



Monitoring
Analytics

Scenario Summary

RPM Base Residual Auctions

2013/2014 – 2019/2020

The Independent Market Monitor for PJM

January 24, 2017

Introduction

This report, prepared by the Independent Market Monitor for PJM (IMM or MMU), includes summary tables of the results of the IMM's analysis of the Reliability Pricing Model (RPM) Base Residual Auctions (BRA) for the 2013/2014 through 2019/2020 Delivery Years. The MMU prepares a report for each RPM Auction. Each report includes the results of detailed analysis performed by the MMU of the impact of key features of the capacity market. Prior to the report for the 2019/2020 Delivery Year, the reports did not include summary tables. This report includes comparable summary tables for prior reports in order to make the results more easily accessible. There are two tables for each auction. The first table shows the revenue impact of each scenario analyzed. The second table shows the MW impact of each scenario analyzed.¹

¹ The detailed reports are all available on the MMU's web site. www.monitoringanalytics.com/reports/Reports/2017.shtml

Table 1 Scenario summary of RPM revenue: 2019/2020 RPM Base Residual Auction

Scenario	Scenario Description	Scenario Impact		
		RPM Revenue (\$ per Delivery Year)	RPM Revenue (\$ per Delivery Year)	Percent
0	Actual Results	\$6,999,893,108	NA	NA
1	Revised Shape of the VRR Curve	\$6,584,436,158	\$415,456,950	6.3%
2	ComEd CETL at 2017/2108 Level	\$6,612,836,020	\$387,057,088	5.9%
3	Forecast Peak Load Reduced by 2.6 Percent	\$8,101,386,204	(\$1,101,493,096)	(13.6%)
4	Net Revenue Offset Calculation	\$6,956,448,094	\$43,445,014	0.6%
5	Inclusion of DR/EE Offers	\$9,099,465,731	(\$2,099,572,623)	(23.1%)
6	Inclusion of EE Offers and EE Add Back	\$6,905,618,435	\$94,274,673	1.4%
7	EE Cleared MW Equal to EE Add Back MW	\$6,983,867,441	\$16,025,667	0.2%
8	Inclusion of Base Capacity DR/EE Offers	\$8,206,198,971	(\$1,206,305,862)	(14.7%)
9	Inclusion of CP DR/EE Offers	\$6,861,332,713	\$138,560,395	2.0%
10	Inclusion of 75 Percent of Offers for External Generation	\$7,089,724,034	(\$89,830,926)	(1.3%)
11	Inclusion of 50 Percent of Offers for External Generation	\$7,280,090,853	(\$280,197,745)	(3.8%)
12	Inclusion of 25 Percent of Offers for External Generation	\$7,399,063,952	(\$399,170,844)	(5.4%)
13	Inclusion of Base Capacity and Base Capacity DR/EE Offers	\$12,248,291,567	(\$5,248,398,459)	(42.9%)
14	Inclusion of Base Capacity and Base Capacity DR/EE Offers, and CP DR/EE Offers	\$13,595,336,649	(\$6,595,443,541)	(48.5%)
15	Inclusion of Base Capacity and Base Capacity DR/EE Offers, CP DR/EE Offers, and 50 Percent of Offers for External Generation	\$14,599,974,126	(\$7,600,081,018)	(52.1%)

Table 2 Scenario summary of cleared UCAP: 2019/2020 RPM Base Residual Auction

Scenario	Scenario Description	Scenario Impact		
		Cleared UCAP (MW)	Cleared UCAP (MW)	Percent
0	Actual Results	167,305.9	NA	NA
1	Revised Shape of the VRR Curve	164,937.1	2,368.8	1.4%
2	ComEd CETL at 2017/2108 Level	167,164.4	141.5	0.1%
3	Forecast Peak Load Reduced by 2.6 Percent	171,757.1	(4,451.2)	(2.6%)
4	Net Revenue Offset Calculation	167,314.9	(9.0)	0.0%
5	Inclusion of DR/EE Offers	164,225.7	3,080.2	1.9%
6	Inclusion of EE Offers and EE Add Back	165,415.0	1,890.9	1.1%
7	EE Cleared MW Equal to EE Add Back MW	166,902.3	403.6	0.2%
8	Inclusion of Base Capacity DR/EE Offers	165,666.6	1,639.3	1.0%
9	Inclusion of CP DR/EE Offers	166,346.2	959.7	0.6%
10	Inclusion of 75 Percent of Offers for External Generation	167,227.9	78.0	0.0%
11	Inclusion of 50 Percent of Offers for External Generation	167,055.4	250.5	0.1%
12	Inclusion of 25 Percent of Offers for External Generation	166,951.4	354.5	0.2%
13	Inclusion of Base Capacity and Base Capacity DR/EE Offers	164,129.2	3,176.7	1.9%
14	Inclusion of Base Capacity and Base Capacity DR/EE Offers, and CP DR/EE Offers	162,446.2	4,859.7	3.0%
15	Inclusion of Base Capacity and Base Capacity DR/EE Offers, CP DR/EE Offers, and 50 Percent of Offers for External Generation	161,511.0	5,794.9	3.6%

Table 3 Scenario summary of RPM revenue: 2018/2019 RPM Base Residual Auction

Scenario	Scenario Description	Scenario Impact		
		RPM Revenue (\$ per Delivery Year)	RPM Revenue (\$ per Delivery Year)	Percent
0	Actual Results	\$10,939,219,232	NA	NA
1	Revised Shape of the VRR Curve	\$10,046,171,842	\$893,047,391	8.9%
2	ComEd CETL at 2017/2108 Level	\$10,801,404,580	\$137,814,653	1.3%
3	Forecast Peak Load Reduced by 2.6 Percent	\$12,413,523,357	(\$1,474,304,124)	(11.9%)
4	Net Revenue Offset Calculation	\$10,835,491,382	\$103,727,850	1.0%
5	Inclusion of DR/EE Offers	\$14,156,352,207	(\$3,217,132,975)	(22.7%)
6	Inclusion of Base Capacity DR/EE Offers	\$12,649,655,624	(\$1,710,436,392)	(13.5%)
7	Inclusion of CP DR/EE Offers	\$11,212,481,081	(\$273,261,849)	(2.4%)
8	Inclusion of 75 Percent of Offers for External Generation	\$11,447,132,458	(\$507,913,225)	(4.4%)
9	Inclusion of 50 Percent of Offers for External Generation	\$11,799,025,680	(\$859,806,448)	(7.3%)
10	Inclusion of 25 Percent of Offers for External Generation	\$12,195,435,513	(\$1,256,216,281)	(10.3%)
11	Inclusion of Imports without Psedo Ties	\$11,026,720,809	(\$87,501,577)	(0.8%)
12	Inclusion of Base Capacity and Base Capacity DR/EE Offers	\$16,386,289,091	(\$5,447,069,859)	(33.2%)
13	Inclusion of Base Capacity and Base Capacity DR/EE Offers, and CP DR/EE Offers	\$24,106,230,115	(\$13,167,010,883)	(54.6%)
14	Inclusion of Base Capacity and Base Capacity DR/EE Offers, CP DR/EE Offers, and 50 Percent of Offers for External Generation	\$25,007,615,971	(\$14,068,396,739)	(56.3%)

Table 4 Scenario summary of cleared UCAP: 2018/2019 RPM Base Residual Auction

Scenario	Scenario Description	Scenario Impact		
		Cleared UCAP (MW)	Cleared UCAP (MW)	Percent
0	Actual Results	166,836.9	NA	NA
1	Revised Shape of the VRR Curve	165,403.5	1,433.4	0.9%
2	ComEd CETL at 2017/2108 Level	166,550.1	286.8	0.2%
3	Forecast Peak Load Reduced by 2.6 Percent	170,666.2	(3,829.3)	(2.2%)
4	Net Revenue Offset Calculation	166,836.8	0.1	0.0%
5	Inclusion of DR/EE Offers	164,526.3	2,310.6	1.4%
6	Inclusion of Base Capacity DR/EE Offers	165,368.9	1,468.0	0.9%
7	Inclusion of CP DR/EE Offers	166,465.1	371.8	0.2%
8	Inclusion of 75 Percent of Offers for External Generation	166,366.0	470.9	0.3%
9	Inclusion of 50 Percent of Offers for External Generation	165,933.1	903.8	0.5%
10	Inclusion of 25 Percent of Offers for External Generation	165,596.9	1,240.0	0.7%
11	Inclusion of Imports without Psedo Ties	166,653.0	183.9	0.1%
12	Inclusion of Base Capacity and Base Capacity DR/EE Offers	164,417.4	2,419.5	1.5%
13	Inclusion of Base Capacity and Base Capacity DR/EE Offers, and CP DR/EE Offers	161,126.2	5,710.7	3.5%
14	Inclusion of Base Capacity and Base Capacity DR/EE Offers, CP DR/EE Offers, and 50 Percent of Offers for External Generation	158,621.1	8,215.8	5.2%

Table 5 Scenario summary of RPM revenue: 2017/2018 RPM Base Residual Auction

Scenario	Scenario Description	RPM Revenue (\$ per Delivery Year)	Scenario Impact	
			RPM Revenue (\$ per Delivery Year)	Percent
0	Actual Results	\$7,512,229,630	NA	NA
1	Inclusion of Limited and Summer Extended DR	\$9,738,222,922	(\$2,225,993,292)	(22.9%)
2	Inclusion of DR/EE Offers	\$16,859,658,203	(\$9,347,428,573)	(55.4%)
3	Application of the Short-Term Resource Procurement (STRP) Target to the VRR Curve	\$9,947,329,539	(\$2,435,099,909)	(24.5%)
3A	Application of the Short-Term Resource Procurement (STRP) Target to the VRR Curve and Demand Resource Constraints	\$9,967,834,187	(\$2,455,604,557)	(24.6%)
4	Short-Term Resource Procurement Target and inclusion of Limited and Summer Extended Offers	\$10,932,522,889	(\$3,420,293,259)	(31.3%)
5	Short-Term Resource Procurement Target and inclusion of DR/EE Offers	\$23,870,404,571	(\$16,358,174,941)	(68.5%)
6	Inclusion of Environmental Compliance Costs associated with the EPA's MATS and NESHAP rules, and the NJ HEDD rule	\$7,531,360,041	(\$19,130,411)	(0.3%)
7	Inclusion of 75 Percent of Offers for External Generation	\$8,210,054,013	(\$697,824,383)	(8.5%)
8	Inclusion of 50 Percent of Offers for External Generation	\$9,296,481,624	(\$1,784,251,993)	(19.2%)
9	Inclusion of 25 Percent of Offers for External Generation	\$10,202,534,135	(\$2,690,304,504)	(26.4%)
10	Inclusion of Imports without Pseudo Ties	\$7,785,489,989	(\$273,260,359)	(3.5%)
11	Inclusion of Imports without Firm Transmission	\$7,519,761,801	(\$7,532,171)	(0.1%)

Table 6 Scenario summary of cleared UCAP: 2017/2018 RPM Base Residual Auction

Scenario	Scenario Description	RPM Revenue (\$ per Delivery Year)	Difference from Actual Results	
			RPM Revenue (\$ per Delivery Year)	Percent
0	Actual Results	167,003.7	NA	NA
1	Inclusion of Limited and Summer Extended DR	166,237.1	766.6	0.5%
2	Inclusion of DR/EE Offers	163,713.2	3,290.5	2.0%
3	Application of the Short-Term Resource Procurement (STRP) Target to the VRR Curve	170,362.5	(3,358.8)	(2.0%)
3A	Application of the Short-Term Resource Procurement (STRP) Target to the VRR Curve and Demand Resource Constraints	170,362.5	(3,358.8)	(2.0%)
4	Short-Term Resource Procurement Target and inclusion of Limited and Summer Extended Offers	170,037.8	(3,034.1)	(1.8%)
5	Short-Term Resource Procurement Target and inclusion of DR/EE Offers	164,969.8	2,033.9	1.2%
6	Inclusion of Environmental Compliance Costs associated with the EPA's MATS and NESHAP rules, and the NJ HEDD rule	166,975.9	27.8	0.0%
7	Inclusion of 75 Percent of Offers for External Generation	166,738.6	265.1	0.2%
8	Inclusion of 50 Percent of Offers for External Generation	166,369.5	634.2	0.4%
9	Inclusion of 25 Percent of Offers for External Generation	165,646.4	1,357.3	0.8%
10	Inclusion of Imports without Pseudo Ties	166,911.3	92.4	0.1%
11	Inclusion of Imports without Firm Transmission	166,999.3	4.4	0.0%

Table 7 Scenario summary of RPM revenue: 2016/2017 RPM Base Residual Auction

Scenario	Scenario Description	Scenario Impact		
		RPM Revenue (\$ per Delivery Year)	RPM Revenue (\$ per Delivery Year)	Percent
0	Actual Results	\$5,513,237,849	NA	NA
1	Short-Term Resource Procurement Target	\$6,894,277,704	(\$1,381,039,855)	(20.0%)
2	Inclusion of Limited and Extended Summer DR	\$10,141,586,456	(\$4,628,348,607)	(45.6%)
3	Short-Term Resource Target and Inclusion of Limited and Extended Summer DR	\$15,834,365,769	(\$10,321,127,920)	(65.2%)
4	Inclusion of DR/EE Offers	\$15,630,600,107	(\$10,117,362,259)	(64.7%)
5	Inclusion of Environmental Compliance Costs associated with the EPA's MATS and NESHAP rules, and the NJ HEDD Rule	\$5,310,133,190	\$203,104,659	3.8%
6	Inclusion of 75 Percent of Offers for External Generation	\$6,150,779,857	(\$637,542,008)	(10.4%)
7	Inclusion of 25 Percent of Offers for External Generation	\$7,814,811,849	(\$2,301,574,000)	(29.5%)
8	Inclusion of Imports without Firm Transmission	\$6,810,335,209	(\$1,297,097,360)	(19.0%)

Table 8 Scenario summary of cleared UCAP: 2016/2017 RPM Base Residual Auction

Scenario	Scenario Description	Scenario Impact		
		Cleared UCAP (MW)	Cleared UCAP (MW)	Percent
0	Actual Results	156,840.2	NA	NA
1	Short-Term Resource Procurement Target	159,599.3	(2,759.1)	(1.7%)
2	Inclusion of Limited and Extended Summer DR	167,254.1	(10,413.9)	(6.2%)
3	Short-Term Resource Target and Inclusion of Limited and Extended Summer DR	169,457.4	(12,617.2)	(7.4)
4	Inclusion of DR/EE Offers	165,296.7	(8,456.5)	(5.1)
5	Inclusion of Environmental Compliance Costs associated with the EPA's MATS and NESHAP rules, and the NJ HEDD Rule	156,882.4	(42.2)	0.0%
6	Inclusion of 75 Percent of Offers for External Generation	155,799.8	1,040.4	0.7%
7	Inclusion of 25 Percent of Offers for External Generation	154,449.2	2,391.0	1.5%
8	Inclusion of Imports without Firm Transmission	155,507.4	1,332.8	0.9%

Table 9 Scenario summary of RPM revenue: 2015/2016 RPM Base Residual Auction

Scenario	Scenario Description	Scenario Impact		
		RPM Revenue (\$ per Delivery Year)	RPM Revenue (\$ per Delivery Year)	Percent
0	Actual Results	\$9,734,336,627	NA	NA
1	Short-Term Resource Procurement Target	\$12,386,531,361	(\$2,652,194,734)	(21.4%)
2	Inclusion of Limited and Extended Summer DR	\$13,636,817,993	(\$3,902,481,366)	(28.6%)
3	Short-Term Resource Procurement Target and Inclusion of Limited and Extended Summer DR	\$19,234,618,910	(\$9,500,282,283)	(49.4%)
4	Inclusion of DR/EE Offers	\$23,457,546,624	(\$13,723,209,998)	(58.5%)
5	Inclusion of Environmental Compliance Costs associated with the EPA's MACT and NESHAP rules, and the NJ HEDD Rule	\$8,291,442,376	\$1,442,894,251	17.4%

Table 10 Scenario summary of cleared UCAP: 2015/2016 RPM Base Residual Auction

Scenario	Scenario Description	Scenario Impact		
		Cleared UCAP (MW)	Cleared UCAP (MW)	Percent
0	Actual Results	164,561.2	NA	NA
1	Short-Term Resource Procurement Target	167,607.9	(3,046.7)	(1.8%)
2	Inclusion of Limited and Extended Summer DR	162,323.0	2,238.2	1.4%
3	Short-Term Resource Procurement Target and Inclusion of Limited and Extended Summer DR	164,335.8	225.4	0.1%
4	Inclusion of DR/EE Offers	156,381.4	8,179.8	5.2%
5	Inclusion of Environmental Compliance Costs associated with the EPA's MACT and NESHAP rules, and the NJ HEDD Rule	164,292.6	268.6	0.2%

Table 11 Scenario summary of RPM revenue: 2014/2015 RPM Base Residual Auction

Scenario	Scenario Description	Scenario Impact		
		RPM Revenue (\$ per Delivery Year)	RPM Revenue (\$ per Delivery Year)	Percent
0	Actual Results	\$7,258,389,284	NA	NA
1	Change in CETL Values from the 2013/2014 RPM BRA	\$7,498,575,916	(\$240,186,632)	(3.2%)
2	Short-Term Resource Procurement Target	\$8,494,547,168	(\$1,236,157,884)	(14.6%)
3	Inclusion of Limited and Extended Summer DR	\$9,631,126,037	(\$2,372,736,753)	(24.6%)
4	Inclusion of Environmental Compliance Costs associated with the EPA's MACT rules	\$5,897,269,210	\$1,361,120,074	23.1%

Table 12 Scenario summary of cleared UCAP: 2014/2015 RPM Base Residual Auction

Scenario	Scenario Description	Scenario Impact		
		Cleared UCAP (MW)	Cleared UCAP (MW)	Percent
0	Actual Results	149,974.7	NA	NA
1	Change in CETL Values from the 2013/2014 RPM BRA	150,094.6	(119.9)	(0.1%)
2	Short-Term Resource Procurement Target	153,363.1	(3,388.4)	(2.2%)
3	Inclusion of Limited and Extended Summer DR	149,420.6	554.1	0.4%
4	Inclusion of Environmental Compliance Costs associated with the EPA's MACT rules	150,564.2	(589.5)	(0.4%)

Table 13 Scenario summary of RPM revenue: 2013/2014 RPM Base Residual Auction

Scenario	Scenario Description	Scenario Impact		
		RPM Revenue (\$ per Delivery Year)	RPM Revenue (\$ per Delivery Year)	Percent
0	Actual Results	\$6,708,567,045	NA	NA
1	Short-Term Resource Procurement Target	\$8,763,920,530	(\$2,055,353,485)	(23.5%)
2	Use of PJM calculated default ACR values	\$6,573,377,825	\$135,189,220	2.1%

Table 14 Scenario summary of cleared UCAP: 2013/2014 RPM Base Residual Auction

Scenario	Scenario Description	Scenario Impact		
		Cleared UCAP (MW)	Cleared UCAP (MW)	Percent
0	Actual Results	152,743.3	NA	NA
1	Short-Term Resource Procurement Target	156,493.0	(3,749.7)	(2.4%)
2	Use of PJM calculated default ACR values	152,743.3	0.0	0.0%