2019/2020 RPM First Incremental Auction Results

Introduction

The 2019/2020 First Incremental Auction opened on September 11, 2017 and the results were posted on September 22, 2017. This document provides information for PJM stakeholders regarding the results of the 2019/2020 First Incremental Auction. Incremental Auctions provide both a forum for capacity suppliers to sell and purchase capacity, and a means for PJM to adjust previously committed capacity levels due to Reliability Requirement increases or decreases.

Summary of 2019/2020 RPM First Incremental Auction Results

Table 1 summarizes the clearing prices and cleared participant activity of the 2019/2020 First Incremental Auction. The Resource Clearing Price (RCP) for Capacity Performance in the unconstrained region of the RTO is $51.33/MW-day. The EMAAC LDA was constrained in the auction, as it was in the 2019/2020 BRA, with a RCP for Capacity Performance of $58.55/MW-day. The Base Capacity Resource Constraint bound in the auction for the entire RTO, resulting in a Base Capacity Resource Price Decrement of $36.33/MW-day. Therefore, the RCP for Base Capacity located in the unconstrained region of the RTO outside of the EMAAC LDA is $15.00/MW-day, and the RCP for Base Capacity located in the EMAAC LDA is $22.22/MW-day.

Across the entire RTO, total cleared participant buy bids (3,992.0 MW) exceeded total cleared participant sell offers (2,295.1 MW) by 1,696.9 MW; thus, participants purchased a total net capacity amount of 1,696.9 MW with 1,252.3 MW in the form of the Base Capacity product and 444.6 MW in the form of the Base DR/EE product.

2019/2020 RPM First Incremental Auction Results

Table 1 – Summary of 2019/2020 First 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)
RTO (minus MAAC) (1)	Base DR/EE	$15.00	36.8	198.9	162.1
	Base	$15.00	43.4	1,206.3	1,162.9
	Capacity Performance	$51.33	1,602.5	1,039.9	(562.6)
	TOTAL	--	**1,682.7**	**2,445.1**	**762.4**
MAAC (minus EMAAC) (2)	Base DR/EE	$15.00	5.4	49.6	44.2
	Base	$15.00	21.7	148.3	126.6
	Capacity Performance	$51.33	455.5	969.1	513.6
	TOTAL	--	**482.6**	**1,167.0**	**684.4**
EMAAC (3)	Base DR/EE	$22.22	17.6	255.9	238.3
	Base	$22.22	65.1	27.9	(37.2)
	Capacity Performance	$58.55	47.1	96.1	49.0
	TOTAL	--	**129.8**	**379.9**	**250.1**
TOTAL RTO	Base DR/EE	--	59.8	504.4	444.6
	Base	--	130.2	1,382.5	1,252.3
	Capacity Performance	--	2,105.1	2,105.1	(0.0)
	TOTAL	--	**2,295.1**	**3,992.0**	**1,696.9**

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

(2) Comprised of BGE, MET-ED, PENELEC, PEPCO, and PPL Zones

(3) Comprised of AECO, DPL, JCPL, PECO, PSEG and RECO Zones

2019/2020 RPM First Incremental Auction Results

Participant Sell Offers and Buy Bids

Table 2 shows the offered and cleared quantities for participant sell offers. A total of 16,810.3 MW[1] of supply was offered into the First Incremental Auction composed of uncleared capacity from prior 2019/2020 auctions and new capacity in the form of uprates or new resources that were not previously capacity resources in PJM. Across the entire RTO, 2,295.1 MW of participant sell offers cleared, mostly in the form of Capacity Performance capacity.

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

	Sell Offers (UCAP MW) *				Cleared Sell Offers (UCAP MW)			
LDA	Base DR/EE	Base	Capacity Performance	Total	Base DR/EE	Base	Capacity Performance	Total
DPL-SOUTH	9.9	9.5	128.6	148.0	0.0	9.5	2.2	11.7
PS-NORTH	22.4	10.0	207.0	239.4	0.2	10.0	18.6	28.8
PSEG (rest of)	28.6	6.9	112.4	147.9	0.1	6.9	3.6	10.6
EMAAC (rest of)	74.7	68.6	1,192.5	1,335.8	17.3	38.7	22.7	78.7
EMAAC Total	**135.6**	**95.0**	**1,640.5**	**1,871.1**	**17.6**	**65.1**	**47.1**	**129.8**
PEPCO	106.3	41.5	519.1	666.9	5.4	0.0	38.2	43.6
BGE	25.8	125.6	912.3	1,063.7	0.0	17.7	14.2	31.9
SWMAAC (rest of)	0.0	0.0	5.8	5.8	0.0	0.0	0.0	0.0
SWMAAC Total	**132.1**	**167.1**	**1,437.2**	**1,736.4**	**5.4**	**17.7**	**52.4**	**75.5**
PPL	31.7	0.1	2,407.8	2,439.6	0.0	0.1	157.6	157.7
MAAC (rest of)	9.8	46.5	2,350.2	2,406.5	0.0	3.9	245.5	249.4
MAAC Total	**309.2**	**308.7**	**7,835.7**	**8,453.6**	**23.0**	**86.8**	**502.6**	**612.4**
ATSI (rest of)	77.3	51.3	1,183.7	1,312.3	3.3	0.0	93.6	96.9
ATSI-Cleveland	0.7	0.0	381.9	382.6	0.0	0.0	50.6	50.6
COMED	46.4	0.8	3,831.7	3,878.9	0.0	0.8	710.6	711.4
RTO (rest of)	249.7	416.5	3,220.2	3,886.4	33.5	42.6	747.7	823.8
RTO Total	**683.3**	**777.3**	**16,453.2**	**17,913.8**	**59.8**	**130.2**	**2,105.1**	**2,295.1**

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

[1] The total offered supply quantity was determined using the largest MW value of each coupled sell offer segment to represent the maximum possible quantity that could clear.

2019/2020 RPM First Incremental Auction Results

Table 3 provides a further breakdown of the capacity offered and cleared in the 2019/2020 First Incremental Auction.

Table 3 - 2019/2020 First Incremental Auction Supply Resource Mix

Resource Type	Type	Total Sell Offers (MW UCAP)	Cleared Sell Offers (MW UCAP)
DEMAND	DEMAND	202.0	27.9
EE	EE	660.3	287.0
GEN	New Generation (including Uprates)	315.7	9.0
	Uncleared from Prior Auction	15,632.3	1,971.2
		16,810.3	**2,295.1**

* The total sell offer quantity was determined using the largest MW value of each coupled sell offer segment, and therefore represents the maximum possible quantity that could clear.

2019/2020 RPM First Incremental Auction Results

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. Table 4 shows bid and cleared quantities of participant buy bids. There was a total of 18,274.4 MW of buy bids submitted by participants into the auction. Across the entire RTO, 3,992.0 MW of participant buy bids cleared comprised of 504.4 MW of Base Capacity DR/EE buy bids, 1,382.5 MW of Base Capacity Generation buy bids and 2,105.1 MW of Capacity Performance buy bids.

Table 4 – Participant Buy Bids (Bid and Cleared Quantities)

	Buy Bids (UCAP MW)				Cleared Buy Bids (UCAP MW)			
LDA	Base DR/EE	Base	Capacity Performance	Total	Base DR/EE	Base	Capacity Performance	Total
DPL-SOUTH	34.9	100.0	8.4	143.3	17.0	0.0	8.4	25.4
PS-NORTH	56.4	0.0	8.5	64.9	22.1	0.0	3.5	25.6
PSEG (rest of)	66.8	0.0	8.6	75.4	32.7	0.0	3.1	35.8
EMAAC (rest of)	402.8	478.3	419.8	1,300.9	184.1	27.9	81.1	293.1
EMAAC Total	**560.9**	**578.3**	**445.3**	**1,584.5**	**255.9**	**27.9**	**96.1**	**379.9**
PEPCO	0.0	26.4	861.6	888.0	0.0	26.4	800.0	826.4
BGE	61.5	0.0	375.1	436.6	15.0	0.0	151.1	166.1
SWMAAC (rest of)	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0
SWMAAC Total	**61.5**	**26.4**	**1,238.7**	**1,326.6**	**15.0**	**26.4**	**951.1**	**992.5**
PPL	237.1	19.0	1,374.1	1,630.2	13.5	1.3	6.0	20.8
MAAC (rest of)	110.0	358.0	2,074.6	2,542.6	21.1	120.6	12.0	153.7
MAAC Total	**969.5**	**981.7**	**5,132.7**	**7,083.9**	**305.5**	**176.2**	**1,065.2**	**1,546.9**
ATSI (rest of)	60.9	0.0	41.6	102.5	1.1	0.0	3.6	4.7
ATSI-Cleveland	38.7	0.0	2.9	41.6	5.1	0.0	0.9	6.0
COMED	637.7	499.4	648.5	1,785.6	26.3	108.1	151.7	286.1
RTO (rest of)	823.1	2,027.3	6,410.4	9,260.8	166.4	1,098.2	883.7	2,148.3
RTO Total	**2,529.9**	**3,508.4**	**12,236.1**	**18,274.4**	**504.4**	**1,382.5**	**2,105.1**	**3,992.0**

2019/2020 RPM First Incremental Auction Results

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. Table 5 shows the offered and cleared quantities of PJM sell offers employed in the 2019/2020 First Incremental Auction. For the 2019/2020 First Incremental Auction, across the entire RTO region, cleared PJM sell offers totaled 1,696.9 MW. No PJM buy bids were submitted in this auction; therefore, PJM released a total net capacity of 1,696.9 MW. The cleared MW quantity of EE Resources did not exceed the EE add-back margin remaining from all prior auctions; therefore, no adjustments were applied to the reliability requirements.

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

	Sell Offers (UCAP MW)				Cleared Sell Offers (UCAP MW)			
LDA	Base DR/EE	Base	Capacity Performance	Total	Base DR/EE	Base	Capacity Performance	Total
DPL-SOUTH	0.0	37.0	0.0	37.0	0.0	0.0	0.0	0.0
PS-NORTH	0.0	332.0	0.0	332.0	0.0	227.3	0.0	227.3
PSEG (rest of)	0.0	19.0	0.0	19.0	0.0	19.0	0.0	19.0
EMAAC (rest of)	0.0	222.0	0.0	222.0	0.0	3.8	0.0	3.8
EMAAC Total	**0.0**	**610.0**	**0.0**	**610.0**	**0.0**	**250.1**	**0.0**	**250.1**
PEPCO	0.0	28.0	0.0	28.0	0.0	0.0	0.0	0.0
BGE	0.0	247.0	0.0	247.0	0.0	243.1	0.0	243.1
SWMAAC (rest of)	0.0	60.0	0.0	60.0	0.0	60.0	0.0	60.0
SWMAAC Total	**0.0**	**335.0**	**0.0**	**335.0**	**0.0**	**303.1**	**0.0**	**303.1**
PPL	0.0	255.0	0.0	255.0	0.0	117.3	0.0	117.3
MAAC (rest of)	0.0	112.0	0.0	112.0	0.0	112.0	0.0	112.0
MAAC Total	**0.0**	**1,312.0**	**0.0**	**1,312.0**	**0.0**	**782.5**	**0.0**	**782.5**
ATSI (rest of)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ATSI-Cleveland	0.0	49.0	0.0	49.0	0.0	0.0	0.0	0.0
COMED	0.0	204.0	0.0	204.0	0.0	0.0	0.0	0.0
RTO (rest of)	0.0	914.4	0.0	914.4	0.0	914.4	0.0	914.4
RTO Total	**0.0**	**2,479.4**	**0.0**	**2,479.4**	**0.0**	**1,696.9**	**0.0**	**1,696.9**

2019/2020 RPM First Incremental Auction Results

2019/2020 RPM First 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. Any resource that can qualify as a Capacity Performance Resource may submit separate but coupled sell offers for Capacity Performance and Base Capacity product types. For such coupled sell offers, the offer price of the Capacity Performance product must be at least $.01 per MW-day greater than the offer price of the coupled Base Capacity product. When sell offer segments of both capacity product types are coupled with different offer prices, the auction clearing engine will clear only one of the products at most and will clear the product that results in the lowest overall cost solution for the system.

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 (Capacity Performance, Base Capacity Generation or Base Capacity DR/EE). 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 Capacity Performance capacity type may replace commitments of Capacity Performance Resources, Base Capacity Generation and/or Base Capacity DR/EE. Cleared buy bids of Base Capacity Generation capacity type may replace commitments on Base Capacity Generation and/or Base Capacity DR/EE but may not replace commitments of Capacity Performance Resources. Cleared buy bids of Base Capacity DR/EE capacity type may replace commitments of Base Capacity DR/EE but may not replace commitments of Capacity Performance Resources or Base Capacity Generation.

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.

2019/2020 RPM First Incremental Auction Results

Prior to each Incremental Auction, PJM recalculates the Reliability Requirement, the Base Capacity DR/EE Constraint and the Base Capacity 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 First 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/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 Base Capacity DR/EE and Base Capacity Generation, as compared to the updated Base Capacity DR/EE Constraint and Base Capacity Constraint.

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 6, into the First Incremental Auction for the 2019/2020 Delivery Year[2]. Note that a PJM sell offer is indicated by a negative PJM buy bid in Table 6 and that PJM submitted sell offers for the First Incremental Auction for the 2019/2020 Delivery Year in each LDA for a total sell offer quantity across the entire RTO of 2,479.4 MW. All PJM sell offers were for the Base Capacity Generation product type because the total RTO commitment level of Base Capacity DR/EE and Base Capacity Generation from prior auctions was in excess of the updated RTO Base Capacity Constraint by 2,479.4 MW. Table 6 also defines the pricing points associated with the PJM sell offers.

[2] The determination of the PJM buy bid and sell offer quantities is detailed in the 2019/2020 First Incremental Auction Planning Parameters located at http://www.pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2019-2020-first-incremental-auction-planning-parameters.ashx?la=en.

2019/2020 RPM First Incremental Auction Results

Table 6 – PJM Buy Bids and PJM Sell Offers for 2019/2020 First Incremental Auction

	PJM Buy Bid		Price Points for PJM Buy Bids and PJM Sell Offers					
			Point 1		Point 2		Point 3	
Location	(MW)(1)	Capacity Type	x-axis (MW)	y-axis ($/MW-Day)	x-axis (MW)	y-axis ($/MW-Day)	x-axis (MW)	y-axis ($/MW-Day)
RTO (Rest of)	-914.4	BaseGen	0.0	$0.00	914.4	$0.00	--	--
MAAC (Rest of)	-112.0	BaseGen	0.0	$0.00	112.0	$0.00	--	--
EMAAC (Rest of)	-222.0	BaseGen	0.0	$21.79	222.0	$46.99	--	--
SWMAAC (Rest of)	-60.0	BaseGen	0.0	$0.00	60.0	$0.00	--	--
PS (Rest of)	-19.0	BaseGen	0.0	$0.00	19.0	$0.00	--	--
PS NORTH	-332.0	BaseGen	0.0	$0.00	197.4	$0.00	332.0	$100.11
DPL SOUTH	-37.0	BaseGen	0.0	$68.39	37.0	$115.95	--	--
PEPCO	-28.0	BaseGen	0.0	$27.13	28.0	$39.73	--	--
ATSI (Rest of)	0.0	--	--	--	--	--	--	--
ATSI-CLEVELAND	-49.0	BaseGen	0.0	$23.20	49.0	$55.87	--	--
COMED	-204.0	BaseGen	0.0	$29.40	204.0	$67.15	--	--
BGE	-247.0	BaseGen	0.0	$0.00	204.8	$0.00	247.0	$16.54
PL	-255.0	BaseGen	0.0	$0.00	79.7	$0.00	255.0	$69.99
TOTAL	-2,479.4							

(1) A PJM Sell Offer is indicated by a negative PJM Buy Bid.

2019/2020 RPM First Incremental Auction Results

LDA Capacity Import Limits

Table 7 shows each LDA's CETL limits for the Base Residual Auction and each LDA's CETL as updated for the First Incremental Auction for the 2019/2020 Delivery Year. The CETL remaining for use in the First Incremental Auction for the 2019/2020 Delivery Year shown in the last row of Table 7 represents the LDA capacity import limits that were employed in the First Incremental Auction for the 2019/2020 Delivery Year and are equal to the LDA CETL as updated for the First Incremental Auction minus the total capacity import levels into the LDA.

Table 7 – LDA Capacity Import Capability for 2019/2020 First Incremental Auction

	LDA											
	MAAC	EMAAC	SWMAAC	PS	PS NORTH	DPL SOUTH	PEPCO	ATSI	ATSI-C	COMED	BGE	PPL
Base Residual Auction (BRA) CETL	7,385.0	8,856.0	9,400.0	7,856.0	3,827.0	1,898.0	6,985.0	9,212.0	5,501.0	5,160.0	6,234.7	6,168.0
1st Incremental Auction (IA) CETL	7,385.0	8,856.0	9,400.0	7,856.0	3,827.0	1,898.0	6,985.0	9,212.0	5,501.0	5,160.0	6,234.7	6,168.0
Capacity Import Level (BRA)	6,777.6	8,856.0	6,193.2	7,364.9	3,491.2	1,599.5	2,344.5	6,291.4	4,189.2	5,160.0	6,234.7	1,518.2
Capacity Import Limit for 1st Incremental Auction	**607.4**	**0.0**	**3,206.8**	**491.1**	**335.8**	**298.5**	**4,640.5**	**2,920.6**	**1,311.8**	**0.0**	**0.0**	**4,649.8**

Incremental Auction Clearing

Participant sell 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. Capacity Performance buy bids may only clear against sell offers from Capacity Performance Resources; Base Capacity Generation buy bids may only clear against sell offers from Capacity Performance Resources and/or Base Capacity Generation; and Base Capacity DR/EE buy bids may clear against sell offers of any capacity type.

Mitigation in the 2019/2020 First 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 Existing Generation Capacity Resources of all jointly pivotal suppliers in the execution of the RPM auction clearing. Therefore, in the event a price-based sell offer exceeded the calculated offer cap of a pivotal supplier's Existing Generation Capacity Resource, the cost-based sell offer was utilized in the RPM auction clearing[3]. Demand Resources and Energy Efficiency Resources are not subject to market power mitigation.

[3] Furthermore, mitigation is only applied to sell offers that would, absent mitigation, increase the Capacity Resource Clearing Price.