MAY 21, 2026

IESO Engagement Days

Pseudo-Unit (PSU) Updates

Independent Electricity System Operator (IESO)

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Territory Acknowledgement

The IESO acknowledges the land from where we are delivering today's webinar is the traditional territory of many nations including the Mississaugas of the Credit, the Anishnabeg, 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 the traditional territories across the province, which include those of the Algonquin, Anishnabeg, Ojibwe, Cree, Oji-Cree, Huron-Wendat, Haudenosaunee, 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

Agenda

- Background
- Current Limitations
- Review of Proposed Enhancements with Examples
- Next Steps and Timelines

Background

- Following the launch of the renewed Market in May 2025, specific discrepancies were identified in how PSU resources were being scheduled, which resulted in infeasible schedules under certain situations.
- Workarounds for these discrepancies were implemented in June 2025 to minimize the impact (see PSU Resources Interim Workarounds)
- This engagement is proposing enhancements to the DSO scheduling of PSU resources to eliminate some of those interim workarounds
- Market Rule changes are required for these proposed changes

Current Limitations

- Derates on the Steam Turbine (ST) are allocated pro-rata amongst all PSUs at a station that has offers submitted and does not account for availability status based on outage slips.
- Derates or constraints applied on Combustion Turbine (CT) or ST below the Dispatch Scheduling and Optimization (DSO) engine's calculated Minimum Loading Point (MLP) results in PSU dispatch to 0 MW (applies to Non-Quick Start (NQS) resources as well)
- Delayed ST ramp causes ramp rate discrepancies.

Enhancement 1: Issue

- **Issue:** Derates on the ST gets allocated pro-rata amongst all PSUs at a station including ones that are unavailable from an outage slip

  Description: the DSO applies any derate or maximum constraint submitted for a ST across all associated PSUs that have offers. This is an issue if a Market Participant (MP) submits only an outage slip and does not remove offers. Furthermore, if the derate or constraint brings the PSU below its calculated MLP, the PSU gets dispatched to 0 MW.

Enhancement 1: Solution

- **Proposed change:** Incorporate additional logic to ensure submitted outages on CTs are considered when determining how to split the ST's derated MWs.
    - The fix will also have a conforming change to the implementation of the economic operating point (EOP) calculation.
- **Change applies to:** Day-Ahead, Pre-Dispatch, Real-Time

Enhancement 1: Example

- 3x1 PSU plant (200MW per CT, 450MW ST)
- A CT is forced out of service with outage slip and ST derated to 300MW, where offers are kept in for all three CTs
- **Current:** The derated ST 300MW is split amongst all CTs with offers regardless of outage slip. The remaining two PSUs would have a capacity of 200MW + (300MW/3) = 300MW each
- **Proposed change:** the remaining two PSUs would have a capacity of 200MW + (300MW/2) = 350MW each

Enhancement 2: Issue

- **Issue:** Derates or constraints applied on CT or ST below DSO calculated MLP results in PSU dispatched to 0 MW (applies to NQS resources as well)

  Description: The DSO calculates the ST's MLP by multiplying the 1x1 ST MLP by the number of offered CTs. If any derate or constraint brings the value to below this calculated MLP, the DSO will dispatch the PSU to 0 MW.

  This issue is amplified if issue 1 (ST derate split incorrectly) is present.

Enhancement 2: Solution

- **Proposed change:** Derates and constraints will be respected even when the PSU is operating below its MLP. This applies to all NQS resources.
    - The fix will also have a conforming change to the implementation of the economic operating point (EOP) calculation.
- **Change applies to:** Real-Time DSO only

Enhancement 2: Example

- 3x1 PSU plant (200MW per CT, 450MW ST, 110MW 1x1 ST MLP)
- A CT is forced out of service with an outage slip and ST derated to 200MW, offers kept in for all three CTs
- **Current**: ST derated capacity is split amongst all CTs with offers regardless of the outage slip. PSU's ST allotment is 200MW/3 = ~66MW. This is below its 1x1 ST MLP, causing the PSU to be dispatched to 0MW.
- **Proposed change**: ST derated capacity is split only for CTs online PSU's ST allotment is 200MW/2 = 100MW. This is below its 1x1 ST MLP however DSO will respect it. PSU capacity will be 200MW +100MW = 300MW
- Note: the ST derate is split proportionately if the PSUs have different capacities, so some may become unavailable and some may not

Enhancement 3: Issue

- **Issue:** Delayed ST ramp causes ramp rate discrepancies

  Description: When the ST synchronizes later than the CT, RT DSO uses the ST's own physical unit initialization MW to determine its ramp rate. By doing so, the PSU is being ramped up quicker than expected.

  This issue is amplified if issue 2 (derates/constraints are not considered during ramp up to MLP) is present.

Enhancement 3: Solution

- **Proposed change:** The PSU output is used to determine the ramp rates for the ramp trajectory. For the first PSU coming online (i.e. the ST is offline), the CT output level is considered in the ST ramp rate when it comes online. For subsequent PSUs, when the ST is already online, the additional CTs that synchronize shall use the appropriate PSU ramp rates (starting at 0MW) because the CT and ST will ramp together from the start.
    - The fix will also have a conforming change to the implementation of the economic operating point (EOP) calculation.
- **Change applies to:** RT DSO only

Enhancement 3 Example

- PSU G1 ramp rates as follows:

  Ramp up: 5MW/min @ 50MW breakpoint, 0.2MW/min @ 75MW breakpoint

- Scenario: G1 (CT) syncs using the initial ramp rate of 5MW/min until it reaches the 50MW breakpoint. Once CT reaches 50MW, ST syncs.
- **Current:** ST ramp is based on ST output (i.e. '0'MW). Hence ST ramp rate of 5MW/min applied.
- **Proposed change:** ST ramp is based on total PSU output (i.e. 50MW). Hence ST ramp rate of 0.2MW/min applied.

Next Steps and Feedback

Submitting Feedback

- The IESO is requesting written feedback via the **IESO's Feedback Form** (available on the PSU engagement webpage)
  - Feedback is being requested by **June 5, 2026**
- Please submit the feedback form to IESO Engagement at engagement@ieso.ca

Next Steps

Timing	Engagement Activity
May 21, 2026	Public Engagement Session
June 5, 2026	Request for Feedback
July 21, 2026	Public Engagement Session
August 7, 2026	Request for Feedback
September 15, 2026	TP Education
October 13, 2026	TP Vote to Post
November 10, 2026	TP Vote to Recommend
December 10, 2026	IESO Board Consideration
February 2027	Target Implementation

Questions

Thank You

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