Transmission-Distribution Coordination Working Group (TDWG)

Meeting #17 Notes

Meeting date: May 27, 2025

Meeting time: 10 AM – 3 PM

Meeting location: Virtual

Meeting Objective:

Provide final presentations for each of the 4 final deliverables:

- A: T-D Coordination Protocols (led by IESO)
- B1: Functional Assessment (led by Alectra and Toronto Hydro)
- B2: Communication Assessment (led by Hydro One)
- B3: Shared Platform Concept (led by Alectra)

1. Introduction Presentation

- Ali Golriz (IESO) opened TDWG meeting #17, and reminded working group members that the meeting is expected to be the final TDWG meeting.
- An overview of the TDWG was presented, covering the working group's objectives, deliverables, past meetings, and expected next steps.
- Highlighted that TDWG's outputs will inform and support other initiatives, including:
    - OEB's DSO Capabilities consultation (commented on by Rachel Anderson, OEB)
    - IESO's Enabling Resource Program (ERP) (commented on by Maral Kassabian, IESO)
    - IESO's ongoing market and sector evolution work (commented on by Ali Golriz)
- A working group member asked how 'non-regret actions' should be defined, considering the many perspectives involved (e.g., IESO, LDCs, DER participants, aggregators, etc.).

2. Deliverable A: T-D Coordination Protocols Presentation (IESO)

- Nima Omran (IESO) provided an overview of the Transmission-Distribution Coordination Protocols report.
- Described background, including a definition of DSO, the four service cases (no-service, distribution-only, wholesale-only, two-level stacking), and pre-operational requirements.
- Outlined coordination challenges and potential DSO models investigated (Dual Participation DSO (DP-DSO), Total DSO (T-DSO), Market Facilitator DSO (MF-DSO).

- Described wholesale market process timeframes (day-ahead and real-time) and assumed distribution-level services timeframes (DSO set limits on DER/A before wholesale market bids).
- Introduced the DER resource plan concept and key protocol elements: sequential coordination, DSO limits, floor-price offers, and DSO override.
- Noted the final report details protocols for each coordination model with swim lane diagrams, with a separate document covering scenarios with a host LDC and embedded DSO setup.

3. Deliverable B1: Functional Assessment Presentation (Alectra and Toronto Hydro)

- Hani Taki (Toronto Hydro) introduced Deliverable B1's purpose: assessing DSO functional requirements under three coordination models, and noted the subgroup's collaboration.
- Hisham Omara (Alectra) described the breakdown of the deliverable into 7 work packages
- Vivek Somasundaram (Alectra) presented the high-level DSO architecture, describing components (e.g., power flow analysis, forecasting tool, market/shared platform, etc.).
- Ken Chadha (Alectra) outlined user journey and processes explored, showed example process diagrams, and summarized process differences across the 3 coordination models.
- Rei Marzoughi (Toronto Hydro) summarized the gap analysis (74% LDC response), noting strong foundational capabilities (control room, GIS, SCADA) but variability in LDC's visibility of DER.
- Hisham Omara outlined business and functional requirements, detailing a seven-level maturity matrix ranging from basic IESO-LDC coordination to fully mature DSO.
- Hisham Omara presented estimated investment cost, citing 3 global benchmarks, and laid out estimated deployment timelines for each maturity level.
- Sunny Patel (Toronto Hydro) described next steps, including circulate work packages 1–5 to working group members, collecting feedback, and finalizing the B1 Deliverable.

4. Deliverable B2: Communication Assessment Presentation (Hydro One)

- James McGowan (Hydro One) delivered a presentation on the communication assessment deliverable, and Brian Seal (EPRI) provided additional commentary.
- A summary was presented of the mapping of all message exchanges across DER/A, DSO, and IESO for the 3 DSO models, using the detailed protocols from Deliverable A as reference.
- Noted that high-DER-penetration projections for 2035 informed interface counts and communication-exchange estimates, and showed how data aggregates at VPP and transmission-distribution node levels, highlighting potential bursty traffic periods.
- Discussed evaluation criteria (data rate, latency, reliability, cost, cybersecurity) and candidate media (fiber, microwave, cellular, satellite, RF mesh) with their performance characteristics.
- Concluded that all 3 explored coordination models (DP-DSO, T-DSO, and MF-DSO) can be supported with current telecommunication options.
- Emphasized that a hybrid communication strategy mixing fiber, microwave, cellular, and satellite, will be essential for scalable and cost-effective deployment.

- Noted potential to bring new data exchange needs (e.g., resource plans, limits, overrides) to Standards Development Organizations (SDOs) for consideration in future standard versions.

5. Deliverable B3: Shared Platform Concept Presentation (Alectra)

- Geri Yin (Alectra) introduced the B3 shared platform deliverable presentation, and Sehaj Ghumman (Alectra) delivered the detailed overview.
- Described objectives and guiding principles for a shared platform, its benefits (e.g., standardized participation, elimination of 'point-to-point' integrations, streamlined T-D protocol implementation, etc.), and how it differs from ADMS/DERMS tools.
- Summarized 'market intelligence' from global jurisdictions, highlighting European flexibility platforms (e.g., GOPACS and the Coordinet project) and a US DOE report on TSO-DSO-aggregator market and operational coordination requirements.
- Detailed requirements were outlined for several stages of the 'DER lifecycle' processes (pre-market/registration; system conditions, operation, and needs; needs communication, response & reception; DER operations; measurement & verification; settlements)
- Described how the shared platform would interface with existing IESO and DSO systems for data exchange, while leaving core calculations and assessments to those established tools.
- Presented regulatory considerations, stressing the need for fair and equal access, flexibility to evolve with market design, shared ownership models, and defined governance structures.

- In closing the meeting, Ali Golriz thanked all presenters and working group members, reflected on three years of collaboration, and looked forward to continued engagement in future sector innovation efforts.