

# **Inter-ISO Dispatch Proposal**

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## MOTIVATION

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There are currently a number of factors limiting price convergence between ISO coordinated real-time spot markets in the Northeast:

- Transmission and ramping constraints.
- Export charges.
- Export restrictions and non-LMP pricing.
- Variations in shortage pricing across control areas.
- Lags and forecasting error in adjusting interchange.

# MOTIVATION

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The NYISO is exploring the possibility of adjusting inter-change with adjacent control areas periodically during the dispatch hour in conjunction with the real-time dispatch.

- This redispatch would primarily address the impact of lags and forecasting error in hindering price convergence.
- Because interchange would be adjusted at several points during the hour, it would indirectly also address ramping constraints.

## THE CONCEPT

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The essence of the proposal is that the ISOs participating in the pilot would periodically adjust real-time net interchange to maintain price consistency across the markets of the participating ISOs.

- Price consistency will be measured at a predetermined benchmark.
- The benchmark could be a single location or a weighted average of several locations.
- The proposal could be implemented by any two adjoining ISOs.

# THE DETAILS

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Implementation of real-time inter-ISO dispatch will potentially affect five areas of ISO operation:

- Real-time dispatch
- Hour-ahead security evaluation
- Day-ahead market
- Congestion hedges
- Settlements

Implementation requires addressing a number of detailed issues regarding real-time operation.

- What will be the benchmark location?
- Will interchange adjustments account for charges on exports?
- What will be the frequency of interchange adjustments?
- How will the ISOs determine adjustments to interchange?
- Will real-time interchange be tagged and subject to TLR?
- How will interchange with non-LMP systems be coordinated?
- How will differences in benchmark prices arising from differences in shortage pricing systems be addressed?

Market participants will no longer submit price-based offers on interfaces supporting real-time interchange adjustments. Inter-ISO schedules will become financial, like internal bilaterals. Implementation issues pertaining to the hour-ahead evaluation process include:

- How will real-time interchange levels be assessed for hour-ahead security evaluation?
- What degree of consistency across ISOs in assumed interchange is necessary in hour-ahead evaluations and how will this consistency be maintained?

At this point, it is not envisioned that the implementation of real-time dispatch would require substantial changes in day-ahead markets.

- Day-ahead markets would operate sequentially.
- Day-ahead export and import schedules would be financial schedules in real time.
- Settlement of interchange schedules would have to be coordinated so that when the second day-ahead market clears, there is a single set of interchange schedules that is common to both markets.



The introduction of real-time interchange would be consistent with, but would not require, the introduction of inter-regional congestion hedges settling in the day-ahead market and inter-RTO congestion rent settlements.

Real-time inter-regional transactions would be financial.

- Deviations between market participant day-ahead and real-time schedules would settle at real-time prices.
- The charge for exports would be the difference between the benchmark price in the importing control area and the benchmark price in the exporting control area. In effect, power being exported would be sold at the benchmark price in the exporting control area and would be purchased at the benchmark price of the importing control area.
- Absent congestion, these benchmark prices should differ by the charges on exports.

Retention of export charges introduces a few wrinkles in the settlement process but can be managed.

- Market participants would settle charges on inter-control area transactions with the ISO of the exporting control area.
- Market participants would not pay export charges on their real-time financial inter-regional schedules, but would pay the difference in benchmark prices. Transactions scheduled day-ahead that flow in real time would pay export charges.
- The difference between real-time net interchange and the financial schedules of market participants would be the financial schedule of the importing control area.
- The ISO of the exporting control area would retain export charges on real-time net interchange. The remaining charges on inter-control area transactions would accrue to an inter-regional congestion charge account.

Suppose the New York price benchmark was \$30, the ISO-NE price was \$33, that market participants had 500 MW of financial exports to NEPOOL, that total real-time net interchange was 700 MW of exports to NEPOOL, and that the NYISO export charge was \$3/MWh:

- Payments to NYISO by market participants  
 $500 \text{ MW} * \$3 = \$1,500$
  - Payments to NYISO by ISO-NE  
 $200 \text{ MW} * \$3 = \underline{\$600}$
- Total**  $= \underline{\$2,100}$
- Retained by NYISO for export charges  
 $700 \text{ MW} * \$3 = \$2,100$

Now assume that net exports to NEPOOL rise to 750 MW and become constrained by transmission. The ISO-NE benchmark price rises to \$40/MWh.

- Payments to NYISO by market participants  
 $500 \text{ MW} * \$10 = \$5,000$
- Payments to NYISO by ISO-NE  
 $250 \text{ MW} * \$10 = \underline{\$2,500}$
- Total = \$7,500**

Retained by NYISO for export charges

$$750 \text{ MW} * \$3 = \$2,250$$

$$\text{Paid into congestion rent account} = \$5,250$$

Finally, we assume that market participants scheduled 450 MW of these transactions in the day-ahead market.

- Payment of export charges on day-ahead schedules  
 $450 \text{ MW} * \$3 = \$1,350$
  - Payments by market participants for real-time schedules  
 $50 \text{ MW} * \$10 = \$500$
  - Payments by ISO-NE for real-time schedules  
 $250 \text{ MW} * \$10 = \underline{\$2,500}$
- Total = \$4,350**
- Retained by NYISO for export charges = \$2,250
- Paid into congestion rent account = \$2,100

Because real-time schedules would be financial, the financial responsibility for physical interchange schedules would shift to the ISOs.

- Reliability criteria that constrain interchange but are not reflected in prices could give rise to revenue inadequacy if they cause physical flows to differ from day-ahead financial schedules.

Suppose that the NYISO real-time benchmark price is \$700/MWh, and that the ISO-NE real-time benchmark price is \$400.

- We further assume that NEPOOL is actually in a much more serious reserve shortage than New York and NEPOOL LSEs schedule 300 MW of financial imports into NEPOOL, for which they would be paid \$300/MW under the proposed settlement rule.
- If the physical flow of interchange in real time was from NYISO into NEPOOL, the real-time congestion settlements would not be revenue adequate.