

SEPTEMBER 13, 2022

Transmission-Distribution Coordination Working Group (TDWG) – September Meeting

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Today's Agenda

- Introduction (IESO)
- Distribution Outages (Alectra Utilities)
- Feedback Summary (IESO)
- Break
- Toronto Hydro Grid Innovation Fund (GIF) Project (Toronto Hydro)
- Joint Utilities of New York Distribution System Platform (DSP) Coordination & Communication Manual (ICF)

Past TDWG Meetings

- Meeting #1: Introduction to TDWG, introduction to Transmission-Distribution (T-D) coordination, overview of Distributed Energy Resources (DER) Scenarios & Modelling Study
- Meeting #2: T-D interface working definition, WG feedback discussion, Distribution System Operator (DSO) models in scope, additional detail re: DER Scenarios & Modelling Study
- Meeting #3: Energy Systems Integration Group (ESIG) “override” example, IESO outage processes, and timing of relevant participant-facing IESO Market Renewal processes
- Meeting #4 (today): Local Distribution Company (LDC) outage notifications, distribution Non-Wires Alternatives (NWA) service pilot, Joint Utilities of New York’s [DSP Communications and Coordination Manual](#)
- Meeting #5: Draft conceptual T-D coordination protocols expected to be key agenda item

Working Definition for T-D Interface

- T-D Interface (working definition): the physical locations at which the IESO-controlled grid and the distribution systems interconnect
- From Market Rules (Ch. 11): IESO-controlled grid means the transmission systems with respect to which, pursuant to operating agreements, the IESO has authority to direct operations
- From Market Rules (Ch. 11): Transmission system means a system for transmitting electricity, and includes any structures, equipment or other things used for that purpose. *T*
- From operating agreements: Transmission facilities are all lines, structures, equipment, auxiliary equipment and facilities operated at greater than 50 kilovolts (kV) and facilities operated at less than 50 kV at the step-down transformer stations down to the load side of the feeder breaker.
 - Operating agreements may have additional exclusions from or inclusions in the definition of IESO-controlled grid

TDWG Member Feedback

Any suggestions for additional topics needed in order to develop the TDWG deliverable?

Feedback

Distributor to Distributor Power Flow Coordination: Coordination of DERs providing services to both the distribution system and the wholesale market requires distributor-to-distributor coordination to understand power flow throughout system planning. During this phase of development, it would be beneficial if we do not limit the focus "to protocols for providing services to the IESO and one distribution-level entity (i.e., host or embedded distributor)" and continue to quantify and explore other opportunities.

IESO Response

Agreed that coordination of DERs across the electricity system will require coordination between a host and embedded distributor, where applicable.

As noted at the June 29, 2022 TDWG meeting, the draft conceptual coordination protocol being developed for the TDWG's consideration will not contemplate a DER providing services to the embedded LDC, host LDC and wholesale market. It is acknowledged that there is merit to further considering the complex scenario of tri-level service provision.

At this time, the IESO's intent is to draft a conceptual coordination protocol for the simpler case of a DER providing services to one distribution-level entity and the wholesale market. This is expected to provide a foundation for future work.

TDWG Member Feedback

Any suggestions for additional topics needed in order to develop the TDWG deliverable?

Feedback

There are distributors who do not make capacity payments but rather pay for their utilization/energy of DERs used for distribution needs. Request to explore in detail DER participation at both distribution and transmission levels and where the responsibility to pay capacity payments might be assigned.

It is suggested that the IESO also consider coordination protocols for procurements, i.e. LDC and IESO Request for Proposals.

To review the need for any new defined terms and identifiers for physical components of the T-D interface and distribution system. E.g., will T-D services be determined based on nodal references for the IESO wholesale, or will distribution-based locational identifiers be used for the IESO to view further into the distribution system?

IESO Response

Thank you for the suggestion to explore distribution and wholesale level capacity service/payments. At this time, the TDWG's focus is on the operational T-D coordination protocols (i.e. the day-ahead and real-time timeframes).

We expect that the DER Scenarios & Modelling Study will provide some analysis related to the "stacking" of capacity value to help inform this question.

Thank you for the suggestion to more granularly explore the physical equipment at the T-D interface. The IESO's [DER Market Vision and Design Project](#) will explore the modeling of DER, which is expected to help clarify several issues related to this topic.

TDWG Member Feedback

What existing/new processes could distributors use to communicate distribution “override” conditions to customers with DER facilities and DER aggregators that are participating in the wholesale market?

Feedback

Communicate/coordination between LDCs, transmitters, aggregators/DER facilities and the IESO should be through a common tool or, preferably, 100% certified interoperable tools. The tools should be auditable and availability/participation progressively visible and verify-able from the DER through all stakeholders and eventually the IESO. Anything else will add complexity, cost, and confusion amongst the stakeholders.

IESO Response

Thank you for this suggestion. We note that the concept of a “shared platform” for coordination purposes was discussed in the whitepaper [Development of a Transmission-Distribution Interoperability Framework](#). The current objective of the TDWG is focused on operational coordination protocols. That said, we recognize this as an area worth exploring further in future work.

TDWG Member Feedback

The ESIG example of DER De-Rate Notification is expected to inform the IESO's drafting of conceptual T-D coordination protocols. Any considerations you advise we bear in mind?

Feedback

Clarity is requested around the ESIG example with respect to the DER needing to "buy back" or purchase the 2 MW of unavailable power.

In the ESIG example it mentions "...and may subject the DER Aggregator (DERA) to uninstructed deviation charges". Would this mean that the DER would pay a penalty, even though their inability to produce was caused by an equipment outage within the host LDC?

IESO Response

With respect to this issue, the ESIG report [DER Integration into Wholesale Markets and Operations](#) notes: "The aggregator structures its real-time market offers for Monday Hour Ending (HE)12-24 based on maximum 3 Megawatt (MW) capacity. This may involve the aggregator buying back portions of the DERA's day-ahead schedules (which cleared in Sunday's day-ahead market) for hours where they exceed 3 megawatt-hours (MWh)."

At this time, the TDWG's focus is on the operational T-D coordination protocols. This issue is a settlement question that depends on the protocol. The IESO will follow up on this issue once draft conceptual T-D coordination protocols have been shared with TDWG members.

TDWG Member Feedback

The ESIG example of DER De-Rate Notification is expected to inform the IESO's drafting of conceptual T-D coordination protocols. Any considerations you advise we bear in mind?

Feedback

The ESIG example provided includes only an outage scenario and only one pricing node. There are examples today in which distribution automation restores load between different transmission zones. Consideration should be given to expanding the example to include automated restoration between two different pricing nodes.

IESO Response

Thank you for this suggestion. As part of the draft conceptual coordination protocols being developed, the IESO expects to provide commentary on how these examples/cases could be incorporated.

That said, based on past TDWG feedback, our understanding is that DERs are today required to go offline when the distribution system is in an abnormal configuration. We ask that TDWG members provide additional feedback if there are currently circumstances where the DER are permitted to operate under multiple distribution system configurations.

Feedback Questions

- Are there circumstances where the distribution system is reconfigured and DER can continue to operate? Does the treatment depend on size of the DER, whether transfer trip is being used, loading on the feeder, etc.?
- Are there circumstances today when the T-D interface or transmission station that a DER is connected to changes due to reconfiguration of the distribution system?
- What operational data about loading, reconfigurations, constraints, DER operations, etc. is being shared between host and embedded distributors today? What method and frequency is used for any data exchanges?

Feedback Questions

- In managing a non-wires alternatives project, when do distributors expect to identify that there is a need to operate DER? How good is distributors' "visibility" into the need in the day-ahead and 3-4 hours prior to real time?
- Based on the Joint Utilities of New York DSP Coordination & Communication Manual, are there any notes or considerations that the IESO should bear in mind in drafting conceptual T-D coordination protocols for Ontario?
- Based on working group feedback, the IESO expects to set aside time at the next TDWG meeting for open discussion – any suggestions for how facilitate the session are welcome.

Next Steps

- Please use the feedback form found under the September 13 entry on the [TDWG webpage](#) to provide feedback and send to engagement@ieso.ca by October 4
- IESO is aiming for late October for the next TDWG meeting, which will focus on coordination in the Ontario context and include an open discussion to better facilitate collaboration and sharing of ideas