Market Monitoring Unit

Exelon/PSEG Merger Sensitivity Analyses

PJM Market Monitoring Unit

July 20, 2006

Summary

In this report, the PJM Market Monitoring Unit ("MMU") presents the results of sensitivity analyses performed in response to specific requests submitted by the Staff of the New Jersey Board of Public Utilities in the matter of the proposed merger between PSEG and Exelon that is currently before the New Jersey Board of Public Utilities ("NJBPU").

The MMU analyzed the effects of the proposed divestiture scenarios on the structure of the aggregate PJM Energy Market, the local PJM Energy Market as defined by the PJM eastern interface constraint and the PJM Capacity Market. For each divestiture scenario, pre- and post-merger market structure was defined by the HHI and the merger impact was measured as the resultant difference in HHI. The period of analysis as requested by NJBPU Staff was May 1, 2005 through April 30, 2006.

The U.S. Department of Justice and the Federal Trade Commission Horizontal Merger Guidelines (Guidelines) outline the enforcement policy of the Department of Justice and the Federal Trade Commission concerning horizontal mergers subject to section 7 of the Clayton Act, section 1 of the Sherman Act, and Section 5 of the FTC Act. As noted in the Guidelines, "the unifying theme of the Guidelines is that mergers should not be permitted to create or enhance market power or facilitate its exercise."[1]

The Guidelines use market concentration, measured by the HHI, as a basic metric of the structural competitiveness of a market. The Guidelines define three basic levels of market concentration while recognizing that "other things being equal, cases falling just above and just below a threshold present comparable competitive issues."[2] A market with an HHI of less than 1000 is considered to be unconcentrated. Mergers resulting in HHI level less than a 1000 are not considered to have adverse competitive effects. A market with an HHI between 1000 and 1800 is considered to be moderately concentrated. A merger in or resulting in a moderately concentrated market is not considered to have an adverse effect on competition if it increases the market's HHI by less than 100 points. A merger in or resulting in a moderately concentrated market is considered to "potentially raise significant competitive concerns" if it increases the market's HHI by 100 points or more.[3] A market with an HHI of 1800 or above is considered to be highly concentrated. A merger in or resulting in a highly concentrated market is not considered to have an adverse effect on competition if it increases the market's HHI by less than 50 points. A merger producing an increase in the market HHI of 50 points or more in a highly concentrated market "potentially raises significant competitive concerns."[4] The DOJ uses these HHI measures as a guideline, and the importance of a specific range is dependent on a number of other factors, such as the amount of demand response that exists in a given market.[5] "In determining whether a hypothetical monopolist would be in a position to exercise market power, it is necessary to evaluate the likely demand responses of consumers to a price increase."[6] All else held equal, where a lack of potential demand response might allow prices to be raised by more than a "small but significant and non-transitory" amount, "more market power is at stake in the

1 The U.S. Department of Justice and the Federal Trade Commission Horizontal Merger Guidelines (1997) p. 2.
2 Ibid, p. 15.
3 Ibid, p. 16.
4 Ibid, p. 16.
5 Ibid, p. 17.
6 Ibid, p. 4.

relevant market than in a market in which a hypothetical monopolist would raise price by exactly five percent."[7]

The Federal Energy Regulatory Commission (FERC) "takes into account three factors in analyzing proposed mergers: the effect on competition, the effect on rates, and the effect on regulation."[8] In this report, the MMU will focus on the first factor used by FERC in analyzing mergers, as the other two factors are outside the scope of the request to the MMU.

The following table summarizes the requested two divestiture scenarios and the relevant markets for which impacts were evaluated.

	Divestiture	Studied Market		
Scenario Name	Options	Aggregate Energy	Local Energy	Capacity
NJBPU 1 - 062606	1	x	x	x
NJBPU 2 - 062606	1	x	x	x
Total	2			

The MMU analysis focused on one combination of possible buyers of the divested assets for the first scenario and one (different) combination of possible buyers of the divested assets for the second scenario.

For the first scenario entitled "NJBPU 1-062606" in the table, the buyers most likely to pass the Guidelines for the local energy market defined by the PJM eastern interface constraint were selected. The identified buyers of the divested assets then served as the basis for evaluating the structural impacts of the merger on the remaining markets. For the second scenario entitled "NJBPU 2-062606" in the table, the buyers were selected based upon the next three largest PJM East entities after PSEG and Exelon, based on installed capacity. Buyers under this scenario were determined based upon unforced capacity market shares in PJM East as of April 30, 2006. The identified buyers of the divested assets were used in the evaluation of the structural impacts of the merger on the remaining markets.

The MMU substituted the Bergen plant for the Linden plant in our analyses as the Linden plant was not in service for the entire period included in our analyses.

Certain of the NJBPU requests required a recalculation of pre-merger Capacity Market conditions consistent with the specified level of imports in each scenario. The post-merger, post-divestiture structural conditions are compared to this revised pre-merger HHI for purposes of evaluating the impact on the PJM Capacity Markets.

In previous analyses, as a result of the pending retirement of the PSEG Hudson 1 steam unit and the Sewaren 1, 2, 3 and 4 steam units, these units were excluded from the analysis of competition in each defined market. The Petitioners and the U.S. Department of Justice Antitrust Division reached an agreement on the proposed merger. The consent decree memorializing the agreement was filed on June 22, 2006 in federal district court in Washington, D.C. That agreement provided for the divestiture of specific plants including the Hudson and Sewaren plants. As a result, these units are included in the current analysis.

[7] Ibid, p. 17.
[8] 77 FERC ¶ 61,263 (1996) Appendix A, p. 3.

In addition to an analysis of the effects on market concentration and market power, the Staff of the New Jersey Board of Public Utilities requested specific information regarding the units identified for divestiture. For the timeframe covering the MMU's analysis, the Staff requested information describing the retirement status, outage history, operational hours and hours during which the units set price.

The following table summarizes the retirement status of those units included in the plant divestiture provisions of the consent decree. Five of the 26 units included in the plant divestiture provisions of the consent decree are slated for retirement in October of 2007. The Hudson unit number 3, owned by PSEG, is already retired.

Unit Name	Capacity	Fuel Type	Unit Type	Retire Date
Hudson 1	383	Natural Gas	Steam	10/1/2007
Sewaren 1	104	Natural Gas	Steam	10/1/2007
Sewaren 2	118	Natural Gas	Steam	10/1/2007
Sewaren 3	107	Natural Gas	Steam	10/1/2007
Sewaren 4	124	Natural Gas	Steam	10/1/2007

The details of the plant operations are not included in this document as the data are confidential.

Sensitivity Analysis Requests

A summary of the requests from the New Jersey Board of Public Utilities is provided below with tables showing the results of the MMU sensitivity analyses in each case and a summary of the results.

1. NJBPU Staff

The Petitioners and the U.S. Department of Justice Antitrust Division reached an agreement on the proposed merger and the consent decree memorializing the agreement was filed on June 22, 2006 in federal district court in Washington, D.C. By letter dated June 26, 2006, the NJBPU Staff requested an analysis of the impact of the plant divestiture provisions of the consent decree consistent with the analysis performed by the MMU in this case, using the buyer assumptions specified above. Specifically the NJBPU Staff requested the following:

1. For each of the defined scenarios, an analysis of the following markets:
    a. Real-time aggregate hourly energy market
    b. Locational incremental energy market defined by transmission constraints at the PJM Eastern Interface
    c. PJM operated capacity Credit Markets
    d. Total capacity market analyses of the aggregate PJM market, Mid-Atlantic and PJM East locational markets with import sensitivities reflecting NJBPU Staff assumptions depicted in the March 1, 2006 MMU Exelon/PSEG Merger Sensitivity Analyses at Table 1-1.
    e. PJM East locational incremental capacity market reflecting the designs contained in PJM's RPM filing currently before the FERC.

The results are presented in Tables 1-1 through 1-16 below.

In summary, the proposed divestiture packages:

- Result for scenario NJBPU1-062606 in an increase in HHI that is greater than the increase specified in the Guidelines for the aggregate energy market;

- Result for scenario NJBPU2-062606 in an increase in HHI that is greater than the increase specified in the Guidelines for the aggregate energy market;
- Result for scenario NJBPU1-062606 in an increase in HHI that is greater than the increase specified by the Guidelines for 11 of the 16 tested intervals for the eastern energy market;
- Result for scenario NJBPU2-062606 in an increase in HHI that is greater than the increase specified by the Guidelines for 15 of the 16 tested intervals for the eastern energy market;
- Result for the defined scenarios in an increase in HHI that is less than the increase specified in the Guidelines for the daily capacity credit market;
- Result for the defined scenarios in an increase in HHI that is greater than the increase specified in the Guidelines for the monthly and multi-monthly capacity credit markets;
- Result in an increase in HHI that is greater than the increase specified in the Guidelines for all tested definitions of the aggregate capacity market;
- Result for scenario NJBPU1-062606 in an increase in HHI that is greater than the increase specified in the Guidelines for two of the four tested definitions of the PJM East Locational Incremental Capacity Credit Market;[9]
- Result for scenario NJBPU2-062606 in an increase in HHI that is greater than the increase specified in the Guidelines for three of the four tested definitions of the PJM East Locational Incremental Capacity Credit Market.

Aggregate Hourly Energy Market HHI

Table 1-1 Aggregate Energy Market – Pre-Merger HHIs

	Minimum	Average	Maximum
May 1, 2005 - April 30, 2006	856	1231	1610

Table 1-2 Aggregate Energy Market – Post-Divestiture HHIs

	Scenario	Minimum	Average	Maximum
May 1, 2005 - April 30, 2006	NJBPU1-062606	970	1415	1988
May 1, 2005 - April 30, 2006	NJBPU2-062606	990	1419	1990

Table 1-3 Aggregate Energy Market HHI Differences

	Scenario	Minimum	Average	Maximum	Number of Hours HHI Difference >= 100	Percentage of Hours HHI Difference >= 100
May 1, 2005 - April 30, 2006	NJBPU1-062606	57	184	409	8346	95.27%
May 1, 2005 - April 30, 2006	NJBPU2-062606	71	188	404	8587	98.03%

[9] The analysis replicates the representative approach identified in the MMU Report of October 14, 2005 to locational capacity markets and does not necessarily reflect the actual results that may occur under the RPM proposal pending before FERC.

Table 1-4 Aggregate Energy Market – Peak/Off-Peak HHI Statistics

	Scenario	Number of Peak Hours HHI Difference >0	Percentage of Peak Hours HHI Difference >0	Number of Peak Hours HHI Difference >= 100	Percentage of Peak Hours HHI Difference >= 100
May 1, 2005 - April 30, 2006	NJBPU1-062606	4,064	100%	3,715	91.41%
May 1, 2005 - April 30, 2006	NJBPU2-062606	4,064	100%	3,919	96.43%

	Scenario	Number of Off-Peak Hours HHI Difference >0	Percentage of Off-Peak Hours HHI Difference >0	Number of Off-Peak Hours HHI Difference >= 100	Percentage of Off-Peak Hours HHI Difference >= 100
May 1, 2005 - April 30, 2006	NJBPU1-062606	4,696	100%	4,631	98.62%
May 1, 2005 - April 30, 2006	NJBPU2-062606	4,696	100%	4,668	99.40%

Aggregate Hourly Energy Market Pivotal Supplier Analysis

Table 1-5 Aggregate Energy Market –Pre-Merger Pivotal Supplier Results

	Single Pivotal Hours	Single Pivotal Percent of Total Hours	Total Peak Single Pivotal Hours	Three Pivotal Hours	Three Pivotal Percent of Total Hours	Total Peak Three Pivotal Hours
May 1, 2005 - April 30, 2006	24	0.27%	24	2,664	30.41%	2,048

Table 1-6 Aggregate Energy Market –Post-Divestiture Pivotal Supplier Results

	Scenario	Single Pivotal Hours	Single Pivotal Percent of Total Hours	Total Peak Single Pivotal Hours	Three Pivotal Hours	Three Pivotal Percent of Total Hours	Total Peak Three Pivotal Hours
May 1, 2005 - April 30, 2006	NJBPU1-062606	124	1.42%	122	4,545	51.88%	3,359
May 1, 2005 - April 30, 2006	NJBPU2-062606	124	1.42%	122	5,060	57.76%	3,639

Table 1-7 Aggregate Energy Market –Pivotal Supplier Differences

	Scenario	Single Pivotal Hours	Single Pivotal Increase in Percent of Total Hours	Total Peak Single Pivotal Hours	Three Pivotal Hours	Three Pivotal Increase in Percentage of Total Hours	Total Peak Three Pivotal Hours
May 1, 2005 - April 30, 2006	NJBPU1-062606	100	416.67%	98	1,881	70.61%	1,311
May 1, 2005 - April 30, 2006	NJBPU2-062606	100	416.67%	98	2,396	89.94%	1,591

Table 1-8 Aggregate Energy Market – Peak/Off-Peak Pivotal Supplier Statistics

	Scenario	Total Peak Hours	Total Off-Peak Hours	Single Pivotal Percent of Peak Hours	Three Pivotal Percent of Peak Hours
May 1, 2005 - April 30, 2006	Pre	4,064	4,696	0.59%	50.39%
May 1, 2005 - April 30, 2006	Post NJBPU1-062606	4,064	4,696	3.00%	82.65%
May 1, 2005 - April 30, 2006	Post NJBPU2-062606	4,064	4,696	3.00%	89.54%

Local Energy Market Defined by Eastern Interface

Table 1-9 PJM East Energy Market (scenario NJBPU1-062606)

			Pre-merger				Post-divestiture Scenario NJBPU1-062606					
Date	Season	Period	HHI	Market shares > 20%	Maximum market share	Number of pivotal suppliers	HHI	Market shares > 20%	Maximum market share	Number of pivotal suppliers	HHI Difference	Compliance
17JUN05:09:00:00	Summer	Peak	2515	2	39%	4	2538	2	39%	5	23	Yes
17JUN05:10:00:00	Summer	Peak	2644	2	39%	4	2711	2	39%	5	67	No
04SEP05:21:00:00	Fall	Off-peak	2555	2	34%	6	2617	2	36%	8	62	No
05SEP05:10:00:00	Fall	Off-peak	2510	2	36%	4	2652	2	36%	4	142	No
05SEP05:11:00:00	Fall	Off-peak	2574	2	35%	4	2759	2	39%	5	185	No
05SEP05:12:00:00	Fall	Off-peak	2559	2	34%	8	2810	2	40%	8	251	No
05SEP05:15:00:00	Fall	Off-peak	2860	2	39%	3	3055	2	39%	4	195	No
05SEP05:16:00:00	Fall	Off-peak	2767	2	38%	3	3045	2	39%	4	278	No
27SEP05:13:00:00	Fall	Peak	1773	2	28%	6	1860	2	32%	7	87	Yes
22JAN06:17:00:00	Winter	Off-peak	2238	2	30%	8	2201	2	31%	8	-37	Yes
04FEB06:15:00:00	Winter	Off-peak	2316	2	33%	5	2397	2	36%	5	81	No
04FEB06:16:00:00	Winter	Off-peak	2298	2	31%	6	2397	2	35%	6	99	No
23FEB06:17:00:00	Winter	Peak	2151	2	31%	6	2263	2	34%	7	112	No
23FEB06:18:00:00	Winter	Peak	2291	2	33%	3	2506	2	35%	4	215	No
02MAR06:11:00:00	Spring	Peak	2599	2	37%	3	2413	2	36%	4	-186	Yes
03MAR06:18:00:00	Spring	Peak	2427	2	35%	5	2433	2	36%	6	6	Yes

Table 1-10 PJM East Energy Market (scenario NJBPU2-062606)

			Pre-merger				Post-divestiture Scenario NJBPU2-062606					
Date	Season	Period	HHI	Market shares > 20%	Maximum market share	Number of pivotal suppliers	HHI	Market shares > 20%	Maximum market share	Number of pivotal suppliers	HHI Difference	Compliance
17JUN05:09:00:00	Summer	Peak	2515	2	39%	4	2685	2	41%	4	170	No
17JUN05:10:00:00	Summer	Peak	2644	2	39%	4	2863	2	41%	5	219	No
04SEP05:21:00:00	Fall	Off-peak	2555	2	34%	6	2718	2	36%	7	163	No
05SEP05:10:00:00	Fall	Off-peak	2510	2	36%	4	2732	2	37%	4	222	No
05SEP05:11:00:00	Fall	Off-peak	2574	2	35%	4	2841	2	39%	5	267	No
05SEP05:12:00:00	Fall	Off-peak	2559	2	34%	8	2886	2	40%	8	327	No
05SEP05:15:00:00	Fall	Off-peak	2860	2	39%	3	3140	2	40%	4	280	No
05SEP05:16:00:00	Fall	Off-peak	2767	2	38%	3	3130	2	39%	4	363	No
27SEP05:13:00:00	Fall	Peak	1773	2	28%	6	2124	2	32%	6	351	No
22JAN06:17:00:00	Winter	Off-peak	2238	2	30%	8	2422	2	35%	8	184	No
04FEB06:15:00:00	Winter	Off-peak	2316	2	33%	5	2572	2	36%	5	256	No
04FEB06:16:00:00	Winter	Off-peak	2298	2	31%	6	2570	2	35%	6	272	No
23FEB06:17:00:00	Winter	Peak	2151	2	31%	6	2416	2	34%	5	265	No
23FEB06:18:00:00	Winter	Peak	2291	2	33%	3	2618	2	35%	3	327	No
02MAR06:11:00:00	Spring	Peak	2599	2	37%	3	2533	2	36%	4	-66	Yes
03MAR06:18:00:00	Spring	Peak	2427	2	35%	5	2524	2	36%	6	97	No

Capacity Market Analysis

Table 1-11 Capacity Credit Market HHI

	Statistic	Daily	Monthly & Multimonthly
Pre-Merger			
HHI	Average	1427	2157
	Minimum	683	1063
	Maximum	2999	5686
Highest Market Share		52.5%	72.6%
Post-Merger			
HHI	Average	1469	2220
	Minimum	683	1063
	Maximum	2999	5686
Highest Market Share		52.5%	72.6%
Difference			
HHI	Average	41	63
	Minimum	0	0
	Maximum	0	0
Highest Market Share		0.0%	0.0%

Table 1-12 Capacity Credit Market HHI Statistics

	Daily	Monthly & Multimonthly
Pre-Merger		
# Auctions	365	66
# Auctions with HHI >=1800	67	41
% Auctions with HHI >=1800	18.4%	62.1%
# Auctions with HHI >=2500	3	23
% Auctions with HHI >=2500	0.8%	34.8%
Post-Merger		
# Auctions with HHI >=1800	71	43
% Auctions with HHI >=1800	19.5%	65.2%
# Auctions with HHI >=2500	3	25
% Auctions with HHI >=2500	0.8%	37.9%
Difference		
# Auctions with HHI >=1800	4	2
% Auctions with HHI >=1800	1.1%	3.1%
# Auctions with HHI >=2500	0	2
% Auctions with HHI >=2500	0.0%	3.1%

Table 1-13 Capacity Credit Market RSI

	Statistic	Daily	Monthly & Multimonthly
Pre-Merger			
RSI	Average	2.60	0.66
	Minimum	0.92	0.15
	Maximum	6.19	3.13
Post-Merger			
RSI	Average	2.58	0.66
	Minimum	0.92	0.15
	Maximum	5.94	3.13
Difference			
RSI	Average	-0.02	-0.01
	Minimum	0.00	0.00
	Maximum	-0.24	0.00

Table 1-14 Capacity Credit Market RSI Statistics

	Daily	Monthly & Multimonthly
Pre-Merger		
# Auctions	365	66
# Auctions with RSI <= 1.0	3	53
% Auctions with RSI <= 1.0	0.8%	80.3%
# Auctions with <= 3 Pivotal Suppliers	4	61
% Auctions with <= 3 Pivotal Suppliers	1.1%	92.4%
Post-Merger		
# Auctions with RSI <= 1.0	3	53
% Auctions with RSI <= 1.0	0.8%	80.3%
# Auctions with <= 3 Pivotal Suppliers	7	61
% Auctions with <= 3 Pivotal Suppliers	1.9%	92.4%
Difference		
# Auctions with RSI <= 1.0	0	0
% Auctions with RSI <= 1.0	0.0%	0.0%
# Auctions with <= 3 Pivotal Suppliers	3	0
% Auctions with <= 3 Pivotal Suppliers	0.8%	0.0%

Table 1-15 Proposed Divestiture Capacity by Scenario

Scenario	Installed Capacity (MW)	Unforced Capacity (MW)
NJBPU1-062606	5,713	4,984
NJBPU2-062606	5,713	4,984

Table 1-16 PJM Total Capacity Market HHI

	Total PJM	MAAC	Eastern MAAC	Eastern MAAC On-Peak Multiple 7,778 MW Import	Eastern MAAC Off-Peak Multiple 6,803 MW Import	Eastern MAAC Synapse Multiple 7,300 MW Import
Pre-Merger						
HHI	926	1073	2102	1810	1907	1775
Scenario NJBPU1-062606						
HHI	1039	1259	2366	2189	2311	2161
Difference from Pre-Merger HHI	113	186	264	379	404	386
Compliance	No	No	No	No	No	No
Scenario NJBPU2-062606						
HHI	1060	1243	2521	2288	2415	2214
Difference from Pre-Merger HHI	134	170	419	478	508	439
Compliance	No	No	No	No	No	No

Table 1-17 PJM East Locational Incremental Capacity Credit Market

	100% Incremental	75% Incremental	50% Incremental	25% Incremental
Pre-Merger				
HHI	2102	1686	1392	2076
Scenario NJBPU1-062606				
HHI	2366	1425	1136	2266
Difference from Pre-Merger HHI	264	-261	-256	190
Compliance	No	Yes	Yes	No
Scenario NJBPU2-062606				
HHI	2521	1715	1550	2879
Difference from Pre-Merger HHI	419	29	158	803
Compliance	No	Yes	No	No