2012/2013 RPM Second Incremental Auction Results

Introduction

This document provides information for PJM stakeholders regarding the results of the 2012/2013 Reliability Pricing Model (RPM) Second Incremental Auction. Incremental Auctions provide both a forum for capacity suppliers to purchase replacement capacity, and a means for PJM to adjust previously committed capacity levels due to reliability requirement increases or decreases combined with the appropriate share of the deferred Short-Term Resource Procurement Target.

The 2012/2013 Second Incremental Auction opened on July 18, 2011 and the results were posted on July 29, 2011. This document begins with a high level summary of the Incremental Auction results followed by sections containing detailed descriptions of the configuration and results of the 2012/2013 Second Incremental Auction.

Summary of 2012/2013 RPM Second Incremental Auction Results

Table 1 summarizes the results of the 2012/2013 Second Incremental Auction. In the region encompassing the Rest of RTO LDA, the SWMAAC LDA, and the Rest of MAAC LDA (MAAC LDA minus EMAAC and SWMAAC LDAs), participants procured a total net capacity amount of 2,073.3 MW of replacement capacity at a clearing price of $13.01/MW-Day (i.e. in this region, cleared participant buy bids exceeded cleared supplier sell offers by 2,073.3 MW due to PJM's release of capacity in the auction as described below). In the EMAAC LDA, participants procured a total net capacity amount of 303.5 MW of replacement capacity at a clearing price of $48.91/MW-Day (i.e. in this region, cleared participant buy bids exceeded cleared supplier sell offers by 303.5 MW due to PJM's release of capacity in the auction as described below). Across the entire RTO, participants procured a total net capacity amount of 2,376.8 MW of replacement capacity.

The total net amount of capacity procured or released by PJM is a function of the clearing of the PJM sell offers and PJM buy bids submitted due to changes in RTO and LDA reliability requirements, the procurement of the deferred short-term resource procurement and consideration of the amount of capacity commitments that PJM sought to procure or release that did not clear in previous Incremental Auctions for the same Delivery Year. As described in the Auction Configuration section of this report, PJM submitted only sell offers into this 2nd Incremental Auction for the 2012/2013 Delivery Year.

2012/2013 RPM Second Incremental Auction Results

In the region encompassing the Rest of RTO LDA, the SWMAAC LDA, and the Rest of MAAC LDA (MAAC LDA minus EMAAC and SWMAAC LDAs), PJM released to participants a total net capacity amount of 2,073.3 MW at a clearing price of $13.01/MW-Day. In the EMAAC LDA, PJM released to participants a total net capacity amount of 303.5 MW at a clearing price of $48.91/MW-Day. Across the entire RTO, PJM released a total net capacity amount of 2,376.8 MW meaning total prior commitments were reduced by 2,376.8 MW.

Table 1 – Summary of 2012/2013 Second Incremental Auction Results

LDA	Clearing Price ($/MW-Day)	Cleared Participant Sell Offers (MW UCAP)	Cleared Participant Buy Bids (MW UCAP)	Net Cleared Participant Buy Bids (MW UCAP)	Cleared PJM Sell Offers (MW UCAP)
RTO minus EMAAC Subtotal	$13.01	686.9	2,760.2	2,073.3	2,073.3
EMAAC Sub Total	$48.91	150.9	454.4	303.5	303.5
RTO TOTAL		837.8	3,214.6	2,376.8	2,376.8

2012/2013 RPM Second Incremental Auction Configuration

Participant Buy Bids and Sell Offers

RPM Incremental Auctions provide capacity suppliers with an opportunity to sell or purchase capacity for the Delivery Year through a PJM-administered auction process. Resource-specific sell offers are submitted into this auction by suppliers with available, uncommitted capacity. All resource-specific sell offers into an Incremental Auction are subject to market power mitigation through the application of the Market Structure Test.

Any party that desires to purchase LDA-specific replacement capacity for the Delivery Year may do so by submitting a buy bid into the Incremental Auction. Cleared Buy Bids purchased in an Incremental Auction may be used as replacement capacity to cover Delivery Year commitment and compliance shortfalls.

PJM Buy Bids and Sell Offers

Sections 5.4 and 5.12 of Attachment DD of the Tariff define the Incremental Auction requirements regarding the procurement or sale of capacity by PJM. Section 5.4 describes the triggering tests used by PJM prior to an Incremental Auction to determine the need for

the procurement and/or sale of capacity by PJM in relation to updates of the reliability requirement and capacity already procured. Section 5.12 describes the determination of the MW amounts and prices of buy bids and/or sell offers that PJM will submit when the various tests in section 5.4 are triggered.

Prior to each Incremental Auction, PJM recalculates the RTO reliability requirement and each LDA reliability requirement based on an updated peak load forecast, updated Installed Reserve Margin and an updated CETO. The recalculated reliability requirements are compared to the reliability requirements used in the prior auction for the same Delivery Year and a determination is made as to the need for the procurement and/or sale of capacity by PJM.

For a 1st or 2nd Incremental Auction, if the RTO or LDA reliability requirement increases by more than the lesser of 500 MW or 1% then PJM will submit a buy bid in a MW amount equal to the increase in reliability requirement plus the Short-Term Resource Procurement Target Applicable Share (STRPTAS) plus/minus the amount of committed capacity that PJM sought to procure/release that did not clear in previous Incremental Auctions for the same Delivery Year. For a 1st or 2nd Incremental Auction, the STRPTAS is equal to 0.2 times the Short-Term Resource Procurement Target used in the Base Residual Auction (BRA). The price of the PJM buy bid is based on the Updated VRR Curve Increment which is the portion of the Updated VRR Curve remaining beyond the point representing all capacity already procured for the Delivery Year.

For a 1st or 2nd Incremental Auction, if the RTO or LDA reliability requirement decreases by more than the lesser of 500 MW or 1% then PJM will net the reliability requirement decrease with the STRPTAS and the amount of committed capacity that PJM sought to procure or release that did not clear in previous Incremental Auctions for the same Delivery Year and submit either a buy bid to procure additional capacity or a sell offer to release previously committed capacity depending on the outcome of the netting. If the magnitude of the reliability requirement decrease is less than the STRPTAS plus/minus the amount of committed capacity that PJM sought to procure/release that did not clear in previous Incremental Auctions for the same Delivery Year then PJM will submit a buy bid to procure additional capacity for the net amount. If the magnitude of the reliability requirement decrease is greater than the STRPTAS plus/minus the amount of committed capacity that PJM sought to procure/release that did not clear in previous Incremental Auctions for the same Delivery Year then PJM will submit a sell offer to release previously committed capacity for the net amount. The price of a PJM sell offer is based on the Updated VRR Curve Decrement which is the portion of the Updated VRR Curve to the left of the point representing all capacity already procured for the Delivery Year.

If the amount of capacity previously procured for the Delivery Year is less than the prior RTO or LDA reliability requirement adjusted for the Short-Term Resource Procurement Target and the difference is more than the lesser of 500 MW or 1% then PJM will seek to procure additional capacity. In this case, PJM will employ the entire Updated VRR Curve Increment in the clearing of the Incremental Auction.

Based on an application of the Incremental Auction requirements of Sections 5.4 and 5.12 of Attachment DD of the Tariff and summarized above, PJM submitted the buy bids and sell offers, shown in Table 2, into the 2nd Incremental Auction for the 2012/2013 Delivery Year[1]. Note that a PJM sell offer is indicated by a negative PJM buy bid in Table 2 and that PJM submitted only sell offers for the 2nd Incremental Auction for the 2012/2013 Delivery Year. Table 2 also defines the pricing points associated with the PJM buy bids and PJM sell offers.

[1] The determination of the PJM buy bid sell offer quantities is detailed in the 2012/2013 2nd IA Planning Parameters located at http://www.pjm.com/markets-and-operations/rpm/~/media/markets-ops/rpm/rpm-auction-info/2012-2013-2nd-incremental-auction-planning-parameters.ashx.

Table 2 – PJM Buy Bids and PJM Sell Offers for 2012/2013 Second Incremental Auction

		Price Points for PJM Buy Bids and PJM Sell Offers							
Location	PJM Buy Bid (MW) *	Point 1 x-axis (MW)	Point 1 y-axis ($/MW-Day)	Point 2 x-axis (MW)	Point 2 y-axis ($/MW-Day)	Point 3 x-axis (MW)	Point 3 y-axis ($/MW-Day)	Point 4 x-axis (MW)	Point 4 y-axis ($/MW-Day)
RTO (Rest of)	-1,485.9	0.0	$0.00	1485.9	$0.00	-	-	-	-
MAAC (Rest of)	-623.8	0.0	$0.00	404.1	$0.00	404.1	$35.22	623.8	$48.07
EMAAC (Rest of)	-403.8	0.0	$0.00	90.4	$0.00	90.4	$42.42	403.8	$82.13
SWMAAC	-585.4	0.0	$0.00	183.3	$0.00	183.3	$35.22	585.4	$132.07
PS (Rest of)	-368.8	0.0	$0.00	144.9	$0.00	144.9	$42.42	368.8	$128.08
PS NORTH	-16.8	0.0	$170.95	16.8	$184.11	-	-	-	-
DPL SOUTH	-37.8	0.0	$164.58	28.7	$212.09	37.8	$221.51	-	-
TOTAL	-3,522.3								

* A PJM Sell Offer is indicated by a negative PJM Buy Bid.

LDA Capacity Import Limits

Section 5.11A of Attachment DD of the Tariff describes the milestones that a Backbone Transmission Project must meet for it to be included and remain in the system model for a given Delivery Year. Prior to the 1st Incremental Auction for 2012/2013, the Susquehanna-Roseland 500 kV Transmission Project was removed from the 2012/2013 Delivery Year model because the project did not satisfy the requirements of Section 5.11A needed to remain in the 2012/2013 Delivery Year model. Prior to this 2nd Incremental Auction for 2012/2013, the Jacks Mountain 500 kV substation (and associated reactive reinforcements) and the Conemaugh 500 kV 250 MVAR capacitor backbone transmission projects have been removed from the 2012/2013 Delivery Year model because the in-service dates of the projects have been deferred beyond the 2012/2013 Delivery Year. These Backbone Transmission Projects have been removed from the model for all subsequent Incremental Auctions for the 2012/2013 Delivery Year as stipulated by Section 5.11A of Attachment DD of the Tariff.

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Table 3 shows each LDAs' Capacity Emergency Transfer Limit (CETL) for the Base Residual Auction and each LDAs' CETL updated for each Incremental Auction for the 2012/2013 Delivery Year. The removal of the Susquehanna-Roseland Project from the 2012/2013 RPM model prior to the 1st IA negatively impacted the CETL of the EMAAC, PS and PS-NORTH LDAs and the removal of the Jacks Mountain 500 kV Project and the Conemaugh capacitor prior to the 2nd IA negatively impacted the CETL of the MAAC and SWMAAC LDAs. Table 3 also shows the total capacity import level into each LDA based on capacity imports into the LDA from the BRA and the 1st IA. The CETL remaining for use in the 2nd IA for the 2012/2013 Delivery Year shown in the last row of Table 3 represents the LDA capacity import limits that were employed in the 2nd IA for the 2012/2013 Delivery Year and are equal to the LDA CETL as updated for the 2nd IA minus the total capacity import levels into the LDA.

Table 3 – LDA Capacity Import Capability for 2012/2013 Second Incremental Auction

	LDA					
	MAAC	EMAAC	SWMAAC	PS	PS NORTH	DPL SOUTH
Base Residual Auction (BRA) CETL	6,377.0	9,079.0	7,400.0	6,356.0	2,755.0	1,746.0
1st Incremental Auction (IA) CETL *	6,377.0	7,624.0	7,400.0	6,077.0	2,675.0	1,746.0
2nd Incremental Auction (IA) CETL **	6,098.0	7,624.0	6,950.0	6,077.0	2,675.0	1,746.0
Capacity Import Level (BRA plus 1st IA)	5,828.8	7,624.0	6,027.7	5,677.0	2,619.0	1,566.6
Capacity Import Limit for 2nd Incremental Auction	**269.2**	**0.0**	**922.3**	**400.0**	**56.0**	**179.4**

* Reflects removal of Susquehanna-Roseland from 2012/2013 model

** Reflects removal of Jacks Mountain 500 kV substation (& associated reactive reinforcement) and Keystone 500 kV capacitor from 2012/2013 model

Incremental Auction Clearing

Participant supply offers and buy bids are combined with the PJM sell offers and buy bids shown in Table 2 to form the supply and demand curves. The solution algorithm clears all buy bids and sell offers in a least-cost manner while respecting the capacity import limits into each LDA.

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Participant Buy Bids and Sell Offers

Table 4 shows the offered and cleared quantities for participant buy bids and sell offers. A total of 6,448.1 MW of supply was offered into the Second Incremental Auction composed of uncleared capacity from the 2012/2013 Base Residual Auction or 1st Incremental Auction, new capacity in the form of uprates or new resources that were not previously capacity resources in PJM.

Participant demand in an Incremental Auction is composed of LDA-specific buy bids submitted by participants. The buy bids are specified in UCAP terms and, if cleared, are binding commitments to purchase capacity for the entire Delivery Year. Cleared Buy Bids purchased in an Incremental Auction may be used as replacement capacity to cover Delivery Year commitment and compliance shortfalls. There was a total of 11,559.9 MW of buy bids submitted by participants into the auction.

In the 2012/2013 Second Incremental Auction, 686.9 MW of participant supply offers and 2,760.2 MW of participant buy bids cleared in the region encompassing the Rest of RTO LDA, the SWMAAC LDA, and the rest of MAAC LDA (MAAC LDA minus EMAAC and SWMAAC LDAs) at a clearing price of $13.01/MW-Day. In this region, cleared buy bids exceeded cleared sell offers by 2,073.3 MW. In the EMAAC LDA, 150.9 MW of participant supply offers and 454.4 MW of participant buy bids cleared at a clearing price of $48.91/MW-Day. In the EMAAC LDA, cleared buy bids exceeded cleared sell offers buy bids by 303.5 MW. Across the entire RTO, cleared participant buy bids exceeded cleared participant sell offers by 2,376.8 MW.

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Table 4 - 2012/2013 Second Incremental Auction Results / Participant Sell Offers and Buy Bids

LDA	Total Sell Offers (MW UCAP)	Total Buy Bids (MW UCAP)	Cleared Sell Offers (MW UCAP)	Cleared Buy Bids (MW UCAP)	Net Cleared (MW UCAP)	Clearing Price ($/MW-Day)
RTO (Rest of)	4,564.4	8,041.8	541.3	2,273.0	1,731.7	13.01
MAAC (Rest of)	640.5	1,552.8	141.6	336.1	194.5	13.01
SWMAAC	368.8	536.1	4.0	151.1	147.1	13.01
SubTotal	5,573.7	10,130.7	686.9	2,760.2	2,073.3	13.01
EMAAC (Rest of)	484.6	844.2	102.9	392.5	289.6	48.91
PSEG (Rest of)	156.3	443.3	24.3	20.9	-3.4	48.91
PS-NORTH	203.5	117.5	23.6	16.8	-6.8	48.91
DPL-SOUTH	30.0	24.2	0.1	24.2	24.1	48.91
EMAAC Sub Total	874.4	1,429.2	150.9	454.4	303.5	48.91
TOTAL	6,448.1	11,559.9	837.8	3,214.6	2,376.8	

Table 5 provides a further breakdown of the capacity offered and cleared into the 2012/2013 Second Incremental Auction. A total of 6,448.1 MW of supply was offered into the Second Incremental Auction composed of uncleared capacity from the 2012/2013 Base Residual Auction or 1st Incremental Auction, new capacity in the form of uprates or new resources that were not previously capacity resources in PJM.

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Table 5 - 2012/2013 Second Incremental Auction Supply Resource Mix

LDA	Resource Type	Type	Total Sell Offers (MW UCAP)	Cleared Sell Offers (MW UCAP)
RTO (Rest of)	DEMAND		1570.4	177.5
	EE		11.1	9.1
	GEN	New Generation	56.9	51.9
		Uncleared from Prior Auction	2926	302.8
MAAC (Rest of)	DEMAND		338	9.3
	EE		22	0
	GEN	New Generation	15	15
		Uncleared from Prior Auction	136.1	82.5
		Uprates	129.4	34.8
SWMAAC	DEMAND		53.9	4
	EE		0.5	0
	GEN	Uncleared from Prior Auction	311.2	0
		Uprates	3.2	0
Sub Total			5,573.7	686.9
EMAAC (Rest of)	DEMAND		193.8	7.4
	EE		10.4	6
	GEN	New Generation	5.2	5.2
		Uncleared from Prior Auction	271.3	81.2
		Uprates	3.9	3.1
PSEG (Rest of)	DEMAND		131.6	0.4
	EE		2.1	1.3
	GEN	New Generation	4.1	4.1
		Uncleared from Prior Auction	18.5	18.5
PS-NORTH	DEMAND		118.8	21.2
	EE		0.3	0.3
	GEN	New Generation	82.3	0
		Uncleared from Prior Auction	2.1	2.1
DPL-SOUTH	DEMAND		30	0.1
EMAAC Sub Total			874.4	150.9
Grand Total			6,448.1	837.8

2012/2013 RPM Second Incremental Auction Results

PJM's Procurement and Release of Capacity

Table 6 shows the total amount of capacity procured and released by PJM by LDA in the 2012/2013 Second Incremental Auction. The total net amount of capacity procured or released by PJM is a function of the clearing of the PJM sell offers and PJM buy bids submitted due to changes in RTO and LDA reliability requirements, the procurement of the deferred short-term resource procurement and consideration of the amount of capacity commitments that PJM sought to procure or release that did not clear in previous Incremental Auctions for the same Delivery Year (i.e. the PJM sell offers and buy bids listed in Table 2). For the 2012/2013 Incremental Auction, PJM did not submit any buy bids and submitted only sell offers.

In the region encompassing the Rest of RTO LDA, the SWMAAC LDA, and the rest of MAAC LDA (MAAC LDA minus EMAAC and SWMAAC LDAs), PJM released a total net capacity amount of 2,073.3 MW at a clearing price of $13.01/MW-Day. In the EMAAC LDA, PJM released a total net capacity amount of 303.5 MW at a clearing price of $48.91/MW-Day. Across the entire RTO, PJM released a total net capacity amount of 2,376.8 MW.

Table 6 - 2012/2013 Second Incremental Auction Results / PJM's Procurement and Release of Capacity

LDA	Total Capacity Released (MW UCAP)	Total Capacity Procured (MW UCAP)	Net Procured (MW UCAP)	Clearing Price ($/MW-Day)
RTO (Rest of)	1,485.9	0.0	-1,485.9	13.01
MAAC (Rest of)	404.1	0.0	-404.1	13.01
SWMAAC	183.3	0.0	-183.3	13.01
SubTotal	2,073.3	0.0	-2,073.3	13.01
EMAAC (Rest of)	141.6	0.0	-141.6	48.91
PSEG (Rest of)	161.9	0.0	-161.9	48.91
PS-NORTH	0.0	0.0	0.0	48.91
DPL-SOUTH	0.0	0.0	0.0	48.91
EMAAC Sub Total	303.5	0.0	-303.5	48.91
TOTAL	2,376.8	0.0	-2,376.8	

Mitigation in the 2012/2013 Second Incremental Auction

All regions of the RTO, including the RTO as a whole, failed the Market Structure Test. As a result, mitigation was applied to all existing generation resources in the execution of the RPM auction clearing. Therefore in the event a generator's price-based offer exceeded the calculated offer cap, cost-based offers were utilized in the RPM auction clearing. Demand Resources and Energy Efficiency Resources are not subject to market mitigation.