

Memorandum

To: Strategic Advisory Committee

From: Katherine Sparkes, Director, Innovation, Research and Development

Date: November 8, 2023

Re: IESO Business Update – Enabling Resources Program

Executive Summary

The purpose of this memo is to provide an update on IESO’s work on the Enabling Resources Program (ERP). The ERP is a prioritized initiative that will enable energy storage, hybrids and distributed energy resources (DER) to provide electricity services in the post-Market Renewal Program (MRP) electricity market in a manner they cannot otherwise provide in the current electricity market design, which will enable greater participation for these resources in IESO-administered procurements more broadly. Recent developments in Ontario’s energy landscape have identified a need to revise the scope of ERP to expedite the implementation of the enhanced market participation models for storage and hybrids and to include elements of the enhanced model with the implementation of the foundational DER model (which the IESO has committed to implement by the end of 2026). ERP directly advances the IESO’s strategic imperative to renew the real-time markets to advance the energy transformation.

Background

Initiated in 2021, ERP is a capital program focused on enabling priority emerging technologies into the IESO-administered electricity markets (IAMs) in order to allow for their participation in IESO procurements more broadly; these actions will contribute to Ontario’s growing need for reliable, affordable and clean electricity. For the purpose of ERP, emerging technologies include: energy storage, hybrids (i.e. energy storage and generation pairings) and DERs including aggregations of dispatchable resources less than 1MW in size. Some of these technologies –

such as storage and hybrids – can already participate in the IAMs today, but relying on the use of less sophisticated participation models.

For the IESO to operate the IAMs efficiently and reliably, resources must be able to share data with the IESO by communicating their capabilities, associated costs and technical limits at any given time. The IESO must be able to incorporate this data in the modelling and optimization tools it uses to schedule and dispatch resources at the lowest cost while respecting the technical limits of resources and the transmission network. Enabling a resource means upgrading the IESO's tools and systems so that resources are able to share the aforementioned data with the IESO and to be modeled and optimized in scheduling and dispatch.

The ERP work plan leverages a staged approach, prioritizing implementation based on when the different resource types are expected to be available (i.e. first storage, then hybrids followed by DERs) and based on the level of capability unlocked from the resources through the initial implementation of a *foundational* market participation model, followed at a later stage by an *enhanced* market participation model. Foundational models are simpler models that do not require significant tool upgrades or effort from an implementation perspective and have been undertaken without impacting the IESO's priority market development initiative, the Market Renewal Program (MRP). Enhanced models unlock additional capability from resources and are more complex from a design and implementation perspective – requiring additional resources and significant upgrades to the tools that the IESO uses to administer the IAMs. These models will be implemented post-MRP go-live aligned to the new market platform created by MRP.

Progress and Current State of Initiative

The IESO has made significant progress on the implementation of ERP to date. The valuable input and contributions provided by stakeholders and communities has been key to this progress, which includes:

- the implementation of the foundational storage and hybrid models;
- the completion of enhanced design visions for storage and hybrids, which outline how these resources are anticipated to participate in the market and will inform and guide the actual design work;
- the completion of foundational and enhanced design visions for DERs;
- the ongoing implementation of pilot projects to deploy and evaluate solutions to the policy, regulatory and electricity market challenges facing DERs following the joint targeted call for proposals held under the IESO's Grid Innovation Fund and the Ontario Energy Board's Innovation Sandbox; and,

- the formation and ongoing work of the Transmission-Distribution Coordination Working Group (TDWG), in which the IESO, Local Distribution Companies (LDCs), DER owners/aggregators and other interested parties, along with the OEB as an observer, are working together to determine how transmission-distribution operational coordination processes will need to evolve to ensure the reliable integration of DERs into the wholesale system and market operations.

Recent developments in Ontario's energy landscape have substantiated a need to revise the original scope of ERP to expedite implementation of the enhanced market models for storage and hybrid resources and elements of the enhanced DER market participation models. These developments include:

- progress on MRP implementation, which has clarified the timing and availability of resources and expertise required for ERP;
- significant growth in the number of storage resources expected to be online in Ontario in the near-term as a result of recent procurements;
- greater understanding of the volume of DER potential to support system needs per the DER Achievable Potential Study completed by the IESO in 2022; and,
- a commitment of funding from Natural Resources Canada's Smart Renewables and Electrification Pathways (SREP) funding program to support ERP implementation

By revising the scope of ERP to expedite the implementation of the enhanced models, the IESO will enable a greater number of resources to contribute more fully to meeting Ontario's growing need for reliable, affordable and clean electricity in the near term.

The IESO held an engagement webinar on October 19, 2023 to communicate its decision to revise the scope of ERP as proposed in the outline above to communities and stakeholders.

Next Steps/Implementation

Following the October 19 webinar, stakeholders have until November 9 to submit any feedback on what the IESO should consider as it establishes timelines for both the implementation of foundational and enhanced models.

IESO staff are developing a revised Project Plan to reflect the scope revisions to ERP outlined above. IESO is targeting Q1 2024 to share the revised Project Plan and to seek related input from stakeholders and communities.