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# Adjustments to Intertie Flow Limits

**Darren Matsugu**

Senior Manager - Operational Effectiveness

# Intertie Flow Limits - Background

- Limits on intertie flows between the integrated power system and neighbouring transmission systems restrict the volume of energy that can be imported to or exported from Ontario
- In setting these limits, the IESO provides a best estimate of the maximum flow on the single transmission line to each intertie zone. These limits are applied in both the constrained and the unconstrained schedules

# What is the Issue?

- The current system conditions in Northwest (NW) Ontario are challenging due to low water for hydro-electric generation and needed transmission outages that limits energy coming from the rest of Ontario to serve NW demand
- In order to manage reliability, the IESO applied transmission limits that limited the net export of power from the region
- If intertie flow limits do not also reflect the supply available in the region, the unconstrained schedule accepts exports that cannot be met by Ontario resources. Ontario ratepayers then subsidize the export, by constraining-on imported power that would not otherwise be needed to maintain reliability.

# IESO Actions

- Starting August 23<sup>rd</sup>, the IESO limited NW exports to Minnesota and Manitoba by adjusting intertie flow limits to the level that can be reliably supplied by the region
  - Intertie limits are posted on the [IESO Reports webpage](#)
  - The adjustments to intertie flow limits did not require a change to the dispatch scheduling and optimization (DSO) algorithm
- Active traders in the NW received a notification via email from the IESO

# When will this Issue be Resolved?

- Increased water for hydro-electric generation, based on precipitation and reservoir levels
- Fewer transmission outages that restrict supply from getting to the NW region. Transmission outages are required to support:
  - The East-West-Tie (EWT) expansion (in-service Q1 2022);
  - Other critical area maintenance that may bottle some local generation
- This will ultimately be resolved under Market Renewal, with the introduction of the single schedule market.

# Market Impact

- Prior to August 23<sup>rd</sup> imports were often constrained-on solely to offset export transactions
  - This generated additional CMSC for these offsetting imports that did not benefit Ontario ratepayers
  - Adjusting the intertie flow limit helps ensure that only exports that can be reliably supplied are scheduled in the unconstrained sequence. Imports needed to maintain reliability in the NW will continue to be scheduled.
  - Limited impact to the Transmission Rights market, given the low quantities available for auction on these interties.

# Proposed Market Rule Amendment

- To help ensure transparency and clarity, the IESO is proposing a market rule amendment that specifies when internal transmission constraints will be considered in setting intertie flow limits
- The amendment also seeks to explicitly recognize that these intertie flow limits are applied in both the constrained and the unconstrained schedule, as they are today.
- The amendment also clarifies that security limits apply to or from intertie zones, consistent with the mathematical constraints currently used in the DSO.

# Chapter 7

4.4.4 Limits on intertie flows between the integrated power system and neighbouring transmission systems shall be based on:

. . .

4.4.4.2 the IESO's best estimate of the maximum flow on the single transmission line to each intertie zone, given the status of the neighbouring transmission systems and expected or actual unscheduled flows (including as unscheduled flows any flows planned by the IESO to balance interchange accounts with other control area operators). The IESO's best estimate of the maximum flow on the single transmission line to an intertie zone may reflect the integrated power system's limited capability to supply and export energy to an intertie zone and applicable neighbouring transmission system without scheduling imported energy to supply the exported energy; and



# Chapter 7

4.5.1 The dispatch algorithm shall be used to determine both operating schedules that reflect the realities of the integrated power system and uniform prices within the IESO control area that ignore transmission system constraints. Thus, the dispatch algorithm shall be capable of using the following two different models for the integrated power system:

4.5.1.1 an unconstrained IESO-controlled grid model, which, other than as set out in Section 4.4.4 of Chapter 7 and Section 7.5.1 of Appendix 7.5, ignores transmission and other security constraints on the IESO-controlled grid including *inerties* and assumes, in effect, that all physical services are provided and consumed at a single, undesignated location connected to several isolated inertia zones by single transmission lines;

# Appendix 7.5

7.5.1 The only security constraints to be represented are the limits imposed on the flows of energy and on operating reserve scheduled to or from intertie zones outside the IESO control area as described in section 6.4.4.

*NOTE: The mathematical equation in s.6.4.4 is accurately represented in the DSO, capturing both export bids (from) and import offers (to) intertie zones.*

$$\sum_{g \in \text{OFFERS}_z} \text{Generation}_g - \sum_{p \in \text{BIDS}_z} \text{Purchase}_p + \sum_{r \in \text{RESERVEOFFERS}_z, c \in \text{RESERVECLASSES}} \text{Reserve}_{r,c} - \sum_{j \in \text{SURPLUSINTERTIEBLOCKS}_{z,j}} \text{SurplusIntertieBlock}_{z,j} \leq \text{MaxIntertieZoneFlow}_z$$

$$\sum_{g \in \text{OFFERS}_z} \text{Generation}_g - \sum_{p \in \text{BIDS}_z} \text{Purchase}_p + \sum_{j \in \text{DEFICITINTERTIEBLOCKS}_{z,j}} \text{DeficitIntertieBlock}_{z,j} \geq \text{MinIntertieZoneFlow}_z$$

**{z ∈ INTERTIEZONES}**

## Feedback and Next Steps

- The IESO is seeking stakeholder feedback on the proposed market rule amendment language by **December 10, 2021**.
- The next Technical Panel meeting is on **December 14** where the IESO will provide an engagement update including early insights into feedback received.
- The Technical Panel will review the proposed market rule language, stakeholder feedback and IESO response at its **January 2022** meeting.
- Note: Stakeholder feedback and the IESO response to feedback will also be posted to the [Adjustments to Intertie Flow Limits](#) engagement page

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# Thank You

[ieso.ca](http://ieso.ca)

1.888.448.7777

[customer.relations@ieso.ca](mailto:customer.relations@ieso.ca)

[engagement@ieso.ca](mailto:engagement@ieso.ca)



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