

Stakeholder Feedback and IESO Response

Long-Term 2 RFP (LT2 RFP) – May 21, 2024

Following the April 4, 2024, LT2 RFP engagement webinar, the Independent Electricity System Operator (IESO) invited stakeholders to provide feedback on the proposed modifications to its Enhanced Power Purchase Agreement (E-PPA) revenue model, key provisions in the LT2 RFP and Contract, Medium Term 2 RFP (MT2 RFP), and the Long Lead Time procurement stream. The IESO is currently in the design stage of the LT2 RFP. Feedback is posted on the Long-Term RFP [engagement webpage](#). Please reference the feedback forms for specific feedback as the information below is provided in summary.

Note on Feedback Summary and IESO Response

The IESO appreciates the feedback received from stakeholders and communities. The tables set out below respond to the feedback received and are organized by topic.

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A) Enhanced Power Purchase Agreement (E-PPA) Revenue Model: Proposed Modifications

Stakeholders were supportive of the IESO's proposed use of monthly production factors and the option to choose between using a simple average or a Forecast Weighted Average Price (FWAP) to deem energy market revenues. Stakeholders agreed that some form of mitigation of perceived risks associated with Variable Generation (VG) participation in the Day Ahead Market(DAM) was required, however there was mixed feedback on how this mitigation would be achieved.

Specific feedback on the IESO's proposed modifications to the E-PPA are summarized below.

Feedback / Common Themes**IESO Response**

Provide clarity on whether adjustments can be made to submitted energy production factors: successful LT2 RFP proponents should be eligible to adjust their contracted energy production factors on a routine basis (e.g. every 3 years).

The IESO is evaluating whether the LT2 Contract will allow suppliers to amend the imputed production factors used to deem energy market revenues throughout the operating period of the LT2 Contract. To support its evaluation, the IESO is considering factors that may justify amendment of imputed production factors during the life of the contract. As changes to the imputed production factor may limit the total or timing of payments under the LT2 Contract, such changes will need to be highly limited, if they can be accommodated.

Feedback / Common Themes	IESO Response
<p>The IESO should clarify how Forecast Weighted Average Prices (FWAP) will be calculated:</p> <ul style="list-style-type: none"> • Greater clarity is required on the formula and what timeframe the forecast will be used in the FWAP calculation. • The IESO should provide a detailed calculation for multiple days on FWAP as it relates to calculation of Deemed Revenue, Grid Reliability Payments (GRP) and where and when (i.e., what tool and when will the information be accessed) the information will be used for payments under the E-PPA Revenue Model. 	<p>The FWAP would be calculated at the end of the month using the IESO centralized forecast for each individual resource and the associated hourly DA Locational Market Prices (LMP). The FWAP will be unique to each facility based on their forecasted capability.</p> <p>More information can be found in the Revenue Model Update on the LT2 RFP webpage. The IESO will be updating this document as decision are made regarding the LT2 Contract.</p>
<p>The IESO shouldn't force VG participation into the DAM as it would be counterproductive to the purpose of the DAM and the benefits it can provide to the reliability and operability of Ontario's electricity market: Instead, the DAM should be reserved for dispatchable generation that can offer capacity to meet next day electricity system needs as well as offer opportunities for flexible and responsive resources (e.g., energy storage) to manage DART risk.</p>	<p>VG resources are not forced to participate in the DAM, VG resources are free to submit whatever offers they would like into the DAM including zero quantity offers; and they are then free to participate solely in the Real Time Market(RTM). However, the deemed revenues will be based on the DAM which should encourage active day ahead participation.</p>

Feedback / Common Themes	IESO Response
<p>RTM prices should be used to determine a weighted average monthly LMP: A stakeholder indicated that a real-time LMP will reduce exposure to shape risk and allow proponents to be more reactive to prevailing system conditions.</p>	<p>The IESO understands the desire from stakeholders to deem energy market revenues based on RTM prices as it allows VG resources to participate in the RTM alone and eliminates exposure to day ahead to real time balancing risk (DART risk). However, disincentivizing participation in the day ahead market is not a desired outcome for the IESO with the implementation of market renewal program (MRP).</p> <p>The IESO continues to explore options that will significantly mitigate DART risk, which will allow VG resources to participate in the DAM, balancing the IESOs desired outcome and supplier risk.</p>
<p>The IESO should move to a rolling forecast setup, where the IESO’s forecast data is continually updated: any revenue model calculation e.g. deeming would adopt the latest updated rolling forecast to determine payment.</p>	<p>The IESO continues to explore options that will mitigate DART risk.</p>
<p>The IESO should provide some sort of DART risk mitigation or risk sharing.</p>	<p>The IESO continues to explore options that will mitigate DART risk, possible solutions will be presented at the May 23, 2024 stakeholder engagement session.</p>
<p>The IESO should publish data comparing historical IESO centralized forecast energy outputs vs day ahead and real time data: this data would provide a way for proponents to benchmark IESO forecast performance.</p>	<p>The IESO will explore publishing historical IESO centralized forecast performance.</p>

Feedback / Common Themes	IESO Response
<p>The IESO central forecast should provide clearer distinctions between different technological production profiles: It currently relies on weather data; however, further clarification is needed on the assumptions made about technology, particularly concerning variations in facility design parameters.</p>	<p>The IESO central forecast is created using a combination of operation telemetry data and inputs from MET data collection devices located across Ontario. The IESO cannot disclose how the forecast is generated, however the forecast has a performance obligation where forecast accuracy must be maintained between the forecast input in the Day Ahead Commitment Process (DACP) and the actual real-time forecast.</p>
<p>Clarify if the FWAP will be calculated nodally or zonally</p>	<p>The FWAP will be calculated nodally, using the applicable Day-Ahead locational marginal price based on the IESO centralized forecast for the applicable Facility.</p>
<p>The IESO should provide greater clarity on how LT2 RFP proposals will be evaluated: including the disclosure of price forecasts and whether a weighted average zonal price will be used in proposal evaluations.</p>	<p>The IESO will not be using a weighted average zonal price in the proposal price evaluation. The evaluation will be performed on the proposal price and the bid imputed production factors in combination with the rated criteria points creating an evaluated proposal price. The LT2 RFP proposal evaluation process is under development and further details will be shared at a future engagement.</p>

B) LT2 RFP & Contract: Key Provisions

Stakeholders were generally supportive of the IESO’s proposed LT2 RFP and contract performance obligations and treatment of outages. However, many stakeholders expressed that the LT2 Contract should not require suppliers to payback any deemed market revenues that exceed GRP. Specific feedback on key provisions for the LT2 RFP and contract are summarized below.

Feedback / Common Themes	IESO Response
<p>Stakeholders were unclear of the benefits of minimum production factors: Specific feedback is below</p> <ul style="list-style-type: none"> • Many stakeholders indicated that, if implemented, minimum production factors should be published as soon as possible as they can pose significant risk and uncertainty for developers. • Some stakeholders indicated that, if adopted, minimum production factors should be applicable to each sub-class of technology type (i.e. dispatchable hydro, run-of-the-river hydro), be achievable and determined through consultation. • Few stakeholders indicated that minimum production factors may not be necessary if the LT2 RFP procurement target is expressed as energy (i.e. MWh). 	<p>The IESO is proposing to use minimum production factors as a mandatory requirement of the LT2 RFP. During the LT2 RFP evaluation process, the IESO will only evaluate proposals that submit a production factor greater than the minimum production factor associated with their technology type. The proposed use of minimum production factors will help the IESO ensure that resources awarded a LT2 Contract are able to meet a minimum performance standard needed to help address system reliability.</p> <p>The IESO is determining the minimum production factors that will be applicable to resources that include: on-shore wind, off-shore wind, ground-mounted solar, rooftop solar, dispatchable hydroelectric, intermittent hydroelectric and biofuel resources. These proposed minimum production factors will be presented to stakeholders in June.</p> <p>While the LT2 RFP procurement target is currently expressed as energy, the IESO will require a minimum production factor for the purposes of the LT2 RFP to ensure that only proposals from projects that can address future reliability needs are submitted for evaluation.</p>

Feedback / Common Themes	IESO Response
<p>Most stakeholders were largely supportive of non-performance charges and requested details on charge amounts and mechanics as soon as possible: Specific feedback is below</p> <ul style="list-style-type: none"> • Many stakeholders indicated that the IESO should consider an 80% threshold on Non-Performance charges to provide alignment with charges in other jurisdictions. • Some stakeholders indicated that the performance of a facility should be evaluated over a period greater than 3 years to account for consecutive years where performance is impacted by unforeseen weather anomalies. • Stakeholders indicated that the IESO should provide details for how planned outages, transmission/distribution system outages and economic outages will be accounted for when evaluating the performance of a facility. • The IESO should consider tiered performance minimums to provide more flexibility to smaller sized facilities where the performance of a single generation unit or turbine could have a greater impact on the overall performance of the facility. • Some stakeholders were unsupportive: noting that underperformance is already punished under the deeming model. 	<p>The IESO is evaluating the production threshold and period of time that will be used to determine if a supplier is subject to a non-performance charge or a default under the LT2 Contract. The non-performance consequences under the LT2 Contract will be applicable to all facilities awarded an LT2 contract under the same set of conditions. These conditions and the method to calculate facility availability during outages for the non-performance charge will be presented to stakeholders in the next two months.</p> <p>The IESO appreciates feedback on the production threshold and period over which a non-performance charge should be applied and will consider applying a non-performance charge for when a facility is not able to produce more than 80% of their annual production factor over a time period longer than a rolling three-year period. However, the determined non-performance charge will be applicable to all facilities awarded a LT2 contract.</p>
<p>Stakeholders were largely supportive of the proposed treatment of outages under the LT2 RFP. Some stakeholders requested confirmation that energy market revenues would not be deemed during times when a facility is on outage.</p>	<p>The IESO appreciates support on its treatment of outages under the LT2 RFP. As indicated in the April 4th webinar, the IESO confirms that energy market revenues will be deemed while a facility is on outage. However, treatment of Force Majeure scenarios, whether for deemed revenue purposes or non-performance provisions, remains under consideration by the IESO.</p>

Feedback / Common Themes	IESO Response
<p>Stakeholder were largely unsupportive of the proposed payback of Deemed Market Revenues greater than the Monthly Revenue Requirement: Specific reasons from stakeholders are described below</p> <ul style="list-style-type: none"> Disincentives siting in areas with higher nodal prices which is indicative of the need for more generation Does not support risk takers and with deeming model could double punish proponents <p>Some stakeholders suggest that there should be risk mitigation elsewhere if the IESO moves ahead with this stance on GRP payback</p>	<p>With the introduction of the GRP under the E-PPA revenue model, the IESO has removed siting risk as it relates to locational marginal pricing. A resource built in a low-priced area and that has low energy revenues is made whole through the GRP. It is consistent that by removing all locational pricing risk the IESO should be removing the locational pricing upside. However, the IESO is still considering feedback and whether there is an appropriate split between the IESO and suppliers on payback of deemed market revenues greater than the monthly revenue requirement.</p>

C) Medium Term 2 Request for Proposals (MT2 RFP)

Stakeholders were supportive of advancing the MT2 RFP to run in a coordinated fashion with the LT2 RFP. Specific feedback on the IESO's approach to MT2 RFP is summarized below.

Feedback / Common Themes	IESO Response
<p>The IESO should not require municipal support resolutions for existing assets. Many stakeholders indicated that requiring a municipal support resolution could serve as a barrier for existing facilities participating in the MT2 RFP.</p>	<p>Municipal support requirements remain a matter of government policy. The IESO will provide stakeholders with guidance on municipal support requirements under the MT2 RFP as soon as that policy is available.</p>
<p>Provide clarity on the treatment of renewable generation facilities that will be coming off contract:</p> <ul style="list-style-type: none"> Some stakeholders indicated that the IESO should negotiate contract extensions to the end of the asset's useful life as a bridge contract to the start of the MT2 RFP may not provide the necessary assurance to justify investments needed to extend the assets lifespan. 	<p>The IESO's preferred approach continues to be to advance the timing of the MT2 RFP such that all facilities with contracts expiring in 2027, 2028 and 2029 can have the necessary assurance to justify investments. The IESO will continue to engage on this topic and will provide guidance as it proceeds with the design of the MT2 RFP</p>

D) Long Lead Time Resources

Stakeholders were generally supportive of the IESO’s proposed approach to separate the Long Lead Time (LLT) Resources stream from the LT2 RFP stream. However, there were many questions about definitions, timelines, evaluation, many of which will be answered as the IESO continues engagement with stakeholders on the LLT stream separately from the LT2 RFP. Specific feedback is summarized below

Feedback / Common Themes	IESO Response
<p>The IESO should separate the Long Lead Time (LLT) stream from the LT2 RFP: There were differing opinions on the timeline of the LLT stream.</p> <ul style="list-style-type: none"> • The LLT stream should be after the LT2 RFP to allow more time for planning and improved pre-bid development • The LLT stream should be in parallel with the LT2 RFP 	<p>While the LLT stream will be run under the umbrella of the LT2 RFP, it will, functionally, be a separate procurement and will include somewhat different timelines, starting with the commercial dates (i.e., 2034, 2035). Terms of the RFP and contract for the LLT stream will be developed collaboratively with stakeholders in the coming months and further details will be shared at a future engagement.</p>
<p>A full definition of Long-Lead Time Technology needs to be provided as well as guidance on how expansion of existing facilities will be handled.</p>	<p>The IESO appreciates this feedback and invites stakeholder feedback on how Long-Lead Time resources can best be defined.</p> <p>For existing expansions facilities, the IESO believes that these may best be included in the standard LT2 RFP, but is open to stakeholder feedback.</p>
<p>How does the IESO plan on comparing LDES to Hydro projects: Capacity products and energy products have different fundamental characteristics and the exact comparison criteria would be helpful to understand and keeping in mind that Hydro projects can provide both energy and capacity. Project price proposals for LDES and Hydro projects are likely not comparable.</p>	<p>The IESO sees system and strategic value in procuring both LDES projects and new hydro-electric generation under the LLT stream. Given this starting point, the IESO believes that a single evaluation methodology that compares these on a common metric (i.e., revenue requirement or LCOE), that is then modified by certain technical criteria (i.e., duration, operability etc.) will enable greater competition. Further details will be shared in the coming months</p>
<p>How will the IESO value the round-trip efficiency of LDES assets.</p>	<p>The value of round-trip efficiency will be considered as IESO begins continues engagement on the LLT stream.</p>

<p>The IESO should assign higher rated criteria points for Long Lead Time resources: rated criteria points could be assigned for greater proximity to system, better dispatchability, and the ability to provide ancillary services</p>	<p>The IESO will engage with stakeholders on the rated criteria for the LLT stream and looks forward to further feedback.</p>
<p>The IESO should define Long Duration Energy Storage (LDES) resources as 10+ hours of capacity.</p>	<p>The IESO is currently proposing that LDES resources in the LLT stream have a minimum of 8+ hours duration. The IESO will further engage with stakeholders to more clearly define project eligibility for LDES projects to those that truly require long lead times.</p>
<p>The IESO should evaluate LDES and Hydro projects separately</p>	<p>The IESO’s preferred approach is to evaluate all proposals on a like-for-like basis using a singular evaluation methodology.</p>
<p>The IESO should implement mechanism to recover pre-development costs</p>	<p>The IESO appreciates the feedback and will continue to engage with potential proponents on how -development costs can best be managed in the LLT stream</p>
<p>The IESO should offer contract term options: 20, 30, and 40 years</p>	<p>The IESO is considering 40 years contracts for the LLT stream given the anticipated design life of such projects.</p>
<p>The IESO should provide a bundled PPA style contract</p>	<p>The IESO has designed two forms of contract for its long-term resource adequacy procurements (the E-LT1/LT1 Contract for Capacity and the E-PPA for Energy) that balance proponent and ratepayer objectives in the renewed market. These contracts should be suitable for the LLT with the choice given to the proponent to select whichever contract aligns most closely with their proposed project.</p>

Would the IESO consider transmission upgrades to support LLT projects as the project timelines allow sufficient time for transmission upgrades

The IESO will consider possible transmission upgrades as the IESO continues engagement on the LLT stream. Furthermore, the IESO will seek to understand how potential projects under the LLT stream align with planned transmission buildouts.

E) General Feedback

Stakeholder feedback submissions included additional comments for consideration. These comments are outlined below:

Feedback / Common Themes	IESO Response
<p>Clarify the energy procurement target for the LT2 RFP. Targets should be expressed as TWh instead of MW to better reflect the actual energy that will be delivered to the grid and provide alignment with real-time markets.</p>	<p>The energy procurement target for the LT2 RFP is 5 TWh or 5,000 MWh. As noted in its recent Resource Adequacy Update, the IESO will also be introducing a capacity stream to the LT2 RFP, with a target between 500-1000 MW (final target to be determined).</p>
<p>The IESO should consider a longer contract term for the LT2 RFP. Some proponents indicated that extending to a 25- or 30-year contract term would provide better alignment with the useful lifespan of variable generation facilities and could result in reduced proposal prices.</p>	<p>For assets other than long lead-time assets, the LT2 Contract will be awarded for a term of 20 years (subject to early COD).</p>
<p>The IESO should provide clarity on whether it will provide protection against increases in capital expenditure costs between the LT2 contract award date and the LT2 commercial operation date. Some stakeholders also requested clarity as to whether the IESO would similarly provide indexation over the term of the contract.</p>	<p>The IESO is considering this feedback and determining how protections against increases in capital costs between the LT2 Contract award date and the LT2 Contract commercial operation date can be included in the LT2 Contract. The IESO will present its thinking in the coming months and seek to engage on this topic further.</p>

The IESO should facilitate a formal process for the municipalities to meet with the IESO.

The formal process should enhance decision-making abilities by municipalities by helping them understand the information provided

The IESO appreciates this feedback and is committed to working with communities to plan for and maintain an affordable and reliable electricity supply. Given the volume and geographic dispersion of potential energy-related projects across the province, the IESO has developed several resources/actions targeted to the needs of municipalities to ensure uniform access to high-quality information to aid municipal decision-making, including:

- A dedicated [community engagement webpage for LT2 RFP](#)
- Offering Community Engagement sessions for LT2 RFP, where municipalities are encouraged to attend and submit feedback to engagement@ieso.ca
- Participating in municipal conferences to engage directly with municipal elected officials and staff
- Targeting engagement opportunities exclusive to municipalities, such as information sessions and webinars with time allotted for Q&A sessions
- Offering key points of contact through a dedicated email (communityengagement@ieso.ca) and group of Advisors available to receive inquiries, follow-up on questions or requests for information
- [Municipal Toolkit\(s\)](#) with educational resources for municipalities to build awareness and understanding of Ontario's electricity system, its growing needs and the important role of communities in our shared energy future

Lastly, proponents are encouraged to work with municipalities and share accountability with the IESO in educating and informing municipalities.

Feedback / Common Themes	IESO Response
<p>Clarify impacts to a supplier if municipal support is rescinded prior to award of an LT2 contract. There may be instances when pre-bid support is later revoked by a municipality</p>	<p>In order to receive a LT2 Contract, a Proponent must have received a municipal support resolution. The nature of a municipal support resolution is binary and represents a snapshot in time for purposes of confirming that the applicable municipality wants to enable the submission of the applicable Proposal/award of rated criteria points. The IESO has been clear that municipal support resolutions do not limit or in any way bind a municipality in its regulatory functions with respect to the project. The IESO will not be contemplating scenarios of revocation of a municipal support resolution following Proposal submission.</p>
<p>Distribution connected resources awarded an LT2 contract should not be required to become market participants. One stakeholder indicated that doing so would result in extra costs for successful proponents of distribution connected projects.</p>	<p>All facilities awarded an LT2 Contract must become market participants in the IESO-administered markets in accordance with market rules.</p>
<p>The IESO should clarify how the Market Power Mitigation (MPM) regime under MRP will interact with the LT2 RFP. Some stakeholders indicated that the IESO should describe how MPM will impact the deeming of energy market revenues.</p>	<p>The MPM regime in the IESO’s renewed market will be applicable to a market participant’s behavior in the renewed market (i.e. how a supplier submits offers). As the LT2 RFP deems energy market revenues based on Day Ahead prices and expected production, the MPM regime is not expected to apply to the prices used to deem energy market revenues.</p>
<p>Hydroelectric facilities should be excluded from participating in the LT2 RFP as they are an emitting resource. A stakeholder indicated that there are many studies which outline the GHG emissions associated with hydroelectric reservoirs and facilities.</p>	<p>For purposes of the LT2 RFP, the IESO considers emitting resources to be those that create air emissions via combustion of non-renewable or fossil fuels.</p>