



# Virtual Regional Dispatch

## Adding Real-time Cross Border Financial Rights To the Proposed Design

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William Barber, Robert Thompson and Scott Harvey

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# Why Cross Border Hedge (CBH)

- A Participant requested **Cross Border Hedges** (CBH) to be included in the VRD proposal
  - ✓ High level presentation made to NEPOOL Committee structure
- The CBH proposal is not simply an expansion of the Virtual Regional Dispatch straw proposal.
  - ✓ It offers solutions to outstanding issues.

Note: Today's presentation has added detail to original high level presentation

## Features of CBH

- Consistent with VRD objectives of improving the efficiency of regional dispatch.
- Suggests a method for distributing benefits of ISO-scheduled VRD transactions.
- Adds Real-time cross border hedging opportunity to VRD proposal.

# Design Considerations

- The VRD/CBH design needs to:
  - ✓ Retain the ability to fully hedge transactions scheduled Day-Ahead.
  - ✓ Accommodate Exit fees if they are not removed.
  - ✓ Provide mechanism for fully funding Exit fees for intervals when VRD dispatch fails to preserve adequate proxy bus price separation.

## Design Summary (1 of 2)

- After close of DAM, the ISOs publish Real-time transfer capability (net of Day Ahead Schedules).
- Financial rights to Real-time transfer capability are auctioned.
- Auction Revenues are distributed.

## Design Summary (2 of 2)

- Participant R. T. Transactions that are not hedged in DAM and VRD transactions pay cross border congestion (proxy bus differential).
- CBH holders receive benefits of cross border congestion charges.  
(adjusted for any exit fees.)

## CBH Design Activities (1 of 4)

1. The New York and New England DAM is posted (no proposed changes).
2. Transactions clearing in both markets are identified.
3. Transfer capability not scheduled in DAMs are posted on WEB.
  - Becomes available for CBH bidding.  
(late afternoon following the close of the NEPOOL DAM .)

## CBH Design Activities (2 of 4)

4. The Market bids for financial rights to cross border price separation for available R.T. Transfer capacity.
  - Very similar to DAM TCC and FTR but -
    - ✓ Bidding is for CBH in only one direction.
    - ✓ Value of CBH is determined by the Real-time proxy bus price separation in the direction of *purchase*.
      - Never a charge.
      - Subject to collection of exit fees.



## CBH Design Activities (3 of 4)

### 5. Market clears, results are posted.

Timeline estimates (open for discussion)

- Transfer Capability posted: 17:00
- Auction bidding Window: 17:00 – 20:00
- Market Cleared and posted: 21:00

## CBH Design Activities (4 of 4)

### 6. Real-Time Settlements:

- Collects cross border congestion from Real-time transactions including VRD.
- Pays exit fees out of collected revenues.
- Pays balance to CBH auction winners.

## Design Features (1 of 4)

- Retains ability for transactions scheduled Day-Ahead to be fully hedged.
- Provisions for collection of Exit fees.
- Day-ahead Transactions (in both DAMs) delivered in Real-time continue to pay the Exit fees.
- CBH holders are never charged for holding a CBH.

## Design Features (2 of 4)

- Real time transactions (not delivery of DAM obligations) pay/receive Proxy bus price difference to/from CBH/VRD Fund.
- T.O.s receive exit fees based upon net scheduled physical flow.

## Design Features (3 of 4)

- CBH to fully fund Exit fees
- Full funding of exit fees and any counterintuitive VRD physical schedule can result in under funding of CBH financial rights.
  - ✓ Example later in presentation to show condition of under funding.

## Design features (4 of 4)

- Hours with insufficient revenue to pay T.O.s or hours with counterintuitive physical scheduling will reduce daily payout to CBH auction winners.
- Should daily revenues collected be insufficient to cover daily sum of exit fees:
  - ✓ Could under fund exit fees
  - ✓ Could design an allocation

# Allocation of Auction Revenue

- Direction-specific Cross Border Hedge financial rights are auctioned.
- Auction revenues retained within control area (market) selling CBH rights for exports.
- Selling market is to decide details of allocation.

# Participants Fully schedule Interface

## Example 1

- Market Conditions
  - ✓ NE selling to NY
  - ✓ Interface Transfer limit = 600 mw
  - ✓ 500 mw of DAM transactions schedule in R.T.
  - ✓ 100 mw of participant Real time Transaction scheduled
  - ✓ Exit fee = 5 \$/mwh
- CBH Settlements
  - ✓ CBH holders receive benefit of price separation on congested interface.





# VRD Schedules Interface to Full Capacity

## Example 2

- Market Data
  - ✓ Same as example 1 other than:
    - Participant Real time transaction replaced by VRD transaction
- CBH Settlements
  - ✓ CBH holders receive same benefits as in example 1.

Example 2		<b>CBH Hedge with Real time Congestion</b>				
		Virtual Dispatch Incrementally loads interchange to limit				
<u>Market Data</u>				<u>NY Market Data</u>		<u>NE market Data</u>
Real time Deliveries of DAM Obligations (mwh)				-500 ←		500
VRD incremental Schedule to NY				-100 ←		100
Virtual Dispatch Physical Schedule (mwh)				0		0
Physical Interchange				-600		600
Locational prices				60		45
Exit fee \$				5		5
<b>Virtual Dispatch Settlement with CBH</b>						
<b>VRD Schedule Payment of Congestion 100* (60-45)</b>						
				<b>\$1,500</b>		
<b>DAM market payment Exit fees (500*5)</b>						
				<b>\$2,500</b>		
<b>CBH Payment to Auction winners 100 * ((60-45)-5)</b>						
				<b>(\$1,000)</b>		
<b>TOs receipt of Exit fees (600 * 5)</b>						
				<b>(\$3,000)</b>		
<b>NET</b>				<b>\$0</b>		

# Hour of Insufficient Revenue for T.O.s

## Example 3

- Market Data
  - ✓ Similar to example 2 other than
    - Interface scheduling not limited by transfer limit
    - Hourly prices ended up being closer than Exit fees
      - Insufficient revenues to pay the T.O.s
- CBH Settlements
  - ✓ Negative CBH benefits are set to zero
  - ✓ Deficit in revenue to pay T.O.s (Collection to be distributed to CBH holders across the day)



**Proxy Bus Prices Closed to less than Exit Fees**

<u>Market Data</u>	<u>NY Market Data</u>	<u>NE market Data</u>
Real time Deliveries of DAM Obligations (mwh)	-500 ←	500
VRD incremental Schedule to NY	-100 ←	100
Virtual Dispatch Physical Schedule (mwh)	0	0
Physical Interchange	-600	600
Locational prices	60	59
Exit fee \$	5	5

**Virtual Dispatch Settlement with CBH**

<b>VRD Schedule Payment of Congestion 100* (60-59)</b>	<b>\$100</b>
<b>DAM market payment Exit fees (500*5)</b>	<b>\$2,500</b>
<b>CBH Payment to Auction winners 100 * ((60-59)-5)</b>	<b>\$0</b>
<b>TOs receipt of Exit fees (600 * 5)</b>	<b><u>(\$3,000)</u></b>
<b>NET</b>	<b><u>(\$400)</u></b>

CBH holders never pay when benefit is negative  
 To fully fund T.O.s, CBH payments across day are reduced

## Summary

- The CBH proposal is consistent with the objectives of VRD.
- CBH offers solutions to issues that were outstanding in previously released Straw Proposal.
- CBH warrants full consideration as the details of the virtual dispatch package are developed.

