



**MARCH 28, 2024**

# TDWG Meeting #12 Introduction

Shreya Dutta  
Advisor, System & Sector Development

Nima Omran  
Senior Advisor, System & Sector Development

# Today's Agenda

The agenda for today's meeting is:

- Introduction materials ('housekeeping') [20 min]
- Deliverable A: Distribution Reliability Overview [1 hour]
- Deliverable B2: Telemetry Requirements for DER [1.5 hour]

As usual, TDWG will have an opportunity to provide feedback during and following the meeting.

# Action Log

Date	Action	Resolution
Dec 8, 2023	B2 - Hydro One to follow up on use of Internet Protocol as method of communication	
Dec 8, 2023	B4 - IESO/Alectra to follow up on the concept of NMF as part of working definitions	
Dec 14, 2023	IESO to briefly follow up on DER/A and system restoration as part of Deliverable A	Presenting slides on Mar 28
Feb 16, 2024	IESO to circulate meeting notes among TDWG members by Feb 23	Sent Feb 23
Feb 16, 2024	TDWG members to provide comments and send to <a href="mailto:engagement@ieso.ca">engagement@ieso.ca</a> by Mar 15	Feedback received
Feb 16, 2024	IESO to post all meeting materials to the TDWG webpage by Mar 22	Posted Mar 21
Mar 28, 2024	IESO to circulate meeting notes among TDWG members by Apr 4	
Mar 28, 2024	TDWG members to provide comments via feedback form (which will be available on <a href="#">TDWG webpage</a> ) and send to <a href="mailto:engagement@ieso.ca">engagement@ieso.ca</a> by Apr 18	
Mar 28, 2024	IESO to post all meeting materials to the TDWG webpage by Apr 25	

# TDWG Overview (Recap)

- T-D coordination is needed to better integrate distributed energy resources and aggregators (DER/A) in the IESO's wholesale market and system operations as well as in distribution networks
- Local distribution companies (LDCs), DER/A participants, and IESO will need to share information in a timely manner and ensure there is sufficient awareness (e.g., with respect to outages, limits on DER/A, and dispatch of DER/A, etc.) among the parties
- In this context, the IESO launched the Transmission-Distribution Coordination Working Group (TDWG) in 2022 to work closely with LDCs and other stakeholders
- TDWG's objective is to support the development of operational coordination protocols
- The coordination protocol(s) are expected to form the basis of new rules and/or manuals for the IESO's wholesale market that will support the DER/A participation

# T-D Protocol Scenarios (Recap)

- The protocols will detail the actions to be taken and data to be shared by the parties, ensuring the effective and reliable operation as DER/A:
  - participate in IESO's wholesale market (i.e., day-ahead and real-time markets post-MRP\*)
  - may provide services to the distribution system as non-wires alternatives (NWA)
- The TDWG aims to outline operational coordination for the following scenarios:

1. DER/A providing **wholesale services** as per the IESO Market Vision Project

2. DER/A providing services to the distribution system as **distribution NWAs**

3. DER/A that provide **both** wholesale and distribution **services**

4. DERs that are **not** actively **participating** in any services

\* Market Renewal Program (MRP)

# Past TDWG Meetings

Mtg #	Date	Major Topic(s)
1	Jan 2022	Introductory and background materials
2	May 2022	T-D definition and coordination models
3	Jun 2022	Override, outage, and IESO market processes
4	Sep 2022	New York's coordination manual
5	Nov 2022	Draft protocol for a Dual Participation model
6	Feb 2023	Draft protocol for a Total DSO model

Mtg #	Date	Major Topic(s)
7	Jun 2023	DSO operational functions workshop
8	Oct 2023	Draft Deliverables statements of work
9	Dec 2023	B2. Current state of communication B4. Definitions Workshop
10	Dec 2023	B1. Functional Assessment A. T-D Reliability for Bulk Power System
11	Feb 2024	B1. User/Process Journey Mapping
12	Mar 2024	A. Distribution Reliability Overview B2. Telemetry Requirements for DERs

# TDWG Expected Deliverables

By the end of 2024, the TDWG will work to achieve the following:

Deliverable	Description	Leads	Sub-Group
A. Coordination Protocols	Develop implementation-ready protocols for Total DSO and Dual Participation coordination models	IESO	Hydro One, Essex, Alectra
B1. Functional Assessment	Analyze distributors' operational functions, capabilities, and costs across multiple dimensions	Toronto Hydro + Alectra	Elexicon, Rodan, NSWG*, IESO, Powerconsumer
B2. Communication Assessment	Map coordination interfaces and data exchanges for each coordination model	Hydro One	Alectra, Essex, IESO, NSWG
B3. Shared Platform Concept	Develop concept for a "one-stop" shop data sharing platform for coordination	Alectra	Hydro One, IESO, Rodan, Powerconsumer
B4. Architectural Assessment	Assess coordination models from market design, architectural, and flexibility perspectives	IESO	Essex, Alectra, Rodan

\* Non-wires Solutions Working Group (NSWG), represented by Power Advisory

# Mtg #12 Feedback Questions [1/2]

Please use the feedback form found under the Mar 28, 2024 entry on the TDWG webpage to provide feedback and send to [engagement@ieso.ca](mailto:engagement@ieso.ca) by Apr 18, 2024

For Deliverable A: Are there any other distribution reliability considerations important for T-D coordination?



# Mtg #12 Feedback Questions [2/2]

For Deliverable B2:

1. Are the proposed telemetry requirements for DER/As reasonable? Please explain any challenges and suggest solutions to overcome them.
2. Are there any telemetry pathways, other than those mentioned in the deck, that can be utilized to meet the telemetry requirements for DER/As?
3. What entity is best positioned to serve as a Telemetry Aggregator and why?
4. What data is required to represent losses or electrical distances of DER/As, and where should the data come from? Please suggest possible approaches.

# Impact of DERs on Restoration Plans [1/2]

- NERC is working on revising reliability standard [EOP-005](#), System Restoration from Blackstart Resources, to include DERs, and is currently seeking feedback from industry
- DERs' automatic response to energization of distribution equipment during system restoration can impact the functionality of Transmission Operators (TOP) restoration plan
- Simultaneous return of a high number of DERs to service post system restoration can lead to significant change in the net demand at the T-D interface. Therefore, coordination with the Balancing Authority (BA) is required to maintain balance between load and generation while system inertia is still relatively low during system restoration

## Impact of DERs on Restoration Plans [2/2]

- Modeling data and operating characteristics of DERs should be included in restoration plan steady-state and dynamic studies to estimate the distribution system's response accurately
- Additionally, the NERC restoration standard revision proposes that enhanced coordination between TOP and Distribution Provider (DP) is needed in order to include DERs that are capable of being black start resources in the restoration plan
- It is necessary to study the full switching path of the DERs acting as black start resources in order to accomplish the TOP's system restoration objective
- The area of restoration and black start resources is not a focus of the TDWG scope. The IESO will continue to monitor NERC standard change processes and will inform OEB and Market Participants regarding any standard changes.

---

# Thank You

[ieso.ca](http://ieso.ca)

1.888.448.7777

[customer.relations@ieso.ca](mailto:customer.relations@ieso.ca)

[engagement@ieso.ca](mailto:engagement@ieso.ca)

[@IESO Tweets](https://twitter.com/IESO)



[linkedin.com/company/IESO](https://www.linkedin.com/company/IESO)