



MARCH 23, 2021

Transmission Rights Market Review

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Purpose

- Update stakeholders on work performed on the Transmission Rights (TR) Market Review since the webinar on December 14, 2020
- Present IESO's proposal on Stage 3 changes
- Conclusion and Next Steps



Transmission Rights Market Review Update

TR Market Review Update

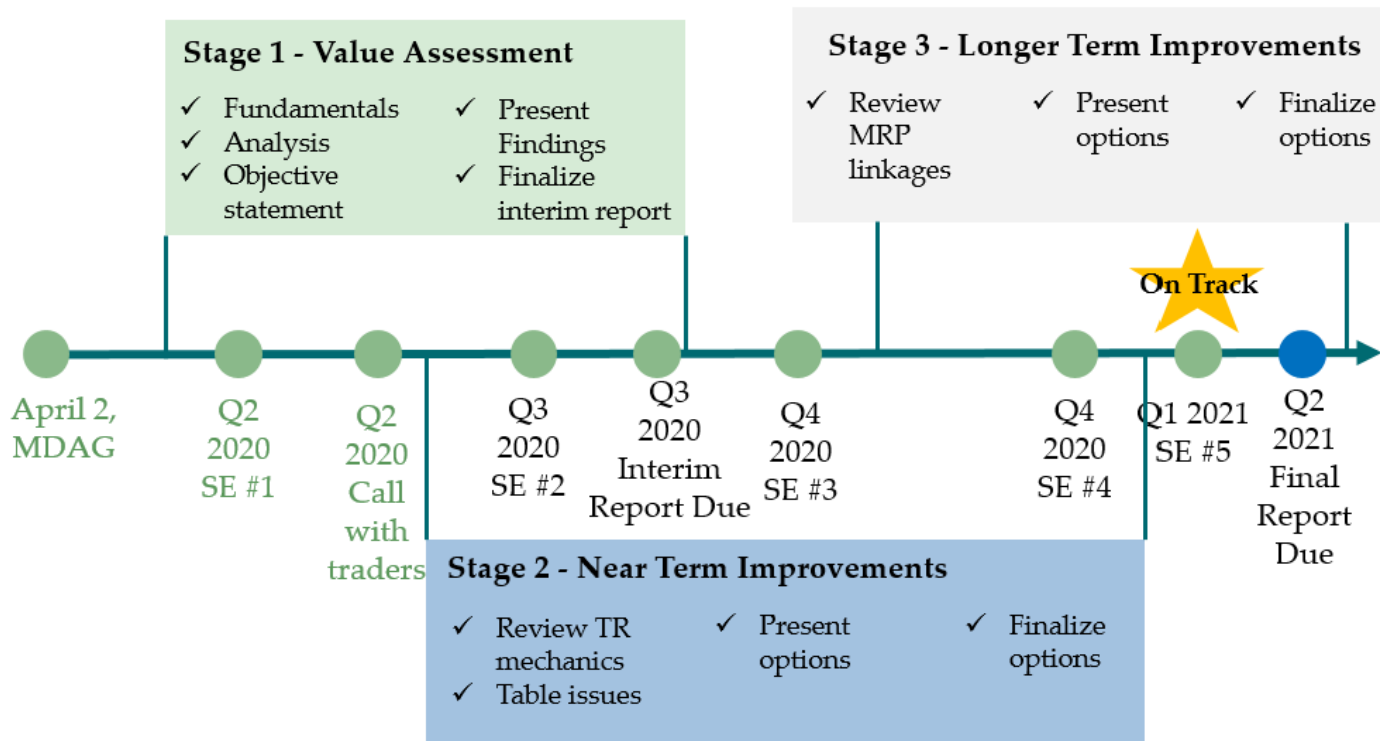
- Since the December 14 webinar, the IESO has received stakeholder feedback that indicated general agreement with Stage 2 high-value opportunities
- The IESO will include Stage 2 high-value opportunities and an issue to be addressed in the TR Market Review Final Report
- IESO will include Market Renewal Program (MRP) related changes in the scope of the MRP to ensure alignment at go-live
- IESO has been assessing Net Interchange Scheduling Limit (NISL) impact in response to stakeholder feedback

Summary of Opportunities and Issues

High-Value Opportunities	Issues to be Addressed
<ul style="list-style-type: none">• Multiple bid laminations• On/off-peak TRs• Reconfiguration Auctions• Publishing additional information	<ul style="list-style-type: none">• The manner in which TRs are sold on paths with infrequent congestion• Changes required for alignment with MRP• NISL related risks and issues require further analysis and discussion

- Details on how the IESO will continue to engage with stakeholders on these items is provided in the Conclusion and Next Steps Section of this presentation

TR Market Review - Timeline





Transmission Rights and Net Intertie Scheduling Limit

NISL Recap – Today's Market

- Today, NISL is implemented in both the day-ahead process and real time pre-dispatch process
- NISL congestion price is generated and published by the Dispatch Scheduling and Optimization (DSO) tool for both the constrained and unconstrained runs
- However, the NISL congestion cost is currently omitted from applying to intertie settlement prices
- Under the current market design, there are instances when NISL congestion causes otherwise uneconomic intertie transactions to be scheduled and traders have to pay at a higher price than their bids

NISL Recap – Market Renewal

- Under the MRP, the NISL congestion component will be included in the intertie locational marginal price (LMP)
- The intertie LMP* = $Ref_{LMP} + Loss_{LMP} + Int_Cong_{LMP} + Tie_Cong_{LMP} + NISL_Cong_{LMP}$
- The future ICP = $Tie_Cong_{LMP} + NISL_Cong_{LMP}$
- When NISL congestion occurs, the NISL congestion component of the intertie LMP will be the same across all interties
- NISL congestion component can be positive or negative

Int_Cong_{LMP} refers to "Internal Congestion", Tie_Cong_{LMP} refers to "Intertie Congestion"

Stakeholder Feedback

- At the December 14 webinar, the IESO requested stakeholder feedback on whether TRs are an appropriate hedge against NISL
- Stakeholders indicated the benefit of hedging NISL is to allow traders to offer into the day-ahead market without trying to estimate NISL congestion risks
- They also requested additional information on NISL examples, main causes and impact

IESO Perspective on NISL Impacts

- Under the new market design, the misalignment between settlement price and economic schedule will be eliminated by incorporating NISL into the intertie price
- Including NISL in the intertie LMP provides transparency of the NISL impact in comparison to today's market design
 - The new design will ensure that traders will not be charged more than their bids as a result of NISL
- As a result of the MRP multi-hour optimization, the NISL risk is expected to be reduced and its magnitude will be capped to \$500 versus \$2000 today

IESO Perspective on NISL Impacts

- In the current market, a congestion rent shortfall (congestion rent minus TR payouts) is not an issue during NISL binding hours
- However, if NISL were to be hedged by TRs, there could be a potential \$41.6M congestion rent shortfall

<i>Data refers to NISL binding hours</i>	Today's Market		Post MRP	
	Congestion Rent	TR Payouts	Estimated Congestion Rent*	Estimated TR Payouts**
2018	12.3M	10.2M	15.0M	36.1M
2019	8.5M	7.6M	8.2M	32.2M
2020	5.5M	4.9M	6.2M	11.8M
Totals	26.3M	22.6M	29.5M	71.1M

IESO Perspective on NISL Impacts

Impacts of Persistent Congestion Rent Shortfalls

- NISL congestion price applies to all interties, including those without physical flows. It means TR payouts would be made even if no congestion rent is collected
- Persistent congestion rent shortfalls could potentially lead to significant reductions in TRCA balance which would need to be funded mainly by Ontario consumers with no commensurate benefit
- The IESO would have to reduce the number of TRs to auction in the future in order to balance the congestion rent shortfalls, resulting in reduced hedging opportunities for traders and potentially higher TR clearing prices

IESO Perspective on NISL Impacts

Other Considerations

- Adding NISL to TR payments could potentially incent undesirable cross-intertie market manipulations
 - Potential to exacerbate system ramping constraints to generate significantly greater payments on interties where TRs are held
- NISL is hard to predict leading to TRs settling at prices significantly different than their expected payouts, thus lessening the efficiency of the TR auctions and resulting in non-optimal TR auction revenues

NISL Summary

- Based on this assessment, the IESO is concerned that hedging NISL with TRs would create a significant congestion rent shortfall risk that would be difficult and costly to manage
- Hedging NISL with TRs may also increase manipulation risk and cause price distortion in TR auctions
- Therefore, on balance, the IESO does not believe TRs should hedge NISL post-MRP

Proposed Approach to Address Stakeholder Feedback

- Although the IESO does not believe that TRs should hedge NISL post-MRP, the IESO acknowledges that stakeholders requested additional information (e.g. NISL examples, main contributors, etc.)
- The IESO has been working on this request and will share this information with stakeholders outside of the TR Market Review
 - All stakeholders who participated in the TR Market Review engagement will be notified when this information is available
- The future discussions will also be an opportunity to have a more focused assessment on NISL to better understand the materiality of risks and impacts as well as any potential mitigation



IESO's Proposal for Stage 3 Changes

Stage 3 – Long Term Changes

- Through the TR Market Review, the IESO has reiterated the important role the TR market plays in enabling efficient intertie trade and supporting the reliable operation of the grid
- The objective of Stage 3 is to propose long-term changes to the TR market to ensure alignment and compatibility with the MRP
- Supported by stakeholder feedback, The IESO has identified (1) proposed changes required to bring the TR market in alignment with the MRP and (2) items that need to be addressed before the MRP go-live date

IESO Proposed Changes – Stage 3

- TRs will hedge the import/export congestion portion of the ICP (*Tie_Cong_{LMP}*) but only in the Day-Ahead Market (DAM) time frame. TRs will not hedge NISL post-MRP
- TR settlement processes and tools need to be updated with DAM price and intertie limits
- All relevant market rules, market manuals and other internal and external documents, procedures and tools need to be updated accordingly

Stage 3 Items to be Addressed

- Day-ahead and real time NISL congestion and real time import/export congestion will be collected and disbursed
- The IESO will engage with stakeholders to determine the disposition of such funds before the MRP go-live date



Conclusion and Next Steps

TR Market Review Outcomes and Next Steps

Changes and Issues to be Addressed	Next Steps
<ul style="list-style-type: none">Multiple bid laminationsOn/off-peak TRsReconfiguration AuctionsPublishing additional information	These opportunities are expected to be submitted to the IESO's internal project assessment process as part of an upcoming project cycle. Next steps will be determined based on the outcomes of this process, at which point IESO will notify TR Market Review stakeholders
The manner in which TRs are sold on paths with infrequent congestion	Further internal IESO review is needed. IESO will aim to provide stakeholders with an update by Q3 2021.
TR settlement processes and tools need to be updated with DAM price and inertia limits	Implementation details, including engagement with stakeholders on draft market rule and manual changes to facilitate these changes will be communicated through the MRP engagement
Further analysis and discussions on NISL	All stakeholders who participated in the TR Market Review engagement will be notified when this information is available
DAM and RT NISL congestion and RT import/export congestion will be collected and disbursed	The IESO will engage with stakeholders through the MRP engagement to determine the disposition of such funds before the MRP go-live date

Conclusion

- The TR Market Review has reaffirmed the significant value the TR market provides
- The review has identified high-value opportunities that will improve the overall efficiency, value and function of the TR market, and proposed long-term changes that will align the TR market with the future renewed market
- Following the conclusion of this engagement, stakeholders who participated in the TR Market Review engagement, will receive updates according to the table in the previous slide

Stakeholder Appreciation

- The IESO appreciates stakeholders' input and support and acknowledges that the review would not have been possible without their participation

Submitting Stakeholder Feedback

- Is there anything else the IESO should consider including when finalizing the TR Market Review Final Report?
- Written feedback can be provided to engagement@ieso.ca using the feedback form on the engagement web page by April 15, 2021.
- Please use the feedback form provided to ensure stakeholder feedback is compliant with the Accessibility for Ontarians with Disabilities Act (AODA). If you choose not use the IESO feedback form, please provide an AODA compliant pdf document.

Thank You

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