



IESO Engagement Session

ERP Distributed Energy Resources Integration Project Meeting #1

Enabling Resources Program (ERP)
November 19, 2025

Disclaimer

This presentation and the information contained herein is provided for informational purposes only. The IESO has prepared this presentation based on information currently available to the IESO and reasonable assumptions associated therewith, including relating to electricity supply and demand. The information, statements and conclusions contained in this report are subject to risks, uncertainties and other factors that could cause actual results or circumstances to differ materially from the information, statements and assumptions contained herein. The IESO provides no guarantee, representation, or warranty, express or implied, with respect to any statement or information contained herein and disclaims any liability in connection therewith. In the event there is any conflict or inconsistency between this document and the IESO market rules, any IESO contract, any legislation or regulation, or any request for proposals or other procurement document, the terms in the market rules, or the subject contract, legislation, regulation, or procurement document, as applicable, govern.

Territory Acknowledgement

The IESO acknowledges the land we are delivering today's webinar from is the traditional territory of many nations including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples and is now home to many diverse First Nations, Inuit and Métis peoples. We also acknowledge that Toronto is covered by Treaty 13 with the Mississaugas of the Credit First Nation.

As we have attendees from across Ontario, the IESO would also like to acknowledge all of the traditional territories across the province, which includes those of the Algonquin, Anishnawbe, Cree, Oji-Cree, Huron-Wendat, Haudenosaunee and Métis peoples.

Engagement Principals and Process

- The Enabling Resources Program ('ERP' or 'Program') will be conducted according to the **IESO Engagement Principles**
- Today's session will be **recorded** and available for viewing online
- **Meeting materials** are posted on the ERP DER Integration Project engagement webpage

Meeting Logistics and Participation

- For questions and comments, click on the “**raise hand**” icon (hand symbol) at the top of the application window. This will indicate to the host you would like to speak
- To **unmute** audio, click on the microphone icon at the top of the application window
- Audio should be **muted** when not speaking
- **Connection issues** contact engagement@ieso.ca or Microsoft Office Support directly

ERP Engagement Webpages

ERP Engagement Webpage:

Enabling Resources Program

- Main page for program-level updates, information and documents

ERP Project Webpages:

- Distributed Energy Resource Integration Project
- Storage and Co-located Hybrid Integration Project

Purpose

- Engage with active participants in the DER space and provide the sector with an update and proposed scope of the Distributed Energy Resources (DER) Integration Project.
- Encourage participant feedback on key areas of the proposed scope

Questions for Consideration

DER Aggregations

- Do you currently have resources interested in accessing the wholesale markets today?
- What would be the general characteristics of the DER aggregations you could form to participate in the wholesale markets?

Revenue Metering & Settlements

- If alternative metering requirements for small contributors to an aggregation allow for the use of utility grade revenue meters, would this benefit your business case?

Data Sharing & Coordination

- Do you foresee any potential impacts from registering additional relevant distribution equipment with the IESO, solely for situational awareness?
- Do you have concerns with authorizing confidential data sharing between the IESO and distributors, if necessary to support system reliability and/or facilitate market participation?

¹ Contributors to a DERA connecting to more than one connection point on the IESO-Controlled Grid

Agenda

- DER Integration Project Overview
- Foundational Participation Model
- Static Data Sharing & Operational Coordination
- Collaboration
- Submitting Feedback & Next Steps



DER Integration Project Overview

Enabling Resources Program

Enabling Resources Program (ERP)

- The Enabling Resources Program is a key component of the IESO's Strategic Implementation Plan that **will support reliability and market efficiency**.
- ERP consists of two projects that will enable and integrate key emerging resources, specifically **electricity storage ("storage") & hybrid generation-storage pairings ("hybrids")** and small individual or aggregations of dispatchable **Distributed Energy Resources (DERs)** into the IESO-administered markets, tools, and processes.
- The objective of ERP is to allow these emerging resources to **effectively participate in the IESO-Administered Markets (IAM)** and contribute to the **safe and reliable operation** of the bulk power system in Ontario.

Two Project Streams

1 | Storage/Hybrid (S/H) Integration:

- Implement an enhanced participation model into the IESO's processes, tools and systems, focusing on modeling electricity storage resource as a **single resource** that can withdraw, store and inject energy, and provide the IESO **visibility into state of charge**.
- This enhanced storage model will also apply to storage resources that are **paired with generation resources (hybrids)** behind a single connection point under the **co-located hybrid participation model** and to market scheduled storage resources located on the distribution system.

2 | Distributed Energy Resource (DER) Integration:

- Enable a new participation model for **dispatchable aggregations of DERs (DERAs) to participate in the IESO-Administered Markets (IAM)** to increase the pool of resources available to participate in future resource procurements to support resource adequacy and provide increased flexibility to the bulk electricity system.

Ontario's Evolving Energy Sector

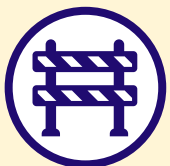
- DERs are gaining popularity among individuals, businesses, and local distribution companies (LDCs)
- DERs vary in complexity, ranging from utility-scale installations to consumer-level devices that manage energy use
- DERs are especially valuable in congested areas supporting the distribution system as non-wire alternatives or providing cost-effective services to the bulk system
- The regulatory framework is evolving to enable distribution utilities to modernize their systems and enable them to better manage increasingly dynamic customers and distribution networks
- The Ontario government's DER strategy in the Integrated Energy Plan (IEP) aims to better integrate DERs and unlock their full value to cost-effectively support the reliability of Ontario's electricity system, with important roles for the IESO, the OEB and utilities

DER Integration Project Drivers

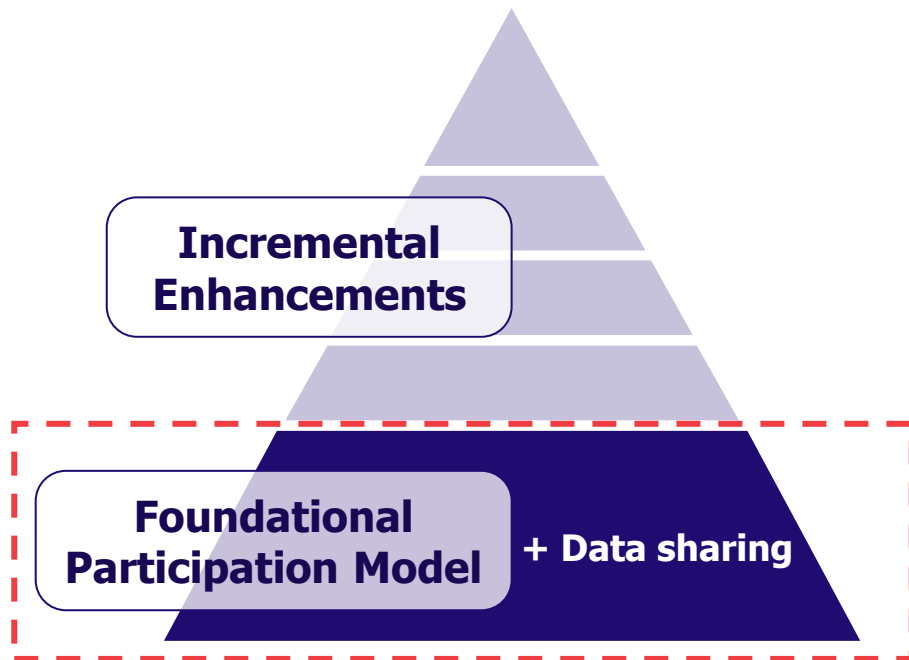
Drivers for change:



As demand for electricity grows, DERs can play an important role in **cost effectively meeting system needs**



Limited market access is preventing Ontario from unlocking the full potential of dispatchable DERs



DER Integration Project Objectives

1. Enable DERs and their aggregations (collectively DER/As) with dispatchable capabilities to participate in the IAM, and
2. Advance bi-directional data sharing and operational coordination between Ontario's transmission and distribution systems, enabling future opportunities for DERs.

A DER/A participation model is a *mechanism to access wholesale markets* and associated revenue streams; it is not a procurement mechanism.

Existing IESO procurement mechanisms include:

- RSA procurements (LTx, MTx)
- Capacity Auction
- eDSM programs and incentives

DER Integration Project Approach

ERP will take an incremental approach that starts with least-regret actions



Implement a foundational participation model

- Aligning with near-term customer interest, bulk system needs, and distribution system capabilities, and
- Maintaining flexibility to evolve into an enduring participation model through incremental enhancements



Enhance data sharing and implement coordination protocols with support from the OEB, LDCs, and DER providers

- Leveraging existing IESO tools to facilitate market participation and support bulk system reliability in the near-term,
- Providing situational awareness to LDCs of DER bulk-system activity, and
- Adapting to meet evolving sector needs and capabilities

From Past to Future: Aligning with Change

ERP will build on past IESO-Stakeholder initiatives to enable DER/As to access the IESO-Administered Markets (IAM) and improve bi-directional data sharing and operational coordination.

The DER Integration Project is focused on **meeting near-term needs** while **maintaining flexibility to adapt** to Ontario's evolving energy sector.





Foundational Participation Model

What is a Participation Model?

A **participation model** refers to a structured framework that defines how different types of market participants can engage in the wholesale electricity markets.

- Designed to ensure fair, transparent, efficient market operations, while maintaining grid reliability and encouraging competition among participants
- Tailored to reflect physical and operational characteristics of each participant type

Generally, a participation model outlines:

- **Who can participate** in the market (e.g., generators, load-serving entities, traders)
- **How they participate**, including bidding, scheduling, and settlement processes
- **What services they can provide**, such as energy, capacity, and ancillary services
- **What obligations they must meet**, including performance, data reporting, and compliance with reliability standards

The Opportunity

- ERP's foundational participation model will enable DERs providers to access wholesale market revenue streams by forming DER aggregations to participate in the IAM
- A participation model for DER aggregations integrates DERs into the existing wholesale market construct while offering cost-effective value and flexibility to Ontario's electricity system, ratepayers, and DER providers

Why Enable DER Aggregations?



Maintain Reliability

- Numerous small, individual DERs can significantly impact the IESO's ability to monitor the bulk system
- DER Aggregations enable System Operators to effectively respond to system reliability events



Ratepayer Value

- Enabling DER Aggregations cost-effectively integrates DERs by limiting the impact on IESO tools and IT infrastructure
- Individual DERs can continue to access the IAM through existing single resource models



More Opportunities

- DER Aggregations enable a broader range of DERs which would not individually meet participation requirements
- DER Aggregations support new DER providers to access market revenue streams

DER Aggregation Eligibility

ERP proposes the following eligibility requirements for DERAs:

Requirement	Aggregation Eligibility
Market Participant	DER Aggregator
Size	≥ 1 MW and < 20 MW
Composition	Homogenous (same underlying technology); Heterogenous (mixed technology)
Connection Point	Single connection point to IESO-Controlled Grid (ICG)
Dispatch Capability	Quick start; 5-min dispatchable
Services Provided	Capacity, energy, and/or operating reserve (OR)
Revenue Metering	Aggregated ¹
Operational Telemetry	Aggregated ² ; Telemetry performance consistent with existing requirements for individual resources ³

¹ Further exploration required, including measurement & verification (M&V) approach

² Individual contributor telemetry may be required if aggregate telemetry is not available or if required for reliability purposes

³ Resources < 20 MW must meet low or medium performance requirements; more stringent performance may be required depending on grid services provided (to be confirmed)

DER Contributor Eligibility

ERP proposes the following eligibility requirements for individual DERs forming a DERA (contributors):

Requirement	Contributor Eligibility
Market Participant	N/A
Size	To be determined ¹
Technology	Agnostic
Location	May be located at different sites connecting to a common point on the ICG
Dispatch Capability	N/A
Services Provided	Capacity, energy, and/or OR
Revenue Metering	Physically metered; alternative metering requirements under consideration
Operational Telemetry	May be required if aggregate telemetry is not available or for reliability; Telemetry performance consistent with existing requirements ²

¹ Pending further exploration

² Resources < 20 MW must meet low or medium performance requirements; more stringent performance may be required depending on grid services provided (to be confirmed)

Revenue Metering, Measurement & Verification

ERP recognizes stakeholder concerns regarding the IESO's metering and measurement & verification (M&V) requirements, which may be a barrier for DER providers to participate in the wholesale markets.

ERP is therefore exploring alternative revenue metering requirements for DERAs and their contributors, including:

- Alternative meter hardware requirements for contributors
- M&V approaches to support the aggregation of revenue meter data
- Deriving a market settlement process for DERAs, including any additional considerations based on DERA composition

Wholesale Market Settlements

- DER Aggregators are expected to be settled on (or using energy pricing that incorporates)¹ Locational Marginal Price (LMP) and subject to market settlement processes and requirements as per IESO market rules
- DER Aggregators will be responsible for contributor settlement however, the IESO may implement additional requirements to ensure market fairness

¹To be confirmed, pending additional exploration.



Static Data Sharing & Operational Coordination

The Need for Data Sharing & Coordination

- Today, controllable* DERs primarily provide bulk-services through the IAM or IESO-led demand response programs
- As distribution systems modernize, local non-wires solutions (NWS) programs and local scheduling solutions are expected to emerge across Ontario
- To support this growth and maintain Ontario's electricity system reliability, there is an increasing need for enhanced bi-directional data sharing and operational coordination between the IESO, LDCs, and DER providers
- ERP intends to implement capabilities to enhance data sharing and operational coordination between these parties, building on previous sector work (e.g. Transmission-Distribution Coordination Working Group)

*5-min dispatchable or activated demand response

ERP's Near-Term Data Sharing Approach

Maintain bulk system reliability

Ensure the IESO has adequate visibility into the distribution system as DER uptake grows and LDCs increasingly implement NWS programs

Support distribution system reliability

Ensure distributors have visibility of controllable DER activity within their service areas when dispatched/activated by the IESO

Prioritize DERs for local reliability needs & facilitate wholesale market participation

Implement bi-directional, transmission-distribution coordination protocols

Static Data Sharing Considerations

ERP intends to provide distributors with data related to DERs sited within their service areas providing bulk services

Proposed Mechanisms

- Require DER Aggregators work with local utilities to assess distribution reliability impacts as a pre-requisite to wholesale market participation
- Require bi-lateral data sharing agreements to be submitted during Market Registration

With increasing local opportunities for DERs being developed, the IESO may require enhanced visibility into the DERs providing utility services, and associated utility equipment, to support bulk planning and demand forecasting

Proposed Mechanisms

- Require LDCs register relevant distribution equipment (e.g. transformer station feeder) with the IESO for visibility purposes only
- Require LDCs submit aggregated local DER participation information to the IESO

Bi-directional Operational Visibility

ERP intends to provide LDCs with advanced notice of controllable DERs within their service area

Proposed Mechanisms

- Publish reports aggregating anticipated DER activity by zone
- Issue automated notifications to LDCs when activating DER/As for bulk-system needs
- Grant authorized LDCs access to dispatch reports

When LDCs activate DERs for local needs, the IESO may need visibility to inform decision-making in the operational timeframe

Proposed Mechanism

- Require LDCs to provide advanced notice to the IESO when activating DERs for local needs (e.g. NWS program) above a threshold

Operational Coordination

ERP recognizes LDC's local reliability must be prioritized when dispatching DERs in the IAM, and acknowledges the role of both host and embedded LDCs implementing and executing bi-directional operational coordination protocols

- DER/As in the IAM will be required to follow existing day-ahead and real-time markets processes and timelines
- DER/A availability to provide bulk services will respect services reserved for distribution needs

Proposed Mechanisms

- Require DER/A services reserved for local use, to be reflected through a floor/ceiling price in dispatch data submitted to the IESO
- Require reduced DER/A capabilities, including distribution system impacts¹, to be reflected through the IESO's existing outage management process
- Adapt existing outage communication processes to enable LDCs to override DER/A market dispatches following reliability events on the distribution system

¹Impacts from reconfigurations of the distribution system to be determined pending further discussion and exploration with LDCs



Collaboration

Integrating DERs in Ontario is a Shared Responsibility

- The IESO and Ontario Energy Board (OEB) are working closely on DER data sharing initiatives
- We all have integral roles in unlocking DER value in Ontario: IESO, LDCs, OEB, DER Aggregators, DER owners/operators, technology providers, and customers
- ERP is one initiative that will advance how DERs can be integrated to support Ontario's reliable electricity system
- Collaboration is key





Submitting Feedback & Next Steps

Recap: Questions for Consideration

DER Aggregations

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Submitting Feedback

- Feedback from participants is an important engagement principal and ensures that sector input and perspectives are taken into consideration
- The IESO is requesting written feedback via the **IESO's Feedback Form** available on the ERP DER webpage ([Project Webpage](#))
 - Feedback is being requested by **December 3, 2025**
- Please submit to IESO Engagement engagement@ieso.ca

Next Steps

Date	Activity
November 19, 2025	Public Session - DER Integration Project (Meeting #1) • Project Kick-Off
December 3, 2025 January 7, 2026	Deadline for Feedback – Meeting #1 IESO Response to Feedback – from Meeting #1
March 31, 2026	ERP DER Data Sharing Report-Back to Ministry of Energy and Mines (IEP Implementation Directive for the IESO)
Q2 2026	Public Session – DER Integration Project (Meeting #2)
Throughout 2026-27	Ongoing Public Engagement Sessions and Targeted Outreach (1:1) with Impacted Resources

Questions?

For questions, or to submit a feedback form, please contact IESO
Engagement at engagement@ieso.ca

Thank You

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