



OCTOBER 16, 2026

Enabling Resources Program (ERP)

Distributed Energy Resources (DER) Integration Project Data Sharing Design

Independent Electricity System Operator

Disclaimer

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Territory Acknowledgement

The IESO acknowledges the land we are delivering today's webinar from is the traditional territory of many nations including the Mississaugas of the Credit, the Anishnawbe, the Chippewa, the Haudenosaunee and the Wendat peoples and is now home to many diverse First Nations, Inuit and Métis peoples. We also acknowledge that Toronto is covered by Treaty 13 with the Mississaugas of the Credit First Nation.

As we have attendees from across Ontario, the IESO would also like to acknowledge all of the traditional territories across the province, which includes those of the Algonquin, Anishnawbe, Cree, Oji-Cree, Huron-Wendat, Haudenosaunee and in addition to the Métis and Inuit peoples.

Engagement Principles

This engagement is conducted in accordance with the IESO's [External Engagement Framework](#), which includes the following principles:

- **Purposeful** – Initiate meaningful conversations that move the sector forward
- **Inclusive** – Invite many voices and diverse perspectives to the table
- **Timely** – Seek input and insight when it can have the most impact
- **Accessible** – Ensure we meet people where they are on their energy journey
- **Traceable** – Allow everyone to follow the path that is being taken
- **Transparent** – Show how engagement helped shape the final outcome

Shared Commitment to Respectful Participation

To support a focused and constructive discussion:

- We will take questions one at a time; please use the raise-hand feature to enter the speaking queue
- We encourage concise and focused comments to allow time for multiple perspectives
- Participants are encouraged to raise relevant points during the discussion and provide more detailed feedback through the written submission process
- We ask that all participants maintain a respectful and professional tone throughout the session
- Facilitators will guide the discussion and manage participation to stay aligned with today's focus and agenda
- Where necessary, we may disable a participant's microphone to manage participation

Purpose and Agenda

Purpose: To provide the sector with an update on the IESO's ERP DER Integration Project's preliminary Data Sharing design, and next steps

Agenda:

- ERP DER-IP update
- Data Sharing
- Next Steps

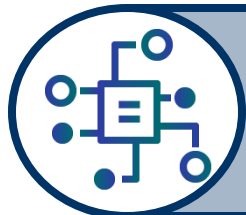


ERP DER Integration Project Overview (Recap)

Drivers for ERP DER Integration Project (Recap)



Support provincial resource adequacy needs, while enabling DERs for distribution-level use



Maintain reliability as expanded DER deployment creates transmission and distribution reliability impacts



Move at the pace of change with flexible, accessible solutions for all LDCs while the regulatory framework evolves

ERP DER Integration Project (Recap)

What

- Implement a pathway for DER aggregations (DERA) to **access the wholesale markets**
- Advance **transmission-distribution (Tx-Dx) coordination**, to support DER participation at both Tx and Dx levels
- Enhance **DER data sharing** between the IESO, LDCs and DER operators.

How

- Update IESO tools, systems, processes
- Update IESO Market Rules, Manuals
- Develop a DER data sharing transition plan in consultation with the OEB, LDCs, and DER providers
- Implement mechanisms to:
 - Share information with LDCs, e.g. DR program activation
 - Seek information from LDCs, where system reliability may be impacted

Establishing a foundation for DERA participation in the IESO-Administered Markets (IAM) is a necessary first step to prepare the grid to support future DER growth

DER Integration Project Will **Not** (Recap)

- ✗ Control distribution system assets – *the IESO will continue to dispatch wholesale market resources and activate IESO-procured (e.g. LT1, eDSM, etc.) resources*
- ✗ Control distribution system operations
- ✗ Seek LDC information that is not material to the IESO and does not impact bulk system reliability
- ✗ Seek visibility deep into the distribution system
- ✗ Procure DERs
- ✗ Seek for the IESO to become a Distribution System Operator

DER Integration Project Outcomes (Recap)

Wholesale Market Access for DERs

- Enables IESO procurement of DERs
- Enables wholesale revenue opportunities for dispatchable DERs
- Enables DERs to **simultaneously participate** in IESO markets & LDC programs

Market Operational TD Coordination

- Strengthen how LDCs and IESO coordinate in the **operational timeframe** for dispatchable DERs that participate in the IAM
- E.g. IESO-contracted BESS facilities
- Supports bulk and local system reliability

IESO-LDC Operational Visibility

- IESO to provide visibility into bulk-system activations e.g. Peak Perks, Peak Performance, Capacity Auction
- LDCs to provide visibility into Dx-level activations
- Provides **situational awareness** for both parties

DER Integration Project Approach (Recap)

ERP is taking incremental steps focused on DER market and operational enablement outcomes within a 5 - 10 year horizon.

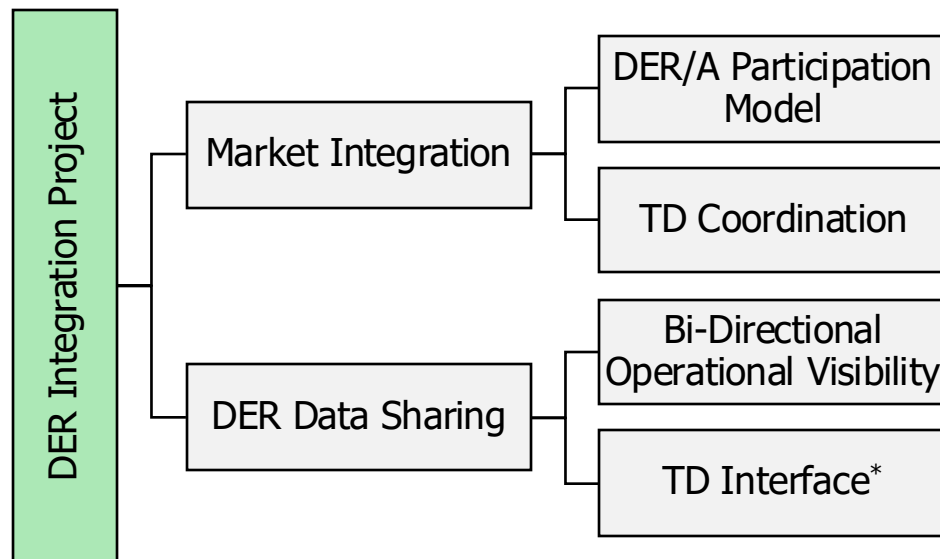
Design Stream	Outcome	Approach
Market Integration	Wholesale market access for DERs	Evolve the IESO's bulk system modeling of Dx-connected resources* Integrate DER/As into the existing wholesale market framework
	TD market operational coordination	Develop foundational coordination protocols with LDCs: (1) hosting DERs participating in the wholesale markets, and/or (2) with local non-wires solution (NWS) deployments
Data Sharing	IESO-LDC Operational Visibility	Implement mechanisms for the IESO and LDCs to exchange relevant static and dynamic operational information for DERs regardless of wholesale market participation

Incremental steps include leveraging existing IESO solutions to exchange data to support and settle DERs providing stacked services

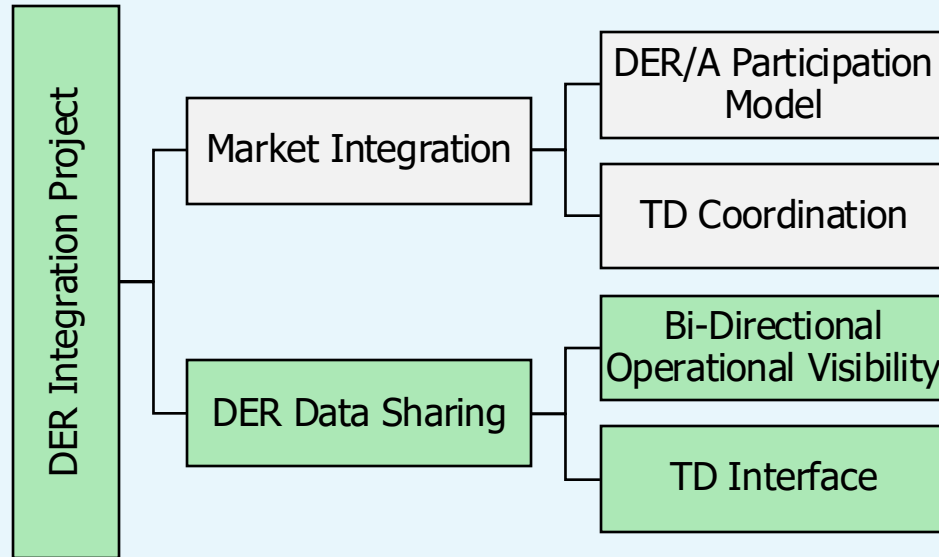
DER Integration Project Design Streams (Recap)

ERP will maintain system reliability in the near-term and prepare for future DER integration at scale.

- 1. Market Integration:** Enable DER/As with dispatchable capabilities to participate in the wholesale electricity markets
- 2. DER Data Sharing:** Advance near-term data sharing & situational awareness of DER activity



DER Data Sharing



DER Data Sharing

1. IESO Operational Visibility design
 - a. Presentation of the final IESO-to-LDC Operational Visibility design
 - b. Presentation of the on-going LDC-to-IESO Operational Visibility design
 - Stakeholder feedback and input to be collected
2. Static Data Sharing: Transmission-Distribution Interfaces (TDI)
 - a. TDI Framework
 - b. TDI Identification & Hierarchy
 - c. TDI Uses



Bi-directional Operational Visibility (IESO-to-LDC)

Design Summary: IESO-to-LDC Operational Visibility

What's Changing?

- ✓ A Standard Notification DER/A Activity Notification Framework is created
- ✓ A 'DER Activity' IESO.ca webpage created to access public and private notifications
- ✓ Public and privately accessible data and custom-made notifications for LDCs relating to their distribution system

What's Not Changing?

- × Current DSM Program Notifications are unaffected
- × Current Virtual HDR Resource Activation Notices are unaffected

Stakeholder Feedback

Feedback Theme	IESO Response
LDCs were interested in: 1. Visibility into DER Contributors forming a Virtual HDR resource and, 2. Operational visibility that is at least at the station or bus/feeder level.	1. IESO-to-LDC Operational Visibility design was changed to provide LDCs with DER Contributor information in their service area, including notification of their activation rather than just details on the Virtual HDR resource activation. 2. DER data sharing design will include activities to map DERs to TD interfaces; this will enhance bulk system modeling of DERs (including Virtual HDRs) and enable the IESO to provide more granular visibility to LDCs.

Standard DER/A Activity Notification Framework

- Provide **situational awareness and centralized access** for LDCs to relevant DER operational info, reports, notices and/or an application-interface with information related to IESO-controlled, system-activated DER/As sited in that host LDC's service territories
- This framework will leverage existing tools and mechanisms and maintain flexibility to expand to any future IESO programs or deployments for system-activated¹ DER/As
- Applicable to system-activated resources only
- Will initially **only apply to** current programs/resources:
 - Save On Energy Peak Perks and Peak Performance Programs, and
 - Virtual HDR resources participating in the IESO's Capacity Auction

IESO-to-LDC Operational Visibility applies **only** to **system-activated DERs**.
Market dispatched² DERs fall under **TD Coordination design**.

19 ¹ System-activated DERs are activated not dispatched; visibility is provided to LDC
² Market dispatched DERs receive dispatch signals; coordinated with the LDC

'DER Activity' IESO.ca Webpage

The IESO will enhance LDCs' situational awareness of system-activated DER activity through a new '**DER Activity**' web page on IESO.ca providing:

- Centralized access to existing public DER notifications for system-wide visibility;
- Access to incremental more granular notifications on DER activity organized by LDC service territory;
- Access to targeted standby/activation notifications of DER Contributors with granular information to assist host LDCs situational awareness on their system.

Mixture of public and private info access; Public information will be available on the public-facing 'DER Activity' page on IESO.ca, with a login portal for LDCs to access private information.

Direct Notifications

Enhanced visibility on Save On Energy Peak Perks and Peak Performance:

- Total load displacement activated per program;
- Total anticipated load displacement per program by LDC service area;
- Notification of activation of programs.

Enhanced visibility on DER Contributors within Virtual HDR Resources

- Situational awareness to Host LDCs through registration information of DER Contributor within their service area, including Name, Capacity (MWs)
- Situational awareness through private notification of Host LDC's DER Contributors created simultaneously as the current Standby and Activation Notices of Virtual HDR Resources
- The information would be custom-made to individual Host LDCs, notifying them that DER Contributors within their service area may be activated within the Virtual HDR Resource; Notifications will include registration information as well as timeframe of activation.

Participant Impacts

IESO is making information on system-activated DERs available to the LDCs

- LDCs will be able to access information on the Peak Perks, Peak Performance program participants
- LDCs will be able to access information on DER Contributors as part of a Virtual HDR resource in their service area/connected to their distribution system



Bi-directional Operational Visibility (LDC-to-IESO)

LDC-to-IESO Operational Visibility

Design objective:

The objective of the LDC-to-IESO operational visibility workstream is to establish a scalable, proportionate, and practical mechanism through which LDCs can notify the IESO of material¹ DER activity that may impact bulk system operations.

Design rationale (recap):

To maintain reliability, the IESO requires operational visibility of certain distribution-level DER activity at their point(s) of connection to the IESO-controlled grid, when they have material¹ impact on:

- System adequacy from broad utilization across Ontario, or
- TD interface limits from power flows caused by a concentrated set of DERs.

LDC-to-IESO Operational Visibility – Notification Thresholds

Local DER activity notification materiality thresholds (recap):

1. Greater of ≥ 15 MW or $\geq 10\%$ of annual peak demand at an impacted station on the IESO-controlled grid (ICG), or
2. $\geq 10\%$ of total annual peak demand across two or more impacted stations

Notification applicability: The operational visibility requirement will be applicable to any LDC with a NWS deployment whose controllable DER activity can exceed the materiality thresholds for the program.

These requirements do not apply to LDCs that do not host a NWS deployment.

LDC-to-IESO Operational Visibility – Local NWS Types

The IESO will seek information on local non-wires solutions (NWS) that have a material impact on the bulk system and fall within the first 3 categories:

LDC NWS Type	In ERP Scope	Reason
Local Demand Response (DR)	Yes	The utility or aggregator can issue a dispatch signal and verify load reduction through interval metering.
Local Generation	Yes	Output can be scheduled, monitored, and verified.
Local Battery Energy Storage Systems (BESS)	Yes	The state of charge, power output, and availability in real time can be monitored for local capacity management.
Energy efficiency programs	No	It can reduce baseline load but cannot typically be dispatched when a constraint occurs.
Managed charging of electric vehicles	No	Current programs rely on customer participation rather than firm operational control.

LDC-to-IESO Operational Visibility – Notification Mechanisms

As per feedback received, the IESO will provide a tool-based notification mechanism for LDCs. The initial notification process for anticipated NWS activity will utilize:

- Phone calls to the IESO Control Room, and
- The IESO's Control Room Operations Window (CROW)¹ tool

Info slips are currently used by market participants to communicate relevant operational information to the IESO for situational awareness

- LDCs can submit info slips through CROW to notify the IESO of anticipated NWS activations

Info slips are **not** requests for IESO approval or subject to IESO intervention

Mock-Up of Info Slip for LDC's NWS Activation Notices

Name of DER/NWS → **Outage Description:** [Redacted]

Name of LDC → **Market Participant:** [Redacted]
→ **Submitter Org:** [Redacted]

Identification of T-D Interface impacted and demand reduction expected (MW) → ***Purpose Description:** [Redacted]

The time when LDC intends to activate their DER/NWS → ***Planned Start:** Sun 2026-08-16 06:15

Identification of T-D Interface impacted and demand reduction expected (MW) → ***Requested Equipment:**

Station	Equipment Name	Equipment Class	Equipment Description	Constraint	Volt. Class	Facil. Class	MKT XREF	XPR TO MKT	SDX XREF
[Redacted]	Comm 1	Other Communication	[Redacted]	INFO	n/a	2			

The time when LDC intends to end the activation of their DER/NWS → ***Planned End:** Tue 2026-08-25 15:00

Outage Request: 1-00320813 rev. 23 Completed Informational

ESO Outage ID: 1-00320813 rev. #: 23 History MP Outage ID: 26-24594 Check Conflicts

Outage Status: Completed 2026/08/27 11:58 Not Reviewed Update

Linked Outage Requests: Linked Outages 0 Predecessor: Last Updated: 2026/08/27 11:58

Outage Flags: Semi FAA Request Weekly AA MKT XPR SDX XPR Significant DAM Impact Assessment Eligibility: n/a

Summary Details MP Study ESO Study Logs (0) Attachments (0)

*Priority Code: Informational Priority Date: 2026-08-10 22:15

*Purpose Code: Other Conflict Approved

*Planned Start: Sun 2026-08-16 06:15 *Planned End: Tue 2026-08-25 15:00

*Outage Duration: 9:36 Day(s) *Recurrence: Continuous

*Max Recal: 4 Hours Recal Comments:

Created By: 2026/07/30 10:35 External Visibility:

LDC-to-IESO Operational Visibility – Requirements

LDCs will notify the IESO of material NWS activity through either an info slip in CROW or a phone call to the IESO control room depending on when the activation notice occurs.

Notification to the IESO will occur based on the following timeframes:

Day-Ahead Notification Window:

- Anytime prior to the day ahead of activation and up to 6pm EST of the day ahead:
 - Submit info slip through CROW.

Pre-Dispatch Notification Window

- After 6pm EST on the day ahead and up to 2 hours before dispatch:
 - Submit/update info slip through CROW & call the IESO Control Room General Market Line

Activation Notice Data Provided:

- The name of the NWS, the timeframe and duration of the activation, the impacted station(s) or TD Interface and the net DER activity (MW) anticipated

Example: Local DER Activity Notification(s)

An LDC places its local DR program participants on standby during the Day-Ahead Notification Window. Within the Pre-Dispatch Notification Window, the program is activated based on prevailing system conditions.

- The table below identifies the type of notification depending on the timeframe of notification and whether the NWS deployment meets the materiality threshold or not.

Scenario	Day-Ahead Notification Window			Pre-Dispatch Notification Window		
	Local DR on Standby	Time of Notification	Type of Notification	Local DR Activated	Time of Notification	Type of Notification
1	20 MW*	1pm of Day-Ahead	Info Slip	15 MW*	10am Day of Activation	Update Info Slip & Phone Call
2	15 MW*	5pm of Day-Ahead	Info Slip	12 MW	1pm Day of Activation	Cancellation of Info slip & cancel through Phone Call

**materiality thresholds met*



Static Data Sharing Transmission-Distribution Interface (TDI) Framework

Transmission-Distribution Interfaces

A **Transmission-Distribution Interface (TDI)** is an electrical boundary that represents a portion of the distribution system whose aggregate impact on the IESO-Controlled Grid (ICG) is operationally relevant to the IESO and LDC

- A TDI is a collection of one or more load serving stations (LSS)*, their downstream distribution infrastructure (e.g. feeders), and their electrically connected DERs

ERP is developing a framework to formally establish TDIs between the IESO and LDCs.

- TDIs will initially be used to (1) establish aggregation boundaries for DERAs participating in the wholesale markets, and (2) support foundational TD coordination and DER data sharing

The TDI Framework provides a scalable mechanism to integrate DERAs by ensuring their activity on the ICG respects the unique needs of host LDCs and their local systems and customers.

Transmission-Distribution Interface Framework

The TDI Framework will provide common electrical reference points for the IESO and LDCs which:

- Enables operational coordination and data sharing between the IESO and host LDCs
- Maintains bulk system reliability
- Maintains distribution system reliability
- Creates a scalable locational structure for DERA participation in the IESO-Administered Markets (IAM)
- Facilitates future Distribution System Operator (DSO) functionality

Under the TDI framework all dispatchable DERAs participating in the wholesale energy and operating reserve (OR) markets will be assigned to a specific TDI that reflects where their aggregate electrical impact is most observable on the ICG.

TDI Identification

Through the TDI Framework, the IESO will identify TDIs in consultation with Transmitters and LDCs

- By default, each load serving station on the ICG is a TDI
- Where applicable, an LDC can associate local constraints with a TDI
- TDIs will be periodically re-assessed to reflect evolving and emerging local needs

TDI Identification Principles *(each TDI shall..)*

- Reflect a meaningful electrical interface between Ontario's transmission and distribution systems
- Respect criteria relevant to maintain both transmission and distribution system reliability
- Be operationally visible
- Support operational coordination

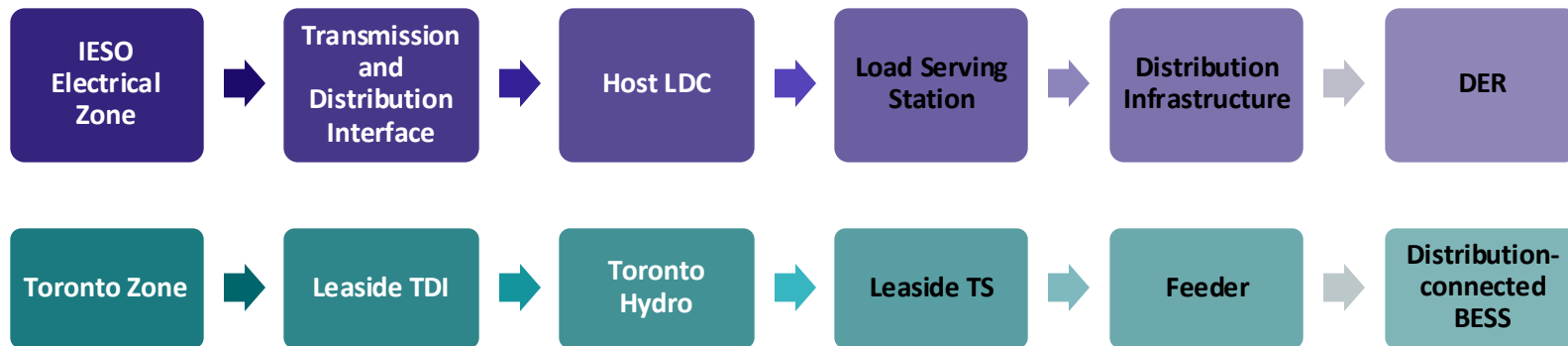
Examples of the IESO's relevant transmission-level criteria

- Existing electrical zones and transmission interfaces (e.g. BLIP, FIO, FETT, etc.)
- Bulk system reliability constraints (e.g. known congestion points -> thermal, voltage, or transient stability concerns)

ERP is seeking LDC input on relevant distribution-level criteria to identify TDIs.

TDI Hierarchy

Each TDI shall be mapped according to the following structure (example included):



DER Assignment Methodology:

- Each DER shall be assigned to the TDI through which its contribution to transmission-system loading is electrically observable.
- The host LDC shall recommend the initial TDI assignment.
- The IESO shall approve and maintain the assignment.

TDI - Rules for DER Aggregations

Single TDI Rule:

- A dispatchable DERA participating in the IAM may only include DER contributors assigned to the same TDI

Aggregation Boundaries:

- A TDI representing a **single LSS** can only support **a station-level aggregation boundary** for DER contributors forming a DERA
- A TDI representing **multiple LSSs** can support **a wider aggregation boundary** for DER contributors forming a DERA; this will be assessed on a case-by-case basis as part of the IESO's connection and registration process for DERAs

TDI - Operational Coordination & Data Sharing

Proposed near-term uses for LDC-to-IESO Data Exchange at TDIs:

Operational Data	Static Data
Relevant distribution constraints for situational awareness (e.g. LSS congestion)	DER hosting-capacity limits
Material NWS Activity (LDC-to-IESO Operational Visibility)	NWS deployments (e.g. participation volume, activation conditions, etc.)

ERP is seeking LDC input on relevant near-term IESO-to-LDC data exchange at TDIs.

TDI - Operational Coordination & Data Sharing (cont'd)

TD Coordination Requests for Local Reliability

LDCs with local reliability needs at a TDI may request operational support from the IESO, for example when:

- Managing congestion at the TDI
- Exceeding or approaching local distribution limits
- Managing FTM DERA dispatch for emergent LDC needs

TDIs are common electrical reference points to facilitate TD Coordination.



Next Steps

Feedback and Next Steps

To provide feedback on today's session, please use the feedback form on the [ERP DER Project engagement webpage](#) and submit to IESO Engagement at engagement@ieso.ca by **October 30, 2026**.

Next Steps:

October 16 – 30, 2026	Feedback timeline for stakeholders Once received, IESO will respond to the feedback in writing, and will incorporate feedback into the design and/or via 1:1 outreach with specific stakeholders for clarification if required.
December 14-16, 2026 <i>Engagement Days Session to be scheduled</i>	Design Stream: Market Integration - Review of the following design modules: - Connection & Registration; Grid & Market Operations; Metering & Settlements

Thank You

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