2022/2023 RPM Base Residual Auction Results

Executive Summary

The 2022/2023 Reliability Pricing Model (RPM) Base Residual Auction (BRA) cleared 144,477.3 MW of unforced capacity in the RTO representing a 21.1% reserve margin. Accounting for load and resource commitments under the Fixed Resource Requirement (FRR), the reserve margin for the entire RTO for the 2022/2023 Delivery Year as procured in the BRA is 19.9%, or 5.4% higher than the target reserve margin of 14.5%. This reserve margin was achieved at clearing prices that are between approximately 19% to 56% of Net CONE, depending upon the Locational Deliverability Area (LDA). The auction also attracted a diverse set of resources, including a significant increase in gas fired combined cycle generation, Energy Efficiency resources and new wind and solar resources.

The 2022/2023 BRA is the third where PJM has procured 100% Capacity Performance ("CP") Resources. CP Resources must be capable of sustained, predictable operation, and are expected to be available and capable of providing energy and reserves when needed throughout the entire Delivery Year. As was the case with the 2021/2022 BRA, the 2022/2023 BRA was conducted under the provisions of PJM's Enhanced Aggregation filing (Docket ER17-367-000 & 001) which was accepted by FERC on March 21, 2017. The 2022/2023 BRA is the first RPM auction conducted under the expanded application of the Minimum Offer Price Rule resulting from FERC's December 19, 2019 Order[1].

2022/2023 BRA Resource Clearing Prices

Resource Clearing Prices (RCPs) for the 2022/2023 BRA are shown in Table 1 below. The RCP for CP Resources located in the rest of RTO is $50.00/MW-day. MAAC, EMAAC, BGE, COMED and DEOK were constrained LDAs in the 2022/2023 BRA with locational price adders, in regards to the immediate parent LDA, of $45.79/MW-day, $2.07/MW-day, $30.71/MW-day, $18.96/MW-day and $21.69/MW-day, respectively, for all resources located in those LDAs. For comparison, the RTO's resource clearing price in the 2021/2022 BRA was $140.00/MW-day. Additionally, the EMAAC, PSEG, BGE, ATSI and COMED LDA were constrained LDAs in the 2021/2022 BRA with RCPs of $165.73/MW-day, $204.29/MW-day, $200.30/MW-day, $171.33/MW-day and $195.55/MW-day respectively.

2022/2023 BRA Resource Clearing Prices

Capacity Type	2022/23 BRA Resource Clearing Prices ($/MW-day)					
	Rest of RTO	MAAC	EMAAC	BGE	COMED	DEOK
Capacity Performance	$50.00	$95.79	$97.86	$126.50	$68.96	$71.69

[1] Docket Nos. EL16-49-000 EL18-178-000 (Consolidated)

2022/2023 BRA Cleared Capacity Resources

As seen in the table below, the 2022/2023 BRA procured 4,843.6 MW of capacity from new generation and 1,210.3 MW from uprates to existing or planned generation. The quantity of capacity procured from external Generation Capacity Resources in the 2022/2023 BRA is 1,558.0 MW which is a decrease of 2,493.8 MW from that procured in the 2021/2022 BRA. All external generation capacity that has cleared in the 2022/2023 BRA are Prior Capacity Import Limit (CIL) Exception External Resources[2] that qualify for an exception for the 2022/2023 Delivery Year to satisfy the enhanced pseudo-tie requirements established by FERC Order ER17-1138. The total quantity of DR procured in the 2022/2023 BRA is 8,811.9 MW which is a decrease of 2,313.9 MW from that procured in the 2021/2022 BRA; and, the total quantity of EE procured in the 2022/2023 BRA is 4,810.6 MW, which is an increase of 1,978.6 MW from that procured in the 2021/2022 BRA.

Megawatts of Unforced Capacity Procured by Type from the 2014/2015 BRA to the 2022/2023 BRA

BRA Delivery Year	New Generation	Generation Uprates	Imports	Demand Response	Energy Efficiency
2022/2023	4,843.6	1,210.3	1,558.0	8,811.9	4,810.6
2021/2022	893.0	508.3	4,051.8	11,125.8	2,832.0
2020/2021	2,389.3	434.5	3,997.2	7,820.4	1,710.2
2019/2020	5,373.6	155.6	3,875.9	10,348.0	1,515.1
2018/2019	2,954.3	587.6	4,687.9	11,084.4	1,246.5
2017/2018	5,927.4	339.9	4,525.5	10,974.8	1,338.9
2016/2017	4,281.6	1,181.3	7,482.7	12,408.1	1,117.3
2015/2016	4,898.9	447.4	3,935.3	14,832.8	922.5
2014/2015	415.5	341.1	3,016.5	14,118.4	822.1

*All MW Values are in UCAP Terms

[2] A Prior CIL Exception Resource is an external Generation Capacity Resource for which (1) a Capacity Market Seller had, prior to May 9, 2017, cleared a Sell Offer in an RPM Auction under the exception provided to the definition of Capacity Import Limit as set forth in Article 1 of the Reliability Assurance Agreement or (2) an FRR Entity committed, prior to May 9, 2017, in an FRR Capacity Plan under the exception provided to the definition of Capacity Import Limit.

2022/2023 RPM Base Residual Auction Results

Introduction

This document provides information for PJM stakeholders regarding the results of the 2022/2023 Reliability Pricing Model (RPM) Base Residual Auction (BRA). The 2022/2023 BRA opened on May 19, 2021, and the results were posted on June 2, 2021.

In each BRA, PJM seeks to procure a target capacity reserve level for the RTO in a least cost manner while recognizing the following reliability-based constraints on the location and type of capacity that can be committed:

- Internal PJM locational constraints are established by setting up Locational Deliverability Areas (LDAs) with each LDA having a separate target capacity reserve level and a maximum limit on the amount of capacity that it can import from resources located outside of the LDA.
- Total cleared summer-period sell offers must exactly equal total cleared winter-period sell offers across the entire RTO to ensure that seasonal CP sell offers clear to form annual CP commitments.

The auction clearing process commits capacity resources to procure a target capacity reserve level for the RTO in a least-cost manner while recognizing and enforcing these reliability-based constraints. The clearing solution may be required to commit capacity resources out-of-merit order but again in a least-cost manner to ensure that all of these constraints are respected. In those cases where one or more of the constraints results in out-of-merit commitment in the auction solution, resource clearing prices will be reflective of the price of resources selected out of merit order to meet the necessary requirements.

This document begins with a high-level summary of the BRA results followed by sections containing detailed descriptions of the 2022/2023 BRA results and a discussion of the results in the context of the previous BRAs.

Summary of Results

The 2022/2023 Reliability Pricing Model (RPM) Base Residual Auction (BRA) cleared 144,477.3 MW of unforced capacity in the RTO representing a 21.1% reserve margin. The reserve margin for the entire RTO is 19.9%, or 5.4% higher than the target reserve margin of 14.5%, when the Fixed Resource Requirement (FRR) load and resources are considered.

Resource Clearing Prices (RCPs) for the 2022/2023 BRA are shown in Table 1 below. MAAC, EMAAC, BGE, COMED and DEOK were constrained LDAs in the 2022/2023 BRA with locational price adders, in regards to the immediate parent LDA, of $45.79/MW-day, $2.07/MW-day, $30.71/MW-day, $18.96/MW-day and $21.69/MW-day, respectively, for all resources located in those LDAs. For comparison, the RTO's resource clearing price in the 2021/2022 BRA was $140.00/MW-day. Additionally, the EMAAC, PSEG,

BGE, ATSI and COMED LDA were constrained LDAs in the 2021/2022 BRA with RCPs of $165.73/MW-day, $204.29/MW-day, $200.30/MW-day, $171.33/MW-day and $195.55/MW-day respectively.

The quantity of Unforced Capacity procured from new Generation Capacity Resources cleared regardless of whether they had offered into a prior auction was 6,053.9 MW comprised of 4,843.6 MW from new generation units and 1,210.3 MW from uprates to existing or planned generation units.

The quantity of Unforced Capacity procured from external Generation Capacity Resources in the 2022/2023 BRA is 1,558.0 MW which is a decrease of 2,493.8 MW from that procured in the 2021/2022 BRA. All external generation capacity that has cleared in the 2022/2023 BRA are Prior Capacity Import Limit (CIL) Exception External Resources that qualify for an exception for the 2022/2023 Delivery Year to satisfy the enhanced pseudo-tie requirements established by FERC Order ER17-1138.

The total Unforced Capacity of DR procured in the 2022/2023 BRA is 8,811.9 MW which is a decrease of 2,313.9 MW from that procured in the 2021/2022 BRA; and, the total quantity of EE procured in the 2022/2023 BRA is 4,810.6 MW which is an increase of 1,978.6 MW from that procured in the 2022/2023 BRA.

The RTO as a whole failed the Market Structure Test (i.e., the Three-Pivotal Supplier Test), resulting in the application of market power mitigation to all Existing Generation Capacity Resources. Mitigation was applied to a supplier's existing generation resources resulting in utilizing the lesser of the supplier's approved Market Seller Offer Cap for such resource or the supplier's submitted offer price for such resource in the RPM Auction clearing.

The Minimum Offer Price Rule (MOPR) of Section 5.14(h) of Attachment DD of the PJM OATT applies to sell offers of certain new Generation Capacity Resources that do not receive or are not entitled to receive a State Subsidy. Specifically, the provisions of Section 5.14(h) apply to the sell offers of such new Generation Capacity Resources (except those of nuclear, coal, integrated gasification combined cycle, hydroelectric, wind, or solar facilities) that are, located in an LDA for which a separate VRR Curve is established for the relevant Delivery Year, unless the resource has cleared an RPM Auction for the auction Delivery Year or prior Delivery Year. To the extent the new Generation Capacity Resource is a Capacity Resource with State Subsidy, then the provisions in Tariff, Attachment DD, section 5.14(h-1) apply. The MOPR of Section 5.14(h-1) of Attachment DD of the PJM OATT applies to the sell offers of any Capacity Resource with State Subsidy unless the Capacity Resource with State Subsidy qualifies for a Categorical Exemptions. The sell offer of a Capacity Resource with State Subsidy that qualifies for any one of the categorical exemptions is not subject to a MOPR Floor Offer Price. To avoid application of the MOPR, Capacity Market Sellers may request a unit-specific exception or elect the Competitive Exemption.

A further discussion of the 2022/2023 BRA results and additional information regarding the 2022/2023 RPM BRA are detailed in the body of this report. The discussion also provides a comparison of the 2022/2023 auction results to the results from the 2007/2008 through 2021/2022 RPM Auctions.

2022/2023 RPM Base Residual Auction Results

2022/2023 Base Residual Auction Results Discussion

Table 1 contains a summary of the RTO clearing prices, cleared unforced capacity, and implied cleared reserve margins for the 2007/2008 through 2022/2023 RPM BRAs.

Table 1 –RPM Base Residual Auction Resource Clearing Price Results in the RTO

	Auction Results		
Delivery Year	Resource Clearing Price	Cleared UCAP (MW)	Reserve Margin
2007/2008	$ 40.80	129,409.2	19.1%
2008/2009	$ 111.92	129,597.6	17.4%
2009/2010	$ 102.04	132,231.8	17.6%
2010/2011	$ 174.29	132,190.4	16.4%
2011/2012[1]	$ 110.00	132,221.5	17.9%
2012/2013	$ 16.46	136,143.5	20.5%
2013/2014[2]	$ 27.73	152,743.3	19.7%
2014/2015[3]	$ 125.99	149,974.7	18.8%
2015/2016[4]	$ 136.00	164,561.2	19.3%
2016/2017[5]	$ 59.37	169,159.7	20.3%
2017/2018	$ 120.00	167,003.7	19.7%
2018/2019	$ 164.77	166,836.9	19.8%
2019/2020	$ 100.00	167,305.9	22.4%
2020/2021[6]	$ 76.53	165,109.2	23.3%
2021/2022	$ 140.00	163,627.3	21.5%
2022/2023	$ 50.00	144,477.3	19.9%

1) 2011/2012 BRA was conducted without Duquesne zone load.
2) 2013/2014 BRA includes ATSI zone
3) 2014/2015 BRA includes Duke zone
4) 2015/2016 BRA includes a significant portion of AEP and DEOK zone load previously under the FRR Alternative
5) 2016/2017 BRA includes EKPC zone
6) Beginning 2020/2021 Cleared UCAP (MW) includes Annual and matched Seasonal Capacity Performance sell offers

The Reserve Margin presented in Table 1 represents the percentage of installed capacity cleared in RPM and committed by FRR entities in excess of the RTO load (including load served under the Fixed Resource Requirement alternative). The 2022/2023 RPM BRA cleared 144, 477.3 MW of unforced capacity in the RTO representing a 21.1% reserve margin. The reserve margin for the entire RTO is 19.9%, or 5.4% higher than the target reserve margin of 14.5%, when the Fixed Resource Requirement (FRR) load and resources are considered.

New Generation Resource Participation

The quantity of new Generation Capacity Resources cleared in this auction regardless of whether they had offered into a prior auction was 6,053.9 MW comprised of 4,843.6 MW from new generation units, and 1,210.3 MW from uprates to existing or planned generation units.

Table 2A shows the breakdown, by major LDA, of capacity in UCAP terms of new units and uprates at existing or planned units offered in the auction and capacity clearing in the auction.

Table 2A – Offered and Cleared New Generation Capacity by LDA (in UCAP MW)

	Offered			Cleared		
LDA	Uprate	New Unit	Total	Uprate	New Unit	Total
EMAAC	252.3	73.4	**325.7**	128.3	50.0	**178.3**
MAAC**	615.6	222.5	**838.1**	433.1	193.2	**626.3**
Total RTO	1,669.3	7,433.0	**9,102.3**	1,210.3	4,843.6	**6,053.9**

*All MW Values are in UCAP Terms

**MAAC includes EMAAC

***RTO includes MAAC

**** Cleared MW values may include new units that have offered in a prior BRA and not cleared

Capacity Import Participation

The quantity of capacity imports cleared in the 2022/2023 BRA were 1,558.0 MW (UCAP) which represents a decrease of 2,493.8 MW from the imports that cleared in the 2021/2022 BRA. The majority of the imports are from resources located in regions west of the PJM RTO. All external generation capacity that has cleared in the 2022/23 BRA are Prior Capacity Import Limit (CIL) Exception External Resources that qualify for an exception for the 2022/2023 Delivery Year to satisfy the enhanced pseudo-tie requirements established by FERC Order ER17-1138.

Table 2B – Offered and Cleared Capacity Imports (in UCAP MW)

	External Source Zones					
	NORTH	WEST 1	WEST 2	SOUTH 1	SOUTH 2	Total
Offered MW (UCAP)	248.3	0.0	809.4	240.9	259.4	**1,558.0**
Cleared MW (UCAP)	248.3	0.0	809.4	240.9	259.4	**1,558.0**
Resource Clearing Price ($/MW-day)	$50.00	$50.00	$50.00	$50.00	$50.00	

*Offered and Cleared MW quantities include resources that received CIL Exception and those associated with pre-OATT grandfathered transmission. Attachment G of Manual 14B provides a mapping of outside Balancing Authorities to the External Source Zones.

Demand Resource Participation

The total Unforced Capacity of DR offered into the 2022/2023 BRA was 10,513.0 MW, representing a decrease of 11.6% from the DR that offered into the 2021/2022 BRA. Of the 10,513.0 MW of total DR that offered in this auction, 8,811.9 MW cleared. The cleared DR is 2,313.9 MW less than that which cleared in the 2021/2022 BRA. Of the 8,811.9 MW of DR cleared in the 2022/2023 BRA, 8,369.9 MW were cleared as the annual Capacity Performance Product and 442.0 MW were cleared as the summer seasonal Capacity Performance product. Table 3A contains a comparison of the DR offered and cleared in 2021/2022 BRA & 2022/2023 BRA represented in UCAP.

Energy Efficiency Resource Participation

An EE resource is a project that involves the installation of more efficient devices/equipment or the implementation of more efficient processes/systems exceeding then-current building codes, appliance standards, or other relevant standards at the time of installation as known at the time of commitment. The EE resource must achieve a permanent, continuous reduction in electric energy consumption (during the defined EE performance hours) that is not reflected in the peak load forecast used for the BRA for the Delivery Year for which the EE resource is proposed. The EE resource must be fully implemented at all times during the Delivery Year, without any

requirement of notice, dispatch, or operator intervention. Of the 5,056.8 MW of energy efficiency that offered into the 2022/2023 BRA, 4,810.6 MW cleared in the auction. Of the 4,810.6 MW of EE Resources cleared in the 2022/2023 BRA, 4,575.7 MW was cleared as the annual Capacity Performance Product and 234.9 MW were cleared as the summer seasonal Capacity Performance product.

Table 3B contains a summary of the DR and EE resources that offered and cleared by zone in the 2022/2023 BRA. Approximately 83.8% of the DR and 95.1% of the EE resources that were offered into the BRA cleared.

Figure 1 illustrates the demand side participation in the PJM Capacity Market from 2005/2006 Delivery Year to the 2022/2023 Delivery Year. Demand side participation includes active load management (ALM) prior to 2007/2008 Delivery Year, Interruptible Load for Reliability (ILR) and DR offered into each BRA and nominated in FRR Plans, and EE resources starting with the 2012/2013 Delivery Year. The demand side participation in the capacity market has increased dramatically since the inception of RPM in the 2007/2008 Delivery Year through the 2015/2016 BRA, but as shown in Figure 1, total demand side participation and cleared resources for the 2022/2023 BRA have fallen below the levels seen in the 2015/2016 BRA.

2022/2023 RPM Base Residual Auction Results

Table 3A – Comparison of Demand Resources Offered and Cleared in 2021/2022 BRA & 2022/2023 BRA (in UCAP MW)

		Offered MW (UCAP)			Cleared MW (UCAP)		
LDA	Zone	2021/2022*	2022/2023*	Increase in Offered MW	2021/2022*	2022/2023*	Increase in Cleared MW
EMAAC	AECO	83.6	73.7	**(9.9)**	83.4	62.2	**(21.2)**
EMAAC/DPL-S	DPL	320.3	279.1	**(41.2)**	265.1	269.3	**4.2**
EMAAC	JCPL	173.0	171.8	**(1.2)**	170.3	147.8	**(22.5)**
EMAAC	PECO	450.9	414.6	**(36.3)**	446.4	364.4	**(82.0)**
PSEG/PS-N	PSEG	423.3	393.0	**(30.3)**	407.9	294.6	**(113.3)**
EMAAC	RECO	6.0	2.3	**(3.7)**	5.8	1.6	**(4.2)**
EMAAC Sub Total		**1,457.1**	**1,334.5**	**(122.6)**	**1,378.9**	**1,139.9**	**(239.0)**
PEPCO	PEPCO	452.5	336.9	**(115.6)**	345.9	322.7	**(23.2)**
BGE	BGE	369.4	186.1	**(183.3)**	279.0	162.6	**(116.4)**
MAAC	METED	367.5	260.5	**(107.0)**	360.4	230.7	**(129.7)**
MAAC	PENELEC	373.5	333.1	**(40.4)**	364.5	299.8	**(64.7)**
PPL	PPL	744.5	715.1	**(29.4)**	684.7	661.7	**(23.0)**
MAAC Sub Total**		**3,764.5**	**3,166.2**	**(598.3)**	**3,413.4**	**2,817.4**	**(596.0)**
RTO	AEP	1,829.2	1,651.5	**(177.7)**	1,680.4	1,315.3	**(365.1)**
RTO	APS	1,049.7	878.3	**(171.4)**	1,019.4	669.0	**(350.4)**
ATSI/ATSI-C	ATSI	1,221.2	1,124.8	**(96.4)**	1,142.4	924.1	**(218.3)**
COMED	COMED	2,078.2	1,760.1	**(318.1)**	1,997.8	1,511.0	**(486.8)**
DAY	DAY	235.0	256.5	**21.5**	227.7	210.5	**(17.2)**
DEOK	DEOK	235.6	237.0	**1.4**	213.8	185.1	**(28.7)**
RTO	DOM	1,173.4	966.8	**(206.6)**	1,136.1	745.5	**(390.6)**
RTO	DUQ	140.6	181.6	**41.0**	135.4	148.6	**13.2**
RTO	EKPC	159.4	290.2	**130.8**	159.4	285.4	**126.0**
Grand Total		**11,886.8**	**10,513.0**	**(1,373.8)**	**11,125.8**	**8,811.9**	**(2,313.9)**

* MW values include both Annual and Summer-Period Capacity Performance DR

** MAAC sub-total includes all MAAC Zones

2022/2023 RPM Base Residual Auction Results

Table 3B – Comparison of Demand Resources and Energy Efficiency Resources Offered and Cleared in the 2022/2023 BRA (in UCAP MW)

		Offered MW (UCAP)*			Cleared MW (UCAP)*		
LDA	**Zone**	**DR**	**EE**	**Total**	**DR**	**EE**	**Total**
EMAAC	AECO	73.7	76.2	**149.9**	62.2	76.2	**138.4**
EMAAC/DPL-S	DPL	279.1	120.1	**399.2**	269.3	119.9	**389.2**
EMAAC	JCPL	171.8	189.8	**361.6**	147.8	189.8	**337.6**
EMAAC	PECO	414.6	318.8	**733.4**	364.4	318.8	**683.2**
PSEG/PS-N	PSEG	393.0	387.2	**780.2**	294.6	384.4	**679.0**
EMAAC	RECO	2.3	1.7	**4.0**	1.6	1.7	**3.3**
EMAAC Sub Total		**1,334.5**	**1,093.8**	**2,428.3**	**1,139.9**	**1,090.8**	**2,230.7**
PEPCO	PEPCO	336.9	268.9	**605.8**	322.7	263.8	**586.5**
BGE	BGE	186.1	199.9	**386.0**	162.6	199.9	**362.5**
MAAC	METED	260.5	88.8	**349.3**	230.7	88.8	**319.5**
MAAC	PENELEC	333.1	89.0	**422.1**	299.8	89.0	**388.8**
PPL	PPL	715.1	242.1	**957.2**	661.7	242.1	**903.8**
MAAC Sub Total**		**3,166.2**	**1,982.5**	**5,148.7**	**2,817.4**	**1,974.4**	**4,791.8**
RTO	AEP	1,651.5	546.2	**2,197.7**	1,315.3	514.3	**1,829.6**
RTO	APS	878.3	231.5	**1,109.8**	669.0	220.0	**889.0**
ATSI/ATSI-C	ATSI	1,124.8	418.3	**1,543.1**	924.1	417.0	**1,341.1**
COMED	COMED	1,760.1	912.2	**2,672.3**	1,511.0	723.9	**2,234.9**
DAY	DAY	256.5	92.9	**349.4**	210.5	91.8	**302.3**
DEOK	DEOK	237.0	149.4	**386.4**	185.1	145.9	**331.0**
RTO	DOM	966.8	637.2	**1,604.0**	745.5	637.2	**1,382.7**
RTO	DUQ	181.6	86.6	**268.2**	148.6	86.1	**234.7**
RTO	EKPC	290.2	-	**290.2**	285.4	-	**285.4**
Grand Total		**10,513.0**	**5,056.8**	**15,569.8**	**8,811.9**	**4,810.6**	**13,622.5**

* MW values include both Annual and Summer-Period Capacity Performance DR and EE

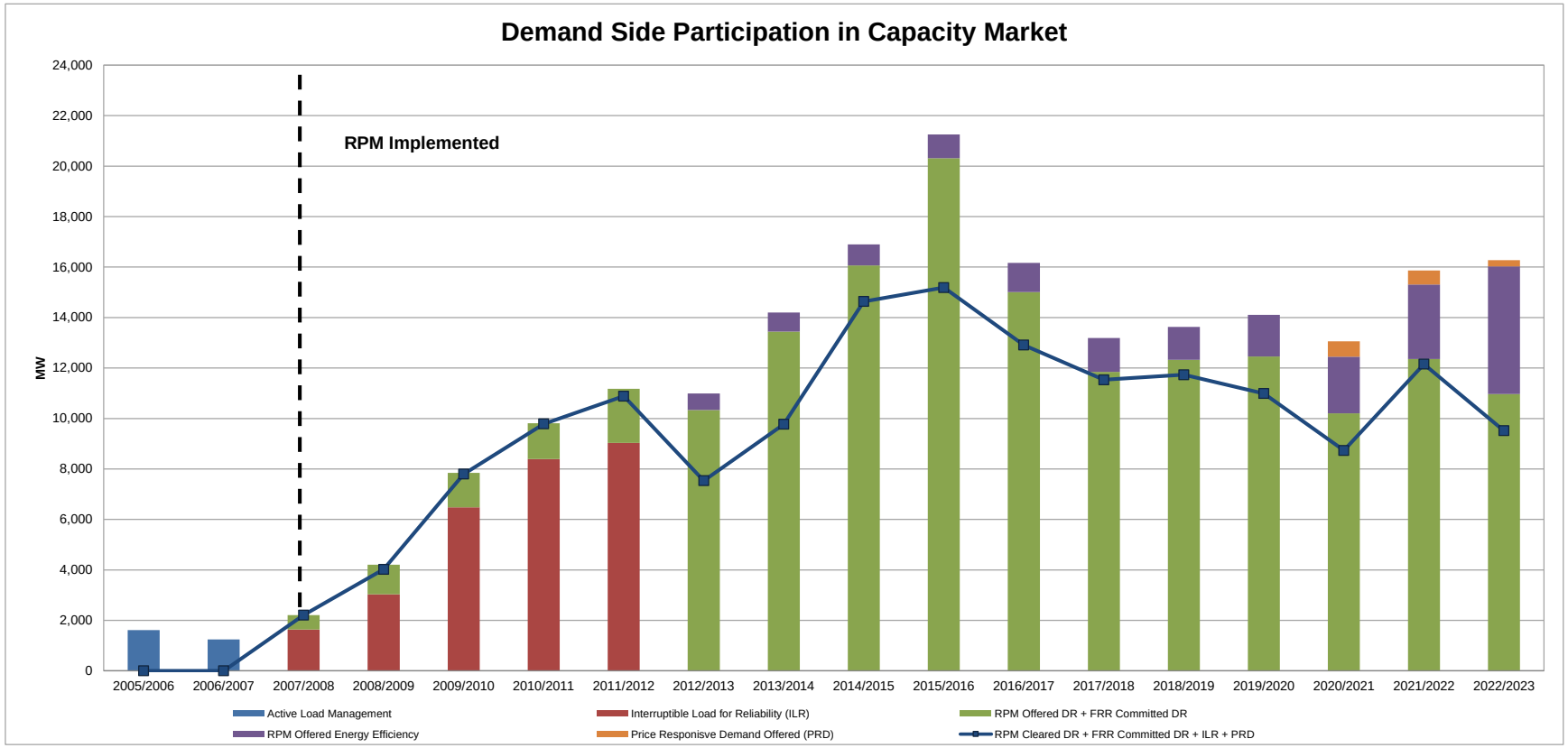
** MAAC sub-total includes all MAAC Zones

2022/2023 RPM Base Residual Auction Results

Table 3C – Breakdown of Annual and Seasonal Capacity Performance Resources by Resource Type and Season that Offered and Cleared in the 2022/2023 BRA (in UCAP MW)

	Offered MW (UCAP)			Cleared MW (UCAP)		
Resource Type	Annual Capacity Performance	Summer Capacity Performance	Winter Capacity Performance	Annual Capacity Performance	Summer Capacity Performance	Winter Capacity Performance
GEN	150,741.3	11.8	1,375.5	130,844.9	9.9	686.8
DR	10,071.0	442.0	-	8,369.9	442.0	-
EE	4,807.5	249.3	-	4,575.7	234.9	-
Grand Total	**165,619.8**	**703.1**	**1,375.5**	**143,790.5**	**686.8**	**686.8**

Figure 1 – Demand Side Participation in the PJM Capacity Market



Renewable Resource Participation

1,728.1 MW of wind resources cleared the 2022/2023 BRA as compared to 1,416.7 MW of wind resources that cleared the 2021/2022 BRA. Of the 1,728.1 MW of wind resources cleared in the 2022/2023 BRA, 1,057.5 MW were cleared as the annual Capacity Performance Product and 670.6 MW were cleared as the winter seasonal Capacity Performance product. The nameplate capability of wind resources that cleared in the 2022/2023 BRA as annual CP capacity and/or winter seasonal CP capacity is approximately 8,518.3 MW, which is 392.3 MW greater than the 8,126 MW of wind energy nameplate capability that cleared in the 2021/2022 BRA.

1,511.6 MW of solar resources cleared the 2022/2023 BRA as compared to 569.9 MW of solar resources that cleared the 2021/2022 BRA. Of the 1,511.6 MW of solar resources cleared in the 2022/2023 BRA, 1,501.7 MW were cleared as the annual Capacity Performance Product and 9.9 MW were cleared as the summer seasonal Capacity Performance product. The nameplate capability of solar resources that cleared in the 2022/2023 BRA as annual CP capacity and/or summer seasonal CP capacity is approximately 3,242.8 MW, which is 1,601.8 MW greater than the 1,641 MW of solar energy nameplate capability that cleared in the 2021/2022 BRA.

Price Responsive Demand Participation

A total Nominal PRD Value of 230 MW was elected and committed in the 2022/2023 BRA. PRD is provided by a PJM Member that represents retail customers having the ability to predictably reduce consumption in response to changing wholesale prices. In the PJM Capacity Market, a PRD Provider may voluntarily make a firm commitment of the quantity of PRD that will reduce its consumption in response to real time energy price during a Delivery Year. A PRD Provider that is committing PRD in a BRA must also submit a PRD election in the Capacity Exchange system which indicates the Nominal PRD Value in MWs that the PRD Provider is willing to commit at different reservation prices ($/MW-day). The VRR curve of the RTO and each affected LDA is shifted leftward along the horizontal axis by the UCAP MW quantity of elected PRD where the leftward shift occurs only for the portion of the VRR Curve at or above the PRD Reservation price. As shown in the 2022/2023 Planning Parameters, 230 MW of PRD across the RTO has elected to participate in the 2022/2023 BRA: 80 MW in the BGE LDA, 110 MW in the PEPCO LDA, and 40 MW in the EMAAC LDA (with 19.6 MW located in the DPL-South LDA). The VRR Curve of the RTO and each affected LDA is shifted leftward along the horizontal axis by the UCAP MW value of these quantities at the PRD Reservation Price. Once committed in a BRA, a PRD commitment cannot be replaced; the commitment can only be satisfied through the registration of price response load in the DR Hub system prior to or during the Delivery Year.

LDA Results

An LDA was modeled in the BRA and had a separate VRR Curve if (1) the LDA has a CETO/CETL margin that is less than 115%; or (2) the LDA had a locational price adder in any of the three immediately preceding BRAs; or (3) the LDA is EMAAC, SWMAAC, and MAAC. An LDA not otherwise qualifying under the above three tests may also be modeled if PJM finds that the LDA is determined to be likely to have a Locational Price Adder based on historic offer price levels or if such LDA is required to achieve an acceptable level of reliability consistent with the Reliability Principles and Standards.

As a result of the above criteria, MAAC, EMAAC, SWMAAC, PSEG, PS-NORTH, DPL-SOUTH, PEPCO, ATSI, ATSI-Cleveland, COMED, BGE, PL, DAY and DEOK were modeled as LDAs in the 2022/2023 RPM Base Residual Auction. The MAAC, EMAAC,

BGE, COMED and DEOK LDAs were binding constraints in the auction resulting in a Locational Price Adder for these LDAs. A Locational Price Adder represents the difference in Resource Clearing Prices for the Capacity Performance product between a resource in a constrained LDA and the immediate higher level LDA. Table 4 contains a summary of the clearing results in the LDAs from the 2022/2023 RPM Base Residual Auction.

Table 4 –RPM Base Residual Auction Clearing Results in the LDAs

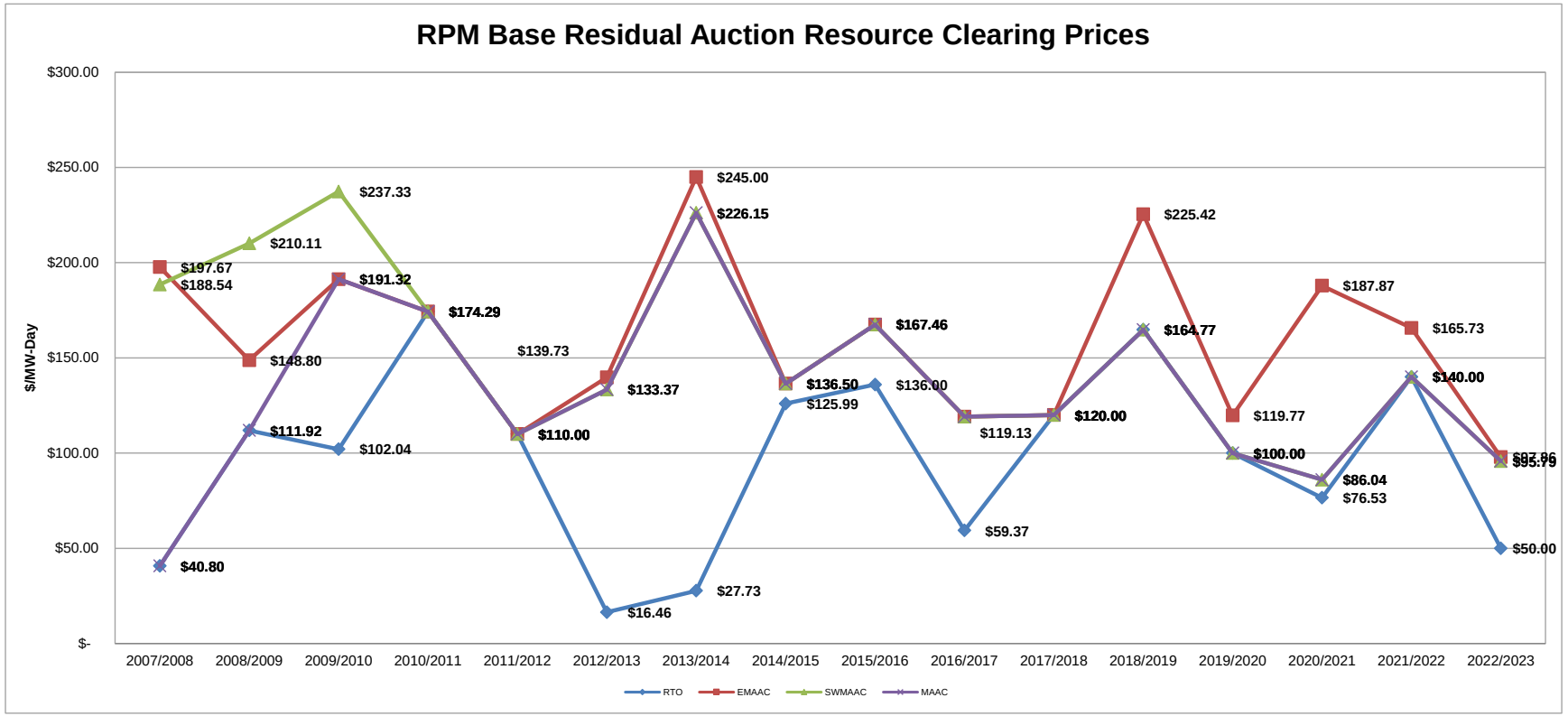
Auction Results	RTO	MAAC	SWMAAC	PEPCO	BGE	EMAAC	DPL-SOUTH	PSEG	PS-NORTH	ATSI	ATSI-CLEVELAND	PPL	COMED	DAY	DEOK
Offered MW (UCAP)*	167,698.4	71,080.8	10,185.0	4,870.7	2,866.2	32,773.8	1,726.5	6,169.0	3,547.4	11,752.6	2,590.1	10,702.2	29,500.2	1,310.6	3,236.7
Cleared MW (UCAP)**	144,477.3	64,614.2	8,284.1	3,533.6	2,494.5	29,333.8	1,305.3	4,436.5	2,527.2	10,543.9	1,912.5	10,144.7	19,197.5	1,253.0	2,114.8
System Marginal Price	$50.00	$50.00	$50.00	$50.00	$50.00	$50.00	$50.00	$50.00	$50.00	$50.00	$50.00	$50.00	$50.00	$50.00	$50.00
Locactional Price Adder***	$0.00	$45.79	$0.00	$0.00	$30.71	$2.07	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$18.96	$0.00	$21.69
RCP for Capacity Performance Resources	$50.00	$95.79	$95.79	$95.79	$126.50	$97.86	$97.86	$97.86	$97.86	$50.00	$50.00	$95.79	$68.96	$50.00	$71.69

* Offered MW values include Annual, Summer-Period, and Winter-Period Capacity Performance sell offers
** Cleared MW values include Annual and matched Seasonal Capacity Performance sell offers within the LDA
*** Locational Price Adder is with respect to the immediate parent LDA

Since the MAAC, EMAAC, BGE, COMED and DEOK LDAs were constrained LDAs, Capacity Transfer Rights (CTRs) will be allocated to loads in these constrained LDA for the 2022/2023 Delivery Year. CTRs are allocated by load ratio share to all Load Serving Entities (LSEs) in a constrained LDA that has a higher clearing price than the unconstrained region. CTRs serve as a credit back to the LSEs in the constrained LDA for use of the transmission system to import less expensive capacity into that constrained LDA and are valued at the difference in the clearing prices of the constrained and unconstrained regions.

2022/2023 RPM Base Residual Auction Results

Figure 2 – Base Residual Auction Resource Clearing Prices



* 2014/2015 through 2022/2023 Prices reflect the Annual Resource Clearing Prices.

Table 5 contains a summary of the RTO resources for each cleared BRA from 2008/2009 through the 2022/2023 Delivery Years. The summary includes all resources located in the RTO (including FRR Capacity Plans).

A total of 208,988.9 MW of installed capacity was eligible to be offered into the 2022/2023 Base Residual Auction, with 1,649.1 MW from external resources. As illustrated in Table 5, the amount of capacity exports in the 2022/2023 auction increased slightly from that of the previous auction and FRR commitments increased by 19,639.7 MW from the 2021/2022 Delivery Year to 33,297.1 MW.

A total of 172,206.5 MW of capacity was offered into the Base Residual Auction. This is a decrease of 20,242.7 MW from that which was offered into the 2021/2022 BRA. A total of 36,782.4 MW was eligible, but not offered due to either (1) inclusion in an FRR Capacity Plan, (2) export of the resource, or (3) having been excused from offering into the auction. Resources were excused from the must offer requirement are generally for the following reasons: approved retirement requests, resources categorically exempt from the Capacity Performance must-offer requirement, resources which received an exemption from the must-offer or Capacity Performance must-offer requirement and excess capacity owned by an FRR entity.

2022/2023 RPM Base Residual Auction Results

Table 5 –RPM Base Residual Auction Generation, Demand, and Energy Efficiency Resource Information in the RTO

	RTO[1]														
Auction Supply (all values in ICAP)	**2008/2009**	**2009/2010**	**2010/2011**	**2011/2012[2]**	**2012/2013**	**2013/2014[3]**	**2014/2015[4]**	**2015/2016[5]**	**2016/2017[6]**	**2017/2018**	**2018/2019**	**2019/2020**	**2020/2021**	**2021/2022**	**2022/2023**
Internal PJM Capacity	166,037.9	167,026.3	168,457.3	169,241.6	179,791.2	195,633.4	199,375.5	207,559.1	208,098.0	202,477.4	203,300.6	207,579.6	207,555.1	211,625.2	207,339.8
Imports Offered	2,612.0	2,563.2	2,982.4	6,814.2	4,152.4	4,766.1	7,620.2	4,649.7	8,412.2	6,300.9	5,724.6	4,821.4	5,440.5	4,725.0	1,649.1
Total Eligible RPM Capacity	**168,649.9**	**169,589.5**	**171,439.7**	**176,055.8**	**183,943.6**	**200,399.5**	**206,995.7**	**212,208.8**	**216,510.2**	**208,778.3**	**209,025.2**	**212,401.0**	**212,995.6**	**216,350.2**	**208,988.9**
Exports / Delistings	4,205.8	2,240.9	3,378.2	3,389.2	2,783.9	2,624.5	1,230.1	1,218.8	1,218.8	1,223.2	1,313.4	1,318.2	1,319.8	1,319.8	1,525.3
FRR Commitments	24,953.5	25,316.2	26,305.7	25,921.2	26,302.1	25,793.1	33,612.7	15,997.9	15,576.6	15,776.1	15,793.0	15,385.3	13,931.6	13,657.4	33,297.1
Excused	722.0	1,121.9	1,290.7	1,580.0	1,732.2	1,825.7	3,255.2	8,712.9	8,524.0	4,305.3	2,348.4	1,454.5	7,826.4	8,923.8	1,960.0
Total Eligible RPM Capacity: Excused	**29,881.3**	**28,679.0**	**30,974.6**	**30,890.4**	**30,818.2**	**30,243.3**	**38,098.0**	**25,929.6**	**25,319.4**	**21,304.6**	**19,454.8**	**18,158.0**	**23,077.8**	**23,901.0**	**36,782.4**
Remaining Eligible RPM Capacity	**138,768.6**	**140,910.5**	**140,465.1**	**145,165.4**	**153,125.4**	**170,156.2**	**168,897.7**	**186,279.2**	**191,190.8**	**187,473.7**	**189,570.4**	**194,243.0**	**189,917.8**	**192,449.2**	**172,206.5**
Generation Offered	138,076.7	140,003.6	139,529.5	143,568.1	142,957.7	156,894.1	153,048.1	166,127.8	176,145.3	175,329.5	177,592.1	181,866.4	178,807.1	178,823.5	157,872.2
DR Offered	691.9	906.9	935.6	1,597.3	9,535.4	12,528.7	15,043.1	19,243.6	13,932.9	10,855.2	10,772.8	10,859.2	9,047.8	10,911.9	9,677.9
EE Offered	0.0	0.0	0.0	0.0	632.3	733.4	806.5	907.8	1,112.6	1,289.0	1,205.5	1,517.4	2,062.9	2,713.8	4,656.4
Total Eligible RPM Capacity Offered	**138,768.6**	**140,910.5**	**140,465.1**	**145,165.4**	**153,125.4**	**170,156.2**	**168,897.7**	**186,279.2**	**191,190.8**	**187,473.7**	**189,570.4**	**194,243.0**	**189,917.8**	**192,449.2**	**172,206.5**
Total Eligible RPM Capacity Unoffered	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

[1]RTO numbers include all LDAs.

[2]All generation in the Duquesne zone is considered external to PJM for the 2011/2012 BRA.

[3]2013/2014 includes ATSI zone and generation

[4]2014/2015 includes Duke zone and generation

[5]2015/2016 includes a significant portion of AEP and DEOK zone load previously under the FRR Alternative

[6]2016/2017 includes EKPC zone

2022/2023 RPM Base Residual Auction Results

Table 6 shows the Generation, DR, and EE Resources Offered and Cleared in the RTO translated into Unforced Capacity (UCAP) MW amounts. Participants' sell offer EFORd values were used to translate the generation installed capacity values into unforced capacity (UCAP) values. DR sell offers and EE sell offers were converted into UCAP using the appropriate Forecast Pool Requirement (FPR) and Demand Resource Factor, when applicable, for the Delivery Year.

In UCAP terms, a total of 167,698.4 MW were offered into the 2022/2023 BRA, comprised of 152,128.6 MW of generation capacity, 10,513.0 MW of capacity from DR, and 5,056.8 MW of capacity from EE resources. Of those offered, a total of 144,477.3 MW of capacity was cleared in the BRA.

Of the 144,477.3 MW of capacity that cleared in the auction, a total of 131,541.6 MW cleared from Generation Capacity Resources, 8,811.9 MW cleared from DR, and 4,810.6 MW cleared from EE resources, of which, 686.8 MW cleared as matched seasonal CP resources. Capacity that was offered but not cleared in the BRA Auction will be eligible to offer into the Third Incremental Auction for the 2022/2023 Delivery Year.

Table 6 – Generation, Demand Resources, and Energy Efficiency Resources Offered and Cleared in UCAP MW

	RTO*														
Auction Results	**2008/2009**	**2009/2010**	**2010/2011**	**2011/2012**	**2012/2013**	**2013/2014**	**2014/2015**	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**	**2019/2020**	**2020/2021**	**2021/2022**	**2022/2023**
Generation Offered	131,164.8	132,614.2	132,124.8	136,067.9	134,873.0	147,188.6	144,108.8	157,691.1	168,716.0	166,204.8	166,909.6	172,071.2	171,262.3	171,663.2	152,128.6
DR Offered	715.8	936.8	967.9	1,652.4	9,847.6	12,952.7	15,545.6	19,956.3	14,507.2	11,293.7	11,675.5	11,818.0	9,846.7	11,886.8	10,513.0
EE Offered	-	-	-	-	652.7	756.8	831.9	940.3	1,156.8	1,340.0	1,306.1	1,650.3	2,242.5	2,954.8	5,056.8
Total Offered	**131,880.6**	**133,551.0**	**133,092.7**	**137,720.3**	**145,373.3**	**160,898.1**	**160,486.3**	**178,587.7**	**184,380.0**	**178,838.5**	**179,891.2**	**185,539.5**	**183,351.5**	**186,504.8**	**167,698.4**
Generation Cleared	129,061.4	131,338.9	131,251.5	130,856.6	128,527.4	142,782.0	135,034.2	148,805.9	155,634.3	154,690.0	154,506.0	155,442.8	155,976.5	150,385.0	131,541.6
DR Cleared	536.2	892.9	939.0	1,364.9	7,047.2	9,281.9	14,118.4	14,832.8	12,408.1	10,974.8	11,084.4	10,348.0	7,820.4	11,125.8	8,811.9
EE Cleared	0.0	0.0	0.0	0.0	568.9	679.4	822.1	922.5	1,117.3	1,338.9	1,246.5	1,515.1	1,710.2	2,832.0	4,810.6
Total Cleared	**129,597.6**	**132,231.8**	**132,190.5**	**132,221.5**	**136,143.5**	**152,743.3**	**149,974.7**	**164,561.2**	**169,159.7**	**167,003.7**	**166,836.9**	**167,305.9**	**165,109.2**	**163,627.3**	**144,477.3**
Uncleared	2,283.0	1,319.2	902.2	5,498.8	9,229.8	8,154.8	10,511.6	14,026.5	15,220.3	11,834.8	13,054.3	18,233.6	18,242.3	22,877.5	23,221.1

* RTO numbers include all LDAs

** UCAP calculated using sell offer EFORd for Generation Resources. DR and EE UCAP values include appropriate FPR and DR Factor.

***Starting 2020/2021: Generation, DR, and EE offered and cleared values include Annual, Summer-Period, and Winter-Period Capacity Performa

***Starting 2020/2021: Total RTO Cleared MW value includes Annual and matched Seasonal Capacity Performance sell offers

2022/2023 RPM Base Residual Auction Results

Table 7 contains a summary of capacity additions and reductions from the 2007/2008 BRA to the 2022/2023 BRA. A total of 10,578.5 MW of incrementally new generation capacity in PJM was available for the 2022/2023 BRA. This incrementally new generation capacity includes new Generation Capacity Resources and capacity upgrades to existing and planned Generation Capacity Resources. The increase is offset by generation capacity deratings on existing Generation Capacity Resources of 14,491.6 MW. The quantity of DR decreased by 1,234.0 MW and EE increased by 1,942.6 MW of installed capacity as compared to the 2021/2022 BRA.

Table 7 also illustrates the total amount of resource additions and reductions over fifteen Delivery Years since the implementation of the RPM construct. Over the period covering the first sixteen RPM BRAs, 62,567.4 MW of new generation capacity was added, which was partially offset by 55,822.8 MW of capacity de-ratings or retirements over the same period. Additionally, 10,115.7 MW of new DR and 4,656.4 MW of new EE resources were offered over the course of the sixteen Delivery Years since RPM's inception. The total net increase in installed capacity in PJM over the period of the last sixteen RPM auctions was 21,516.7 MW.

Table 7 – Incremental Capacity Resource Additions and Reductions to Date

	RTO*																
Capacity Changes (in ICAP)	**2007/2008**	**2008/2009**	**2009/2010**	**2010/2011**	**2011/2012**	**2012/2013**	**2013/2014[1]**	**2014/2015[2]**	**2015/2016**	**2016/2017[3]**	**2017/2018**	**2018/2019**	**2019/2020**	**2020/2021**	**2021/2022**	**2022/2023**	**Total**
Increase in Generation Capacity	602.0	724.2	1,272.3	1,776.2	3,576.3	1,893.5	1,737.5	1,582.8	8,207.0	6,806.0	6,973.3	5,055.6	6,327.8	4,257.5	1,196.9	10,578.5	62,567.4
Decrease in Generation Capacity	-674.6	-375.4	-550.2	-301.8	-264.7	-3,253.9	-1,924.1	-1,550.1	-6,432.6	-4,992.0	-9,760.1	-3,620.8	-2,923.1	-3,016.1	-1,691.7	-14,491.6	-55,822.8
Net Increase in Demand Resource	555.0	574.7	215.0	28.7	661.7	7,938.1	2,993.3	2,514.4	4,200.5	-5,310.7	-3,077.7	-82.4	86.4	-1,811.4	1,864.1	-1,234.0	10,115.7
Net Increase in Energy Efficiency	0.0	0.0	0.0	0.0	0.0	632.3	101.1	73.1	101.3	204.8	176.4	-83.5	311.9	545.5	650.9	1,942.6	4,656.4
Net Increase in Installed Capacity	**482.4**	**923.5**	**937.1**	**1503.1**	**3973.3**	**7,210.0**	**2,907.8**	**2,620.2**	**6,076.2**	**-3,291.9**	**-5,688.1**	**1,268.9**	**3,803.0**	**-24.5**	**2,020.2**	**-3,204.5**	**21,516.7**

* RTO numbers include all LDAs

** Values are with respect to the quantity offered in the previous year's Base Residual Auction.

1) Does not include Existing Generation located in ATSI Zone

2) Does not include Existing Generation located in Duke Zone

3) Does not include Existing Generation located in EKPC Zone

Table 7A provides a further breakdown of the generation increases and decreases for the 2022/2023 Delivery Year on an LDA basis.

Table 7A – Generation Increases and Decreases by LDA Effective 2022/2023 Delivery Year

LDA Name	Increases	Decreases
EMAAC	360.7	(491.4)
MAAC*	1,065.6	(4,033.3)
Total RTO**	**10,578.5**	**(14,491.6)**

All Values in ICAP terms

*MAAC includes EMAAC

**RTO includes MAAC

Table 8 provides a breakdown of the new capacity offered into the each BRA into the categories of new resources, reactivated units, and uprates to existing capacity, and then further down into resource type. As shown in this table, there was a significant increase in generating capacity from combined cycle, wind and solar in the 2022/2023 BRA as compared to the 2021/2022 BRA. The capacity offered in the 2022/2023 BRA resulted from both new generating resources and uprates to existing resources including gas, nuclear, wind, and solar resources. As shown in Figure 3, the largest growth remains in combined cycle plants.

2022/2023 RPM Base Residual Auction Results

Table 8 – Further Breakdown of Incremental Capacity Resource Additions from 2007/2008 to 2022/2023

	Delivery Year	CT/GT	Combined Cycle	Diesel	Hydro	Steam	Nuclear	Solar	Wind	Fuel Cell	Total
New Capacity Units (ICAP MW)	2007/2008			18.7	0.3						19.0
	2008/2009			27.0					66.1		93.1
	2009/2010	399.5		23.8		53.0					476.3
	2010/2011	283.3	580.0	23.0					141.4		1,027.7
	2011/2012	416.4	1,135.0			704.8		1.1	75.2		2,332.5
	2012/2013	403.8		7.8		621.3			75.1		1,108.0
	2013/2014	329.0	705.0	6.0		25.0		9.5	245.7		1,320.2
	2014/2015	108.0	650.0	35.1	132.9			28.0	146.6		1,100.6
	2015/2016	1,382.5	5,914.5	19.4	148.4	45.4		13.8	104.9	30.0	7,658.9
	2016/2017	171.1	4,994.5	38.3		24.0		32.1	54.3		5,314.3
	2017/2018	131.0	5,010.0	124.8	6.0	90.0		27.0			5,388.8
	2018/2019	1,032.5	2,352.3	29.9				82.8	127.1		3,624.6
	2019/2020	167.0	6,145.0	29.9				152.3	73.0		6,567.2
	2020/2021		2,410.0	26.3	4.0			94.3	30.2		2,564.8
	2021/2022			19.9				237.8	65.7		323.4
	2022/2023	14.0	5,626.8					1,440.8	345.1		7,426.7
Capacity from Reactivated Units (ICAP MW)	2007/2008					47.0					47.0
	2008/2009					131.0					131.0
	2009/2010										-
	2010/2011	160.0		10.7							170.7
	2011/2012	80.0				101.0					181.0
	2012/2013										-
	2013/2014										-
	2014/2015			9.0							9.0
	2015/2016										-
	2016/2017					21.0					21.0
	2017/2018					991.0					991.0
	2018/2019										-
	2019/2020										-
	2020/2021										-
	2021/2022										-
	2022/2023										-
Uprates to Existing Capacity Resources (ICAP MW)	2007/2008	114.5		13.9	80.0	235.6	92.0				536.0
	2008/2009	108.2	34.0	18.0	105.5	196.0	38.4				500.1
	2009/2010	152.2	206.0		162.5	61.4	197.4		16.5		796.0
	2010/2011	117.3	163.0		48.0	89.2	160.3				577.8
	2011/2012	369.2	148.6	57.4		186.8	292.1		8.7		1,062.8
	2012/2013	231.2	164.3	14.2		193.0	126.0		56.8		785.5
	2013/2014	56.4	59.0	0.3		215.0	47.0		39.6		417.3
	2014/2015	104.9		0.5	41.5	138.6	107.0	7.1	73.6		473.2
	2015/2016	216.8	72.0	4.7	15.7	63.4	149.2	2.2	24.1		548.1
	2016/2017	436.6	420.0	3.3	7.4	484.3	102.6	1.7	14.8		1,470.7
	2017/2018	71.9	212.5	5.1	105.9	64.8	11.0	0.4	2.1		473.7
	2018/2019	33.4	548.0	2.4	22.9	11.9	79.3	-	14.9	-	712.8
	2019/2020	29.3	72.5	3.9	5.2	65.3	-	-	46.8	-	223.0
	2020/2021	9.3	588.8	1.2	4.6	5.7		1.0	14.7		625.3
	2021/2022	100.2	549.9	7.1	3.6	91.9	-	24.2	18.4	-	795.3
	2022/2023	674.1	316.4	7.7		334.9	99.0	50.0	10.3		1,492.4
	Total	7,903.6	39,078.1	589.3	894.4	5,292.3	1,501.3	2,206.1	1,891.7	30.0	59,386.8

Figure 3: Cumulative Generation Capacity Increases by Fuel Type

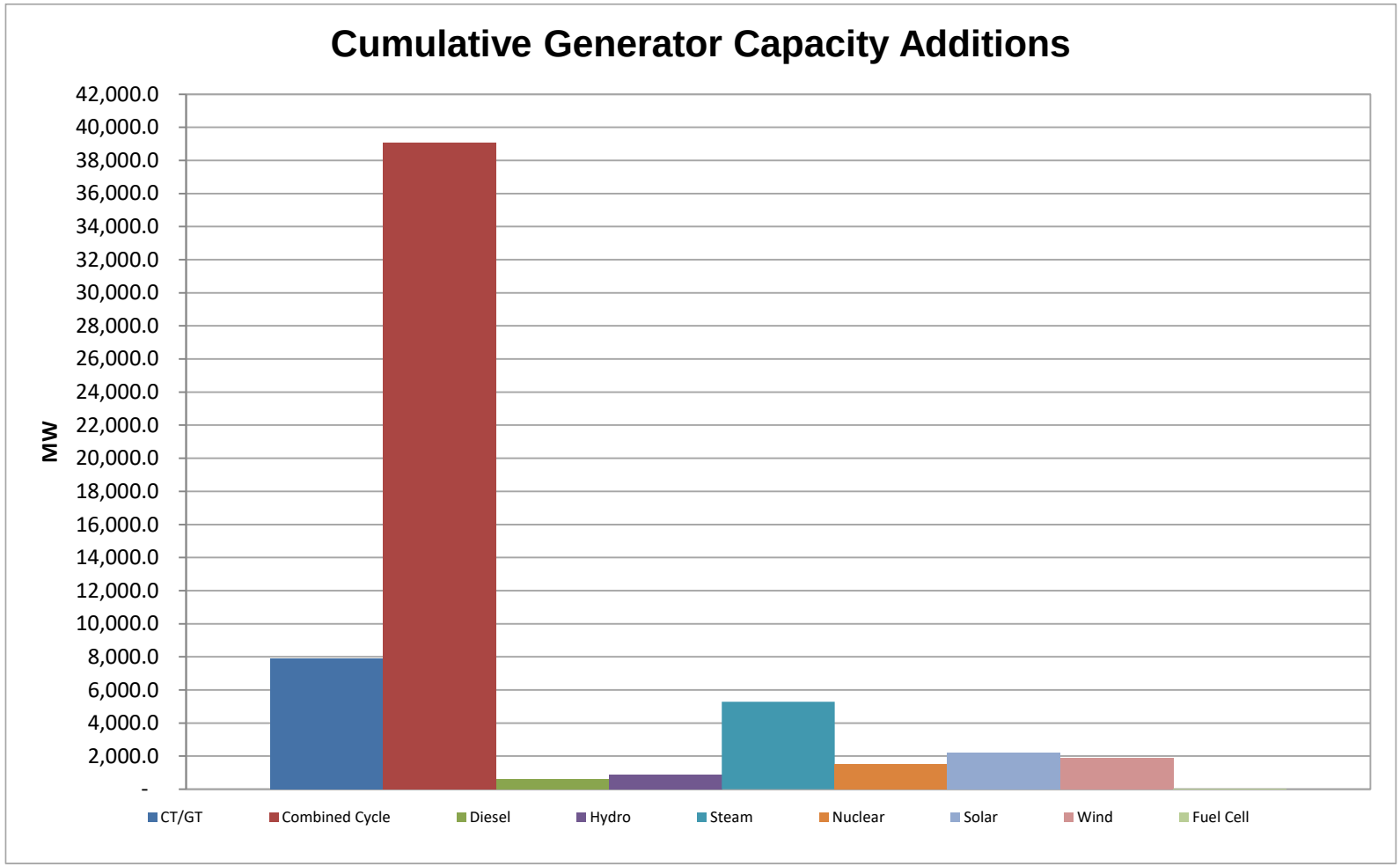


Table 9 shows the changes that have occurred regarding resource deactivation and retirement since the RPM was approved by FERC. The MW values shown in Table 9 represent the quantity of unforced capacity cleared in the 2022/2023 Base Residual Auction that came from resources that have either withdrawn their request to deactivate, postponed retirement, or been reactivated (i.e., came out of retirement or mothball state for the RPM auctions) since the inception of RPM. This total accounts for 13,706.2 MW of cleared UCAP in the 2022/2023 BRA which equates to 17,646.3 MW of ICAP Offered.

Table 9 – Changes to Generation Retirement Decisions since Commencement of RPM in 2007/2008

	RTO*	
Generation Resource Decision Changes	ICAP Offered	UCAP Cleared
Withdrawn Deactivation Requests	13,747.7	10,530.0
Postponed or Cancelled Retirement	3,165.2	2,465.0
Reactivation	733.4	711.2
Total	**17,646.3**	**13,706.2**

RPM Impact to Date

As illustrated in Table 5, for the 2022/2023 auction, the capacity exports were 1,525.3 MW and the offered capacity imports were 1,649.1 MW. The difference between the capacity imports and exports results is a net capacity import of 123.8 MW. In the planning year preceding the RPM auction implementation, 2006/2007, there was a net capacity export of 2,616.0 MW. In this auction, PJM is now a net importer of 123.8 MW. Therefore, RPM's impact on PJM capacity interchange is 2,739.8 MW.

The minimum net impact of the RPM implementation on the availability of Installed Capacity resources for the 2022/2023 planning year can be estimated by adding the net change in capacity imports and exports over the period, the forward demand and energy efficiency resources, the increase in Installed Capacity over the RPM implementation period from Table 8 and the net change in generation retirements from Table 9. Therefore, as illustrated in Table 10, the minimum estimated net impact of the RPM implementation on the availability of capacity in the 2022/2023 compared to what would have happened absent this implementation is 90,718.7 MW.

Table 10 shows the details on RPM's impact to date in ICAP terms.

Table 10 – RPM's Impact to Date

Change in Capacity Availability	Installed Capacity MW
New Generation	46,346.1
Generation Upgrades (not including reactivations)	11,490.0
Generation Reactivation	1,550.7
Forward Demand and Energy Efficiency Resources	14,772.1
Cleared ICAP from Withdrawn or Cancelled Retirements	13,820.0
Net increase in Capacity Imports	2,739.8
Total Impact on Capacity Availability in 2022/2023 Delivery Year	**90,718.7**

Discussion of Factors Impacting the RPM Clearing Prices

The main factors impacting 2022/2023 RPM BRA clearing prices relative to 2021/2022 BRA clearing prices are provided below, separated out by changes to the demand-side and supply-side of the market.

Changes that impacted the Demand Curve:

- The forecast peak load for the PJM RTO for the 2022/2023 Delivery Year is 150,229.0 MW which is 2,418.4 MW or about 1.6% below the forecast peak load of 152,647.4 MW for the 2021/2022 BRA. This reduction, along with a lower Installed Reserve Margin and pool-wide EFORd, was manifested in a 3,086 MW decrease in the reliability requirement for the RTO as compared to the 2021/2022 BRA.

- 1% shift to the left of the downward-sloping Variable Resource Requirement Curve (proposed in PJM's Quadrennial Review filing (Docket No. ER19- 105))

- 230 MW of PRD across the RTO has elected to participate in the 2022/2023 BRA: 80 MW in the BGE LDA, 110 MW in the PEPCO LDA, and 40 MW in the EMAAC LDA (with 19.6 MW located in the DPL-South LDA).

- The Net CONE decreased for the RTO and for all of the modeled LDAs. The Net CONE of the RTO decreased by 19.0% and the decrease in LDA Net CONE values ranged from 7.4% for the BGE LDA to 28.0% for the COMED LDA.

Changes that impacted the Supply Curve:

- The 2022/2023 BRA is the third BRA for which PJM has procured only Capacity Performance ("CP") Resources.

    - The nameplate capability of wind resources that cleared in the 2022/2023 BRA as annual CP capacity and/or winter seasonal CP capacity is approximately 8,518.3 MW, which is 392.3 MW greater than the 8,126 MW of wind energy nameplate capability that cleared in the 2021/2022 BRA.

- The nameplate capability of solar resources that cleared in the 2022/2023 BRA as annual CP capacity and/or summer seasonal CP capacity is approximately 3,242.8 MW, which is 1,601.8 MW greater than the 1,641 MW of solar energy nameplate capability that cleared in the 2021/2022 BRA.

- Capacity offered by DR in UCAP terms is 1,373.8 MW lower than in the 2021/2022 BRA.

- Capacity offered by EE in UCAP terms is 2,102.0 MW higher than in the 2021/2022 BRA.

- 686.8 MW of seasonal capacity resources cleared in an aggregated manner to form a year-round commitment. 686.8 MW of summer CP resources comprised of 442.0 MW of summer DR, 234.9 MW of summer EE and 9.9 MW of intermittent resources cleared along with 686.8 MW of winter CP resources comprised mainly of winter capability from wind resources.

- New generation capacity of 6,053.9 MW was offered into the BRA comprised of 4,843.6 of new generation and 1,210.3 MW of uprates.

- In general, offer prices from supply resources were lower in this auction compared to the prior auction

- The 2022/2023 BRA is the first RPM auction conducted under the expanded application of the Minimum Offer Price Rule resulting from FERC's December 19, 2019 Order[3].

[3] Docket Nos. EL16-49-000 EL18-178-000 (Consolidated)