

Stakeholder Feedback and IESO Response

Resource Adequacy webinar – November 23, 2021

Following the November 23, 2021 Resource Adequacy engagement webinar, the Independent Electricity System Operator (IESO) invited stakeholders to provide feedback on the materials presented. This document addresses feedback received on the 2021 Annual Acquisition Report (AAR), following the November 23, 2021 engagement webinar. In addition, this document also addresses AAR related feedback received from stakeholders following the release of the 2021 AAR in July.

The IESO received feedback from the following stakeholders on the Annual Acquisition Report following the release of the 2021 AAR through to December 2021:

- Advanced Energy Management Alliance
- Association of Major Power Consumers in Ontario
- Atlantic Power
- Capital Power
- Consortium of Renewable Generators, Energy Storage Providers, and the Canadian Renewable Energy Association
- Customized Energy Solutions
- Electricity Distributors Association
- Energy Storage Canada
- Evolgen by Brookfield Renewable
- Innergex Renewable Energy
- Northland Power Inc.
- Ontario Energy Association
- Ontario Power Generation
- Ontario Waterpower Association
- Power Workers' Union
- TC Energy
- TransAlta

The feedback provided following the November Engagement meeting has been posted on the engagement [webpage](#).

Notes on Feedback Summary and IESO Response

The IESO appreciates the feedback received from stakeholders. The sections below outline a summary of the feedback received along with an IESO response. Feedback has been organized into two major categories: the Resource Adequacy Framework and the Annual Acquisition Report. Overall, stakeholders have acknowledged their support for the development and execution of the Resource Adequacy Framework and appreciate the value of the Annual Acquisition Report.

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Resource Adequacy Framework

Feedback on various elements of the Resource Adequacy Framework has been provided by stakeholders both through written feedback submitted in response to engagement days from July – November and verbally through the engagement sessions. Feedback on the framework has been further categorized into specific themes outlined in the tables below.

Acquisition Mechanisms

Feedback	IESO Response
<p>Stakeholders requested details on the linkages amongst the mechanisms that will be administered in parallel, specifically: meeting system needs, from mechanism to mechanism, how procured supply from one acquisition impacts supply targets of other acquisitions, and why multiple RFPs are required to meet short-term and medium-term needs.</p>	<p>An iterative annualized approach to planning allows the IESO to re-assess needs and solutions to meet them so that we are always adapting to the latest information, policies, and innovations as they arise. Furthermore, the iterative approach provides us the flexibility to adjust procurement targets if needed to account for changes in system needs. The use of multiple mechanisms (including cadenced RFPs) with varying term lengths allows the marketplace to adapt to new conditions and changing system needs while recovering costs from subsequent investments.</p> <p>As planning uncertainties naturally change over time, the IESO is cognizant that it is not always prudent to resolve all planning needs immediately. For example, in the 2021 AAR, the cumulative impact of planned actions was lower than the Annual Planning Outlook (APO) expectation of needs in certain years to retain some flexibility to adapt to evolving needs.</p>

Feedback	IESO Response
<p>Recommendation that IESO leverage the flexibility of the Resource Adequacy Framework to implement mechanisms that:</p> <ul style="list-style-type: none"> • Are aligned with Ontario’s unique market structure • Consider the economic benefits of renewables and storage resources • Procure additional reliability products besides capacity such as ancillary services • Provide more flexibility around contract terms where different terms could result in more effective outcomes • Are aligned with the three types of electricity demand: baseload, intermediate and peaking • Are new approaches, recognizing significant opportunity at the distribution level (e.g. DERs) that could be deployed at the local level 	<p>The 2021 AAR was the IESO’s first step in operationalizing the framework and in doing so, over the course of 2021 and early 2022, the marketplace uncovered opportunities to improve aspects of the Resource Adequacy Framework. Given the flexibility of the framework, improvements have been made which will be detailed in the 2022 AAR.</p> <p>A fundamental aspect of the Resource Adequacy Framework is a shift away from policy based procurements to acquiring services to meet anticipated reliability needs. As such, the Resource Adequacy Framework has been designed to be technology agnostic. The framework also incorporates and complements government policies and programs, with drivers that can include considerations beyond electricity reliability. A diverse supply mix is important and the AAR will continue to evolve to address reliability needs beyond capacity.</p> <p>Planning Outlooks will continue to evolve to assess changes in system needs, and these changes will be incorporated into future AARs and subsequently addressed through acquisitions. System needs assessments of all reliability services including capacity, energy, ancillary services and transmission security will continue to inform what reliability products must be acquired through future procurements. The 2021 APO evolved to include an assessment of ancillary services needs specifically regulation needs and a methodology to assess needs for blackstart capability. Ancillary services needs will be addressed through future acquisitions.</p> <p>In accordance with the Resource Adequacy Framework, the AAR sets out the high-level parameters for commitment term lengths. As observed through current engagement on the Medium-Term RFP, in response to stakeholder feedback the IESO adjusted the term length, offering a 5 year term with flexible start dates.</p> <p>As the IESO continues to execute more procurements, including the first Long-Term RFP, it will seek to incorporate learnings and valuable input from stakeholders that will shape future procurement design.</p>

Feedback	IESO Response
<p>Recommendation that the IESO consider a framework that assesses all resource types and asserted that the current Resource Adequacy Framework is not designed to acquire large nuclear and hydro.</p>	<p>The Resource Adequacy Framework includes non-competitive tools, including government policies and programs, which can be used to acquire resource types such as hydro, that provide non-electricity reliability benefits.</p>
<p>Stakeholders flagged that certain existing energy storage assets were designed to provide regulation capacity and weren't designed to provide a 4-hour capacity product. As such, they do not have a clear pathway for re-contracting within the current framework despite the potential to provide significant system value.</p>	<p>As the existing energy storage assets reach the end of their contract terms, IESO will work with suppliers to determine the most appropriate mechanism to compete for re-acquisition. While the Resource Adequacy Framework was designed to initially focus primarily on capacity acquisition, there are other reliability needs that the framework will set out to acquire in the future.</p>
<p>Stakeholders would like to understand whether a revenue sufficiency analysis has been undertaken to assess whether the current and post-MRP IESO-administered markets provide sufficient incentives for reliability services identified by the IESO in future procurements.</p>	<p>With future market conditions being dependent on market participant behavior, it is difficult to develop a revenue sufficiency analysis to assess incentives for potential suppliers. However, the IESO recognizes that this creates uncertainty on revenue adequacy for potential suppliers, and will acknowledge this in the 2022 AAR. Following MRP implementation and when sufficient market information is available, price discovery and efficiencies as a result of locational marginal pricing will be taken into consideration in future AARs.</p> <p>As the IESO embarks on the design and execution of future procurements, we recognize that revenue opportunities, technical, commercial/financing and policy elements will need to be taken into account. The IESO will continue to engage stakeholders to better understand these considerations.</p>
<p>Stakeholders request that the IESO confirm if it has considered the price impacts that may arise from potential tight supply situations in procurements.</p>	<p>The IESO works to ensure cost-effective reliability and acknowledges that tight supply conditions can result in market outcomes that include higher pricing for short periods of time. The IESO must balance this outcome with mitigating the critical reliability risk of under-supply.</p>

Competition

Feedback	IESO Response
<p>Stakeholders are requesting IESO outline its process for determining whether there is a sufficient pool of participants for robust competition. Supporting analysis that is aligned with leading practices should be provided to stakeholders.</p>	<p>The IESO is continuing to develop methods to determine whether there is a probability for robust competition, recognizing that until the framework is fully operationalized, there are limited methods available. However, there are a number of tools and assumptions that the IESO considers for a given procurement:</p> <ul style="list-style-type: none"> • Market Exit – based on historical trends, IESO assumes a level of market exit. • Target Setting – targets can be set at a value that is lower than the eligible pool of participants to foster competition. • Confirming Final Targets - the Registration stage of a given procurement will provide the IESO with an early indication of the level of competition it can expect ahead of finalization of the RFP. Based on the volume of registration, the IESO may adjust the target capacity accordingly in order to ensure competition.
<p>Stakeholders caution the risk that acquisition mechanisms may fail to attract sufficient interest resulting in market exit and forcing the IESO to rely on costly non-competitive procurement mechanisms.</p>	<p>The IESO acknowledges this risk. The mechanisms outlined in the Resource Adequacy Framework are designed to attract diverse groups of resources, providing multiple avenues for participation.</p> <p>The 2021 AAR was the IESO’s first step in operationalizing the Resource Adequacy Framework. The IESO will continue to monitor the framework’s ability to achieve competitive outcomes and will adjust accordingly.</p>

Commitment Term

Feedback	IESO Response
<p>Stakeholders expressed concerns regarding the Long-Term RFP mechanism's 7-10 year commitment term and the ability to secure interest in new build and project financing. It was recommended that the AAR acknowledge the risks associated with financing new projects and revenue adequacy within the IESO-administered markets as a supply-side uncertainty.</p>	<p>The IESO acknowledges the risks associated with financing new projects and revenue adequacy concerns. The 2022 AAR will capture this uncertainty. The IESO is committed to further engaging with stakeholders on commitment term, recognizing that feedback on the topic has been varied. While some stakeholders support shorter term lengths as a means of ensuring newer/innovative technologies are able to participate in procurements; others have raised concerns over the lack of investment certainty that they provide. The Long-Term RFP needs to balance the need for longer commitments while ensuring the flexibility to operate in future years:</p> <ul style="list-style-type: none"><li>• The IESO recognizes that a longer commitment period may encourage new entrants and accommodate significant capital investment<li>• Overall costs are impacted if actions need to be taken to maintain reliability if the supply mix no longer aligns with system needs

Bridging

Feedback	IESO Response
<p>Stakeholders expressed concern that the proposed bridging approach does not provide enough certainty to expiring resources, especially those that will need to clear multiple capacity auctions.</p> <p>Stakeholders recommend that the IESO review bridging approach to accommodate generators that are critical to the reliability of the system during the contract term being contemplated.</p>	<p>To help address concerns regarding the bridging years prior to the initial commencement date of May 1, 2026, the IESO has changed the commitment term from 3+2 years commencing in 2026, to a 5-year commitment term with proponents having the choice to commence their contract term on May 1, 2024, May 1, 2025 or May 1, 2026.</p> <p>This approach may be applied to future acquisition mechanisms (MT RFPs, LT RFPs) as a way to establish a cadenced approach to procurements, while ensuring reliability needs in core years are met and aligning contract expiry dates to ensure greater competition.</p>

Eligibility

Feedback	IESO Response
<p>Stakeholders request clarity on eligible resource types for upcoming procurements, specifically the Long-Term RFP and the second Medium-Term RFP.</p>	<p>The AAR serves as a starting point for engagement on a given procurement, specifying certain parameters, that will address reliability needs. For example, the AAR may provide high-level considerations to inform eligibility or a procurement target range but the engagement phase for a given procurement will expand on and firm up procurement design parameters.</p> <p>Future RFPs are expected to include expanded eligibility. The IESO will engage with stakeholders on eligibility for future procurements as they continue to be developed.</p>
<p>Stakeholders request the IESO identify the criteria it will use for determining which resources are permitted to participate in each procurement.</p>	<p>The Resource Adequacy Framework is technology agnostic and is designed to focus on acquiring products and services needed for meeting system reliability needs. For a given procurement the IESO will identify the resource characteristics that it is seeking to procure, aligned with identified system needs.</p>

Annual Acquisition Report

Feedback on the 2021 AAR and considerations for future AARs is grouped by sub-themes in the tables below.

Ontario’s Resource Adequacy Needs

Feedback	IESO Response
<p>Stakeholders expressed concern that IESO is not procuring enough capacity to meet needs in 2026. Suggested options include:</p> <ul style="list-style-type: none"> • Expand the Medium-Term RFP to allow other resources to compete • Advance the Long-Term RFP forward to commit resources to an earlier in-service date • Consider either extending existing contracts to the proposed in-service date for the Long-Term RFP or blend and extend existing contracts <p>Stakeholders request IESO outline the steps it would take to procure resources should shortfalls arise.</p>	<p>IESO appreciates stakeholder concerns and the options put forth to address needs. The 2021 Annual Planning Outlook identifies emerging capacity needs mid-decade. Plans to address future supply needs including needs emerging mid-decade will be outlined in the 2022 AAR.</p> <p>As previously stated, the IESO will not be expanding eligibility for the first Medium-Term RFP. The IESO is planning to begin more detailed engagement on the Long-Term RFP, including timelines, over the next month.</p>
<p>With a resource mix that is becoming more inverter based, fast responding, less emitting with more embedded resources, stakeholders expressed concern that existing resource adequacy methodologies and products are becoming less adequate to meet needs.</p>	<p>The IESO recognizes that the industry is faced with a changing resource mix and understands the importance of ensuring resource adequacy methodologies and reliability services are sufficient. The IESO stays apprised of industry observations, system events, reports and analysis through extensive participation in industry forums, our own sector leadership, academic memberships and through industry news sources. As the sector evolves, through the annual, iterative process IESO will continuously improve and adapt resource adequacy methodologies.</p>

Feedback	IESO Response
Stakeholders recommend that the AAR specify what different mechanisms are desired in specific areas of the province to address locational capacity needs.	The 2022 AAR will build off of the outcomes of the transmission security assessments that were included in the 2021 APO. Locational needs have been identified and the 2022 AAR will signal favourable areas for capacity to be procured in upcoming procurements to meet locational needs.

Target Setting

Feedback	IESO Response
<p>Stakeholders request details on IESO's target setting methodology, including how:</p> <ul style="list-style-type: none"> • future system needs will be allocated amongst acquisition mechanisms • the 2021 planned actions impact future targets • the Medium-Term RFP target of up to 750 MW was set 	<p>The AAR translates planning and operational information, such as the forecasts outlined in the APO and bulk and regional plans, into a series of procurement and market activities. As a first step in determining acquisition targets the IESO looks at needs identified in the APO. Subsequently, planned actions from the previous AAR and any other known acquisition activities (such as policy decisions) are integrated to determine the remaining need.</p> <p>To determine the mechanism and associated target to address remaining needs, the IESO takes into consideration the purpose of each mechanism in the Resource Adequacy Framework and the principles outlined in the 2021 AAR. For example, the target capacity for the capacity auction may fluctuate from year-to-year, while the targets for other mechanisms have a single target for the entirety of their delivery period(s). Details on the up to 750 MW UCAP target for the Medium-Term RFP can be found in the July 2021 AAR. At the time of publication, the IESO estimated that there would be at least 1000 MW UCAP of contracts expiring that may be eligible to participate in the Medium-Term RFP. In order to foster competition and drive value for ratepayers, a target amount that is lower than the amount of supply available was determined.</p>

Feedback	IESO Response
<p>Stakeholders suggest that when determining future acquisition targets, the IESO consider the characteristics of individual resources.</p>	<p>For a given acquisition, the IESO assesses electricity system needs to determine what reliability services need to be procured. Where applicable, the IESO will identify specific resource characteristics such as ramping capability and energy duration requirements that are required to address system needs.</p> <p>While the Resource Adequacy Framework is technology agnostic, the IESO recognizes that a diverse supply mix contributes to improved grid operability. As system needs change, certain resource characteristics can either contribute to, or reduce risks to reliability. By including the latest information on resource mix in each iteration of the AAR, and including planned actions for subsequent procurements that are based on the latest information, the IESO is best able to evaluate the impacts of individual resource characteristics.</p>
<p>Stakeholders requests target capacity requirements at the locational level.</p>	<p>Where applicable the 2022 AAR will identify locational capacity requirements that have been determined through transmission security assessments. Outcomes of the assessments are identified through the APO and Bulk System Plans.</p>

2021 AAR Planned Actions

Feedback	IESO Response
<p>Stakeholders request that the analysis to justify the bilateral negotiations to meet supply needs east of the Flow East Towards Toronto (FETT) Interface and West of London be provided.</p>	<p>Bilateral negotiations are used to secure resources where a need exists that cannot be addressed in a practical and timely way through competitive processes. The 2021 AAR identified two bilateral negotiations to address:</p> <ul style="list-style-type: none"> Needs West of London - The IESO published the West of London Bulk Report in September 2021 detailing system needs in the area and the necessary actions to ensure the adequacy and reliability of electricity supply up to the year 2035. Needs East of FETT - The Richview x Trafalgar Upgrade Assessment posted in July 2021, specifies necessary transmission upgrades that will increase the FETT transfer capability and reduce the need to acquire capacity east of FETT. Until the upgrades come into service the continued operation of Lennox Generating Station until April 2029 is required to address local needs.
<p>Stakeholders expressed support for the summary diagram included in the 2021 AAR that shows all planned actions. However, stakeholders felt that the diagram has a supply-side bias as it doesn't factor in downward pressures on demand such as the potential for increased Energy Efficiency, or further Demand Response enablement or upward pressures on demand such as electrification.</p>	<p>The IESO recognizes that there are demand-side uncertainties and opportunities impacting the AAR planned actions. The 2021 APO identifies a number of demand-side uncertainties that could impact the demand forecast, including the impact of electrification.</p> <p>The 2022 AAR will acknowledge the role of demand-side options such as energy efficiency in meeting electricity system needs.</p>

Supplemental Data

Stakeholders requested the following supplemental information in future AARs. The AAR builds off of the system needs, and supporting data and methodologies outlined in the Annual Planning Outlook. Stakeholders are advised to review the APO, specifically in the [Ontario Generation Resources database](#), to find supplemental information that can be made public.

Feedback	IESO Response
<p>Data related to existing and future price formation to help proponents model merchant exposure and risks. If IESO is unable to provide this information stakeholders request an explanation when this work is being done by other system operators.</p>	<p>The IESO recognizes that there is future energy market risk with any acquisition mechanism. While the IESO does not have the capability, or access to, market participant bidding strategy to model potential future market outcomes, Shadow Prices are the best available proxy for future locational marginal prices. In addition, stakeholders can review the Market Renewal Program Detailed Design and current and forthcoming Market Rules and Manuals to determine their strategy for participating in the new market.</p>
<p>A list of all IESO and Ontario Electricity Financial Corporation (OEFC) contracted resources expiring by April 30, 2027 and their UCAP values.</p>	<p>The Ontario Generation Resources Database provides aggregate data on contracted capacity (in MW) for OEFC contracted resources and contract specific data for IESO contracted resources.</p>
<p>Up-to-date accounting of connected DERs connected (such as, behind-the-meter storage, net-metered generation and other load displacement generation) including: locational information, contribution during peak periods, nameplate capacity, in-service dates, whether the DER is controllable or non controllable, addition of storage to existing generators or controllable load, etc.</p>	<p>Detailed information on DERs with IESO contracts are available on the IESO website, including the Ontario Generation Resources database. While other DERs exist in Ontario (e.g. behind-the-meter storage), at this time the IESO does not actively collect nor validate such accounting.</p> <p>The IESO’s DER Potential Study will estimate a DER baseline, incorporating IESO contract information and other available information received through the study’s engagement sessions. These baseline estimates are currently under development by the study’s consultant.</p> <p>In addition, in 2020 the IESO conducted a voluntary survey on behalf of the Ministry of Energy to better understand the investment and operations of behind-the-meter DER related to the Industrial Conservation Initiative (ICI). The survey results provided some insights on DER’s in Ontario, and a summary of the results is available here.</p>

Feedback	IESO Response
<p>Up-to-date accounting of other planned, non-IESO resource commitments, such as LDC procurement of Non Wires Alternatives (NWA), (storage, demand response) or customer driven acquisitions of electricity supply, including locational information and contribution during peak period.</p>	<p>The IESO does not have all of the requested data and/or cannot provide information that is outside the IESO's purview.</p>
<p>More granular, zonal information on capacity, energy, and ancillary markets as the implementation of locational marginal pricing through MRP approaches. High-level analysis of this nature can be included in future AARs, while the actual data should be made available for download to market participants in parallel.</p>	<p>The APO and AAR provide information on reliability needs at a zonal level, however estimates of locational pricing are not available.</p>

Future AAR Considerations

Stakeholders suggested the following as topics areas for future AARs:

Feedback	IESO Response
<p>Stakeholders suggest IESO work directly with LDCs to explore the following:</p> <ul style="list-style-type: none"> • Integration of distribution system planning (i.e. where NWA have been identified) • Contributions from Energy Efficiency programs or other initiatives that impact capacity requirements • Availability of controllable or dispatchable loads that may offset peak system needs • Inclusion of potential beneficial DER connection points and new DER participation in upcoming procurements 	<p>The IESO has the opportunity to engage with LDCs on a number of work streams and initiatives, including but not limited to regional planning, energy efficiency, demand response and the Enabling Resources Program.</p> <p>The IESO will continue to integrate and link the outcomes of these initiatives that contribute to meeting electricity system needs into the AAR.</p>

Feedback	IESO Response
<p>Details on the linkages with Enabling Resources Program including the timelines for planned improvements to the IESO-administered markets participation models.</p>	<p>The IESO’s Enabling Resources Program (ERP) facilitates the integration of emerging technologies into the post-Market Renewal electricity market, and ensures that resources acquired through the Resource Adequacy Framework mechanisms will be successfully integrated in market in time to meet forecasted system needs. The IESO plans to consider the ERP and its linkages to the planned actions in the 2022 AAR.</p>
<p>The timing of upcoming procurements and eligible resources.</p>	<p>The 2022 AAR will provide an indication of the timing of upcoming procurements and the characteristics of resources that each procurement will aim to acquire. Recognizing that discussions with stakeholders will be crucial to understanding the development timelines and investments required, RFP design considerations, including eligibility, will be a topic during dedicated Long-Term RFP engagement sessions.</p>
<p>Decarbonization:</p> <ul style="list-style-type: none"> • How the Resource Adequacy Framework and procurements will evolve to consider greenhouse gas (GHG) emissions targets, net-zero policies and pricing of environmental attributes • Linkages to the ‘Pathway to Achieve Zero Emissions in Ontario’s Electricity System’ work 	<p>The IESO acknowledges that content on decarbonization and the ‘Pathway to Achieve Zero Emissions in Ontario’s Electricity System’ work will need to be factored into future AARs. As work on this initiative progresses the IESO will ensure that the Resource Adequacy Framework and AAR evolve accordingly.</p>
<p>Reliability of the grid under changing and extreme weather patterns.</p>	<p>Thank you for the suggestion. The IESO agrees that assessing grid reliability under extreme weather and events is an important topic area. Power system resilience is expected to be an area of focus in future AARs.</p>

Other

Feedback	IESO Response
<p>Stakeholders suggest that the IESO routinely report to stakeholders on ongoing resource adequacy initiatives including: the progress of the 2021 AAR planned actions, activities noted in the November 10 Minister’s Letter to the IESO and on the Pathway to Achieve Zero Emissions in Ontario’s Electricity System work as outlined in the Minister’s October 7 letter to the IESO.</p>	<p>The IESO acknowledges the importance of providing transparent and updated information to stakeholders. An update on the 2021 AAR planned actions was provided to stakeholders at the November 23, 2021 engagement meeting, and further updates will be outlined in the 2022 AAR and through upcoming engagement meetings.</p> <p>Updates on the items outlined in the Minister’s Letter on November 10, 2021 will be communicated to stakeholders when milestones are achieved and as appropriate, respecting confidentiality.</p> <p>The IESO recognizes the high degree of stakeholder interest in the Pathways to Achieve Zero Emissions in Ontario’s Electricity System work outlined in the Minister’s Letter on October 7, 2021. The IESO will ensure stakeholders are kept apprised as this work unfolds.</p>
<p>Stakeholders suggest IESO conduct a dedicated engagement session with Indigenous communities with an interest in generating facilities.</p>	<p>A high-level information session was held as part of the 2021 First Nations Energy Symposium on November 4, 2021. Detailed Indigenous community engagement sessions will be held as part of the Long-Term RFP engagement.</p>