

# RPM Auction Structure Overview

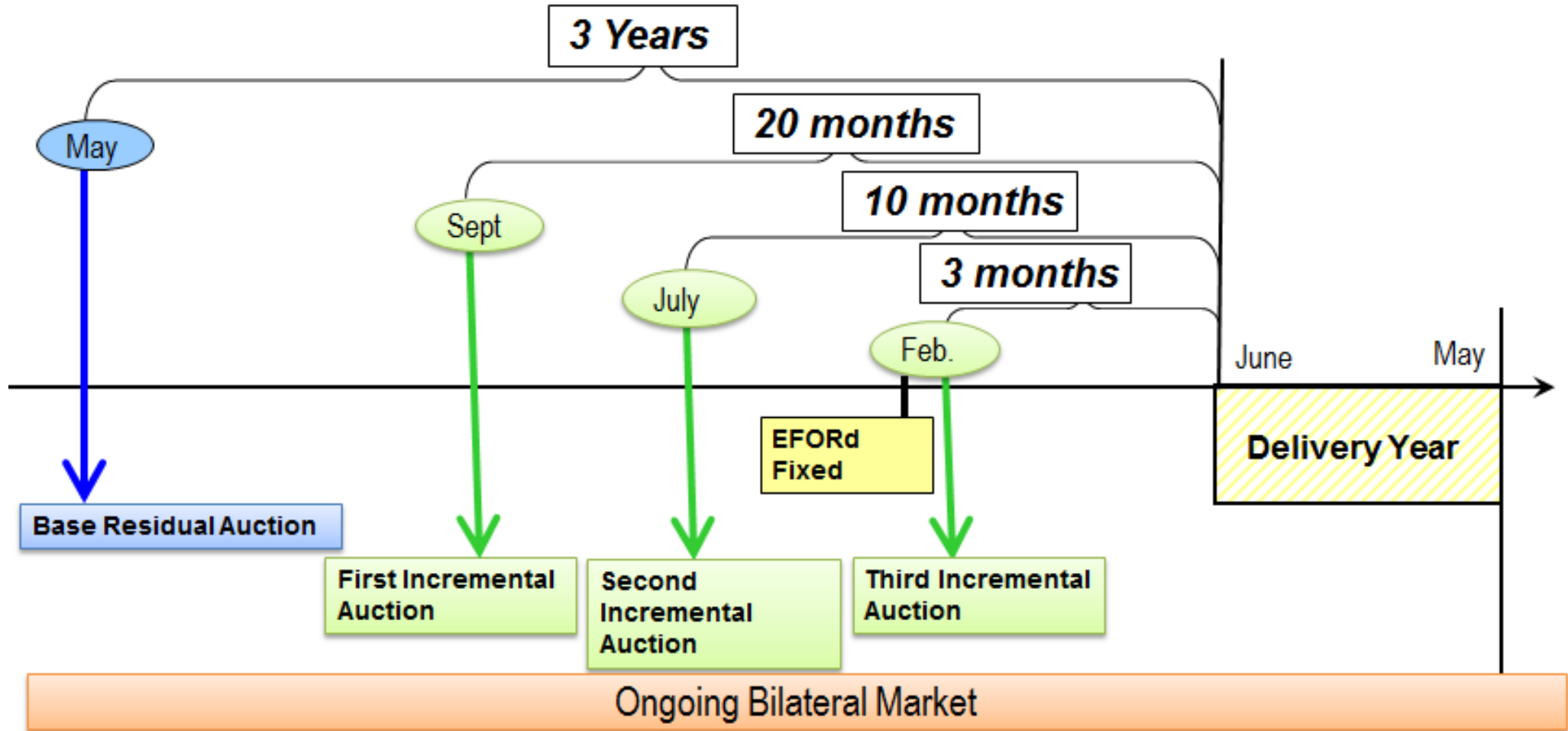
Incremental Auction Senior Task Force  
February 6, 2017



- RPM Auction Structure
  - Base Residual Auction
  - Incremental Auctions
- PJM Buy Bids and Sell Offers in Incremental Auctions

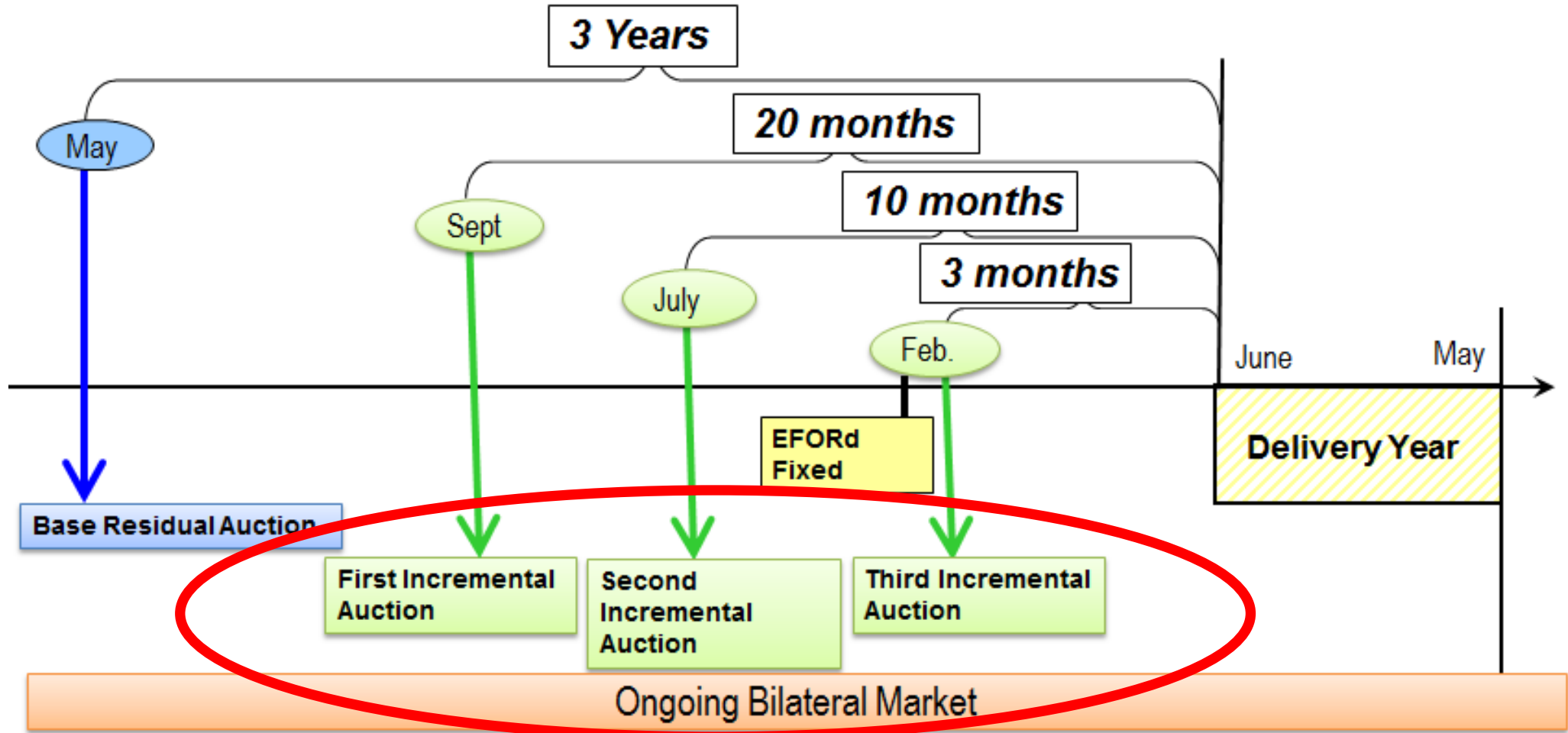
# RPM Auction Structure Overview

Activity	Purpose	Cost of Procurement
Base Residual Auction	Procurement of RTO Obligation less FRR Obligation	Allocated to LSEs through Locational Reliability Charge
1 <sup>st</sup> Incremental Auction	Allows for: (1) replacement resource procurement (2) increases and decreases in resource commitments due to reliability requirement increase/decrease	Allocated to resource providers that purchased replacement resources and LSEs through Locational Reliability Charge
2 <sup>nd</sup> Incremental Auction		
3 <sup>rd</sup> Incremental Auction		
Conditional Incremental Auction	Procurement of additional capacity in a LDA to address reliability problem that is caused by a significant transmission line delay	Allocated to LSEs through Locational Reliability Charge



- Allows for procurement of unit-specific resource commitments required to satisfy the region's unforced capacity obligation for a future Delivery Year, less the Preliminary UCAP Obligations of FRR Entities.
- Cost of procurement is allocated to LSEs serving load in the actual Delivery Year through the Locational Reliability Charge.

- Variable Resource Requirement (VRR) curve is the demand curve for the Base Residual Auction
- Individual resource-specific offers are stacked to form the supply curve
- All existing generation resources with Available Capacity must offer into the Base Residual Auction





- Conducted after the BRA providing means for Capacity Market Sellers to sell capacity or purchase replacement capacity for the BRA Delivery Year, as well as, mechanism for PJM to adjust committed capacity levels due to changes in delivery year reliability requirement:
  - PJM submits sell offers/buy bids to release/procure capacity due to decrease/increase in reliability requirement
  - Capacity Market Sellers submit location and product-specific buy bids to procure replacement capacity to avoid commitment deficiency due to:
    - Resource retirement, resource cancellation or construction delay
    - Resource derating (CAP MOD decrease)
    - EFORd increase
    - decrease in the nominated value of a Planned Demand Resource/Energy Efficiency Resource
    - delay or cancellation of Qualifying Transmission Upgrade.

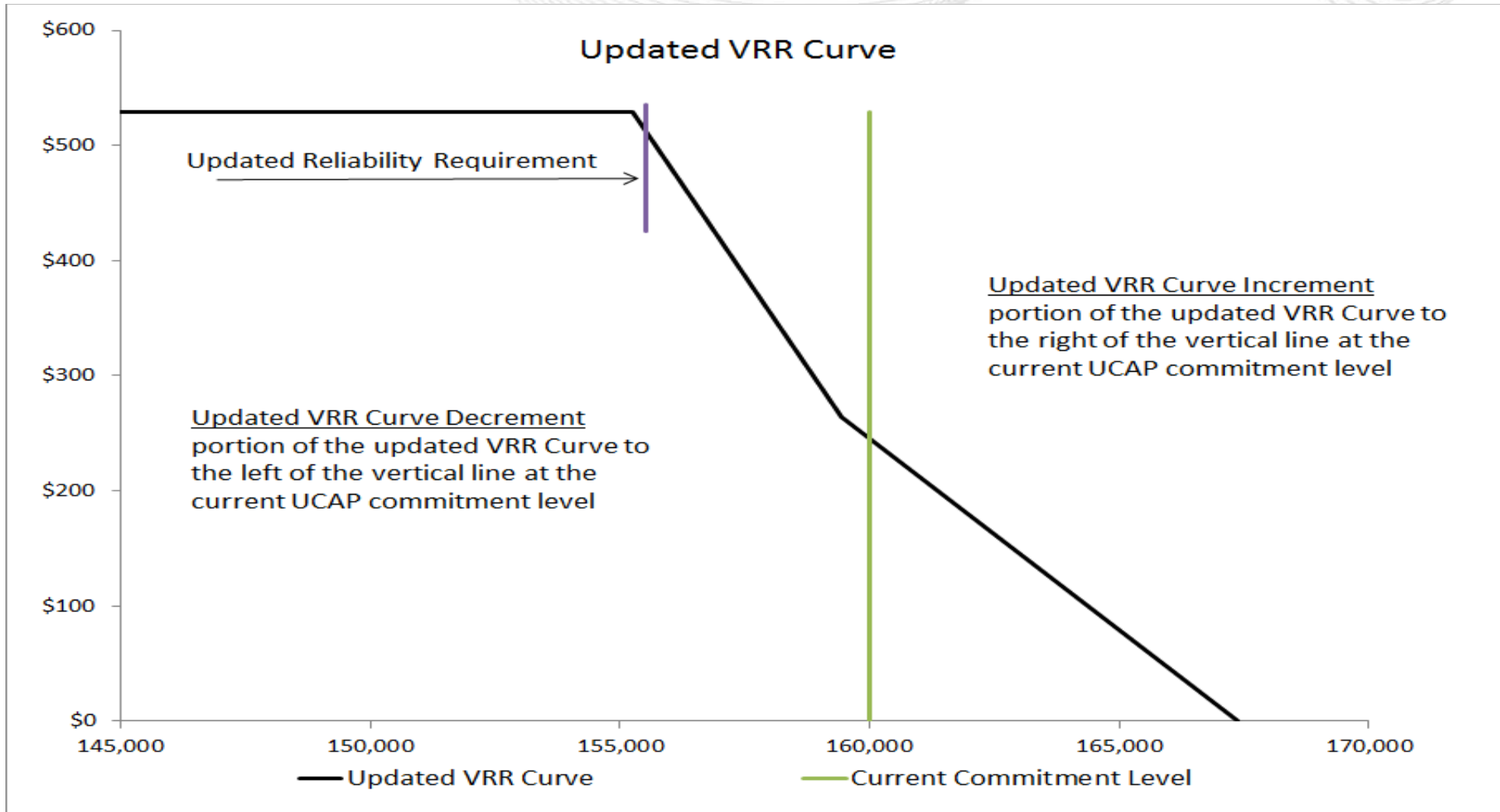
- Demand curve(s) for Incremental Auctions are built based on:
  - Locational buy bids submitted by auction participants
  - Possible PJM buy bids to procure increase in Reliability Requirement
- Supply curve for Incremental Auction are built based on:
  - Resource-specific sell offers submitted by auction participants
    - may include resources or portion of resources that did not clear in prior RPM Auctions, and planned resources that did not meet the eligibility requirements at the time of prior RPM Auctions
  - Possible PJM locational sell offer to release commitments
- All existing resources that offered into BRA and have a positive Minimum Available Capacity value must offer into the Incremental Auction

- Conditional Incremental Auctions may be held if the in service date of a planned Backbone Transmission Upgrade that was modeled in the Base Residual Auction is announced as delayed by Office of the Interconnection beyond July 1 of the Delivery Year for which it was modeled and the delay causes reliability criteria violation.

# PJM Sell Offer and Buy Bid Pricing

- PJM will seek to procure capacity in an IA if:
  - the updated reliability requirement exceeds prior reliability requirement by more than lesser of 500 MW or 1% of prior requirement for 1st and 2nd IA (no threshold in 3rd IA);
    - PJM will submit buy bid in MW quantity equal to increase in Reliability Requirement plus/minus uncleared PJM buy bid/sell offer quantity from prior IA
    - PJM buy bid price based on Updated VRR Curve Increment
- or, if updated reliability requirement exceeds total committed capacity level by more than lesser of 500 MW or 1% of prior requirement (threshold applicable for all 3 IAs)
  - Entire Updated VRR Curve Increment is utilized

- PJM will seek to release capacity if updated reliability requirement is less than prior reliability requirement by more than lesser of 500 MW or 1% of prior requirement for 1st and 2nd IA; no threshold in 3rd IA
  - PJM will submit sell offer in MW quantity equal to decrease in Reliability Requirement plus/minus uncleared PJM sell offer/buy bid quantity from prior IA
  - PJM sell offer price based on Updated VRR Curve Decrement



Questions?



# Appendix

Incremental Auction		Cleared Buy Bid MW	IA Price paid versus BRA Price	PJM Sell Offer Cleared MW	% Contribution of PJM Sell Offer MW to Cleared Buy Bid MW
DY 12/13	1IA	1,749.0	31.8%	60.3	3.4%
	2IA	3,214.6	34.5%	2,376.8	73.9%
	3IA	4,382.8	3.2%	1,979.3	45.2%
DY 13/14	1IA	4,882.0	41.3%	2,494.9	51.1%
	2IA	5,598.8	11.6%	3,602.1	64.3%
	3IA	3,168.4	42.4%	465.0	14.7%
DY 14/15	1IA	6,849.8	7.5%	2,610.0	38.1%
	2IA	4,476.4	30.4%	1,566.9	35.0%
	3IA	2,682.3	68.0%	0.0	0.0%
DY 15/16	1IA	5,987.4	53.2%	1,815.9	30.3%
	2IA	2,692.9	83.8%	913.2	33.9%
	3IA	3,299.1	98.5%	0.0	0.0%
DY 16/17	1IA	5,557.0	98.3%	1,419.0	25.5%
	2IA	5,058.5	58.2%	4,293.7	84.9%
	3IA	6,021.3	8.6%	4,682.9	77.8%
DY 17/18	1IA	4,183.9	69.8%	3,579.3	85.5%
	2IA	4,211.3	27.2%	2,996.3	71.1%
DY 18/19	1IA	2,365.8	17.6%	153.8	6.5%
<b>Average - 18 IAs</b>		<b>4,243.4</b>	<b>43.6%</b>	<b>1,945.0</b>	<b>45.8%</b>

<b>Delivery Year</b>	<b>Cleared Buy Bid MW</b>	<b>IA Price paid versus BRA Price</b>	<b>PJM Sell Offer Cleared MW</b>	<b>% Contribution of PJM Sell Offer MW to Cleared Buy Bid MW</b>
DY 12/13	9,346	16.2%	4,416	47.3%
DY 13/14	13,649	28.2%	6,562	48.1%
DY 14/15	14,009	26.9%	4,177	29.8%
DY 15/16	11,979	72.5%	2,729	22.8%
DY 16/17	16,637	54.3%	10,396	62.5%
DY 17/18 (thru 2 IAs)	8,395	48.2%	6,576	78.3%
DY 18/19 (thru 1 IA)	2,366	17.6%	154	6.5%