

# Market Development Advisory Group Intertie Trading: A Focus On Exports

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January 21, 2020

# Meeting Participation

- Webcast participation (including audio):
  - <https://www.meetview.com/ieso20200121>
  - Use the chat function to ask a question
- Teleconference participation (audio only):
  - Local (+1) 416 764 8640; Toll Free (+1) 888 239 2037
  - Press \*1 to alert the operator that you have a question;
  - Press \*0 for any other operator assistance
- There will be pauses throughout to ask questions; when asking a question, state your name and who you represent.
- The activities of the MDAG are guided by the IESO [Engagement Principles](#).

# Purpose

- To provide insights on export trade
- Add to MDAG's electricity market knowledge and deliver useful information in advance of Transmission Rights Clearing Account discussion that follows
- Review rationale and mechanics of intertie trade
- Discuss market outcomes to illustrate system and economic impacts of exports

# Review: Intertie Trading

## Why have intertie trading?

- Reliability
  - Ontario is connected to five neighbours
  - Trade enables operational and planning flexibility
- Economic
  - Transparent prices from markets drive efficient trades and leads to better utilization of resources regionally
  - Efficient power flows from a low cost region to a high cost region

# Review: Intertie Trade Schedules and Prices

- In Ontario, intertie trades are economically scheduled based on bids and offers
  - Economically evaluated in the hour-ahead predispatch with the resulting constrained schedules used in real-time
  - Settlement is the sum of the real-time market clearing price and the cost of congestion calculated in predispatch (MCP+ICP)
- ICP is positive when export congested and negative when import congested

ICP: Intertie congestion price

MCP: Market clearing price

# Review: Navigating Through Other Markets

- A successful intertie transaction between two markets requires to be scheduled in the IESO market and the neighbouring market

Example: A successful export to the New York Independent System Operator (NYISO) market requires a bid that clears in the IESO market and also a corresponding import offer that is economic in the NYISO market

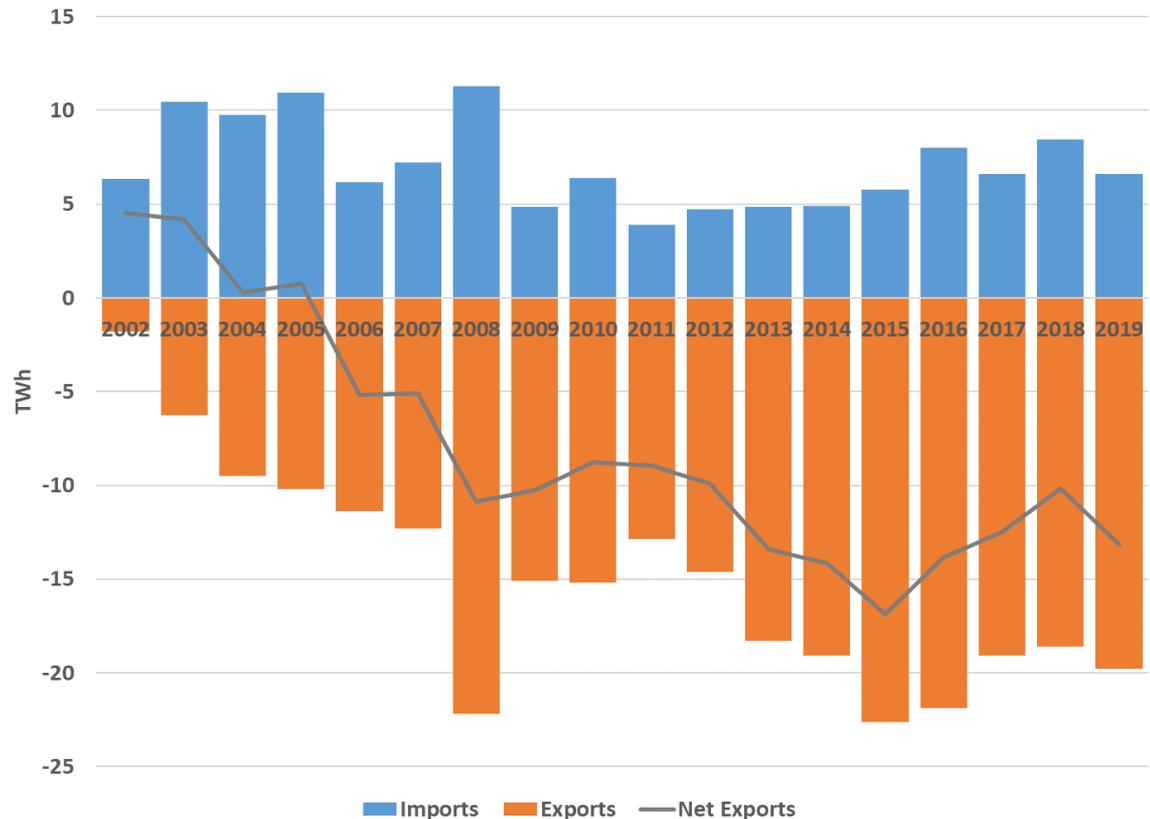
# Many Opportunities for Intertie Trade

Intertie trade is an important market function that will persist given the opportunities available to participants

- Bilateral
  - Pre-arranged agreement to move power
  - Trade may be bid and offered as price takers
- Price arbitrage
  - Predict price spreads between markets and at various timeframes
  - Buy low and sell high
- Response to changing system conditions
  - Changes in seasonal patterns, weather conditions, supply mix characteristics, outages and local issues

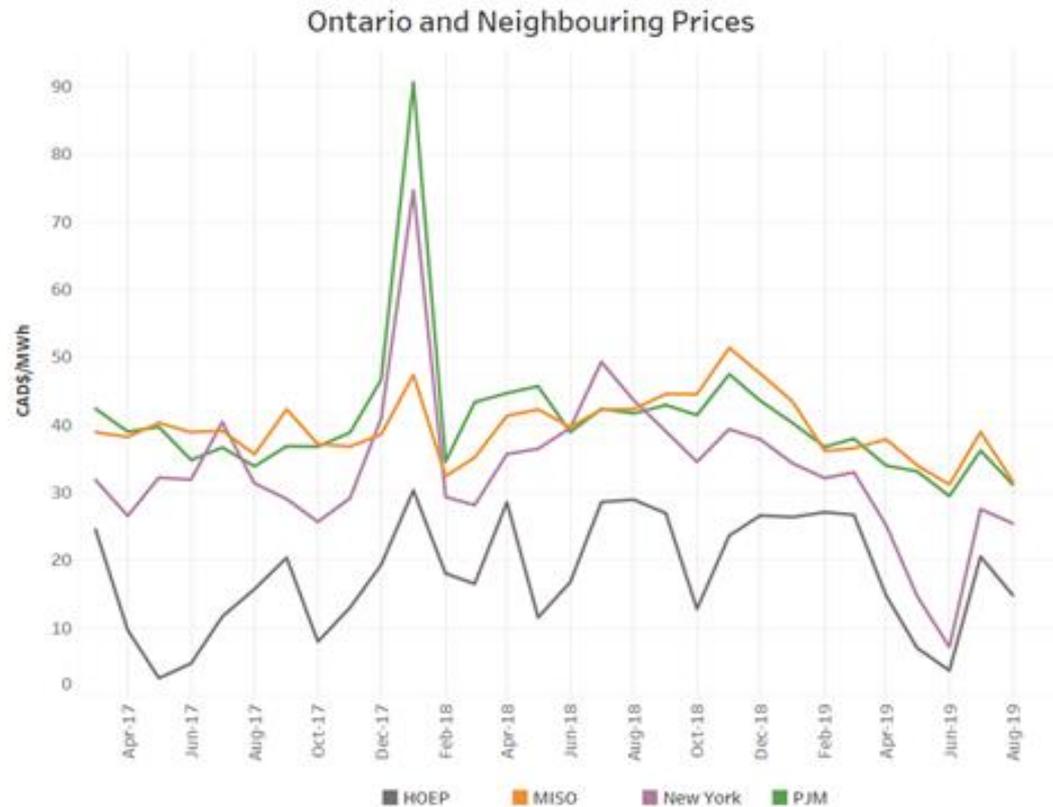
# A Focus On Exports

Ontario has been in a net export position since 2006 and expected to remain as such in the coming years

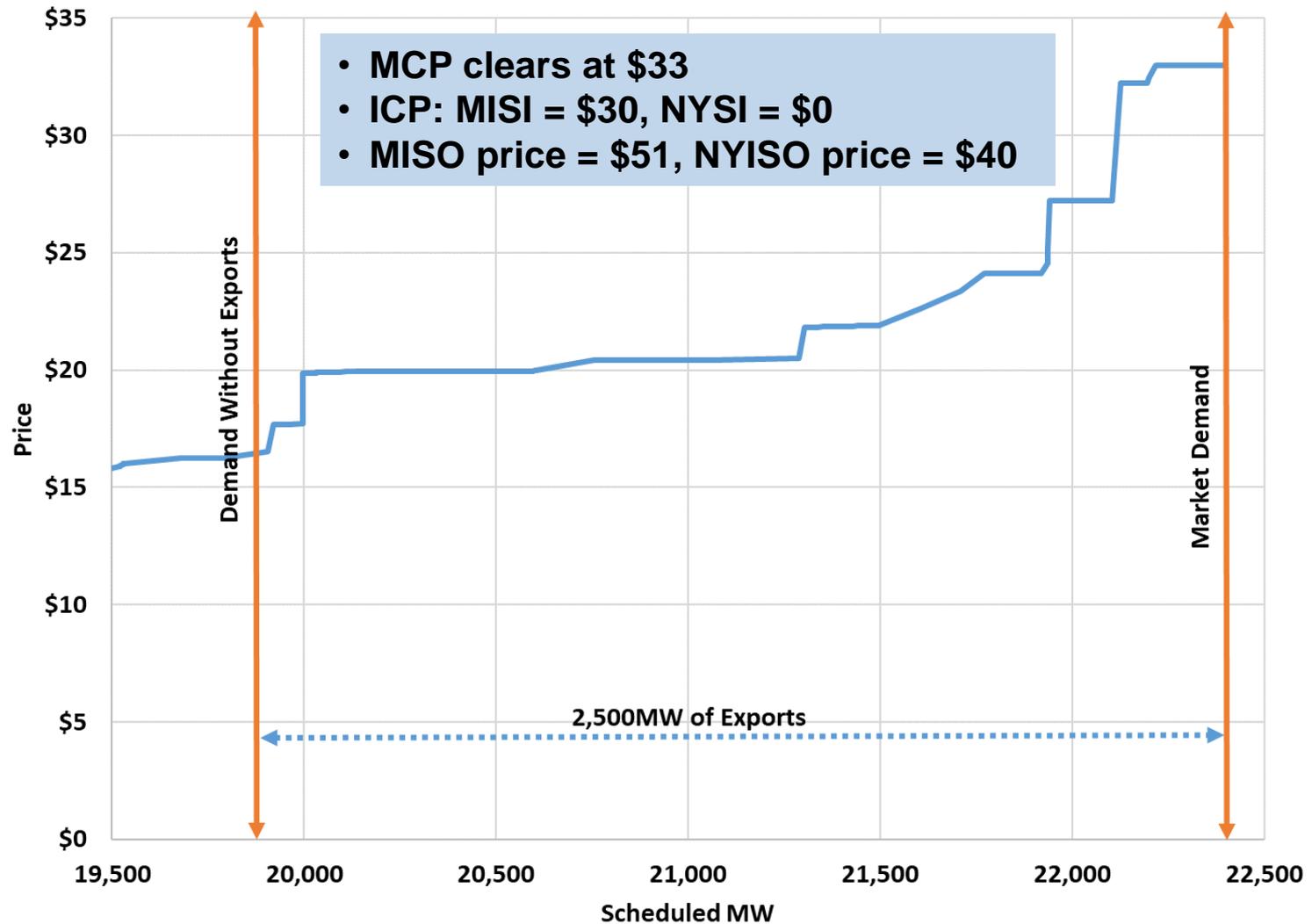


# Export Respond to Prices

- Exports do not flow at any price
- Power flows from a low price region to a high price region
- Exports are especially important in electricity markets as they are very price responsive given most of Ontario demand cannot respond in the predispach timeframe to system changes



# Example 1: A "Regular" Hour in July 2019



# Example 1: Trade Implications

- Trades bid and offered are based on expectations of what the clearing prices will be
- Looking only at the resulting energy clearing prices, exports were economic flowing to MISO and NYISO
- Exports pay the MCP and ICP
  - No congestion at the NYISO tie and traders earned a profit of up to \$7 ( $\$40 - \$33$ )
  - Congestion at the MISO tie resulted in a \$30 ICP
  - Exporters to MISO paid \$63 ( $\$30 + \$33$ ) for 1 MWh of flow, received \$51 from MISO, and incurred at least a \$12 loss ( $\$51 - \$63$ )
  - For traders with Transmission Rights (TRs) at the MISO tie, their losses were hedged with a TR the \$30 ICP payout per MWh of scheduled exports

# Example 1: Impact of Exports

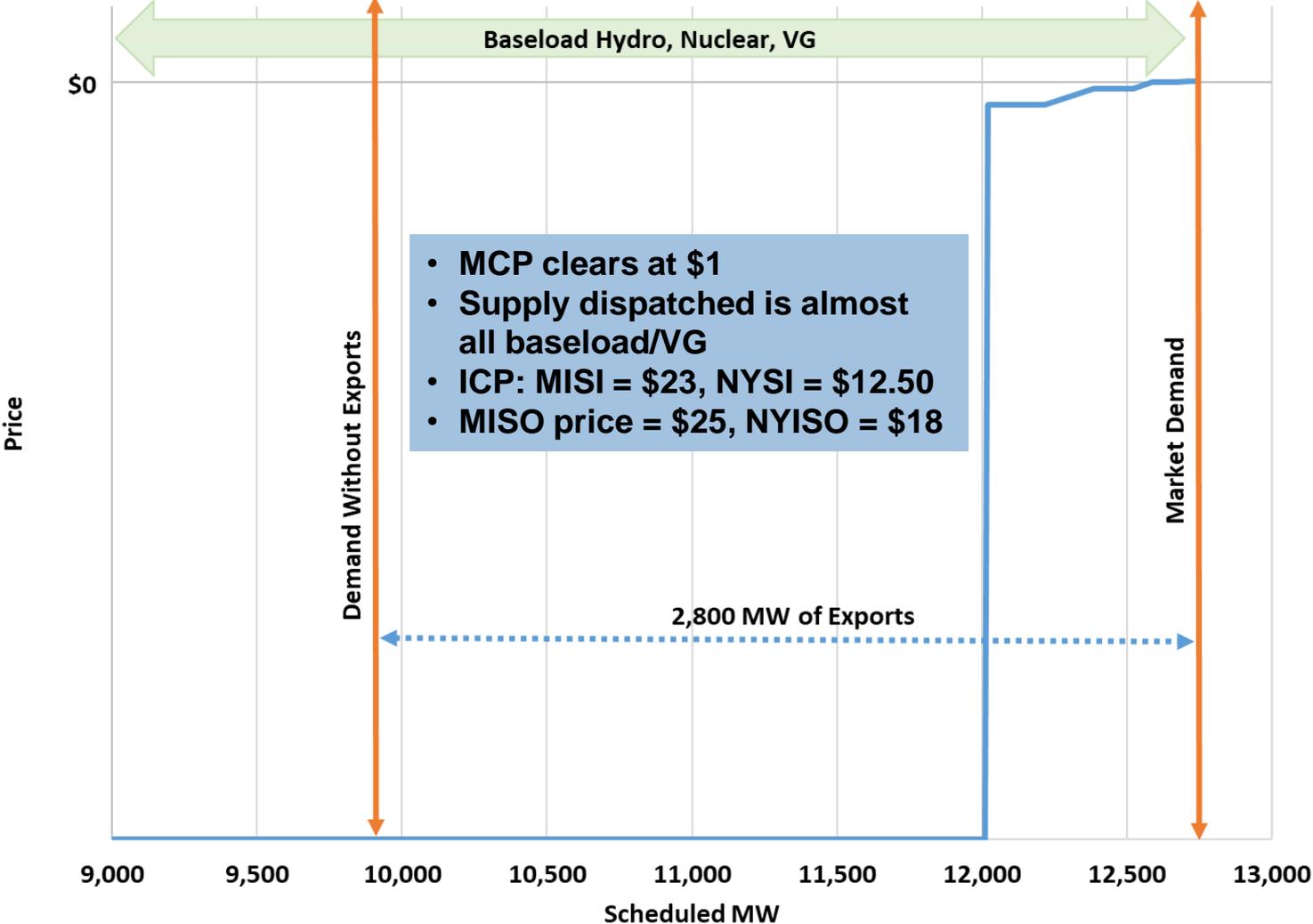
To illustrate the impact of trade, consider the hypothetical where Ontario is an island and exports could not happen

- Additional supply would not be needed to back exports and earn extra margins
- External regions would not benefit from accessing cheaper supply and lowering their system costs
- While the Ontario MCP would have been lower with given less demand, the impact to the ratepayer would be unchanged given the corresponding increase to the Global Adjustment (GA)

# The Importance of Correct Intertie Pricing

- When the Ontario clearing price is less than the MISO and NYISO prices, exports are seemingly efficient
- This is not always the case as the uniform clearing price does not include additional costs for congestion within Ontario
- This flaw in intertie pricing will be corrected in MRP
  - The MRP business case indicates the pricing flaw results in \$20M-\$30M of efficiencies annually

# Example 2: A SBG Hour in May 2019



SBG: Surplus Baseload Generation

VG: Variable generation

## Example 2: Trade Implications

- There is a notion that when prices are low or negative, exports do not pay the full value or are paid for energy flowing out of Ontario
- Exports pay MCP + ICP at all times
- During SBG, interties tend to be export congested driving up ICP
- In example 2, MISO and NYISO ties were export congested
  - Exporters to MISO paid \$24 ( $\$23 + \$1$ ) for 1 MWh of flow and received \$25 from MISO
  - Exporters to NYISO paid \$13.50 ( $\$12.50 + \$1$ ) for 1 MWh of flow and received \$18 from NYISO
  - Traders with TRs also received ICPs to hedge against congestion

## Example 2: Impact of Exports During SBG

Consider again the hypothetical with Ontario as an island and exports could not be scheduled

- Reliability issues could develop with excess surplus
- VG, hydro curtailed, nuclear maneuvered or shutdown
- Negative market prices would clear with no ICP charged
- Forgone energy would be paid for by the ratepayer through the GA and be worse off

# Key Takeaways

1. Export opportunities occur as long as markets are interconnected
  - Bilateral, price arbitrage, changing system conditions continue to occur
2. Scheduled economic exports provide benefits to the system and the market
  - Resources are utilized efficiently among connected markets
  - In times of SBG, the ratepayer is better off
3. Efficient exports require transparent and efficient pricing
  - Export do not flow at any price, power typically flows from a low price region to one with higher prices
  - Wrong prices will lead to inefficient intertie transactions
  - MRP will implement better pricing at the interties and eliminate Congestion Management Settlement Credit payments
  - Market initiatives aim to correct market pricing flaws and remove non-market payments