TDWG Meeting #13 Introduction

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Today's Agenda

The agenda for today's meeting is:

- Introduction materials ('housekeeping') [30 min]

- Deliverable B2: IAM* Communication Interfaces [45 min]

- Deliverable B3: Shared Platform Concept - Market Intel [1.5 hour]

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

* IESO Administered Markets (IAM)

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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	Presenting slides on Apr 22
Mar 28, 2024	IESO to circulate meeting notes among TDWG members by Apr 4	Sent Apr 8
Mar 28, 2024	TDWG members to provide comments via feedback form and send to engagement@ieso.ca by Apr 18	
Mar 28, 2024	IESO to post all meeting materials to the TDWG webpage by Apr 25	
Apr 22, 2024	IESO to circulate meeting notes among TDWG members by Apr 29	
Apr 22, 2024	TDWG members to provide comments via feedback form and send to engagement@ieso.ca by May 13	
Apr 22, 2024	IESO to post all meeting materials to the TDWG webpage by May 20	

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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

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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
7	Jun 2023	DSO operational functions workshop

Mtg #	Date	Major Topic(s)
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
13	Apr 2024	B2. IAM Communication Interfaces B3. Shared Platform Concept - Market Intel

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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 three DSO coordination models (Total, Dual Participation and Market Facilitator DSO 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

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Three DSO Models

- An action log item from the TDWG meeting on Dec 8, 2023 was to follow up on the concept of "neutral market facilitator"

- Based on subsequent discussions, the Deliverables Leads are proposing to investigate 3 DSO models as part of TDWG efforts

- In addition to the Total DSO (T-DSO) and Dual Participation DSO (DP-DSO) models, it is proposed to explore a Market Facilitator DSO (MF-DSO) model

- The next three slides highlight differences between the three models

- Expecting to revisit and update the Working Definitions document in an upcoming TDWG meeting

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DSO Model Features [1/2]

Feature	Model 1 = T-DSO	Model 2 = DP-DSO	Model 3 = MF-DSO
Wholesale Market Participation	DSO is the wholesale market participant and is accountable for meeting IESO wholesale market participation obligations.	DER owners and aggregators are wholesale market participants and are accountable for meeting IESO wholesale market obligations.	DER owners and aggregators are wholesale market participants and are accountable for meeting IESO wholesale market obligations.
Wholesale Market Bidding and Market Dispatch	DSO submits a consolidated wholesale market bid/offer to IESO reflecting DER/A bids/offers and is responsible for meeting IESO dispatch.	DER/A participants submit their bids/offers directly to the IESO and are responsible for meeting IESO dispatch instructions.	The DSO may optimize the distribution network to minimize curtailment to DER/A availability. DER/A submit their bids/offers to DSO, which the DSO relays to the IESO. Similarly, the IESO's dispatch is relayed by the DSO to DER/A. The DER/A are responsible for meeting IESO dispatch instructions.

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DSO Model Features [2/2]

Feature	Model 1 = T-DSO	Model 2 = DP-DSO	Model 3 = MF-DSO
Changes in Distribution System Operating Conditions	DSO may "redispatch" DER/A to meet IESO dispatch. Alternatively, DSO may override IESO dispatch if needed for distribution reliability. DSO is responsible for IESO dispatch shortfall.	DSO may override IESO dispatch if needed for distribution reliability. Individual DER/A is responsible for IESO dispatch shortfall.	DSO may override IESO dispatch if needed for distribution reliability. Individual DER/A is responsible for IESO dispatch shortfall. The DSO may optimize the distribution network to minimize curtailment to DER/A availability.
Distribution Service Management	DSO receives DER/A availability/pricing data and schedules/activates DER/A for distribution needs.	DSO receives DER/A availability/pricing data and schedules/activates DER/A for distribution needs. DER/A coordinates DER/A provision of distribution services with the IESO.	DSO receives DER/A availability/pricing data and schedules/activates DER/A for distribution needs. DSO coordinates DER/A provision of distribution services with the IESO.
Visibility into Dispatch Instructions	DSO has full visibility into wholesale market and distribution service instructions to operate.	DSO has visibility into distribution service instructions to operate and may choose to get visibility into wholesale market instructions.	DSO has full visibility into wholesale market and distribution service instructions to operate.

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Mtg #13 Feedback Questions

For Mtg #13 Introduction – DSO Model Feature slides

1. Do the DSO model features presented clearly outline the distinctions among the models proposed to investigate? Do you have any suggestions for refinement?

For Deliverable B2: IAM Communication Interfaces

1. Are there any other key datasets that your organization is currently submitting to or receiving from the IESO that were not identified in this presentation? If yes, please provide details including the data exchanged, frequency/timing, data coordination interfaces used, and communication mediums used.

2. In addition to the key datasets identified in this presentation, are there any other key datasets required to be communicated between the IESO and your organization for effective T-D coordination?

Mtg #13 Feedback Questions

For Deliverable B3: Shared Platform Concept - Market Intel

1. Are there any key highlights/insights you would like to add to the functionalities that were identified in this market intel?

2. Would you like to add additional context/details for the shared platforms reviewed in this market intel?

3. Are there any other functionalities that you consider important for the shared platform?

4. Are there any additional observations you would like to highlight from this market intel for consideration in the requirements gathering stage?

Please use the feedback form found under the Apr 22, 2024 entry on the [TDWG webpage](#) to provide feedback and send to engagement@ieso.ca by May 13, 2024

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Thank You

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