

2015 Demand Response Operations Markets Activity Report: June 2015

James McAnany

PJM Demand Side Response Operations

June 15, 2015



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Figure 1: Delivery Year 15/16 Active Participants in PJM Economic and Load Management DR Programs

State	Zone	EDC	Economic Program		Load Management DR		Emergency Energy and Load Management DR Total		Unique	
			Locations	MW	Locations	MW	MW	Locations	MW	
DC	PEPCO	PEPCO	1	0.1	265	112.6	112.6	265.0	112.6	
DE	DPL	DEMEC	12	5.7	26	14.4	14.4	26.0	14.4	
DE	DPL	DOVDE			7	2.2	2.2	7.0	2.2	
DE	DPL	DPL	4	28.3	264	211.6	211.6	264.0	211.6	
DE	DPL	ODEC			8	1.1	1.1	8.0	1.1	
IL	COMED	BATAV			1	1.0	1	1.0	1.0	
IL	COMED	COMED	924	380.1	2426	1635.1	1635.1	3314.0	1903.4	
IL	COMED	IMEAA1			2	49.6	49.6	2.0	49.6	
IN	AEP	AEPIMP			127	345.1	345.1	127.0	345.1	
IN	AEP	HEREC	1	39.0	1	26.7	26.7	1.0	26.7	
IN	AEP	WVPA			68	2.0	2	68.0	2.0	
IN	AEP	WVSDI			1	55.6	55.6	1.0	55.6	
KY	DEOK	DEK			68	35.0	35	68.0	35.0	
KY	EKPC	EKPC			11	135.8	135.8	11.0	135.8	
MD	APS	AETSAP	50	20.5	192	113.6	113.6	192.0	113.6	
MD	APS	AETSHG			5	0.8	0.8	5.0	0.8	
MD	APS	AETSTH			3	0.3	0.3	3.0	0.3	
MD	APS	AETSWP			1	0.1	0.1	1.0	0.1	
MD	BGE	BC	64	1219.0	880	801.1	801.1	892.0	1486.6	
MD	DPL	DPL			208	76.8	76.8	208.0	76.8	
MD	DPL	EASTON			8	2.2	2.2	8.0	2.2	
MD	DPL	ODEC	1	1.5	19	14.4	14.4	19.0	14.4	
MD	PEPCO	PEPCO	1	5.4	405	427.7	427.7	405.0	427.7	
MD	PEPCO	SMECO	6	1.7	109	54.7	54.7	109.0	54.7	
NJ	AECO	AE	8	3.6	277	132.2	132.2	277.0	132.2	
NJ	AECO	VMEU			25	5.8	5.8	25.0	5.8	
NJ	JCPL	AECI			1	0.2	0.2	1.0	0.2	
NJ	JCPL	BSHNJ	1	3.0	1	2.2	2.2	1.0	2.2	
NJ	JCPL	JCBGS	13	54.0	494	180.1	180.1	496.0	225.7	
NJ	PSEG	PSEG	17	49.9	1146	392.0	392	1150.0	413.1	
NJ	RECO	RECO			21	7.2	7.2	21.0	7.2	
NY	PENELEC	PaElec			2	1.5	1.5	2.0	1.5	
OH	AEP	AEPOPT	6	144.8	975	705.8	705.8	975.0	705.8	
OH	AEP	AMPO			47	110.1	110.1	47.0	110.1	
OH	AEP	BUCK			2	20.2	20.2	2.0	20.2	
OH	ATSI	AMPO			35	165.6	165.6	35.0	165.6	
OH	ATSI	BUCK			2	5.5	5.5	2.0	5.5	
OH	ATSI	CPP	1	0.9	18	42.4	42.4	18.0	42.4	
OH	ATSI	OEEDC	14	51.6	1186	825.6	825.6	1188.0	829.2	
OH	DAY	AMPO			16	37.1	37.1	16.0	37.1	
OH	DAY	BUCK			2	4.1	4.1	2.0	4.1	
OH	DAY	DAYEDC	5	6.6	231	152.2	152.2	231.0	152.2	
OH	DEOK	AMPO			5	7.7	7.7	5.0	7.7	
OH	DEOK	BUCK			2	2.0	2	2.0	2.0	
OH	DEOK	DEOHIO	20	41.9	456	280.7	280.7	456.0	280.7	
PA	APS	AECI			4	0.3	0.3	4.0	0.3	
PA	APS	AETSAP	7	117.6	673	425.1	425.1	674.0	429.6	



State	Zone	EDC	Economic Program		Load Management DR		Emergency Energy and Load Management DR Total		Unique	
			Locations	MW	Locations	MW	MW	Locations	MW	
PA	APS	CHBDTE			5	2.7	2.7		5.0	2.7
PA	ATSI	PAPWR	2	0.6	99	77.2	77.2		99.0	77.2
PA	DUQ	DLCO	4	17.2	378	184.3	184.3		379.0	199.3
PA	METED	AECI			1	1.6	1.6		1.0	1.6
PA	METED	MetEd	31	39.7	535	281.7	281.7		536.0	284.7
PA	PECO	PE	110	78.1	1474	492.9	492.9		1479.0	504.6
PA	PENELEC	AECI			28	14.3	14.3		28.0	14.3
PA	PENELEC	PaElec	4	11.9	624	282.9	282.9		625.0	289.9
PA	PENELEC	WELLSB			1	1.5	1.5		1.0	1.5
PA	PPL	AMPO			11	2.4	2.4		11.0	2.4
PA	PPL	CTZECL			5	1.7	1.7		5.0	1.7
PA	PPL	PPL	235	157.9	1521	796.3	796.3		1526.0	870.1
PA	PPL	UGI-UI			14	7.5	7.5		14.0	7.5
TN	AEP	AEPAPT	1	30.0	10	3.1	3.1		11.0	33.1
VA	AEP	AEPAPT	1	0.1	243	233.0	233		243.0	233.0
VA	AEP	AMPO			18	14.3	14.3		18.0	14.3
VA	AEP	RADFRD			1	2.0	2		1.0	2.0
VA	AEP	SALEM			1	0.1	0.1		1.0	0.1
VA	AEP	VATECH			1	6.3	6.3		1.0	6.3
VA	APS	ODEC			42	35.2	35.2		42.0	35.2
VA	DOM	CVEC			6	4.5	4.5		6.0	4.5
VA	DOM	DOMEDC	22	36.3	1134	780.7	780.7		1134.0	780.7
VA	DOM	DOMVME			22	95.6	95.6		22.0	95.6
VA	DOM	NVEC	2	14.6	57	35.6	35.6		59.0	50.2
VA	DOM	ODEC	2	50.2	44	63.1	63.1		44.0	63.1
VA	DPL	ODEC			14	8.6	8.6		14.0	8.6
WV	AEP	AEPAPT	2	4.3	363	364.9	364.9		363.0	364.9
WV	AEP	APWVP			4	0.3	0.3		4.0	0.3
WV	APS	AETSAP	114	23.5	341	221.8	221.8		341.0	221.8
Total			1,686	2,640	17,723	11,641	11,641		18,648	12,825

Note:

- 1) Data as of 6/8/2015.
- 2) Emergency MW are in ICAP.
- 3) Economic MW are CSP reported Load Reduction values.
- 4) Residential Direct Load Control (DLC) reported as one location not a total number of end use customers in that program.
- 5) Unique MW: represents total estimated demand reduction assuming full DR compliance and economic reductions.
- 6) As of June 9, 2015, the DY15/16 Committed ICAP MW value for Demand Response Resources was 10,935 MW. This number represents the value of Final DR MWs cleared in RPM Process (for all Load Management Products) for DY15/16 net of all replacement transactions for DY15/16 as of June 9, 2015, plus Demand Response related FRR Committed ICAP MWs for DY15/16.

Figure 2: Delivery Year 15/16 MWs in PJM Load Management DR by Resource, Product, and Lead Times

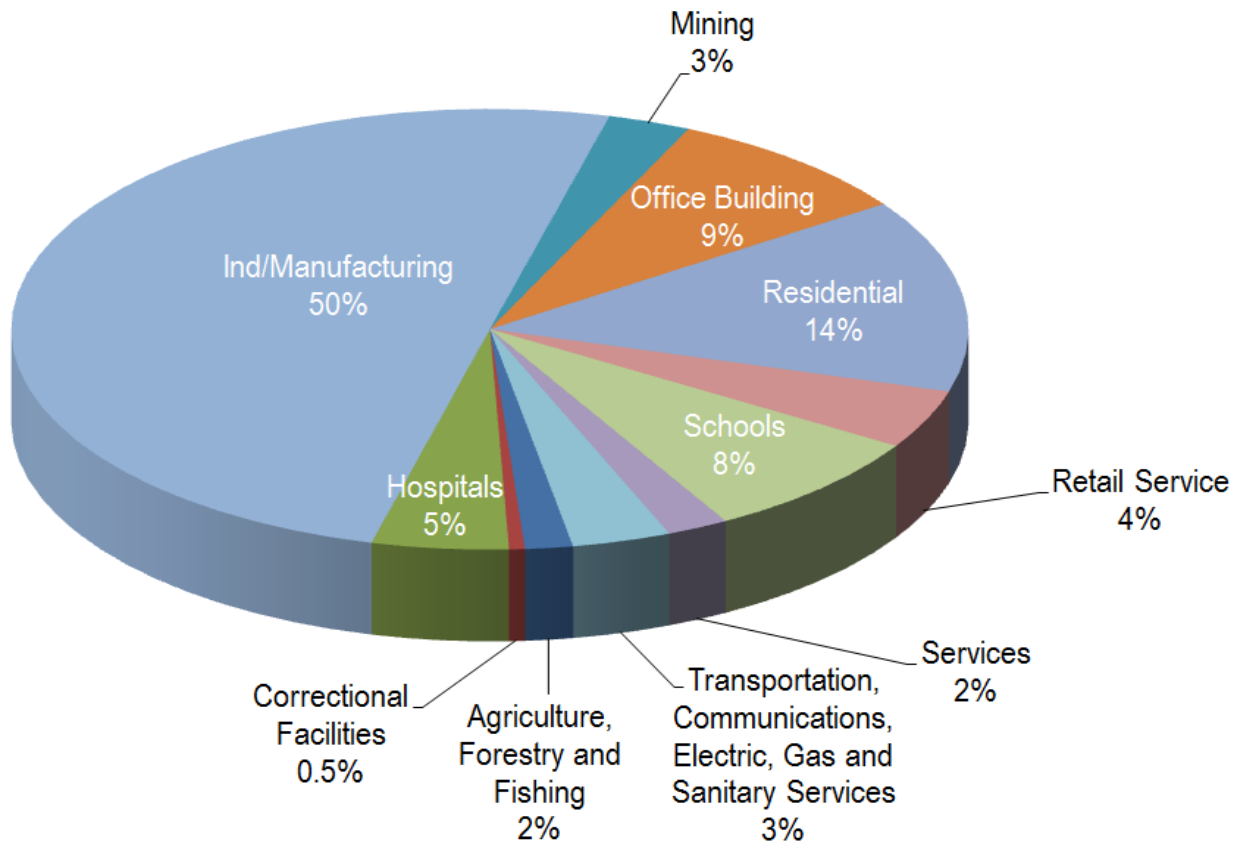
Zone		DR Product			Lead Times (Minutes)			Total DR MW
		Limited	Extended	Annual	30	60	120	
AECO								
	Pre-Emergency	59.5	77.5	0.0	122.5	6.2	8.3	137.0
	Emergency	1.0	0.0	0.0	1.0	0.0	0.0	1.0
	Total	60.4	77.5	0.0	123.5	6.2	8.3	138.0
AEP								
	Pre-Emergency	1526.6	62.4	82.4	962.1	41.1	668.2	1671.5
	Emergency	195.7	22.5	0.0	155.2	2.7	60.2	218.1
	Total	1722.3	84.9	82.4	1117.3	43.9	728.4	1889.6
APS								
	Pre-Emergency	512.1	180.4	12.7	318.6	20.4	366.2	705.2
	Emergency	88.5	6.2	0.0	71.8	0.4	22.5	94.7
	Total	600.6	186.6	12.7	390.4	20.8	388.7	799.9
ATSI								
	Pre-Emergency	509.9	309.2	45.4	405.7	53.1	405.7	864.5
	Emergency	58.2	184.9	8.8	168.0	11.5	72.3	251.8
	Total	568.1	494.1	54.2	573.7	64.6	478.0	1116.4
BGE								
	Pre-Emergency	648.0	44.8	3.8	650.2	10.2	36.1	696.5
	Emergency	81.6	20.5	2.5	60.2	2.9	41.5	104.6
	Total	729.6	65.2	6.3	710.4	13.1	77.6	801.1
COMED								
	Pre-Emergency	821.1	431.5	16.0	977.0	34.3	257.3	1268.6
	Emergency	307.8	109.4	0.0	274.9	10.0	132.3	417.2
	Total	1128.9	540.9	16.0	1251.9	44.3	389.6	1685.8
DAY								
	Pre-Emergency	139.1	13.5	16.6	114.2	0.5	54.4	169.1
	Emergency	23.2	1.1	0.0	20.1	0.0	4.2	24.3
	Total	162.3	14.5	16.6	134.3	0.5	58.6	193.4
DEOK								
	Pre-Emergency	171.4	99.0	0.0	86.4	76.0	108.1	270.5
	Emergency	53.5	1.6	0.0	30.6	7.5	17.0	55.1
	Total	224.9	100.6	0.0	116.9	83.5	125.1	325.5
DOM								
	Pre-Emergency	492.5	29.6	56.8	332.9	35.8	210.2	579.0
	Emergency	337.7	62.8	0.0	240.0	63.7	96.8	400.6
	Total	830.2	92.5	56.8	573.0	99.5	307.0	979.5
DPL								
	Pre-Emergency	200.3	105.1	0.0	188.4	1.3	115.7	305.4
	Emergency	21.7	4.2	0.0	14.5	2.9	8.5	25.9
	Total	222.0	109.3	0.0	202.9	4.2	124.2	331.3
DUQ								
	Pre-Emergency	127.0	32.5	1.1	71.3	7.2	82.2	160.6
	Emergency	21.4	2.2	0.0	11.9	0.0	11.7	23.6
	Total	148.5	34.7	1.1	83.1	7.2	93.9	184.3
EKPC								
	Pre-Emergency	133.3	0.0	0.0	25.2	0.0	108.1	133.3
	Emergency	2.5	0.0	0.0	2.5	0.0	0.0	2.5
	Total	135.8	0.0	0.0	27.7	0.0	108.1	135.8



Zone		DR Product			Lead Times (Minutes)			Total DR MW
		Limited	Extended	Annual	30	60	120	
JCPL								
	Pre-Emergency	121.6	47.2	0.0	118.4	18.3	32.1	168.7
	Emergency	11.0	2.8	0.0	13.6	0.0	0.2	13.8
	Total	132.6	50.0	0.0	132.0	18.3	32.3	182.5
METED								
	Pre-Emergency	157.4	73.9	0.0	135.6	19.7	75.9	231.3
	Emergency	40.5	11.6	0.0	30.6	10.1	11.3	52.0
	Total	197.8	85.4	0.0	166.2	29.8	87.3	283.3
PECO								
	Pre-Emergency	233.1	127.1	0.0	258.4	57.9	44.0	360.3
	Emergency	96.8	35.8	0.0	89.7	5.4	37.5	132.6
	Total	329.9	163.0	0.0	348.1	63.3	81.5	492.9
PENELEC								
	Pre-Emergency	185.5	62.1	0.0	117.9	8.1	121.6	247.6
	Emergency	50.5	2.1	0.0	23.3	0.4	28.9	52.6
	Total	236.0	64.2	0.0	141.1	8.6	150.5	300.2
PEPCO								
	Pre-Emergency	326.0	219.8	0.0	372.8	0.6	172.4	545.7
	Emergency	45.4	3.9	0.0	26.6	7.2	15.5	49.3
	Total	371.4	223.7	0.0	399.4	7.8	187.9	595.1
PPL								
	Pre-Emergency	459.4	245.2	0.2	436.4	32.0	236.4	704.7
	Emergency	92.4	10.8	0.0	63.6	6.7	32.8	103.2
	Total	551.8	256.0	0.2	500.0	38.8	269.2	807.9
PSEG								
	Pre-Emergency	233.9	109.5	8.3	303.7	9.6	38.3	351.6
	Emergency	12.5	6.3	21.6	31.1	4.0	5.2	40.4
	Total	246.4	115.8	29.8	334.8	13.7	43.5	392.0
RECO								
	Pre-Emergency	6.5	0.1	0.0	6.3	0.0	0.3	6.6
	Emergency	0.6	0.0	0.0	0.6	0.0	0.0	0.6
	Total	7.1	0.1	0.0	6.9	0.0	0.3	7.2
TOTAL								
	Pre-Emergency	7064.0	2270.3	243.3	6004.0	432.4	3141.4	9577.7
	Emergency	1542.5	488.6	32.8	1329.7	135.6	598.6	2063.9
	Total	8606.5	2758.9	276.1	7333.7	567.9	3740.0	11641.6

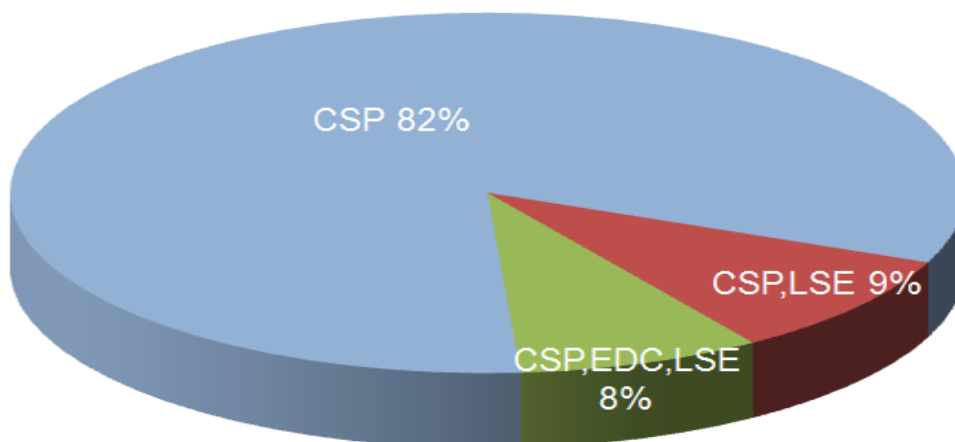
Note: MWs are Nominated Capacity (MWs)

Figure 3: DY 15/16 Confirmed Load Management DR Registrations Business Segments



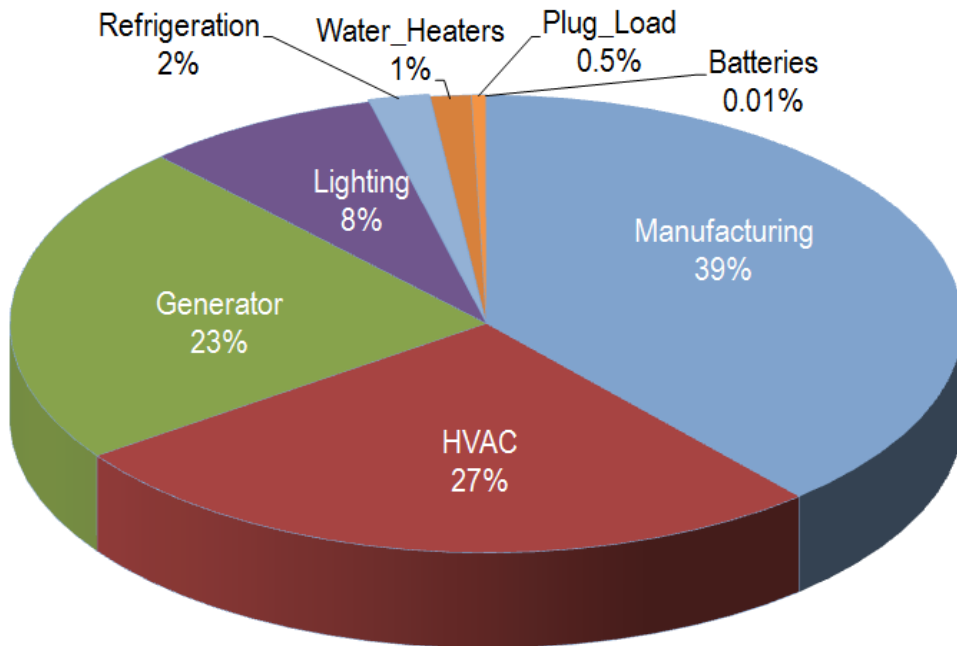
Note: Percent of Nominated Capacity (MWs)

Figure 4: DY 15/16 Confirmed Load Management DR Registrations Owner/Company Type



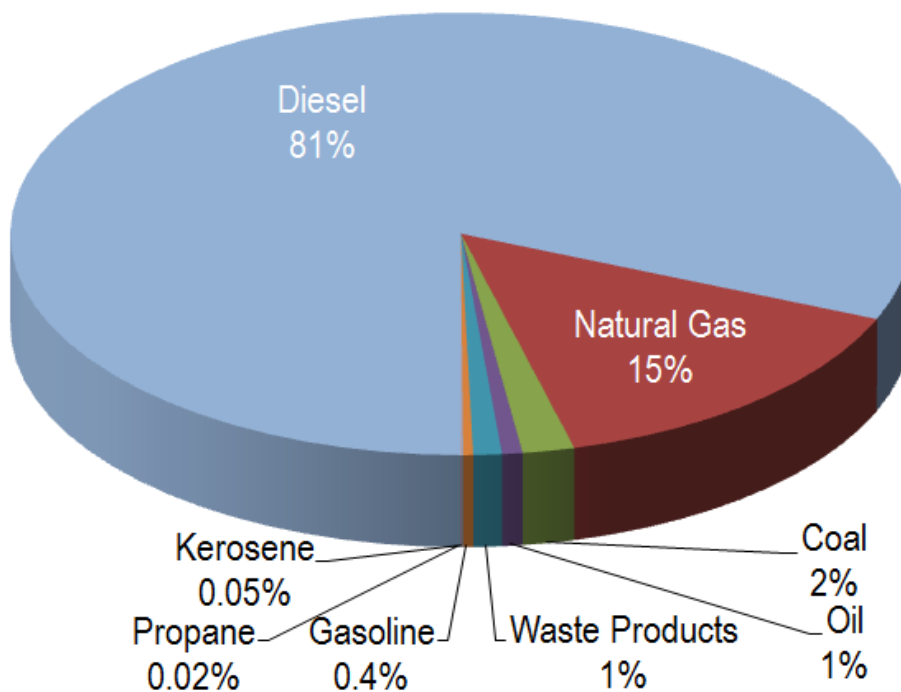
Note: Percent of Nominated Capacity (MWs)

Figure 5: DY 15/16 Confirmed Load Management DR Registrations Customer Load Reduction Methods



Note: Percent of Nominated Capacity (MWs)

Figure 6: DY 15/16 Confirmed Load Management DR Registrations Fuel Mix with Behind the Meter Generation



Note: Percent of Nominated Capacity (MWs)

Figure 7: DY 15/16 Confirmed Load Management DR Registrations Generator and Permit Type

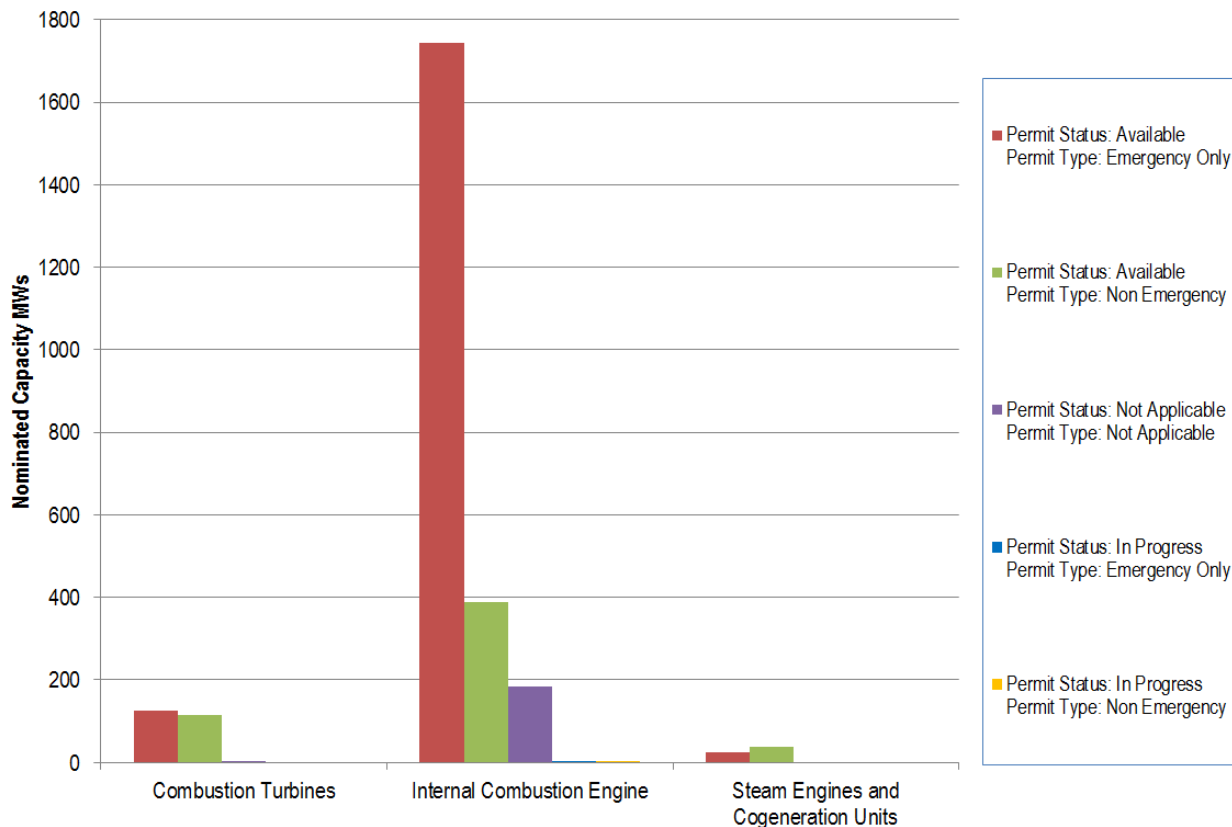


Figure 8: DY 15/16 Confirmed Load Management DR Registrations Fuel Mix with Behind the Meter Generation

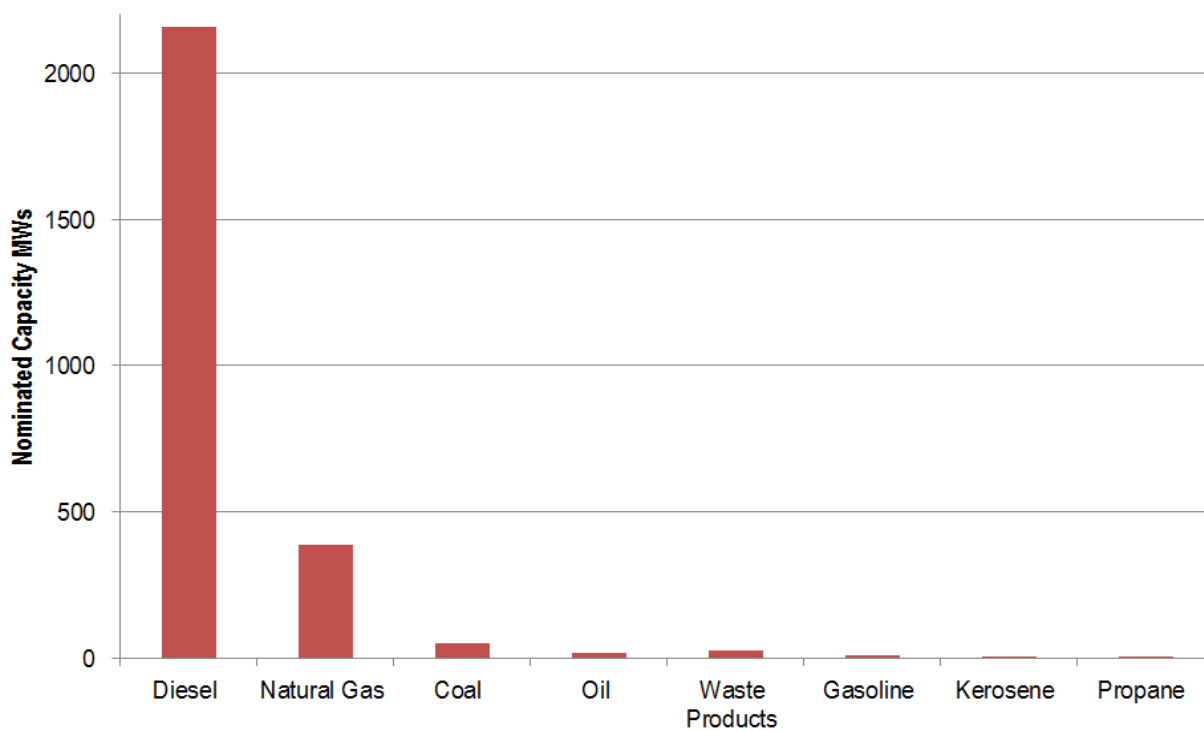
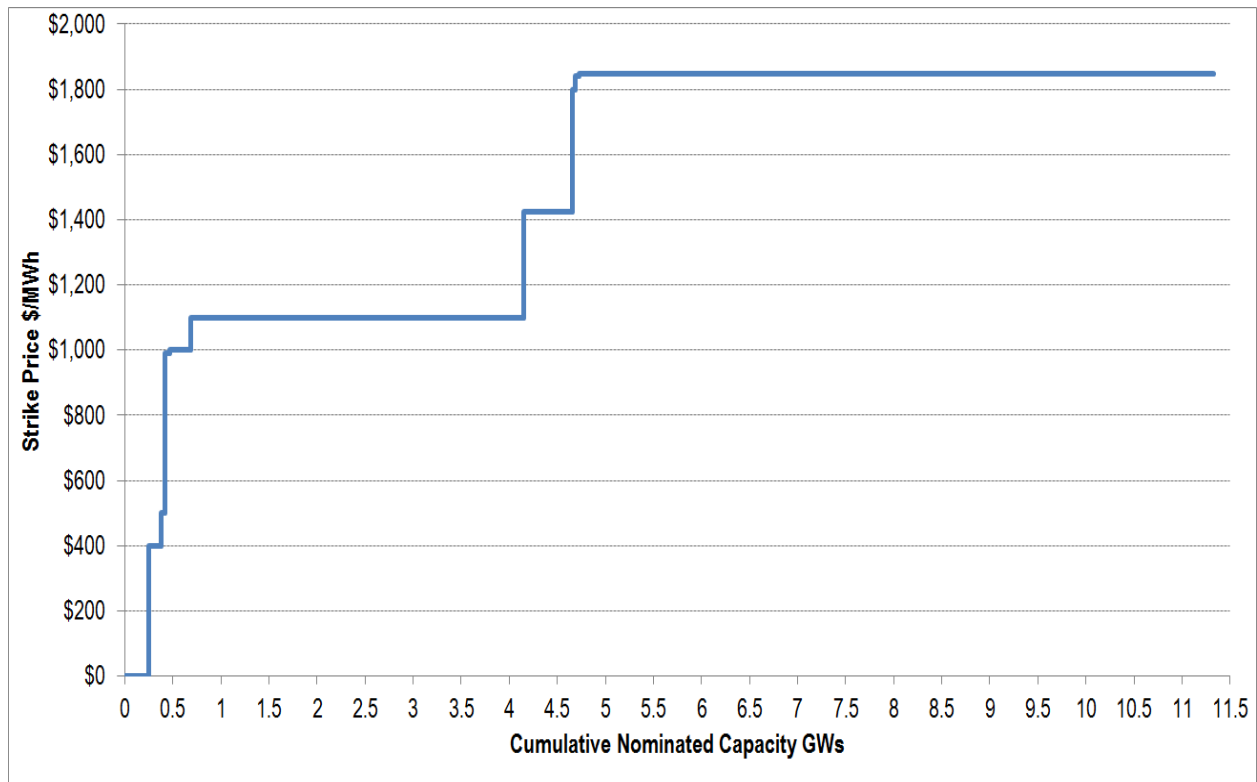


Figure 9: DY 15/16 Confirmed Load Management Full DR Registrations Energy Supply Curve:



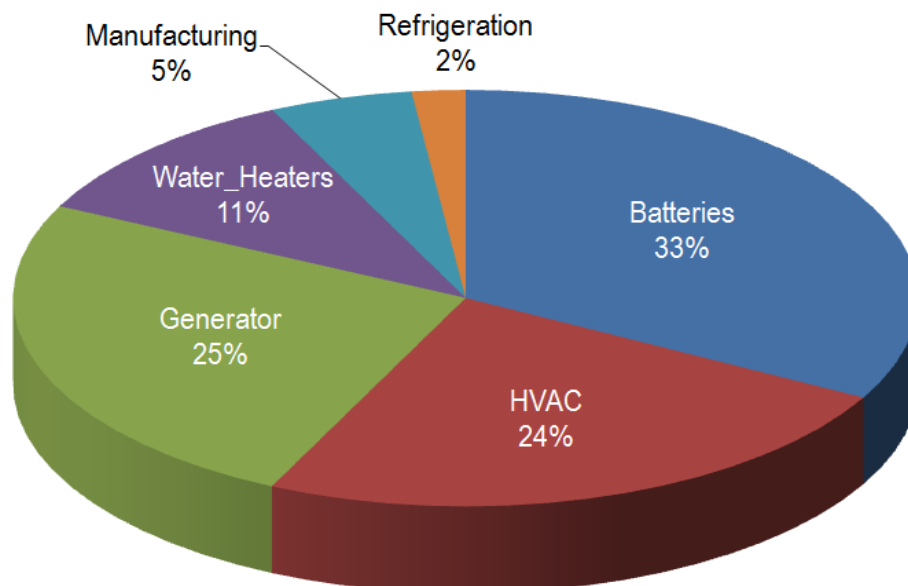
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Figure 10: PJM Economic Demand Response Capability in Ancillary Service Markets (2015):

Synch Reserves	Zone	Jan	Feb	Mar	Apr	May
Locations	MAD	138	141	142	143	142
	Non-MAD	2	2	3	3	3
	RTO	140	143	145	146	145
Average Number of Unique Participating Locations per Month:					144	
MWs	MAD	331	332	338	351	351
	Non-MAD	14	14	24	24	24
	RTO	345	345	361	375	374
Average MWs per Month:					360	
Regulation	Zone	Jan	Feb	Mar	Apr	May
Locations	RTO	274	274	274	297	298
Average Number of Unique Participating Locations per Month:					283	
MWs	RTO	12	12	12	15	16
Average MWs per Month:					13	

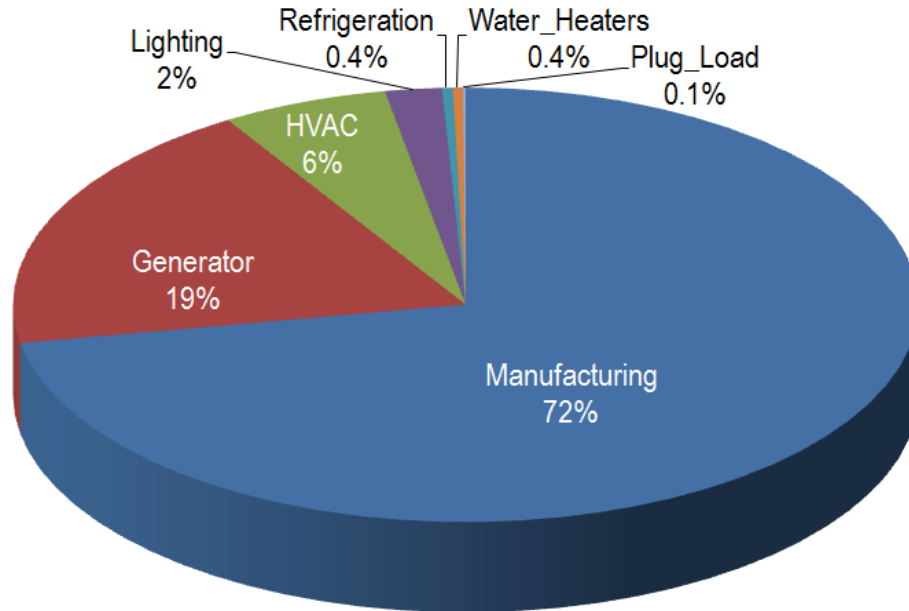
Capability represents total amount that may be offered. Actual offered and cleared volume may be significantly lower and is represented in subsequent figures/tables in report

Figure 11: PJM Demand Response Confirmed Regulation Registrations Load Reduction Methods



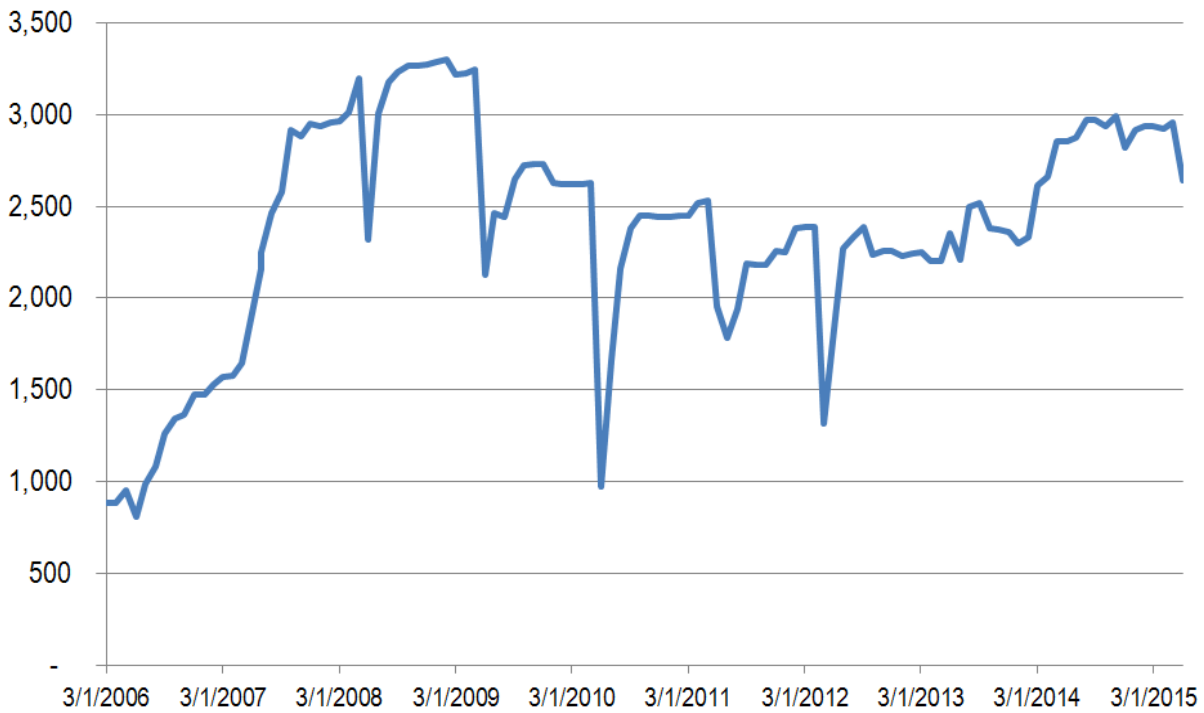
Note: Percent of CSP Reported Load Reduction MWs

Figure 12: PJM Demand Response Confirmed Synch Reserve Registrations Load Reduction Methods



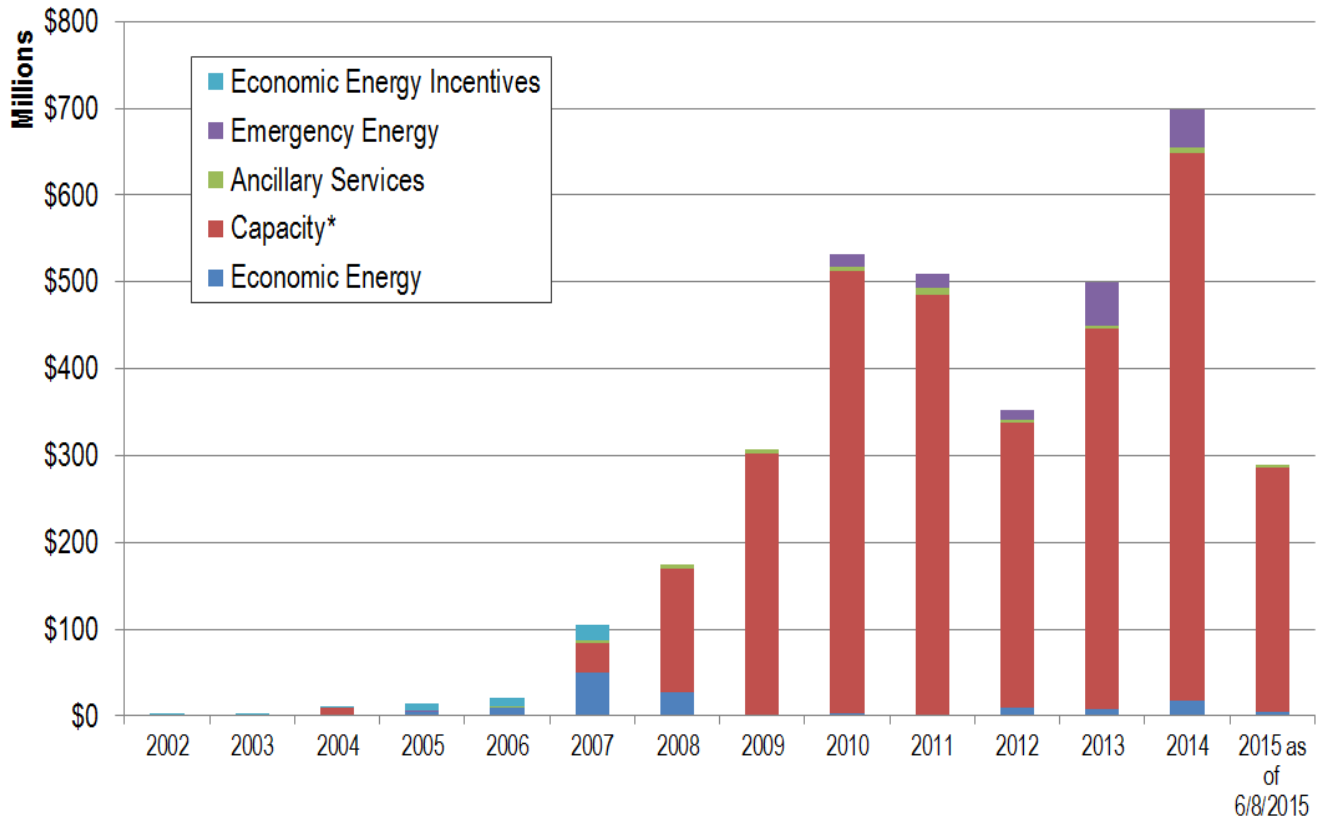
Note: Percent of CSP Reported Load Reduction MWs

Figure 13: PJM Economic Demand Response Capability in Energy Market (3/1/2006-6/8/2015)



Capability represents total amount that may be offered. Actual offered and cleared volume may be significantly lower and is represented in subsequent figures/tables in report.

Figure 14: PJM Estimated Revenue for Economic and Load Management DR Markets



*Capacity Net Revenue inclusive of Capacity Credits and Charges.

Figure 15: 2015 Economic Demand Response Monthly Registration Participation

State	Zone	Jan	Feb	Mar	Apr	May
IL	COMED	3	7	6	3	3
MD	BGE	1	5	2		
	PEPCO		1			
NJ	AECO		1			
	JCPL	1	5	1		
	PSEG	7	6	6	2	1
OH	AEP		2			1
	ATSI		2	1		
PA	APS		1			
	METED		1	2		
	PECO	3	3	3	1	
	PENELEC	2	3	1	1	
	PPL	2	2	1		
VA	DOM	6	12	3	1	
WV	APS	1	2	1		
Total		26	53	27	8	5

Average Unique Participating Registrations per Month: 24

Figure 16: 2015 Economic Demand Response Monthly Registration Participation Day-Ahead Activity

State	Zone	Jan	Feb	Mar	Apr	May
IL	COMED			1		
MD	BGE	1	1	1		
	PEPCO					
NJ	AECO					
	JCPL	1	1	1		
	PSEG	4	3	3	1	1
OH	AEP		1			1
	ATSI		1			
PA	APS		1			
	METED					
	PECO					
	PENELEC	1	1			
	PPL	2	1	1		
VA	DOM	1	3	1	1	
WV	APS		1			
Total		10	14	8	2	2

Average Unique Participating Registrations per Month (Day-Ahead): 7

Figure 17: 2015 Economic Demand Response Monthly Registration Participation Real-Time Activity

State	Zone	Jan	Feb	Mar	Apr	May
IL	COMED	3	7	5	3	3
MD	BGE		4	1		
	PEPCO		1			
NJ	AECO		1			
	JCPL		4			
	PSEG	3	3	3	1	
OH	AEP		1			
	ATSI		1	1		
PA	APS					
	METED		1	2		
	PECO	3	3	3	1	
	PENELEC	1	2	1	1	
	PPL		1			
VA	DOM	5	9	2		
WV	APS	1	1	1		
Total		16	39	19	6	3

Average Unique Participating Registrations per Month (Real-Time): 17

Figure 18: 2015 Economic Demand Response Monthly MWh Reductions

State	Zone	Jan	Feb	Mar	Apr	May
IL	COMED	221	1,578	1,257	687	45
MD	BGE	20	155	20		
	PEPCO		0			
NJ	AECO		0			
	JCPL		1,047	478		
	PSEG	1,891	1,465	1,309	833	536
OH	AEP		6			0
	ATSI		202	0		
PA	APS		189			
	METED		3	17		
	PECO	16	9	9	31	
	PENELEC	1,030	1,019	145	42	
	PPL	540	449	279		
VA	DOM	5,960	13,377	5,366	5	
WV	APS	93	150	310		
Total		9,771	19,649	9,190	1,598	581

Total MWh: 40,789

Figure 19: 2015 Economic Demand Response Monthly MWh Reductions Day-Ahead Activity

State	Zone	Jan	Feb	Mar	Apr	May
IL	COMED			54		
MD	BGE	20	31	16		
	PEPCO					
NJ	AECO					
	JCPL		1,042	478		
	PSEG	1,617	1,074	816	833	536
OH	AEP		6			0
	ATSI		116			
PA	APS		189			
	METED					
	PECO					
	PENELEC	792	459			
	PPL	540	448	279		
VA	DOM	2	1,220	2	5	
WV	APS		46			
Total		2,972	4,629	1,646	838	536

Total Day-Ahead MWh: 10,620

Figure 20: 2015 Economic Demand Response Monthly MWh Reductions Real-Time Activity

State	Zone	Jan	Feb	Mar	Apr	May
IL	COMED	221	1,578	1,204	687	45
MD	BGE		124	3		
	PEPCO		0			
NJ	AECO		0			
	JCPL		5			
	PSEG	274	391	493		
OH	AEP		0			
	ATSI		87	0		
PA	APS					
	METED		3	17		
	PECO	16	9	9	31	
	PENELEC	238	560	145	42	
	PPL		0			
VA	DOM	5,957	12,158	5,364		
WV	APS	93	104	310		
Total		6,800	15,020	7,544	760	45

Total Real-Time MWh: 30,169

Figure 21: Economic Demand Response Monthly Energy Market Revenue (2015)

State	Zone	Jan	Feb	Mar	Apr	May
IL	COMED	\$7,427	\$104,411	\$53,013	\$18,571	\$1,463
MD	BGE	\$1,234	\$60,999	\$2,390		
	PEPCO		\$18			
NJ	AECO		\$13			
	JCPL	(\$7,267)	\$268,892	\$66,534		
	PSEG	\$122,649	\$184,354	\$71,978	\$28,762	\$25,882
OH	AEP		\$945			(\$21)
	ATSI		\$20,918	\$42		
PA	APS		\$41,790			
	METED		\$508	\$2,467		
	PECO	\$1,772	\$1,082	\$875	\$912	
	PENELEC	\$45,423	\$65,691	\$5,348	\$1,233	
	PPL	\$47,561	\$94,484	\$32,384		
VA	DOM	\$470,144	\$1,945,669	\$421,571	\$365	
WV	APS	\$9,292	\$19,338	\$10,333		
Total		\$698,233	\$2,809,114	\$666,936	\$49,843	\$27,323

Total CSP Credits: \$4,251,450

Figure 22: Economic Demand Response Monthly Energy Market Revenue Day-Ahead Activity (2015)

State	Zone	Jan	Feb	Mar	Apr	May
IL	COMED			\$1,363		
MD	BGE	\$1,234	\$7,665	\$2,049		
	PEPCO					
NJ	AECO					
	JCPL	(\$7,267)	\$268,303	\$66,534		
	PSEG	\$101,862	\$152,053	\$50,027	\$28,762	\$25,882
OH	AEP		\$928			(\$21)
	ATSI		\$10,271			
PA	APS		\$41,790			
	METED					
	PECO					
	PENELEC	\$33,890	\$21,994			
	PPL	\$47,561	\$94,413	\$32,384		
VA	DOM	\$111	\$89,572	\$110	\$365	
WV	APS		\$17,055			
Total		\$177,389	\$704,043	\$152,468	\$29,127	\$25,860

Total Day-Ahead CSP Credits: \$1,088,887

Figure 23: Economic Demand Response Monthly Energy Market Revenue Real-Time Activity (2015)

State	Zone	Jan	Feb	Mar	Apr	May
IL	COMED	\$7,427	\$104,411	\$51,650	\$18,571	\$1,463
MD	BGE		\$53,334	\$341		
	PEPCO		\$18			
NJ	AECO		\$13			
	JCPL		\$589			
	PSEG	\$20,787	\$32,301	\$21,950		
OH	AEP		\$17			
	ATSI		\$10,647	\$42		
PA	APS					
	METED		\$508	\$2,467		
	PECO	\$1,772	\$1,082	\$875	\$912	
	PENELEC	\$11,533	\$43,697	\$5,348	\$1,233	
	PPL		\$72			
VA	DOM	\$470,033	\$1,856,098	\$421,460		
WV	APS	\$9,292	\$2,283	\$10,333		
Total		\$520,844	\$2,105,071	\$514,468	\$20,717	\$1,463

Total Real-Time CSP Credits: \$3,162,563

Figure 24: Economic Demand Response Energy Market Cost Allocation by Zone (2015)

Zone	Jan	Feb	Mar	Apr	May
AECO	\$8,144	\$32,233	\$7,876	\$442	\$396
AEP	\$110,175	\$460,039	\$108,016	\$8,898	\$4,515
APS	\$46,313	\$186,348	\$43,899	\$3,488	\$1,720
ATSI	\$53,788	\$218,608	\$55,746	\$4,974	\$2,320
BGE	\$31,720	\$124,739	\$28,349	\$2,207	\$1,133
COMED	\$58,545	\$275,905	\$69,108	\$5,524	\$2,696
DAY	\$14,864	\$56,946	\$14,118	\$1,197	\$614
DEOK	\$20,275	\$89,027	\$21,302	\$1,762	\$997
DOM	\$93,812	\$388,679	\$84,497	\$6,510	\$3,383
DPL	\$18,319	\$75,492	\$16,544	\$791	\$598
DUQ	\$9,970	\$35,023	\$10,997	\$998	\$551
EKPC	\$11,403	\$54,120	\$11,510	\$690	\$401
JCPL	\$18,592	\$72,039	\$17,745	\$1,058	\$801
METED	\$13,736	\$53,971	\$13,018	\$695	\$528
PECO	\$34,695	\$137,349	\$32,531	\$1,739	\$1,355
PENELEC	\$15,541	\$60,547	\$15,370	\$1,210	\$603
PEPCO	\$29,008	\$114,217	\$26,031	\$2,156	\$1,138
PPL	\$38,227	\$153,234	\$36,680	\$1,817	\$1,366
PSEG	\$36,731	\$133,282	\$33,502	\$2,170	\$1,472
RECO	\$1,231	\$4,301	\$1,108	\$77	\$65
Exports	\$33,144	\$83,014	\$18,989	\$1,440	\$672
TOTAL	\$698,233	\$2,809,114	\$666,936	\$49,843	\$27,323

Total Zonal Charges: \$4,251,450

Figure 25: Economic Demand Response Day-Ahead Energy Market Cost Allocation by Zone (2015)

Zone	Jan	Feb	Mar	Apr	May
AECO	\$2,473	\$7,304	\$1,583	\$240	\$301
AEP	\$30,054	\$106,712	\$21,120	\$4,971	\$3,372
APS	\$13,466	\$42,933	\$8,629	\$1,993	\$1,286
ATSI	\$15,274	\$52,178	\$10,851	\$2,816	\$1,731
BGE	\$9,518	\$28,084	\$5,625	\$1,276	\$854
COMED	\$15,659	\$65,793	\$14,421	\$2,547	\$1,991
DAY	\$4,193	\$13,307	\$2,724	\$668	\$458
DEOK	\$5,455	\$20,566	\$4,185	\$967	\$744
DOM	\$26,498	\$86,221	\$17,072	\$3,770	\$2,560
DPL	\$5,419	\$16,923	\$3,335	\$423	\$456
DUQ	\$2,802	\$8,746	\$2,099	\$565	\$410
EKPC	\$3,086	\$12,256	\$2,407	\$377	\$300
JCPL	\$5,529	\$16,342	\$3,501	\$584	\$609
METED	\$4,077	\$12,108	\$2,524	\$373	\$400
PECO	\$10,475	\$30,963	\$6,511	\$930	\$1,024
PENELEC	\$4,747	\$14,461	\$2,974	\$699	\$451
PEPCO	\$8,605	\$26,026	\$5,197	\$1,248	\$858
PPL	\$11,237	\$34,163	\$7,180	\$966	\$1,033
PSEG	\$12,133	\$31,951	\$6,618	\$1,224	\$1,114
RECO	\$409	\$1,049	\$218	\$44	\$49
Exports	\$10,930	\$19,481	\$3,631	\$854	\$500
TOTAL	\$202,040	\$647,566	\$132,406	\$27,534	\$20,502

Total Day-Ahead Zonal Charges: \$1,030,048

Figure 26: Economic Demand Response Real-Time Energy Market Cost Allocation by Zone (2015)

Zone	Jan	Feb	Mar	Apr	May
AECO	\$5,671	\$24,929	\$6,294	\$203	\$95
AEP	\$80,121	\$353,327	\$86,895	\$3,927	\$1,143
APS	\$32,847	\$143,415	\$35,270	\$1,495	\$434
ATSI	\$38,514	\$166,430	\$44,895	\$2,158	\$589
BGE	\$22,202	\$96,656	\$22,724	\$931	\$279
COMED	\$42,887	\$210,112	\$54,687	\$2,977	\$704
DAY	\$10,671	\$43,639	\$11,395	\$529	\$156
DEOK	\$14,821	\$68,461	\$17,117	\$796	\$253
DOM	\$67,314	\$302,458	\$67,425	\$2,741	\$823
DPL	\$12,900	\$58,569	\$13,209	\$368	\$142
DUQ	\$7,168	\$26,277	\$8,898	\$432	\$140
EKPC	\$8,316	\$41,864	\$9,103	\$312	\$101
JCPL	\$13,062	\$55,698	\$14,244	\$475	\$192
METED	\$9,659	\$41,863	\$10,493	\$322	\$128
PECO	\$24,220	\$106,387	\$26,020	\$809	\$330
PENELEC	\$10,794	\$46,086	\$12,396	\$511	\$152
PEPCO	\$20,403	\$88,191	\$20,834	\$908	\$280
PPL	\$26,989	\$119,072	\$29,500	\$852	\$333
PSEG	\$24,598	\$101,331	\$26,883	\$946	\$358
RECO	\$822	\$3,253	\$890	\$33	\$16
Exports	\$22,215	\$63,534	\$15,358	\$586	\$172
TOTAL	\$496,193	\$2,161,548	\$534,529	\$22,309	\$6,822

Total Real-Time Zonal Charges: \$3,221,402

Figure 27: Load Management Demand Response Monthly Capacity Revenue from RPM (2015)

Zone	Jan	Feb	Mar	Apr	May
AECO	\$832,282	\$751,739	\$832,282	\$805,435	\$832,282
AEP	\$6,399,998	\$5,780,644	\$6,399,998	\$6,193,547	\$6,399,998
APS	\$3,492,803	\$3,154,790	\$3,492,803	\$3,380,132	\$3,492,803
ATSI	\$3,841,060	\$3,469,344	\$3,841,060	\$3,717,155	\$3,841,060
BGE	\$5,311,878	\$4,797,825	\$5,311,878	\$5,140,527	\$5,311,878
COMED	\$6,041,237	\$5,456,601	\$6,041,237	\$5,846,358	\$6,041,237
DAY	\$902,087	\$814,788	\$902,087	\$872,987	\$902,087
DEOK	\$341,676	\$308,610	\$341,676	\$330,654	\$341,676
DOM	\$5,338,145	\$4,821,550	\$5,338,145	\$5,165,946	\$5,338,145
DPL	\$1,593,999	\$1,439,741	\$1,593,999	\$1,542,580	\$1,593,999
DUQ	\$868,800	\$784,722	\$868,800	\$840,774	\$868,800
EKPC	\$10,230	\$9,240	\$10,230	\$9,900	\$10,230
JCPL	\$1,766,944	\$1,595,949	\$1,766,944	\$1,709,946	\$1,766,944
METED	\$1,610,323	\$1,454,485	\$1,610,323	\$1,558,377	\$1,610,323
PECO	\$3,358,207	\$3,033,220	\$3,358,207	\$3,249,878	\$3,358,207
PENELEC	\$1,730,838	\$1,563,337	\$1,730,838	\$1,675,004	\$1,730,838
PEPCO	\$3,583,429	\$3,236,645	\$3,583,429	\$3,467,834	\$3,583,429
PPL	\$5,389,586	\$4,868,013	\$5,389,586	\$5,215,729	\$5,389,586
PSEG	\$5,642,193	\$5,096,174	\$5,642,193	\$5,460,187	\$5,642,193
RECO	\$122,927	\$111,031	\$122,927	\$118,962	\$122,927
Total	\$58,178,643	\$52,548,452	\$58,178,643	\$56,301,913	\$58,178,643

Total Capacity Credits: \$283,386,293

Figure 28: Economic Demand Response Dispatched vs Settled Real-Time Energy Market Summary (2015)

Time		CSPs		Zone		Registrations			MWh			Registration Hours		
Year	Month	Dispatched	Settled	Dispatched	Settled	Dispatched	Settled	%	Dispatched	Settled	%	Dispatched	Settled	%
2015	1	4	4	6	6	16	16	100%	7,109	6,800	96%	696	696	100%
2015	2	8	8	14	14	39	39	100%	12,940	15,020	116%	1,581	1,581	100%
2015	3	6	6	9	9	19	19	100%	6,069	7,544	124%	892	794	89%
2015	4	4	2	7	4	12	6	50%	3,087	760	25%	587	337	57%
2015	5	4	1	6	1	13	3	23%	2,733	45	2%	732	42	6%
2015	6	2		4		5			231			99		
2015	7													
2015	8													
2015	9													
2015	10													
2015	11													
2015	12													
YTD Totals						104	83	80%	32,169	30,169	94%	4,587	3,450	75%
YTD Average		5	4	8	7									

Figure 29: Economic Demand Response Cleared vs Settled Day-Ahead Energy Market Summary (2015)

Time		CSPs		Zone		Registrations			MWh			Registration Hours		
Year	Month	Cleared	Settled	Cleared	Settled	Cleared	Settled	%	Cleared	Settled	%	Cleared	Settled	%
2015	1	6	6	6	6	10	10	100%	2,982	2,972	100%	923	923	100%
2015	2	8	8	9	9	14	14	100%	4,329	4,629	107%	712	712	100%
2015	3	6	6	7	6	9	8	89%	1,576	1,646	104%	397	354	89%
2015	4	2	1	3	2	5	2	40%	1,747	838	48%	572	246	43%
2015	5	3	1	4	2	9	2	22%	4,122	536	13%	545	121	22%
2015	6													
2015	7													
2015	8													
2015	9													
2015	10													
2015	11													
2015	12													
YTD Totals						47	36	77%	14,757	10,620	72%	3,149	2,356	75%
YTD Average		5	4	6	5									

Note: For Figures 28 and 29 above, Settlement information is submitted up to 60 days after the event. Therefore, YTD performance reflected in these reports for the current 2 months is artificially low due to incomplete information at the time of report preparation.

Figure 30: Economic Demand Response Regulation Market Participation (2015)

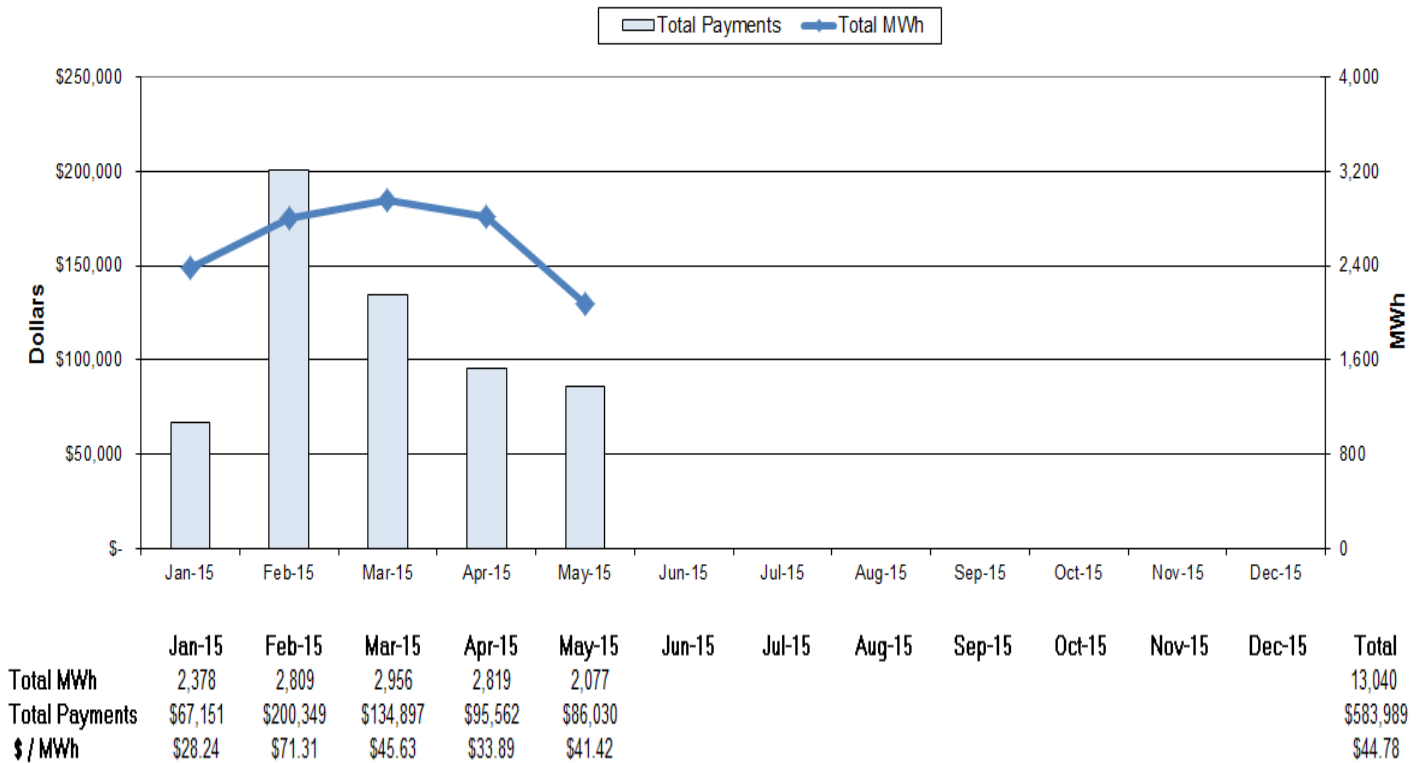
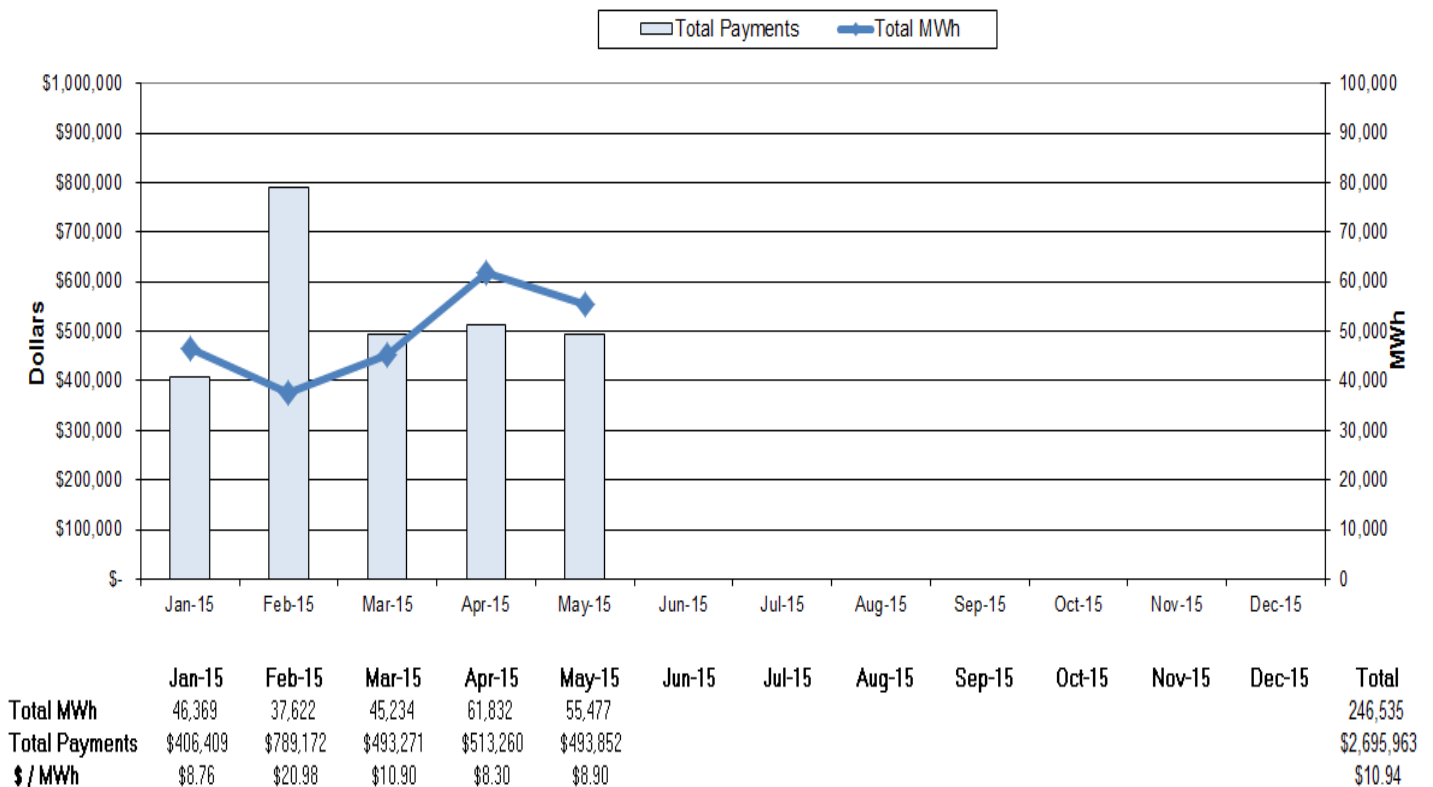
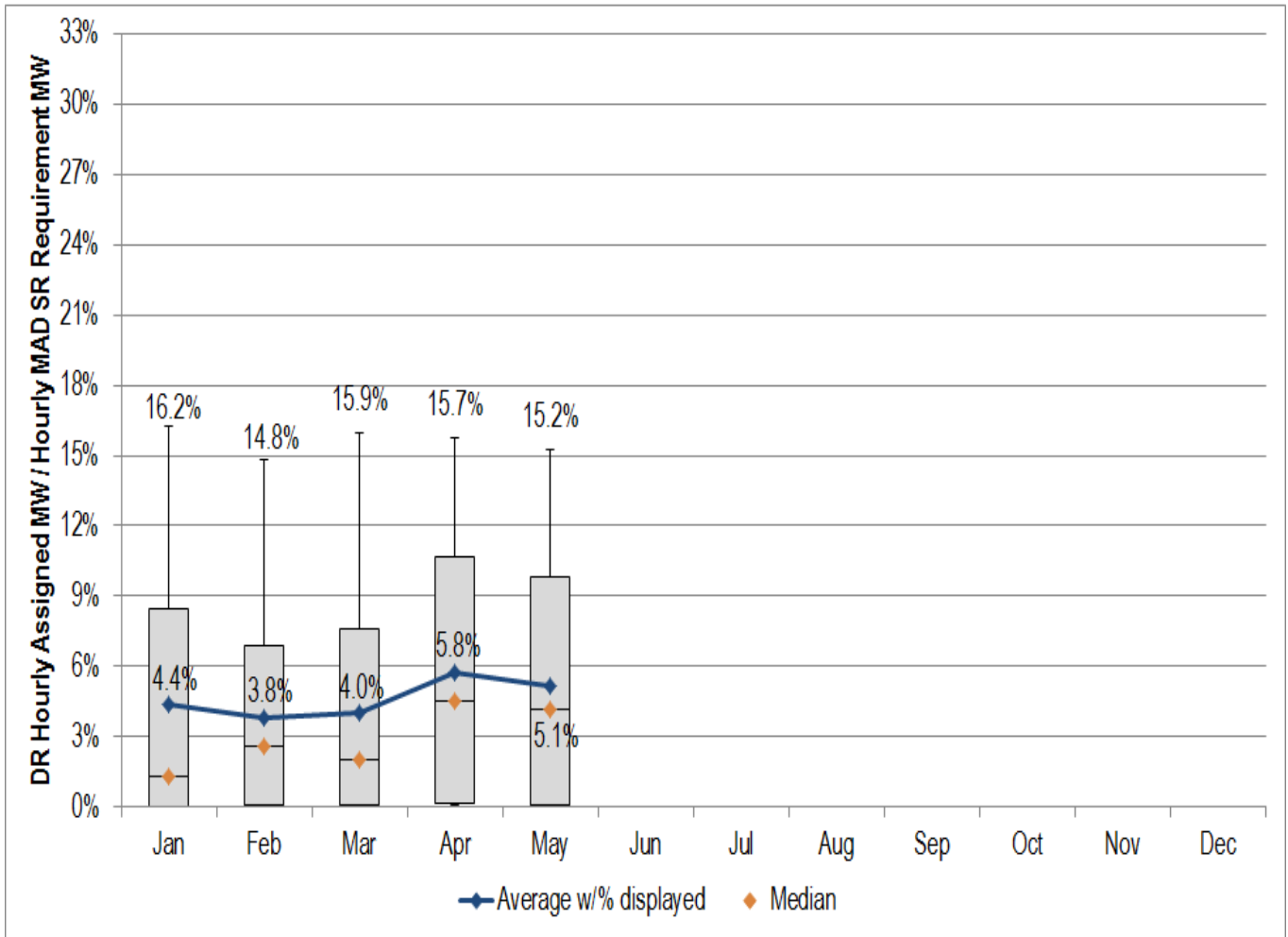


Figure 31: Economic Demand Response Synchronous Reserve Market Participation (2015)



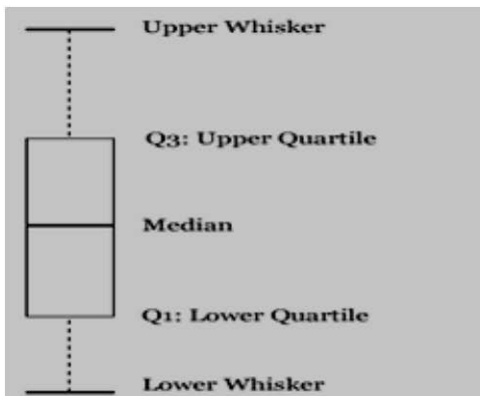
Note: For Figures 30 and 31 above, MWh=sum of the settled MW. Example: 1 MW load available for 12 hours = 12 MWh.

Figure 32: Economic DR Synchronous Reserve Penetration Distribution (Box-plot) for MAD Zone (2015)



Notes:

- 1) Economic Demand Response are Tier2 resources.
- 2) Percents shown on upper whisker are maximum hourly DR percentage of Total MAD SR Requirement.
- 3) The Box-plot depicts the distribution of DR hourly assigned (as a percentage of the MAD requirement) for a month:



The upper whisker is the maximum value

The box top is the Upper Quartile (75%) value

The line inside the box is the median (50%) value

The box bottom is the Lower Quartile (25%) value

The lower whisker is the minimum value