

# **TDWG Deliverable B4: Architectural Assessment**

## **Statement of Work (DRAFT)**

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This document outlines the statement of work (SOW) for the Architectural Assessment Deliverable, including descriptions of the deliverable, work packages, timelines, dependencies, and resources for executing the deliverable. This SOW will inform the TDWG work plan to end of 2024.

### **1. Description of Deliverable**

This deliverable will analyze the Dual Participation Distribution System Operator (DP – DSO) and Total Distribution System Operator (T – DSO) market coordination models as well as the shared platform implementation approach within the context of the IESO’s market renewal [principles](#) and the architectural principles described in the IESO’s Transmission – Distribution Interoperability Framework [white paper](#)<sup>1</sup>. The deliverable will also explore the flexibility of having multiple coordination models available at the same time or transitioning between models over time.

The Architectural Assessment deliverable will accomplish the following goals:

- As part of a TDWG workshop, establish definitions for concepts (for example: Shared Platform, Dual Participation DSO, Total DSO) and acronyms (for example: DERA, DP – DSO, T – DSO) so that all TDWG members have a common understanding and use consistent vocabulary in the preparation of deliverables.
- Describe relevant characteristics of the DP-DSO and T-DSO models and the Shared Platform implementation approach within the context of the IESO’s market renewal principles and architectural principles.
- As part of a TDWG workshop, explore the challenges and no-regrets opportunities in the context of having multiple coordination models available at the same time or changing coordination models over time from multiple perspectives, including the IESO, LDCs, distributed energy resource (DER) owners, DER aggregators (DERAs), and others.

The deliverable will examine the coordination models from both market design and architectural viewpoints. The market renewal principles that will be considered are:

- Efficiency
- Competition
- Implementability

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<sup>1</sup> The market renewal and architectural principles are listed further down this SOW for easy reference. For more detailed description, please see the two linked documents.

- Certainty
- Transparency

The architectural principles to be considered are:

- Observability
- Scalability
- Cybersecurity vulnerability
- Layered decomposition
- Tier bypassing
- Hidden coupling
- Latency cascading

This work will examine the coordination models and the applicability of the principles through the lens of transmission – distribution (T – D) coordination requirements and the functions of all impacted entities/parties relevant to facilitating DER and DERA participation in the IESO Administered Markets (IAMs).

It is recognized that different T-D coordination models may be implemented in Ontario over time and there is potential that different coordination models are in use by different DSOs at the same time. The implementation of coordination models may depend on DER penetration levels, the service territory area, and policy objectives, among other factors. Accordingly, the deliverable will provide insight into potential no-regrets capabilities development and investments towards enabling reliable T-D coordination regardless of the coordination model that is adopted.

## **2. Lead & Sub-Groups**

The IESO serves as the lead for the deliverable. In this capacity, IESO holds the primary responsibility for ensuring the quality and timely completion of all associated deliverables.

A sub-group has been established to provide support and expertise for this deliverable. The sub-group consists of representatives from:

- Essex Powerlines
- Alectra Utilities

The IESO expects to share initial outlines and early drafts of individual work packages, provide periodic updates on work package progress, and offer early review and feedback opportunities to the sub-group. Members of the sub-group are also expected to allocate some time for periodic consultations, allowing IESO staff to seek insights and feedback, particularly on issues related to distribution system operations. The IESO may request that a sub-group member take on a bigger task, including holding the pen on a work package. Sub-group members will have the option of accepting or declining the request, considering their staffing, resources, or other considerations.

### 3. Work Packages

The deliverable will be broken down into work packages with distinct activities and sub-deliverables as outlined in Table 1 below. The description of the work packages should provide details of purpose, activities, approaches, and the expected outputs. The table also identifies the responsibilities and roles (including specialized subject matter expertise) of the deliverable lead or any sub-group members for executing the work packages.

**Table 1:** Work packages descriptions and roles/responsibilities

No	Name	Detailed Description	Roles & Responsibilities	Outputs
1	Definitions establishment workshop	Establishes definitions for foundational concepts and acronyms that will be used in multiple TDWG deliverables.	<ul style="list-style-type: none"> <li>- IESO team prepares materials and drafts definitions</li> <li>- Sub-group provides reviews and consultations</li> </ul>	Workshop
2	Architectural principles assessment	Examines the features of the T-DSO and DP-DSO coordination models as well as the Shared Platform implementation approach using the architectural principles from the T-D Interoperability Framework whitepaper.	<ul style="list-style-type: none"> <li>- IESO team conducts analysis and drafts memorandum</li> <li>- Sub-group provides reviews and consultations</li> </ul>	Memorandum
3	Market renewal principles assessment	Explores the features of the T-DSO and DP-DSO coordination models as well as the Shared Platform implementation approach using the IESO's market renewal principles.	<ul style="list-style-type: none"> <li>- IESO team conducts analysis and drafts memorandum</li> <li>- Sub-group provides reviews and consultations</li> </ul>	Memorandum

4	Coordination Model Flexibility Workshop	Explores the flexibility of having multiple coordination models available at the same time or changing coordination models over time, including challenges and no-regrets opportunities from multiple perspectives (IESO, DSOs, DER owner, DERA, etc.)	<ul style="list-style-type: none"> <li>- IESO team conducts analysis and drafts memorandum</li> <li>- Sub-group provides reviews and consultations</li> </ul>	Workshop
5	Draft complete report + feedback & responses appendix	A complete draft report will be provided, outlining the assessments of architectural principles, market renewal principles, and the flexibility of coordination models. The report will also include a feedback and response appendix, summarizing the TDWG's feedback.	<ul style="list-style-type: none"> <li>- IESO team conducts analysis and drafts report</li> <li>- Sub-group provides reviews and consultations</li> </ul>	Draft Report
6	Final complete report	Final report, reflecting final TDWG feedback, and with IESO cover letter prepended.	<ul style="list-style-type: none"> <li>- IESO finalizes report</li> </ul>	Final Report

#### 4. Timelines, Dependencies, Resources and Other Specifics

Table 2 outlines the expected timeframe for each of the work packages described above. It also details dependencies, resources and other specifics for each work package.

**Table 2:** Work package expected timeline, dependencies, resources and other specifics

No	Name	Expected Timeline	Dependencies	Resources	Other Specifics
1	Definitions establishment workshop	Q4 2023		0.25 IESO FTE 2 hrs/week sub-group FTE	Outputs of this work package will inform all other TDWG deliverables
2	Architectural principles assessment	Q1 2024	Outputs of deliverable efforts B1, B2, B3 will inform this work package.	0.25 IESO FTE ICF consulting staff 2 hrs/week sub-group FTE	N/A
3	Market renewal principles assessment	Q2 2024	Outputs of deliverable efforts B1, B2, B3 will inform this work package.	0.25 IESO FTE ICF consulting staff 2 hrs/week sub-group FTE	N/A
4	Coordination Model Flexibility Workshop	Q3 2024	Outputs of deliverable efforts B1, B2, B3 will inform this work package.	0.25 IESO FTE ICF consulting staff 2 hrs/week sub-group FTE	N/A
5	Draft complete report + feedback & responses appendix	Q3 2024		0.25 IESO FTE 2 hrs/week sub-group FTE	N/A
6	Final complete report – architectural assessment	Q4 2024		0.25 IESO FTE 2 hrs/week sub-group FTE	N/A