Brief on Scarcity Pricing

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The ISO resumed the Scarcity Pricing stakeholder process after the startup of MRTU.

- Started Scarcity Pricing stakeholder process in May 2007
- Put it on hold since July 2008
- Resumed the discussion in August 2009
- Targets for the ISO Board of Governors decision in December 2009 and implementation in April 2010

The scope of Scarcity Pricing design has been reduced since 2008.

- RA resources DAM A/S must-offer requirement was moved to the scope of Standard Capacity Product
- A/S cost allocation was dropped according to FERC June 20, 2008 MRTU Order

FERC directs the ISO to implement a reserve shortage Scarcity Pricing mechanism.

- Raising energy and reserve prices automatically during periods of genuine reserve shortage
- Applying administratively-determined graduated prices to various levels of reserve shortage
- Implementing the mechanism in both day-ahead and real-time markets
- Completing implementation within 12 months after the startup of MRTU

The ISO proposes to implement a demand curve approach Scarcity Pricing mechanism.

- Is one of the four approaches FERC recommended in Order 719
- Is adopted by other ISOs
- Clears market with the demand curve in situation of reserve shortage
- Sets prices to reflect various levels of reserve shortage
- Encourage cost based bidding

Violating the minimum reserve requirements will trigger Scarcity Pricing mechanism.

- NERC and WECC reliability standards specify minimum reserve requirements for the ISO system (A/S Region)
- The ISO sets minimum reserve procurement targets for A/S Sub-Regions as needed
- The ISO proposes to use the minimum requirements as triggers of Scarcity Pricing

The ISO procures reserves based on requirements set by the reliability standards.

- Reserve substitution
  - Higher quality reserves can be procured to meet the requirement for lower quality reserves if it is economic to do so
- Reserve procurements in Sub-Regions
  - Reserves procured in Sub-Regions are counted to meet the reserve requirements of the ISO system
  - The CAISO will try to meet the reserve requirements of the system if there is scarcity in Sub-Regions

Market recognizes the value of higher quality reserves and reserves needed in Sub-Regions.

- Market Clearing price of a higher quality reserve is always higher than or equal to the price of a lower quality reserve in the same Region or Sub-Region
- Market Clearing price of a reserve in a Sub-Region is always higher than or equal to the price of the same reserve in the outer Region
- This is also true in situation of reserve shortage

The ISO proposes tiered Reserve Shortage Demand Curves.

Reserve	Percent of Energy Bid Cap		Bid Cap = $750/MWh ($/MWh)		Bid Cap = $1000/MWh ($/MWh)	
	Region	Sub-Region	Region	Sub-Region	Region	Sub-Region
Regulation Up	20%	10%	$150	$75	$200	$100
Spinning	10%	10%	$75	$75	$100	$100
Non-Spinning		25%		$188		$250
Shortage > 210 MW	70%		$525		$700	
Shortage > 70 & ≤ 210 MW	60%		$450		$600	
Shortage ≤ 70 MW	50%		$375		$500	
Upward Reserve Sum	**100%**	**45%**	**$750**	**$338**	**$1000**	**$450**
Regulation Down						
Shortage > 84 MW	70%		$525		$700	
Shortage > 32 & ≤ 84 MW	60%		$450		$600	
Shortage ≤ 32 MW	50%		$375		$500	

Reserve scarcity prices are additive based on the Scarcity Reserve Demand Curves.

Reserve	Bid Cap = $750/MWh ($/MWh)		Bid Cap = $1000/MWh ($/MWh)	
	Region	Sub-Region	Region	Sub-Region
Regulation Up	$750	$1088	$1000	$1450
Spinning	$600	$863	$800	$1150
Non-Spinning		$713		$950
Shortage > 210 MW	$525		$700	
Shortage > 70 & ≤ 210 MW	$450		$600	
Shortage ≤ 70 MW	$375		$500	
Regulation Down				
Shortage > 84 MW	$525		$700	
Shortage > 32 & ≤ 84 MW	$450		$600	
Shortage ≤ 32 MW	$375		$500	

Assuming supplies of all reserves in both Region and Sub-Region are short

The proposal of demand curves is based on the following considerations:

- Six criteria specified in FERC Order 719
- The design of other ISOs
- Being able to re-dispatch all available resources (including demand response) through market in case of reserve scarcity
- Providing incentives to develop demand response
- Avoiding excessive cost

Market power mitigation is an important aspect of the Scarcity Pricing design.

- The ISO procures 100% A/S requirements in DAM with elastic energy demand
- RA capacity must-offer requirement prevents capacity withholding
- Demand curve approach Scarcity Pricing mechanism caps reserve prices in situation of reserve shortage
- Market participants do not need to bid differently in expecting a reserve scarcity

Events and plan of the stakeholder process

August 24, 2009	ISO posts Straw Proposal
August 31, 2009	Stakeholder Meeting
September 8, 2009	Stakeholder comments due
October 5, 2009	ISO posts Draft Proposal
October 12, 2009	Stakeholder Conference Call
October 19, 2009	Stakeholder comments due
November 2, 2009	ISO posts Final Proposal
	Additional stakeholder discussions as needed
December 16, 2009	ISO Board of Governors meeting for decision