

FILE

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PUCO EXHIBIT FILING

Date of Hearing: 11/20/14

Case No. 14-841-EL-SSO/14-842-EL-ATA

PUCO Case Caption: In the Matter of the Application of Duke

Energy Ohio for Authority to Establish a Standard Service

Offer Pursuant to Section 4928.143, Revised Code, in the

Form of an Electric Security Plan, Accounting Modifications

and Tariffs for Generation and the Matter of the Application
of Duke Energy Ohio for Authority to Amend its Certified Supplier tariff
P.U.C.O. No. 20.

List of exhibits being filed:

Volume XVI

OCC 49

OCC 50

OMA 14

OMA 15

IGS 14

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Reporter's Signature: Karen Sue Gibson

Date Submitted: 12/4

BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO

- - -

In the Matter of the :
Application of Duke Energy:
Ohio for Authority to :
Establish a Standard :
Service Offer Pursuant to :
Section 4928.143, Revised : Case No. 14-841-EL-SSO
Code, in the Form of an :
Electric Security Plan, :
Accounting Modifications :
and Tariffs for Generation:
Service. :

- - -

In the Matter of the :
Application of Duke Energy:
Ohio for Authority to : Case No. 14-842-EL-ATA
Amend its Certified :
Supplier Tariff, P.U.C.O. :
No. 20. :

- - -

PROCEEDINGS

before Ms. Christine M.T. Pirik and Mr. Nick Walstra,
Attorney Examiners, at the Public Utilities
Commission of Ohio, 180 East Broad Street, Room 11-A,
Columbus, Ohio, called at 2:00 p.m. on Thursday,
November 20, 2014.

- - -

VOLUME XVI - REBUTTAL TESTIMONY

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AUS MONTHLY UTILITY REPORT
- Index -

Financial Data	Pages
10 Year Dividend Yield & P/E Trends	1 - 2
20 Current Financial Statistics on Common Stock	
- Electric Companies (16)	3 - 6
- Comb. Elec. & Gas Cos. (37)	7 - 10
- Gas Distribution, Integrated & Transmission Cos. (18)	11 - 14
- Water Companies (9)	15 - 18
Industry Rankings	
- Electric Companies	21 - 22
- Combination Elec. & Gas Cos.	23 - 24
- Gas Dist Int. & Trans Companies	25 - 26
- Water Companies	27 - 28
Glossary of Terms	29 - 30
Important Business Numbers and Addresses	33

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ELECTRIC COMPANIES

		DIVIDEND YIELD	PRICE EARNINGS MULTIPLE
YEAR	2004	4.4	18.4
YEAR	2005	4.1	20.9
YEAR	2006	3.8	20.8
YEAR	2007	3.4	18.5
YEAR	2008	3.9	16.1
YEAR	2009	4.8	14.1
YEAR	2010	4.3	18.1
YEAR	2011	4.2	18.1
YEAR	2012	4.0	17.8
YEAR	2013	3.8	17.5
YEAR TO DATE	2014	3.7	18.8

DECEMBER	2013	3.8	18.9
JANUARY	2014	3.9	18.6
FEBRUARY	2014	3.8	18.3
MARCH	2014	3.8	18.3
APRIL	2014	3.7	19.3
MAY	2014	3.6	19.9
JUNE	2014	3.7	19.0
JULY	2014	3.5	20.1
AUGUST	2014	3.6	19.7
SEPTEMBER	2014	3.6	18.0
OCTOBER	2014	3.7	17.9
NOVEMBER	2014	3.6	18.1

COMBINED ELECTRIC &
GAS DISTRIBUTION
COMPANIES

		DIVIDEND YIELD	PRICE EARNINGS MULTIPLE
YEAR	2004	3.4	17.1
YEAR	2005	3.3	18.9
YEAR	2006	3.2	18.7
YEAR	2007	3.3	18.3
YEAR	2008	4.0	15.7
YEAR	2009	5.2	12.8
YEAR	2010	4.5	16.2
YEAR	2011	4.4	17.9
YEAR	2012	4.2	18.2
YEAR	2013	4.0	19.1
YEAR TO DATE	2014	3.8	19.3
DECEMBER	2013	3.9	19.3
JANUARY	2014	3.9	19.0
FEBRUARY	2014	4.0	19.3
MARCH	2014	4.0	19.3
APRIL	2014	3.9	19.6
MAY	2014	3.7	20.5
JUNE	2014	3.8	18.9
JULY	2014	3.6	19.8
AUGUST	2014	3.6	19.6
SEPTEMBER	2014	3.7	18.7
OCTOBER	2014	3.7	18.3
NOVEMBER	2014	3.6	18.8

NATURAL GAS
DISTRIBUTION
TRANSN. & INTEGRATED
COMPANIES

		DIVIDEND YIELD	PRICE EARNINGS MULTIPLE
YEAR	2004	3.3	17.0
YEAR	2005	3.1	19.8
YEAR	2006	3.1	17.2
YEAR	2007	2.9	19.5
YEAR	2008	13.1	17.4
YEAR	2009	3.8	14.4
YEAR	2010	3.2	18.6
YEAR	2011	3.0	20.2
YEAR	2012	3.3	28.8
YEAR	2013	3.3	20.5
YEAR TO DATE	2014	3.2	21.2

DECEMBER	2013	3.1	22.0
JANUARY	2014	3.3	22.4
FEBRUARY	2014	3.2	24.8
MARCH	2014	3.2	24.8
APRIL	2014	3.3	23.9
MAY	2014	3.3	24.1
JUNE	2014	3.3	18.9
JULY	2014	3.2	19.6
AUGUST	2014	3.1	19.5
SEPTEMBER	2014	3.1	18.7
OCTOBER	2014	3.3	18.1
NOVEMBER	2014	3.3	18.5

WATER COMPANIES

		DIVIDEND YIELD	PRICE EARNINGS MULTIPLE
YEAR	2004	3.1	27.9
YEAR	2005	2.8	28.7
YEAR	2006	2.8	30.9
YEAR	2007	2.8	28.1
YEAR	2008	3.1	23.1
YEAR	2009	3.5	21.3
YEAR	2010	3.4	23.7
YEAR	2011	3.3	21.7
YEAR	2012	3.3	21.2
YEAR	2013	3.0	21.0
YEAR TO DATE	2014	3.0	22.2
DECEMBER	2013	2.9	21.9
JANUARY	2014	2.9	22.0
FEBRUARY	2014	3.0	21.8
MARCH	2014	3.0	21.8
APRIL	2014	2.9	22.6
MAY	2014	2.9	22.5
JUNE	2014	3.1	21.7
JULY	2014	2.9	22.9
AUGUST	2014	3.0	22.5
SEPTEMBER	2014	3.0	21.9
OCTOBER	2014	3.1	21.8
NOVEMBER	2014	3.0	22.5

ELECTRIC

COMPANY	LATEST 12 MONTHS EARNINGS AVAILABLE	PER SHARE	
		EARNINGS	CURRENT ANNUAL DIVIDEND
ALLIATE, Inc. (NYSE-ALB)	6/14	2.65	1.96
American Electric Power Co. (NYSE-AEP)	6/14	3.55	2.00
Cleco Corporation (NYSE-CNL)	6/14	2.54	1.60
Edison International (NYSE-EIX)	6/14	4.42	1.40
El Paso Electric Company (NYSE-EP)	6/14	2.15	1.12
FirstEnergy Corporation (NYSE-FE)	6/14	1.50	1.44
Great Plains Energy Incorporated (NYSE-GXP)	6/14	1.53	0.92
Hawaiian Electric Industries, Inc. (NYSE-HIE)	6/14	1.73	1.24
IDACORP, Inc. (NYSE-IDA)	6/14	3.50	1.88
Norfolk Energy (NYSE-NRE)	6/14	4.49	2.92
OGE Energy Corp. (NYSE-OGE)	6/14	2.11	1.00
Older Tail Corporation (NDAQ-OTR)	6/14	1.64	1.20
Pinnacle West Capital Corp. (NYSE-PNM)	6/14	3.45	2.28
PNM Resources, Inc. (NYSE-PNM)	6/14	1.30	0.76
Portland General Electric Company (NYSE-POR)	6/14	2.15	1.12
PPL Corporation (NYSE-PPL)	6/14	1.31	1.48
Southern Company (NYSE-SO)	6/14	2.17	2.88
Western Energy, Inc. (NYSE-WR)	6/14	2.27	1.40
AVERAGE			

COMPANIES

DATA (1)	PERCENT (2)				DIV/ BOOK EARN MULT
	BOOK VALUE	STOCK PRICE	COMMON SHARES OUTST.	DIV PAYOUT	
33.24	48.44	42.6	74	4.0	145.7
33.94	54.61	488.6	56	3.7	160.9
26.56	48.27	60.4	63	3.3	183.1
31.86	58.76	325.8	32	2.4	184.4
24.22	35.72	40.2	52	3.1	147.5
30.18	54.74	420.3	96	4.1	115.1
22.65	25.24	154.1	60	3.6	111.4
17.34	26.93	101.6	72	4.6	155.3
37.44	57.02	50.3	54	3.3	152.3
42.27	94.25	436.0	65	3.1	223.0
15.56	35.60	199.2	47	2.8	228.8
15.11	28.68	36.6	73	4.2	189.8
38.35	57.72	110.4	66	4.0	150.5
21.30	26.68	79.7	58	2.8	125.3
23.93	33.70	78.2	52	3.3	140.8
20.68	33.35	664.0	113	4.4	161.3
22.52	46.22	896.1	96	4.5	205.2
24.14	35.93	129.3	62	3.9	148.8
			66	3.6	162.7
				5.9	181

ELECTRIC

COMPANY	TOTAL REV \$ MILL	% REG ELEC REV	NET PLANT REV \$ MILL	PLANT PER \$ REV (1)
ALLETE, Inc. (NYSE-ALB)	1,076.2	89	3,020.4	2.81
American Electric Power Co. (NYSE-AEP)	1,664.0	83	4,273.0	2.54
Cleco Corporation (NYSE-CNL)	1,185.3	97	3,139.5	2.65
Edison International (NYSE-EIX)	1,244.0	100	3,128.0	2.44
El Paso Electric Company (NYSE-EE)	910.3	100	2,338.0	2.57
FirstEnergy Corporation (ASE-FE)	15,168.0	64	34,516.0	2.25
Great Plains Energy Incorporated (NYSE-GXP)	2,537.3	100	7,970.6	3.14
Hawaiian Electric Industries, Inc. (NYSE-HE)	3,240.1	92	3,980.1	1.23
IDACORP, Inc. (NYSE-IDA)	1,287.8	100	3,740.1	2.90
Noranta Energy (NYSE-NER)	15,721.0	70	34,031.0	3.44
OGE Energy Corp. (NYSE-OGE)	2,484.3	100	6,820.3	2.84
Other Tail Corporation (NDQ-OTN)	336.1	43	1,218.1	1.30
Pinnacle West Capital Corp. (NYSE-PNW)	3,444.7	100	10,892.0	3.16
PNM Resources, Inc. (NYSE-PNM)	1,397.7	100	4,023.5	2.88
Portland General Electric Company (NYSE-POR)	1,350.0	100	5,324.0	2.88
PPL Corporation (NYSE-PPL)	10,058.0	60	34,431.0	3.43
Southern Company (NYSE-SO)	18,855.0	94	52,764.0	2.92
Western Energy, Inc. (NYSE-WR)	2,496.1	100	7,816.1	3.13
AVERAGE				

COMPANIES

S&P BOND RATING	MOODY'S BOND RATING	COMMON EQUITY RATIO (2)	%RETURNS BOOK VALUE EQUITY (4)	TOTAL CAPITAL	ALLOWED ROE	REGULATION ORDER DATE
A-	A3	51.6	8.1	6.3	10.38	11/10
BBB/BBB-	Baa1	45.8	10.8	7.4	10.50	
BBB/BBB-	Baa1/Baa2	53.4	9.9	8.1	10.70	10/09
BBB+	A2/A3	42.4	14.7	8.4	10.50	
BBB+	Baa1	47.0	9.5	7.1	11.25	
BBB	Baa2	36.8	5.0	4.4	10.52	
BBB	Baa2	47.1	6.8	5.9	10.12	
BBB-	Baa2	47.1	10.3	7.1	9.67	
A-	A3	53.2	9.5	7.4	10.18	05/09
A-/BBB+	A2/A3	38.1	11.1	6.8	10.50	03/10
BBB+	A3	50.5	14.3	9.6	9.98	
BBB-	Baa2	51.2	11.0	8.4	10.75	
BBB	A3/Baa1	53.4	9.6	7.8	11.00	12/09
BBB	Baa2	45.1	6.2	6.0	10.22	
A-	A3	46.5	9.4	7.2	9.75	12/13
A-	Baa1/Baa2	38.5	6.9	5.6	10.35	
A	A3/Baa1	44.6	11.4	7.2	11.46	
A-	A3/Baa1	45.3	9.8	7.2	10.20	
		46.5	9.7	7.1	10.45	

COMBINATION ELECTRIC

COMPANY	TOTAL		% REG		% REG		NET		NET
	REV	PLANT	REV	PLANT	REV	PLANT	REV	PLANT	
	\$ MIL.	\$ MIL.	REV	PLANT	REV	PLANT	\$ MIL.	\$ MIL.	(1)
Alliant Energy Corporation (NYSE-LNT)	3,082.3	81	15	8,566.2	2.52				
American Corporation (NYSE-AEB)	5,973.0	81	19	16,726.0	2.80				
Avista Corporation (NYSE-AVA)	1,597.1	65	35	1,282.1	2.07				
Black Hills Corporation (NYSE-BKH)	1,358.8	50	44	1,082.6	2.27				
CenterPoint Energy (NYSE-CNP)	8,971.0	31	39	9,979.0	1.12				
Chesapeake Utilities Corporation (NYSE-CPK)	484.3	19	41	660.7	1.33				
CMS Energy Corporation (NYSE-CMS)	7,172.0	62	33	12,680.0	1.77				
Consolidated Edison, Inc. (NYSE-ED)	13,051.0	70	15	28,557.0	2.19				
Dominion Resources, Inc. (NYSE-D)	13,090.0	68	3	33,887.0	2.59				
DTE Energy Company (NYSE-DTE)	11,548.0	47	16	16,307.0	1.41				
Duke Energy Corporation (NYSE-DUK)	23,394.9	85	2	66,908.0	2.63				
Empire District Electric Co. (NYSE-EDC)	636.0	90	8	1,816.2	2.86				
Energy Corporation (NYSE-ETR)	12,249.4	77	1	28,109.2	2.29				
Eaton Corporation (NYSE-EXC)	25,926.0	37	5	51,747.0	2.00				
Integrus Energy Group (NYSE-IEG)	7,197.9	19	37	6,444.5	0.90				
MDU Resources Group, Inc. (NYSE-MDU)	4,697.1	9	18	5,378.7	1.17				
MOB Energy, Inc. (NYSE-MGEB)	634.4	64	35	1,186.5	1.87				
NISource Inc. (NYSE-NU)	6,329.2	26	59	15,088.8	2.38				
Northeast Utilities (NYSE-NU)	7,638.5	86	13	17,978.7	2.35				
Northeast Utilities Corporation (NYSE-NWE)	1,221.3	73	27	2,767.9	2.25				
Papco Holdings, Inc. (NYSE-PON)	4,882.0	92	4	10,105.0	2.07				
PG&E Corporation (NYSE-PCG)	15,993.0	80	20	42,483.0	2.66				
Public Service Enterprise Group (NYSE-PEG)	10,344.0	46	20	22,310.0	2.16				
SCANA Corporation (NYSE-SCG)	4,784.0	53	21	12,007.0	2.51				
SEMPRA Energy (NYSE-SRE)	10,729.0	31	42	26,012.0	2.42				
TECO Energy, Inc. (NYSE-TE)	2,664.7	70	13	6,334.1	2.21				
UHL Holdings Corporation (NYSE-UL)	1,657.6	49	51	3,126.8	1.89				
Utili Corporation (NYSE-UTL)	411.7	51	48	681.7	1.66				
Veeva Corporation (NYSE-VVC)	2,582.0	24	36	3,286.2	1.26				
Wisconsin Energy Corporation (NYSE-WEC)	4,970.2	68	30	11,094.0	2.22				
Xcel Energy Inc. (NYSE-XEL)	11,440.9	81	18	27,070.4	2.37				
AVERAGE									

COMBINED ELECTRIC/COMBINATION ELECTRIC & GAS AVERAGES

& GAS COMPANIES

S&P RATING	MOODY'S BOND RATING	COMMON EQUITY RATIO (3)	%RETURN ON COMMON CAPITAL	TOTAL CAPITAL	ALLOWED ROE	REGULATION ORDER DATE
A-	A2/A3	47.9	11.4	8.2	10.34	-
BBB+/BBB	BBB	48.9	9.1	7.5	9.49	-
A-	Baa1	49.6	14.2	6.9	9.86	-
BBB	A3/Baa1	46.7	8.3	7.7	10.72	-
A-/BBB+	A3/Baa1	34.2	12.9	7.9	9.96	-
NR	NR	36.9	12.9	9.2	10.50	-
BBB-/BBB	A3/Baa1	30.9	14.8	8.1	10.30	-
A-/BBB+	A3	48.6	10.4	7.5	9.93	-
A-	A3/Baa1	32.0	13.6	7.1	10.38	-
A-/BBB+	A2/A3	48.3	9.9	7.3	10.75	-
BBB+	A3	49.0	5.4	4.6	10.46	-
A-	Baa1	49.0	9.5	7.4	10.50	-
BBB-/BBB	Baa2/Baa3	42.1	10.0	6.5	10.50	-
BBB+/BBB	Baa1	50.2	8.3	6.4	8.72	-
A-	A3	49.5	10.0	7.4	10.03	-
BBB+	NR	56.9	10.1	7.4	10.38	-
A-/BBB+	Aa2	61.5	13.0	9.9	10.30	1/11
BBB-	Baa1/Baa2	39.4	9.3	6.7	10.34	-
A-	A3/Baa1	50.8	7.8	5.6	9.38	-
NR	A3	44.0	9.2	7.5	10.79	-
A-/BBB+	Baa2	43.0	7.1	5.8	9.77	-
BBB+/BBB	A3/Baa1	49.0	5.1	5.1	10.40	03/07
A-/BBB+	A2	57.4	10.4	7.9	10.30	-
BBB-	Baa1/Baa2	44.2	11.2	7.9	10.72	-
A/A	A2/A3	43.5	10.0	6.6	11.48	-
BBB+/BBB	A3	42.8	9.2	7.1	11.80	-
BBB	Baa1/Baa2	44.2	8.8	6.9	9.15	8/14/13
NR	NR	45.2	9.3	7.7	9.56	-
A/A	A2	45.7	10.1	7.1	10.43	-
A-/BBB+	A1/A2	46.4	14.4	9.2	10.43	-
A-	A3	44.2	10.1	7.1	10.48	-
		46.5	10.2	7.3	10.23	-
		47	9.9	7.2	10.34	-

NATURAL GAS DISTRIBUTION

COMPANY	LATEST 12 MONTHS EARNINGS AVAILABLE	PER SHARE	
		EARNINGS	CURRENT ANNUAL DIVIDEND
AGL Resources Inc. (NYSE-GAS)	6/14	3.90	1.95
Atrium Energy Corporation (NYSE-ATO)	6/14	2.85	1.48
Della Natural Gas Company (NDQ-DGAS)	6/14	1.18	0.80
Gas Natural, Inc. (NDQ-EGAS)	6/14	0.58	0.20
Lasclade Group, Inc. (NYSE-LG)	6/14	2.41	1.76
National Fuel Gas Company (NYSE-NFG)	6/14	3.41	1.52
New Jersey Resources Corp. (NYSE-NJK)	6/14	3.44	1.80
Northwest Natural Gas Co. (NYSE-NWN)	6/14	2.20	1.88
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	7/14	1.89	1.28
Questar Corporation (NYSE-STR)	6/14	0.99	0.76
RGC Resources, Inc. (NDQ-RGCO)	6/14	1.01	0.76
South Jersey Industries, Inc. (NYSE-SJI)	6/14	2.98	1.88
Southwest Gas Corporation (NYSE-SWX)	6/14	2.89	1.48
UGI Corporation (NYSE-UGI)	6/14	1.98	0.88
WGL Holdings, Inc. (NYSE-WGL)	6/14	0.31	1.76
AVERAGE			

& INTEGRATED NAT. GAS COMPANIES

DATA (1)	BOOK VALUE	STOCK PRICE	COMMON SHARES	DIV PAYOUT	PERCENT (2)				DIV/ BOOK	PRICE EARN MULT
					YIELD	MOCT	BOOK	YIELD		
(1)	10/1/14	OS	MULT	PAYOUT			(2)			
32.58	52.09	119.5	50	3.8	159.9	6.0	13.4			
31.06	50.21	100.3	52	2.9	161.7	4.8	17.6			
10.76	20.59	6.9	68	3.9	191.4	7.4	17.4			
9.40	11.60	10.5	94	1.7	123.4	2.1	20.0			
35.50	47.73	43.2	73	3.7	134.5	5.0	19.8			
27.84	66.66	84.1	43	2.3	239.4	5.5	19.3			
24.03	82.79	42.2	52	3.4	219.7	7.5	15.3			
28.40	44.42	27.1	85	4.2	156.4	6.6	20.2			
17.05	35.46	78.3	68	3.6	208.0	7.5	18.8			
7.24	22.37	175.3	77	3.4	309.0	10.5	22.6			
11.11	19.99	4.7	75	3.8	179.9	6.8	19.8			
26.39	55.31	33.0	63	3.4	209.6	7.1	18.6			
31.55	53.26	46.5	51	2.8	168.8	4.7	18.4			
16.07	34.84	172.4	44	2.5	216.8	5.5	17.6			
24.76	44.17	51.9	NM	4.0	178.4	7.1	NM			
			60	3.3	190.5	6.3	18.5			

NATURAL GAS DISTRIBUTION

COMPANY	TOTAL REV \$ MILL. (1)	% REG REV	NET PLANT REV \$ MILL. (1)	NET PLANT PER \$ REV (1)
AGL Resources Inc. (NYSE-GAS)	5,669.0	70	8,801.0	1.61
Alamos Energy Corporation (NYSE-ATO)	4,847.4	68	6,461.5	1.33
Delta Natural Gas Company (NDQ-DGAS)	93.8	60	135.8	1.42
Gas Natural, Inc. (NDQ-EGAS)	142.2	91	141.2	0.99
Laclede Group, Inc. (NYSE-LG)	1,552.0	90	1,827.9	1.18
National Fuel Gas Company (NYSE-NFG)	2,083.3	47	3,537.6	2.66
New Jersey Resources Corp. (NYSE-NJR)	3,879.9	22	1,817.7	0.47
Northwest Natural Gas Co. (NYSE-NWN)	775.3	96	2,085.9	2.69
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	1,444.2	100	3,910.0	2.63
Questar Corporation (NYSE-STR)	1,205.7	96	3,631.5	3.01
RGCC Resources, Inc. (NDQ-RGCC)	74.0	97	183.4	1.43
South Jersey Industries, Inc. (NYSE-SJI)	836.7	58	1,945.4	2.33
Southwest Gas Corporation (NYSE-SWX)	1,987.3	67	3,545.3	1.78
UGI Corporation (NYSE-UGI)	8,228.0	14	4,543.4	0.55
WGL Holdings, Inc. (NYSE-WGL)	2,731.9	54	3,069.3	1.12
AVERAGE				

& INTEGRATED NAT. GAS COMPANIES

SEK BOND RATING	MOODY'S BOND RATING	COMMON EQUITY RATIO (1)	%RETURN BOOK VALUE		ALLOWED ROE	REGULATION ORDER DATE
			COMMON EQUITY (1)	TOTAL CAPITAL		
A-1/BBB+	A2/A3	47.5	12.5	8.1	10.17	03/09
A-	A2	55.9	9.7	7.5	11.53	
NR	NR	57.6	11.4	8.0	10.40	10/10
NR	NR	60.9	6.4	6.1	12.63	
A-	A3	61.1	6.9	6.4	NM	4/4/91
BBB	Baa1	58.7	12.9	9.9	9.50	
A+	Aa2	55.5	15.4	9.6	10.30	10/08
AA-	A1	40.2	7.9	6.7	9.50	
A	A2	44.5	11.6	7.6	10.40	
AA-	A2	46.5	14.7	9.0	10.00	08/08
NR	NR	65.2	9.4	8.4	9.83	
A	A2	44.3	11.6	6.6	10.30	9/10
A-	A3	51.4	9.5	7.4	9.98	
NR	A2	36.8	13.1	7.9	NM	
A-	A1	59.0	1.2	2.5	9.58	
		52.9	10.3	7.4	10.32	

WATER

COMPANY	PER SHARE	
	LATEST 12 MONTHS EARNINGS AVAILABLE	CURRENT ANNUAL DIVIDEND
American States Water Co. (NYSE:AWR)	6/14 1.50	0.34
American Water Works Co., Inc. (NYSE:AWK)	6/14 2.16	1.24
Aqua America, Inc. (NYSE:WTR)	6/14 1.23	0.38
Artisan Resources Corp. (NDQ:ARTNA)	6/14 0.91	0.38
California Water Service Group (NYSE:CWT)	6/14 0.98	0.34
Connecticut Water Service, Inc. (NDQ:CTWS)	6/14 1.97	1.04
Middlesex Water Company (NDQ:MSEX)	6/14 1.05	0.76
SIW Corporation (NYSE:SIW)	6/14 1.05	0.76
York Water Company (NDQ:YORW)	6/14 0.78	0.36
AVERAGE		

COMPANIES

DATA (1)	PERCENT (2)					
	BOOK VALUE	STOCK PRICE	COMMON SHARES	DIV PAYOUT	DIV YIELD	DIV/ BOOK EARN MULT
12/79	32.69	38.7	56	2.6	255.6	6.6
27/20	49.60	179.1	57	2.5	182.4	4.6
8/95	23.98	177.2	53	2.8	267.9	7.6
15/41	21.24	8.0	97	4.1	137.8	5.7
12/47	23.91	47.8	45	2.7	191.7	5.1
18/46	34.52	11.1	33	3.0	187.0	5.6
11/96	20.58	16.1	72	3.7	172.2	6.4
15/90	28.27	20.2	72	2.7	177.8	4.8
7/92	20.63	12.8	72	2.7	200.5	7.1
			67	3.0	203.7	5.9
						22.3

WATER

COMPANY	TOTAL REV \$ MILL. (1)	% REG WATER REV	NET PLANT REV \$ MILL. (1)	NET PLANT PER \$ REV (1)
American States Water Co. (NYSE:AWR)	458.2	71	388.7	2.16
American Water Works Co., Inc. (NYSE-AWK)	2,982.6	89	12,445.1	4.17
Aqua America, Inc. (NYSE-WTR)	770.9	98	4,231.8	5.49
Artisan Resources Corp. (NDQ-ARTNA)	69.8	94	381.8	5.50
California Water Service Group (NYSE-CWT)	587.0	100	1,539.2	2.62
Connecticut Water Service, Inc. (NDQ-CTWS)	94.9	100	483.8	5.10
Middlesex Water Company (NDQ-MSHX)	115.1	88	451.4	3.92
SIW Corporation (NYSE-SIW)	277.5	95	915.0	3.30
York Water Company (NDQ-YORW)	43.9	100	247.1	5.63
AVERAGE				

COMPANIES

S&P BOND RATING	MOODY'S BOND RATING	COMMON EQUITY RATIO (3)	%RETURNS BOOK VALUE COMMON EQUITY (4)	TOTAL CAPITAL	ALLOWED ROE	REGULATION ORDER DATE
A+	A2	89.8	12.3	10.0	5.99	11/11
A+	A1	45.0	8.2	6.5	9.62	-
AA-	NR	49.2	14.6	9.0	10.29	-
NR	NR	51.1	6.7	6.4	10.00	09/09
AA-	NR	53.8	7.9	6.8	9.99	11/11
AA-	NR	53.4	11.1	7.7	9.75	07/10
A	NR	53.3	8.9	6.3	10.15	-
A	NR	45.4	6.7	6.1	9.99	11/11
A-	NR	54.5	9.9	8.2	NM	10/08
		51.7	9.6	7.4	9.97	

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AUS INDUSTRY RANKINGS

**Dividend Yield
Market/Book Ratio
Price Earnings Multiple
Return on Book Value
of Common Equity**

Industry rankings are based on the financial statistics reported in the preceding pages. These rankings are organized and presented for the reader's convenience. They do not represent a recommendation to buy or sell shares of common stock.

ELECTRIC

	HIGH	DIVIDEND
Hawaiian Electric Industries, Inc. (NYSE-HE)	4.6	
Southern Company (NYSE-SO)	4.5	
PPL Corporation (NYSE-PPL)	4.4	
Other Tail Corporation (NDQ-OTTR)	4.2	
FirstEnergy Corporation (ASE-FE)	4.1	
ALLETE, Inc. (NYSE-ALE)	4.0	
Pinnacle West Capital Corp. (NYSE-PNW)	4.0	
Westar Energy, Inc. (NYSE-WR)	3.9	
American Electric Power Co. (NYSE-AEP)	3.7	
Great Plains Energy Incorporated (NYSE-GXP)	3.6	

	HIGH	MARKET/BOOK
OGE Energy Corp. (NYSE-OGE)	228.8	
Nextera Energy (NYSE-NBE)	223.0	
Southern Company (NYSE-SO)	205.2	
Other Tail Corporation (NDQ-OTTR)	189.8	
Edison International (NYSE-ED)	184.4	
Cleco Corporation (NYSE-CNL)	183.1	
PPL Corporation (NYSE-PPL)	161.3	
American Electric Power Co. (NYSE-AEP)	160.9	
Hawaiian Electric Industries, Inc. (NYSE-HE)	155.3	
IDACORP, Inc. (NYSE-IDA)	152.3	

	HIGH	PRICE/EARNINGS
PPL Corporation (NYSE-PPL)	25.5	
FirstEnergy Corporation (ASE-FE)	23.2	
Southern Company (NYSE-SO)	21.3	
Nextera Energy (NYSE-NBE)	21.0	
PNM Resources, Inc. (NYSE-PNM)	20.5	
Cleco Corporation (NYSE-CNL)	19.0	
ALLETE, Inc. (NYSE-ALE)	18.3	
Other Tail Corporation (NDQ-OTTR)	17.5	
OGE Energy Corp. (NYSE-OGE)	16.9	
Pinnacle West Capital Corp. (NYSE-PNW)	16.7	

	HIGH	RETURN ON BOOK VALUE
Edison International (NYSE-ED)	14.7	
OGE Energy Corp. (NYSE-OGE)	14.3	
Southern Company (NYSE-SO)	11.4	
Nextera Energy (NYSE-NBE)	11.1	
Other Tail Corporation (NDQ-OTTR)	11.0	
American Electric Power Co. (NYSE-AEP)	10.8	
Hawaiian Electric Industries, Inc. (NYSE-HE)	10.3	
Cleco Corporation (NYSE-CNL)	9.9	
Westar Energy, Inc. (NYSE-WR)	9.8	
Pinnacle West Capital Corp. (NYSE-PNW)	9.6	

COMPANIES

	YIELD
Edison International (NYSE-ED)	2.4
OGE Energy Corp. (NYSE-OGE)	2.8
PNM Resources, Inc. (NYSE-PNM)	2.8
Nextera Energy (NYSE-NBE)	3.1
El Paso Electric Company (NYSE-EE)	3.1
IDACORP, Inc. (NYSE-IDA)	3.3
Cleco Corporation (NYSE-CNL)	3.3
Portland General Electric Company (NYSE-POR)	3.3
Great Plains Energy Incorporated (NYSE-GXP)	3.6
American Electric Power Co. (NYSE-AEP)	3.7

	RATIO
Great Plains Energy Incorporated (NYSE-GXP)	111.4
FirstEnergy Corporation (ASE-FE)	115.1
PNM Resources, Inc. (NYSE-PNM)	125.3
Portland General Electric Company (NYSE-POR)	140.8
ALLETE, Inc. (NYSE-ALE)	145.7
El Paso Electric Company (NYSE-EE)	147.5
Westar Energy, Inc. (NYSE-WR)	148.8
Pinnacle West Capital Corp. (NYSE-PNW)	150.5
IDACORP, Inc. (NYSE-IDA)	152.3
Hawaiian Electric Industries, Inc. (NYSE-HE)	155.3

	MULTIPLE
Edison International (NYSE-ED)	13.3
American Electric Power Co. (NYSE-AEP)	15.4
Hawaiian Electric Industries, Inc. (NYSE-HE)	15.6
Portland General Electric Company (NYSE-POR)	15.7
Westar Energy, Inc. (NYSE-WR)	15.8
IDACORP, Inc. (NYSE-IDA)	16.3
Great Plains Energy Incorporated (NYSE-GXP)	16.5
El Paso Electric Company (NYSE-EE)	16.6
Pinnacle West Capital Corp. (NYSE-PNW)	16.7
OGE Energy Corp. (NYSE-OGE)	16.9

	OF COMMON EQUITY
FirstEnergy Corporation (ASE-FE)	5.0
PNM Resources, Inc. (NYSE-PNM)	6.2
Great Plains Energy Incorporated (NYSE-GXP)	6.8
PPL Corporation (NYSE-PPL)	6.9
ALLETE, Inc. (NYSE-ALE)	8.1
Portland General Electric Company (NYSE-POR)	9.4
El Paso Electric Company (NYSE-EE)	9.5
IDACORP, Inc. (NYSE-IDA)	9.5
Pinnacle West Capital Corp. (NYSE-PNW)	9.6
Westar Energy, Inc. (NYSE-WR)	9.8

COMBINATION ELECTRIC

HIGH	DIVIDEND
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TECO Energy, Inc. (NYSE-TE)	4.8
UHL Holdings Corporation (NYSE-UHL)	4.4
Energy Corporation (NYSE-ETR)	4.2
Consolidated Edison, Inc. (NYSE-ED)	4.2
CenterPoint Energy (NYSE-CNP)	4.1
Ameren Corporation (NYSE-AEB)	4.1
PG&E Corporation (NYSE-PCG)	4.1
Duke Energy Corporation (NYSE-DUK)	4.1
Unitil Corporation (NYSE-UTL)	4.1
Pepero Holdings, Inc. (NYSE-POM)	4.1

MARKET/BOOK

HIGH

Dominion Resources, Inc. (NYSE-D)	346.4
Wisconsin Energy Corporation (NYSE-WEC)	242.0
CMS Energy Corporation (NYSE-CMS)	230.6
SEMPRA Energy (NYSE-SRB)	227.6
CenterPoint Energy (NYSE-CNP)	225.0
Vectren Corporation (NYSE-VVC)	219.5
MGE Energy, Inc. (NYSE-MGEE)	219.1
Chesapeake Utilities Corporation (NYSE-CPK)	217.0
NiSource Inc. (NYSE-NI)	207.6
NorthWestern Corporation (NYSE-NWE)	198.7

HIGH

PRICE/EARNINGS

PG&E Corporation (NYSE-PCG)	27.9
Dominion Resources, Inc. (NYSE-D)	25.6
MGE Energy, Inc. (NYSE-MGEE)	25.3
Duke Energy Corporation (NYSE-DUK)	25.2
SEMPRA Energy (NYSE-SRB)	23.6
NiSource Inc. (NYSE-NI)	22.8
Vectren Corporation (NYSE-VVC)	22.0
Pepero Holdings, Inc. (NYSE-POM)	21.7
NorthWestern Corporation (NYSE-NWE)	20.2
Black Hills Corporation (NYSE-BKH)	20.1

HIGH	RETURN ON BOOK VALUE
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CMS Energy Corporation (NYSE-CMS)	14.8
Wisconsin Energy Corporation (NYSE-WEC)	14.4
Avista Corporation (NYSE-AVA)	14.2
Dominion Resources, Inc. (NYSE-D)	13.6
MGE Energy, Inc. (NYSE-MGEE)	13.0
CenterPoint Energy (NYSE-CNP)	12.9
Chesapeake Utilities Corporation (NYSE-CPK)	12.9
Alliant Energy Corporation (NYSE-LNT)	11.4
SCANA Corporation (NYSE-SCG)	11.2
Consolidated Edison, Inc. (NYSE-ED)	10.4

& GAS COMPANIES

YIELD

LOW

Chesapeake Utilities Corporation (NYSE-CPK)	2.4
SEMPRA Energy (NYSE-SRE)	2.6
NiSource Inc. (NYSE-NI)	2.6
MDU Resources Group, Inc. (NYSE-MDU)	2.8
MGE Energy, Inc. (NYSE-MGEE)	2.8
Black Hills Corporation (NYSE-BKH)	3.2
NorthWestern Corporation (NYSE-NWE)	3.2
Wisconsin Energy Corporation (NYSE-WEC)	3.3
Northeast Utilities (NYSE-NU)	3.3
Vectren Corporation (NYSE-VVC)	3.5

RATIO

LOW

Exelon Corporation (NYSE-EXC)	128.1
Duke Energy Corporation (NYSE-DUK)	135.9
PG&E Corporation (NYSE-PCG)	140.0
Energy Corporation (NYSE-ETR)	140.3
Avista Corporation (NYSE-AVA)	142.7
Consolidated Edison, Inc. (NYSE-ED)	142.7
Empire District Electric Co. (NYSE-ED)	145.9
Ameren Corporation (NYSE-AEB)	146.4
SCANA Corporation (NYSE-SCG)	150.0
Northeast Utilities (NYSE-NU)	152.9

MULTIPLE

LOW

Avista Corporation (NYSE-AVA)	10.4
SCANA Corporation (NYSE-SCG)	13.8
Consolidated Edison, Inc. (NYSE-ED)	14.0
Energy Corporation (NYSE-ETR)	14.5
Empire District Electric Co. (NYSE-ED)	15.6
Public Service Enterprise Group (NYSE-PEG)	16.0
Exelon Corporation (NYSE-EXC)	16.1
CMS Energy Corporation (NYSE-CMS)	16.3
Alliant Energy Corporation (NYSE-LNT)	16.4
Xcel Energy Inc. (NYSE-XEL)	16.4

OF COMMON EQUITY

LOW

PG&E Corporation (NYSE-PCG)	5.1
Duke Energy Corporation (NYSE-DUK)	5.4
Pepero Holdings, Inc. (NYSE-POM)	7.1
Northeast Utilities (NYSE-NU)	7.8
Exelon Corporation (NYSE-EXC)	8.3
Black Hills Corporation (NYSE-BKH)	8.3
UHL Holdings Corporation (NYSE-UHL)	8.8
Ameren Corporation (NYSE-AEB)	9.1
TECO Energy, Inc. (NYSE-TE)	9.2
NorthWestern Corporation (NYSE-NWE)	9.2

NATURAL GAS DIST.

	DIVIDEND
HIGH	
Northwest Natural Gas Co. (NYSE-NWN)	4.2
WGL Holdings, Inc. (NYSE-WGL)	4.0
Delta Natural Gas Company (NDQ-DGAS)	3.9
RGC Resources, Inc. (NDQ-RGCO)	3.8
AGL Resources Inc. (NYSE-GAS)	3.8
Laclede Group, Inc. (NYSE-LG)	3.7
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	3.6
New Jersey Resources Corp. (NYSE-NJR)	3.4
South Jersey Industries, Inc. (NYSE-SJI)	3.4
Questar Corporation (NYSE-STR)	3.4

	MARKET/BOOK
HIGH	
Questar Corporation (NYSE-STR)	309.0
National Fuel Gas Company (NYSE-NFG)	239.4
New Jersey Resources Corp. (NYSE-NJR)	219.7
UGI Corporation (NYSE-UGI)	216.8
South Jersey Industries, Inc. (NYSE-SJI)	209.6
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	208.0
Delta Natural Gas Company (NDQ-DGAS)	191.4
RGC Resources, Inc. (NDQ-RGCO)	179.9
WGL Holdings, Inc. (NYSE-WGL)	178.4
Southwest Gas Corporation (NYSE-SWX)	168.8

	PRICE/EARNINGS
HIGH	
Questar Corporation (NYSE-STR)	22.6
Northwest Natural Gas Co. (NYSE-NWN)	20.2
Gas Natural, Inc. (NDQ-EGAS)	20.0
Laclede Group, Inc. (NYSE-LG)	19.8
RGC Resources, Inc. (NDQ-RGCO)	19.8
National Fuel Gas Company (NYSE-NFG)	19.5
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	18.8
South Jersey Industries, Inc. (NYSE-SJI)	18.6
Southwest Gas Corporation (NYSE-SWX)	18.4
Amos Energy Corporation (NYSE-ATO)	17.6

	RETURN ON BOOK VALUE
HIGH	
New Jersey Resources Corp. (NYSE-NJR)	15.4
Questar Corporation (NYSE-STR)	14.7
UGI Corporation (NYSE-UGI)	13.1
National Fuel Gas Company (NYSE-NFG)	12.9
AGL Resources Inc. (NYSE-GAS)	12.5
South Jersey Industries, Inc. (NYSE-SJI)	11.6
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	11.6
Delta Natural Gas Company (NDQ-DGAS)	11.4
Amos Energy Corporation (NYSE-ATO)	9.7
Southwest Gas Corporation (NYSE-SWX)	9.5

& INT GAS COMPANIES

	YIELD
LOW	
Gas Natural, Inc. (NDQ-EGAS)	1.7
National Fuel Gas Company (NYSE-NFG)	2.3
UGI Corporation (NYSE-UGI)	2.5
Southwest Gas Corporation (NYSE-SWX)	2.8
Amos Energy Corporation (NYSE-ATO)	2.9
Questar Corporation (NYSE-STR)	3.4
South Jersey Industries, Inc. (NYSE-SJI)	3.4
New Jersey Resources Corp. (NYSE-NJR)	3.4
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	3.6
Laclede Group, Inc. (NYSE-LG)	3.7

	RATIO
LOW	
Gas Natural, Inc. (NDQ-EGAS)	123.4
Laclede Group, Inc. (NYSE-LG)	134.5
Northwest Natural Gas Co. (NYSE-NWN)	156.4
AGL Resources Inc. (NYSE-GAS)	159.9
Amos Energy Corporation (NYSE-ATO)	161.7
Southwest Gas Corporation (NYSE-SWX)	168.8
WGL Holdings, Inc. (NYSE-WGL)	178.4
RGC Resources, Inc. (NDQ-RGCO)	179.9
Delta Natural Gas Company (NDQ-DGAS)	191.4
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	208.0

	MULTIPLE
LOW	
AGL Resources Inc. (NYSE-GAS)	13.4
New Jersey Resources Corp. (NYSE-NJR)	15.3
Delta Natural Gas Company (NDQ-DGAS)	17.4
UGI Corporation (NYSE-UGI)	17.6
Amos Energy Corporation (NYSE-ATO)	17.6
Southwest Gas Corporation (NYSE-SWX)	18.4
South Jersey Industries, Inc. (NYSE-SJI)	18.6
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	18.8
National Fuel Gas Company (NYSE-NFG)	19.5
RGC Resources, Inc. (NDQ-RGCO)	19.8

	OF COMMON EQUITY
LOW	
WGL Holdings, Inc. (NYSE-WGL)	1.2
Gas Natural, Inc. (NDQ-EGAS)	6.4
Laclede Group, Inc. (NYSE-LG)	6.9
Northwest Natural Gas Co. (NYSE-NWN)	7.9
RGC Resources, Inc. (NDQ-RGCO)	9.4
Southwest Gas Corporation (NYSE-SWX)	9.5
Amos Energy Corporation (NYSE-ATO)	9.7
Delta Natural Gas Company (NDQ-DGAS)	11.4
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	11.6
South Jersey Industries, Inc. (NYSE-SJI)	11.6

WATER

DIVIDEND

HIGH

Artisan Resources Corp. (NDQ-ARTNA)
 Middlesex Water Company (NDQ-MSEX)
 Connecticut Water Service, Inc. (NDQ-CTWS)
 Aqua America, Inc. (NYSE-WTR)

4.1
 3.7
 3.0
 2.8

MARKET/BOOK

HIGH

Aqua America, Inc. (NYSE-WTR)
 York Water Company (NDQ-YORW)
 American States Water Co. (NYSE-AWR)
 California Water Service Group (NYSE-CWT)

267.9
 260.5
 253.6
 191.7

PRICE/EARNINGS

HIGH

SIW Corporation (NYSE-SIW)
 York Water Company (NDQ-YORW)
 California Water Service Group (NYSE-CWT)
 Artesian Resources Corp. (NDQ-ARTNA)

26.9
 26.4
 24.4
 22.3

RETURN ON BOOK VALUE

HIGH

Aqua America, Inc. (NYSE-WTR)
 American States Water Co. (NYSE-AWR)
 Connecticut Water Service, Inc. (NDQ-CTWS)
 York Water Company (NDQ-YORW)

14.6
 12.3
 11.1
 9.9

COMPANIES

YIELD

LOW

American Water Works Co., Inc. (NYSE-AWK)
 American States Water Co. (NYSE-AWR)
 California Water Service Group (NYSE-CWT)
 SIW Corporation (NYSE-SIW)

2.5
 2.6
 2.7
 2.7

RATIO

LOW

Artisan Resources Corp. (NDQ-ARTNA)
 Middlesex Water Company (NDQ-MSEX)
 SIW Corporation (NYSE-SIW)
 American Water Works Co., Inc. (NYSE-AWK)

137.8
 172.2
 177.8
 182.4

MULTIPLE

LOW

Connecticut Water Service, Inc. (NDQ-CTWS)
 Aqua America, Inc. (NYSE-WTR)
 Middlesex Water Company (NDQ-MSEX)
 American States Water Co. (NYSE-AWR)

17.5
 19.5
 19.6
 21.8

OF COMMON EQUITY

LOW

Artisan Resources Corp. (NDQ-ARTNA)
 SIW Corporation (NYSE-SIW)
 California Water Service Group (NYSE-CWT)
 American Water Works Co., Inc. (NYSE-AWK)

6.7
 6.7
 7.9
 8.2

GLOSSARY OF TERMS

Latest 12 Month Earnings Available -

Earnings per share as reported, based upon the latest 12 months ending as of the last day of the month reported in this column.

Earnings -

Earnings per share as reported before extraordinary items for the latest 12 months ending on the date reported.

Current Annual Dividend -

Latest quarterly dividend per share annualized.

Book Value -

Common equity divided by Common Shares Outstanding for the latest end figures available.

Price -

Closing market price per share of common stock on the date cited at the head of the column.

Common Shares Outstanding -

Common shares Outstanding for the latest quarter and figures available.

Dividend Payout -

Annualized Dividend per share divided by the reported Earnings per Share, multiplied by 100.

Dividend Yield -

Annualized Dividend per share divided by the market price per share of common stock reported, multiplied by 100.

Market/Book Ratio -

Market price per share of common stock reported, divided by the reported Book Value per share multiplied by 100.

Dividend/Book Ratio -

Annualized Dividend per share divided by the reported Book Value per share, multiplied by 100.

Price-Earnings Multiple Ratio -

Market price per share of common stock reported divided by the reported earnings per share.

Total Revenue -

This is the total operating revenue for the latest 12 months as available. It includes regulated and non-regulated revenue.

% Electric / Gas / Water / Telephone Revenue -

Percentage of regulated revenues attributable to Elec./Gas/Water/Tele. operations relative to total Operating Revenue. Company groupings are based on revenue percentages and SIC classification criteria.

Net Plant -

Total Property, Plant and Equipment less Depreciation and Contributions in Aid of Construction for the latest quarter and figures available.

Net Plant Per Revenue -

Net Plant as reported divided by Operating Revenue as reported.

Standard & Poor's and Moody's Bond Ratings -

Ratings for each company's most senior long term debt security. For holding companies, ratings are based on an average of the bond ratings available for the regulated subsidiaries.

Common Equity Ratio -

Common Equity capital for the latest quarter divided by total capital as reported, multiplied by 100. Total capital is equal to the sum of long-term debt, current maturities, short-term debt, preferred stock and common equity for the latest quarter end figures available.

% Return on Book Value - Common Equity -

Income Available for Common Equity divided by Average Common Equity, multiplied by 100. Average common equity based upon the most recent beginning and ending moving 12 month period available.

% Return on Book Value - Total Capital From Continuing Operations -

Income before Interest Charges (inclusive of taxes) divided by Average Total Capitalization, multiplied by 100. Average total capitalization based upon the most recent beginning and ending four quarter values available.

Allowed ROE -

Most recent reported state-level allowed return rate on common equity (ROE). ROE for companies operating in multiple jurisdictions are averages. Various companies have received incentive-base ROE authorizations that are not reported upon in this report.

Order Date -

The date of the commission order authorizing reported ROE. For companies operating in multiple jurisdictions, no date is given because the reported ROE is an average derived from multiple commission orders issued at different times.

(NYSE) - New York Stock Exchange.

(ASE) - American Stock Exchange.

(NDQ) - NASDAQ.

NM - Not Meaningful.

NA - Not Available.

Additional Notes -

(1) Balance sheet values are the latest quarter and figures as available income statement figures are for the latest 12 month available

(2) Based on per share value.

(3) Based on total capital. (The sum of long-term debt, current maturities, short term debt, preferred stock and common equity capital.)

(4) In many instances, available information require that Per Share and % Return on Book Value of Common Equity/Total Capital derived from figures that represent financial activity from different 12 month periods.

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IMPORTANT NUMBERS

GOVERNMENT AGENCIES

Federal Communications Commission (FCC)
445 12th Street S.W.
Washington D.C. 20554
(202) 418-0200
<http://www.fcc.gov>

Federal Energy Regulatory Commission (FERC)
888 First Street, N.E.
Washington D.C. 20426
(202) 208-0200
<http://www.ferc.fed.us>

Nuclear Regulatory Commission (NRC)
One White Flint North
11555 Rockville Pike
Rockville, MD 20852
(301) 415-7000
<http://www.nrc.gov>

Securities & Exchange Commission (SEC)
450 Fifth Street, N.W.
Washington D.C. 20549
(202) 942-7040
<http://www.sec.gov>

TRADE ASSOCIATIONS

American Gas Association (AGA)
400 N. Capitol Street, N.W.
Washington D.C. 20001
(202) 824-7000
<http://www.aga.org>

Edison Electric Institute (EEI)
701 Pennsylvania Ave., N.W.
Washington D.C. 20004
(202) 508-5000
<http://www.eei.org>

National Association of Water Companies (NAWC)
1725 K Street, N.W.
Suite 1212
Washington D.C. 20006
(202) 833-8383
<http://www.nawc.org>

United States Telecom Association (USTIA)
1401 H. Street, N.W.
Suite 600
Washington D.C. 20005
(202) 326-7300
<http://www.ustia.org>

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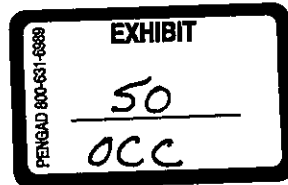
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Duke Energy Ohio
Case No. 14-841-EL-SSO, 14-842-EL-ATA
OCC Thirteenth Set Interrogatories
Date Received: August 26, 2014

OCC-INT-13-349

REQUEST:

Reference page 4, line 1, of Ms. Peggy Laub's testimony. Please provide a calculation showing the derivation of the 10.7 percent factor.

RESPONSE:

See OCC-INT-13-349 Attachment.

PERSON RESPONSIBLE: Peggy Laub

Duke Energy Ohio
Approved Rate of Return ^(a)

Line No.	Balance at 3/31/2012	Percent of Total ^(a)	Rate	Weighted Cost	Tax Gross Up Factor ^(b)	Pre-Tax Rate of Return
1	\$2,532,502,631	46.70%	5.32%	2.48%	1.0000000	2.48%
2	2,890,859,857	53.30%	9.84%	5.25%	1.5650023	8.22%
3	<u>\$5,423,362,488</u>	<u>100.00%</u>		<u>7.73%</u>		<u>10.70%</u>
4	Operating Revenues		100.000%			
5	Less: Uncollectible Accounts	0.5425%				
6	City of Cincinnati Franchise Tax	0.1100%				
7	Commercial Activities Tax	<u>0.2600%</u>	<u>0.9135%</u>			
8	Income before Income Tax		99.087%	<u>1.0092192</u>	Debt Gross Up	
9	State and Municipal Income Tax		<u>0.783%</u>			
10	Income before Federal Income Tax		98.304%			
11	Federal Income Tax (35% x 98.304%)		<u>34.406%</u>			
12	Operating Income Percentage		<u>63.898%</u>			
13	Gross Revenue Conversion Factor (100%/63.898%)		<u>1.5650023</u>			

Notes: ^(a) Per Stipulation approved in Case No. 12-1682-EL-AIR.

^(b) Per Schedule A-2 in the Staff Report of Investigation in Case No. 12-1682-EL-AIR.

<http://www.pjm.com/~media/documents/agreements/tariff.ashx>

**PJM OPEN ACCESS
TRANSMISSION TARIFF**

Effective Date: 09/10/2014

ATTACHMENT M

PJM MARKET MONITORING PLAN

References to section numbers in this Attachment M refer to sections of this Attachment M, unless otherwise specified.

I. OBJECTIVES

The objectives of this PJM Market Monitoring Plan are to maintain an independent Market Monitoring Unit that will objectively monitor, investigate, evaluate and report on the PJM Markets, including, but not limited to, structural, design or operational flaws in the PJM Markets or the exercise of market power or manipulation in the PJM Markets. The Market Monitoring Unit shall have responsibility for implementing the Plan. In the event of any conflict between a provision in the Plan and a provision of the PJM Market Rules, the provision of the Plan shall control.

II. DEFINITIONS

Unless the context otherwise requires, for purposes of this Plan, capitalized terms shall have the meanings given below or in Section I of the PJM Tariff.

(a) **“Authorized Government Agency”** means a regulatory body or government agency, with jurisdiction over PJM, the PJM Market, or any entity doing business in the PJM Market, including, but not limited to, the Commission, State Commissions, and state and federal attorneys general.

(b) **“Commission”** means the Federal Energy Regulatory Commission.

(c) **“Corrective Action”** means an action set forth in section IV.I of this Plan.

(d) **“FERC Market Rules”** mean the market behavior rules and the prohibition against electric energy market manipulation codified by the Commission in its Rules and Regulations at 18 CFR §§ 1c.2 and 35.37, respectively; the Commission-approved PJM Market Rules and any related proscriptions or any successor rules that the Commission from time to time may issue, approve or otherwise establish.

(e) **“Market Monitor”** means the head of the Market Monitoring Unit.

(f) **“Market Monitoring Unit”** or **“MMU”** means the organization that is responsible for implementing this Plan, including the Market Monitor.

(g) **“Market Monitoring Unit Advisory Committee”** or **“MMU Advisory Committee”** means the committee established under Section III.H.

(h) **“Market Participant”** means an entity that generates, transmits, distributes, purchases, or sells electricity, ancillary services, or any other product or service provided under the PJM Tariff or Operating Agreement within, into, out of, or through the PJM Region.

“Market Participant” shall not include an Authorized Government Agency that consumes energy for its own use but does not purchase or sell energy at wholesale.

(h-1) **“Market Violation”** means a tariff violation, violation of a Commission-approved order, rule or regulation, market manipulation, or inappropriate dispatch that creates substantial concerns regarding unnecessary market inefficiencies, as defined in 18 C.F.R. § 35.28(b)(8).

(i) **“OPSI Advisory Committee”** means the committee established under Section III.G.

(j) **“PJM”** means PJM Interconnection, L.L.C., including the Office of the Interconnection as referenced in the PJM Operating Agreement.

(k) **“PJM Board”** means the Board of Managers of PJM or its designated representative, exclusive of any members of PJM Management.

(l) **“PJM Entities”** mean PJM, including the Market Monitoring Unit, the PJM Board, and PJM’s officers, employees, representatives, advisors, contractors, and consultants.

(m) **“PJM Liaison”** means the liaison established under Section III.I.

(n) **“PJM Management”** means the officers, executives, supervisors and employee managers of PJM.

(o) **“PJM Manuals”** mean those documents, including business rules, produced by PJM that describe detailed PJM operating and accounting procedures that are made publicly available in hard copy and on the Internet.

(p) **“PJM Markets”** mean the PJM Interchange Energy and Capacity Markets, including the RPM auctions, together with all bilateral or other wholesale electric power and energy transactions, capacity transactions, ancillary services transactions (including black start service), transmission transactions and any other market operated under the PJM Tariff or Operating Agreement within the PJM Region.

(q) **“PJM Market Rules”** mean the rules, standards, procedures, and practices of the PJM Markets set forth in the PJM Tariff, the PJM Operating Agreement, the PJM Reliability Assurance Agreement, the PJM Consolidated Transmission Owners Agreement, the PJM Manuals, the PJM Regional Practices Document, the PJM-Midwest Independent Transmission System Operator Joint Operating Agreement or any other document setting forth market rules.

(r) **“PJM Operating Agreement”** means the Amended and Restated Operating Agreement of PJM on file with the Commission.

(s) **“PJM Regional Practices Document”** means the document of that title that compiles and describes the practices in the PJM Markets and that is made available in hard copy and on the Internet.

(t) **“PJM Reliability Assurance Agreement”** means the Reliability Assurance Agreement among Load Serving Entities in the PJM Region on file with the Commission.

(u) **“PJM Tariff”** means the Open Access Transmission Tariff of PJM on file with the Commission.

(v) **“PJM Transmission Owners Agreement”** means the PJM Consolidated Transmission Owners Agreement on file with the Commission.

(w) **“Plan”** means the PJM market monitoring plan set forth in this Attachment M.

(x) **“State”** means the District of Columbia and any state or commonwealth in the PJM Region.

(y) **“State Commission”** means any state regulatory agency having jurisdiction over retail electricity sales in any State in the PJM Region.

III. MARKET MONITORING UNIT

A. **Establishment:** PJM shall establish or retain a Market Monitoring Unit to perform the functions set forth in this Plan.

B. **Composition:** The Market Monitoring Unit shall be comprised of personnel having the experience and qualifications necessary to implement this Plan. In carrying out its responsibilities, the Market Monitoring Unit may retain such consultants, attorneys and experts as it deems necessary.

C. **Independence:** The Market Monitoring Unit shall be independent from, and not subject to, the direction or supervision of any person or entity, with the exception of the PJM Board as specified in Section III.D, and the Commission. No person or entity shall have the right to preview, screen, alter, delete, or otherwise exercise editorial control over or delay Market Monitoring Unit actions or investigations or the findings, conclusions, and recommendations developed by the Market Monitoring Unit that fall within the scope of market monitoring responsibilities contained in this Plan. Nothing in this section shall be interpreted to exempt the Market Monitoring Unit from any applicable provision of state or federal law.

D. Role of PJM Board:

1. The PJM Board shall have the authority and responsibility:
 - a. To review the budget of the Market Monitoring Unit, consistent with the budget processes and requirements set forth in Section III.E.
 - b. To propose to terminate, retain by contract renewal or replace the Market Monitoring Unit, consistent with the requirements of Section III.F.

2. The PJM Board and the Market Monitor shall meet and confer from time to time on matters relevant to the discharge of the PJM Board's and the Market Monitoring Unit's duties under this Plan.

3. Other than the matters set forth in Sections III.D.1 and D.2, the PJM Board shall have no responsibility for, or authority over, the Market Monitoring Unit.

E. Budget:

1. **Preparation:** The Market Monitor shall prepare a budget each year of its expenses on an accrual basis in accordance with generally accepted accounting principles that is sufficient to cover the anticipated actual costs to perform the services under this Plan, including, but not limited to, salary and benefits, rent and utilities, interest, depreciation and other operating expenses.

2. **Review:** The Market Monitor shall, not later than September 15, submit a draft budget to the Finance Committee, OPSI Advisory Committee, and PJM Board for review and comment. The draft budget shall include total labor compensation, non-employee labor expense, current full-time employee and contractor head count, depreciation expense, interest expense, technology expense, other expense and capital spending, including a level of supporting detail consistent with that provided by PJM in its annual budget review to the Finance Committee. The draft budget shall also be made available for inspection by the PJM members. The Finance Committee, OPSI Advisory Committee, and PJM Board shall have until October 15 to request changes in the budget. The Market Monitor shall consider those requests and, if they are not accepted by the Market Monitor, it shall provide, in writing, to the foregoing and to PJM members, an explanation of the reasons they are not acceptable. If, after discussing requested changes with such entities, there is no remaining dispute over such requested changes, the mutually agreeable budget shall go into effect on January 1 of the subsequent year.

3. **Commission Action:** If despite the foregoing process, there remains a dispute regarding the budget, PJM shall, not later than November 1, file the Market Monitor's proposed budget with the Commission for resolution of the dispute. PJM shall accompany such filing with an explanation of the nature of the dispute and any position of the PJM Board on such dispute. Any interested person may also file comments on such dispute. The fact that PJM is submitting the dispute for Commission review shall not be deemed to provide the views of the PJM Board any special weight, nor subject them to any special burden of proof. If the Commission has not taken action by December 31, the Market Monitor's proposed budget, filed by PJM, shall take effect, subject to any subsequent Commission order.

4. **Intra-year Amendments to the Budget:** If the Market Monitor requires an intra-year amendment to the budget to perform its functions under the Plan, it shall provide the proposed amendment, the reasons for the proposed amendment and reasonable supporting detail to the Finance Committee, OPSI Advisory Committee and the PJM Board for review and comment, and if any dispute regarding such proposed amendment remains 30 days thereafter, PJM shall file the proposed budget amendment with the Commission for resolution of the dispute. The proposed budget amendment and supporting explanation shall also be made available for inspection by the PJM members.

5. **Rates:** The Market Monitor's approved budget shall be collected pursuant to Schedule 9-MMU of the PJM Tariff.

F. **Term and Termination:**

1. **Term:** Upon the effective date of this revised Attachment M, there shall be a contract between PJM and the Market Monitoring Unit that has an initial term of six (6) years. Upon the expiration of that initial six (6) year term, the contract may be renewed for subsequent term(s) of three (3) years if both parties agree. If the PJM Board does not agree to renew the contract at the end of its term, it may propose to terminate the contract pursuant to the standards and processes set forth below.

2. **Standards for Proposed Termination:**

a. **Termination During Contract Term.** During the term of any contract with the Market Monitoring Unit, the PJM Board may propose to terminate the contract as follows:

(1) During the first three (3) years following the effective date of this revised Attachment M, the PJM Board may propose to terminate the contract with the Market Monitoring Unit upon a determination of willful misconduct or gross negligence by the Market Monitoring Unit.

(2) Following the expiration of this initial three (3) year period, the PJM Board may, during the term of any contract with the Market Monitoring Unit (or any successor Market Monitoring Unit), propose to terminate the contract with the Market Monitoring Unit upon a determination that the Market Monitoring Unit has not adequately performed its functions set forth in this Plan.

b. **Termination at End of Contract Term.** At the end of the term of any contract with the Market Monitoring Unit, the PJM Board may propose to terminate the contract with the Market Monitoring Unit (or any successor Market Monitoring Unit) (1) upon a determination that the Market Monitoring Unit has not adequately performed the functions set forth in this Plan, or (2) pursuant to an open, nondiscriminatory and transparent request for proposals.

3. **Process for Proposed Termination and Replacement:**

a. **Notice.** If the PJM Board proposes to terminate the contract with the Market Monitoring Unit pursuant to the standards set forth in Section III.F.2, it shall provide one hundred twenty (120) days prior notice to the

Market Monitoring Unit, the OPSI Advisory Committee, MMU Advisory Committee and the PJM members.

b. Contents of Notice. The notice shall include the following information:

(1) If the PJM Board proposes to terminate the contract with the Market Monitoring Unit based on willful misconduct or gross negligence, it shall set forth in detail the conduct that supports such determination and shall propose an open and transparent process (such as a request for proposals) for selecting a new Market Monitoring Unit.

(2) If the PJM Board proposes to terminate the contract with the Market Monitoring Unit because it has not adequately performed its functions under this Plan, it shall set forth in detail the performance deficiencies that support that determination and shall propose an open and transparent process (such as a request for proposals) for selecting a new Market Monitoring Unit.

(3) If the PJM Board proposes to conduct a request for proposals to determine whether to replace the Market Monitoring Unit at the end of a contract term, it shall propose an open, nondiscriminatory and transparent request for proposals and shall allow the existing Market Monitoring Unit to submit a bid or proposal in that process. Any such notice shall set forth in detail the criteria applicable to such request for proposals. Such criteria shall be subject to comment as provided in Section III.F.3.c and subject to approval by the Commission.

c. Comments on the Notice. Within forty-five (45) days of any such notice, the Market Monitoring Unit, the OPSI Advisory Committee, MMU Advisory Committee, any PJM member or any stakeholder may provide advice or comment to the PJM Board regarding the proposed termination and/or the proposed process for selecting a new Market Monitoring Unit. The PJM Board shall take such advice or comment into account in reaching a final determination as to whether to propose to terminate the contract with the Market Monitoring Unit and, if so, the process for selecting a new Market Monitoring Unit.

d. FERC Filing. Upon the expiration of the one hundred twenty (120) day prior notice period, the PJM Board may, after considering the advice and comment provided pursuant to Section III.F.3.c, propose in a filing to FERC that the contract with the Market Monitoring Unit be terminated. Any such proposal shall include a detailed explanation of the reasons therefor, including an explanation of why the standards set forth in Section III.F.2 have been satisfied, and an open, nondiscriminatory and

transparent process for selecting a new Market Monitoring Unit. The Market Monitoring Unit, OPSI Advisory Committee and any interested stakeholder may submit to FERC such comments, protests or other documents and advice as appropriate on such filing.

e. Termination. The contract with the Market Monitoring Unit shall not be terminated until (1) FERC has reviewed a termination proposal by the PJM Board and any comments or protests submitted by interested parties thereon (including the OPSI Advisory Committee), (2) FERC has made a finding that the PJM Board has demonstrated that termination is justified pursuant to the standards set forth in Section III.F.2 above, (3) FERC has approved a process for selecting a new Market Monitoring Unit, and (4) a new Market Monitoring Unit has been selected pursuant to such FERC-approved process.

G. OPSI Advisory Committee: There shall be an OPSI Advisory Committee comprised of five (5) representatives appointed by the Organization of PJM States, Inc. The OPSI Advisory Committee shall meet with the Market Monitoring Unit on a regular basis and as otherwise necessary to receive and discuss information relevant to this Plan. In addition to the specific responsibilities regarding budget and termination set forth in Sections III.E and III.F, the OPSI Advisory Committee may provide advice to the Commission, Market Monitor, the PJM Board, stakeholder committees, and stakeholder working groups regarding any matter concerning the Market Monitor, Market Monitoring Unit or Market Monitoring Plan. Any formal advice shall be in writing and, subject to confidentiality provisions, shall be made publicly available.

H. Market Monitoring Unit Advisory Committee: There shall be an MMU Advisory Committee, chaired by the Market Monitor, that is open to all stakeholders and representatives of Authorized Government Agencies. The MMU Advisory Committee shall act as a liaison between stakeholders and the MMU and shall provide advice from time to time on matters relevant to the MMU's responsibilities under this Plan. The MMU Advisory Committee shall have no authority to direct, supervise, review, or otherwise interfere with the functions of the MMU under this Plan, nor any authority to terminate or propose to terminate the Market Monitor.

I. PJM Liaison: PJM may appoint an employee to act as liaison with the Market Monitoring Unit. The function of the liaison will be to facilitate communications between PJM employees and the Market Monitoring Unit, as defined in Section V.E.

IV. MARKET MONITORING UNIT FUNCTIONS AND RESPONSIBILITIES

A. General: The Market Monitoring Unit shall objectively monitor the competitiveness of PJM Markets, investigate violations of FERC or PJM Market Rules, recommend changes to PJM Market Rules, prepare reports for the Authorized Government Agencies and take such other actions as are specified in this Plan.

B. Monitored Activities: The Market Monitoring Unit shall be responsible for monitoring the following:

1. Compliance with the PJM Market Rules.
2. Actual or potential design flaws in the PJM Market Rules.
3. Structural problems in the PJM Markets that may inhibit a robust and competitive market.
4. The potential for a Market Participant to exercise market power or violate any of the PJM or FERC Market Rules or the actual exercise of market power or violation of the PJM or FERC Market Rules.
5. PJM's implementation of the PJM Market Rules or operation of the PJM Markets, as further set forth in Section IV.C.
6. Such matters as are necessary to prepare the reports set forth in Section VI.

C. Monitoring of PJM: The Market Monitoring Unit shall monitor PJM's implementation of the PJM Market Rules and operation of the PJM Markets. If the Market Monitoring Unit disagrees with the implementation of the PJM Market Rules or the operation of the PJM Markets, the Market Monitoring Unit may so advise PJM. Excepting matters governed by Section IV.I, if the disagreement cannot be resolved informally, the Market Monitoring Unit may inform the Commission, Authorized Government Agencies, or the PJM members. The Market Monitoring Unit shall have no authority to direct PJM to modify its operation of the PJM Markets or implementation of the PJM Market Rules.

C-1. Monitoring of ITCs: The Market Monitoring Unit shall monitor the services provided by the independent transmission companies (ITCs), and the ITC-PJM relationship, to detect any problems that may inhibit a robust and competitive market. Transactions utilizing the ITC Transmission Facilities shall be subject to the authority of the Market Monitoring Unit on the same basis as transactions involving any other Market Participant using other portions of the Transmission System. This provision is also found in Section 12.1 of Attachment U of the PJM Tariff.

D. Monitoring of PJM Market Rules, PJM Tariff and Market Design: PJM is responsible for proposing for approval by the Commission, consistent with tariff procedures and applicable law, changes to the PJM Market Rules, PJM Tariff and design of the PJM Markets. The Market Monitoring Unit shall evaluate and monitor existing and proposed PJM Market Rules, PJM Tariff provisions, and the design of the PJM Markets. However, if the Market Monitoring Unit detects a design flaw or other problem with the PJM Markets, the Market Monitoring Unit shall not effectuate its proposed market design since that is the responsibility of the Office of the Interconnection. The Market Monitoring Unit may initiate and propose, through the appropriate stakeholder processes, changes to the design of such markets, as well as changes to the PJM Market Rules and PJM Tariff. In support of this function, the Market

Monitoring Unit may engage in discussions with stakeholders, State Commissions, PJM Management, or the PJM Board; participate in PJM stakeholder meetings or working groups regarding market design matters; publish proposals, reports or studies on such market design issues; and make filings with the Commission on market design issues. The Market Monitoring Unit may also recommend changes to the PJM Market Rules and PJM Tariff provisions to the staff of the Commission's Office of Energy Market Regulation, State Commissions, and the PJM Board.

D-1. Market Monitoring Unit Compliance Review: The Market Monitoring Unit shall monitor compliance with PJM Market Rules and shall take action on compliance issues. The Market Monitoring Unit has the exclusive authority to perform the functions set forth in Attachment M and the Attachment M-Appendix. If the Market Monitoring Unit detects a Market Violation involving potential misconduct, it shall, if the applicable criteria are met, refer the matter in accordance with Section IV.I of Attachment M. If the Market Monitoring Unit detects a compliance issue and determines that there is an issue about the proper and lawful application of a rule, and the Market Monitoring Unit makes a preliminary determination that no misconduct is evident and the issue involves a difference about the appropriate calculation of the level of an input, the Market Monitoring Unit may file a petition or initiate other regulatory proceedings addressing the issue. The Market Monitoring Unit may, where it deems appropriate, submit a confidential referral and initiate a public regulatory proceeding concerning the same underlying matter.

E. Mitigation: The Market Monitoring Unit may, consistent with the PJM Market Rules, recommend to PJM that it take specific mitigation action that PJM is authorized to take under the PJM Market Rules to address market behavior or conditions. The Market Monitoring Unit shall not, however, have authority to require modification of PJM operational decisions, including dispatch instructions. If PJM does not accept the Market Monitoring Unit's recommendations regarding mitigation actions, the Market Monitoring Unit may report its mitigation recommendation to the Authorized Government Agencies, Commission staff, State Commissions or the PJM members, as the Market Monitoring Unit deems appropriate. Nothing in this Plan shall be deemed to supersede any authority the Market Monitoring Unit may have under the PJM Market Rules, nor shall anything in this Plan preclude any person or entity from seeking to modify such authority in a filing with the Commission.

E-1. Market Monitoring Unit Market Power Review: Determinations about market power are the responsibility of the Market Monitoring Unit under Attachment M and Attachment M - Appendix. The Market Monitoring Unit shall review all proposed sell offers for a determination of whether they raise market power concerns. The Market Monitoring Unit shall determine whether the level of offer or cost inputs raises market power concerns. The Attachment M-Appendix sets forth the Market Monitoring Unit's role in evaluating these offer or cost inputs. The Market Monitoring Unit and market participants shall, in accordance with the applicable procedures and as set forth elsewhere in the Tariff, attempt to come to agreement about the level or value of offers or cost inputs. The Market Monitoring Unit shall make a determination about whether offer or cost inputs or a decision not to offer a committed resource is physical or economic withholding or otherwise involves a potential exercise of market power. In the event that a market participant determines to use an offer or cost input at a level or value that the Market Monitoring Unit has found to involve a potential exercise of market power, the

Market Monitoring Unit may file a petition or initiate other regulatory proceedings addressing the issue. If the potential exercise of market power is related to a Sell Offer submitted in an RPM Auction, the Market Monitoring Unit may file a complaint with the Commission addressing the issue. If, at the time of filing, market prices that have been settled and posted could be impacted by the subject of the complaint, the Market Monitoring Unit shall refrain from requesting relief from the Commission that would upset such market prices and shall limit the requested relief to appropriate restitution and/or penalties from the implicated market participant or participants.

F. Studies or Reports for State Commissions: Upon request in writing by the OPSI Advisory Committee, the Market Monitoring Unit may, in its discretion, provide such studies or reports on wholesale market issues, including wholesale market transactions occurring under a state-administered auction process, as may affect one or more states within the PJM area. Any such request for such a study or report, as well as any resulting study or report, shall be made simultaneously available to the public, with simultaneous notice to PJM members, subject to the protection of confidential information.

G. Participation in Stakeholder Processes: The Market Monitoring Unit may, as it deems appropriate or necessary to perform its functions under this Plan, participate (consistent with the rules applicable to all PJM stakeholders) in stakeholder working groups, committees or other PJM stakeholder processes.

H. Referrals to State Commissions: If during the ordinary course of its activities the Market Monitoring Unit discovers evidence of wrongdoing (other than minor misconduct) that the Market Monitor reasonably believes to be within a State Commission's jurisdiction, the Market Monitoring Unit shall report such information to the State Commission(s).

I. Corrective Actions

1. Required Notice and Referral to Commission of Suspected Market Violations: Immediately upon determining that it has identified a significant market problem or a potential Market Violation by a Market Participant or PJM that may require (a) further inquiry by the Market Monitoring Unit, (b) referral for investigation by the Commission and/or (c) action by the Commission, the Market Monitoring Unit shall notify the Commission's Office of Enforcement (or any successor), either orally or in writing. Nothing in this Section IV.I.1 shall limit the ability of the Market Monitoring Unit to engage in discussions with any such Market Participant as provided in Section IV.J.1.

In addition to the notification requirement above, where the Market Monitoring Unit has reason to believe, based on sufficient credible information, that the behavior of a Market Participant or PJM may require investigation, including but not limited to suspected Market Violations, the Market Monitoring Unit will refer the matter to the Commission's Office of Enforcement (or any successor) in the manner described below.

Such a referral shall be in writing, non-public, addressed to the Commission's Director of the Office of Enforcement, with a copy directed to the Commission's Director of the Office of Energy Market Regulation and the General Counsel, and should include, but need not be limited

to, the following sufficient credible information to warrant further investigation by the Commission:

- a. The name(s) of and, if possible, the contact information for, the Market Participants that allegedly took the action(s) that constitute that alleged Market Violation(s);
- b. The date(s) or time period during which the alleged Market Violation(s) occurred and whether the alleged wrongful conduct is ongoing;
- c. The specific rule, regulation, and/or tariff provision(s) that were allegedly violated or the nature of any inappropriate dispatch that may have occurred;
- d. The specific act(s) or conduct that allegedly constituted the Market Violation;
- e. The consequences to the market resulting from the act(s) or conduct, including, if known, an estimate of economic impact on the market;
- f. If the Market Monitoring Unit believes that the act(s) or conduct constituted a violation of the anti-manipulation rule of 18 C.F.R. § 1c.2, a description of the alleged manipulative effect on market prices, market conditions, or market rules; and
- g. Any other information that the Market Monitoring Unit believes is relevant and may be helpful to the Commission.

The referral may be transmitted to the Commission electronically, by fax, by mail or by courier. The Market Monitoring Unit may also provide the Commission with oral notice of the alleged Market Violation in advance of the submission of a written, non-public referral. Following the submission of such a referral, the Market Monitoring Unit will continue to inform the Commission staff of any information relating to the referral that it discovers within the scope of its regular monitoring function, but it shall desist from, and not independently undertake any investigative steps regarding, the alleged Market Violation or referral except at the express direction of the Commission or Commission staff. The Market Monitoring Unit must also respond to requests of the Commission for additional information in connection with the alleged Market Violation that it has referred. The Market Monitoring Unit is not precluded from continuing to monitor for any repeated instances of the activity in question by the same or other Market Participants, which activity would constitute new Market Violations.

The foregoing notwithstanding, a clear, objectively identifiable violation of the following PJM Market Rules, which provide for an explicit remedy that has been accepted by the Commission and can be administered by PJM, shall not be subject to the provisions of this Section IV.I.1:

- a. Default in obligations to the Office of the Interconnection by a Market Participant in violation of Section 1.7.10(a)(v) of Attachment K – Appendix of the PJM Tariff.

b. Default in obligations to the Office of the Interconnection by a Market Participant in violation of Section 1.7.19B(e) of Attachment K – Appendix of the PJM Tariff.

c. Failure of a Capacity Market Seller or Locational UCAP Seller to obtain replacement Unforced Capacity to the extent a Generation Capacity Resource that it committed for a Delivery Year is unavailable due to a planned or maintenance outage that occurs during the Peak Season without approval of the Office of the Interconnection, in violation of Section 9(b) of Attachment DD of the PJM Tariff.

d. Failure of an Electric Distributor to maintain the required underfrequency relays in violation of Schedule 7, Section 2 of the PJM Operating Agreement.

e. Failure to submit data to the Office of the Interconnection in conformance with Schedule 11 (Data Submittals) of the Reliability Assurance Agreement.

f. Failure of Black Start Units to fulfill their commitment to provide Black Start Service under Schedule 6A the PJM Tariff.

2. Required Referral to Commission of Perceived Market Design Flaws and Recommended Tariff Changes:

The Market Monitoring Unit is to make a referral to the Commission in all instances where the Market Monitoring Unit has reason to believe market design flaws exist that it believes could effectively be remedied by rule or PJM Tariff changes. The Market Monitoring Unit must limit distribution of its identifications and recommendations to PJM and to the Commission in the event it believes broader dissemination could lead to exploitation, with an explanation of why further dissemination should be avoided at that time.

All referrals to the Commission relating to perceived market design flaws and recommended PJM Tariff changes related thereto are to be in writing, whether transmitted electronically, by fax, mail, or courier. The Market Monitoring Unit may alert the Commission orally in advance of the written referral.

The referral should be addressed to the Commission's Director of the Office of Energy Market Regulation, with copies directed to both the Director of the Office of Enforcement and the General Counsel.

The referral must include, but need not be limited to, the following information:

- a. A detailed narrative describing the perceived market design flaw[s];
- b. The consequences of the perceived market design flaws, including, if known, an estimate of economic impact on the market;
- c. The rule or PJM Tariff revisions that the Market Monitoring Unit believes could remedy the perceived market design flaw; and

d. Any other information the Market Monitoring Unit believes is relevant and may be helpful to the Commission.

Following a referral to the Commission, the Market Monitoring Unit must continue to notify and inform the Commission of any additional information regarding the perceived market design flaw, its effects on the market, any additional or modified observations concerning the rule or PJM Tariff changes that could remedy the perceived design flaw. The Market Monitoring Unit must also notify and inform the Commission of any recommendations made by the Market Monitoring Unit to PJM, stakeholders, Market Participants or State Commissions regarding the perceived design flaw, and any actions taken by PJM regarding the perceived design flaw.

J. Additional Market Monitoring Unit Authority: In addition to notifications and referrals under Sections IV.I.1 and IV.I.2, respectively, the Market Monitoring Unit shall have the additional authority described in this section, as follows:

1. Engage in discussions regarding issues relating to the PJM Market Rules or FERC Market Rules, in order to understand such issues and to attempt to resolve informally such issues or other issues.

2. Excepting matters governed by Section IV.I, file reports and make appropriate regulatory filings with Authorized Government Agencies to address design flaws, structural problems, compliance, market power, or other issues, and seek such appropriate action or make such recommendations as the Market Monitoring Unit shall deem appropriate. The Market Monitoring Unit shall make such filings or reports publicly available and provide simultaneous notice of the existence of reports to the PJM members and PJM, subject to protection of confidential information.

3. Consult with Authorized Government Agencies concerning the need for specific investigations or monitoring activities.

4. Consider and evaluate a broad range of additional enforcement mechanisms that may be necessary to assure compliance with the PJM Market Rules. As part of this evaluation process, the Market Monitoring Unit shall consult with Authorized Government Agencies and other interested parties.

5. Report directly to the Commission staff on any matter.

K. Confidentiality:

1. All discussions between the Market Monitoring Unit and Market Participants concerning the informal resolution of compliance issues initially shall remain confidential, subject to the provisions in subsection IV.K.3.

2. Except as provided in subsection IV.K.3, in exercising its authority to take Corrective Actions, the Market Monitoring Unit shall observe the confidentiality provisions of the PJM Operating Agreement and Attachment M - Appendix.

3. Notwithstanding anything to the contrary in this Plan or the PJM Operating Agreement and Attachment M - Appendix, the Market Monitoring Unit: (a) may disclose any information to the Commission in connection with the reporting required under Sections IV.I.1 and IV.I.2 of this Plan, provided that any written submission to the Commission that includes information that is confidential under the PJM Operating Agreement or Attachment M - Appendix shall be accompanied by a request that the information be maintained as confidential, and (b) may make reports or other regulatory filings pursuant to Section IV.J or V of this Plan if accompanied by a request that information that is confidential under the PJM Operating Agreement or Attachment M - Appendix be maintained as confidential.

V. INFORMATION AND DATA

A. **Primary Information Sources:** The Market Monitoring Unit shall rely primarily upon data and information that are customarily gathered in the normal course of business of PJM and such publicly available data and information that may be helpful to accomplish the objectives of the Plan, including, but not limited to, (1) information gathered or generated by PJM in connection with its scheduling and dispatch functions, its operation of the transmission grid in the PJM Region or its determination of Locational Marginal Prices, (2) information required to be provided to PJM in accordance with the PJM Market Rules and (3) any other information that is generated by, provided to, or in the possession of PJM. The foregoing information shall be provided to the Market Monitoring Unit as soon as practicable, including, but not limited to, real-time access to scheduling, dispatch and other operational data.

B. **Other Information Requests:** If other information is required from a Market Participant, the Market Monitoring Unit shall comply with the following procedures:

1. **Request for Additional Data:** If the Market Monitoring Unit determines that additional information is required to accomplish the objectives of the Plan, the Market Monitoring Unit may make reasonable requests of the entities possessing such information to provide the information. Any such request for additional information will be accompanied by an explanation of the need for the information and the Market Monitoring Unit's inability to acquire the information from alternate sources.

2. **Failure to Comply with Request:** The information request recipient shall provide the Market Monitoring Unit with all information that is reasonably requested. If an information request recipient does not provide requested information within a reasonable time, the Market Monitoring Unit may initiate such regulatory or judicial proceedings to compel the production of such information as may be available and deemed appropriate by the Market Monitoring Unit, including petitioning the Commission for an order that the information is necessary and directing its production. An information request recipient shall have the right to respond to any such petitions and participate in the proceedings thereon.

3. **Information Concerning Possible Undue Preference:** Notwithstanding subsection V.B.1, if the Market Monitoring Unit requests information relating to possible undue preference between Transmission Owners and their affiliates, Transmission Owners and their affiliates must provide requested information to the Market Monitoring Unit within a reasonable time, as specified by the Market Monitoring Unit; provided, however, that an information request

recipient may petition the Commission for an order limiting all or part of the information request, in which event the Commission's order on the petition shall determine the extent of the information request recipient's obligation to comply with the disputed portion of the information request.

4. **Confidentiality:** Except as provided in Section IV.K.3 of this Plan, the Market Monitoring Unit shall observe the confidentiality provisions of the PJM Operating Agreement and Attachment M - Appendix with respect to information provided under this section if an entity providing the information designates it as confidential.

C. **Complaints:** Any Market Participant or other interested entity may at any time submit information to the Market Monitoring Unit concerning any matter relevant to the Market Monitoring Unit's responsibilities under the Plan, or may request the Market Monitoring Unit to make inquiry or take any action contemplated by the Plan. Such submissions or requests may be made on a confidential basis. The Market Monitoring Unit may request further information from such Market Participant or other entity and make such inquiry as the Market Monitoring Unit considers appropriate. The Market Monitoring Unit shall not be required to act with respect to any specific complaint unless the Market Monitoring Unit determines action to be warranted.

D. **Collection and Availability of Information:** The Market Monitoring Unit shall regularly collect and maintain under its sole control the information that it deems necessary for implementing the Plan. A Market Participant shall have sole responsibility to make available to the Market Monitoring Unit any information that the Market Monitoring Unit deems reasonably necessary to document, verify or investigate a claim or request by such Market Participant. All load reduction data are subject to audit by the Market Monitoring Unit. The Market Monitoring Unit shall make publicly available a detailed description of the categories of data collected by the Market Monitoring Unit. To the extent it deems appropriate and upon specific request, the Market Monitoring Unit may release other data to the public, consistent with the obligations of the Market Monitoring Unit and PJM to protect confidential, proprietary, or commercially sensitive information as provided in Attachment M - Appendix and the PJM Operating Agreement.

E. **Access to Personnel and Facilities:** The Market Monitoring Unit shall have access to PJM personnel and facilities as necessary to perform the functions set forth in this Plan. If the Market Monitoring Unit seeks data or other information from PJM personnel, it may contact the appropriate personnel that may be in possession of such data or information. If the Market Monitoring Unit seeks a formal opinion or position on a matter from PJM, it shall contact the PJM Liaison or appropriate senior management official to provide such opinion or position.

F. **Market Monitoring Indices:** The Market Monitoring Unit shall develop, and shall refine on the basis of experience, indices or other standards to evaluate the information that it collects and maintains. Prior to using any such index or standard, the Market Monitoring Unit shall provide PJM members, Authorized Government Agencies, and other interested parties an opportunity to comment on the appropriateness of such index or standard. Following such opportunity for comments, the decision to use any index or standard shall be solely that of the Market Monitoring Unit.

G. **Evaluation of Information:** The Market Monitoring Unit shall evaluate, and shall refine on the basis of experience, the information it collects and maintains, or that it receives from other sources, regarding the operation of the PJM Markets or other matters relevant to the Plan. As so evaluated, such information shall provide the basis for reports or other actions of the Market Monitoring Unit under this Plan.

VI. **REPORTS**

A. **Reports:** The Market Monitoring Unit shall prepare and submit contemporaneously to the Commission, the State Commissions, the PJM Board, PJM Management and to the PJM Members Committee, annual state-of-the-market reports on the state of competition within, and the efficiency of, the PJM Markets, and quarterly reports that update selected portions of the annual report and which may focus on certain topics of particular interest to the Market Monitoring Unit. The quarterly reports shall not be as extensive as the annual reports. In its annual, quarterly and other reports, the Market Monitoring Unit may make recommendations regarding any matter within its purview. The annual reports shall, and the quarterly reports may, address, among other things, the extent to which prices in the PJM Markets reflect competitive outcomes, the structural competitiveness of the PJM Markets, the effectiveness of bid mitigation rules, and the effectiveness of the PJM Markets in signaling infrastructure investment. These annual reports shall, and the quarterly reports may include recommendations as to whether changes to the Market Monitoring Unit or the Plan are required. In addition, the Market Monitoring Unit shall provide to the PJM Board, in a timely manner, copies of any reports submitted to Authorized Government Agencies pursuant to Section VI.B. The Market Monitoring Unit may from time-to-time prepare and submit additional reports to the Commission, the PJM Board and PJM Members Committee as the Market Monitoring Unit may deem appropriate in the discharge of its responsibilities under the Plan.

B. **Reports to Authorized Government Agencies:** The Market Monitoring Unit shall contemporaneously submit to the Authorized Government Agencies the reports provided to the PJM Board pursuant to Section VI.A. Subject to applicable law and regulation and any other applicable provisions of the PJM Operating Agreement or PJM Tariff, the Market Monitoring Unit shall, to the extent practicable, respond to reasonable requests by Authorized Government Agencies other than the Commission for reports, subject to protection of confidential, proprietary and commercially sensitive information, the protection of the confidentiality of ongoing inquiries and monitoring activities, and the availability of resources.

C. **Public Reports:** The Market Monitoring Unit shall prepare a detailed public annual report about the Market Monitoring Unit's activities, subject to protection of confidential, proprietary, and commercially sensitive information and the protection of the confidentiality of ongoing investigations and monitoring activities. The Market Monitoring Unit may, instead of filing a separate report, include the referenced material in a report filed pursuant to Section VI.A hereof.

D. **State Commission Tailored Requests for Information:** Subject to the confidentiality restrictions of Attachment M – Appendix, Section I.D. of the PJM Tariff and Section 18.17.4 of the PJM Operating Agreement, the Market Monitoring Unit may provide, at its discretion, information regarding general market trends and the performance of the PJM

Markets in response to a State Commission's tailored request for information unless the requested information is designed to aid state enforcement actions or impinges upon the confidentiality rules of the Federal Energy Regulatory Commission with regard to referrals.

The Market Monitoring Unit shall provide to any Market Participant whose information has been requested, or who may be affected by the release of the requested information, written notice, which shall include electronic communication, of a State Commission's tailored request for information as soon as possible, but not later than two (2) business days after the receipt of the request. If the request for tailored information seeks to obtain Confidential Information, the requirements and limitations of Section I.D. of Attachment M – Appendix shall apply. If the request for tailored information seeks to obtain information that is not Confidential Information, if the Market Participant whose information has been requested or who may be affected by the release of the requested information objects to the request or any portion thereof, it shall be given the opportunity to contest the request and to provide a contextual explanation to supplement the information produced by the Market Monitoring Unit so long as the providing of the contextual explanation does not unduly delay the release of the information to the State Commission. To register its objection, the Market Participant must request, in writing, within four (4) business days following the Market Monitoring Unit's receipt of the request, a conference with the State Commission to resolve differences concerning the scope or timing of the tailored request for information; provided, however, nothing herein shall require the State Commission to participate in any conference. Any party to the conference may seek assistance from FERC staff in resolution of the dispute or terminate the conference process at any time. Should such conference be refused or terminated by any participant or should such conference not resolve the dispute, then the Market Participant whose information has been requested or who may be affected by the release of the requested information, may file a complaint with the FERC pursuant to Rule 206 objecting to the request for tailored information within ten (10) business days following receipt of written notice from any conference participant terminating such conference. Any complaints filed at the FERC objecting to a particular request for tailored information shall be designated by the party as a "fast track" complaint and each party shall bear its own costs in connection with such FERC proceeding.

If no complaint challenging the request for tailored information is filed within the ten (10) business day period defined above, the Market Monitoring Unit shall utilize its best efforts to respond to the request for tailored information promptly. If a complaint is filed, and the Commission does not act on that complaint within ninety (90) days, the complaint shall be deemed denied and the Market Monitoring Unit shall use its best efforts to respond to the request for tailored information promptly. Notwithstanding the foregoing, if the Market Monitoring Unit determines, in its discretion, that responding to the State Commission's request for tailored information is unreasonably burdensome and/or will interfere with the Market Monitoring Unit's ability to carry out its core functions based on time and resource availability of its staff, the Market Monitoring Unit may decline such a request.

E. **IMM Staff Availability:** The Market Monitoring Unit shall make one or more staff members available for regular conference calls, which may be attended telephonically or in person, by FERC Commission staff, State Commission staff, representatives of PJM, and Market Participants.

VII. AUDIT

The Market Monitoring Unit shall annually (a) document, and advise PJM of, Market Monitoring Unit's actual expenses for the prior year by no later than March 15, and provide a copy of such documentation to the Finance Committee, and (b) provide audited financial statements of the Market Monitoring Unit of revenues and expenses related solely to the services provided to PJM, audited by a nationally recognized independent third party auditor selected by the Market Monitor, by no later than May 15. The audit report shall include, but not be limited to, a review of whether MMU expenditures were for purposes consistent with the functions set forth in this Plan and shall include documentation at a level of supporting detail consistent with that required in Section III.E above. The audit report shall be provided to the PJM Board, Finance Committee, Market Monitoring Unit, OPSI, OPSI Advisory Committee, PJM and PJM members subject to the protection of confidential information. The requirement that the Market Monitoring Unit annually document and advise PJM of its expenses for the prior year is also found in subsection (e) of Schedule 9-MMU.

VIII. LIMITATION OF LIABILITY

Any liability of PJM arising under or in relation to this Plan shall be subject to this Section VIII. The PJM Entities shall not be liable to any Market Participant, any party to the PJM Operating Agreement, any customer under the PJM Tariff, or any other person subject to this Plan in respect of any matter described in or contemplated by this Plan, as the same may be amended or supplemented from time to time, including but not limited to liability for any financial loss, loss of economic advantage, opportunity cost, or actual or consequential damages of any kind resulting from or attributable to any act or omission of any of the PJM Entities under this Plan. Neither the OPSI Advisory Committee nor any State Commission (including commissioners and staff persons) shall be liable to any person under this Plan for any financial loss, loss of economic advantage, opportunity cost, or actual or consequential damages associated with performing any of its functions or duties under this Plan.

IX. ALTERNATIVE DISPUTE RESOLUTION

Notwithstanding any provision of the PJM Tariff or the PJM Operating Agreement, PJM and the Market Monitoring Unit shall not be required to use the dispute resolution procedures in the PJM Tariff or the PJM Operating Agreement in carrying out its duties and responsibilities under this Plan. However, nothing herein shall prevent PJM or any other person from requesting the use of the dispute resolution procedure set forth in the PJM Tariff or the PJM Operating Agreement, as applicable.

X. EFFECTIVE DATE

This Plan shall be effective as of August 1, 2008.

XI. CODE OF ETHICS

The Market Monitoring Unit and its employees, as applicable, shall adhere to the following Code of Ethics, which is reproduced from Section 17 of PJM Rate Schedule No. 46, Market

Monitoring Services Agreement By And Between PJM Interconnection, L.L.C. And Monitoring Analytics, LLC entered into on December 18, 2007, and filed with the Commission to comply with order of the Federal Energy Regulatory Commission, Docket Nos. EL07-56 and EL07-58 et al., issued March 21, 2008, 122 FERC ¶ 61,257.

A. Conflicts of Interest:

1. The Market Monitoring Unit will use its best efforts to assure that all of its employees comply with this Code of Ethics and shall take appropriate disciplinary actions against employees who violate the policy.

2. The Market Monitoring Unit and its employees assisting on market monitoring matters for PJM, and their spouses and dependent children, may not have a direct equity or other financial interest in a Market Participant or in a parent, subsidiary, or affiliate of a Market Participant. (The term "direct" is meant to exclude investments such as mutual funds in which a person has no direct control, with the exception of sector-specific mutual funds.)

3. The Market Monitoring Unit and its employees assisting on market monitoring matters for PJM, may not undertake a matter for a third party where such representation would require disclosure of market-sensitive or proprietary information of PJM.

B. Prohibited Engagements and Conduct by the Market Monitoring Unit:

1. Neither the Market Monitoring Unit nor its employees will be engaged to provide advice to, or undertake a matter for or on behalf of, any entity on any entity's participation in the PJM Markets, except as otherwise authorized under subparagraphs 3 and 5 below.

2. Neither the Market Monitoring Unit nor its employees will be engaged by any entity in any litigation, open regulatory docket, alternative dispute resolution procedure, or arbitration with PJM, except as otherwise authorized under subparagraphs 3 and 5 below.

3. Neither the Market Monitoring Unit nor its employees will be engaged to appear on behalf of or against any entity before a state regulatory commission within the PJM Region in any new engagement in the electricity business except as authorized under the PJM Tariff, as requested by a state regulatory commission, or as otherwise required by law.

4. Neither the Market Monitoring Unit nor its employees shall accept any engagement by any market participant outside of the PJM Region that would require the Market Monitoring Unit to take a position adverse to any PJM member or inconsistent with any position taken by the Market Monitoring Unit in the PJM Region.

5. Neither the Market Monitoring Unit nor its employees will be engaged to appear on behalf of or against any entity before the Commission on any matter within the PJM Region in any new engagement in the electricity business except as authorized under the PJM Tariff, as requested by the Commission, or as otherwise required by law.

6. Before the Market Monitoring Unit accepts any engagement on behalf of or against an Interested Party, it must inform the PJM General Counsel and the PJM Board of such potential engagement and provide the PJM Board with an opportunity to state its objection to such representation on the ground the engagement would present a conflict of interest or result in the material appearance of conflict. At the discretion of the Market Monitoring Unit, the Market Monitoring Unit may notify the PJM General Counsel that the proposed engagement is confidential and request that the General Counsel disclose the proposed engagement only to a PJM Board subcommittee in a manner which limits the disclosure of nonpublic information. Within seven (7) business days of being informed of the potential engagement by the Market Monitoring Unit, the PJM Board shall state any objection to such potential engagement. If the Market Monitoring Unit disagrees with the PJM Board's determination regarding the potential engagement by the Market Monitoring Unit, the Parties shall jointly engage the Commission's Dispute Resolution Service to determine whether the engagement would present a conflict of interest or result in the material appearance of a conflict. Unless the Commission's Dispute Resolution Service finds no conflict of interest the Market Monitoring Unit shall be precluded from accepting the challenged engagement. For these purposes, the term "Interested Party" means (x) a Market Participant; (v) a state regulatory commission within the PJM Region; or (z) a person or entity with a significant direct financial interest in the organization, governance or operation of PJM but shall not include PJM itself.

7. Employees of the Market Monitoring Unit shall not accept gifts, payments, favors, meals, transportation, entertainment, or services (individually, "Gift," and collectively, "Gifts"), of other than nominal value within a calendar year from PJM, Authorized Government Agencies, any market participant, contractor, supplier or vendor to the Market Monitoring Unit. Except that "Gifts" shall not include any of the foregoing that is generally provided to the attendees of business meetings (e.g. PJM stakeholder meetings). Gifts not exceeding One Hundred Fifty Dollars (\$150) shall be deemed to be of "nominal value." Similarly, neither the Market Monitoring Unit nor any employee of the Market Monitoring Unit shall offer any Gift to any public official or Market Participant unless such Gifts: are legal; not offered for specific gain or reciprocal action; follow generally accepted ethical standards; and are of nominal value.

8. Neither the Market Monitoring Unit nor its employees shall serve as an officer, employee or partner of a Market Participant.

9. Neither the Market Monitoring Unit nor its employees shall engage in any transactions in the PJM markets other than the performance of their duties under the PJM Tariff.

10. Neither the Market Monitoring Unit nor its employees shall be compensated, other than by PJM, for any expert witness testimony or commercial services, either to PJM or to any other party, in connection with legal or regulatory proceeding or commercial transaction relating to PJM or to PJM's markets.

11. Employees of the Market Monitoring Unit must advise their supervisor(s) in the event they seek employment with a Market Participant, and must disqualify themselves from participating in any matter that would have an effect on the financial interest of the Market Participant while still in the employ of the Market Monitoring Unit.

C. **Compliance with All Applicable Laws:** The Market Monitoring Unit will use its best efforts to assure the compliance of the Market Monitoring Unit and its employees with all applicable laws, including but not limited to those referenced in the PJM Code of Conduct.

XII. NOTICE TO MARKET PARTICIPANTS

When the Tariff requires the MMU to provide written notice to or communication with a Market Participant, such notice or communication shall include, but not be limited to, a letter, email or posting to a Market Participant's account in the internet-based application designated by the Market Monitoring Unit.

ATTACHMENT M – APPENDIX

I. CONFIDENTIALITY OF DATA AND INFORMATION

A. Party Access:

1. No Member shall have a right hereunder to receive or review any documents, data or other information of another Member, including documents, data or other information provided to the Market Monitoring Unit, to the extent such documents, data or information have been designated as confidential pursuant to the procedures adopted by the Market Monitoring Unit or to the extent that they have been designated as confidential by such other Member; provided, however, a Member may receive and review any composite documents, data and other information that may be developed based on such confidential documents, data or information if the composite does not disclose any individual Member's confidential data or information.

2. Except as may be provided in this Appendix, the Plan, the PJM Operating Agreement or in the PJM Tariff, the Market Monitoring Unit shall not disclose to PJM Members or to third parties, any documents, data, or other information of a Member or entity applying for Membership, to the extent such documents, data, or other information has been designated confidential pursuant to the procedures adopted by the Market Monitoring Unit or by such Member or entity applying for membership; provided that nothing contained herein shall prohibit the Market Monitoring Unit from providing any such confidential information to its agents, representatives, or contractors to the extent that such person or entity is bound by an obligation to maintain such confidentiality.

The Market Monitoring Unit, its designated agents, representatives, and contractors shall maintain as confidential the electronic tag ("e-Tag") data of an e-Tag Author or Balancing Authority (defined as those terms are used in FERC Order No. 771) to the same extent as Member data under this Section I. Nothing contained herein shall prohibit the Market Monitoring Unit from sharing with the market monitor of another Regional Transmission Organization ("RTO"), Independent System Operator ("ISO"), upon their request, the e-Tags of an e-Tag Author or Balancing Authority for intra-PJM Region transactions and interchange transactions scheduled to flow into, out of or through the PJM Region, to the extent such market monitor has requested such information as part of its investigation of possible market violations or market design flaws, and to the extent that such market monitor is bound by a tariff provision requiring that the e-Tag data be maintained as confidential, or in the absence of a tariff requirement governing confidentiality, a written agreement with the Market Monitoring Unit consistent with FERC Order No. 771, and any clarifying orders and implementing regulations.

The Market Monitoring Unit shall collect and use confidential information only in connection with its authority under this Appendix, the Plan, the PJM Operating Agreement or in the PJM Tariff and the retention of such information shall be in accordance with the Office of the Interconnection's data retention policies.

3. Nothing contained herein shall prevent the Market Monitoring Unit from releasing a Member's confidential data or information to a third party provided that the Member has

delivered to the Market Monitoring Unit specific, written authorization for such release setting forth the data or information to be released, to whom such release is authorized, and the period of time for which such release shall be authorized. The Market Monitoring Unit shall limit the release of a Member's confidential data or information to that specific authorization received from the Member. Nothing herein shall prohibit a Member from withdrawing such authorization upon written notice to the Market Monitoring Unit, who shall cease such release as soon as practicable after receipt of such withdrawal notice.

4. Reciprocal provisions to this Section I hereof, delineating the confidentiality requirements of the Office of the Interconnection and PJM members, are set forth in Section 18.17 of the PJM Operating Agreement.

B. Required Disclosure:

1. Notwithstanding anything in the foregoing section to the contrary, and subject to the provisions of Section I.C below, if the Market Monitoring Unit is required by applicable law, order, or in the course of administrative or judicial proceedings, to disclose to third parties, information that is otherwise required to be maintained in confidence pursuant to the PJM Tariff, PJM Operating Agreement, Attachment M or this Appendix, the Market Monitoring Unit may make disclosure of such information; provided, however, that as soon as the Market Monitoring Unit learns of the disclosure requirement and prior to making disclosure, the Market Monitoring Unit shall notify the affected Member or Members of the requirement and the terms thereof and the affected Member or Members may direct, at their sole discretion and cost, any challenge to or defense against the disclosure requirement. The Market Monitoring Unit shall cooperate with such affected Members to the maximum extent practicable to minimize the disclosure of the information consistent with applicable law. The Market Monitoring Unit shall cooperate with the affected Members to obtain proprietary or confidential treatment of such information by the person to whom such information is disclosed prior to any such disclosure.

2. Nothing in this Section I shall prohibit or otherwise limit the Market Monitoring Unit's use of information covered herein if such information was: (i) previously known to the Market Monitoring Unit without an obligation of confidentiality; (ii) independently developed by or for the Office of the Interconnection and/or the PJM Market Monitor using non-confidential information; (iii) acquired by the Office of the Interconnection and/or the PJM Market Monitor from a third party which is not, to the Office of the Market Monitoring Unit's knowledge, under an obligation of confidence with respect to such information; (iv) which is or becomes publicly available other than through a manner inconsistent with this Section I.

3. The Market Monitoring Unit shall impose on any contractors retained to provide technical support or otherwise to assist with the implementation of the Plan or this Appendix a contractual duty of confidentiality consistent with the Plan or this Appendix. A Member shall not be obligated to provide confidential or proprietary information to any contractor that does not assume such a duty of confidentiality, and the Market Monitoring Unit shall not provide any such information to any such contractor without the express written permission of the Member providing the information.

C. Disclosure to FERC and CFTC:

1. Notwithstanding anything in this Section I to the contrary, if the FERC, the Commodity Futures Trading Commission ("CFTC") or the staff of those commissions, during the course of an investigation or otherwise, requests information from the Market Monitoring Unit that is otherwise required to be maintained in confidence pursuant to the PJM Tariff, the PJM Operating Agreement, the Plan or this Appendix, the Market Monitoring Unit shall provide the requested information to the FERC, CFTC or their staff, within the time provided for in the request for information. In providing the information to the FERC or its staff, the Market Monitoring Unit may request, consistent with 18 C.F.R. §§ 1b.20 and 388.112, or to the CFTC or its staff, the Market Monitoring Unit may request, consistent with 17 C.F.R. §§ 11.3 and 145.9, that the information be treated as confidential and non-public by the respective commission and its staff and that the information be withheld from public disclosure. The Market Monitoring Unit shall promptly notify any affected Member(s) if the Market Monitoring Unit receives from the FERC, CFTC or their staff, written notice that the commission has decided to release publicly or has asked for comment on whether such commission should release publicly, confidential information previously provided to a commission Market Monitoring Unit.

2. The foregoing Section I.C.1 shall not apply to requests for production of information under Subpart D of the FERC's Rules of Practice and Procedure (18 CFR Part 385) in proceedings before FERC and its administrative law judges. In all such proceedings, the Office of the Interconnection and/or the Market Monitoring Unit shall follow the procedures in Section I.B.

D. Disclosure to Authorized Commissions:

1. Notwithstanding anything in this Section I to the contrary, the Market Monitoring Unit shall disclose confidential information, otherwise required to be maintained in confidence pursuant to the PJM Tariff, the PJM Operating Agreement, the Plan or this Appendix, to an Authorized Commission under the following conditions:

(i) The Authorized Commission has provided the FERC with a properly executed Certification in the form attached to the PJM Operating Agreement as Schedule 10A. Upon receipt of the Authorized Commission's Certification, the FERC shall provide public notice of the Authorized Commission's filing pursuant to 18 C.F.R. § 385.2009. If any interested party disputes the accuracy and adequacy of the representations contained in the Authorized Commission's Certification, that party may file a protest with the FERC within 14 days of the date of such notice, pursuant to 18 C.F.R. § 385.211. The Authorized Commission may file a response to any such protest within seven days. Each party shall bear its own costs in connection with such a protest proceeding. If there are material changes in law that affect the accuracy and adequacy of the representations in the Certification filed with the FERC, the Authorized Commission shall, within thirty (30) days, submit an amended Certification identifying such changes. Any such amended Certification shall be subject to the same procedures for comment and review by the FERC as set forth above in this paragraph.

(ii) Neither the Office of the Interconnection nor the Market Monitoring Unit may disclose data to an Authorized Commission during the FERC's consideration of the Certification and any filed protests. If the FERC does not act upon an Authorized Commission's Certification within 90 days of the date of filing, the Certification shall be deemed approved and the Authorized Commission shall be permitted to receive confidential information pursuant to this Section I. In the event that an interested party protests the Authorized Commission's Certification and the FERC approves the Certification, that party may not challenge any Information Request made by the Authorized Commission on the grounds that the Authorized Commission is unable to protect the confidentiality of the information requested, in the absence of a showing of changed circumstances.

(iii) Any confidential information provided to an Authorized Commission pursuant to this Section I shall not be further disclosed by the recipient Authorized Commission except by order of the FERC.

(iv) The Market Monitoring Unit shall be expressly entitled to rely upon such Authorized Commission Certifications in providing confidential information to the Authorized Commission, and shall in no event be liable, or subject to damages or claims of any kind or nature hereunder, due to the ineffectiveness or inaccuracy of such Authorized Commission Certifications.

(v) The Authorized Commission may provide confidential information obtained from the Market Monitoring Unit to such of its employees, attorneys and contractors as needed to examine or handle that information in the course and scope of their work on behalf of the Authorized Commission, provided that (a) the Authorized Commission has internal procedures in place, pursuant to the Certification, to ensure that each person receiving such information agrees to protect the confidentiality of such information (such employees, attorneys or contractors to be defined hereinafter as "Authorized Persons"); (b) the Authorized Commission provides, pursuant to the Certification, a list of such Authorized Persons to the Office of the Interconnection and the Market Monitoring Unit and updates such list, as necessary, every ninety (90) days; and (c) any third-party contractors provided access to confidential information sign a nondisclosure agreement in the form attached to the PJM Operating Agreement as Schedule 10 before being provided access to any such confidential information.

2. The Market Monitoring Unit may, in the course of discussions with an Authorized Person, orally disclose information otherwise required to be maintained in confidence, without the need for a prior Information Request. Such oral disclosures shall provide enough information to enable the Authorized Person or the Authorized Commission with which that Authorized Person is associated to determine whether additional Information Requests are appropriate. The Market Monitoring Unit will not make any written or electronic disclosures of confidential information to the Authorized Person pursuant to this Section I.D.2. In any such discussions, the Market Monitoring Unit shall ensure that the individual or individuals receiving such confidential information are Authorized Persons as defined herein, orally designate confidential information that is disclosed, and refrain from identifying any specific Affected Member whose information is disclosed. The Market Monitoring Unit shall also be authorized to assist Authorized Persons in interpreting confidential information that is disclosed. The Market

Monitoring Unit shall provide any Affected Member with oral notice of any oral disclosure immediately, but not later than one (1) business day after the oral disclosure. Such oral notice to the Affected Member shall include the substance of the oral disclosure, but shall not reveal any confidential information of any other Member and must be received by the Affected Member before the name of the Affected Member is released to the Authorized Person; provided however, disclosure of the identity of the Affected Party must be made to the Authorized Commission with which the Authorized Person is associated within two (2) business days of the initial oral disclosure.

3. As regards Information Requests:

(i) Information Requests to the Office of the Interconnection and/or Market Monitoring Unit by an Authorized Commission shall be in writing, which shall include electronic communications, addressed to the Market Monitoring Unit, and shall: (a) describe the information sought in sufficient detail to allow a response to the Information Request; (b) provide a general description of the purpose of the Information Request; (c) state the time period for which confidential information is requested; and (d) re-affirm that only Authorized Persons shall have access to the confidential information requested. The Market Monitoring Unit shall provide an Affected Member with written notice, which shall include electronic communication, of an Information Request by an Authorized Commission as soon as possible, but not later than two (2) business days after the receipt of the Information Request.

(ii) Subject to the provisions of Section I.D.3(iii) below, the Market Monitoring Unit shall supply confidential information to the Authorized Commission in response to any Information Request within five (5) business days of the receipt of the Information Request, to the extent that the requested confidential information can be made available within such period; provided however, that in no event shall confidential information be released prior to the end of the fourth (4th) business day without the express consent of the Affected Member. To the extent that the Market Monitoring Unit cannot reasonably prepare and deliver the requested confidential information within such five (5) day period, it shall, within such period, provide the Authorized Commission with a written schedule for the provision of such remaining confidential information. Upon providing confidential information to the Authorized Commission, the Market Monitoring Unit shall either provide a copy of the confidential information to the Affected Member(s), or provide a listing of the confidential information disclosed; provided, however, that the Market Monitoring Unit shall not reveal any Member's confidential information to any other Member.

(iii) Notwithstanding Section I.D.3(ii), above, should the Office of the Interconnection, the Market Monitoring Unit or an Affected Member object to an Information Request or any portion thereof, any of them may, within four (4) business days following the Market Monitoring Unit's receipt of the Information Request, request, in writing, a conference with the Authorized Commission to resolve differences concerning the scope or timing of the Information Request; provided, however, nothing herein shall require the Authorized Commission to participate in any conference. Any party to the conference may seek assistance from FERC staff in resolution of the dispute or terminate the conference process at any time. Should such conference be refused or terminated by any participant or should such conference

not resolve the dispute, then the Office of the Interconnection, Market Monitoring Unit, or the Affected Member may file a complaint with the FERC pursuant to Rule 206 objecting to the Information Request within ten (10) business days following receipt of written notice from any conference participant terminating such conference. Any complaints filed at the FERC objecting to a particular Information Request shall be designated by the party as a "fast track" complaint and each party shall bear its own costs in connection with such FERC proceeding. The grounds for such a complaint shall be limited to the following: (a) the Authorized Commission is no longer able to preserve the confidentiality of the requested information due to changed circumstances relating to the Authorized Commission's ability to protect confidential information arising since the filing of or rejection of a protest directed to the Authorized Commission's Certification; (b) complying with the Information Request would be unduly burdensome to the complainant, and the complainant has made a good faith effort to negotiate limitations in the scope of the requested information; or (c) other exceptional circumstances exist such that complying with the Information Request would result in harm to the complainant. There shall be a presumption that "exceptional circumstances," as used in the prior sentence, does not include circumstances in which an Authorized Commission has requested wholesale market data (or Market Monitoring Unit workpapers that support or explain conclusions or analyses) generated in the ordinary course and scope of the operations of the Market Monitoring Unit. There shall be a presumption that circumstances in which an Authorized Commission has requested personnel files, internal emails and internal company memos, analyses and related work product constitute "exceptional circumstances" as used in the prior sentence. If no complaint challenging the Information Request is filed within the ten (10) day period defined above, the Office of the Interconnection and/or Market Monitoring Unit shall utilize its best efforts to respond to the Information Request promptly. If a complaint is filed, and the Commission does not act on that complaint within ninety (90) days, the complaint shall be deemed denied and the Market Monitoring Unit shall use its best efforts to respond to the Information Request promptly.

(iv) Any Authorized Commission may initiate appropriate legal action at the FERC within ten (10) business days following receipt of information designated as "Confidential," challenging such designation. Any complaints filed at FERC objecting to the designation of information as "Confidential" shall be designated by the party as a "fast track" complaint and each party shall bear its own costs in connection with such FERC proceeding. The party filing such a complaint shall be required to prove that the material disclosed does not merit "Confidential" status because it is publicly available from other sources or contains no trade secret or other sensitive commercial information (with "publicly available" not being deemed to include unauthorized disclosures of otherwise confidential data).

4. In the event of any breach of confidentiality of information disclosed pursuant to an Information Request by an Authorized Commission or Authorized Person:

(i) The Authorized Commission or Authorized Person shall promptly notify the Market Monitoring Unit, who shall, in turn, promptly notify any Affected Member of any inadvertent or intentional release, or possible release, of confidential information provided pursuant to this Section I.

(ii) The Office Market Monitoring Unit shall terminate the right of such Authorized Commission to receive confidential information under this Section I upon written notice to such Authorized Commission unless: (i) there was no harm or damage suffered by the Affected Member; or (ii) similar good cause is shown. Any appeal of the Market Monitoring Unit's actions under this Section I shall be to Commission. An Authorized Commission shall be entitled to reestablish its certification as set forth in Section I.D.1 by submitting a filing with the Commission showing that it has taken appropriate corrective action. If the Commission does not act upon an Authorized Commission's recertification filing with sixty (60) days of the date of the filing, the recertification shall be deemed approved and the Authorized Commission shall be permitted to receive confidential information pursuant to this section.

(iii) The Office of the Interconnection, the Market Monitoring Unit, and/or the Affected Member shall have the right to seek and obtain at least the following types of relief: (a) an order from the FERC requiring any breach to cease and preventing any future breaches; (b) temporary, preliminary, and/or permanent injunctive relief with respect to any breach; and (c) the immediate return of all confidential information to the Market Monitoring Unit.

(iv) No Authorized Person or Authorized Commission shall have responsibility or liability whatsoever under this section for any and all liabilities, losses, damages, demands, fines, monetary judgments, penalties, costs and expenses caused by, resulting from, or arising out of or in connection with the release of confidential information to persons not authorized to receive it, provided that such Authorized Person is an agent, servant, employee or member of an Authorized Commission at the time of such unauthorized release. Nothing in this Section I.D.4(iv) is intended to limit the liability of any person who is not an agent, servant, employee or member of an Authorized Commission at the time of such unauthorized release for any and all economic losses, damages, demands, fines, monetary judgments, penalties, costs and expenses caused by, resulting from, or arising out of or in connection with such unauthorized release.

(v) Any dispute or conflict requesting the relief in Section I.D.4(ii) or I.D.4(iii)(a) above, shall be submitted to the FERC for hearing and resolution. Any dispute or conflict requesting the relief in Section I.D.4(ii)(c) above may be submitted to FERC or any court of competent jurisdiction for hearing and resolution.

E. Market Monitoring:

1. Subject to the requirements of Section E.2, the Market Monitoring Unit may release confidential information of Public Service Electric & Gas Company ("PSE&G"), Consolidated Edison Company of New York ("ConEd"), and their affiliates, and the confidential information of any Member regarding generation and/or transmission facilities located within the PSE&G Zone to the New York Independent System Operator, Inc. ("New York ISO"), the market monitoring unit of New York ISO and the New York ISO Market Advisor to the limited extent that the Office of the Interconnection or the Market Monitoring Unit determines necessary to carry out the responsibilities of PJM, New York ISO or the market monitoring units of the Office of the Interconnection and the New York ISO under FERC Opinion No. 476 (see Consolidated Edison Company v. Public Service Electric and Gas Company, et al., 108 FERC ¶ 61,120, at P 215 (2004)) to conduct joint investigations to ensure that gaming, abuse of market power, or

similar activities do not take place with regard to power transfers under the contracts that are the subject of FERC Opinion No. 476.

2. The Market Monitoring Unit may release a Member's confidential information pursuant to Section I.E.1 to the New York ISO, the market monitoring unit of the New York ISO and the New York ISO Market Advisor only if the New York ISO, the market monitoring unit of the New York ISO and the New York ISO Market Advisor are subject to obligations limiting the disclosure of such information that are equivalent to or greater than the limitations on disclosure specified in this Section I.E. Information received from the New York ISO, the market monitoring unit of the New York ISO, or the New York ISO Market Advisor under Section I.E.1 that is designated as confidential shall be protected from disclosure in accordance with this Section I.E.

II. DEVELOPMENT OF INPUTS FOR PROSPECTIVE MITIGATION

A. Offer Price Caps:

1. The Market Monitor or his designee shall advise the Office of the Interconnection whether it believes that the cost references, methods and rules included in the Cost Development Guidelines are accurate and appropriate, as specified in the PJM Manuals.

2. The Market Monitoring Unit shall review upon request of a Market Seller, and may review upon its own initiative at any time, the incremental costs (defined in Section 6.4.2 of Schedule 1 of the Operating Agreement) included in the Offer Price Cap of a generating unit in order to ensure that the Market Seller has correctly applied the Cost Development Guidelines and that the level of the Offer Price Cap is otherwise acceptable.

3. On or before the 21st day of each month, the Market Monitoring Unit shall compute the cost capping percentages for each Frequently Mitigated Unit and Associated Unit for the prior rolling twelve-month period, consistent with Section 6.4.2 of Schedule 1 of the Operating Agreement and shall issue a written notice to a unit, as applicable, indicating that it is a "Frequently Mitigated Unit" or "FMU," or an "Associated Unit," and provide a copy of the same to the Office of the Interconnection, when the Market Monitoring Unit determines that the unit meets the criteria delineated in Section 6.4.2 of Schedule 1 of the Operating Agreement.

4. Notwithstanding the number of jointly pivotal suppliers in any hour, if the Market Monitoring Unit determines that a reasonable level of competition will not exist based on an evaluation of all facts and circumstances, it may propose to the Commission the removal of offer-capping suspensions otherwise authorized by Section 6.4 of Schedule 1 of the Operating Agreement. Such proposals shall take effect upon Commission acceptance of the Market Monitoring Unit's filing.

B. Minimum Generator Operating Parameters:

1. The Market Monitoring Unit shall provide to the Office of the Interconnection a table of default unit class specific parameter limits to be known as the "Parameter Limited Schedule

Matrix” to be included in Section 6.6(c) of Schedule 1 of the Operating Agreement. The Parameter Limited Schedule Matrix shall include default values on a unit-type basis as specified in Section 6.6(c). The Market Monitoring Unit shall review the Parameter Limited Schedule Matrix annually, and, in the event it determines that revision is appropriate, shall provide a revised matrix to the Office of the Interconnection by no later than December 31 prior to the annual enrollment period.

2. The Market Monitoring Unit shall notify Market Sellers of generation resources and the Office of the Interconnection no later than April 1 of its determination of market power concerns raised regarding each request for a period exception or persistent exception to a value specified in the Parameter Limited Schedule Matrix or the parameters defined in Section 6.6 of Schedule 1 of the Operating Agreement and the PJM Manuals, provided that the Market Monitoring Unit receives such request by no later than February 28.

If, prior to the scheduled termination date, a Market Seller submits a request to modify a temporary exception, the Market Monitoring Unit shall review such request using the same standard utilized to evaluate period exception and persistent exception requests, and shall provide its determination of whether the request raises market power concerns, and, if so, any modifications that would alleviate those concerns, to the Market Seller, with a copy to Office of the Interconnection, by no later than 15 days from the date of the modification request.

3. When a Market Seller notifies the Market Monitoring Unit of a material change to the facts relied upon by the Market Monitoring Unit and/or the Office of the Interconnection to support a parameter limited schedule period or persistent exception, the Market Monitoring Unit shall make a determination, and provide written notification to the Office of the Interconnection and the Market Seller, of any change to its determination regarding the exemption request, based on the material change in facts, by no later than 15 days after receipt of such notice.

4. The Market Monitoring Unit shall notify the Office of the Interconnection of any risk premium to which it and a Market Seller owning or operating nuclear generation resource agree or its determination if agreement is not obtained. If a Market Seller submits a risk premium for its nuclear generation resource that is inconsistent with its agreement or inconsistent with the Market Monitoring Unit’s determination regarding such risk premium, the Market Monitoring Unit may exercise its powers to inform Commission staff of its concerns pursuant to Attachment M.

C. RPM Must-Offer Obligation:

1. The Market Monitoring Unit shall maintain, post on its website and provide to the Office of the Interconnection prior to each RPM Auction (updated, as necessary, on at least a quarterly basis), a list of Existing Generation Capacity Resources located in the PJM Region that are subject to the “must-offer” obligation set forth in Section 6.6 of Attachment DD.

2. The Market Monitoring Unit shall evaluate requests submitted by Capacity Market Sellers for a determination that a Generation Capacity Resource, or any portion thereof, be removed from Capacity Resource status or exempted from status as a Generation Capacity

Resource subject to Section II.C.1 above and inform both the Capacity Market Seller and the Office of the Interconnection of such determination in writing by no later ninety (90) days prior to the commencement of the offer period for the applicable RPM Auction. A Generation Capacity Resource located in the PJM Region shall not be removed from Capacity Resource status to the extent the resource is committed to service of PJM loads as a result of an RPM Auction, FRR Capacity Plan, Locational UCAP transaction and/or by designation as a replacement resource under this Attachment DD.

3. The Market Monitoring Unit shall evaluate the data and documentation provided to it by a potential Capacity Market Seller to establish the EFORD to be included in a Sell Offer applicable to each resource pursuant to Section 6.6(b) of Attachment DD. If a Capacity Market Seller timely submits a request for an alternative maximum level of EFORD that may be used in a Sell Offer for RPM Auctions held prior to the date on which the final EFORDs used for a Delivery Year are posted, the Market Monitoring Unit shall attempt to reach agreement with the Capacity Market Seller on the alternate maximum level of the EFORD by no later than ninety (90) days prior to the commencement of the offer period for the Base Residual Auction for the applicable Delivery Year. By no later than ninety (90) days prior to the commencement of the offer period for the Base Residual Auction for the applicable Delivery Year, the Market Monitoring Unit shall notify the Office of the Interconnection in writing, notifying the Capacity Market Seller by copy of the same, of any alternative maximum EFORD to which it and the Capacity Market Seller agree or its determination of the alternative maximum EFORD if agreement is not obtained.

4. The Market Monitoring Unit shall consider the documentation provided to it by a potential Capacity Market Seller pursuant to Section 6.6 of Attachment DD, and determine whether a resource owned or controlled by such Capacity Market Seller meets the criteria to qualify for an exception to the must-offer requirement because the resource (i) is reasonably expected to be physically unable to participate in the relevant auction; (ii) has a financially and physically firm commitment to an external sale of its capacity; or (iii) was interconnected to the Transmission System as an Energy Resource and not subsequently converted to a Capacity Resource. The Market Monitoring Unit shall notify the Capacity Market Seller and the Office of the Interconnection of its determination by no later than ninety (90) days prior to the commencement of the offer period for the applicable RPM Auction.

In order to establish that a resource is reasonably expected to be physically unable to participate in the relevant auction as set forth in (i) above, the Capacity Market Seller must demonstrate that:

A. It has a documented plan in place to retire the resource prior to or during the Delivery Year, and has submitted a notice of Deactivation to the Office of the Interconnection consistent with Section 113.1 of the PJM Tariff, without regard to whether the Office of the Interconnection has requested the Capacity Market Seller to continue to operate the resource beyond its desired deactivation date in accordance with Section 113.2 of the PJM Tariff for the purpose of maintaining the reliability of the PJM Transmission System and the Capacity Market Seller has agreed to do so;

B. Significant physical operational restrictions cause long term or permanent changes to the installed capacity value of the resource, or the resource is under major repair that will extend into the applicable Delivery Year, that will result in the imposition of RPM performance penalties pursuant to Attachment DD of the PJM Tariff;

C. The Capacity Market Seller is involved in an ongoing regulatory proceeding (e.g. – regarding potential environmental restrictions) specific to the resource and has received an order, decision, final rule, opinion or other final directive from the regulatory authority that will result in the retirement of the resource; or,

D. A resource considered an Existing Generating Capacity Resource because it cleared an RPM Auction for a Delivery Year prior to the Delivery Year of the relevant auction, but which is not yet in service, is unable to achieve full commercial operation prior to the Delivery Year of the relevant auction. The Capacity Market Seller must submit to the Office of the Interconnection and the Market Monitoring Unit a written sworn, notarized statement of a corporate officer certifying that the resource will not be in full commercial operation prior to the referenced Delivery Year.

5. If a Capacity Market Seller submits for the portion of a Generation Capacity Resource that it owns or controls, and the Office of Interconnection accepts, a Sell Offer (i) at a level of installed capacity that the Market Monitoring Unit believes is inconsistent with the level established under Section 5.6.6 of Attachment DD of the PJM Tariff, (ii) at a level of installed capacity inconsistent with its determination of eligibility for an exception listed in Section II.C.4 above, or (iii) a maximum EFORD that the Market Monitoring Unit believes is inconsistent with the maximum level determined under Section II.C.3 of this Appendix, the Market Monitoring Unit may exercise its powers to inform Commission staff of its concerns and/or request a determination from the Commission that would require the Generation Capacity Resource to submit a new or revised Sell Offer, notwithstanding any determination to the contrary made under Section 6.6 of Attachment DD.

The Market Monitoring Unit shall also consider the documentation provided by the Capacity Market Seller pursuant to Section 6.6 of Attachment DD, for generation resources for which the Office of the Interconnection has not approved an exception to the must-offer requirement as set forth in Section 6.6(g) of Attachment DD, to determine whether the Capacity Market Seller's failure to offer part or all of one or more generation resources into an RPM Auction would result in an increase of greater than five percent in any Zonal Capacity Price determined through such auction as required by Section 6.6(i) of Attachment DD, and shall inform both the Capacity Market Seller and the Office of the Interconnection of its determination by no later than two (2) business days after the close of the offer period for the applicable RPM Auction.

D. Unit Specific Minimum Sell Offers:

1. If a Capacity Market Seller timely submits an exemption *or exception* request, with all of the required supporting documentation as specified in section 5.14(h) of Attachment DD, the Market Monitoring Unit shall review the request and documentation and shall provide in writing

to the Capacity Market Seller and the Office of the Interconnection by no later than forty five (45) days after receipt of the exemption *or exception* request its determination whether it believes the requested exemption *or exception* should be granted in accordance with the standards and criteria set forth in section 5.14(h). *If the Market Monitoring Unit determines that the Sell Offer proposed in a Unit-Specific Exception request raises market power concerns, it shall advise the Capacity Market Seller of the minimum Sell Offer in the relevant auction that would not raise market power concerns, with such calculation based on the data and documentation received, by no later than forty five (45) days after receipt of the request.*

2. All information submitted to the Office of the Interconnection or the Market Monitoring Unit by a Market Participant is subject to verification by the Market Monitoring Unit.

3. In the event that the Market Monitoring Unit reasonably believes that a request for a Competitive Entry Exemption or a Self-Supply Exemption that has been granted contains fraudulent or material misrepresentations or omissions such that the Capacity Market Seller would not have been eligible for the exemption for that MOPR Screened Generation Resource had the request not contained such misrepresentations or omissions, then it shall notify the Office of the Interconnection and Capacity Market Seller of its findings and provide the Office of the Interconnection with all of the data and documentation supporting its findings, and may take any other action required or permitted under Attachment M.

E. Market Seller Offer Caps:

1. Based on the data and calculations submitted by the Capacity Market Sellers for each Existing Generation Capacity Resource and the formulas specified in Section 6.7(d) of Attachment DD, the Market Monitoring Unit shall calculate the Market Seller Offer Cap for each such resource and provide it to the Capacity Market Seller and the Office of the Interconnection by no later than ninety (90) days before the commencement of the offer period for the applicable RPM Auction.

2. The Market Monitoring Unit must attempt to reach agreement with the Capacity Market Seller on the appropriate level of the Market Seller Offer Cap by no later than ninety (90) days prior to the commencement of the offer period for the applicable RPM Auction. If such agreement cannot be reached, then the Market Monitoring Unit shall inform the Capacity Market Seller and the Office of the Interconnection of its determination of the appropriate level of the Market Seller Offer Cap by no later than ninety (90) days prior to the commencement of the offer period for the applicable RPM Auction, and the Market Monitoring Unit may pursue any action available to it under Attachment M.

3. Nothing herein shall preclude any Capacity Market Seller and the Market Monitoring Unit from agreeing to, nor require either such entity to agree to, an alternative market seller offer cap determined on a mutually agreeable basis. Any such alternative offer cap shall be filed with the Commission for its approval. This provision is duplicated in Section 6.4(a) of Attachment DD.

F. Mitigation of Offers from Planned Generation Capacity Resources:

Pursuant to Section 6.5 of Attachment DD, the Market Monitoring Unit shall evaluate Sell Offers for Planned Generation Capacity Resources to determine whether market power mitigation should be applied and notify in writing each Capacity Market Seller whose Sell Offer has been determined to be non-competitive and subject to mitigation, with a copy to the Office of the Interconnection, by no later than one (1) business day after the close of the offer period for the applicable RPM Auction.

G. Data Submission:

Pursuant to Section 6.7 of Attachment DD, the Market Monitoring Unit may request additional information from any potential auction participant as deemed necessary by the Market Monitoring Unit, including, without limitation, additional cost data on resources in a class that is not otherwise expected to include the marginal price setting resource. All data submitted to the Office of the Interconnection or the Market Monitoring Unit by a Market Participant is subject to verification by the Market Monitoring Unit.

H. Determination of Default Avoidable Cost Rates:

1. The Market Monitoring Unit shall conduct an annual review of the table of default Avoidable Cost Rates included in Section 6.7(c) of Attachment DD and calculated on the bases set forth therein, and determine whether the values included therein need to be updated. If the Market Monitoring Unit determines that the Avoidable Cost Rates need to be updated, it shall provide to the Office of the Interconnection updated values or notice of its determination that updated values are not needed by no later than September 30th of each year.

2. The Market Monitoring Unit shall indicate in its posted reports on RPM performance the number of Generation Capacity Resources and megawatts per LDA that use the retirement default Avoidable Cost Rates.

3. If a Capacity Market Seller does not elect to use a default Avoidable Cost Rate and has timely provided to the Market Monitoring Unit its request to apply a unit-specific Avoidable Cost Rate, along with the data described in Section 6.7 of Attachment DD, the Market Monitoring Unit shall calculate the Avoidable Cost Rate and provide a unit-specific value to the Capacity Market Seller for each such resource, and notify the Capacity Market Seller and the Office of the Interconnection in writing by no later than ninety (90) days prior to the commencement of the offer period for the applicable RPM Auction whether it agrees that the unit-specific Avoidable Cost Rate is acceptable. The Capacity Market Seller and Office of the Interconnection's deadlines relating to the submittal and acceptance of a request for a unit-specific Avoidable Cost Rate are delineated in section 6.7(d) of Attachment DD.

I. Determination of PJM Market Revenues:

The Market Monitoring Unit shall calculate the Projected PJM Market Revenues for any Generation Capacity Resource to which the Avoidable Cost Rate is applied pursuant to Section 6.8(d) of Attachment DD, and notify the Capacity Market Seller and the Office of the

Interconnection of its determination in writing by no later than ninety (90) days prior to the commencement of the offer period for the applicable RPM Auction.

J. Determination of Opportunity Costs:

The Market Monitoring Unit shall review and verify the documentation of prices available to Existing Generation Capacity Resources in markets external to PJM and proposed for inclusion in Opportunity Costs pursuant to Section 6.7(d)(ii) of Attachment DD. The Market Monitoring Unit shall notify, in writing, such Generation Capacity Resource and the Office of the Interconnection if it is dissatisfied with the documentation provided and whether it objects to the inclusion of such Opportunity Costs in a Market Seller Offer by no later than ninety (90) days prior to the commencement of the offer period for the applicable RPM Auction. If such Generation Capacity Resource submits a Market Seller Offer that includes Opportunity Costs that have not been documented and verified to the Market Monitoring Unit's satisfaction, then the Market Monitoring Unit may exercise its powers to inform Commission staff of its concerns and request a determination that would require the Generation Capacity Resource to remove them.

III. BLACKSTART SERVICE

A. Upon the submission by a Black Start Unit owner of a request for Black Start Service revenue requirements and changes to the Black Start Service revenue requirements for the Black Start Unit, the Black Start Unit owner and the Market Monitoring Unit shall attempt to agree to values on the level of each component included in the Black Start Service revenue requirements by no later than May 14 of each year. The Market Monitoring Unit shall calculate the revenue requirement for each Black Start Unit and provide its calculation to the Office of the Interconnection by no later than May 14 of each year.

B. Pursuant to the terms of Schedule 6A of the PJM Tariff and the PJM Manuals, the Market Monitoring Unit will analyze any requested generator black start cost changes on an annual basis and shall notify the Office of the Interconnection of any costs to which it and the Black Start Unit owner have agreed or the Market Monitoring Unit's determination regarding any cost components to which agreement has not been obtained. If a Black Start Unit owner includes a cost component inconsistent with its agreement or inconsistent with the Market Monitoring Unit's determination regarding such cost component, and the Office of the Interconnection accepts the Black Start Service revenue requirements submitted by the Black Start Unit owner, the Market Monitoring Unit may exercise its powers to inform Commission staff of its concerns and request a determination that would require the Black Start Service generator to utilize the values determined by the Market Monitoring Unit or the Office of the Interconnection or such other values as determined by the Commission.

IV. DEACTIVATION RATES

I. Upon receipt of a notice to deactivate a generating unit under Part V of the PJM Tariff from the Office of the Interconnection forwarded pursuant to Section 113.1 of the PJM Tariff, the Market Monitoring Unit shall analyze the effects of the proposed deactivation with regard to

potential market power issues and shall notify the Office of the Interconnection and the generator owner (of, if applicable, its designated agent) within 30 days of the deactivation request if a market power issue has been identified. Such notice shall include the specific market power impact resulting from the proposed deactivation of the generating unit, as well as an initial assessment of any steps that could be taken to mitigate the market power impact.

2. The Market Monitoring Unit and the generating unit owner shall attempt to come to agreement on the level of each component included in the Deactivation Avoidable Cost Credit. In the case of cost of service filing submitted to the Commission in alternative to the Deactivation Cost Credit, the Market Monitoring Unit shall indicate to the generating unit owner in advance of filing its views regarding the proposed method or cost components of recovery. The Market Monitoring Unit shall notify the Office of the Interconnection of any costs to which it and the generating unit owner have agreed or the Market Monitoring Unit's determination regarding any cost components to which agreement has not been obtained. If a generating unit owner includes a cost component inconsistent with its agreement or inconsistent with the Market Monitoring Unit's determination regarding such cost components, the Market Monitoring Unit may exercise its powers to inform Commission staff of its concerns and seek a determination that would require the Generating unit to include an appropriate cost component. This provision is duplicated in Sections 114 and 119 of Part V of the PJM Tariff.

V. OPPORTUNITY COST CALCULATION

The Market Monitoring Unit shall review requests for opportunity cost compensation under Sections 3.2.3(f-3) and 3.2.3B(h) of Schedule 1 of the Operating Agreement, discuss with the Office of the Interconnection and individual Market Sellers the amount of compensation, and file exercise its powers to inform Commission staff of its concerns and request a determination of compensation as provided by such sections. These requirements are duplicated in Sections 3.2.3(f-3) and 3.2.3B(h) of Schedule 1 of the Operating Agreement.

VI. FTR FORFEITURE RULE

The Market Monitoring Unit shall calculate Transmission Congestion Credits as required under Section 5.2.1(b) of Schedule 1 of the Operating Agreement, including the determination of the identity of the holder of FTRs and an evaluation of the overall benefits accrued by an entity or affiliated entities trading in FTRs and Virtual Transactions in the Day-ahead Energy Market, and provide such calculations to the Office of the Interconnection. Nothing in this section shall preclude the Market Monitoring Unit from action to recover inappropriate benefits from the subject activity if the amount forfeited is less than the benefit derived by the FTR holder. If the Office of the Interconnection imposes a forfeiture of the Transmission Congestion Credit in an amount that the Market Monitoring Unit disagrees with, then it may exercise its powers to inform Commission staff of its concerns and request an adjustment.

VII. FORCED OUTAGE RULE

1. The Market Monitoring Unit shall observe offers submitted in the Day-ahead Energy Market to determine whether all or part of a generating unit's capacity (MW) is designated as

Maximum Emergency and (i) such offer in the Real-time Energy Market designates a smaller amount of capacity from that unit as Maximum Emergency for the same time period, and (ii) there is no physical reason to designate a larger amount of capacity as Maximum Emergency in the offer in the Day-ahead Energy Market than in the Real-time Energy Market, the Market Monitoring Unit shall notify the Office of Interconnection.

2. If the Market Monitoring Unit observes that (i) an offer submitted in the Day-ahead Energy market designates all or part of capacity (MW) of a Generating unit as economic maximum that is less than the economic maximum designated in the offer in the Real-time Energy Market, and (ii) there is no physical reason to designate a lower economic maximum in the offer in the Day-ahead Energy Market than in the offer in the Real-time Energy Market, the Market Monitoring Unit shall notify the Office of Interconnection.

VIII. DATA COLLECTION AND VERIFICATION

The Market Monitoring Unit shall gather and keep confidential detailed data on the procurement and usage of fuel to produce electric power transmitted in the PJM Region in order to assist the performance of its duties under Attachment M. To achieve this objective, the Market Monitoring Unit shall maintain on its website a mechanism that allows Members to conveniently and confidentially submit such data and develop a manual in consultation with stakeholders that describes the nature of and procedure for collecting data. Members of PJM owning a Generating unit that is located in the PJM Region (including dynamically scheduled units), or is included in a PJM Black Start Service plan, committed as a Generation Capacity Resource for the current or future Delivery Year, or otherwise subject to a commitment to provide service to PJM, shall provide data to the Market Monitoring Unit.



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November 12, 2014

Ms. Barcy F. McNeal
Secretary, Public Utilities Commission of Ohio
180 E. Broad Street, 11th Floor
Columbus, Ohio 43215

Re: *In the Matter of the Application of Ohio Power Company for Approval of an Electric Security Plan*
Case No. 13-2385-EL-SSO

Dear Ms. McNeal:

Duke Energy Ohio supports the motion filed by Ohio Power Company ("Ohio Power") pursuant to Rules 4901-1-12 and 4901-1-32 requesting that the Commission schedule oral argument to hear any legal or policy issues related to this proceeding that it believes would assist it in issuing an order in this proceeding. As it relates to Ohio Power's proposal related to its ownership interest in the Ohio Valley Electric Corporation ("OVEC"), the legal issues to be addressed by the Commission affect a similar proposal included in the electric security plan being proposed by Duke Energy Ohio. Therefore, Duke Energy Ohio supports Ohio Power's motion to schedule legal arguments as the Commission may benefit from the opportunity to hear legal arguments related to such proposals. Furthermore, in light of the fact that there are three pending applications that may be affected by the Commission's legal determinations on this issue, Duke Energy Ohio supports Ohio Power's request that its motion be considered on an expedited basis such that the Commission may hear oral argument before the end of 2014.

Thank you for your attention to this matter.

Very truly yours,



Amy B. Spiller

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

11/12/2014 1:24:32 PM

in

Case No(s). 13-2385-EL-SSO

**Summary: Correspondence Supporting the Motion Filed by Ohio Power electronically filed by
Carys Cochern on behalf of Spiller, Amy**



Working to Perfect the Flow of Energy

PJM Manual 18:
PJM Capacity Market

Revision: 25
Effective Date: October 30, 2014

Prepared by
PJM Capacity Market Operations



PJM Manual 18:
PJM Capacity Market

Table of Contents

Table of Contents.....	ii
Table of Exhibits	viii
Approval.....	1
Current Revision	1
Introduction	1
ABOUT PJM MANUALS	1
ABOUT THIS MANUAL	1
INTENDED AUDIENCE.....	1
REFERENCES.....	2
USING THIS MANUAL.....	2
WHAT YOU WILL FIND IN THIS MANUAL.....	2
Section 1: Overview of the PJM Capacity Market	3
1.1 OVERVIEW OF THE PJM CAPACITY MARKET	3
1.2 PARTICIPATION IN THE PJM CAPACITY MARKET.....	4
1.2.1 Participation of Load Serving Entities.....	4
1.2.2 Participation of Resource Providers	4
1.2.3 Participation of PRD Providers	5
1.3 DEFINITION AND PURPOSE OF THE RELIABILITY PRICING MODEL.....	5
1.4 IMPLEMENTATION OF THE RELIABILITY PRICING MODEL	6
Section 2: Resource Adequacy.....	7
2.1 OVERVIEW OF RESOURCE ADEQUACY.....	7
2.1.1 Installed Reserve Margin	7
2.1.2 Peak Load Forecasts.....	7
2.1.3 Pool-wide Average EFORD.....	8
2.1.4 Forecast Pool Requirement	9
2.2 ROLE OF LOAD DELIVERABILITY IN THE RELIABILITY PRICING MODEL	9
2.3 LOCATIONAL CONSTRAINTS IN THE RELIABILITY PRICING MODEL	10
2.3.1 Locational Deliverability Areas.....	11
2.3.2 Constrained Locational Deliverability Areas (LDAs).....	12
2.3.3 Creation of New Locational Deliverability Areas (LDAs)	13
2.3.4 Capacity Import Limits	13
2.4 RELIABILITY REQUIREMENTS.....	15
2.4.1 PJM Region Reliability Requirement	15
2.4.2 Reliability Requirement in Locational Deliverability Areas	16
2.4.3 Minimum Annual/Extended Summer Resource Requirements (2014/2015 – 2016/2017 Delivery Years)	16
2.4.3A Limited Resource Constraint & Sub-Annual Resource Constraint (Effective with 2017/2018 Delivery Year)	17
2.4.4 Adjustments to RPM Auction Parameters for PRD	18
Section 3: Demand in the Reliability Pricing Model.....	19
3.1 OVERVIEW OF DEMAND IN THE RELIABILITY PRICING MODEL	19
3.2 DEFINITION AND PURPOSE OF THE VARIABLE RESOURCE REQUIREMENT	20



3.3 PARAMETERS OF THE VARIABLE RESOURCE REQUIREMENT	20
3.3.1 <i>Cost of New Entry</i>	21
3.3.2 <i>Net Energy and Ancillary Services Offset</i>	21
3.4 PLOTTING THE VARIABLE RESOURCE REQUIREMENT CURVE	23
3.4.1 <i>Plotting the Variable Resource Requirement Curves</i>	24
3.5 DEMAND CURVES IN THE INCREMENTAL AUCTIONS	25
Section 3A: Integration of Price Responsive Demand	27
3A.1 OVERVIEW OF PRICE RESPONSIVE DEMAND IN PJM CAPACITY MARKET	27
3A.2 TRANSITION PERIOD	29
3A.3 ELIGIBILITY REQUIREMENTS OF PRICE RESPONSIVE DEMAND	30
3A.4 PRD PLAN REQUIREMENTS	31
3A.4.1 <i>PRD Plan Submission & Approval Process</i>	31
3A.4.2 <i>Required Components of a PRD Plan</i>	32
3A.4.2.1 <i>Verification of Retail Rate Structure with LSE</i>	34
3A.4.2.2 <i>Verification of Contractual Arrangement with PRD Provider</i>	34
3A.4.2.3 <i>PRD Election Requirements</i>	35
3A.5 REGISTRATION OF PRICE RESPONSIVE DEMAND	36
3A.6 PERFORMANCE REQUIREMENTS OF PRICE RESPONSIVE DEMAND	37
3A.6.1 <i>PRD Commitment Compliance</i>	37
3A.6.2 <i>Maximum Emergency Event Compliance</i>	38
3A.6.3 <i>PRD Test Compliance</i>	40
3A.7 PRD BILATERALS	41
Section 4: Supply Resources in the Reliability Pricing Model	43
4.1 OVERVIEW OF SUPPLY IN THE RELIABILITY PRICING MODEL	43
4.2 GENERATION RESOURCES	44
4.2.1 <i>Existing Generation Resources - Internal</i>	44
4.2.2 <i>Existing Generation Resources - External</i>	44
4.2.3 <i>Planned Generation Resources - Internal</i>	46
4.2.4 <i>Planned Generation Resources - External</i>	47
4.2.5 <i>Equivalent Demand Forced Outage Rate (EFORD)</i>	48
4.2.6 <i>Capacity Modifications (CAP Mods)</i>	49
4.3 LOAD MANAGEMENT PRODUCTS	50
4.3.1 <i>Requirements of Load Management Products in RPM</i>	50
4.3.2 <i>Types of Load Management Programs</i>	52
4.3.3 <i>Demand Resources</i>	53
4.3.4 <i>Demand Resource Modifications (DR Mods)</i>	54
4.3.5 <i>Pre-Emergency and Emergency Load Response Registration</i>	55
4.3.6 <i>End-Use Customer Aggregation</i>	56
4.3.7 <i>Determination of Nominated Values for Load Management</i>	56
4.3.8 <i>Determination of the UCAP Value of Load Management</i>	57
4.3.9 <i>Load Reduction Reporting</i>	57
4.3.10 <i>Maintenance Outage Reporting for Annual Demand Resource</i>	58
4.4 ENERGY EFFICIENCY RESOURCES	59
4.4.1 <i>Determination of Nominated Value of EE Resource</i>	60
4.4.2 <i>Determination of the UCAP Value of EE Resource</i>	61
4.4.3 <i>Energy Efficiency Resource Modifications (EE MODs)</i>	61
4.5 QUALIFIED TRANSMISSION UPGRADES	61
4.6 BILATERAL TRANSACTIONS	62
4.6.1 <i>Unit-Specific Bilateral Transactions</i>	63
4.6.2 <i>Entering Unit-Specific Bilateral Transactions</i>	63
4.6.3 <i>Exporting a Generation Resource</i>	65
4.6.4 <i>Importing an External Generation Resource</i>	66



4.6.5 Treatment of Unit-Specific Capacity Transactions that Start/End Mid-Delivery Year	66
4.6.6 Auction Specific MW Transactions	67
4.6.7 Cleared Buy Bid Transactions	68
4.6.8 Locational Unforced Capacity (UCAP) Transactions.....	69
4.7 RESOURCE PORTFOLIO	70
4.7.1 Resource Position for Generation Resources	70
4.7.2 Resource Position for Demand Resources	72
4.7.3 Resource Position for Energy Efficiency Resources	73
4.7.4 Resource Position for Qualified Transmission Upgrades	74
4.8 CREDIT REQUIREMENTS	75
4.8.1 RPM Credit Limit.....	75
4.8.2 RPM Credit Requirement.....	76
4.8.3 Auction Credit Rate.....	77
4.8.4 Credit-Limited Offers in RPM Auctions.....	78
4.8.5 Price Responsive Demand Credit Requirement.....	79
Section 5: RPM Auctions	80
5.1 OVERVIEW OF RPM AUCTIONS	80
5.2 RPM AUCTION TIMELINE	81
5.3 RPM AUCTION PARAMETERS	83
5.3.1 Resource-Specific Sell Offer Requirements	84
5.3.2 Flexible Self Scheduling	86
5.3.3 New Entry Pricing	87
5.3.4 Sell Offer Caps.....	88
5.3.5 Minimum Offer Price Rule (MOPR)	89
5.3.6 Qualified Transmission Upgrade Sell Offer Requirements.....	92
5.4 BUY BIDS IN RPM	92
5.5 ENERGY MARKET OFFER REQUIREMENTS	93
5.6 BASE RESIDUAL AUCTION.....	93
5.6.1 Participation in the Base Residual Auction.....	93
5.6.2 Auction Clearing Mechanism – Base Residual Auction.....	94
5.6.3 Resource Make-Whole Payments in the Base Residual Auction.....	95
5.6.4 Posting of Base Residual Auction Results	95
5.7 INCREMENTAL AUCTIONS.....	95
5.7.1 Participation in the Incremental Auctions	96
5.7.2 Timing of the Incremental Auctions	98
5.7.3 Resource Make-Whole Payments in Incremental Auctions	98
5.7.4 Allocation of Costs in Incremental Auctions	99
5.7.5 Auction Clearing Mechanism – Incremental Auctions	99
5.7.6 Posting of Incremental Auction Results.....	100
5.8 AUCTION CLEARING RESULTS.....	100
5.8.1 Zonal Capacity Prices.....	100
5.8.3 CTR Credit Rates.....	102
5.8.4 CTR Settlement Rates.....	102
5.9 RELIABILITY BACKSTOP	102
Section 6: Capacity Transfer Rights.....	104
6.1 DEFINITION AND PURPOSE OF CAPACITY TRANSFER RIGHTS	104
6.1.1 Capacity Transfer Rights	105
6.1.2 Participant-Funded Project Incremental Capacity Transfer Rights	106
6.1.3 Incremental Capacity Transfer Rights Associated with Incremental Rights-Eligible Required Transmission Enhancements.....	106
6.2 DETERMINATION OF CAPACITY TRANSFER RIGHTS.....	108
6.3 ALLOCATION OF CAPACITY TRANSFER RIGHTS	108



6.4 CAPACITY TRANSFER RIGHTS CREDITS	109
6.5 CAPACITY TRANSFER RIGHTS TRANSFERS	109
Section 7: Load Obligations	110
7.1 OVERVIEW OF LOAD OBLIGATIONS	110
7.2 UNFORCED CAPACITY OBLIGATIONS	110
7.2.1 Determination of Unforced Capacity Obligations	110
7.2.2 Base Unforced Capacity Obligations	111
7.2.3 Final Zonal Unforced Capacity Obligations	111
7.3 RPM ZONAL SCALING FACTORS	112
7.3.1 Zonal Weather Normalized Summer Peaks	112
7.3.2 Base Zonal RPM Scaling Factor	113
7.3.3 Final Zonal RPM Scaling Factor	113
7.4 OBLIGATION PEAK LOAD	113
7.5 DAILY UNFORCED CAPACITY OBLIGATIONS	114
7.6 PROCESS FOR DETERMINING LOAD OBLIGATIONS	114
7.7 TREATMENT OF NON-ZONE LOAD	115
Section 8: Resource Performance Assessments	116
8.1 OVERVIEW OF RESOURCE PERFORMANCE ASSESSMENTS	116
8.2 RPM COMMITMENT COMPLIANCE	117
8.2.1 Generation	118
8.2.2 Demand Resources:	118
8.2.3 Energy Efficiency Resources:	120
8.2.4 Qualifying Transmission Upgrade (QTU):	120
8.3 COMMITMENT LEVEL USED IN PEAK-HOUR PERIOD AVAILABILITY (PHPA), SUMMER/WINTER CAPABILITY TESTS, AND PSM COMPLIANCE	121
8.4 GENERATING UNIT PEAK-HOUR PERIOD AVAILABILITY	122
8.4.1 Peak-Period Equivalent Forced Outage Rate (EFORp)	123
8.4.2 Peak Period Capacity Available (PCAP)	124
8.4.3 Equivalent Demand Forced Outage Rate (EFORD-5)	124
8.4.4 Target Unforced Capacity (TCAP)	125
8.4.5 Peak-Hour Period Capacity Shortfall	125
8.4.5.1 Use of Excess Available Capacity in Peak-Hour Period Availability Assessment	126
8.4.6 Summer/Winter Capability Testing	129
8.4.7 Peak Season Maintenance (PSM) Compliance	131
8.5 LOAD MANAGEMENT EVENT COMPLIANCE	132
8.5.1 Measuring Event Compliance	133
8.5.2 Load Management Event Compliance Allocation	134
8.6 LOAD MANAGEMENT TEST COMPLIANCE	135
8.7 REPLACEMENT RESOURCES	137
8.7.1 Excess Commitment Credits	139
8.8 DEMAND RESPONSE (DR) TRANSITION PROVISION FOR 2012/2013-2014/2015 DELIVERY YEARS	139
Section 9: Settlements	142
9.1 DEFICIENCY AND PENALTY CHARGES	142
9.1.1 Peak-Hour Period Availability Charge	142
9.1.2 Allocation of Peak-Hour Period Availability Charges	143
9.1.3 Capacity Resource Deficiency Charge	143
9.1.4 Transmission Upgrade Delay Penalty Charge	144
9.1.5 Generation Resource Rating Test Failure Charge	144
9.1.6 Peak Season Maintenance Compliance Penalty Charge	144
9.1.7 Load Management Test Failure Charge	145
9.1.8 Allocation of Deficiency and Penalty Charges	145
9.1.9 Demand Resource Compliance Penalty Charge	146



9.1.10 Emergency Procedures Charges.....	148
9.2 LOCATIONAL RELIABILITY CHARGES	148
9.2.1 Calculation of Locational Reliability Charges	148
9.3 AUCTION CREDITS AND CHARGES	148
9.3.1 Calculation of Auction Credits.....	148
9.3.2 Calculation of Auction Charges	149
9.3.3 Resource Make-Whole Credit.....	149
9.3.4 Capacity Transfer Rights Credit.....	149
9.3.5 Auction Specific MW Transaction Credits and Charges.....	149
9.3.6 Capacity Export Charges and Credits	150
9.4 DR TRANSITION PROVISION CREDITS AND CHARGES (2012/2013 – 2014/2015 DELIVERY YEARS)	150
9.4.1 DR Transition Credit	150
9.4.2 Alternate DR Transition Credit.....	151
9.5 PENALTIES FOR NON-PERFORMANCE OF PRICE RESPONSIVE DEMAND.....	151
9.5.1 PRD Commitment Compliance Penalty & Credits.....	151
9.5.2 PRD Maximum Emergency Event Compliance Penalty & Credits	152
9.5.3 PRD Test Failure Charges & Credits.....	153
9.5.4 LSE PRD Credit.....	153
Section 10: eRPM	155
10.1 OVERVIEW.....	155
Section 11: Fixed Resource Requirement Alternative.....	157
11.1 OVERVIEW.....	157
11.1.1 Definition and Purpose of Fixed Resource Requirement Alternative	157
11.1.2 Implementation of the FRR Alternative.....	158
11.1.3 Participation in the FRR Alternative.....	158
11.2 LOAD OBLIGATIONS.....	160
11.2.1 Preliminary Unforced Capacity Obligation.....	160
11.2.2 Treatment of Non-Zone Load	161
11.2.3 Annexation & Switching of Load	161
11.3 CAPACITY PLAN	162
11.4 SUPPLY RESOURCES IN THE FRR ALTERNATIVE.....	165
11.4.1 Resource Portfolio	165
11.4.2 Existing Generation.....	168
11.4.3 Planned Generation.....	168
11.4.4 Capacity Modifications (Cap Mods).....	168
11.4.5 Bilateral Unit-Specific Transactions.....	168
11.4.6 Qualified Transmission Upgrade	168
11.4.7 Load Management Products.....	169
11.4.8 Demand Resource Modifications (DR MODs).....	170
11.5 ENERGY EFFICIENCY RESOURCES	170
11.5.1 Energy Efficiency Modifications (EE MODs)	171
11.6 LOCATIONAL CONSTRAINTS IN THE FRR ALTERNATIVE.....	171
11.7 CONDITIONS ON SALES BY FRR ENTITIES	172
11.8 DELIVERY YEAR ACTIVITY.....	173
11.8.1 Final Daily Unforced Capacity Obligation	173
11.9 DEFICIENCY CHARGES & PENALTIES.....	173
11.9.1 FRR Capacity Resource Deficiency Charges.....	173
11.9.2 Transmission Upgrade Delay	174
11.9.3 Peak-Hour Period Availability Charge	174
11.9.4 Generation Resource Rating Test Failure Charge	174
11.9.5 Peak Season Maintenance Compliance Penalty Charge.....	174
11.9.6 Load Management Event Compliance Penalties.....	174



11.9.7 Load Management Test Compliance.....	175
11.10 ALLOCATION OF DEFICIENCY CHARGES.....	175
11.11 AUCTION SPECIFIC MW TRANSACTIONS.....	175
11.11.1 Auction Specific MW Transactions.....	175
Attachment A: Glossary of Terms	176
Attachment B: Authorization to Self-Schedule Capacity	187
Attachment C: Demand Resource Sell Offer Plan	189
Attachment D: Demand Resource Officer Certification Form.....	194
Revision History	195



Table of Exhibits

EXHIBIT 1: ILLUSTRATIVE EXAMPLE OF A VARIABLE RESOURCE REQUIREMENT CURVE	24
EXHIBIT 2: RPM AUCTION TIMELINE	83
EXHIBIT 3: PROCESS FOR DETERMINING LOAD OBLIGATIONS	114
EXHIBIT 4: RPM AUCTION SUBSYSTEMS.....	155



Approval

Approval Date: 11/11/2014 Effective Date: 10/30/2014

Jeff Bastian, Manager
Capacity Market Operations

Current Revision

Revision 25 (10/30/2014)

- Conforming revisions for FERC Order ER11-2288-000, accepted on 01/31/2011 and effective 02/1/2011, to clarify the Annual DR Maintenance Outage process.



Introduction

Welcome to the ***PJM Manual for PJM Capacity Market***. In this Introduction you will find information about PJM Manuals in general, an overview of this PJM Manual in particular, and information on how to use this manual.

- What you can expect from the PJM Manuals (see "About PJM Manuals").
- What you can expect from this PJM Manual (see "About This Manual").
- How to use this manual (see "Using This Manual").

About PJM Manuals

The PJM Manuals are the instructions, rules, procedures, and guidelines established by PJM for the operation, planning, and accounting requirements of the PJM and the PJM Energy Market. The manuals are grouped under the following categories:

- Transmission
- PJM Energy Market
- Generation and transmission interconnection
- Reserve
- Accounting and billing
- PJM administrative services
- Miscellaneous.

About This Manual

The ***PJM Manual for PJM Capacity Market*** is one of the PJM procedure manuals. This manual focuses on the capacity markets, including the Reliability Pricing Model and the Fixed Resource Requirement Alternative, and the requirements for resource providers and Load Serving Entities (LSEs) to participate in these markets and their responsibilities as signatories to the Open Access Transmission Tariff, Reliability Assurance Agreement and Operating Agreement of PJM Interconnection, L.L.C.

This manual also refers to other PJM manuals, which define in detail the operating procedures, obligations, reporting requirements, and accounting procedures established to ensure reliable and efficient capacity market operation.

The ***PJM Manual for PJM Capacity Market*** consists of 11 sections and 5 attachments (labeled A through E). Both the sections and the attachments are listed in the table of contents beginning on page ii.

Intended Audience

The intended audiences for this ***PJM Manual for PJM Capacity Market*** are:

- Applicants to the RAA, OA and OATT Operating Agreement of PJM Interconnection, L.L.C.

- Resource providers and those interested in providing adequate Capacity Resources that will be made available to provide reliable service to loads within the PJM Region.
- Load Serving Entities (LSEs) for load served in the PJM Region.
- PJM Members
- PJM staff

References

There are other PJM documents that provide both background and detail on specific topics. These documents are the primary source for specific requirements and implementation details. This manual does not replace any of the information in those reference documents. The references for the PJM Manual for *PJM Capacity Market* are:

- [PJM Manual for Scheduling \(M-11\)](#)
- [PJM Manual for Generation and Transmission Interconnection Planning \(14b\)](#)
- [PJM Manual for Load Data Systems \(M-19\)](#)
- [PJM Manual for Reserve Requirements \(M-20\)](#)
- [PJM Manual for Rules and Procedures for Determination of Generating Capability \(M-21\)](#)
- [PJM Manual for Generator Resource Performance Indices \(M-22\)](#)
- [PJM Manual for Open Access Transmission Tariff Accounting \(M-27\)](#)
- [PJM Manual for Billing \(M-29\)](#)

Using This Manual

We believe that explaining concepts is just as important as presenting procedures. This philosophy is reflected in the way we organize the material in this manual. We start each section with the “big picture.” Then we present details, procedures or references to procedures found in other PJM manuals.

What You Will Find In This Manual

- A table of contents that lists two levels of subheadings within each of the sections and attachments
- An approval page that lists the required approvals and a brief outline of the current revision
- Sections containing the specific guidelines, requirements, or procedures including PJM actions and PJM Member actions
- Attachments that include additional supporting documents, forms, or tables
- A section at the end detailing all previous revisions of this PJM Manual.

Section 1: Overview of the PJM Capacity Market

Welcome to the *Overview of the PJM Capacity Market* section of the **PJM Manual for the PJM Capacity Market**. In this section, you will find the following information:

- An overview description of the PJM Capacity Market (see “Overview of the PJM Capacity Market”)
- The business rules for participation in the PJM Capacity Markets (see “Participation in the PJM Capacity Market”)
- A definition and purpose of the Reliability Pricing Model (see “Definition and Purpose of the Reliability Pricing Model”)
- The timeframe for implementation of the Reliability Pricing Model (see “Implementation of the Reliability Pricing Model”)

1.1 Overview of the PJM Capacity Market

The PJM Capacity Market is designed to ensure the adequate availability of necessary resources that can be called upon to ensure the reliability of the grid. In PJM, the capacity market structure provides transparent information to enable forward capacity market signals to support infrastructure investment. The capacity market design provides a forward mechanism to evaluate the ongoing reliability requirements in a transparent way to provide opportunity for generation, demand response, energy efficiency, price responsive demand and transmission solutions.

In the PJM Region, the basis for the capacity market design is the Reliability Pricing Model (RPM). The goal of RPM is to align capacity pricing with system reliability requirements and to provide transparent information to all market participants far enough in advance for actionable response to the information. In RPM, the fundamental elements to achieve this are:

- Locational Capacity Pricing to recognize and quantify the locational value of capacity
- Variable Resource Requirement mechanism to adjust price based on the level of resources procured
- Forward Commitment of supply by generation, demand resources and qualified transmission upgrades cleared in a multi-auction structure
- A Reliability Backstop mechanism to ensure that sufficient generation, transmission and demand response solutions will be available to preserve system reliability

The PJM Capacity Market also contains an alternative method of participation, known as the Fixed Resource Requirement (FRR) Alternative. The Fixed Resource Requirement Alternative provides a Load Serving Entity (LSE) with the option to submit a FRR Capacity Plan and meet a fixed capacity resource requirement as an alternative to the requirement to participate in the PJM Reliability Pricing Model (RPM), which includes a variable capacity resource requirement.

Unless otherwise specified, the rules presented throughout this Manual are focused on the Reliability Pricing Model. Information on the Fixed Resource Requirement Alternative can be found in **Section 11 of this Manual** and on PJM.com.

1.2 Participation in the PJM Capacity Market

Participants in the PJM Capacity Market, both Load Serving Entities and resource providers, must comply with all applicable provisions of the PJM Open Access Transmission Tariff, PJM Operating Agreement, and the PJM Reliability Assurance Agreement. PJM Capacity Market participants must be signatories of the appropriate Agreements and Full Members of PJM. All participants must comply with the procedures and requirements as set forth by these agreements and in PJM Manuals.

1.2.1 Participation of Load Serving Entities

Participation by Load Serving Entities (LSEs) in the RPM for load served in the PJM region is mandatory, except for those LSEs that have elected the Fixed Resource Requirement (FRR) Alternative and submitted an approved FRR Capacity Plan for their load served in an FRR Service Area. Under RPM, each LSE that serves load in a PJM Zone during the Delivery Year shall be responsible for paying a Locational Reliability Charge equal to their Daily Unforced Capacity Obligation in the Zone multiplied by the Final Zonal Capacity Price applicable to that Zone. LSEs may choose to hedge their Locational Reliability Charge obligations by directly offering and clearing resources in the Base Residual Auction and Incremental Auctions or by designating self-supplied resources (resources directly owned or resources contracted for through unit-specific bilateral purchases) as self-scheduled to cover their obligation in the Base Residual Auction. Such action may wholly or partially offset an LSE's Locational Reliability Charges during the Delivery Year depending upon how the clearing prices of the resources compare to the Final Zonal Capacity Prices that apply to their unforced capacity obligations.

Participants with Non-Zone Load, as defined in the PJM Agreements, may be included in the Reliability Pricing Model depending if the load that is located outside of the PJM Region is included in the PJM load forecasts and served by generation resources located within the PJM Region. The treatment of Non-Zone Load is described in Section 7 of this Manual.

1.2.2 Participation of Resource Providers

Resource providers with existing generation, planned generation, bilateral contracts for unit-specific capacity resources, existing Demand Resources, Planned Demand Resources, Energy Efficiency Resources, and Qualifying Transmission Upgrades may participate in PJM's Capacity Market, either in PJM's Reliability Pricing Model or the Fixed Resource Requirement Alternative, if these products meet the requirements specified in this Manual. Existing generation that is located outside of the PJM market footprint may also be offered into PJM's Capacity Market, either in the Reliability Pricing Model or the Fixed Resource Requirement Alternative, if the external generation meets the requirements specified in the PJM Manuals and PJM Agreements.

Participation is mandatory for resource providers with:

- Available unforced capacity from existing generation located within the PJM market footprint; or
- Bilateral contracts for available unit-specific capacity resources that are existing generation units located within the PJM market footprint.

- Generation is treated as existing for the purpose of must-offer requirement and mitigation provisions when the generation is (a) in service at the commencement of an RPM Auction or (b) not yet in service but has cleared an RPM Auction for any prior Delivery Year. The Minimum Offer Price Rule (MOPR), as described in Section 5.3.5, applies to a Planned Generation Resource until the first year for which it clears an RPM Auction.

Resource providers do have the option to export available capacity outside the PJM market footprint if the generator is exporting per the requirements specified in PJM Manuals and PJM Agreements.

Participation is voluntary for resource providers with:

- External generation
- Planned generation (including planned upgrades to existing units)
- Planned external generation (including planned upgrades to existing units)
- Existing Demand Resources
- Planned Demand Resources
- Energy Efficiency Resources
- Qualifying Transmission Upgrades.

All participation by resource providers is subject to the market power mitigation rules described in Attachment DD, Section 6 of the PJM Open Access Transmission Tariff.

1.2.3 Participation of PRD Providers

Starting with the 2016/2017 Delivery Year, PRD Providers may participate in PJM's Capacity Market, either in PJM's Reliability Pricing Model or the Fixed Resource Requirement Alternative. A PRD Provider is a PJM Member that is (1) a LSE that provides PRD; or (2) an entity without direct load serving responsibilities that has entered contractual arrangements with end-use customers served by a LSE that satisfy the eligibility criteria for PRD as specified in this Manual.

1.3 Definition and Purpose of the Reliability Pricing Model

The Reliability Pricing Model is the PJM resource adequacy construct that ensures that adequate Capacity Resources, including planned and existing Generation Resources, Energy Efficiency Resources and planned and existing Demand Resources will be made available to provide reliable service to loads within the PJM Region.

The purpose of the RPM is to develop a long term pricing signal for capacity resources and LSE obligations that is consistent with the PJM Regional Transmission Expansion Planning Process (RTEPP). RPM is also designed to add stability and a locational nature to the pricing signal. The RPM is a multi-auction structure designed to procure resource and PRD commitments to satisfy the region's unforced capacity obligation through the following market mechanisms: a Base Residual Auction, Incremental Auctions and a Bilateral Market.

- *Base Residual Auction* - The Base Residual Auction is held during the month of May three (3) years prior to the start of the Delivery Year. The Base Residual Auction (BRA) allows for the procurement of resource commitments to satisfy the region's

unforced capacity obligation and allocates the cost of those commitments among the Load Serving Entities (LSEs) through a Locational Reliability Charge.

- *Incremental Auctions* – At least three Incremental Auctions are conducted after the Base Residual Auction to procure additional resource commitments needed to satisfy potential changes in market dynamics that are known prior to the beginning of the Delivery Year.
- The First, Second, and Third Incremental Auctions are conducted to allow for replacement resource procurement, increases and decreases in resource commitments due to reliability requirement adjustments, and deferred short-term resource procurement.
- A Conditional Incremental Auction may be conducted if a Backbone transmission line is delayed and results in the need for PJM to procure additional capacity in a Locational Deliverability Area to address the corresponding reliability problem.
- *The Bilateral Market* – The bilateral market provides resource providers an opportunity to cover any auction commitment shortages. The bilateral market also provides LSEs the opportunity to hedge against the Locational Reliability Charge. The bilateral market is facilitated through the eRPM system.

1.4 Implementation of the Reliability Pricing Model

The implementation of the Reliability Pricing Model began with the 2007/2008 Delivery Year. PJM's Planning Period is defined as an annual period from June 1 to May 31. The Delivery Year is the Planning Period for which resources are being committed and for which a constant load obligation for the entire PJM region exists. For example, the 2012/2013 Delivery Year corresponds to the June 1, 2012 - May 31, 2013 Planning Period.

The Transition Period of the RPM took place during the 2007/2008 through 2010/2011 Delivery Years.

The steady-state condition of the RPM began with the 2011/2012 Delivery Year. Unless otherwise specified, the rules and timeframes presented throughout this Manual are for the steady-state condition of RPM.

Section 2: Resource Adequacy

Welcome to the *Resource Adequacy* section of the **PJM Manual for the PJM Capacity Market**. In this section, you will find the following information:

- An overview description of resource adequacy (see "Overview of Resource Adequacy")
- The role of load deliverability in the Reliability Pricing Model (see "Role of Load Deliverability in the Reliability Pricing Model")
- The business rules for Locational Constraints in the Reliability Pricing Model ("see Locational Constraints in the Reliability Pricing Model")
- The definitions of Reliability Requirements (see "Reliability Requirements")

2.1 Overview of Resource Adequacy

The purpose of PJM RTO resource adequacy is to determine the amount of capacity resources that can be required to serve the forecast load that satisfies the PJM reliability criterion. PJM performs an assessment of resource adequacy each year for a ten-year future period. The analysis considers load forecast uncertainty, forced outages of generation capacity resources, as well as planned and maintenance outages. In PJM, studies are performed using the installed capacity values of resources. The reliability value of a resource depends on two variables: the installed capacity of the resource and a measure of the probability that a resource will not be available due to forced outages or forced de-ratings. The reliability criterion is based on Loss of Load Expectation (LOLE) not exceeding one occurrence in ten years. The resource requirement to meet the reliability criterion is expressed as the Installed Reserve Margin (IRM) as a percentage of forecast peak load.

2.1.1 Installed Reserve Margin

The Installed Reserve Margin (IRM) for the Delivery Year is the measure calculated to establish the level of installed capacity resources that will provide an acceptable level of reliability consistent with the PJM Reliability Principles and Standards. The IRM is determined by PJM in accordance with *the PJM Reserve Requirements Manual (M-20)*.

The **Installed Reserve Margin (IRM)** is approved by the PJM Board of Managers and posted by February 1 prior to its use in the Base Residual Auction for the Delivery Year. An Updated IRM is approved by the PJM Board of Managers and posted one month prior to its use in an Incremental Auction for the Delivery Year. The Updated IRM that is posted for the Third Incremental Auction for the Delivery Year is the final IRM for the Delivery Year.

2.1.2 Peak Load Forecasts

PJM produces peak load forecasts for use in the RPM auction clearing processes and for planning purposes. In RPM, the load forecasts will be used to determine the RTO Reliability Requirement. PJM will determine **annual peak load forecasts** for the RTO and zones for use in the RPM Auction clearing process.

The Preliminary RTO Peak Load Forecast and the Preliminary Zonal Peak Load Forecasts for the Delivery Year are determined by PJM in accordance with the **Load Data Systems Manual (M-19)**.

The **Preliminary RTO and Zonal Peak Load Forecasts** are determined and posted by February 1 prior to the Base Residual Auction for the Delivery Year.

Updated RTO and Zonal Peak Load Forecasts for the Delivery Year are determined by PJM in accordance with the Load Data Systems Manual.

Updated RTO and Zonal Peak Load Forecasts are posted no later than one month prior to the First and Second Incremental Auctions.

The Final RTO Peak Load Forecast and the Final Zonal Peak Load Forecasts for the Delivery Year are determined by PJM in accordance with the Load Data Systems Manual.

The **Final RTO and Zonal Peak Load Forecasts** are posted no later than one month prior to the Third Incremental Auction.

Load forecasts are also used in the determination of other planning and auction parameters such as Capacity Emergency Transfer Limit (CETL), Capacity Emergency Transfer Objective (CETO), Capacity Import Limits, and RPM Zonal Scaling Factors. These parameters are discussed in detail in later sections of this Manual.

2.1.3 Pool-wide Average EFORD

To account for the forced outage rates of generation capacity resources, an Equivalent Forced Outage Rate (EFORD) for each generating unit in the PJM RTO is calculated. Equivalent Demand Forced Outage Rate (EFORD) is a measure of the probability that a generating unit will not be available due to forced outages or forced deratings when there is a demand on the unit to generate. See **Generator Resource Performance Indices Manual (M-22)** for equations and details.

The Pool-wide Average EFORD for the Delivery Year is the average of the forced outage rates based on five years history, weighted for unit capability and expected time in service, attributable to all units that are planned to be in service during the Delivery Year. The Pool-Wide Average EFORD will not include forced outage events that are outside management control (referred to as OMC events). The Pool-wide Average EFORD is determined by PJM in accordance with **the PJM Reserve Requirements Manual (M-20)**.

The **Pool-wide average EFORD** is posted by February 1 prior to its use in the Base Residual Auction for the Delivery Year. An updated Pool-wide average EFORD is posted one month prior to its use in an Incremental Auction for the Delivery Year. The Pool-wide average EFORD that is posted for the Third Incremental Auction for the Delivery Year is the final pool-wide average EFORD for the Delivery Year.

2.1.4 Forecast Pool Requirement

While IRM multiplied by peak load forecasts provides the installed capacity required to meet the reliability criterion, the Forecast Pool Requirement (FPR) multiplied by peak load forecasts provides unforced capacity values, required to meet the reliability criterion. Therefore, to express the Installed Reserve Margin (IRM) as an unforced capacity value, the calculation of the Forecast Pool Requirement must consider the forced outage rates of all generating units, or the Pool-wide Average EFORD.

The Forecast Pool Requirement is the measure determined for the specified Delivery Year to establish the level of unforced capacity (UCAP) that will provide an acceptable level of reliability consistent with PJM Reliability Principles and Standards.

The following parameters are values used in the determination of Forecast Pool Requirement:

- Installed Reserve Margin (IRM)
- Pool-wide Average EFORD
- The Forecast Pool Requirement (FPR) for the Delivery Year is calculated by PJM and is equal to $(1 + \text{Installed Reserve Margin}) \times (1 - \text{Pool-wide Average EFORD})$.¹

$$\text{ForecastPoolRequirement (FPR)} = (1 + \text{Installed Reserve Margin}) * (1 - \text{PoolWideAverageEFORD})$$

The **Forecast Pool Requirement (FPR)** is approved by the PJM Board of Managers and posted by February 1 prior to its use in the Base Residual Auction for the Delivery Year. An Updated FPR is approved by the PJM Board of Managers and posted one month prior to its use in an Incremental Auction for the Delivery Year. The Updated FPR that is posted for the Third Incremental Auction for the Delivery Year is the final FPR for the Delivery Year.

2.2 Role of Load Deliverability in the Reliability Pricing Model

The process of determining the Installed Reserve Margin (IRM) that meets the PJM reliability criterion assumes that the internal RTO transmission is adequate and any generation can be delivered to any load without transmission constraints. This process helps in determining the minimum possible IRM for the RTO. However, since transmission may have limitations, after IRM is determined a Load Deliverability analysis is conducted. The RTO is divided into different sub-regions for this analysis. These sub-regions are referred to as Locational Deliverability Areas (LDAs) in the Reliability Pricing Model.

The first step in the Load Deliverability analysis is to determine the transmission import capability required for each LDA to meet the area reliability criterion of Loss of Load Expectation of one occurrence in 25 years. This import capability requirement is called Capacity Emergency Transfer Objective (CETO), expressed in megawatts and valued as unforced capacity. The standard generation reliability evaluation model is used to determine CETO. For more details regarding the CETO analysis, please see **Manual 20: Reserve Requirements**.

¹ The terms in this equation are expressed in decimal form.

The second step in Load Deliverability analysis is to determine the transmission import capability limit for each LDA using the transmission analysis models. For this analysis, a Transmission Upgrade including transmission facilities at voltages of 500 kV or higher that is in an approved Regional Transmission Expansion Plan ("Backbone Transmission") will be included in the system model only if it satisfies the project development milestones set forth in the tariff. This import capability limit is called Capacity Emergency Transfer Limit (CETL), expressed in megawatts and valued as unforced capacity. For more details regarding CETL analysis, please see **Manual 14B: PJM Region Transmission Planning Process, Attachment C: PJM Deliverability Testing Methods**.

If CETL value is less than CETO value, transmission upgrades are planned under the Regional Transmission Expansion Planning Process (RTEPP). However, higher than anticipated load growth and unanticipated retirements may result in the CETL value being less than CETO value with no lead time to build transmission upgrades to increase CETL value. These conditions could result in locational constraints in the RTO.

Effective with the 2017/2018 Delivery, the Reliability Pricing Model recognizes locational constraints that limit the delivery of generation capacity to PJM from areas outside of PJM (i.e., Capacity Import Limits). The Capacity Import Limit Calculation Procedure is performed by PJM to establish the amount of power that can be reliably transferred to PJM from defined regions external to PJM. For more details regarding Capacity Import Limit Calculation Procedure, please see **Manual 14B: PJM Region Transmission Planning Process, Attachment G.11, PJM Capacity Import Limit Calculation Procedure**.

2.3 Locational Constraints in the Reliability Pricing Model

When a capacity market does not have the ability to price capacity on a locational basis, all the resources in the market are valued equally. When this occurs, it is possible to have excess reserves in the RTO and relatively low capacity prices. This market signal will result in generation capacity retirements. In some areas of the RTO these retirements will create reliability violations. These conditions will indicate that a higher value for resources is required to be recognized in constrained locations to incent existing generating capacity to remain in service, and new capability to be built in the form of generation resources, demand resources, or merchant transmission upgrades. One of the key features of RPM is the recognition of locational value of capacity.

Locational Constraints are localized intra-PJM capacity import capability limitations (low CETL margin over CETO) that are caused by transmission facility limitations or voltage limitations that are identified for a Delivery Year in the PJM Regional Transmission Expansion Planning Process (RTEPP) prior to each Base Residual Auction. Such locational constraints are included in the RPM to recognize and to quantify the locational value of capacity within the PJM region.

Effective with the 2017/2018 Delivery Year, locational constraints are expanded to include Capacity Import Limits to recognize the transfer limitations on the delivery of external generation capacity to the PJM region and quantify the locational value of capacity located outside the PJM region.

CETOs and CETLs for the LDAs to be modeled in all RPM Auctions for the Delivery Year are posted by February 1 prior to their use in the Base Residual Auction for the Delivery Year. Updated CETOs and CETLs for the modeled LDAs are posted one month prior to its use in an Incremental Auction for the Delivery Year.

Effective with the 2017/2018 Delivery Year, a region-wide Capacity Import Limit and Capacity Import Limits for external source zones are posted by February 1 prior to their use in the Base Residual Auction for the Delivery year and posted one month prior to their use in an Incremental Auction for the Delivery Year.

2.3.1 Locational Deliverability Areas

In the development of the Reliability Pricing Model, the RTEP Process identified 27 sub-regions referred to as Locational Deliverability Areas for evaluating the locational constraints. LDAs include EDC zones, sub-zones, and combination of zones.

The 27 LDAs (highlighted in boldface) and an LDA's relationship to an immediate parent LDA are listed below:

RTO=> **Western PJM**

RTO => Western PJM => **ComEd**

RTO => Western PJM => **AEP**

RTO => Western PJM => **Dayton**

RTO => Western PJM => **DLCO**

RTO => Western PJM => **APS**

RTO => Western PJM => **ATSI**

RTO => Western PJM => ATSI => **Cleveland**

RTO => Western PJM => **DEOK**

RTO => Western PJM => **EKPC**

RTO => **Dominion**

RTO => **MAAC**

RTO => MAAC => **WMAAC**

RTO => MAAC => WMAAC => **MetEd**

RTO => MAAC => WMAAC => **PPL**

RTO => MAAC => WMAAC => **Penelec**

RTO => MAAC => EMAAC => **AE**

RTO => MAAC => EMAAC => **PSEG**

RTO => MAAC => EMAAC => PSEG => **PSEG N**

RTO => MAAC => EMAAC => **PECO**

RTO => MAAC => EMAAC => **JCPL**

RTO => MAAC => EMAAC => **DPL**
RTO => MAAC => EMAAC => DPL => **DPL S**
RTO => MAAC => EMAAC => **RECO**
RTO => MAAC => **SWMAAC**
RTO => MAAC => SWMAAC => **BGE**
RTO => MAAC => SWMAAC => **PEPCO**

2.3.2 Constrained Locational Deliverability Areas (LDAs)

An LDA with Capacity Emergency Transfer Limit (CETL) less than 1.15 times Capacity Emergency Transfer Objective (CETO) will be modeled as a constrained LDA in RPM. In addition, an LDA will be modeled if (a) such LDA had a Locational Price Adder in any one or more of the three immediately preceding Base Residual Auctions; (b) such LDA is determined by PJM to likely have a Locational Price Adder based on historic offer price levels; and (c) EMAAC, SWMAAC, and MAAC LDAs will be modeled as constrained LDAs regardless of the outcome of the above tests.² PJM may decide to model the LDA as a constrained LDA regardless of the outcome of the above tests if there are other reliability concerns. A Reliability Requirement and a Variable Resource Requirement Curve will be established for each constrained LDA to be modeled in the RPM Base Residual Auction. See **Section 5 of this Manual** for the details. The constrained Locational Deliverability Areas that will be modeled for a particular Delivery Year with their Reliability Requirements and the VRR Curves will be posted on the PJM website by February 1 prior to the commencement of the Base Residual Auction for that Delivery Year.

If an LDA clears with a Locational Price Adder in any Base Residual Auction, PJM shall perform an analysis to determine if any new generation, new demand resource or Qualifying Transmission Upgrades were cleared in that LDA in such Base Residual Auction. New generation or new demand resources include incremental upgrades to existing resources beyond historic installed capacity levels or new resource installations. If any LDA has a Locational Price Adder and if no new generation, new demand resource or Qualifying Transmission Upgrades have cleared in the LDA for two consecutive Base Residual Auctions, then PJM shall evaluate a transmission upgrade as part of the RTEPP that would reduce the Locational Price Adder to zero.

The evaluation of such transmission upgrade shall include an evaluation of the cost of the upgrade as compared to the incremental benefit of reducing Locational Price Adder to zero in the LDA. If the transmission upgrade is feasible and cost beneficial over the next ten year period, then the transmission upgrade shall be included in the Regional Transmission Expansion Plan as soon as possible. The annual costs of such upgrade shall be allocated to all LSEs serving load in the LDA, pro rata based on such loads.

² Prior to the 2012/2013 Delivery Year, an LDA with CETL less than 1.05 times CETO was modeled as a constrained LDA in RPM. No additional criteria were considered in the modeling of a constrained LDA prior to the 2012/2013 Delivery Year.

2.3.3 Creation of New Locational Deliverability Areas (LDAs)

A prudent planning practice is to continuously monitor system performance and study transmission constraints as they develop. Triggers and criteria to consider a new LDA are specified in Manual 14B “PJM Regional Transmission Planning Process”, Attachment B: PJM Deliverability Testing Methods, based on RTEP Market Efficiency Analysis and RTEP Long Term Planning. PJM will make a filing with FERC to amend RAA Schedule 10.1 to add a new LDA (including a new LDA that is an aggregate of Zones), if such new area is projected to have a CETL less than 1.15^3 times the CETO of the area, or if warranted by other reliability concern. In addition, any Party may propose, and PJM would evaluate, possible LDAs under such standards.

2.3.4 Capacity Import Limits

Effective with the 2017/2018 Delivery Year, Capacity Import Limits for the PJM Region and for each of several external source zones will be implemented in each RPM auction as locational constraints that limit the delivery of capacity from areas outside of PJM. The Capacity Import Limits for the PJM Region and each external source zone are determined by PJM in accordance with **Manual 14B: PJM Region Transmission Planning Process, Attachment G.11, PJM Capacity Import Limit Calculation Procedure**. External source zones are identified in Manual 14B and are groupings of one or more balancing authority areas that may need to be periodically modified based on changing system patterns or operational data, as well as changes in RTO/ISO membership. The initial Capacity Import Limit implementation employs five external source zones:

Northern Zone: NYISO & ISONE

Western Tier 1 Zone: MISO East, MISO West & OVEC

Western Tier 2 Zone: MISO Central & MISO South

Southern Tier 1 Zone: TVA & LGEE

Southern Tier 2 Zone: VACAR (non-PJM)

The Capacity Import Limit for the PJM Region and Capacity Import Limits for each external source zone are determined for each Delivery Year, posted with the RPM Auction planning parameters, and implemented as locational constraints in the RPM Auction clearing process. The Capacity Import Limit for the PJM region represents the maximum amount of external capacity that can be cleared in the RPM Auctions for such Delivery Year. The Capacity Import Limit for an external source zone represents the maximum amount of external capacity located in the external source zone that can be cleared in RPM Auctions for such Delivery Year. If the Capacity Import Limit for the PJM Region or for an external source zone binds in the auction clearing process, the resource clearing price for external generation resources located in the external source zone will be lower than the resource clearing price for resources located in the unconstrained area of the PJM region.

External generation resources offering into RPM Auctions will be subject to the Capacity Import Limits unless a Capacity Market Seller of external generation requests an exception demonstrating that the external resource meets all of the three requirements described below. A resource that requests an exception and demonstrates that it meets all three of

³ Prior to the 2012/2013 Delivery Year, the CETL/CETO threshold was 1.05.

these requirements by no later than five business days prior to the commencement of the auction offer period will not be subject to the Capacity Import Limits, and will be modeled in the unconstrained area of the PJM region for the MWs granted in the exception request and will receive the resource clearing price of the unconstrained area of the PJM region for such MWs granted if the resource clears in the auction. A Capacity Import Limit exception request must be submitted to PJM via rpm_hotline@pjm.com no later than five business days prior to the commencement of the offer period for the relevant RPM Auction. To qualify for an exception to the Capacity Import Limits, the external generation resource must meet the following requirements:

- (1) The external resource, at the time the exception is requested, is pseudo-tied or committed to be pseudo-tied by the start of the auction Delivery Year.
- (2) The external resource, at the time the exception is requested, has long-term firm transmission service confirmed on the complete transmission path from such resource into PJM.
- (3) The external resource, by written commitment of the Market Seller, is subject to a capacity must offer requirement under the same obligations imposed to internal generation resources by section 6.6 of Attachment DD of the OATT to offer into RPM Auctions.

In order to satisfy these requirements, a Market Seller must submit the following documentation with their exception request for an external resource: (1) a signed PJM Capacity Import Limit Exception Officer Certification Form (2) an executed External Resource Must Offer Agreement; and (3) an executed Reimbursement Agreement if the external resource is not pseudo-tied at the time the exception is requested. The PJM Capacity Import Limit Exception Officer Certification Form specifies that the signing officer certifies for the MWs of installed capacity specified for such external resource that (1) long-term firm transmission service has been confirmed on the complete transmission path from the external resource into PJM for the relevant Delivery Year; (2) the external resource meets or will meet prior to the Delivery Year that the CIL exception is requested all applicable requirements to be pseudo-tied; and (3) a separate written commitment has been executed to offer all unforced capacity of the external resource into RPM Auctions under the same terms, and subject to the same conditions and exceptions, as set forth for internal generation resources by section 6.6 of Attachment DD of PJM Tariff. The External Must Offer Agreement specifies that the Market Seller agrees to offer all unforced capacity of the external resource (associated with the installed capacity MWs specified in the PJM Capacity Import Limit Officer Certification Form) into RPM Auctions under the same terms, and subject to the same conditions and exceptions, as set forth for internal capacity resources by section 6.6 of Attachment DD of PJM Tariff. The Reimbursement Agreement specifies that the Market Seller agrees to reimburse PJM for the actual cost of determining and effectuating any modifications to the network model needed to accommodate the pseudo-tie of the external resource. Templates of the PJM Capacity Import Limit Exception Officer Certification Form, External Resource Must Offer Agreement, and Reimbursement Agreement are posted on the PJM website.

The total MW quantity of exceptions granted for a Delivery Year in an external source zone plus the Capacity Import Limit for the external source zone may not exceed the total MW quantity of confirmed Network External Designated Transmission Service on such interface. The total MW quantity of exceptions granted for a Delivery Year across all external source

zones plus the region-wide Capacity Import Limit may not exceed the total MW quantity of confirmed Network External Designated Transmission Service for all interfaces. PJM will grant qualified exception requests but reduce the region-wide CIL and/or CILs for external source zones by the quantity necessary to ensure the total quantity of confirmed Network External Designated Transmission Service on interface(s) is not exceeded. PJM shall post the updated CILs, aggregate MW quantities of exception requests granted by external source zones, and the MWs of confirmed Network External Designated Transmission Service for external interfaces no later than two (2) business days prior to the commencement of the offer period for the RPM Auction.

2.4 Reliability Requirements

In the PJM Capacity Market, reliability requirements, or reserve requirements, represent the target level of reserves required to meet PJM Reliability Standards and Principles. It is important to note that the Installed Reserve Margin (IRM) and the Forecast Pool Requirement (FPR) represent the level of reserves required, but are expressed in different capacity values. The IRM is expressed as the installed capacity reserve as a percent (e.g. 15%) of the forecast peak load, whereas the FPR (e.g., 1.079) when multiplied by forecast peak load provides of the total unforced capacity required. The installed capacity (ICAP) value of a generation resource is based on the summer net dependable rating of a unit as determined in accordance with PJM's Rules and Procedures, also referred to as "Iron in the Ground". The unforced capacity (UCAP) value of a generation resource is installed capacity rated at summer conditions that is not on average experiencing a forced outage or forced de-rating.

In the RPM clearing process, the Reliability Requirements for the RTO and the LDA are used to establish the target reserve levels, valued as unforced capacity that will be cleared in the RPM Auctions.

The final Reliability Requirements, used in the clearing of RPM Auctions, will be adjusted to account for entities that have elected the Fixed Resource Requirement Alternative. Therefore, when known, the Unforced Capacity Obligations for FRR entities will be removed from the calculation of the Reliability Requirements for the RTO and any LDAs. Reliability Requirements for the region and for any affected LDA are further adjusted for PRD proposed in an approved PRD Plan or committed following an RPM Auction.

2.4.1 PJM Region Reliability Requirement

The PJM Region Reliability Requirement, valued in unforced capacity terms, is the RTO Peak Load Forecast, multiplied by the approved Forecast Pool Requirement for the PJM Region, less the sum of Preliminary Unforced Capacity Obligations of the FRR Entities in the PJM Region, and less any necessary adjustment for PRD proposed in an approved PRD Plan or committed following an RPM Auction.

$$RelReq_{PJMRegion} = (RTO_{PeakLoadForecast}) \times (FPR) - \sum PrelimUnforcedCapObligations_{FRREntities}$$