

Energy Workstream – Intertie Congestion Pricing (ICP)

Energy Workstream SE Meeting
September 20, 2018

Today's Agenda

- Background for Today's Meeting
- Update on ICP Decision
- Recap of Option 1 vs. Option 2 ICP Methods
- New Decisions with Rationale:
 - Decision 1: Export Congestion
 - Decision 2: Import Congestion
- Summary
- Next Steps

Design Element #5:

INTERTIE CONGESTION PRICING (ICP)

Background: ICP Under MRP & SSM

- **Intertie congestion pricing (ICP)** represents price differences between locations in Ontario and on the interties that stem from physical intertie transmission limits
- With MRP, the IESO has considered ICP methodology for consistency with design principles by:
 - Identifying issues under current market approach – **Option 1**
 - Making a preliminary decision in December 2017 to improve intertie transaction offer/bid incentives with a new dynamic approach - **Option 2**
 - Based on stakeholder feedback, presenting a third combined approach for stakeholder consideration - **Option 3**

Today: The IESO will present an update to the initial preliminary decision made in December 2017.

Background: ICP Option 3 from July 18th

In response to recent stakeholder feedback, the IESO presented Option 3 in the July 18th stakeholder meeting:

Option 3 – “Combined Option” Method:		
<i>Congestion Type</i>	<i>ICP Methodology</i>	<i>RT Intertie Settlement Price (ISP)</i>
A) Export	Same as Option 1 with “static ICP”	<i>RT Internal Node LMP + PD ICP</i>
B) Import	Same as Option 2 with “dynamic ICP”	<i>Minimum { PD Intertie LMP, RT Internal Node LMP }</i>
C) None	Same under all options	<i>RT Internal Node LMP</i>

Update on ICP Decision

The IESO's decision is **Option 3**, which involves **2** distinct decisions:

	Decision 1	Decision 2
<i>Congestion</i>	<u>Export congested</u> in PD timeframe	<u>Import congested</u> in PD timeframe
<i>Method</i>	Option 1 (i.e., static PD ICP)	Option 2 (i.e., dynamic RT ICP)
<i>Decision</i>	The real-time settlement price will equal the final PD ICP <i>plus</i> the RT internal node LMP in export congested hours.	The real-time settlement price will equal the <i>lesser</i> of the final PD intertie LMP and the RT internal node LMP in import congested hours.
<i>Settlement</i>	$RT\ ISP = RT\ Internal\ Node\ LMP + PD\ ICP$	$RT\ ISP = Min \{PD\ Intertie\ LMP, RT\ Internal\ Node\ LMP\}$

- *Note:* When an intertie is not congested (i.e., ICP = 0), the RT internal node LMP will be used (i.e., RT ISP = RT Internal Node LMP)

Recap: Status Quo Method, Option 1

In today's market, the IESO calculates a "static" ICP in the hour-ahead pre-dispatch (PD) to add into the real-time (RT) intertie settlement price, which was the basis for Option 1:

Option 1 – "Static ICP" Method:		
<i>Congestion</i>	<i>Description</i>	<i>RT ISP</i>
Any	Adds static PD ICP to the RT internal node LMP for RT intertie settlement.	<i>RT Internal Node LMP + PD ICP</i>

Advantages:

- ✓ Status quo approach
- ✓ Same intertie settlement equation for different congestion types

Drawbacks:

- The static ICP does not necessarily reflect the incremental cost/value of exports or imports on a congested intertie
- Inconsistent with internal resource congestion settlement pricing
- Can encourage bids/offers based on participant intent to become scheduled rather than expected marginal value

Recap: Initial MRP Decision, Option 2

In December 2017, the IESO presented a decision to adopt Option 2, which was designed to encourage trader bids / offers based on expected marginal value of intertie transactions:

Option 2 – “Dynamic ICP” Method:			
<i>Congestion</i>	<i>Description</i>	<i>RT ISP</i>	<i>Summary of Rationale</i>
A) Export	Sets RT settlement equal to <i>greater</i> of the final PD intertie LMP and the RT internal node LMP.	<i>Max { PD Intertie LMP, RT Internal Node LMP }</i>	✓ Encourages bids/offers to be inline with expected marginal value - willingness to pay/be paid
B) Import	Sets RT settlement equal to <i>lesser</i> of the final PD intertie LMP and the RT internal node LMP.	<i>Min { PD Intertie LMP, RT Internal Node LMP }</i>	✓ Settles consistently with internal constrained resources
C) None	Sets RT settlement equal to the RT internal node LMP.	<i>RT Internal Node LMP</i>	✓ Leverages RT marginal locational price

Export Congestion – Stakeholder Feedback

Recently, stakeholders have provided feedback that highlighted:

- Current PD unconstrained prices tend to be predictably higher than RT unconstrained prices in many hours
- In export congested hours, a static ICP allows bidding economic export transactions at high prices to clear PD for scheduling purposes in real-time

The IESO compared ICP approaches in light of stakeholder feedback:

- *Under the IESO's original proposal, **Option 2** carries potential risk that some efficient exports may be foregone when exporters' willingness to buy is not priced high enough to become scheduled in PD*
- **Option 1** could address stakeholder concerns, but may not necessarily encourage bids that reflect export marginal benefit

Export Congestion –Decision 1

The decision for ICP under export congestion is:

SSM DE5 ICP –Decision 1:

Method: Option 3 will apply the ICP methodology from Option 1 to real-time settlement in export congested hours

Description: RT intertie settlement will be equal to RT internal node LMP plus PD ICP for export congested hours

➤ **Equation:** *RT Internal Node LMP + PD ICP*

Rationale:

- This settlement rule will enable exporters to bid in a manner that allows them to be scheduled in PD and pay the RT intertie price (+ static ICP)
- This decision should help avoid foregone efficient exports while PD prices remain persistently higher than RT prices
- The IESO will monitor the price difference between PD and RT after implementation

Export Congestion – Future Considerations

Given that the first decision is based on PD prices in today's market, stakeholders should note that:

- Frequency and magnitude of predictable PD & RT price differences could change under MRP and ongoing development efforts:
 - Implementation of locational pricing (through SSM) and / or PD engine enhancements (through ERUC)
 - Enhancements to IESO Demand Forecasting, Variable Generation (VG) Forecasting, and / or other ongoing market development improvements
- The IESO will monitor the price differences between PD & RT under future market conditions

Import Congestion – Preliminary Decision from Dec 2017

The IESO originally proposed **Option 2** for import congested hours to provide better offer incentives:

- ✓ Encourages participants to price offers to *reflect the expected marginal value of the transaction* by settling imports in line with the incremental value of imports schedules
 - The effect is a cap the RT intertie settlement price equal to the PD intertie LMP
- ✓ *Aligns import congestion pricing with internal congestion pricing* in a constrained (down) region
- ✓ *Reduces RT Import Offer Guarantee (IOG) payments* relative to Option 1 (static ICP)

Import Congestion – Design Considerations

Unlike exports, imports scheduled in RT may be eligible for RT-IOG payments, which:

- Provide reliability to Ontario by protecting imports from downside settlement risk in RT
 - This ensures that importers are paid no less than their offer price

In addition:

- The DAM will also provide protection to importers against lower RT prices
 - DAM guarantees the sale price of DA scheduled imports that are also scheduled in RT
 - Imports with a DAM schedule that are not scheduled in RT may be able to buy back at lower RT prices

Import Congestion – Design Considerations

Option 1 **can result in increased costs** (relative to Option 2) because of interactions between the static ICP, DAM, & RT-IOG:

- When import congested, a static PD ICP will result in a RT intertie settlement price that is less than the RT Ontario Node LMP
- If RT prices are consistently lower than in PD, the cost of IOG payments will higher under Option 1
- Option 1 with a DAM and a RT-IOG will create increased guarantee costs to loads (through buyouts & IOGs) compared to Option 2
 - Loads may end up guaranteeing the same import MW twice. Once through the DAM and again with a RT-IOG. This situation is less of an issue under Option 2

Import Congestion –Decision 2

The MRP decision for ICP under import congestion is:

SSM DE5 ICP –Decision 2:

Method: Option 3 will apply the ICP methodology from Option 2 to real-time settlement in import congested hours

Description: RT intertie settlement in import congested hours will equal the lesser of the final PD intertie LMP and the RT internal node LMP

➤ **Equation:** $Min \{ PD \text{ Intertie LMP}, RT \text{ Internal Node LMP} \}$

Rationale:

- Settlement rule will encourage importers to offer according to expected marginal values, enabling the IESO to determine more efficient schedules
- Pricing for importers will also now be better aligned with pricing for internal resources at constrained (down) locations
- The IOG program will continue to protect importers from downside risk in RT
- Avoids increased IOG costs for Ontario loads

Summary of ICP Decisions

Under MRP, RT intertie settlement price (ISP) will equal:

A. Decision 1 – The RT internal node LMP plus the final PD ICP if export congested in PD

This settlement rule will help the IESO avoid foregoing efficient exports due to the tendency for higher PD prices than in RT

B. Decision 2 – The lower of the RT internal node LMP or the final PD intertie LMP if import congested in PD

Settlement rule will:

- *Encourage importers to offer according to expected marginal value of a transaction in RT to ensure efficient scheduling results*
- *Be consistent with pricing for internal resources at constrained (down) nodes*
- *Reduce costs associated with IOGs and DAM settlement compared to status quo*

C. The RT internal node LMP when no congestion in PD

Next Steps

- Feedback on these High Level Design decisions requested by October 18, 2018
- Stakeholders will be notified when the High Level Design document is ready for review
- Detailed Design will explore questions raised in previous stakeholder feedback:
 - Pricing & settlement of wheel-through intertie transactions
 - Use of transmission rights for transaction hedging
 - Impacts to transmission rights clearing account (TRCA) settling / funding / disbursement