.linkedin.com/pulse/nyserda-tier-1-program-faces-84-gw-contract-attrition-rachelle-ufa5c%3FtrackingId=tHda%252BDpcQLudPDyzRlpfQ%253D%253D/?trackingId=tHda%252BDpcQLudPDyzRlpfQ%3D%3D>