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IESO DER Roadmap Update

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Purpose and Overview

The purpose of this presentation is to provide an update on the IESO's recent Distributed Energy Resources (DER) activities as identified in the IESO's [DER Roadmap](#) (published in December 2021).

Recent key milestones on DER integration into wholesale markets include:

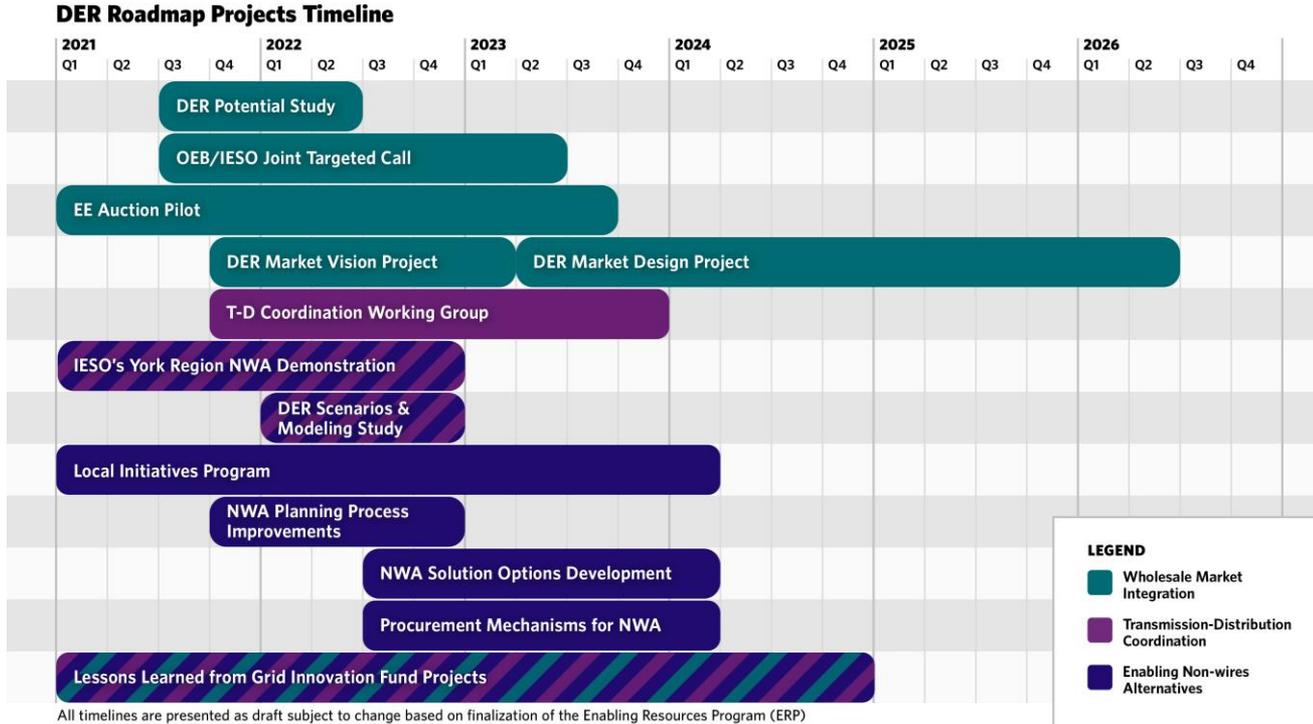
- Launch of the DER Market Vision Project (MVP) to identify foundational wholesale market participation models by 2026
- Launch of the DER Potential Study to identify the types of DERs that are cost-effective and/or are likely to emerge in the near- to mid-term in Ontario
- Four pilot projects that were successful in the OEB/IESO Joint Targeted Call have been announced (with additional projects to be announced in April)

Agenda

IESO will provide updates on its recent activities across the following DER projects identified in the DER Roadmap:

1. DER Market Vision Project (MVP) and Market Design Project (MDP)
2. DER Potential Study
3. Regional Planning Process Review (RPPR) Non-Wires Alternatives (NWA) action items
4. Transmission-Distribution Coordination Working Group (TDWG)
5. Conservation & Demand Management (CDM) Local Initiatives Program (LIP)
6. Energy Efficiency (EE) Auction Pilot

The IESO's DER Roadmap



Quick Recap

- IESO's goal for DER integration is to maximize the value DERs can provide to Ontario's electricity system by addressing challenges and opportunities within the IESO's mandate
- DER Roadmap identifies three key focus areas for DER integration activities:
 1. Wholesale Market Integration
 2. Transmission-Distribution (T-D) Coordination
 3. Enabling Non-Wires Alternatives (NWA's)

DER MVP and MDP - Overview

- The objective of the Market Vision and Design Project is to introduce wholesale participation models that enhance DERs' ability to compete to provide the services they are technically capable of providing
- The project is separated into two key phases:
 1. DER Market Vision Project (MVP): explore new, “foundational” participation models for DER integration (including individual DERs <1MW in size) into wholesale markets and identify the criteria for more sophisticated models to form the basis of future DER integration efforts
 2. DER Market Design Project (MDP): in the second phase of the project, design and implement the foundational participation models from the MVP

DER MVP and MDP - Progress

- The Market Vision and Design Project will draw on past IESO efforts, ongoing DER Roadmap initiatives (e.g. DER Potential Study, TDWG, Grid Innovation Fund projects), and experience in other jurisdictions, including US FERC Order 2222
- In late 2021, IESO identified (and sought stakeholder input to) [key areas of focus](#) and associated questions in those areas that will be answered in the MVP
 - Key focus areas: Participation and Aggregation; Eligible Services; IESO-Distributor Coordination; Metering and Settlement
- In January 2022, a more [detailed plan](#) for MVP timelines/deliverables was presented alongside a jurisdictional scan of US integration efforts

DER MVP and MDP - Next Steps

Date	Deliverables
Oct 2021	<ul style="list-style-type: none">• Introduce the DER Market Vision and Design Project• Phase I Questions
Jan 2022	<ul style="list-style-type: none">• EPRI Presentation on FERC Order 2222 implementation• MVP timelines and deliverables for the remainder of 2022
Q2 2022	<ul style="list-style-type: none">• Criteria used to determine foundational vs. enhanced models• Initial set of options of Phase I questions
Q3 2022	<ul style="list-style-type: none">• Recommendations for Phase I questions for foundational models with associated rationale
Q4 2022	<ul style="list-style-type: none">• Options and draft recommendations for enhanced models with associated rationale and criteria to trigger implementation
Q1 2023	<ul style="list-style-type: none">• Contingency and finalization of participation models

DER Potential Study

- The [DER Potential Study](#) will identify the types of DERs that are cost-effective and/or are likely to emerge in the near- to mid-term in Ontario
- The study will quantify the system value of these DERs under three scenarios, and further estimate the extent to which this system value can be captured through different market compensation frameworks
- The results will inform how the studied DERs could be included in the DER participation model(s) for the wholesale market, and may provide insights into alternative pathways for DERs to deliver system value

DER Potential Study - Progress and Next Steps

- In November 2021, IESO presented the draft detailed project plan, describing key components of the study including inputs, methodology, scenarios, and underlying assumptions for stakeholder feedback
- The study is underway and final results and recommendations are expected to be published in June 2022



RPPR Non-Wires Alternative (NWA) - Action Items

- As part of the [Regional Planning Process Review](#) (RPPR) action items, a number of projects are underway:
 1. NWA Regional Planning Process Improvements: this project will refine the approach to identifying opportunities for cost-effective DER and energy efficiency to defer the need for traditional transmission solutions
 2. NWA Solution Options Development: this project will develop NWA options in sufficient detail to assess their economic viability and operationalize Integrated Regional Resource Plan (IRRP) recommendations.

RPPR NWA - Action Items (continued)

3. Procurement Mechanisms for NWAs: this project will consider how to procure resources as part of implementing NWA solutions (e.g., via Capacity Auction, Medium-Term/Long-Term RFPs or define new approaches), where cost effective
- In October 2021, an update on the NWA Planning Process Improvements was provided
 - In Q3 2022, a webinar update will provide further detail on the proposed process improvements, introduce initial work on NWA Solution Options Development and provide a general update on next steps for all the projects

T-D Coordination Working Group (TDWG)

- To support both transmission and distribution level reliability, T-D coordination processes are needed to better integrate DERs in wholesale system and market operations
- The IESO, Local Distribution Companies (LDCs), and DER participants will need to share information in a timely manner, and especially if distribution services are also sought from DERs
- The TDWG's objective is to support the IESO in proposing conceptual T-D coordination processes among the IESO, LDCs, and DER providers to inform T-D coordination issues in the DER Market Vision Project by Q1 of 2023

T-D Coordination Working Group (TDWG) – Next Steps

- Commencing the DER Scenarios & Modelling Study, conducted as part of the IESO York Region NWA Demonstration, to support the development of conceptual coordination protocol(s), including:
 1. Investigating the impact of distribution operation of DER at the T-D interface to understand the impacts of losses, network switching, and outages
 2. Examining DERs' participation in both certain distribution service and wholesale services to determine if DERs can meet needs at both levels
- First meeting was held on January 31, 2022 (notes and materials available on the TDWG [webpage](#)); Next meeting scheduled to take place in Q2 of 2022

CDM Local Initiatives Program (LIP)

- The Local Initiatives Program aims to demonstrate the use of targeted Conservation and Demand Management (CDM) as a cost-effective resource to help address identified local and/or regional needs
- The program also seeks to demonstrate a targeted procurement strategy and will help inform how to plan for and procure CDM to meet identified NWA needs
- The IESO has selected the following first four target areas in Ontario for CDM initiatives to help address local system needs

CDM Local Initiatives Program (LIP) – 4 Target Areas

- Richview South area in Toronto: RFP was released in November 2021 and the procurement is complete
- Belle River area in Windsor-Essex: RFP is in development and expected release in April
- Ottawa: the IESO is in discussion with Hydro Ottawa on its participation and RFP is to be developed with a target release date of July
- York Region: In discussion with Alectra on its participation and RFP is to be developed with a target release date of Q3

Energy Efficiency Auction Pilot (EEAP)

- To complement existing incentive-based programs, the IESO has piloted an auction-based mechanism for procuring energy efficiency to support system reliability.
- EE Auction Pilot was held on March 22nd-23rd 2021 and successfully awarded the full \$5M budget to procure 7.4 MW of Winter Capacity and 6.6 MW of Summer Capacity
- Nine successful EE Capacity Providers cleared 17 EE Resources, which included a diverse range of technologies, participants and facilities

Energy Efficiency Auction Pilot (EEAP) (continued)

- First commitment period will start in Nov 2022, this will allow the IESO to determine the winter effectiveness of the pilot; results of first commitment period will be available in Q4 of 2023
- Early findings are limited to early participant experiences and IESO administration of the pilot
- Effectiveness of savings and budgets will be better determined post commitment period
- As the commitment period approaches there are uncertainties with participation and performance of cleared resources; the IESO will continue to monitor and work with participants

Next Steps

- We look forward to our continued engagement with stakeholders on the DER Roadmap's activities
- Links to all projects and initiatives are available on the DER Roadmap engagement page:
 - <https://www.ieso.ca/en/Sector-Participants/Engagement-Initiatives/Engagements/Distributed-Energy-Resources-Roadmap>

Thank You

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