

Expanding Participation in Operating Reserve and Energy - Scope of Work

March 2020

1. Introduction and Purpose

The IESO is continually striving to increase competition to drive more efficient outcomes and improve system reliability. Through various forums, stakeholders have indicated their interest in providing greater competition to the IESO-administered markets to enable new revenue streams.

As the supply mix continues to evolve, the IESO has a need for a greater quantity and diversity of resources that can provide Operating Reserve (OR) to maintain reliability of the system at least cost to ratepayers. OR is standby supply that the IESO can quickly call upon in the event of an unexpected mismatch between generation and consumption and is co-optimized with energy, requiring resources to be enabled to provide both energy and OR. In order to explore potential market development options to enable further resource participation in the OR and energy markets, the IESO has initiated the Expanding Participation in Operating Reserve and Energy (EPOR-E) initiative. It is expected to identify high-value projects that can improve the operational flexibility of the IESO utilizing competitive and transparent market-based solutions.

The potential benefits of this project include:

- Increased competition that will lower OR procurement costs
- Improved grid resilience and reliability through greater supply quantity and diversity
- Increased competition in the existing markets

This scope of work outlines the IESO's approach on the EPOR-E project as well as the deliverables and estimated timeline to complete the initiative. This scope of work may be subject to review and updates as the process evolves. All comments and inquiries on this scope of work can be directed to engagement@ieso.ca.

2. Stakeholder Engagement

The IESO will engage with stakeholders on this initiative through the Market Development Advisory Group (MDAG) stakeholder engagement with participation in meetings open to all interested parties.

March 2020

Interrelated work:

The scope and deliverables of this project are related to initiatives under discussion in other IESO engagement forums and could affect the deliverables of EPOR-E. These interrelated engagements are primarily:

- [Energy Storage Advisory Group](#) (ESAG) where the storage design project has been initiated which will help identify the necessary updates to market rules, IESO tools and processes that would enable storage to compete in IESO-administered markets (IAMs) and to move towards a technology-neutral marketplace. ESAG and the storage design project are primarily concentrating on directly-connected storage, whereas EPOR-E will look at opportunities for hybrid and behind-the-meter storage resources. Integration of hybrids and behind-the-meter storage may require changes that are being considered in the storage design project.
- [Innovation and Sector Evolution White Paper Series](#) where pathways to participation for distributed energy resources in the IAMs are being explored. This initiative will provide the initial research and development of findings for DER integration into the IAMs. EPOR-E will use these findings and determine if there are possible opportunities for projects to be considered in the short-term before the Market Renewal Program.

Other projects and forums that will also be considered when developing the outcomes of EPOR-E also include:

- [Market Renewal Program](#) (MRP)
- [Capacity Auction](#)
- Increasing Competition in Ancillary Services
- [Demand Response Working Group](#) (DRWG)
- [Market Surveillance Panel](#)

The EPOR-E initiative will coordinate to ensure information and stakeholder feedback is shared between these initiatives and considered in the development of the final report.

Through this engagement, the IESO will seek feedback from stakeholders on:

- The review of requirements and participation models for OR and energy market participation and how they align with the design and limitations of different resource types
- Cases where misalignment between participation requirements and limitations of resource types are identified, what areas of those misalignments are opportunities for options to be developed
- Evaluating the identified options to address misalignment between participation requirements and limitations of resource types in order to identify high-value opportunities for market changes

Success on the EPOR-E project will require collaboration between stakeholders and the IESO so that there can be better mutual understanding of the requirements, capabilities, and interest in evolving the market. There will be opportunities for stakeholders to provide input through in-person meetings, webinars, and written feedback. All materials will be posted on the MDAG engagement web page. In addition, any information and input supplied by interested parties will also be posted (with consent). The stakeholder engagement of this project will be in accordance with the [IESO's engagement principles](#).

3. Approach

Areas for IESO exploration:

This initiative will primarily investigate requirements, systems, tools and processes that are within the IESO's purview to determine opportunities to expand participation:

IESO requirements

The IESO will review current energy and OR market participation requirements and current processes designed to facilitate scheduling and dispatching of resources.

Participation of specific resources in Energy and OR

Based on the IESO's discussions with stakeholders through the MDAG work plan process throughout 2019, the following technology types are to be studied in the EPOR-E initiative:

- Demand Response – hourly demand response (HDR)
- Distributed Energy Resources
- Gas generators – “not-so-quick-starts” (resources that have operating characteristics that fall in between quick start and not-quick start resources)
- Hybrids – generator or load utilizing storage
- Imports – OR imports over the interties
- Storage
- Variable generators – solar and wind resources

The IESO will review these technologies to see how their participation models align with IESO market requirements.

Internal IESO processes and tools

Using the above analysis, the IESO will review its tools to determine where there could be misalignments and areas of opportunity in allowing resources from meeting requirements and providing energy and OR. The IESO will also specifically examine regulation service providers and if there is opportunity for them to be enabled in OR.

Project Phases:

This project assessment will be completed in three phases:

1. Requirements and participation
2. Exploration of options
3. Evaluation of options

1. Requirements and Participation

In this first phase, the IESO will be undertaking a requirements assessment for the energy and OR markets as well as tool limitations for regulation service providers to participate in OR.

Questions to answer in this phase include:

- What are the OR and energy participation requirements?
- Who sets the requirements? (IESO, OEB, NERC, NPCC, etc.)
- Why is this requirement in place?
- How do these requirements align with the existing participation models of the technology types to be studied? Misalignments will be highlighted.
- What processes and tools are limiting regulation service providers from participating in OR?

The IESO will also work with stakeholders to review respective resource type participation models, verify their design limitations and opportunities to be explored in the next phase.

2. Exploration of options

In this second phase, and based on the information identified in the first phase, the project will focus on the areas of misalignment between participation requirements, IESO tools and each technology's participation model. The IESO will investigate whether there is an opportunity to adjust IESO requirements, meet requirements in a different way or identify where a technology's participation model or IESO tools can change that will enable further participation. The IESO will require stakeholder input on capabilities and opportunities to help develop options. Options may include changes or combination of changes to adjust the requirements of existing Market Rules, Market Manuals, tools, and processes that could be pursued to enable participation. In certain instances, a jurisdictional scan may help with the development of options.

In cases where there are participation requirements outside of IESO responsibility, this phase will identify the requirements, the responsible party, and work with stakeholders to determine next steps.

3. Evaluation of Options

The third phase will focus on evaluating the identified options from Phase 2 to identify high-value opportunities for change. The IESO will work with stakeholders to go through the following considerations:

- Options will be evaluated through the lens of the Market Renewal Program (MRP) principles of efficiency, competition, implementability, certainty, and transparency. This is to ensure that changes fall within the IESO's broader mandate.
- Estimate the benefits of the change. Options that are expected to materially increase the supply of OR and/or can enable participation across technology types will be evaluated favourably.
- Estimate the high-level costs of each option. Costs considered would focus on the estimated resource needs to make the change (magnitude of change, IESO systems impacted, duration of change, etc.).

This evaluation is not meant to be a detailed cost/benefit analysis that would be performed under a business case but is intended to show high value opportunities.

By identifying and evaluating options, the IESO and stakeholders will have a strong understanding of the expected benefits of potential projects and be in a better position to know which projects to consider investing in for future implementation.

4. Deliverables:

- 1) The findings of each phase will be documented through memos. The IESO will prepare a draft memo to summarize the analysis and findings of each phase. At various milestones, draft documents will be published on the IESO website for stakeholder review and comment. The memos will also aid in the development of subsequent phases and the final scoping and assessment document. Expected memos are:
 - Phase 1: Memo summarizing findings on requirements and participation models
 - Phase 2: Memo(s) discussing exploration of options
 - Phase 3: Memo on the evaluation of options
- 2) A final project scoping and assessment document based on the memos that will help identify potential high value market development projects.

5. Next Steps Following EPOR-E deliverables

Any potential market development opportunities that are identified through this research paper will be brought back to stakeholders at the MDAG for consideration in future work planning processes.

6. Proposed Project Timeline

Quarter	Activity
Q1. 2020	Post Scope of Work
Q2. 2020	<ul style="list-style-type: none"> • April 2 MDAG meeting: <ul style="list-style-type: none"> • Phase 1 - IESO requirements and participation – initial analysis and identify misalignments/areas of opportunity with specific resource types • Next steps • Potential meetings with stakeholders to discuss EPOR-E • Phase 1 - Requirements and Participation - memo posted for stakeholder comment • Initiate Phase 2 – Development of Options • Individual meetings with interested parties on an as needed basis • MDAG meeting: <ul style="list-style-type: none"> • Phase 2 - Option development, work completed to date • Next steps – continued development of options, and assessment of options
Q3. 2020	<ul style="list-style-type: none"> • Individual meetings with interested parties on an as needed basis • MDAG meeting – IESO to provide stakeholders: <ul style="list-style-type: none"> • Phase 2 - Finalize identified Options • Phase 3 - Begin discussions on Evaluation of Options • Phase 2 – Option development memos posted for stakeholder feedback • Initiate Phase 3 – Evaluation of Options • Individual meetings with interested parties on an as needed basis

Quarter	Activity
Q4. 2020	<ul style="list-style-type: none"> • MDAG meeting: <ul style="list-style-type: none"> • Discuss evaluation of options • Next steps • Phase 3 – Evaluation of Options - memo posted for stakeholder feedback • Draft report posted for stakeholder feedback
Q1. 2021	Publish final report