

# **TDWG Deliverable B1: Functional Assessment Statement of Work (DRAFT)**

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This document outlines the statement of work (SOW) for Deliverable B1 – Functional Assessment, including descriptions of the deliverable, work packages, timelines, dependencies, and resources for executing the deliverable. This SOW will inform the TDWG workplan to end of 2024.

**B1 – Functional Assessment requirement:** identify operational distributor functions, capabilities, and costs differences analyzed across several dimensions. Examples include distribution services only and distribution plus wholesale services, Dual Participation and Total Distribution System Operator (DSO) models, etc.

## **1. Description of Deliverable**

As the province continues to dedicate efforts to enable increased participation of Distributed Energy Resources (DERs) in energy markets and their use as non-wires alternatives (NWA) to Local Distribution Companies (LDCs), LDCs must evolve capabilities inherent to a Distribution System Operator (DSO). This evolution is not merely a response to potential regulatory changes, but also a necessary adaptation to Ontario's increasingly dynamic energy environment.

The OEB expects distributors to modify their planning and operations to prepare for DER impacts on their systems, including integrating these resources cost-effectively, while maintaining reliable service for their customers. Distributors are also expected to consider DER solutions as NWA when assessing options for meeting system needs.

This transformation empowers DERs to provide services at both the distribution and bulk levels, introducing new functions within the LDC. These functional areas necessitate an expansion of conventional LDC activities, and as such, it is critical to understand where we are today, and define new capabilities that must be taken on to enable this transformation.

The B1 deliverable focuses on the identification of operational and functional requirements, internal resourcing and capability development, and the associated costs that must be taken on by LDCs as they transition into DSOs.

The deliverable evaluates two distinct DSO-enabled models<sup>1</sup> against the aforementioned areas of focus:

1. **Total DSO Model:** A model where the DSO acts as the interface for DER participants, where all, or a subset of resources connected to the distribution level, participate in wholesale or local markets and are orchestrated via the DSO to enable interactions between DERs and all markets
2. **Dual Participation Model:** A model where the DSO coordinates and dispatches DERs for the benefit of customers and the distribution grid, while the IESO separately coordinates and dispatches DERs for the benefit of customers, and transmission and supply levels.

Both models require extensive communication amongst DSOs, the IESO, and third-party DER(A)s.

This deliverable articulates the high-level requirements to implement either the Total DSO or Dual Participation models in Ontario. Specifically, it will identify the DSO structure; core business functional requirements and capabilities; map out the new processes; identify tangible assets and technology requirements; and incremental investment requirement and costs associated with each model.

The outcome of the Functional Assessment is expected to inform policymakers, the regulator, and other stakeholders about the pathway, costs and timeline to implement each of the coordination models.

The B1-Functional Assessment is interdependent on and relevant to all other TDWG deliverables; in particular, the work as related to A- Coordination Protocols, B2 – Communication Assessment and B4 – Architecture Assessment, which will inform the development of the various components and work packages as part of the deliverables of B1.

## 2. Lead & Sub-Groups

- Lead organizations: Toronto Hydro and Alectra will be co-leading the planning, scoping, development, and completion of deliverables proposed under B1-Functional Assessment by Q4, 2024.
- Sub-groups/committee: IESO will be included as one of the sub-group members to support the deliverables. Other sub-group members to be determined.

Regular collaboration will take place among team members from Toronto Hydro, Alectra interested sub-groups as needed, in the form of a bi-weekly sub-group touchpoint discussion, a monthly meeting with TDWG Deliverables Group, and a quarterly meeting with the broader TDWG.

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<sup>1</sup> The definition of the different DSO models will be further detailed through the TDWG deliverables.

<b>Meeting Description</b>	<b>Frequency</b>	<b>Organization</b>	<b>Names</b>
Leads/Sub-group	Bi-weekly	TH, Alectra, sub-groups as needed	Hani, Rei, Hisham, Geri
TDWG – Deliverables Group	Monthly	TH, Alectra, IESO, Essex, Hydro One, EDA.	IESO to set up, include leads and sub-groups
TDWG - All	Quarterly	All participants at TDWG	All (IESO to set up)

### 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	Architecture	Define the overall DSO structure and provide an overview of the processes/systems that will enable the LDC to act as a DSO	Alectra and Toronto Hydro collaboration, with input/review from sub-groups and stakeholders	A deck outlining overarching DSO structure (flowchart/map) and required systems for each model (high-level)
2	Process and user journey mapping	Mapping of all the critical processes, functional capabilities and user journeys within the DSO	Alectra and Toronto Hydro collaboration, with input/review from sub-groups and stakeholders	A deck outlining the critical processes and user journeys for each model
3	Gap analysis	Gap analysis that will assess the gap between the existing LDC capabilities and the capabilities highlighted in Work Packages 1 and 2	Alectra and Toronto Hydro to collaborate on gap analysis template. Alectra will conduct analysis for Total DSO. Toronto Hydro will conduct analysis for Dual Participation Model. Consultant support to ensure all LDCs are represented	A document outlining the gap analysis for each model
4	Defining business and functional requirements	Defining the business and functional requirements. In addition, identify tangible assets and technology requirements	Alectra – Total DSO Toronto Hydro – Dual Model Consultant support to ensure all LDCs are represented	A document outlining the key business and functional requirements for each model
5	Investment Costs	Timeline and cost estimates for enabling the business and functional requirements	Alectra – Total DSO Toronto Hydro – Dual Model Consultant support to ensure all LDCs are represented	A spreadsheet with a costing breakdown for each model

## 4. Timelines & Dependencies

Table 2 outlines the expected timeframe for each of the work packages described above. It also details dependencies for each work package on other work packages, deliverables in the TDWG workplan or external factors that may impact timelines, including any mitigation strategies.

**Table 2:** Work package expected timeline and dependencies, assuming project kicks off in November 2023.

No	Name	Expected Timeline	Dependencies
1	Architecture	November – December 2023 <ul style="list-style-type: none"> <li>○ Bi-weekly touchpoint with sub-group</li> <li>○ Monthly meeting with TDWG Core Group</li> <li>○ Present findings at TDWG meeting in December</li> </ul>	B2 - Communication Assessment (high level)  Mitigation strategies – proactively involve and take part in A and B2 sub-group discussions to understand the downstream implication on DSO Architecture
2	Process and user journey mapping	December 2023- January 2024 <ul style="list-style-type: none"> <li>○ Bi-weekly touchpoint with sub-group</li> <li>○ Monthly meeting with TDWG Core Group</li> <li>○ Quarterly meeting with all members at TDWG</li> <li>○ Present findings at TDWG in February</li> </ul>	A - Coordination Protocols – assumption basis B2 - Communication Assessment -high level B4 – architecture assessment - high level  Mitigation strategies – proactively involve and take part in A, B2, B4 sub-group discussions to understand the downstream implication on process and user journey mapping
3	Gap analysis	February 2024 -April 2024 <ul style="list-style-type: none"> <li>○ Bi-weekly touchpoint with sub-group</li> <li>○ Monthly meeting with TDWG Core Group</li> <li>○ Quarterly meeting with all members at TDWG</li> </ul>	A - Coordination Protocols B2 - Communication Assessment – detailed requirements B4 – architecture assessment – detailed requirement Mitigation strategies – proactively involve and take part in A and B2 sub-group discussions to understand the downstream implication on Gap analysis, consultant support
4	Defining business and	May 2024 -July 2024	A - Coordination Protocols

	functional requirements	<ul style="list-style-type: none"> <li>○ Bi-weekly touchpoint with sub-group</li> <li>○ Monthly meeting with TDWG Core Group</li> <li>○ Quarterly meeting with all members at TDWG</li> </ul>	<p>B2 - Communication Assessment – detailed requirement</p> <p>B4 – architecture assessment – detailed requirement</p> <p>TBD consulting support</p> <p>Mitigation strategies – proactively involve and take part in A and B2 sub-group discussions to understand the downstream implication on defining business and functional requirements</p>
5	Investment Costs	<p>July 2024- September 2024</p> <ul style="list-style-type: none"> <li>○ Bi-weekly touchpoint with sub-group</li> <li>○ Monthly meeting with TDWG Core Group</li> <li>○ Quarterly meeting with all members at TDWG</li> </ul>	TBD consulting support
6	Draft complete memo + Q&A appendix	<p>September – November 2024</p> <p>A complete draft memorandum will be provided, including an appendix containing a feedback and response document, summarizing the feedback received from the TDWG throughout the development of the deliverable.</p>	
7	Final complete memo	<p>December 2024</p> <p>Final memorandum, reflecting final TDWG feedback, and with IESO cover letter prepended.</p>	

## **5. Resources**

### **Toronto Hydro:**

Toronto Hydro will assign the equivalent of 0.5FTE to this project, in addition to management oversight.

### **Alectra**

Alectra will assign the equivalent of 0.5FTE to this project, in addition to management oversight.

### **External Support**

This project will require external support from a consulting firm with expertise and experience in designing and/or deploying DSOs in other jurisdictions. It will also require input from the LDC community to ensure the gap analysis and cost figures are reflective of all LDCs in Ontario.

## **6. Other Specifics**

This work will require regular stakeholder engagements with to solicit feedback on each deliverable, ensuring a broad set of views are represented.