



RTO – New England Virtual Single Market - Capacity

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Capacity Market Seams Reduction

- This presentation discusses a proposal for operation of ISO-NE and NYISO capacity markets to create a virtual single market.
 - Both markets use the UCAP product
 - Market Rules, Auction, and Load Shift Process are common
 - Similar processes for assigning obligations
 - Same market obligations for generators
- Differences include Zonal Sourcing Requirement, cap prices, and cross border trade.



Capacity Market Seams Reduction

- This presentation focuses on elimination of barriers to cross border trade
 - De-listing process
 - Allocation of transfer rights
 - Energy offer requirements
 - Settlement Issues
- This presentation does not directly address
 - Zonal ICAP/ Deliverability
 - Deficiency Cap Prices



SMD Capacity Market Enhancements

Virtual Single Capacity Market
Background Issues



SMD Enhancement – Virtual Single Capacity Market

- SMD energy market imposes obligations on ICAP suppliers:
 - ICAP resources must participate in day-ahead and real-time markets
 - External resources must pass control area checkout process
 - Resource must be fully committed (listed) to the market to which it sells ICAP
 - ISO-NE tracking and ownership issue/ division of offer obligation between pools
 - NYISO handles partial de-listing through registration process/ PJM ignores de-listed resources



SMD Enhancement – Virtual Single Capacity Market

- De-listing and committing a resource to the neighboring pool creates coordination and scheduling problems
 - External resources are not under control of the control area
 - Fixed/ Self-schedules are relatively easy to handle but are not flexible
 - Dispatchable external resources create significant coordination issues/ inability to commit or really dispatch
 - Checkout process exposes either the seller to financial risk or the pool to reliability risk



SMD Enhancement – Virtual Single Capacity Market

- Virtual Single ICAP Market process was initially developed to comply with FERC partial de-listing order.
 - The Virtual Single ICAP/ “Net Obligation” process is similar to system ICAP
 - Net Obligation allows all types of resources and resource owners to play (currently unable to export DSM or settlement-only resources)
 - Net Obligation offers reduced implementation effort versus partial de-listing and increases market liquidity



SMD Enhancement – Virtual Single Capacity Market

- Further Consideration of Net Obligation process indicates it substantially reduces ICAP seams
 - Eliminates need to de-list resources for ICAP export
 - Allows all resource types to participate (Generators, Settlement Only, Demand Response, etc)
 - Eliminates problems with energy market coordination and transaction checkout
 - Participants in both control areas permitted to directly participate in the adjacent market



SMD Capacity Market Enhancements

Virtual Single Capacity Market
Proposal Overview



SMD Enhancement – Virtual Single Capacity Market

- ICAP Market Coordination Process Summary:
 - Resources selling ICAP are listed in their native pool
 - As listed ICAP resources, all native energy market obligations apply
 - DAM/ RTM Bidding, maintenance scheduling, etc
 - Participants selling to neighboring region directly offer UCAP from their UCAP “position”
 - Transactions limited to maintain the net obligation below the interface limit
 - Just prior to Deficiency Auction the transaction window closes and the net regional obligation is determined



SMD Enhancement – Virtual Single Capacity Market

- ICAP Market Coordination Process Summary (cont):
 - During the obligation month the region assuming the net obligation commits additional resources to honor the commitment to the adjacent region
 - The adjacent region reduces unit commitment by the amount of the net obligation
 - Individual Participants only have energy offer obligations to their native pool/ no cross-border DAM-RTM offer requirement
 - Net obligation met using all available native resources
 - Cross border energy transactions based only on economics
 - Locational/ Zonal requirements must be considered



SMD Enhancement – Virtual Single Capacity Market

- ICAP Market Coordination Process – Key Implementation Issues
 - Process for tracking and managing transactions
 - Unit Commitment Settlement
 - Energy Dispatch



SMD Enhancement – Virtual Single Capacity Market

- ICAP Market Coordination – Process for tracking and managing obligations during sale period
 - Interface Transfer limits must be agreed upon by both Pools
 - Market Software required – transaction database and user interface
 - Software must track net impact of transactions
 - Identify available bi-directional transfer capability
 - Reject transactions that exceed transfer limit
 - Require confirmation by counterparties
 - Propose first come first serve allocation of available transfer capability



SMD Enhancement – Virtual Single Capacity Market

- ICAP Market Coordination – Unit Commitment Settlement
 - Net Obligation requires commitment of additional resources to support a call by the net short region
 - Additional commitment increases operating reserve cost in net long region (cost of startup and no-load on net obligation)
 - Propose the net long region charges the net short region a proportional slice of commitment cost
 - Net Long region flows commitment revenue back to native load as offset to commitment (OR) cost



SMD Enhancement – Virtual Single Capacity Market

- ICAP Market Coordination – Unit Commitment Settlement

Example

- New England (NE) has net obligation of 500mw to New York (NY) (NE is net long and NY is net short)
- New England load forecast of 25000mw, commits for 25500mw and incurs additional OR cost
- NE charges NY: $(500/25500) \times (\text{Daily Operating Reserve})$
- Payment by New York compensates New England load for increased operating reserve cost – offsets OR charges
- If NE were net short the resulting NY charge would be added to New England Operating Reserve cost



SMD Enhancement – Virtual Single Capacity Market

- ICAP Market Coordination – Energy Dispatch
 - No curtailment of economic energy transactions to honor external capacity demand
 - Net short region may utilize available transfer up to the net obligation
 - Real-Time demand of the combined regions met through the virtual regional dispatch process



SMD Enhancement – Virtual Single Capacity Market

- ICAP Market Coordination Process – Implementation Issues:
 - Rules and procedures need to be worked out with NEPOOL and NYISO Participants
 - Make use of NEPOOL RTO/ Seams working group
 - Need involvement of NYISO capacity group and Business Issues Group