

# 2016 Demand Response Operations Markets Activity Report: May 2016

James McAnany

PJM Demand Side Response Operations

May 9, 2016



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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		Unique	
			Locations	MW	Locations	MW	Locations	MW
DC	PEPCO	PEPCO	16	20.7	265	112.6	270	113.7
DE	DPL	DEMEC	12	5.7	26	14.4	26	14.4
DE	DPL	DOVDE			8	3.3	8	3.3
DE	DPL	DPL	8	142.3	263	210.5	263	210.5
DE	DPL	ODEC			8	1.1	8	1.1
IL	COMED	BATAV			1	1.0	1	1.0
IL	COMED	COMED	1,621	446.3	2,426	1,635.1	4,002	1,937.4
IL	COMED	IMEAA1			2	49.6	2	49.6
IN	AEP	AEPIMP			127	345.1	127	345.1
IN	AEP	HEREC	1	39.0	1	26.7	1	26.7
IN	AEP	WVPA			68	2.0	68	2.0
IN	AEP	WVSDI			1	55.6	1	55.6
KY	DEOK	DEK			68	35.0	68	35.0
KY	EKPC	EKPC			11	135.8	11	135.8
MD	APS	AETSAP	55	21.4	192	113.6	192	113.6
MD	APS	AETSHG			5	0.8	5	0.8
MD	APS	AETSTH			3	0.3	3	0.3
MD	APS	AETSWP			1	0.1	1	0.1
MD	BGE	BC	73	1,239.7	880	801.1	892	1,503.1
MD	DPL	DPL	1	26.5	206	76.5	206	76.5
MD	DPL	EASTON			8	2.2	8	2.2
MD	DPL	ODEC	1	1.5	19	8.9	19	8.9
MD	PEPCO	PEPCO	8	279.6	405	427.7	406	427.8
MD	PEPCO	SMECO	7	2.0	109	54.7	109	54.7
NJ	AECO	AE	12	56.3	277	132.2	277	132.2
NJ	AECO	VMEU			25	5.8	25	5.8
NJ	JCPL	AECI			1	0.2	1	0.2
NJ	JCPL	BSHNJ	1	3.0	1	2.2	1	2.2
NJ	JCPL	JCBGS	15	58.8	494	180.1	496	225.7
NJ	PSEG	PSEG	22	54.3	1,146	392.0	1,150	413.1
NJ	RECO	RECO			21	7.2	21	7.2
NY	PENELEC	PaElec			2	1.5	2	1.5
OH	AEP	AEPOPT	16	155.2	975	705.8	976	707.0
OH	AEP	AMPO			47	110.1	47	110.1
OH	AEP	BUCK			2	20.2	2	20.2
OH	ATSI	AMPO			35	165.6	35	165.6
OH	ATSI	BUCK			2	5.5	2	5.5
OH	ATSI	CPP	1	0.9	18	42.4	18	42.4
OH	ATSI	OEEDC	52	106.8	1,186	825.6	1,187	826.0
OH	DAY	AMPO	1	7.0	16	37.1	16	37.1
OH	DAY	BUCK			2	4.1	2	4.1
OH	DAY	DAYEDC	6	6.8	231	152.2	231	152.2
OH	DEOK	AMPO			5	7.7	5	7.7
OH	DEOK	BUCK			2	2.0	2	2.0

State	Zone	EDC	Economic Program		Load Management DR		Unique	
			Locations	MW	Locations	MW	Locations	MW
OH	DEOK	DEOHIO	21	131.7	456	280.7	456	280.7
PA	APS	AECI			4	0.3	4	0.3
PA	APS	AETSAP	11	132.0	673	425.1	674	429.6
PA	APS	CHBDTE			5	2.7	5	2.7
PA	ATSI	PAPWR	2	0.6	99	77.2	99	77.2
PA	DUQ	DLCO	5	17.4	378	184.3	380	199.6
PA	METED	AECI			1	1.6	1	1.6
PA	METED	MetEd	35	51.8	535	281.7	536	284.7
PA	PECO	PE	129	93.2	1,474	492.9	1,481	504.7
PA	PENELEC	AECI			28	14.3	28	14.3
PA	PENELEC	PaElec	4	11.9	624	282.9	625	289.9
PA	PENELEC	WELLSB			1	1.5	1	1.5
PA	PPL	AMPO			11	2.4	11	2.4
PA	PPL	CTZECL			5	1.7	5	1.7
PA	PPL	PPL	257	181.5	1,520	796.1	1,534	866.7
PA	PPL	UGI-UI			14	7.5	14	7.5
TN	AEP	AEPAPT	1	30.0	10	3.1	11	33.1
VA	AEP	AEPAPT	1	0.1	243	233.0	243	233.0
VA	AEP	AMPO			18	14.3	18	14.3
VA	AEP	RADFRD			1	2.0	1	2.0
VA	AEP	SALEM			1	0.1	1	0.1
VA	AEP	VATECH			1	6.3	1	6.3
VA	APS	ODEC	3	0.9	42	35.2	42	35.2
VA	DOM	CVEC			6	4.5	6	4.5
VA	DOM	DOMEDC	32	43.9	1,134	780.7	1,134	780.7
VA	DOM	DOMVME			22	95.6	22	95.6
VA	DOM	NVEC	2	14.6	57	35.8	59	50.4
VA	DOM	ODEC	2	51.1	44	63.1	44	63.1
VA	DPL	ODEC			14	8.6	14	8.6
WV	AEP	AEPAPT	27	5.5	363	364.9	363	364.9
WV	AEP	APWVP			4	0.3	4	0.3
WV	APS	AETSAP	148	55.0	341	221.8	341	221.8
<b>Total</b>			<b>2,609</b>	<b>3,495</b>	<b>17,720</b>	<b>11,635</b>	<b>19,351</b>	<b>12,866</b>

## Note:

- 1) Data as of 5/5/2016.
- 2) Load Management MW are in ICAP.
- 3) Economic MW are CSP reported Load Reduction values.
- 4) Residential 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 May 5, 2016, DY15/16 RPM Committed value is 10,926 MW.
- 7) No Emergency Energy Only registrations to report.

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

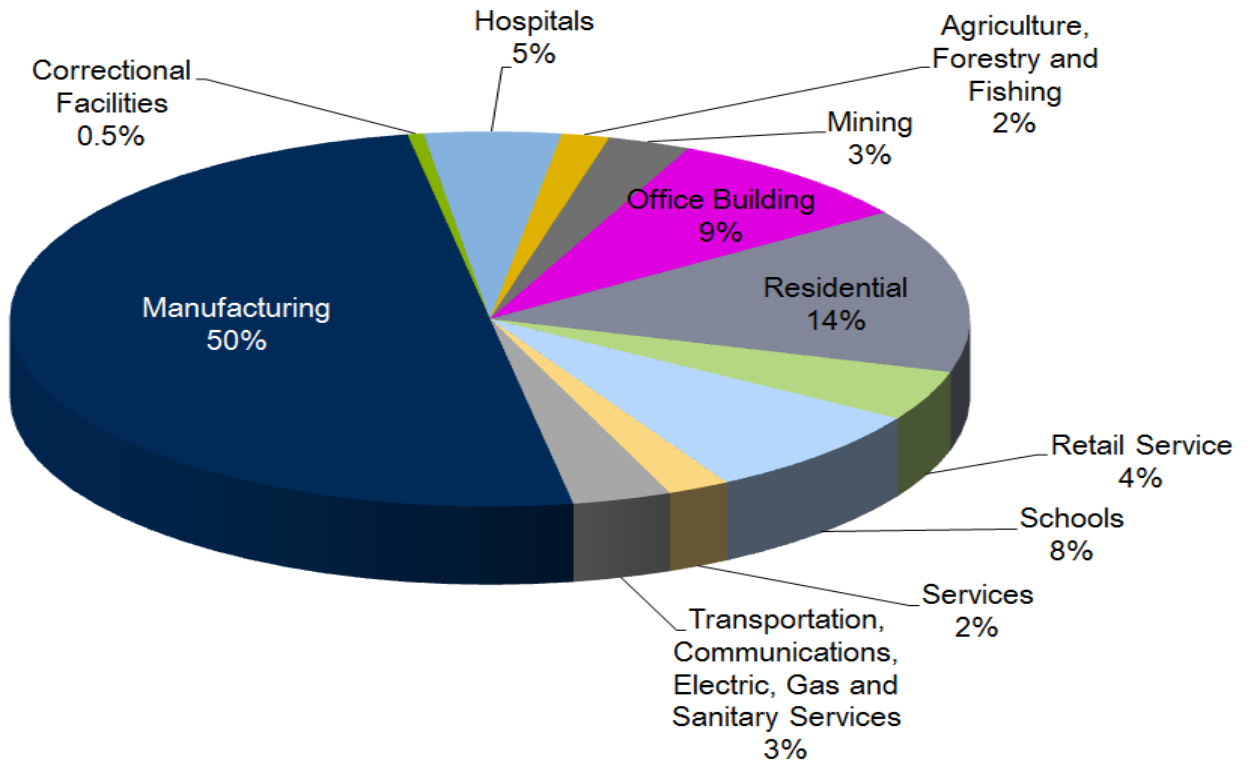
Zone		Product			Lead Times (minutes)			Total MW	Committed MWs
		Limited	Extended	Annual	30	60	120		
<b>AECO</b>									
	Pre-Emergency	59.5	77.5	0.0	122.5	6.2	8.3	137.0	
	Emergency	1.0	0.0	0.0	1.0	0.0	0.0	1.0	
	Total	60.4	77.5	0.0	123.5	6.2	8.3	138.0	130.5
<b>AEP</b>									
	Pre-Emergency	1,522.5	62.4	82.4	960.0	37.0	670.4	1,667.4	
	Emergency	199.8	22.5	0.0	148.6	13.5	60.2	222.3	
	Total	1,722.3	84.9	82.4	1,108.5	50.5	730.6	1,889.6	1,733.3
<b>APS</b>									
	Pre-Emergency	512.1	180.4	12.7	311.9	20.4	372.9	705.2	
	Emergency	88.5	6.2	0.0	71.8	0.4	22.5	94.7	
	Total	600.6	186.6	12.7	383.7	20.8	395.4	799.9	746.1
<b>ATSI</b>									
	Pre-Emergency	509.9	311.5	45.4	400.6	53.1	413.2	866.9	
	Emergency	58.2	182.5	8.8	168.3	8.8	72.3	249.5	
	Total	568.1	494.1	54.2	568.9	62.0	485.5	1,116.4	1,046.2
<b>BGE</b>									
	Pre-Emergency	648.0	44.8	3.8	650.3	10.2	36.0	696.5	
	Emergency	81.6	20.5	2.5	60.4	2.9	41.4	104.6	
	Total	729.6	65.2	6.3	710.6	13.1	77.4	801.1	759.8
<b>COMED</b>									
	Pre-Emergency	821.1	426.7	16.0	972.1	31.8	259.8	1,263.7	
	Emergency	307.8	114.2	0.0	274.9	14.8	132.3	422.0	
	Total	1,128.9	540.9	16.0	1,247.1	46.7	392.0	1,685.8	1,605.3
<b>DAY</b>									
	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	174.8
<b>DEOK</b>									
	Pre-Emergency	170.2	99.0	0.0	86.4	74.8	108.1	269.3	
	Emergency	54.7	1.6	0.0	30.6	8.7	17.0	56.2	
	Total	224.9	100.6	0.0	116.9	83.5	125.1	325.5	305.9
<b>DOM</b>									
	Pre-Emergency	492.5	29.6	56.8	332.9	35.8	210.2	579.0	
	Emergency	337.7	63.0	0.0	240.3	63.7	96.8	400.8	
	Total	830.2	92.7	56.8	573.2	99.5	307.0	979.7	886.8
<b>DPL</b>									
	Pre-Emergency	192.6	105.1	0.0	182.9	1.3	113.5	297.8	
	Emergency	23.6	4.2	0.0	14.5	2.9	10.4	27.8	
	Total	216.2	109.3	0.0	197.4	4.2	123.9	325.6	295.0
<b>DUQ</b>									
	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	170.6
<b>EKPC</b>									
	Pre-Emergency	133.3	0.0	0.0	19.1	6.1	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	21.6	6.1	108.1	135.8	132.4



Zone		Limited	Product Extended	Annual	Lead Times (minutes)			Total MW	Committed MWs
					30	60	120		
<b>JCPL</b>									
	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	173.1
<b>METED</b>									
	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	272.4
<b>PECO</b>									
	Pre-Emergency	233.1	127.1	0.0	259.5	58.5	42.3	360.3	
	Emergency	96.8	35.8	0.0	87.5	7.7	37.5	132.6	
	Total	329.9	163.0	0.0	346.9	66.1	79.8	492.9	479.3
<b>PENELEC</b>									
	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	286.7
<b>PEPCO</b>									
	Pre-Emergency	326.0	219.8	0.0	370.0	0.6	175.2	545.7	
	Emergency	45.4	3.9	0.0	26.6	7.2	15.5	49.3	
	Total	371.4	223.7	0.0	396.6	7.8	190.7	595.1	535.7
<b>PPL</b>									
	Pre-Emergency	459.2	245.2	0.2	436.3	32.0	236.2	704.5	
	Emergency	92.4	10.8	0.0	63.6	6.7	32.8	103.2	
	Total	551.5	256.0	0.2	499.9	38.8	269.1	807.7	774.3
<b>PSEG</b>									
	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	410.6
<b>RECO</b>									
	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	7.0
<b>TOTAL</b>									
	Pre-Emergency	7,050.9	2,267.8	243.3	5,971.8	431.3	3,158.9	9,562.0	
	Emergency	1,549.7	491.3	32.8	1,321.5	151.9	600.4	2,073.8	
	Total	8,600.5	2,759.2	276.1	7,293.3	583.2	3,759.3	11,635.8	10,925.8

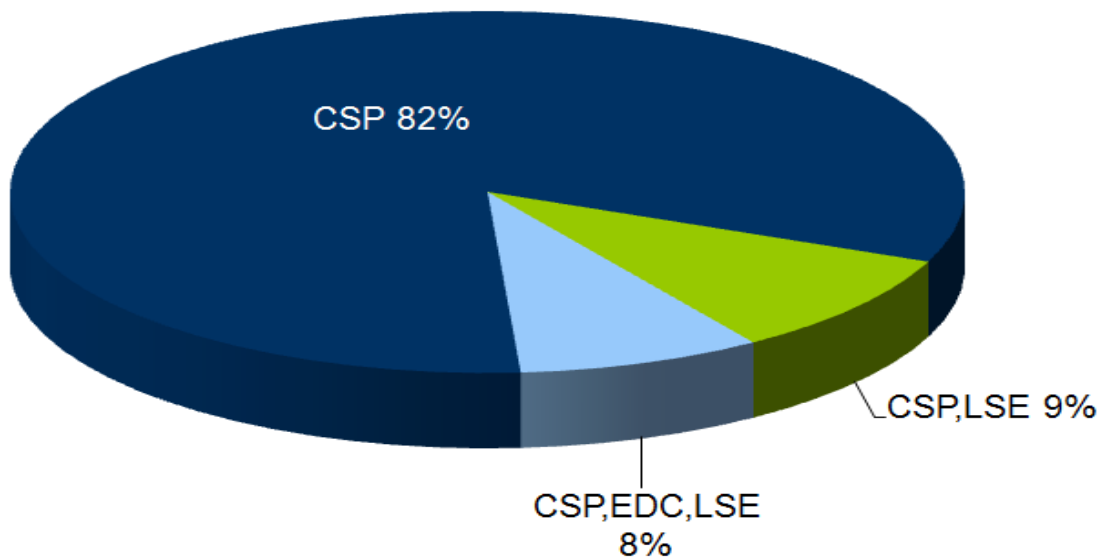
Note: MWs are Nominated Capacity (MWs)

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



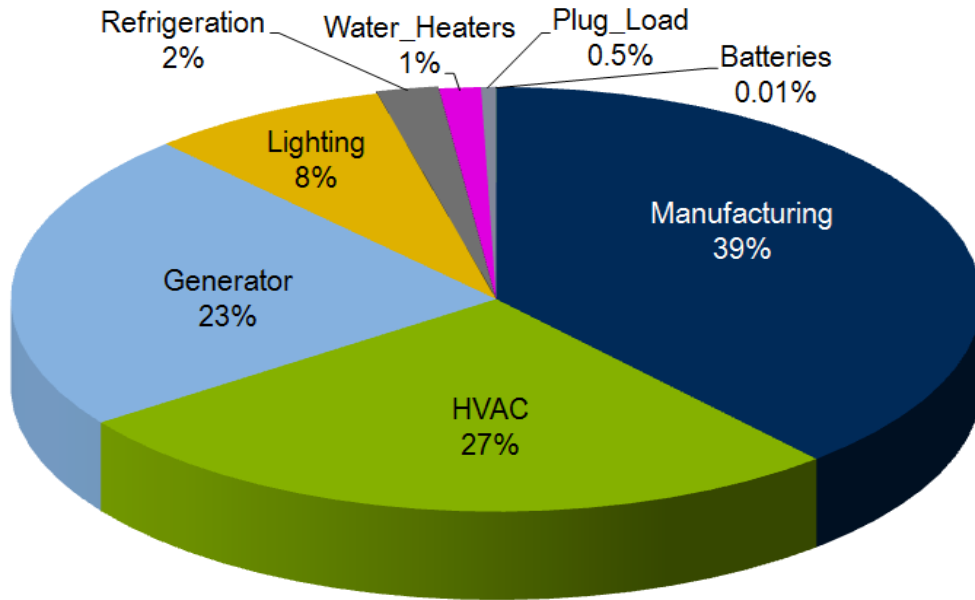
Note: Percent of Nominated Capacity (MWs)

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



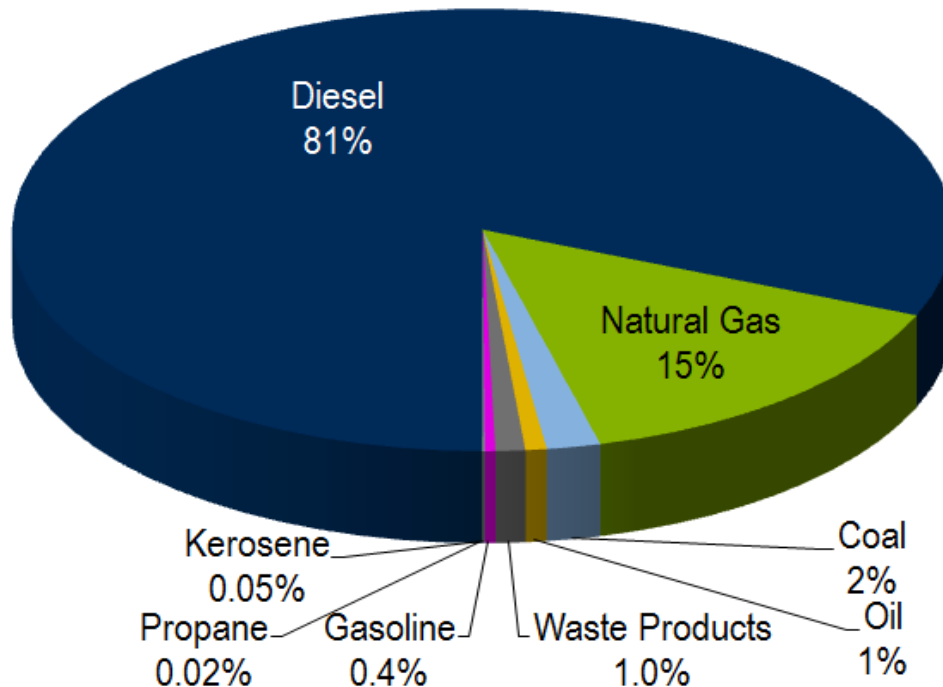
Note: Percent of Nominated Capacity (MWs)

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



Note: Percent of Nominated Capacity (MWs)

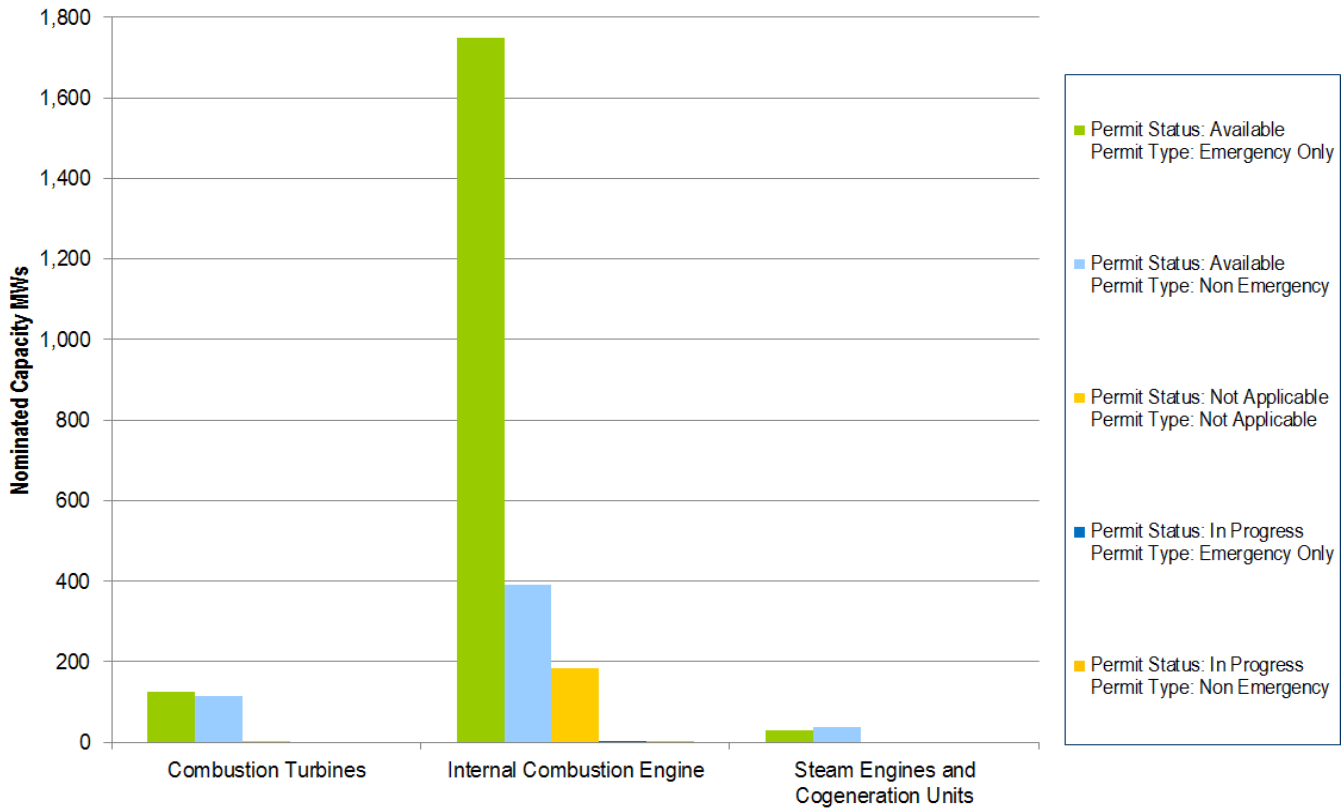
**Figure 6: DY 15/16 Confirmed Load Management DR Registrations Fuel Mix with Behind the Meter Generation**



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**

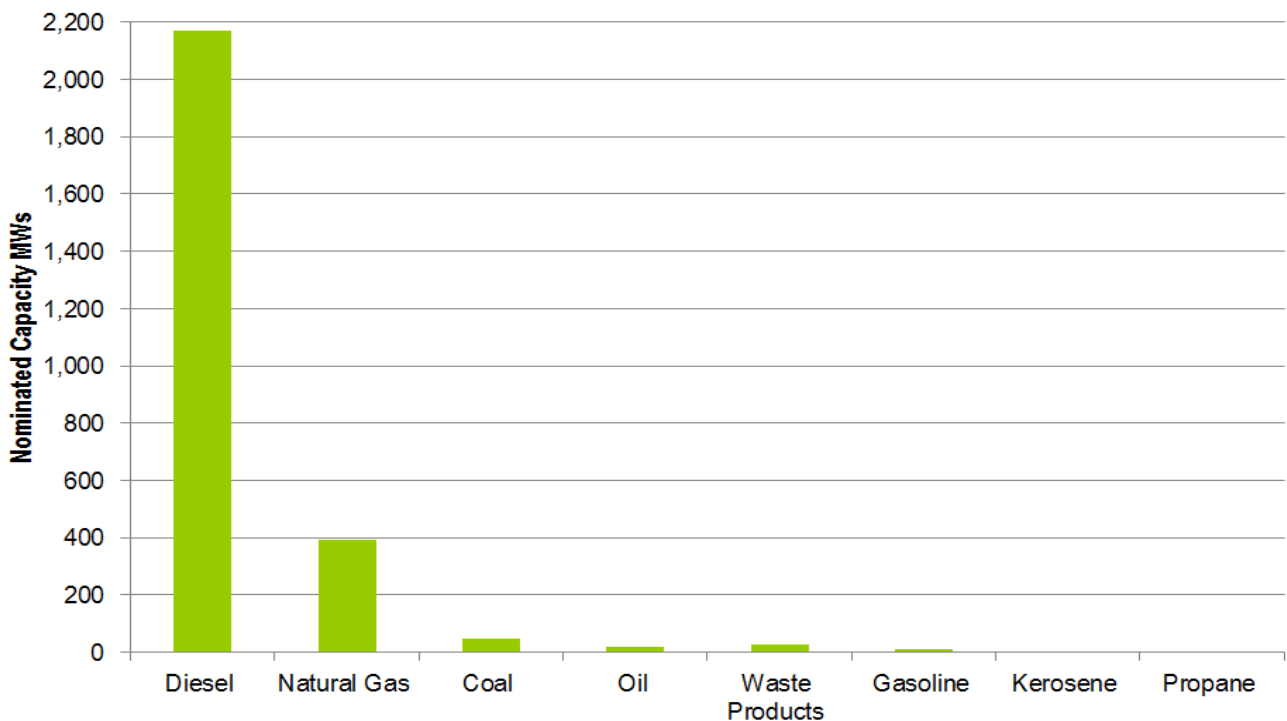
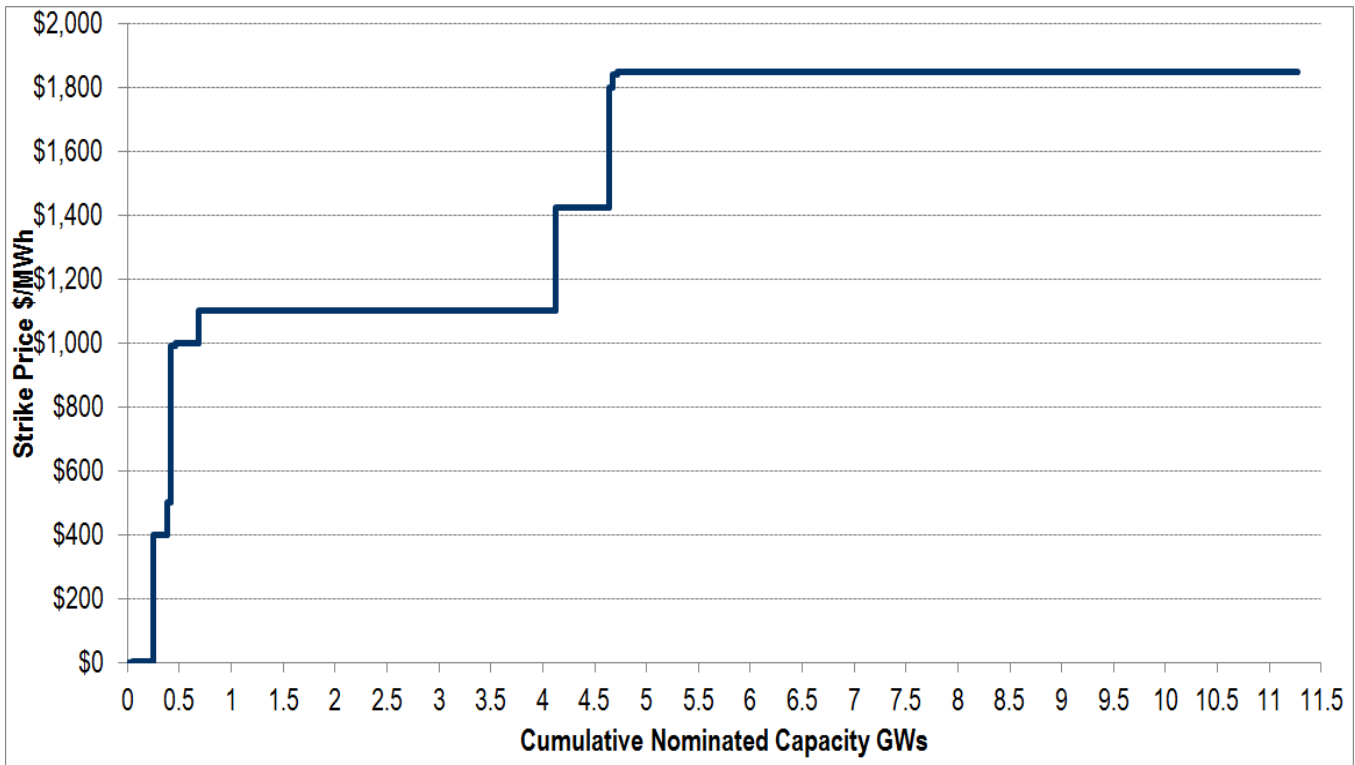


Figure 9: DY 15/16 Confirmed Load Management Full DR Registrations Energy Supply Curve:



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**Figure 10: Preliminary DY 16/17 Active Participants in PJM Load Management DR and Capacity Performance Programs**

State	Zone	EDC	Preliminary Load Management		Preliminary Capacity Performance		Emergency Total MW
			Locations	MW	Locations	MW	
DC	PEPCO	PEPCO	94	36.6			36.6
DE	DPL	DEMEC	9	8.3			8.3
DE	DPL	DOVDE	5	2.7			2.7
DE	DPL	DPL	103	58.7			58.7
DE	DPL	ODEC	9	4.4			4.4
IL	COMED	BATAV	1	1.5			1.5
IL	COMED	COMED	1,939	1,000.4	51	71.1	1,071.5
IL	COMED	IMEAA1	2	47.2			47.2
IN	AEP	AEPIMP	38	174.8			174.8
IN	AEP	AEPSCT	4	0.5			0.5
IN	AEP	HEREC			1	21.3	21.3
IN	AEP	WVPA	68	2.0			2.0
IN	AEP	WVSDI	1	23.3			23.3
KY	AEP	AEPKPT	1	1.5			1.5
KY	DEOK	DEK	63	28.6			28.6
KY	EKPC	EKPC	3	18.5	8	123.2	141.7
MD	APS	AETSAP	161	107.7			107.7
MD	APS	AETSHG	4	1.0			1.0
MD	APS	AETSTH	1	0.1			0.1
MD	BGE	BC	674	191.2			191.2
MD	DPL	DPL	98	27.4			27.4
MD	DPL	EASTON	6	3.3			3.3
MD	DPL	ODEC	11	11.0			11.0
MD	PEPCO	PEPCO	164	57.9			57.9
MD	PEPCO	SMECO	31	7.5			7.5
MI	AEP	COSEDC			1	5.2	5.2
NJ	AECO	AE	141	39.4	1	0.9	40.4
NJ	AECO	VMEU	18	4.9			4.9
NJ	JCPL	AECI	1	0.2			0.2
NJ	JCPL	JCBGS	413	127.8			127.8
NJ	PSEG	PSEG	863	225.7			225.7
NJ	RECO	RECO	13	3.7			3.7
NY	PENELEC	PaElec	1	1.5			1.5
OH	AEP	AEPOPT	616	418.7	3	40.3	459.0
OH	AEP	AEPSCT	2	0.9			0.9
OH	AEP	AMPO	30	39.8			39.8
OH	ATSI	AMPO	11	42.9			42.9
OH	ATSI	CPP	11	13.6			13.6
OH	ATSI	OEEDC	875	712.8	1	1.3	714.1
OH	DAY	AMPO	5	27.8			27.8
OH	DAY	DAYEDC	173	139.6			139.6
OH	DEOK	AMPO	2	0.2			0.2
OH	DEOK	DEOEDC	322	154.2	1	86.7	240.9
PA	APS	AECI	1	0.3			0.3

State	Zone	EDC	Preliminary Load Management		Preliminary Capacity Performance		Emergency Total MW
			Locations	MW	Locations	MW	
PA	APS	AETSAP	528	299.2	5	57.3	356.4
PA	APS	CHBDTE	1	0.3			0.3
PA	ATSI	PAPWR	70	55.9			55.9
PA	DUQ	DLCO	214	140.2	5	1.0	141.3
PA	METED	AECI	1	1.9			1.9
PA	METED	MetEd	380	192.1			192.1
PA	PECO	PE	1,087	296.6			296.6
PA	PENELEC	AECI	22	11.7			11.7
PA	PENELEC	PaElec	441	231.7	1	8.6	240.3
PA	PENELEC	WELLSB	1	1.1			1.1
PA	PPL	AMPO	6	1.4			1.4
PA	PPL	CTZECL	4	3.4			3.4
PA	PPL	PPL	746	466.1			466.1
PA	PPL	UGI-UI	10	3.6			3.6
TN	AEP	AEPAPT	6	6.4			6.4
VA	AEP	AEPAPT	166	252.9			252.9
VA	AEP	AEPSCT	2	0.4			0.4
VA	AEP	AMPO	11	5.0			5.0
VA	APS	ODEC	37	31.4			31.4
VA	DOM	CVEC	5	6.8			6.8
VA	DOM	DOMEDC	786	381.7	1	2.3	384.0
VA	DOM	DOMVME	5	3.7			3.7
VA	DOM	NVEC	19	28.1			28.1
VA	DOM	ODEC	30	43.1			43.1
VA	DPL	ODEC	20	6.5			6.5
WV	AEP	AEPAPT	267	232.4			232.4
WV	AEP	APWVP	4	0.5			0.5
WV	APS	AETSAP	293	136.2	2	18.9	155.1
<b>Total</b>			<b>12,150</b>	<b>6,610</b>	<b>81</b>	<b>438</b>	<b>7,049</b>

**Note:**

- 1) Data as of 5/5/2016.
- 2) Load Management and Capacity Performance MW are in ICAP.

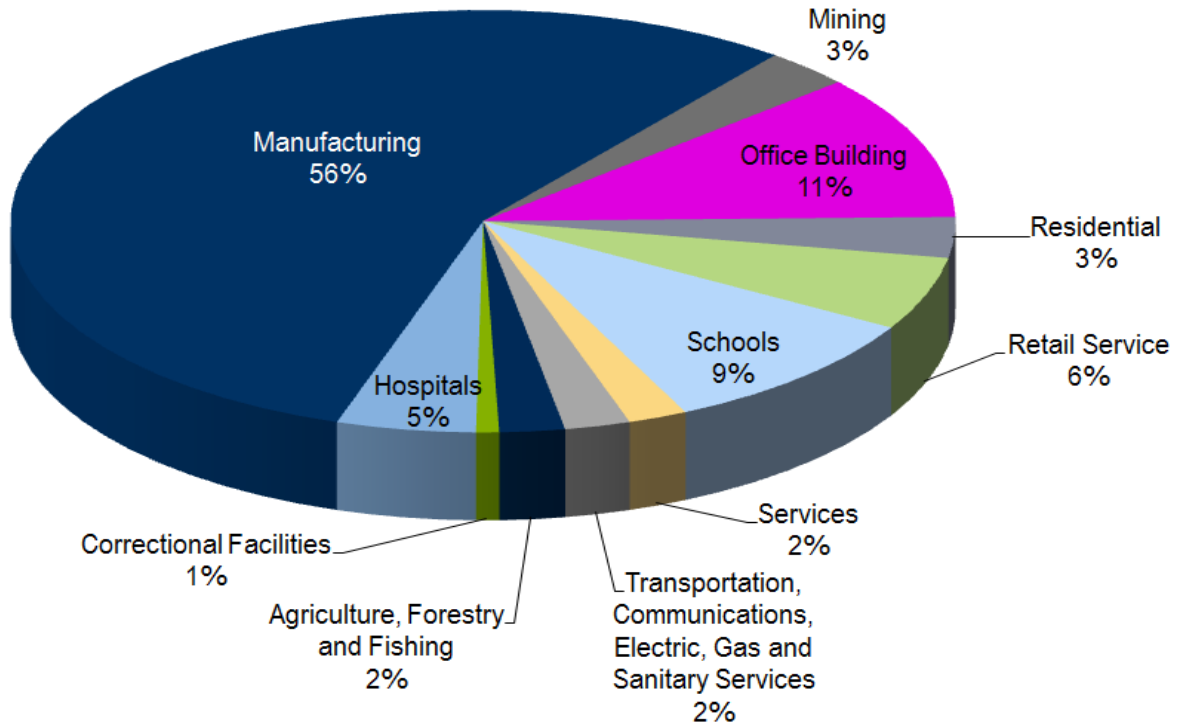
Figure 11: Preliminary DY 16/17 MWs in PJM Load Management DR by Resource, Product, and Lead Times

Zone		DR Product			Lead Times (Minutes)			Total DR MW
		Limited	Extended	Annual	30	60	120	
<b>AECO</b>								
	Pre-Emergency	35.5	0.7	7.9	32.0	4.1	8.0	44.1
	Emergency	0.2	0.0	0.0	0.2	0.0	0.0	0.2
	Total	35.7	0.7	7.9	32.2	4.1	8.0	44.3
<b>AEP</b>								
	Pre-Emergency	1,069.3	4.3	0.0	587.3	15.7	470.5	1,073.5
	Emergency	85.6	0.0	0.0	51.4	4.2	30.0	85.6
	Total	1,154.8	4.3	0.0	638.7	20.0	500.4	1,159.1
<b>APS</b>								
	Pre-Emergency	501.4	5.2	0.0	286.5	14.8	205.3	506.6
	Emergency	69.7	0.0	0.0	55.8	0.4	13.4	69.7
	Total	571.0	5.2	0.0	342.3	15.2	218.7	576.3
<b>ATSI</b>								
	Pre-Emergency	574.3	73.6	66.0	319.9	35.3	358.7	713.9
	Emergency	110.5	0.8	0.0	49.9	6.4	55.0	111.3
	Total	684.8	74.4	66.0	369.8	41.7	413.7	825.2
<b>BGE</b>								
	Pre-Emergency	141.2	0.2	3.1	107.7	7.3	29.6	144.6
	Emergency	46.6	0.0	0.0	33.7	0.0	12.9	46.6
	Total	187.8	0.2	3.1	141.4	7.3	42.4	191.2
<b>COMED</b>								
	Pre-Emergency	855.9	12.8	0.0	701.2	27.5	140.0	868.7
	Emergency	180.4	0.0	0.0	120.7	9.2	50.6	180.4
	Total	1,036.3	12.8	0.0	821.8	36.7	190.6	1,049.1
<b>DAY</b>								
	Pre-Emergency	139.5	0.6	12.5	99.3	0.5	52.9	152.7
	Emergency	14.8	0.0	0.0	10.6	0.0	4.2	14.8
	Total	154.3	0.6	12.5	109.8	0.5	57.1	167.5
<b>DEOK</b>								
	Pre-Emergency	157.3	17.1	0.0	81.0	68.4	25.0	174.4
	Emergency	8.4	0.3	0.0	6.6	1.8	0.2	8.7
	Total	165.7	17.5	0.0	87.6	70.2	25.2	183.1
<b>DOM</b>								
	Pre-Emergency	319.7	4.2	26.0	227.9	30.8	91.2	349.9
	Emergency	109.0	4.6	0.0	92.4	3.4	17.9	113.6
	Total	428.7	8.8	26.0	320.2	34.2	109.1	463.5
<b>DPL</b>								
	Pre-Emergency	100.3	0.0	7.4	69.9	18.6	19.1	107.7
	Emergency	14.6	0.0	0.0	7.4	1.3	5.9	14.6
	Total	114.9	0.0	7.4	77.3	19.9	25.0	122.3
<b>DUQ</b>								
	Pre-Emergency	137.5	0.1	0.0	53.9	5.4	78.3	137.6
	Emergency	2.7	0.0	0.0	2.3	0.0	0.4	2.7
	Total	140.1	0.1	0.0	56.2	5.4	78.7	140.2

Zone	DR Product			Lead Times (Minutes)			Total DR MW
	Limited	Extended	Annual	30	60	120	
<b>EKPC</b>							
Pre-Emergency	18.5	0.0	0.0	18.5	0.0	0.0	18.5
Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	18.5	0.0	0.0	18.5	0.0	0.0	18.5
<b>JCPL</b>							
Pre-Emergency	109.8	0.3	11.5	92.8	0.0	28.8	121.6
Emergency	6.4	0.0	0.0	6.4	0.0	0.0	6.4
Total	116.2	0.3	11.5	99.2	0.0	28.8	128.0
<b>METED</b>							
Pre-Emergency	163.9	0.0	4.3	102.9	9.7	55.7	168.3
Emergency	25.8	0.0	0.0	10.6	6.8	8.3	25.8
Total	189.7	0.0	4.3	113.6	16.5	64.0	194.1
<b>PECO</b>							
Pre-Emergency	206.8	2.8	17.0	176.6	2.8	47.1	226.6
Emergency	70.0	0.0	0.0	45.5	3.3	21.2	70.0
Total	276.9	2.8	17.0	222.1	6.1	68.4	296.6
<b>PENELEC</b>							
Pre-Emergency	216.7	1.0	4.4	112.8	3.0	106.3	222.1
Emergency	23.9	0.0	0.0	12.7	3.9	7.3	23.9
Total	240.6	1.0	4.4	125.5	6.9	113.6	246.0
<b>PEPCO</b>							
Pre-Emergency	78.3	0.2	2.1	57.8	0.3	22.5	80.6
Emergency	21.4	0.0	0.0	9.8	1.1	10.5	21.4
Total	99.8	0.2	2.1	67.6	1.4	33.0	102.0
<b>PPL</b>							
Pre-Emergency	423.1	0.3	17.4	211.6	52.9	176.2	440.7
Emergency	33.8	0.0	0.0	24.9	2.6	6.2	33.8
Total	456.8	0.3	17.4	236.5	55.5	182.5	474.4
<b>PSEG</b>							
Pre-Emergency	185.2	0.8	9.1	175.8	4.0	15.4	195.1
Emergency	7.1	0.0	23.5	24.3	3.1	3.2	30.6
Total	192.3	0.8	32.6	200.1	7.0	18.6	225.7
<b>RECO</b>							
Pre-Emergency	3.4	0.0	0.3	3.5	0.0	0.1	3.7
Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	3.4	0.0	0.3	3.5	0.0	0.1	3.7
<b>TOTAL</b>							
Pre-Emergency	5,437.6	124.4	188.8	3,518.9	301.1	1,930.7	5,750.7
Emergency	830.8	5.7	23.5	565.3	47.5	247.3	860.1
Total	6,268.4	130.1	212.2	4,084.2	348.6	2,178.0	6,610.8

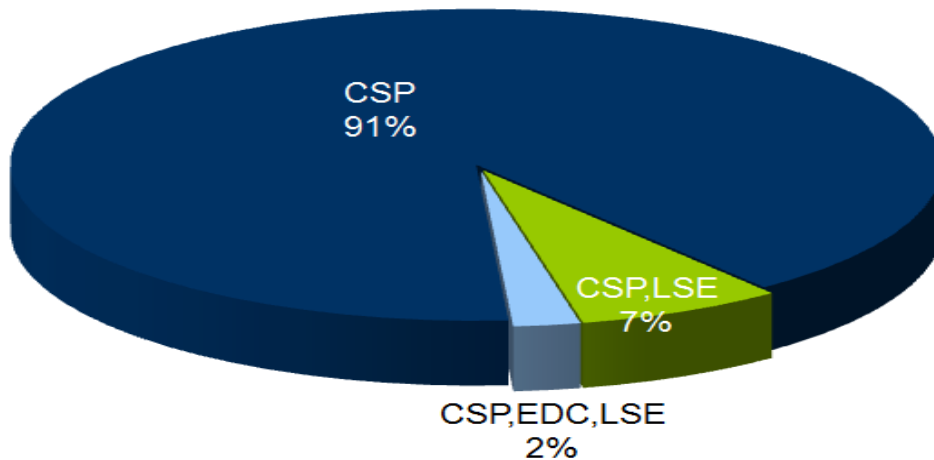
Note: MWs are Nominated Capacity (MWs)

Figure 12: Preliminary DY 16/17 Confirmed Load Management DR Registrations Business Segments



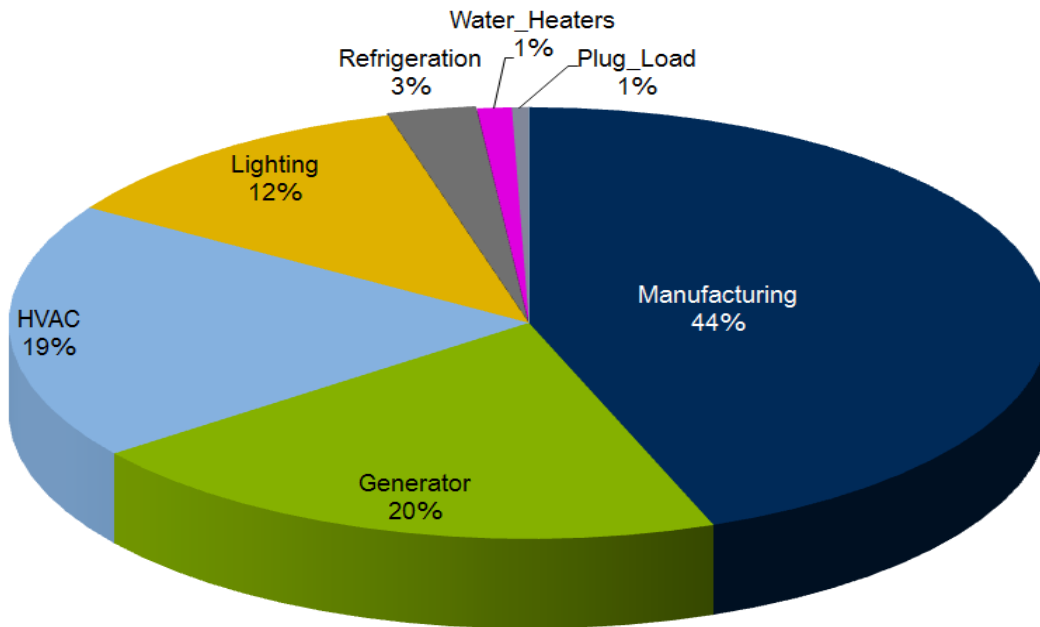
Note: Percent of Nominated Capacity (MWs)

Figure 13: Preliminary DY 16/17 Confirmed Load Management DR Registrations Owner/Company Type



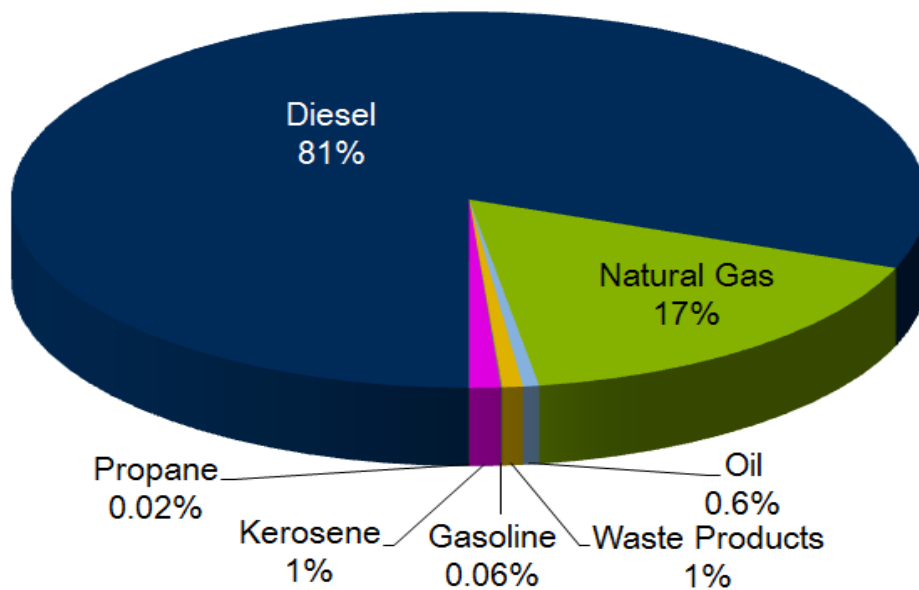
Note: Percent of Nominated Capacity (MWs)

**Figure 14: Preliminary DY 16/17 Confirmed Load Management DR Registrations Customer Load Reduction Methods**



Note: Percent of Nominated Capacity (MWs)

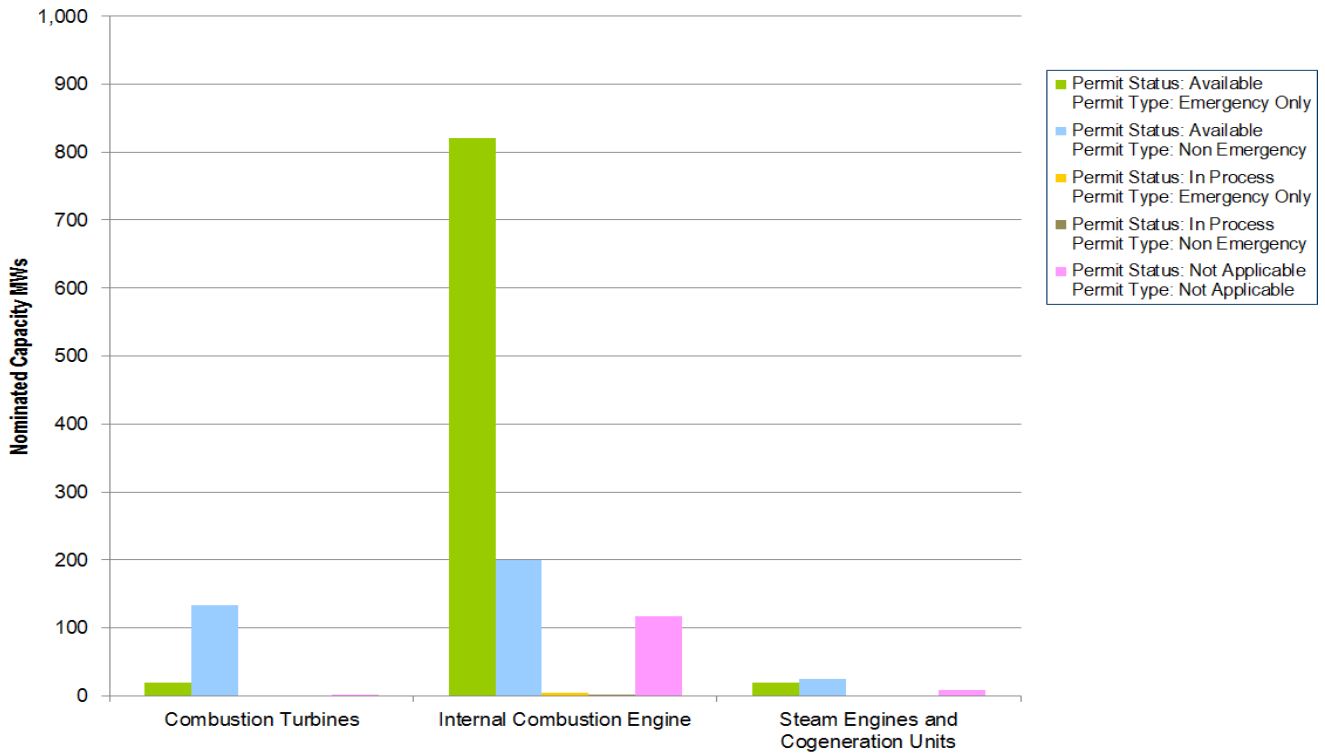
**Figure 15: Preliminary DY 16/17 Confirmed Load Management DR Registrations Fuel Mix with Behind the Meter Generation**



Note: Percent of Nominated Capacity (MWs)



**Figure 16: Preliminary DY 16/17 Confirmed Load Management DR Registrations Generator and Permit Type**



**Figure 17: Preliminary DY 16/17 Confirmed Load Management DR Registrations Fuel Mix with Behind the Meter Generation**

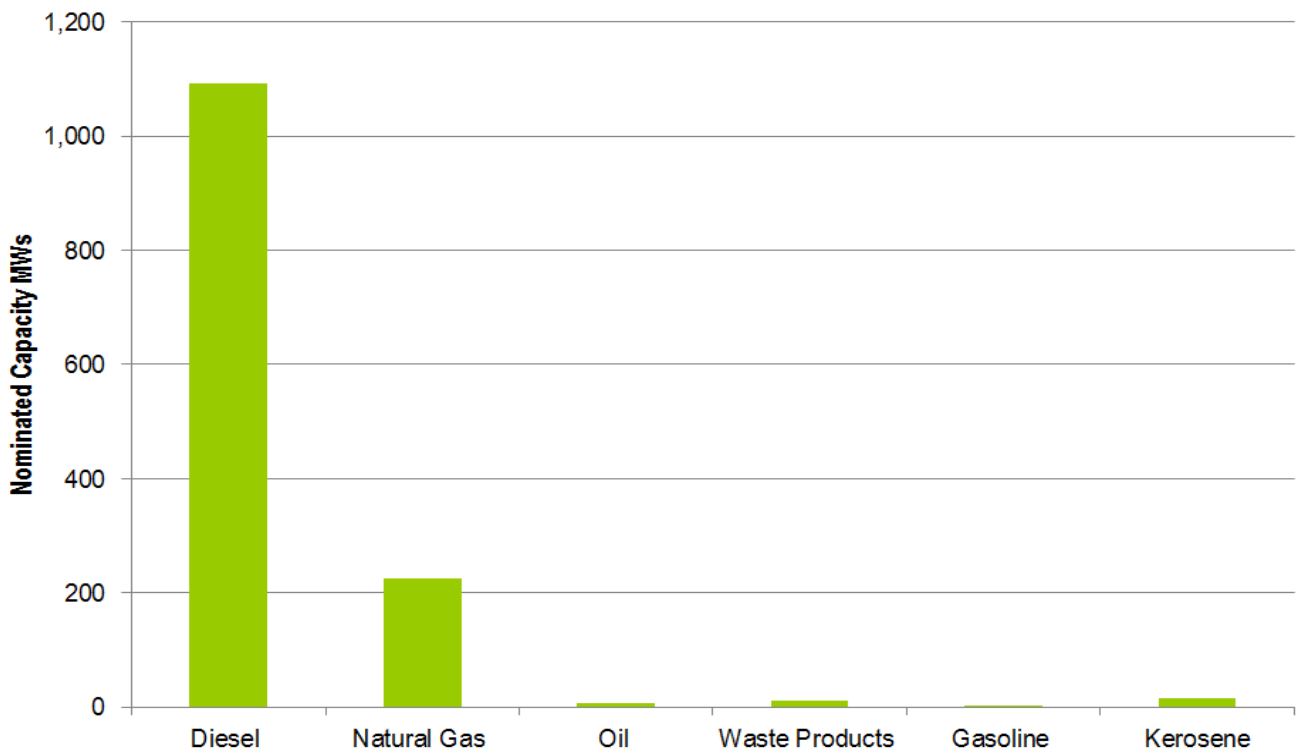
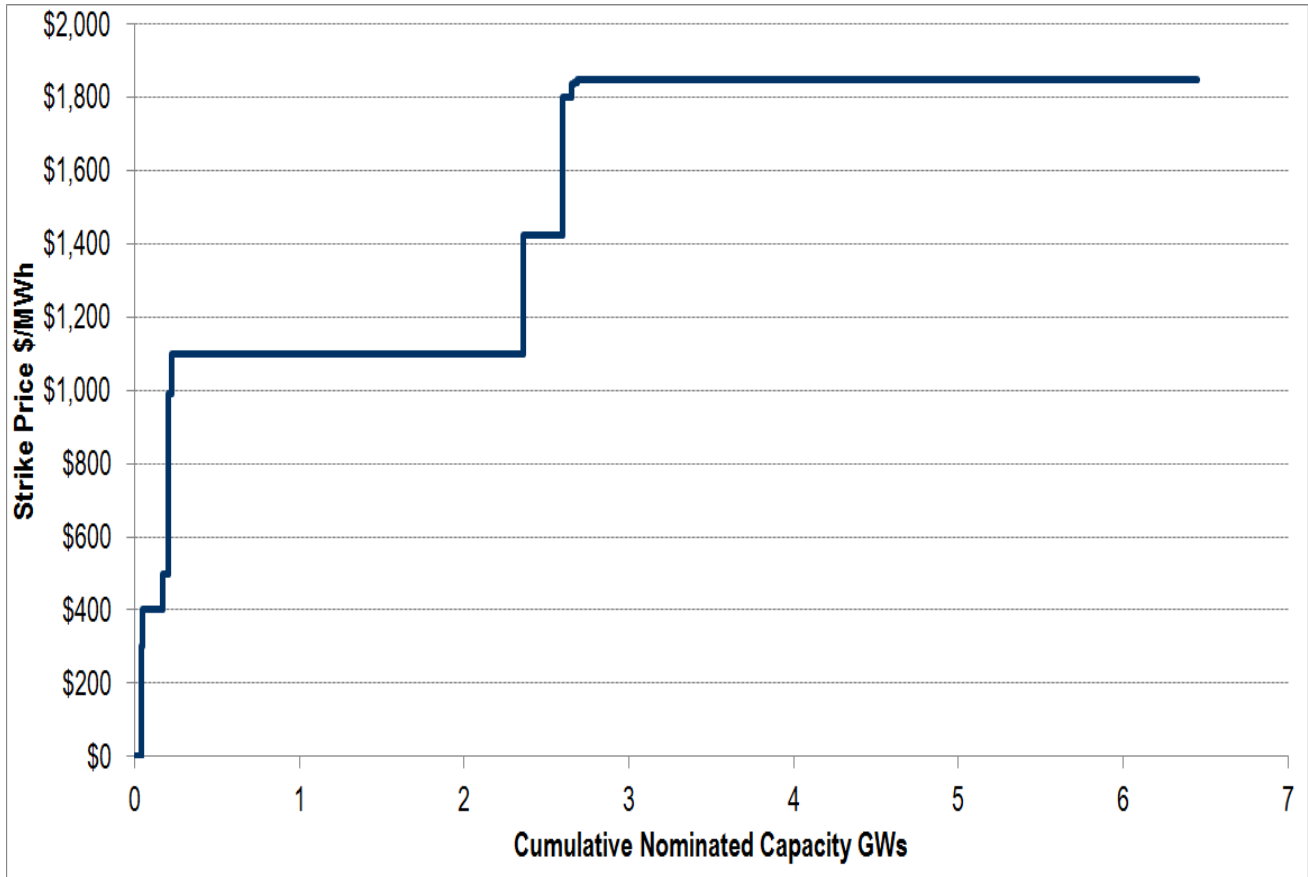


Figure 18: Preliminary DY 16/17 Confirmed Load Management Full DR Registrations Energy Supply Curve:



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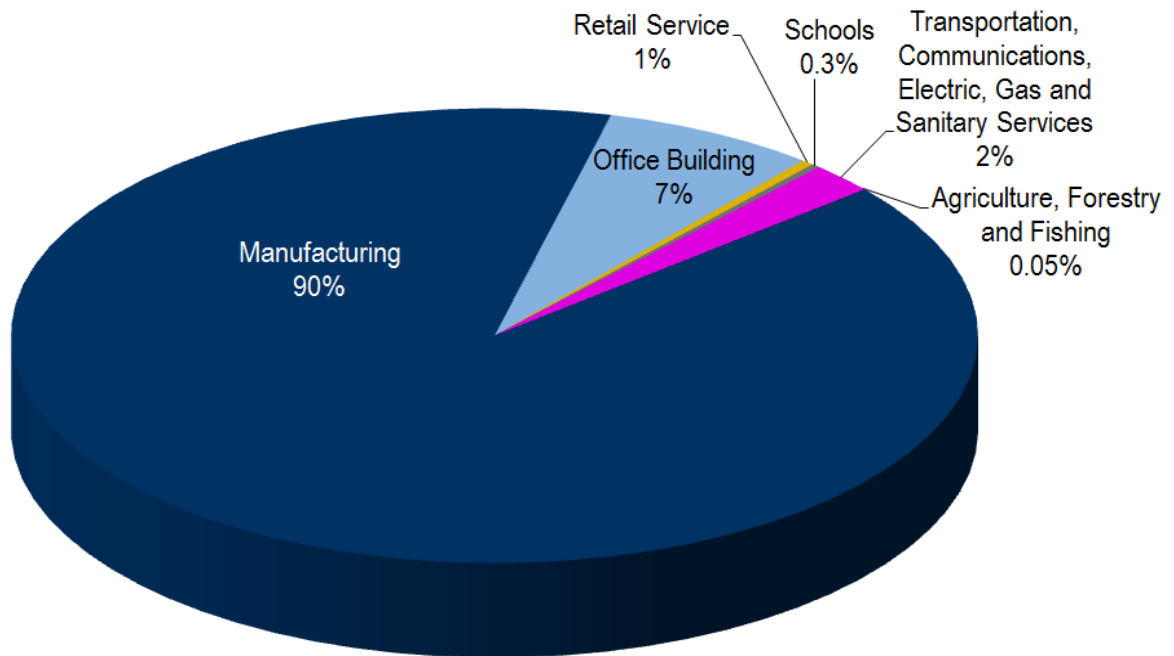
Figure 19: Preliminary DY 16/17 MWs in PJM Capacity Performance by Resource and Lead Times

Zone		Lead Times (Minutes)			Total CP MW
		30	60	120	
<b>AECO</b>					
	Pre-Emergency	0.9	0.0	0.0	0.9
	Emergency	0.0	0.0	0.0	0.0
	Total	0.9	0.0	0.0	0.9
<b>AEP</b>					
	Pre-Emergency	61.1	0.0	5.7	66.8
	Emergency	0.0	0.0	0.0	0.0
	Total	61.1	0.0	5.7	66.8
<b>APS</b>					
	Pre-Emergency	60.7	6.5	8.9	76.1
	Emergency	0.0	0.0	0.0	0.0
	Total	60.7	6.5	8.9	76.1
<b>ATSI</b>					
	Pre-Emergency	1.3	0.0	0.0	1.3
	Emergency	0.0	0.0	0.0	0.0
	Total	1.3	0.0	0.0	1.3
<b>COMED</b>					
	Pre-Emergency	63.9	0.0	5.8	69.7
	Emergency	1.4	0.0	0.0	1.4
	Total	65.2	0.0	5.8	71.1
<b>DEOK</b>					
	Pre-Emergency	86.7	0.0	0.0	86.7
	Emergency	0.0	0.0	0.0	0.0
	Total	86.7	0.0	0.0	86.7
<b>DOM</b>					
	Pre-Emergency	2.3	0.0	0.0	2.3
	Emergency	0.0	0.0	0.0	0.0
	Total	2.3	0.0	0.0	2.3
<b>DUQ</b>					
	Pre-Emergency	1.0	0.0	0.0	1.0
	Emergency	0.0	0.0	0.0	0.0
	Total	1.0	0.0	0.0	1.0
<b>EKPC</b>					
	Pre-Emergency	19.2	7.2	95.1	121.5
	Emergency	1.7	0.0	0.0	1.7
	Total	20.9	7.2	95.1	123.2
<b>PENELEC</b>					
	Pre-Emergency	0.0	0.0	8.6	8.6
	Emergency	0.0	0.0	0.0	0.0
	Total	0.0	0.0	8.6	8.6

Zone	Lead Times (Minutes)			Total CP MW
	30	60	120	
TOTAL				
Pre-Emergency	297.0	13.7	124.0	434.8
Emergency	3.1	0.0	0.0	3.1
Total	300.1	13.7	124.0	437.9

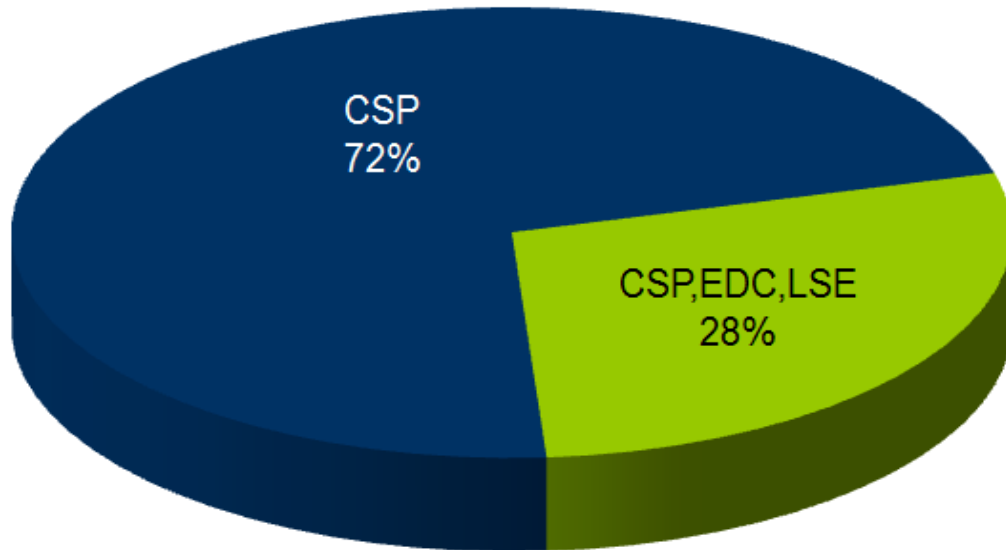
Note: MWs are Nominated Capacity (MWs)

Figure 20: Preliminary DY 16/17 Confirmed Capacity Performance Registrations Business Segments



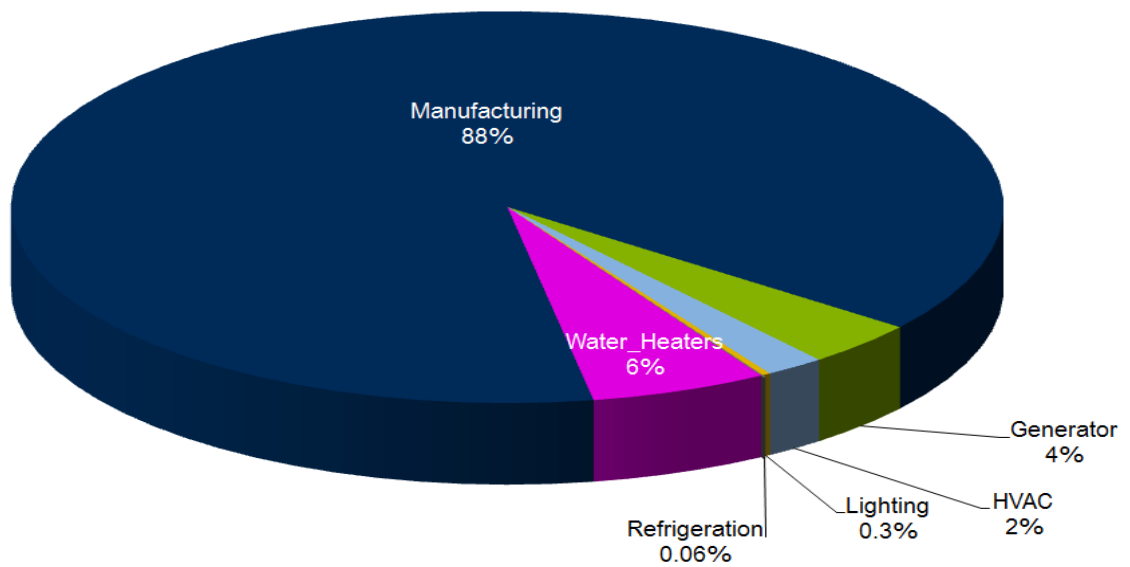
Note: Percent of Nominated Capacity (MWs)

**Figure 21: Preliminary DY 16/17 Confirmed Capacity Performance Registrations Owner/Company Type**



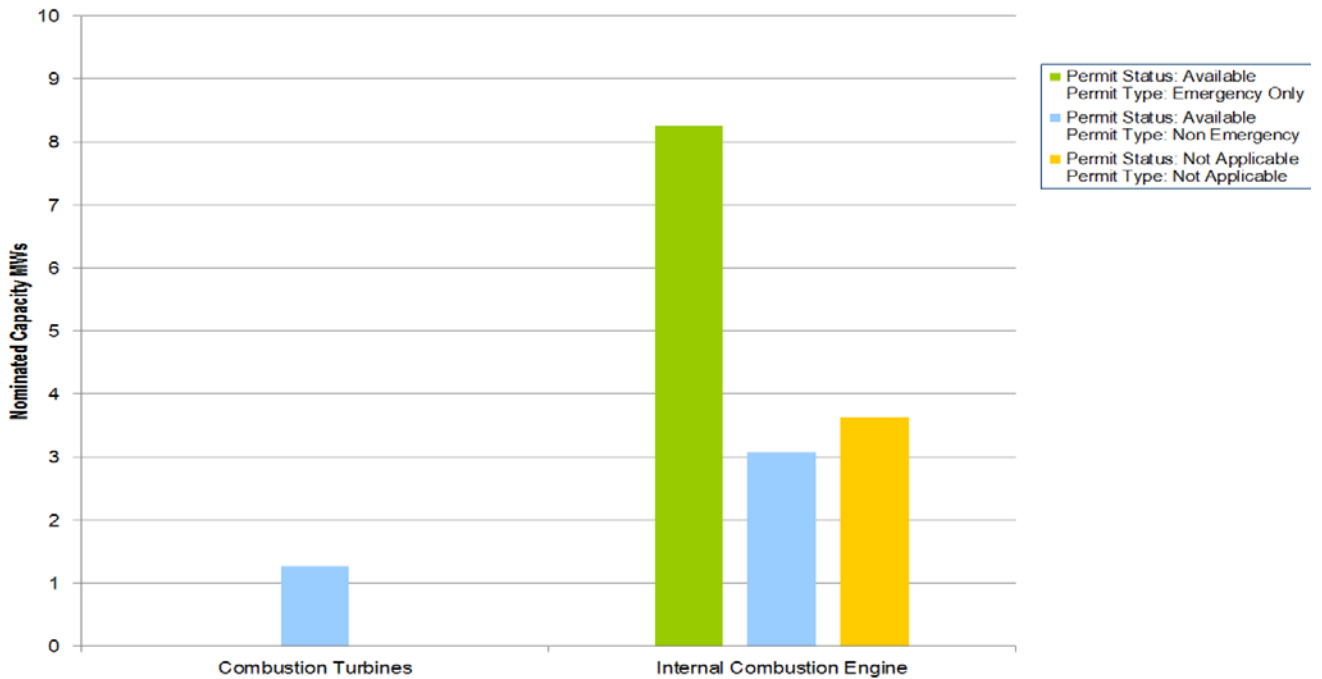
Note: Percent of Nominated Capacity (MWs)

**Figure 22: Preliminary DY 16/17 Confirmed Capacity Performance Registrations Load Reduction Methods**

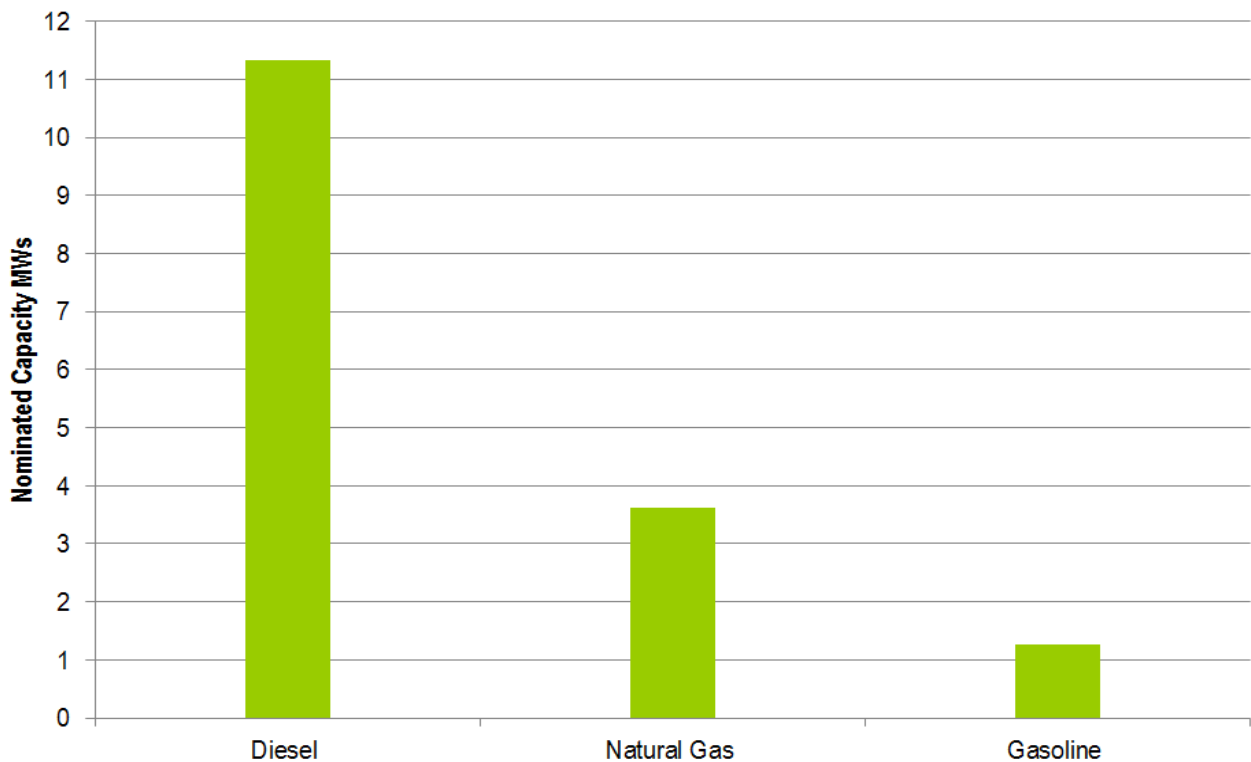


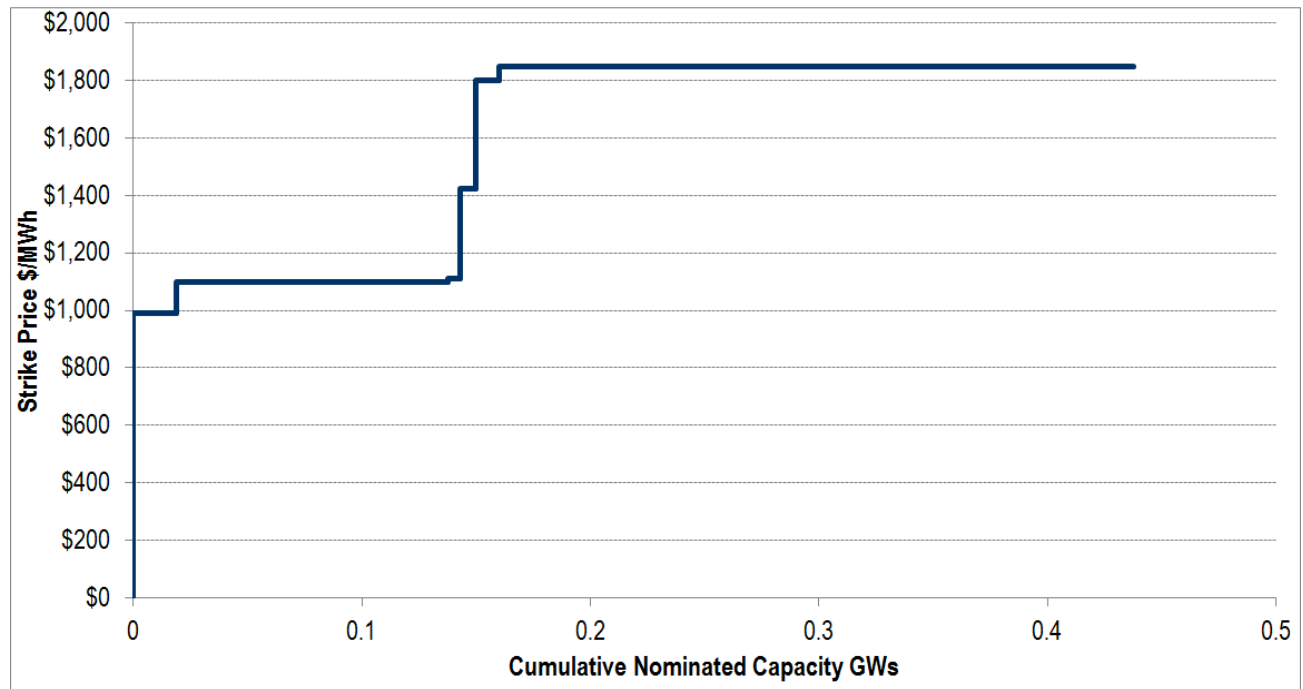
Note: Percent of Nominated Capacity (MWs)

**Figure 23: Preliminary DY 16/17 Confirmed Capacity Performance Registrations Fuel Mix with Behind the Meter Generation**



**Figure 24: Preliminary DY 16/17 Confirmed Capacity Performance Registrations Generator and Permit Type**

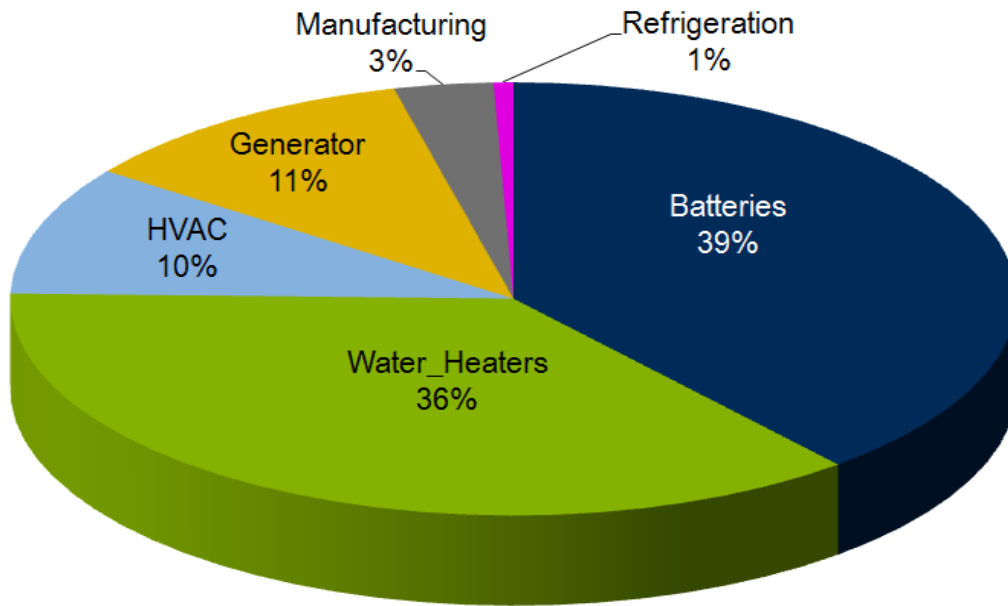


**Figure 25: Preliminary DY 16/17 Confirmed Capacity Performance Registrations Energy Supply Curve**

**Figure 26: 2016 Economic Demand Response Capability in the Ancillary Service Markets**

Synch Reserves	Zone	Jan	Feb	Mar	Apr
Locations	MAD	135	136	136	136
	Non-MAD	10	10	12	12
	<b>Average Number of Unique Participating Locations per Month:</b>	<b>147</b>			
MWs	MAD	375	375	375	375
	Non-MAD	198	198	202	202
	<b>Average MWs per Month:</b>	<b>575</b>			
RTO	MAD	145	146	148	148
	Non-MAD	198	198	202	202
	<b>Average MWs per Month:</b>	<b>575</b>			
Regulation	Zone	Jan	Feb	Mar	Apr
Locations	RTO	293	292	277	331
<b>Average Number of Unique Participating Locations per Month:</b>		<b>298</b>			
MWs	RTO	22	22	23	31
<b>Average MWs per Month:</b>		<b>25</b>			

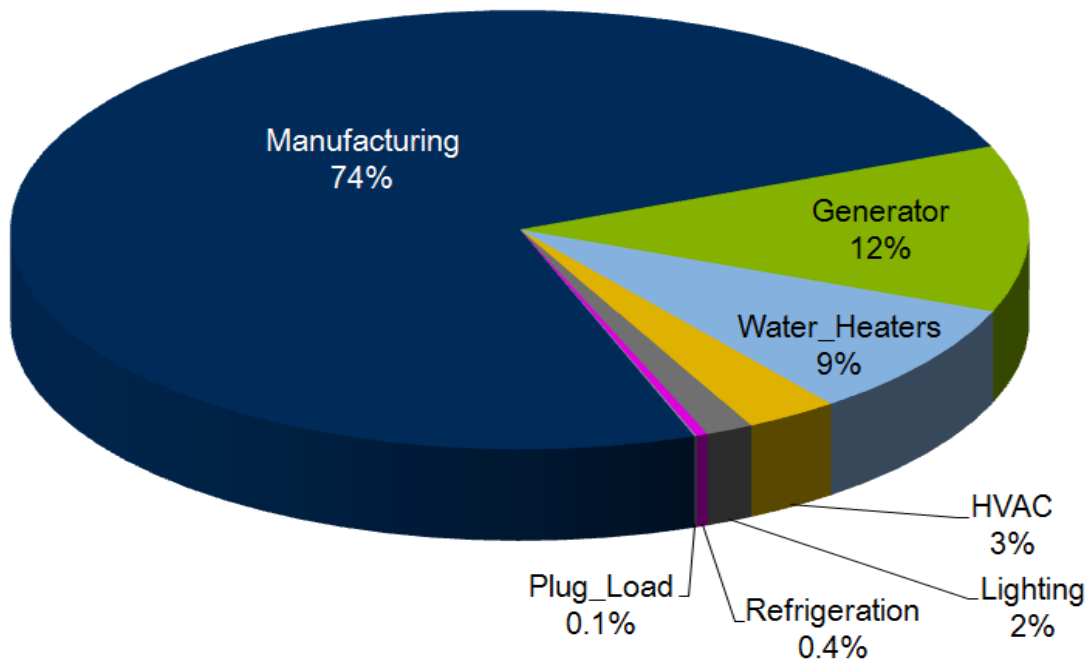
Capability represents total amount that may be offered. Actual offered and cleared volume may be significantly lower and is represented in subsequent figures/tables in report

Figure 27: 2016 PJM Demand Response Confirmed Regulation Registrations Load Reduction Methods



Note: Percent of CSP Reported Load Reduction MWs

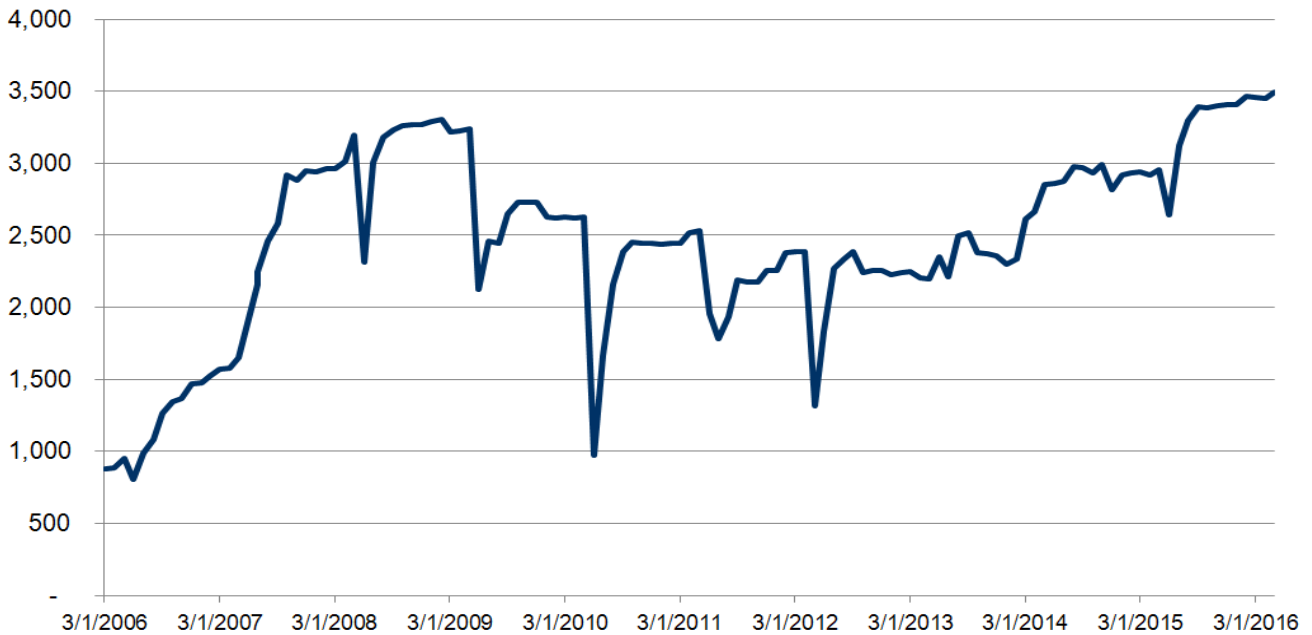
Figure 28: 2016 PJM Demand Response Confirmed Synch Reserve Registrations Load Reduction Methods:



Note: Percent of CSP Reported Load Reduction MWs

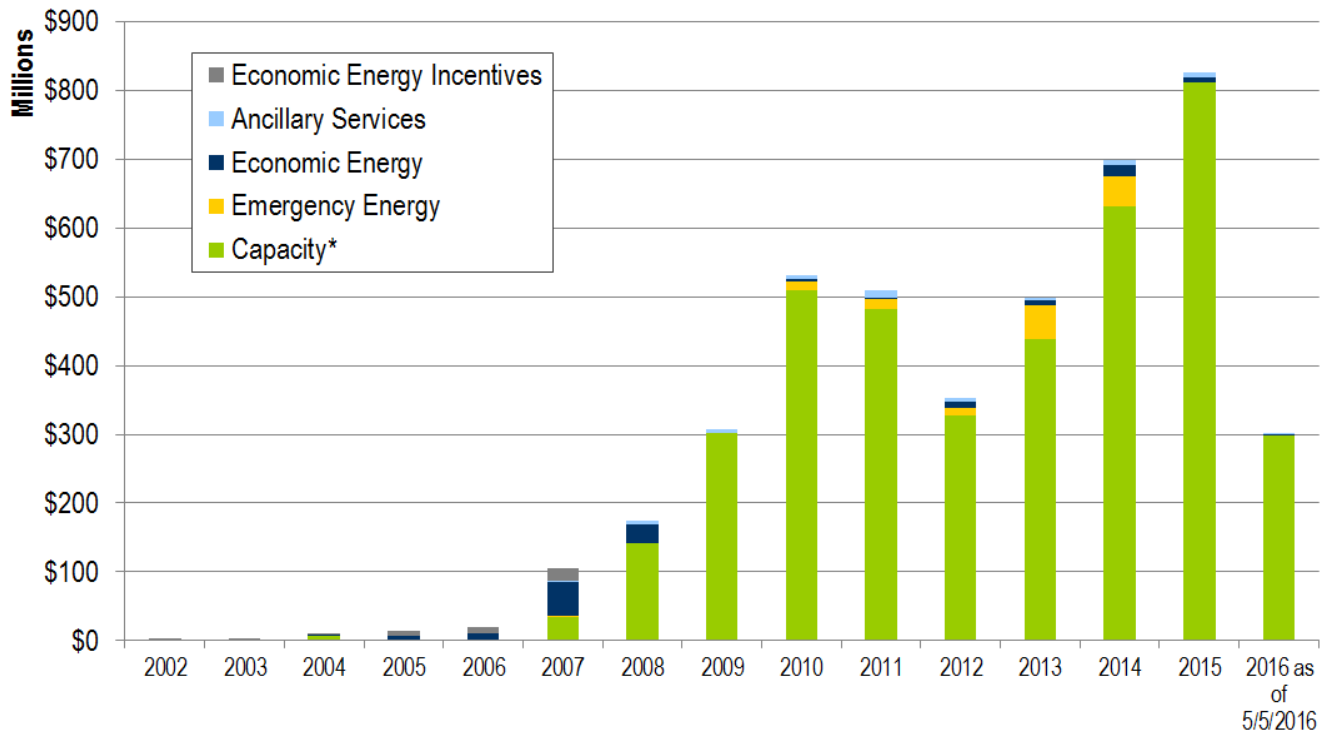


**Figure 29: PJM Economic Demand Response Capability in Energy Market (3/1/2006-5/5/2016)**



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 30: PJM Estimated Revenue for Economic and Load Management DR Markets**



\*Capacity Net Revenue inclusive of Capacity Credits and Charges.

**Figure 31: 2016 Economic Demand Response Monthly Registration Participation**

State	Zone	Jan	Feb	Mar	Apr
IL	COMED	2	2	2	
NJ	JCPL		1		
	PSEG	10	7	6	2
OH	ATSI	1	1	1	
PA	PECO	2	2		
	PENELEC	2	2	2	
	PPL	1			
VA	DOM	2	3	1	1
WV	APS	1		1	
<b>Total</b>		<b>21</b>	<b>18</b>	<b>13</b>	<b>3</b>

**Average Unique Participating Registrations per Month: 14**

**Figure 32: 2016 Economic Demand Response Monthly Registration Participation Day-Ahead Activity**

State	Zone	Jan	Feb	Mar	Apr
IL	COMED				
NJ	JCPL				
	PSEG	5	5	4	1
OH	ATSI				
PA	PECO		1		
	PENELEC	1	1	1	
	PPL				
VA	DOM	1	1		
WV	APS				
<b>Total</b>		<b>7</b>	<b>8</b>	<b>5</b>	<b>1</b>

**Average Unique Participating Registrations per Month (Day-Ahead): 5**

**Figure 33: 2016 Economic Demand Response Monthly Registration Participation Real-Time Activity**

State	Zone	Jan	Feb	Mar	Apr
IL	COMED	2	2	2	
NJ	JCPL		1		
	PSEG	5	2	2	1
OH	ATSI	1	1	1	
PA	PECO	2	1		
	PENELEC	1	1	1	
	PPL	1			
VA	DOM	1	2	1	1
WV	APS	1		1	
<b>Total</b>		<b>14</b>	<b>10</b>	<b>8</b>	<b>2</b>

**Average Unique Participating Registrations per Month (Real-Time): 9**

**Figure 34: 2016 Economic Demand Response Monthly MWh Reductions**

State	Zone	Jan	Feb	Mar	Apr
IL	COMED	193	6	20	
NJ	JCPL		5		
	PSEG	2,156	1,011	81	451
OH	ATSI	1,009	667	610	
PA	PECO	5	4		
	PENELEC	1,185	534	112	
	PPL	1			
VA	DOM	3,374	2,311	2,059	2,215
WV	APS	205		47	
<b>Total</b>		<b>8,128</b>	<b>4,538</b>	<b>2,930</b>	<b>2,666</b>

**Total MWh: 18,261**

**Figure 35: 2016 Economic Demand Response Monthly MWh Reductions Day-Ahead Activity**

State	Zone	Jan	Feb	Mar	Apr
IL	COMED				
NJ	JCPL				
	PSEG	2,050	918	70	446
OH	ATSI				
PA	PECO		0		
	PENELEC	1,005	522	86	
	PPL				
VA	DOM	912	464		
WV	APS				
<b>Total</b>		<b>3,967</b>	<b>1,905</b>	<b>156</b>	<b>446</b>

**Total Day-Ahead MWh: 6,474**

**Figure 36: 2016 Economic Demand Response Monthly MWh Reductions Real-Time Activity**

State	Zone	Jan	Feb	Mar	Apr
IL	COMED	193	6	20	
NJ	JCPL		5		
	PSEG	105	93	11	5
OH	ATSI	1,009	667	610	
PA	PECO	5	4		
	PENELEC	181	12	26	
	PPL	1			
VA	DOM	2,461	1,847	2,059	2,215
WV	APS	205		47	
<b>Total</b>		<b>4,160</b>	<b>2,633</b>	<b>2,774</b>	<b>2,220</b>

**Total Real-Time MWh: 11,787**

**Figure 37: 2016 Economic Demand Response Monthly Energy Market Revenue**

State	Zone	Jan	Feb	Mar	Apr
IL	COMED	\$6,380	\$194	\$231	
NJ	JCPL		\$308		
	PSEG	\$90,115	\$40,477	\$1,749	\$11,863
OH	ATSI	\$38,068	\$22,026	\$18,985	
PA	PECO	\$247	(\$2,391)		
	PENELEC	\$39,606	\$15,748	\$3,244	
	PPL	\$38			
VA	DOM	\$203,643	\$105,347	\$67,538	\$123,633
WV	APS	\$7,823		\$960	
<b>Total</b>		<b>\$385,920</b>	<b>\$181,710</b>	<b>\$92,707</b>	<b>\$135,495</b>

**Total CSP Credits: \$795,832**

**Figure 38: 2016 Economic Demand Response Monthly Energy Market Revenue Day-Ahead Activity**

State	Zone	Jan	Feb	Mar	Apr
IL	COMED				
NJ	JCPL				
	PSEG	\$86,509	\$36,686	\$1,426	\$11,863
OH	ATSI				
PA	PECO		(\$2,581)		
	PENELEC	\$33,647	\$15,485	\$2,607	
	PPL				
VA	DOM	\$43,482	\$14,732		
WV	APS				
<b>Total</b>		<b>\$163,639</b>	<b>\$64,321</b>	<b>\$4,034</b>	<b>\$11,863</b>

**Total Day-Ahead CSP Credits: \$243,856**

**Figure 39: 2016 Economic Demand Response Monthly Energy Market Revenue Real-Time Activity**

State	Zone	Jan	Feb	Mar	Apr
IL	COMED	\$6,380	\$194	\$231	
NJ	JCPL		\$308		
	PSEG	\$3,606	\$3,790	\$322	\$0
OH	ATSI	\$38,068	\$22,026	\$18,985	
PA	PECO	\$247	\$190		
	PENELEC	\$5,959	\$263	\$637	
	PPL	\$38			
VA	DOM	\$160,161	\$90,616	\$67,538	\$123,633
WV	APS	\$7,823		\$960	
<b>Total</b>		<b>\$222,281</b>	<b>\$117,388</b>	<b>\$88,673</b>	<b>\$123,633</b>

**Total Real-Time CSP Credits: \$551,975**

**Figure 40: 2016 Economic Demand Response Energy Market Cost Allocation by Zone**

Zone	Jan	Feb	Mar	Apr
AECO	\$3,909	\$2,797	\$523	\$1,172
AEP	\$61,507	\$26,701	\$17,562	\$24,284
APS	\$25,411	\$12,526	\$6,661	\$9,476
ATSI	\$30,433	\$14,082	\$9,215	\$12,635
BGE	\$17,843	\$13,394	\$4,302	\$5,820
COMED	\$35,941	\$9,206	\$10,523	\$12,155
DAY	\$8,580	\$3,505	\$2,356	\$3,256
DEOK	\$12,263	\$3,982	\$3,445	\$4,849
DOM	\$52,633	\$27,425	\$12,992	\$17,737
DPL	\$9,111	\$4,489	\$2,098	\$2,554
DUQ	\$5,960	\$2,557	\$1,764	\$2,436
EKPC	\$6,939	\$2,164	\$1,614	\$2,406
JCPL	\$9,635	\$4,081	\$1,435	\$3,072
METED	\$6,844	\$2,967	\$1,062	\$2,266
PECO	\$17,023	\$6,772	\$2,565	\$5,473
PENELEC	\$7,961	\$4,042	\$2,174	\$3,366
PEPCO	\$16,299	\$8,769	\$4,086	\$5,469
PPL	\$19,654	\$8,344	\$2,917	\$6,583
PSEG	\$18,650	\$8,019	\$2,842	\$5,885
RECO	\$665	\$223	\$105	\$198
Exports	\$18,659	\$15,664	\$2,466	\$4,404
<b>TOTAL</b>	<b>\$385,920</b>	<b>\$181,710</b>	<b>\$92,707</b>	<b>\$135,495</b>

**Total Zonal Charges: \$795,832**

**Figure 41: 2016 Economic Demand Response Day-Ahead Energy Market Cost Allocation by Zone**

Zone	Jan	Feb	Mar	Apr
AECO	\$1,359	\$1,239	\$29	\$71
AEP	\$21,817	\$5,322	\$610	\$1,531
APS	\$8,886	\$2,918	\$249	\$586
ATSI	\$11,196	\$3,467	\$321	\$844
BGE	\$6,643	\$5,484	\$159	\$354
COMED	\$14,264	\$1,643	\$425	\$1,090
DAY	\$3,203	\$764	\$82	\$216
DEOK	\$4,435	\$740	\$125	\$316
DOM	\$17,275	\$5,706	\$495	\$1,070
DPL	\$3,128	\$1,039	\$128	\$141
DUQ	\$2,162	\$622	\$63	\$164
EKPC	\$2,382	\$381	\$61	\$136
JCPL	\$3,459	\$1,071	\$73	\$187
METED	\$2,400	\$1,004	\$57	\$138
PECO	\$5,902	\$1,972	\$243	\$328
PENELEC	\$2,896	\$1,225	\$77	\$223
PEPCO	\$5,850	\$2,269	\$155	\$349
PPL	\$6,815	\$2,101	\$133	\$415
PSEG	\$7,111	\$2,084	\$135	\$439
RECO	\$275	\$61	\$4	\$16
Exports	\$10,210	\$9,301	\$151	\$303
<b>TOTAL</b>	<b>\$141,668</b>	<b>\$50,414</b>	<b>\$3,777</b>	<b>\$8,920</b>

**Total Day-Ahead Zonal Charges: \$204,779**

**Figure 42: 2016 Economic Demand Response Real-Time Energy Market Cost Allocation by Zone**

Zone	Jan	Feb	Mar	Apr
AECO	\$2,549	\$1,558	\$493	\$1,100
AEP	\$39,691	\$21,379	\$16,952	\$22,753
APS	\$16,525	\$9,608	\$6,412	\$8,890
ATSI	\$19,237	\$10,615	\$8,893	\$11,791
BGE	\$11,199	\$7,911	\$4,143	\$5,465
COMED	\$21,676	\$7,563	\$10,098	\$11,064
DAY	\$5,377	\$2,742	\$2,273	\$3,040
DEOK	\$7,828	\$3,242	\$3,320	\$4,533
DOM	\$35,358	\$21,719	\$12,497	\$16,666
DPL	\$5,983	\$3,450	\$1,970	\$2,413
DUQ	\$3,799	\$1,935	\$1,701	\$2,272
EKPC	\$4,557	\$1,783	\$1,553	\$2,269
JCPL	\$6,176	\$3,009	\$1,362	\$2,885
METED	\$4,444	\$1,963	\$1,005	\$2,127
PECO	\$11,121	\$4,800	\$2,322	\$5,145
PENELEC	\$5,065	\$2,816	\$2,097	\$3,143
PEPCO	\$10,448	\$6,500	\$3,932	\$5,120
PPL	\$12,839	\$6,243	\$2,783	\$6,169
PSEG	\$11,539	\$5,935	\$2,707	\$5,446
RECO	\$390	\$162	\$101	\$182
Exports	\$8,449	\$6,363	\$2,315	\$4,101
<b>TOTAL</b>	<b>\$244,251</b>	<b>\$131,296</b>	<b>\$88,930</b>	<b>\$126,576</b>

**Total Real-Time Zonal Charges: \$591,053**

**Figure 43: 2016 Load Management Demand Response Monthly Capacity Revenue from RPM**

Zone	Jan	Feb	Mar	Apr
AECO	\$1,018,226	\$952,534	\$1,018,226	\$985,380
AEP	\$6,833,359	\$6,392,497	\$6,833,359	\$6,612,928
APS	\$3,279,835	\$3,068,232	\$3,279,835	\$3,174,034
ATSI	\$19,097,783	\$17,865,668	\$19,097,783	\$18,481,726
BGE	\$5,546,155	\$5,188,338	\$5,546,155	\$5,367,247
COMED	\$6,679,174	\$6,248,259	\$6,679,174	\$6,463,717
DAY	\$760,832	\$711,746	\$760,832	\$736,289
DEOK	\$1,319,812	\$1,234,663	\$1,319,812	\$1,277,237
DOM	\$5,235,719	\$4,897,930	\$5,235,719	\$5,066,825
DPL	\$2,201,083	\$2,059,077	\$2,201,083	\$2,130,080
DUQ	\$878,296	\$821,632	\$878,296	\$849,964
EKPC	\$47,787	\$44,704	\$47,787	\$46,245
JCPL	\$1,720,510	\$1,609,510	\$1,720,510	\$1,665,010
METED	\$1,667,231	\$1,559,668	\$1,667,231	\$1,613,449
PECO	\$3,824,221	\$3,577,497	\$3,824,221	\$3,700,859
PENELEC	\$2,625,490	\$2,456,104	\$2,625,490	\$2,540,797
PEPCO	\$4,232,745	\$3,959,665	\$4,232,745	\$4,096,205
PPL	\$5,591,452	\$5,230,713	\$5,591,452	\$5,411,083
PSEG	\$3,862,880	\$3,613,662	\$3,862,880	\$3,738,271
RECO	\$103,031	\$96,384	\$103,031	\$99,707
<b>Total</b>	<b>\$76,525,621</b>	<b>\$71,588,484</b>	<b>\$76,525,621</b>	<b>\$74,057,052</b>

**Total Capacity Credits: \$298,696,778**

**Figure 44: 2016 Economic Demand Response Dispatched vs Settled Real-Time Energy Market Summary**

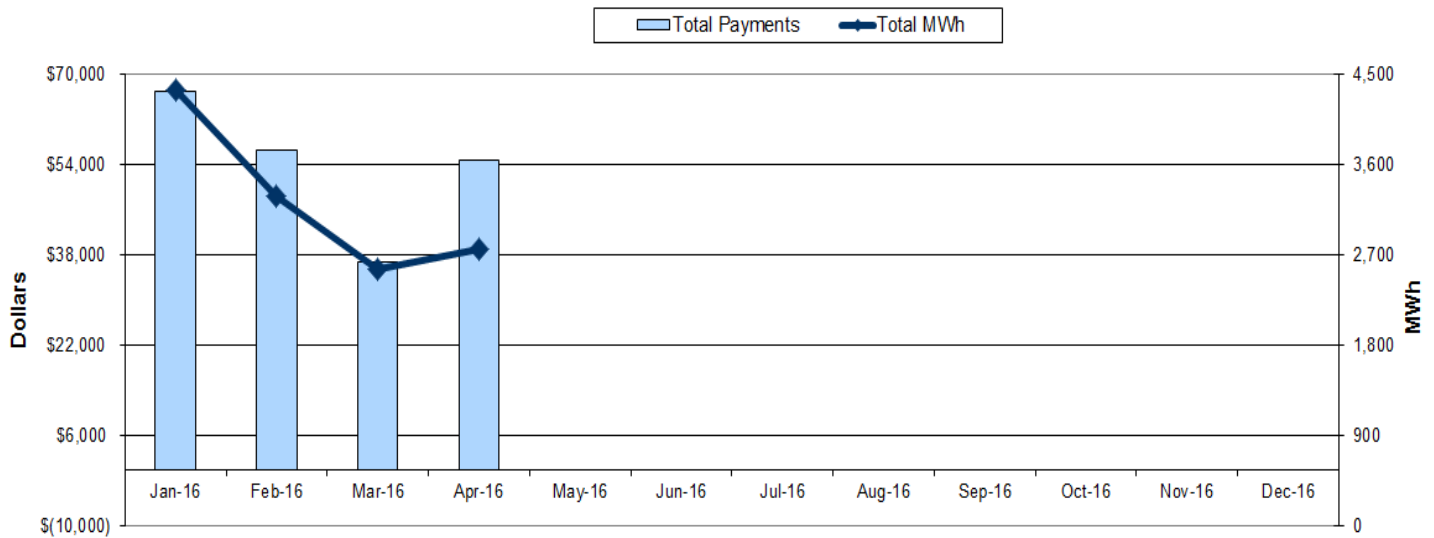
Time		CSPs		Zone		Registrations			MWh			Registration Hours		
Year	Month	Dispatched	Settled	Dispatched	Settled	Dispatched	Settled	%	Dispatched	Settled	%	Dispatched	Settled	%
2016	1	4	4	8	8	14	14	100%	3,621	4,160	115%	610	610	100%
2016	2	4	4	7	7	10	10	100%	2,204	2,633	119%	288	277	96%
2016	3	4	4	7	6	9	8	89%	2,372	2,774	117%	272	223	82%
2016	4	4	2	5	2	10	2	20%	3,888	2,220	57%	622	48	8%
2016	5	3		5		5			345			62		
2016	6													
2016	7													
2016	8													
2016	9													
2016	10													
2016	11													
2016	12													
<b>YTD Totals</b>						<b>48</b>	<b>34</b>	<b>71%</b>	<b>12,429</b>	<b>11,787</b>	<b>95%</b>	<b>1,854</b>	<b>1,158</b>	<b>62%</b>
<b>YTD Average</b>		<b>4</b>	<b>4</b>	<b>6</b>	<b>6</b>									

**Figure 45: 2016 Economic Demand Response Cleared vs Settled Day-Ahead Energy Market Summary**

Time		CSPs		Zone		Registrations			MWh			Registration Hours		
Year	Month	Cleared	Settled	Cleared	Settled	Cleared	Settled	%	Cleared	Settled	%	Cleared	Settled	%
2016	1	3	3	3	3	7	7	100%	3,557	3,967	112%	872	872	100%
2016	2	3	3	4	4	8	8	100%	1,568	1,905	121%	401	400	100%
2016	3	2	2	2	2	6	5	83%	349	156	45%	109	44	40%
2016	4	2	1	2	1	6	1	17%	2,168	446	21%	764	99	13%
2016	5	1		1		1			55			17		
2016	6													
2016	7													
2016	8													
2016	9													
2016	10													
2016	11													
2016	12													
<b>YTD Totals</b>						<b>28</b>	<b>21</b>	<b>75%</b>	<b>7,697</b>	<b>6,474</b>	<b>84%</b>	<b>2,163</b>	<b>1,415</b>	<b>65%</b>
<b>YTD Average</b>		<b>2</b>	<b>2</b>	<b>2</b>	<b>3</b>									

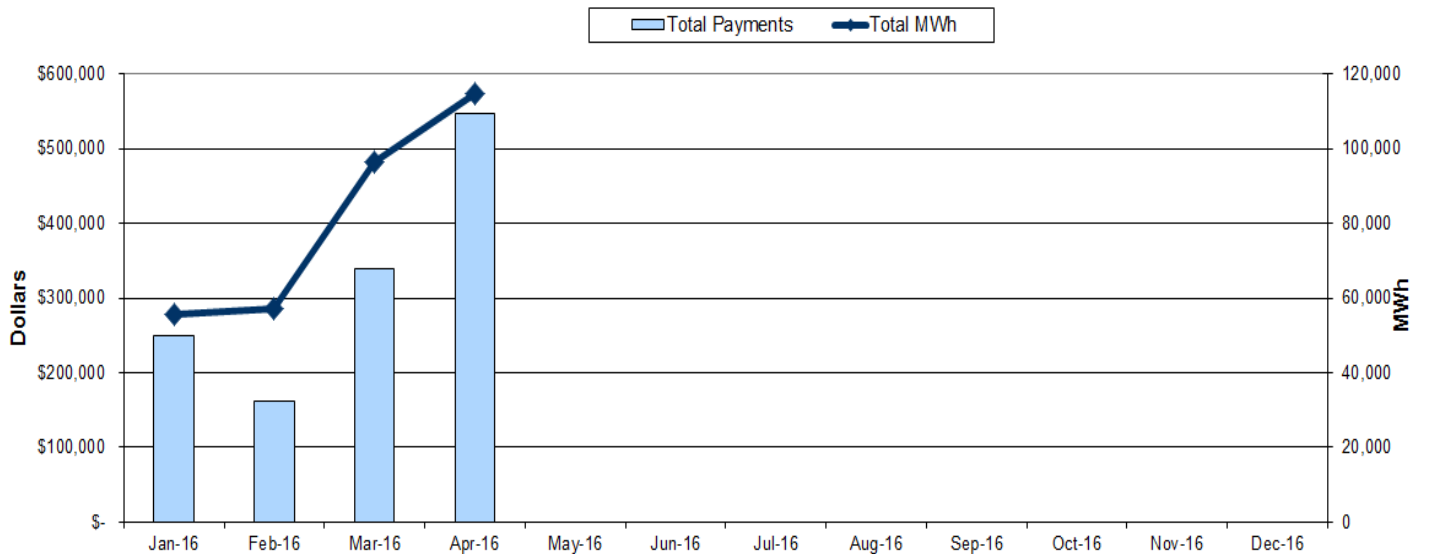
Note: For Figures 44 and 45 above, Settlement information submitted up to 60 days after the event. Therefore, YTD performance reflected in these reports for the current 2 months is artificially low due to incomplete information at the time of report preparation.

**Figure 46: 2016 Economic Demand Response Regulation Market Participation**



	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Total
Total MWh	4,349	3,295	2,565	2,756									12,966
Total Payments	\$66,904	\$56,484	\$36,874	\$54,895									\$215,158
\$ / MWh	\$15.38	\$17.14	\$14.37	\$19.92									\$16.59

**Figure 47: 2016 Economic Demand Response Synchronous Reserve Market Participation**

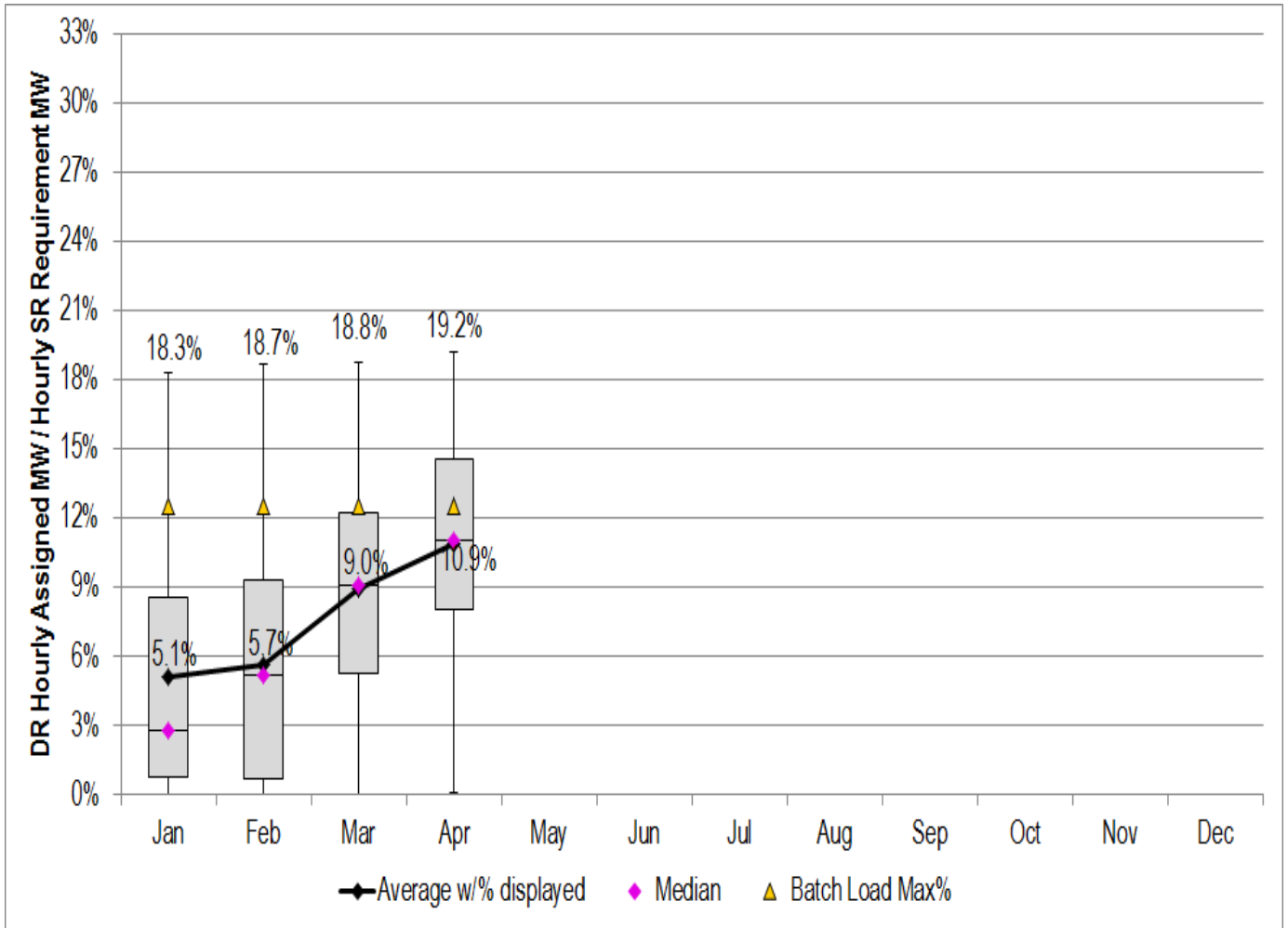


	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Total
Total MWh	55,640	57,085	96,640	114,593									323,959
Total Payments	\$249,849	\$161,092	\$339,892	\$547,426									\$1,298,259
\$ / MWh	\$4.49	\$2.82	\$3.52	\$4.78									\$4.01

Note: For Figures 46 and 47 above, MWh=sum of the settled MW. Example: 1 MW load available for 12 hours = 12 MWh.

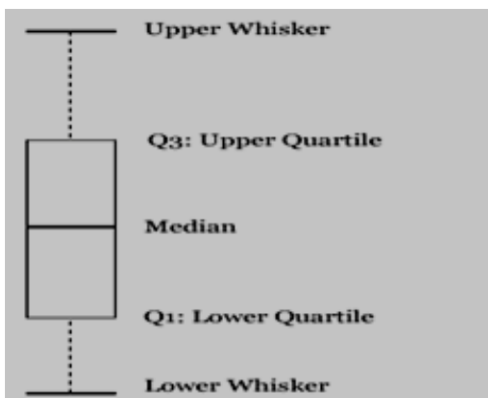


**Figure 48: Economic DR Synchronous Reserve Penetration Distribution (Box-plot) for 2016**



**Notes:**

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