

Introduction

The 2017/2018 Third Incremental Auction opened on February 27, 2017 and the results were posted on March 10, 2017. This document provides information for PJM stakeholders regarding the results of the 2017/2018 Third 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.

2017/2018 RPM Third Incremental Auction Results

Table 1 summarizes the clearing prices and cleared participant activity of the 2017/2018 Third Incremental Auction. The Third Incremental Auction cleared with unique prices in two regions of the RTO. Price separation occurred in the PSEG LDA due to locational capacity import limits, however, no price separation occurred across the capacity product types. In the PSEG region, the resource clearing price for Limited, Extended Summer and Annual capacity was \$115.76/MW-Day. In the MAAC region outside of the PSEG LDA, which is comprised of the AECO, BGE, DPL, JCPL, Met-Ed, PECO, Penelec, PEPCO, PPL and RECO Zones, the resource clearing price for Limited, Extended Summer and Annual capacity was \$36.49/MW-Day. In the rest of the RTO, which is comprised of the AEP, APS, ATSI, ComEd, Dayton, DEOK, DOM, EKPC and Duquesne Zones, the resource clearing price for Limited, Extended Summer and Annual capacity was also \$36.49/MW-Day.

Across the entire RTO, total cleared participant buy bids (4,019.1 MW) exceeded total cleared participant sell offers (1,452.1 MW) by 2,567.0 MW meaning that PJM effectively released 2,567.0 MW of previously procured capacity. Across the entire RTO, PJM effectively released 212.8 MW of previously procured Limited DR capacity, 417.2 MW of previously procured Extended Summer DR capacity, and 1,937.0 MW of previously procured capacity from Annual Resources.



Table 1 – Summary of 2017/2018 Third Incremental Auction Results

Region	Capacity Type	Clearing Price (\$/MW-Day)	Cleared Participant Sell Offers (UCAP MW)	Cleared Participant Buy Bids (UCAP MW)	Net Cleared Participant Buy Bids (UCAP MW)
Ţ.	Limited	\$36.49	128.2	227.5	99.3
RTO (minus MAAC) (1)	Extended Summer	\$36.49	0.0	312.1	312.1
\ \tag{-1}	Annual	\$36.49	467.5	1,341.6	874.1
	TOTAL		595.7	1,881.2	1,285.5
	Limited	\$36.49	0.0	111.0	111.0
MAAC (minus PSEG) (2)	Extended Summer	\$36.49	7.3	99.3	92.0
	Annual	\$36.49	690.9	1,710.4	1,019.5
	TOTAL		698.2	1,920.7	1,222.5
	Limited	\$115.76	0.0	2.5	2.5
PSEG	Extended Summer	\$115.76	0.0	13.1	13.1
	Annual	\$115.76	158.2	201.6	43.4
	TOTAL		158.2	217.2	59.0
	Limited		128.2	341.0	212.8
TOTAL RTO	Extended Summer		7.3	424.5	417.2
	Annual		1,316.6	3,253.6	1,937.0
	TOTAL		1,452.1	4,019.1	2,567.0

⁽¹⁾ Comprised of AEP, APS, ATSI, ComEd, Dayton, DEOK, DOM, EKPC, Duquesne and External Zones

Participant Sell Offers and Buy Bids

Table 2 shows the offered and cleared quantities for participant sell offers. A total of 2,533.3 MW of supply was offered into the Third Incremental Auction composed of uncleared capacity from prior 2017/2018 auctions and new capacity in the form of uprates or new resources that were not previously capacity resources in PJM. Across the entire RTO, 1,452.1 MW of participant sell offers cleared, mostly in the form of Annual capacity.

⁽²⁾ Comprised of AECO, BGE, DPL, JCPL, Met-Ed, PECO, Penelec, PEPCO, PPL and RECO Zones



Table 2 – Participant Sell Offers (Offered and Cleared Quantities)

		Sell Offers (U	ICAP MW) *		Cleared Sell Offers (UCAP MW)						
		Extended				Extended					
LDA	Limited	Summer	Annual	Total	Limited	Summer	Annual	Total			
DPL-SOUTH	0.0	0.0	40.8	40.8	0.0	0.0	40.8	40.8			
PS-NORTH	0.0	0.0	78.2	78.2	0.0	0.0	76.0	76.0			
PSEG (rest of)	0.0	0.0	82.2	82.2	0.0	0.0	82.2	82.2			
EMAAC (rest of)	8.5	7.3	302.5	318.3	0.0	7.3	197.8	205.1			
EMAAC Total	8.5	7.3	503.7	519.5	0.0	7.3	396.8	404.1			
PEPCO	3.3	0.0	98.2	101.5	0.0	0.0	94.4	94.4			
BGE	5.5	0.0	414.7	420.2	0.0	0.0	209.1	209.1			
SWMAAC (rest of)	0.0	0.0	16.3	16.3	0.0	0.0	16.3	16.3			
SWMAAC Total	8.8	0.0	529.2	538.0	0.0	0.0	319.8	319.8			
PPL	1.0	0.0	29.1	30.1	0.0	0.0	26.9	26.9			
MAAC (rest of)	0.0	0.0	139.5	139.5	0.0	0.0	105.6	105.6			
MAAC Total	18.3	7.3	1,201.5	1,227.1	0.0	7.3	849.1	856.4			
ATSI (rest of)	113.7	0.0	121.5	235.2	113.7	0.0	27.8	141.5			
ATSI-Cleveland	14.5	0.0	138.0	152.5	14.5	0.0	0.1	14.6			
COMED	0.0	0.0	187.4	187.4	0.0	0.0	125.3	125.3			
RTO (rest of)	9.4	0.0	721.7	731.1	0.0	0.0	314.3	314.3			
RTO Total	155.9	7.3	2,370.1	2,533.3	128.2	7.3	1,316.6	1,452.1			

^{*} Sell Offers include the MW amounts offered from all Product Types of coupled DR sell offers, only one of which is capable of clearing in the auction.

Participant demand in an Incremental Auction is composed of 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. Table 3 shows bid and cleared quantities of participant buy bids. There was a total of 13,786.3 MW of buy bids submitted by participants



into the auction. Across the entire RTO, 4,019.1 MW of participant buy bids cleared comprised of 341.0 MW of Limited capacity buy bids, 424.5 MW of Extended Summer buy bids and 3,253.6 MW of Annual capacity buy bids.

Table 3 – Participant Buy Bids (Bid and Cleared Quantities)

		Buy Bids (U	CAP MW)		Cleared Buy Bids (UCAP MW)						
		Extended				Extended					
LDA	Limited	Summer	Annual	Total	Limited	Summer	Annual	Total			
DPL-SOUTH	0.0	14.5	33.6	48.1	0.0	1.4	28.2	29.6			
PS-NORTH	2.5	33.4	254.6	290.5	0.9	4.1	193.7	198.7			
PSEG (rest of)	6.0	28.6	31.0	65.6	1.6	9.0	7.9	18.5			
EMAAC (rest of)	15.6	84.7	1,333.3	1,433.6	11.5	42.9	558.3	612.7			
EMAAC Total	24.1	161.2	1,652.5	1,837.8	14.0	57.4	788.1	859.5			
PEPCO	0.3	49.8	34.6	84.7	0.3	13.6	8.8	22.7			
BGE	0.0	26.0	41.2	67.2	0.0	11.1	21.9	33.0			
SWMAAC (rest of)	2.9	0.0	158.6	161.5	2.9	0.0	158.6	161.5			
SWMAAC Total	3.2	75.8	234.4	313.4	3.2	24.7	189.3	217.2			
PPL	55.0	34.4	1,540.0	1,629.4	53.3	0.0	522.3	575.6			
MAAC (rest of)	57.7	55.9	1,306.0	1,419.6	43.0	30.3	412.3	485.6			
MAAC Total	140.0	327.3	4,732.9	5,200.2	113.5	112.4	1,912.0	2,137.9			
ATSI (rest of)	71.8	72.1	1,467.0	1,610.9	71.3	48.5	174.2	294.0			
ATSI-Cleveland	6.0	66.6	29.0	101.6	5.9	35.8	3.0	44.7			
COMED	25.1	120.4	1,603.1	1,748.6	25.1	54.4	112.0	191.5			
RTO (rest of)	165.9	419.1	4,540.0	5,125.0	125.2	173.4	1,052.4	1,351.0			
RTO Total	408.8	1,005.5	12,372.0	13,786.3	341.0	424.5	3,253.6	4,019.1			



Table 4 provides a further breakdown of the capacity offered and cleared into the 2017/2018 Third Incremental Auction. A total of 2,533.3 MW of supply was offered into the Third Incremental Auction composed of uncleared capacity from prior 2017/2018 auctions and new capacity in the form of uprates or new resources that were not previously capacity resources in PJM.

Table 4 - 2017/2018 Third Incremental Auction Supply Resource Mix

Resource Type	Туре	Total Sell Offers (MW UCAP)	Cleared Sell Offers (MW UCAP)
DEMAND *	DEMAND	163.2	135.5
EE	EE	83.4	78.2
GEN	New Generation (including Uprates)	211.1	80.6
	Uncleared from Prior Auction	2,075.6	1,157.8
		2,533.3	1,452.1

^{*} The total DR Sell Offer quantity was determined using the largest MW value of each coupled DR Sell Offer segment, and therefore represents the maximum possible quantity of DR that could clear.



PJM Sell Offers and Buy Bids

The total net amount of capacity procured or released by PJM is a function of the clearing of the PJM sell offers and buy bids. Tables 5a and 5b show the offered and cleared quantities of PJM sell offers and PJM buy bids, respectively, employed in the 2017/2018 Third Incremental Auction. For the 2017/2018 Third Incremental Auction, across the entire RTO region, cleared PJM sell offers totaled 2,645.2 MW and cleared PJM buys bids totaled 78.2 MW; therefore PJM released a total net capacity amount of 2,567.0 MW. Table 5b is comprised of 78.2 MW of PJM Annual Buy Bids to reflect an increase in the reliability requirement of the RTO and each applicable LDA equal to the total UCAP Value of EE Resources that cleared in the auction.



Table 5a – PJM Sell Offers (Offered and Cleared Quantities)

		Sell Offers (UCAP MW)		Cleared Sell Offers (UCAP MW)						
		Extended				Extended					
LDA	Limited	Summer	Annual	Total	Limited	Summer	Annual	Total			
DPL-SOUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
PS-NORTH	0.0	0.0	144.5	144.5	0.0	0.0	77.8	77.8			
PSEG (rest of)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
EMAAC (rest of)	0.0	0.0	435.7	435.7	0.0	0.0	132.5	132.5			
EMAAC Total	0.0	0.0	580.2	580.2	0.0	0.0	210.3	210.3			
PEPCO	0.0	0.0	147.1	147.1	0.0	0.0	44.7	44.7			
BGE	0.0	0.0	548.6	548.6	0.0	0.0	166.8	166.8			
SWMAAC (rest of)	0.0	0.0	32.8	32.8	0.0	0.0	10.0	10.0			
SWMAAC Total	0.0	0.0	728.5	728.5	0.0	0.0	221.5	221.5			
PPL	0.0	0.0	1,330.8	1,330.8	0.0	0.0	404.7	404.7			
MAAC (rest of)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
MAAC Total	0.0	0.0	2,639.5	2,639.5	0.0	0.0	836.5	836.5			
ATSI (rest of)	0.0	0.0	2,129.8	2,129.8	0.0	0.0	647.7	647.7			
ATSI-Cleveland	0.0	0.0	2.6	2.6	0.0	0.0	0.8	0.8			
COMED	0.0	0.0	3,786.1	3,786.1	0.0	0.0	1,151.4	1,151.4			
RTO (rest of)	0.0	0.0	28.6	28.6	0.0	0.0	8.8	8.8			
RTO Total	0.0	0.0	8,586.6	8,586.6	0.0	0.0	2,645.2	2,645.2			



Table 5b – PJM Buy Bids (Bid and Cleared Quantities)

		Buy Bids (L	JCAP MW)		Cleared Buy Bids (UCAP MW)						
		Extended				Extended					
LDA	Limited	Summer	Annual	Total	Limited	Summer	Annual	Total			
DPL-SOUTH	0.0	0.0	0.7	0.7	0.0	0.0	0.7	0.7			
PS-NORTH	0.0	0.0	8.2	8.2	0.0	0.0	8.2	8.2			
PSEG (rest of)	0.0	0.0	10.6	10.6	0.0	0.0	10.6	10.6			
EMAAC (rest of)	0.0	0.0	6.5	6.5	0.0	0.0	6.5	6.5			
EMAAC Total	0.0	0.0	26.0	26.0	0.0	0.0	26.0	26.0			
PEPCO	0.0	0.0	4.6	4.6	0.0	0.0	4.6	4.6			
BGE	0.0	0.0	6.6	6.6	0.0	0.0	6.6	6.6			
SWMAAC (rest of)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
SWMAAC Total	0.0	0.0	11.2	11.2	0.0	0.0	11.2	11.2			
PPL	0.0	0.0	0.6	0.6	0.0	0.0	0.6	0.6			
MAAC (rest of)	0.0	0.0	0.3	0.3	0.0	0.0	0.3	0.3			
MAAC Total	0.0	0.0	38.1	38.1	0.0	0.0	38.1	38.1			
ATSI (rest of)	0.0	0.0	16.2	16.2	0.0	0.0	16.2	16.2			
ATSI-Cleveland	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1			
COMED	0.0	0.0	10.8	10.8	0.0	0.0	10.8	10.8			
RTO (rest of)	0.0	0.0	13.0	13.0	0.0	0.0	13.0	13.0			
RTO Total	0.0	0.0	78.2	78.2	0.0	0.0	78.2	78.2			



2017/2018 RPM Third 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 sell offers into an Incremental Auction from existing generation capacity resources are subject to market power mitigation through the application of the Market Structure Test. All Generation Capacity Resources and Energy Efficiency Resources are of the Annual Capacity type. Demand Resources offering into the Incremental Auction must specify the type of Capacity being offered. A Demand Resource with the potential to qualify as two or more of the capacity types may submit separate but coupled Sell Offers for each Demand Resource type for which it qualifies at different prices and the auction clearing algorithm will select the Sell Offer that yields the least-cost solution. For such coupled Demand Resource offers, the offer price of an Annual Demand Resource offer must be at least \$.01 per MW-day greater than the offer price of a coupled Extended Summer Demand Resource offer must be at least \$.01 per MW-day greater than the offer price of a coupled Limited Demand Resource offer.

Any party that desires to purchase replacement capacity for the Delivery Year may do so by submitting a buy bid into the Incremental Auction. In addition to quantity, price and LDA-specific location, participants submitting a buy bid must also specify the desired capacity type (Annual, Extended Summer or Limited). Cleared Buy Bids purchased in an Incremental Auction may be used as replacement capacity to cover a Delivery Year commitment provided the cleared buy bid has the same locational characteristics and same or better temporal characteristics than the resource that it replaces. Cleared buy bids of Annual capacity type may replace commitments of Annual Resources, Extended Summer DR and/or Limited DR. Cleared buy bids of Extended Summer capacity type may replace commitments on Extended Summer DR and/or Limited DR but may not replace commitments of Annual Resources. Cleared buy bids of Limited capacity type may replace commitments of Limited DR but may not replace commitments of Annual Resources or Extended Summer DR.

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 quantities, capacity types 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 Reliability Requirement, the Limited DR Constraint and the Sub-Annual DR Constraint for the RTO and each LDA based on an updated peak load forecast, updated Installed Reserve Margin and other updated planning information. For the RTO and each LDA, PJM sums the following component quantities to determine the total quantity that it will seek to procure or release in each Incremental Auction:

- the Updated Reliability Requirement minus the Reliability Requirement utilized in the most recent prior auction
 conducted for that Delivery Year. Note that this quantity is negative if the Updated Reliability Requirement is less than
 the Reliability Requirement utilized in the most recent prior auction. For a First or Second Incremental Auction, this
 difference is only considered if the change in Reliability Requirement is greater than the lesser of 500 MW or 1% of the
 prior auction's Reliability Requirement,
- plus the Short-Term Resource Procurement Target Applicable Share (STRPTAS). For a First or Second Incremental Auction, the STRPTAS is equal to 0.2 times the Short-Term Resource Procurement Target (STRPT) used in the Base Residual Auction (BRA). For a Third Incremental Auction, the STRPTAS is equal to 0.6 times the STRPT used in the BRA,
- 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,
- minus any capacity PJM seeks to release in a parent LDA as a result of any Conditional Incremental Auction commitments for the same Delivery Year.

If the result of such summation is a positive quantity, PJM will seek to procure such quantity by employing a PJM buy bid. The price of the PJM buy bid is based on the Updated VRR Curve Increment which is the portion of the Updated VRR Curve located to the right of the point representing all capacity already procured for the Delivery year. If the result of such summation is a negative quantity, PJM will seek to release such quantity by employing a PJM sell offer. The price of the 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. The product type of the capacity PJM will seek to procure or release will consider previously procured levels of Limited DR and Extended Summer DR, as compared to the updated Limited DR Constraint and Sub-Annual DR Constraint.

On November 9, 2016, PJM filed revisions to Tariff, Attachment DD, pursuant to section 205 of the Federal Power Act, to allow for the release, in the Third Incremental Auction for the 2017/2018 Delivery Year, of excess committed capacity resulting from the clearing of new, previously uncommitted capacity in the Capacity Performance Transition Incremental Auction for the 2017/2018 Delivery Year. On February 6, 2017, in Docket No ER17-335-001, in compliance with the January 6, 2017 Order of the Commission, PJM submitted a compliance filing containing modifications to the PJM Tariff to implement the Commission's directive regarding the pricing methodology for the release of excess committed capacity in PJM's upcoming Third Incremental Auction for the 2017/2018



Delivery Year. In compliance with the January 6, 2017 Order and the February 6, 2017 compliance filing, PJM employed a sell offer curve represented by a straight line connecting two points with the first point located at 0 MW and at a price set to the lowest price point of the Updated VRR Curve Decrement, which was \$0/MW-day, and the second point located at the MW quantity to be sold and at a price set to the Resource Clearing Price of the 2017/2018 Base Residual Auction.

Based on an application of the Incremental Auction requirements of Sections 5.4 and 5.12 of Attachment DD of the Tariff and the FERC Order summarized above, PJM submitted the sell offers, shown in Table 6, into the Third Incremental Auction for the 2017/2018 Delivery Year¹. All PJM sell offers were of the Annual capacity type. Table 6 also defines the pricing points associated with the PJM sell offers.

-

¹ The determination of the PJM sell offer quantities is detailed in the 2017/2018 Third Incremental Auction Planning Parameters located at http://www.pjm.com/~/media/markets-ops/rpm/rpm-auction-info/2017-2018-rpm-third-incremental-auction-parameters.ashx



Table 6 – PJM Buy Bids and PJM Sell Offers for 2017/2018 Third Incremental Auction

i			Price Points for PJM Sell Offers							
	PJM Sell Offers		Poi	nt 1	Point 2					
Location	(MW) Capacity Type x		x-axis (MW)	y-axis (\$/MW-Day)	x-axis (MW)	y-axis (\$/MW-Day)				
RTO (Rest of)	28.6	Annual	0.0	\$0.00	28.6	\$120.00				
MAAC (Rest of)	0.0									
EMAAC (Rest of)	435.7	Annual	0.0	\$0.00	435.7	\$120.00				
SWMAAC (Rest of)	32.8	Annual	0.0	\$0.00	32.8	\$120.00				
PS (Rest of)	0.0									
PS NORTH	144.5	Annual	0.0	\$0.00	144.5	\$215.00				
DPL SOUTH	0.0									
PEPCO	147.1	Annual	0.0	\$0.00	147.1	\$120.00				
ATSI (Rest of)	2129.8	Annual	0.0	\$0.00	2129.8	\$120.00				
ATSI-CLEVELAND	2.6	Annual	0.0	\$0.00	2.6	\$120.00				
COMED	3786.1	Annual	0.0	\$0.00	3786.1	\$120.00				
BGE	548.6	Annual	0.0	\$0.00	548.6	\$120.00				
PL	1330.8	Annual	0.0	\$0.00	1330.8	\$120.00				
TOTAL	8,586.6									



LDA Capacity Import Limits

Table 7 shows each LDA's capacity import limit margin before and after the 2017/18 Third Incremental Auction.

Table 7 – LDA Capacity Import Capability for 2017/2018 Third Incremental Auction

	LDA											
	*MAAC	EMAAC	SWMAAC	PSEG	PS-NORTH	DPL-SOUTH	*PEPCO	ATSI	ATSI-C	COMED	*BGE	*PPL
Capacity Import Limit Margin prior to 3rd Incremental Auction	2,572.7	1,494.4	1,869.0	0.0	72.6	382.4	2,568.6	670.3	937.7	1,508.4	884.1	2,267.1
Capacity Import Limit Margin after 3rd Incremental Auction	2,089.6	1,223.3	2,181.9	0.0	19.5	392.9	2,680.4	1,119.9	908.3	2,582.8	1,220.4	2,122.5

^{*}values reflect correction to the values shown in the posted planning parameters

Incremental Auction Clearing

Participant supply offers and buy bids are combined with the PJM sell offers and buy bids shown in Table 6 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. Annual capacity buy bids may only clear against sell offers from Annual Resources; Extended Summer buy bids may only clear against sell offers from Annual Resources and/or Extended Summer DR; and Limited buy bids may clear against sell offers of any capacity type.

Mitigation in the 2017/2018 Third 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, the offer cap values were utilized in the RPM auction clearing. Demand Resources and Energy Efficiency Resources are not subject to market mitigation.