Monitoring Analytics

Impact of New Jersey Assembly Bill 3442 on the PJM Capacity Market

The Independent Market Monitor for PJM

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Introduction

New Jersey Assembly Bill No. 3442 was the subject of a hearing on December 16, 2010. The Bill addresses the construction of new generating capacity in New Jersey. One of the questions raised in the hearing was the impact of the proposed addition of generation capacity on PJM markets.

The Bill would require New Jersey to procure 1,000 MW of new capacity when it is not needed for reliability, require the new capacity to clear in the auction through an offer price below its costs and provide subsidies to the new capacity in the form of additional out of market revenue. These features of the Bill are not consistent with the PJM market design. If implemented, the market results would not be consistent with a competitive outcome.

The result of such a subsidy by New Jersey ratepayers would be to artificially depress the Reliability Pricing Model (RPM) auction prices below the competitive level, with the result that the revenues to generators both inside and outside of New Jersey would be reduced as would the incentives to customers to manage load and to invest in cost effective demand side management technologies.

An analysis of the impact of adding 1,000 MW of capacity in New Jersey, paying it through an out of market subsidy, and requiring it to offer at zero shows that the result would be a reduction in capacity market revenues to PJM suppliers of more than one billion dollars per year, including about 600 million dollars in EMAAC and about 400 million dollars in rest of MAAC. The reduction in capacity payments to suppliers in New Jersey would be about 280 million dollars. These would have been the results in the 2013/2014 RPM Base Residual Auction if an additional 1,000 MW of capacity had been offered at a zero price in PSEG.

An analysis of the impact of adding 2,000 MW of capacity in New Jersey, paying it through an out of market subsidy, and requiring it to offer at zero shows that the result would be a reduction in capacity market revenues to PJM suppliers of more than two billion dollars per year, including about one billion dollars in EMAAC, about 700 million dollars in rest of MAAC and about 125 million in rest of RTO. The reduction in capacity payments to suppliers in New Jersey would be about 560 million dollars. These would have been the results in the 2013/2014 RPM Base Residual Auction if an additional 2,000 MW of capacity had been offered at a zero price in PSEG.

This substantial reduction in revenue would affect the investment decisions of current owners of capacity and potential investors in capacity both in New Jersey and in areas outside of New Jersey. The likely result is less investment in new and existing capacity, in the form of generation resources and demand response. Depressing the price in New Jersey would also mean that the required direct subsidy by New Jersey ratepayers would increase for the specified procured MW, with perhaps significant unintended

consequences for the business and residential customers who would have to pay the mandatory subsidy. The result of depressing RPM prices in New Jersey would also be to increase the probability that additional subsidies by New Jersey ratepayers will be required for any future capacity additions, either in the form of generation or demand side resources, needed to maintain reliability in New Jersey. The result of depressing RPM prices over a broad section of PJM would be to increase the probability that subsidies by ratepayers in other states will be required for any future capacity additions, either in the form of generation or demand side resources, needed to maintain reliability in that area.

The primary purpose of the Minimum Offer Price Rule (MOPR) in the PJM capacity market tariff is to prevent market participants from submitting uneconomic offers based on the receipt of out of market payments which result in artificially depressing RPM auction prices. While it is unclear if the MOPR would apply to the offers that result from the proposed legislation, those offers are not consistent with the intent of the MOPR under current capacity market conditions. The MOPR was designed to apply in this situation.

If the proposed legislation were to pass, the outcome in the short term will be regulatory uncertainty and unintended consequences for New Jersey, for all owners of and investors in capacity in PJM and for all potential investors in capacity in New Jersey, as jurisdictional issues are addressed and the meaning of the market rules is resolved.

Analysis

The analysis starts with all the inputs for the Base Residual Auction (BRA) for the 2013/2014 Delivery Year. The specified MW of capacity are added to the supply curve of capacity at the specified price in the specified location. The market is recleared and the clearing prices and quantities are calculated.

Table 1 shows the RPM market results for PJM if an additional 1,000.0 MW of Unforced Capacity (UCAP) had been offered in the PSEG zone at $0 per MW-day, compared to the actual results in the 2013/2014 BRA. Table 2 shows the difference between actual results for PJM and the results that would have occurred if an additional 1,000.0 MW UCAP had been offered in PSEG at $0 per MW-day. The results for Pepco would have remained the same. The EMAAC Locational Deliverability Area (LDA) would not have been constrained, but would have cleared with MAAC.[1] The EMAAC clearing price would have decreased $53.75 per MW-day (21.9 percent) to $191.25 per MW-day, and

[1] PSEG was modeled as a separate LDA in the 2013/2014 BRA, but did not have a binding constraint and cleared with EMAAC.

the EMAAC clearing quantity would have increased 566.6 MW (1.7 percent) to 33,402.0 MW. The rest of MAAC clearing price would have decreased $34.90 per MW-day (15.4 percent) to $191.25 per MW-day, and the rest of MAAC clearing quantity would have decreased 79.4 MW (0.3 percent) to 29,933.4 MW. The rest of RTO clearing price would have decreased $1.67 per MW-day (6.0 percent) to $26.06 per MW-day, and the rest of RTO clearing quantity would have decreased 487.2 MW (0.6 percent) to 84,616.2 MW.

Table 3 shows the RPM market results for New Jersey if an additional 1,000.0 MW UCAP had been offered in PSEG at $0 per MW-day, compared to the actual results in the 2013/2014 BRA. Table 4 shows the difference between actual results for New Jersey and the results that would have occurred if an additional 1,000.0 MW UCAP had been offered in PSEG at $0 per MW-day. The zones in New Jersey include AECO, JCPL, PSEG, and RECO. The EMAAC LDA would not have been constrained, but would have cleared with MAAC. All zones in New Jersey would have received the MAAC clearing price. The resource clearing price in the New Jersey zones would have decreased $53.75 per MW-day (21.9 percent) to $191.25 per MW-day. The AECO clearing quantity would have decreased 1.8 MW (0.1 percent) to 1,885.9 MW, the JCPL clearing quantity would have decreased 4.5 MW (0.1 percent) to 4,071.8 MW, the PSEG clearing quantity would have increased 918.2 MW (8.0 percent) to 12,389.0 MW, and the RECO clearing quantity would have decreased 0.3 MW (0.9 percent) to 32.1 MW.

Table 5 shows the RPM market results for PJM if an additional 2,000.0 MW UCAP had been offered in PSEG at $0 per MW-day, compared to the actual results in the 2013/2014 BRA. Table 6 shows the difference between actual results for PJM and the results that would have occurred if an additional 2,000.0 MW UCAP had been offered in PSEG at $0 per MW-day. The results for Pepco would have remained the same. The EMAAC LDA would not have been constrained, but would have cleared with MAAC. The EMAAC clearing quantity would have increased 1,461.2 MW (4.5 percent) to 34,296.6 MW. The SWMAAC LDA would have had a binding constraint. SWMAAC did not have a binding constraint and cleared with MAAC in the 2013/2014 BRA. The SWMAAC clearing price would have decreased $53.78 per MW-day (23.8 percent) to $172.37 per MW-day, and the rest of SWMAAC clearing quantity would have decreased 122.9 MW (1.9 percent) to 6,327.5 MW. The rest of MAAC clearing price would have decreased $84.78 per MW-day (37.5 percent) to $141.37 per MW-day, and the rest of MAAC clearing quantity would have decreased 154.7 MW (0.7 percent) to 23,407.7 MW. The rest of RTO clearing price would have decreased $3.67 per MW-day (13.2 percent) to $24.06 per MW-day, and the rest of RTO clearing quantity would have decreased 1,183.6 MW (1.4 percent) to 83,919.8 MW.

Table 7 shows the RPM market results for New Jersey if an additional 2,000.0 MW UCAP had been offered in PSEG at $0 per MW-day, compared to the actual results in the 2013/2014 BRA. Table 8 shows the difference between actual results for New Jersey and the results that would have occurred if an additional 2,000.0 MW UCAP had been

offered in PSEG at $0 per MW-day. The zones in New Jersey include AECO, JCPL, PSEG, and RECO. The EMAAC LDA would not have been constrained, but would have cleared with MAAC. All zones in New Jersey would have received the MAAC clearing price. The resource clearing price that New Jersey zones would have received would have decreased $103.63 per MW-day (42.3 percent) to $141.37 per MW-day. The AECO clearing quantity would have decreased 2.4 MW (0.1 percent) to 1,885.3 MW, the JCPL clearing quantity would have decreased 6.2 MW (0.2 percent) to 4,070.1 MW, the PSEG clearing quantity would have increased 1,916.0 MW (16.7 percent) to 13,386.8 MW, and the RECO clearing quantity would have decreased 0.4 MW (1.2 percent) to 32.0 MW.

Tables

Table 1 Impact on PJM of increasing supply in PSEG by 1,000.0 MW UCAP at $0 per MW-day: 2013/2014 RPM Base Residual Auction

	Actual Auction Results			New Generation Analysis		
	Clearing Prices	Cleared UCAP		Clearing Prices	Cleared UCAP	
LDA	($ per MW-day)	(MW)	Revenue	($ per MW-day)	(MW)	Revenue
Pepco	$247.14	4,791.7	$432,240,569	$247.14	4,791.7	$432,240,569
EMAAC	$245.00	32,835.4	$2,936,305,645	$191.25	33,402.0	$2,331,668,363
Rest of MAAC	$226.15	30,012.8	$2,477,399,073	$191.25	29,933.4	$2,089,538,404
Rest of RTO	$27.73	85,103.4	$861,369,808	$26.06	84,616.2	$804,860,833
PJM Total		152,743.3	$6,707,315,095		152,743.3	$5,658,308,168

Table 2 Difference between PJM actual and analysis results of increasing supply in PSEG by 1,000.0 MW UCAP at $0 per MW-day: 2013/2014 RPM Base Residual Auction

	Difference Clearing Prices		Difference Cleared UCAP		Difference Revenue	
LDA	$ per MW-day	Percentage	MW	Percentage	$	Percentage
Pepco	$0.00	0.0%	0.0	0.0%	$0	0.0%
EMAAC	($53.75)	(21.9%)	566.6	1.7%	($604,637,283)	(20.6%)
Rest of MAAC	($34.90)	(15.4%)	(79.4)	(0.3%)	($387,860,669)	(15.7%)
Rest of RTO	($1.67)	(6.0%)	(487.2)	(0.6%)	($56,508,975)	(6.6%)
PJM Total			0.0	0.0%	($1,049,006,927)	(15.6%)

Table 3 Impact on New Jersey of increasing supply in PSEG by 1,000.0 MW UCAP at $0 per MW-day: 2013/2014 RPM Base Residual Auction

	Actual Auction Results			New Generation Analysis		
	Clearing Prices	Cleared UCAP		Clearing Prices	Cleared UCAP	
Area	($ per MW-day)	(MW)	Revenue	($ per MW-day)	(MW)	Revenue
AECO	$245.00	1,887.7	$168,807,573	$191.25	1,885.9	$131,647,607
JCPL	$245.00	4,076.3	$364,523,128	$191.25	4,071.8	$284,237,089
PSEG	$245.00	11,470.8	$1,025,776,290	$191.25	12,389.0	$864,829,631
RECO	$245.00	32.4	$2,897,370	$191.25	32.1	$2,240,781
NJ Total	$245.00	17,467.2	$1,562,004,360	$191.25	18,378.8	$1,282,955,108

Table 4 Difference between New Jersey actual and analysis results of increasing supply in PSEG by 1,000.0 MW UCAP at $0 per MW-day: 2013/2014 RPM Base Residual Auction

	Difference Clearing Prices		Difference Cleared UCAP		Difference Revenue	
Area	$ per MW-day	Percentage	MW	Percentage	$	Percentage
AECO	($53.75)	(21.9%)	(1.8)	(0.1%)	($37,159,966)	(22.0%)
JCPL	($53.75)	(21.9%)	(4.5)	(0.1%)	($80,286,039)	(22.0%)
PSEG	($53.75)	(21.9%)	918.2	8.0%	($160,946,659)	(15.7%)
RECO	($53.75)	(21.9%)	(0.3)	(0.9%)	($656,589)	(22.7%)
NJ Total	($53.75)	(21.9%)	911.6	5.2%	($279,049,253)	(17.9%)

Table 5 Impact on PJM of increasing supply in PSEG by 2,000.0 MW UCAP at $0 per MW-day: 2013/2014 RPM Base Residual Auction

	Actual Auction Results			New Generation Analysis		
	Clearing Prices	Cleared UCAP		Clearing Prices	Cleared UCAP	
LDA	($ per MW-day)	(MW)	Revenue	($ per MW-day)	(MW)	Revenue
Pepco	$247.14	4,791.7	$432,240,569	$247.14	4,791.7	$432,240,569
Rest of SWMAAC	$226.15	6,450.4	$532,446,655	$172.37	6,327.5	$398,094,979
EMAAC	$245.00	32,835.4	$2,936,305,645	$141.37	34,296.6	$1,769,706,275
Rest of MAAC	$226.15	23,562.4	$1,944,952,417	$141.37	23,407.7	$1,207,838,490
Rest of RTO	$27.73	85,103.4	$861,369,808	$24.06	83,919.8	$736,975,292
PJM Total		152,743.3	$6,707,315,095		152,743.3	$4,544,855,605

Table 6 Difference between PJM actual and analysis results of increasing supply in PSEG by 2,000.0 MW UCAP at $0 per MW-day: 2013/2014 RPM Base Residual Auction

	Difference Clearing Prices		Difference Cleared UCAP		Difference Revenue	
LDA	$ per MW-day	Percentage	MW	Percentage	$	Percentage
Pepco	$0.00	0.0%	0.0	0.0%	$0	0.0%
Rest of SWMAAC	($53.78)	(23.8%)	(122.9)	(1.9%)	($134,351,677)	(25.2%)
EMAAC	($103.63)	(42.3%)	1,461.2	4.5%	($1,166,599,370)	(39.7%)
Rest of MAAC	($84.78)	(37.5%)	(154.7)	(0.7%)	($737,113,927)	(37.9%)
Rest of RTO	($3.67)	(13.2%)	(1,183.6)	(1.4%)	($124,394,516)	(14.4%)
PJM Total			0.0	0.0%	($2,162,459,490)	(32.2%)

Table 7 Impact on New Jersey of increasing supply in PSEG by 2,000.0 MW UCAP at $0 per MW-day: 2013/2014 RPM Base Residual Auction

	Actual Auction Results			New Generation Analysis		
	Clearing Prices	Cleared UCAP		Clearing Prices	Cleared UCAP	
Area	($ per MW-day)	(MW)	Revenue	($ per MW-day)	(MW)	Revenue
AECO	$245.00	1,887.7	$168,807,573	$141.37	1,885.3	$97,281,574
JCPL	$245.00	4,076.3	$364,523,128	$141.37	4,070.1	$210,017,364
PSEG	$245.00	11,470.8	$1,025,776,290	$141.37	13,386.8	$690,759,549
RECO	$245.00	32.4	$2,897,370	$141.37	32.0	$1,651,202
NJ Total	$245.00	17,467.2	$1,562,004,360	$141.37	19,374.2	$999,709,689

Table 8 Difference between New Jersey actual and analysis results of increasing supply in PSEG by 2,000.0 MW UCAP at $0 per MW-day: 2013/2014 RPM Base Residual Auction

	Difference Clearing Prices		Difference Cleared UCAP		Difference Revenue	
Area	$ per MW-day	Percentage	MW	Percentage	$	Percentage
AECO	($103.63)	(42.3%)	(2.4)	(0.1%)	($71,525,998)	(42.4%)
JCPL	($103.63)	(42.3%)	(6.2)	(0.2%)	($154,505,764)	(42.4%)
PSEG	($103.63)	(42.3%)	1,916.0	16.7%	($335,016,741)	(32.7%)
RECO	($103.63)	(42.3%)	(0.4)	(1.2%)	($1,246,168)	(43.0%)
NJ Total	($103.63)	(42.3%)	1,907.0	10.9%	($562,294,671)	(36.0%)