Virtual Regional Dispatch

Improving the Region’s Real-Time Dispatch

Sept 18, 2003
NPCC General Meeting
Background

- ISONE and the NYISO are developing a method of coordinating the real-time dispatch in their respective markets
- The process will fundamentally change interchange scheduling between the control areas
- The methodology is being developed through a joint stakeholder process
- When conceptual design is complete, implementation will be scheduled by the ISO’s.
Why VRD?

- Historical Data shows Market Participants are not efficiently arbitraging price separation between Control Areas

- Counter intuitive flows (Net interchange from high cost area to low cost area) are not uncommon

- Market advisor has identified the potential for production cost savings and more efficient markets if area interface schedules were more efficient.
VRD Objective

- ISO’s to schedule physical interfaces to minimize Region’s production cost (Maximize dispatch efficiency)

- Increase the output of generators in the Control Area of lower cost and decrease generator output in Control Area of higher cost

- Move Region’s dispatch toward single system dispatch efficiency
Physical Scheduling – Basics

The amount of flow between the two control areas will be determined by the ISOs in the following manner:

- The ISOs’ scheduling objective is to converge prices at the respective proxy buses.
- The ISOs will review and adjust the physical interchange every 15 minutes to maintain price convergence.
- The ISOs will share explicit pricing curves representing sensitivity to interchange schedule changes, for the purpose of establishing efficient interchange.
Physical Scheduling – Flow Model

Proxy Price
$/MWH

Interchange MW (NE-to-NY)

NE Sensitivity

NY Sensitivity

Desired Interchange

+100
+200
+300
+400

-100
-200
-300
-400

NY Actual

NE Actual
Physical Scheduling – Key Elements

- The structure of this approach is consistent with the design and capability of the dispatch functions of both markets.
  - ISO-NE security constrained dispatch with look-ahead
  - NYISO RTS including RTC and RTD
Market Design Not Changing

• VRD makes no changes to the Day Ahead Market including:
  - FTRs and ARR’s in ISONE
  - TCC’s in NYISO

• Settlements of transactions delivered in R.T. to satisfy a Day Ahead obligation are unchanged by VRD including:
  - Types of allowable transactions
  - Payment of transaction fees and charges
  - Real-time Energy deviations (Zero)
Changes to R.T. Market Design

- Participant Real-time Transactions are effectively financial not physical.

- Price Sensitive Transactions
  1. Decision made after the physical dispatch, based on Real-time prices
  2. Transaction flows only if it is economical when compared to actual real-time prices
  3. Therefore, the need for price guarantees on virtual interfaces goes away
Changes to R.T. Market Design (Continued)

- R.T. Transactions* will no longer pay separately for:
  - Transmission out service
  - Ancillary service charge allocation

- R.T. Transactions will be assessed a new single transaction charge of the difference between control area proxy bus prices
  - Buying area’s proxy bus LMP minus selling area’s proxy bus LMP

* Day-ahead market transaction through and out charges will not change
VRD and Changing Market Opportunities

• Marketers lose opportunities to arbitrage between control area Prices
  - ISOs physical dispatch has closed prices
  - Introduction of charge for full amount of price separation

• Instead, financial rights (FTR’s) will be auctioned daily following the DAM transaction checkout for unused transmission capacity.
VRD and Changing Market Opportunities (Continued)

- Load serving entities and suppliers can now negotiate Real-time transactions across control area boundaries without risk of price separation at interface
  - R.T transactions are not similar to internal bi-lateral transactions
Virtual Dispatch (MWh)

- ISO’s will schedule energy to balance prices without regard to participant transactions.
- Participant transactions that fit within scheduled flow and actual prices will be considered scheduled (after the fact).
- MW of virtual dispatch is determined to be:

  $$ VRD_{MW} = (\text{Scheduled Physical Flow}) - (\text{Net Participant Schedules}) $$
VRD \textsubscript{MWh} Revenue Accounting

- A Virtual Accounting Fund will be credited with revenues from:
  - Energy payment for Virtual MW from receiving control area market
  - Payment of transaction costs (delta proxy prices) from R.T. transactions
VRD$_{\text{MWh}}$ Revenue Accounting (Continued)

- A Virtual Accounting Fund will distribute payments to:
  - Energy payment to delivering control area market for MWh of VRD.
  - Payment of export fees and associated charges for physical interchange not covered by delivery of day-ahead obligations
  - Payment to financial rights holders
Questions