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# Distributed Energy Resources Roadmap Objectives, Draft Timelines, Product and Content

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## Webinar Participation (including audio)

- To interact, click the “Show Conversation” icon (message bubble symbol) to submit a written question or click on the “Raise hand” icon (hand symbol) at the top of the application window to indicate to the host you would like to speak
- Audio should be muted at all times. To unmute audio, click on the microphone icon at the top of the application window
- This webinar is conducted according to the [IESO Engagement Principles](#)

# Agenda

1. Background
2. DER Roadmap Product and Content
3. Additional Details on Objectives and Initiatives
4. Next Steps
5. Stakeholder Feedback
6. Call for T-D Working Group Membership

# Introduction

- The IESO is developing a DER Roadmap to provide clarity on IESO objectives, initiatives, and timing for DER integration
- The DER Roadmap will integrate stakeholder perspectives and IESO's objectives to increase competition and unlock options to meet the province's reliability needs
- In the [first DER Roadmap session](#) on June 22<sup>nd</sup> the IESO shared the goals, focus areas, and near-term initiatives for DER integration for stakeholder feedback
- In today's session we introduce objectives and draft timelines and seek feedback on the DER Roadmap product and content

# Context

- At least 5000 MW\* of DERs have already been deployed in Ontario and there is potential for substantial growth
- Additional DERs are being deployed to support customer and policy-driven electrification and decarbonization goals
- Ontario communities are increasingly expressing preferences for the source of their energy; DERs provide them with an opportunity to express and realize those preferences
- The IESO has forecast significant reliability needs over the next decade; DERs can increase options to meet these needs

# Stakeholder feedback on the DER Roadmap

- Feedback was provided in response to the June 22<sup>nd</sup> IESO DER webinar

Feedback theme	Response
Stakeholders indicated the importance of clarity on timelines and interrelationships with other IESO initiatives	The IESO will seek to provide as much clarity as possible. In today's session the IESO will discuss objectives, initiatives and draft timelines. Initiatives and timelines will be finalized by the end of the year in alignment with the Enabling Resources Program (ERP) and with consideration for relevant Resource Adequacy procurements.
Stakeholders indicated consideration of impacts to the distribution system and engagement with distributors will be critical	The IESO agrees with this feedback. The launch of the Transmission-Distribution (T-D) Coordination Working Group, described below, will provide a new forum for engagement on this topic and the DER Market Design Vision will also invite distributor feedback on Transmission-Distribution coordination.
Stakeholders were generally supportive of the proposed focus areas	The IESO appreciates this support and is introducing time bound objectives to deliver on each focus area.



# DER Roadmap Product and Content

# DER Roadmap Product

- The DER Roadmap will be presented as a webpage that will bring together the diverse DER-related work across the IESO to give stakeholders a complete view of the IESO's DER related activities over the next five years
- The DER Roadmap will include the following components:
  1. IESO goals for DER integration
  2. Time bound objectives
  3. DER Roadmap visual that captures DER initiatives and timelines
  4. Brief project overviews that include a project description, how the project contributes to the objectives, how a project relates to other initiatives on the DER Roadmap, and links to where additional details are found

# Updating and Maintenance

- The DER Roadmap aims to be as clear as possible about the work the IESO plans to undertake; however, additional opportunities and projects may emerge as work across the sector progresses
- The DER Roadmap webpage will be updated on a periodic basis, as necessary, to reflect changes to projects and timelines
- IESO will provide updates on DER Roadmap progress on a bi-annual basis, as part of future joint IESO/OEB engagement sessions

# DER Roadmap Content

- The following slides provide draft content for the DER Roadmap, including the IESO goal, objectives, and the DER Roadmap visual
- Select project overviews are also provided to illustrate the content that will be available on the website
- Over the coming weeks, the IESO is seeking feedback on the content of the DER Roadmap to ensure it will meet stakeholder needs and expectations
- Following the content slides, additional details are provided on each of the objectives along with a summary of their related initiatives

# IESO Goal for DER Integration

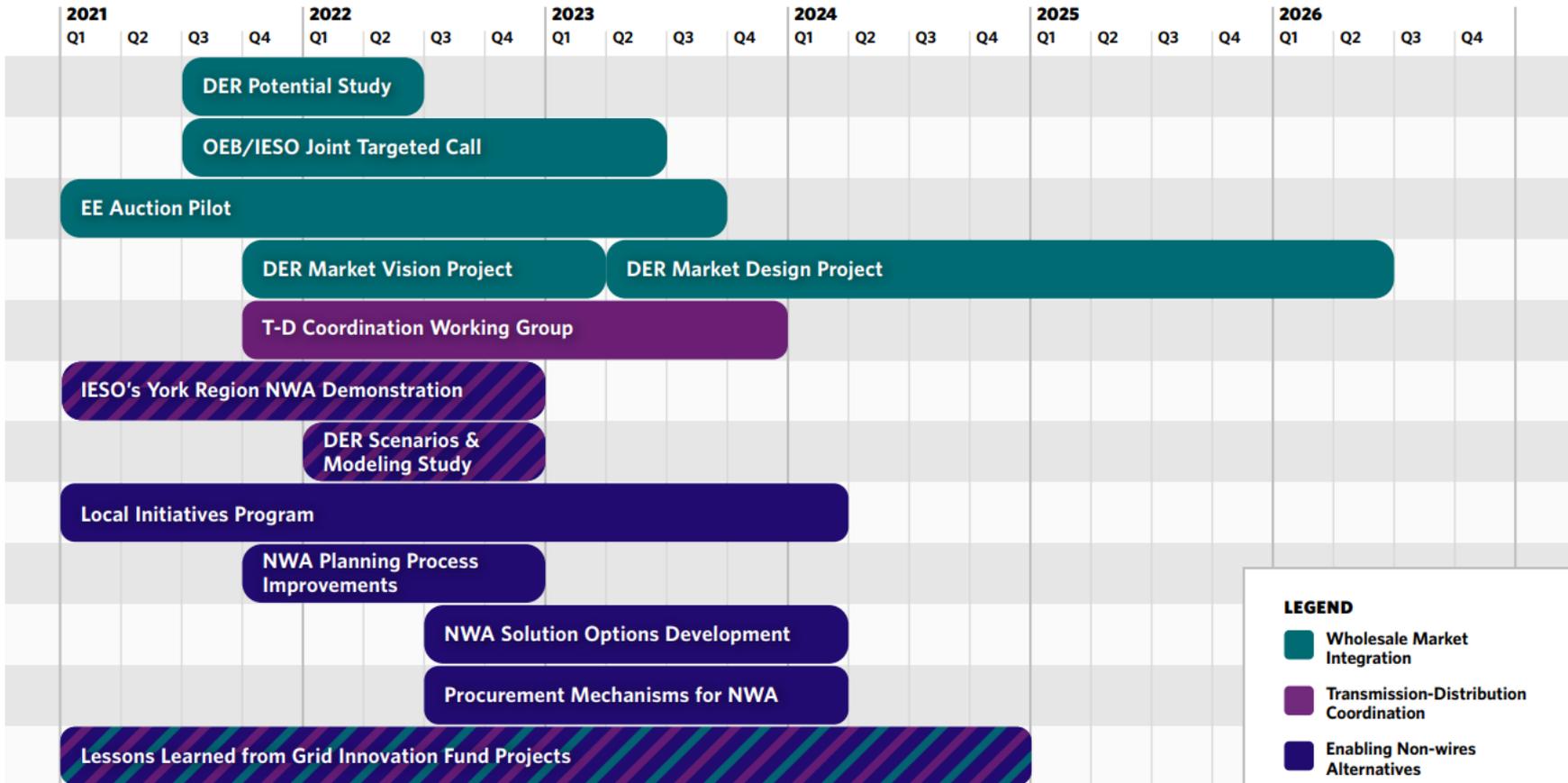
- To maximize the value DERs can provide to Ontario's electricity system by addressing challenges and opportunities related to DER integration within the IESO's mandate

# DER Roadmap Objectives

In the June DER Roadmap engagement session, focus areas for DER integration were shared. Specific objectives have been developed for each of the areas:

- Wholesale Market Integration - Introduce expanded participation model(s) that enhance DERs' ability to compete to provide the services they are technically capable of providing (2026\*)
- Transmission-Distribution (T-D) Coordination - Implement functional operational coordination model enabling wholesale market participation and develop a plan for longer-term coordination enhancements (2026\*)
- Enabling Non-Wires Alternatives (NWA)s - Develop approaches to identify needs, value alternatives, and identify acquisition methods for non-wires solutions (i.e. address barriers within IESO purview) (2024\*)

# DER Roadmap Projects Timeline



All timelines are presented as draft subject to change based on finalization of the Enabling Resources Program (ERP)

# Project Overview – Sample 1

## Market Vision Project

The [Market Vision Project](#) (MVP) will explore new participation models for DER integration into wholesale markets and the criteria to form the basis of future DER integration efforts.

This project is primarily linked to the wholesale market integration objective.

## Related Initiatives

This project is the first phase of and primary input for the [DER Market Design Project](#) (MDP). Key inputs for this project include the [DER Potential Study](#), the [IESO/OEB Joint Targeted Call](#), the T-D Coordination Working Group (TDWG), and the DER Scenarios and Modelling Study

# Project Overview – Sample 2

## **DER Potential Study**

The [Distributed Energy Resources \(DER\) Potential Study](#) will identify the types of DERs that are most cost-effective and/or are likely to emerge in the near- to mid-term.

This project is primarily linked to the wholesale market integration objective.

## **Related Initiatives**

This project is a primary input for the [DER Market Vision Project \(MVP\)](#).

Key inputs for this project include the [Exploring Expanded DER Participation in the IAMs](#) white paper series.



# Additional Details on Objectives and Initiatives

# Objective 1: Wholesale Market Integration - Context

- Better integrating DERs into the IESO-Administered Markets (IAMs) offers a direct opportunity for the IESO to unlock value DERs can provide to the system
  - Wholesale market integration provides greater “visibility and control” of DERs, which supports reliability, and increases competition in the markets. DER integration also enables customers/communities to express energy preferences and realize revenue opportunities through market participation
- Currently DER participation in the IAMs is limited to: direct participation with DERs  $\geq 1$  MW, non-dispatchable aggregations of demand response  $\geq 1$  MW (i.e. Hourly Demand Response), and dispatchable aggregations of generation or load in limited circumstances
- The IESO continues to monitor ISO/RTO\* progress in the U.S. in response to FERC Order 2222, enabling DER aggregators to compete in wholesale markets

# Wholesale Market Integration – Initiatives

Near term, in order to help inform other DER Roadmap work, the DER Roadmap's wholesale market integration efforts include:

- A [DER Potential Study](#) (Q3 2021 - Q3 2022) to identify the types of DERs that are most cost-effective and/or are likely to emerge in the near-to mid-term
- Pilots conducted as part of the [OEB/IESO Joint Targeted Call](#) (Q3 2021 - Q3 2023) as well as the [Energy Efficiency Auction Pilot](#) (2021 - Q4 2023)

Longer term, undertake the [DER Market Vision and Design Project](#) (2021-2026)

- 2021-2023 *DER Market Vision Project* (MVP) to explore options/develop scope
- 2023-2026 *DER Market Design Project* (MDP) to develop market rules, processes/tool changes and implement identified changes

## Objective 2: T-D Coordination - Context

- T-D coordination processes are needed to better integrate DERs in system and market operations to support both transmission and distribution level reliability
- The IESO, LDC, and DER participants will need to share information in a timely manner and ensure sufficient awareness (e.g., outages, limits on the DER, and dispatch of the DER, etc.) among the parties
- If distribution services are also sought from DERs, then T-D coordination processes will be needed to ensure operational coordination (e.g., no conflicting instructions, double counting/payment, or other unintended consequences)
- With greater DER participation in the IAMs, there may be a need for new connection impact considerations, as well as opportunities for streamlining processes among IESO, LDCs, and DER participants

# T-D Coordination – Initiatives

Near term, the IESO will continue to investigate T-D coordination methods in order to inform the [DER Market Vision Project](#)

- Launch the *T-D Coordination Working Group* to work closely with LDCs and other stakeholders to inform the DER Roadmap's T-D coordination activities
- Implement 2nd year of the [IESO's York Region NWA Demonstration](#) (2021- 2022) and prepare lessons learned and other final reporting material
- As part of the York Region Demonstration, undertake a *DER Scenarios & Modeling Study* (2022) to model reliable T-D coordination protocols in detail

Longer term, the IESO will continue to explore the options and scope needed to integrate DERs in the IAMs, and ultimately implement coordination processes as part of the [DER Market Design Project](#) (2023-2026)

# T-D Coordination Working Group (TDWG)

- In the context of the DER Roadmap, the IESO is launching a T-D Coordination Working Group
- The TDWG will work closely with LDCs and other stakeholders to inform the DER Roadmap's T-D coordination activities
- In the nearer term, the TDWG is expected to propose high-level T-D coordination processes, including responsibilities among IESO, LDC, and DER participants, for incorporation into the DER Market Vision Project by Q1 2023
- Longer-term deliverables and next steps will be determined with the TDWG
- The first TDWG meeting is expected to take place in January 2022, with subsequent meetings taking place on a quarterly basis/ad-hoc as needed

# TDWG: Call for Membership

- Membership on the working group is open to representatives of distribution and transmission companies as well as other stakeholders with knowledge of grid operations, planning, and/or DER integration
- Active participation being sought:
  1. Contribution to materials development and deliverables
  2. Expertise/knowledge in in distribution planning and/or operations
  3. Willingness to bring back perspectives from respective organisations
  4. Commitment to collaboration and exchange of ideas
- Membership will be finalized by end of 2021, and a Terms of Reference will be drafted in advance of the first TDWG meeting

## Objective 3: Enabling NWAs - Context

- In recent years, improvements in the costs and capabilities of DERs and energy efficiency (EE), have improved the potential to use them as NWAs to cost-effectively meet system needs and defer new or reinforced infrastructure
- As technologies and practices mature, DERs can be used as NWAs to both distribution and transmission infrastructure, meeting local needs in a more targeted manner, and contributing to provincial capacity and energy needs
- The modular and local nature of DERs contributes to the decentralization of electricity systems, giving customers and community stakeholders greater choice in how they meet their energy needs
- However, using DERs as NWAs also poses significant challenges to the planning and operation of the system, requiring more granular approaches

# Enabling NWAs – Initiatives

To enable DERs to be used as NWAs, IESO efforts include:

- As part of regional planning, *NWA Planning Process Improvements* (2021 - 2022) to refine the approach to identifying opportunities for DER and EE to cost-effectively defer traditional transmission solutions
- As part of the 2021-2024 Conservation and Demand Management (CDM) Framework, the [Local Initiatives Program](#) (2021 - Q1 2024) is being developed to demonstrate the use of targeted CDM as a cost-effective resource to help address regional and/or local system needs
- Evolving approaches to identifying solutions and acquiring resources through the *NWA Solutions Options Development* (2022 - 2024) and *Procurement Mechanisms for NWA* (2022 - 2024) work, while keeping pace with progress in the OEB's [Framework for Energy Innovation](#)

# Next Steps

<b>Activity</b>	<b>Date(s)</b>
Regional Planning and NWA Process Updates	October 19
DER Market Vision Project initial Stakeholder Engagement session	October 20
DER Potential Study detailed plan presented to stakeholders	November
IESO/OEB Joint Targeted Call Application Intake	November 1-30
DER Roadmap Webpage Live	December

# Stakeholder Feedback – DER Roadmap

The IESO is seeking written feedback on the following:

- Is the information proposed for inclusion in the DER Roadmap (objectives, initiatives, timing) helpful for stakeholders to understand the progress IESO is making on DER integration?
- Is the format/approach to sharing this information helpful for keeping up to date with the progress IESO is making on DER integration?
- Will the identified initiatives enable the IESO to achieve its objectives?

Please use the feedback form found under the October 20<sup>th</sup> entry on the [Distributed Energy Resources Roadmap webpage](#) to provide feedback and send to [engagement@ieso.ca](mailto:engagement@ieso.ca) by November 10<sup>th</sup>, 2021

# TDWG: Call for Membership

Complete the call for membership form to provide

- An outline of your background and interests
- Any relevant past/current work being undertaken
- Examples of material that could be relevant/valuable to share

Please use the form found under the October 20 entry on the [DER Roadmap engagement page](#) and send to [innovation@ieso.ca](mailto:innovation@ieso.ca) by November 11<sup>th</sup>, 2021

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# Thank You

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# Appendix A – DER Roadmap Objectives Past and in Progress Projects

# Past/In-progress Projects Contributing to Objectives

Project	Objective*	How it relates
<a href="#">Exploring Expanded DER Participation in the IAMs</a> white papers (WP)	WMI	Explored conceptual participation models, barriers, and recommended options for DER Integration that the DER Roadmap initiatives build upon
<a href="#">Storage Design Project</a>	WMI	Demonstrated enhanced integration of a unique resource in the IAMs, laid the groundwork for storage and storage containing DERs in the IAMs
<a href="#">Enabling Resources Program</a>	WMI	Developing a prioritized work plan for resource enablement opportunities including hybrids, storage and DERs. Umbrella project for the DER Roadmap
<a href="#">Resource Adequacy Engagement</a>	WMI	Evolving the tools for meeting short, medium, and long-term needs. These mechanisms may form the basis of how a portion of DERs participate in the future.
<a href="#">Development of a T-D Interoperability Framework</a> WP	T-D	This paper outlines a framework to help Ontario design a coordination model between the transmission and distribution systems

# Past/In-progress Projects Contributing to Objectives

Project	Objective*	How it relates
<a href="#">IESO's York Region NWA Demonstration</a> Year 1	T-D/ NWA	Demonstration is testing how a distribution system operator (DSO) could use local auctions to implement an NWA project while coordinating with the IESO
<a href="#">Grid-LDC Interoperability Standing Committee</a>	T-D	Forum where IESO and LDCs have engaged on T-D interactions as well as opportunities for data sharing, risk assessment, and collaboration
<a href="#">Regional Planning Process Review</a>	NWA	RPPR <a href="#">final report</a> identifies barriers to the implementation of cost-effective non-wires solutions (such as EE and DER) within the regional planning process, and provide options to address the barriers
<a href="#">Non-Wires Alternatives Using Energy and Capacity Markets</a> WP	NWAs/ WMI	This paper explores how market constructs can be used to secure services from DERs and use them to implement an NWA project