

2015 Demand Response Operations Markets Activity Report: March 2015

James McAnany

PJM Demand Side Response Operations

March 10, 2015



This page is intentionally left blank

Figure 1: Delivery Year 14/15 Active Participants in PJM Economic and Load Management DR Programs

State	Zone	EDC	Economic Program		Emergency Energy Only		Load Management DR		Emergency Energy and Load Management DR Total	Unique	
			Locations	MW	Locations	MW	Locations	MW	MW	Locations	MW
DC	PEPCO	PEPCO	16	20.4			216	83.0	83.0	221	84.0
DE	DPL	DEMEC	12	7.1			25	11.3	11.3	25	11.3
DE	DPL	DOVDE					7	3.1	3.1	7	3.1
DE	DPL	DPL	9	106.8			254	144.3	144.3	257	173.6
DE	DPL	ODEC					10	1.6	1.6	10	1.6
IL	COMED	COMED	2,100	481.0			2,008	1,081.5	1,081.5	4,061	1,429.6
IL	COMED	IMEAA1					2	49.6	49.6	2	49.6
IN	AEP	AEPSCT	7	283.5			100	322.5	322.5	100	322.5
IN	AEP	HEREC					1	20.8	20.8	1	20.8
IN	AEP	WVSDI					1	47.0	47.0	1	47.0
KY	DEOK	DEK					72	30.8	30.8	72	30.8
KY	EKPC	EKPC					11	123.2	123.2	11	123.2
MD	APS	AETSAP	49	16.6			179	94.4	94.4	180	94.5
MD	APS	AETSHG					3	0.5	0.5	3	0.5
MD	APS	AETSTH					2	0.1	0.1	2	0.1
MD	APS	AETSWP					1	0.1	0.1	1	0.1
MD	BGE	BC	62	592.1			894	767.2	767.2	903	855.9
MD	DPL	BRLNMD					2	0.1	0.1	2	0.1
MD	DPL	DPL	1	28.0			226	76.0	76.0	226	76.0
MD	DPL	EASTON					8	2.8	2.8	8	2.8
MD	DPL	ODEC	1	1.5			35	11.5	11.5	35	11.5
MD	PEPCO	PEPCO	9	265.0			403	406.5	406.5	403	406.5
MD	PEPCO	SMECO	5	0.4			120	58.7	58.7	120	58.7
NC	DOM	DOMEDC	1	37.0					0.0	1	37.0
NJ	AECO	AE	8	43.0			244	94.4	94.4	245	94.5
NJ	AECO	VMEU	1	0.2			23	5.6	5.6	24	5.8
NJ	JCPL	AECI					1	0.2	0.2	1	0.2
NJ	JCPL	BSHNJ	1	6.0						1	6.0
NJ	JCPL	JCBGS	24	61.7			432	146.8	146.8	434	196.5
NJ	PSEG	PSEG	38	64.6			1,079	352.2	352.2	1,083	375.2
NJ	RECO	RECO					14	4.6	4.6	14	4.6
NY	PENELEC	PaElec					2	1.3	1.3	2	1.3
OH	AEP	AEPCCCL					12	12.6	12.6	12	12.6



State	Zone	EDC	Economic Program		Emergency Energy Only		Load Management DR		Emergency Energy and Load Management DR Total	Unique	
			Locations	MW	Locations	MW	Locations	MW	MW	Locations	MW
OH	AEP	AEPSCT	14	70.0			921	626.2	626.2	924	633.0
OH	AEP	AMPO					28	72.5	72.5	28	72.5
OH	AEP	BUCK					2	19.9	19.9	2	19.9
OH	ATSI	AMPO					25	84.0	84.0	25	84.0
OH	ATSI	BUCK					2	5.5	5.5	2	5.5
OH	ATSI	CPP					16	48.7	48.7	16	48.7
OH	ATSI	OEEDC	20	118.0			879	570.4	570.4	885	643.1
OH	DAY	AMPO					9	34.5	34.5	9	34.5
OH	DAY	BUCK					2	4.1	4.1	2	4.1
OH	DAY	DAYEDC	6	6.0			162	108.7	108.7	162	108.7
OH	DEOK	AMPO					1	11.6	11.6	1	11.6
OH	DEOK	BUCK					2	2.1	2.1	2	2.1
OH	DEOK	DEOHIO	2	51.0			361	234.3	234.3	363	285.3
PA	APS	AECI					7	1.3	1.3	7	1.3
PA	APS	AETSAP	12	32.0			644	370.7	370.7	647	383.0
PA	APS	CHBDTE					1	0.4	0.4	1	0.4
PA	ATSI	PAPWR	2	0.6			78	68.2	68.2	78	68.2
PA	DUQ	DLCO	9	19.1			345	97.6	97.6	347	114.4
PA	METED	AECI					1	1.7	1.7	1	1.7
PA	METED	MetEd	35	36.0			536	235.7	235.7	537	238.7
PA	PECO	PE	129	87.8			1,444	404.7	404.7	1,453	423.4
PA	PENELEC	AECI					30	13.6	13.6	30	13.6
PA	PENELEC	PaElec	4	10.8			649	282.2	282.2	650	289.2
PA	PENELEC	WELLSB					1	1.2	1.2	1	1.2
PA	PPL	AMPO					11	1.3	1.3	11	1.3
PA	PPL	CTZECL					6	2.4	2.4	6	2.4
PA	PPL	PPL	261	181.8			1,509	611.0	611.0	1,529	737.1
PA	PPL	UGI-UI					18	6.3	6.3	18	6.3
TN	AEP	AEPSCT	1	30.0			10	5.8	5.8	11	35.8
VA	AEP	AEPSCT	2	3.1			205	218.3	218.3	205	218.3
VA	AEP	AMPO					9	12.1	12.1	9	12.1
VA	APS	ODEC					49	23.7	23.7	49	23.7
VA	DOM	CVEC					5	4.4	4.4	5	4.4
VA	DOM	DOMEDC	39	67.6			861	663.3	663.3	868	692.5
VA	DOM	DOMVME					25	80.7	80.7	25	80.7



State	Zone	EDC	Economic Program		Emergency Energy Only		Load Management DR		Emergency Energy and Load Management DR Total	Unique	
			Locations	MW	Locations	MW	Locations	MW	MW	Locations	MW
VA	DOM	NVEC	2	14.6			33	21.0	21.0	35	35.6
VA	DOM	ODEC	2	73.9			46	93.3	93.3	47	164.7
VA	DPL	ODEC					18	1.8	1.8	18	1.8
WV	AEP	AEPSCT	5	72.4			297	212.0	212.0	298	216.0
WV	AEP	APWVP					4	0.5	0.5	4	0.5
WV	APS	AETSAP	93	49.7			285	147.9	147.9	287	172.9
Total			2,982	2,939			15,924	9,360	9,360	18,066	10,432

Note:

- 1) Data as of 3/5/2015.
- 2) Load Management 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

Figure 2: Delivery Year 14/15 MWs in PJM Load Management DR by Resource, Product, and Lead Times

Zone	Resource	DR Product			Lead Times (Minutes)			Total DR
		Limited	Extended	Annual	30	60	120	MW
AECO								
	Pre-Emergency	49.6	49.4	0.0	0.0	0.1	98.8	99.0
	Emergency	1.0	0.0	0.0	0.0	0.0	1.0	1.0
	Total	50.6	49.4	0.0	0.0	0.1	99.9	100.0
AEP								
	Pre-Emergency	1347.3	47.7	0.0	41.7	347.7	1005.5	1394.9
	Emergency	166.8	8.4	0.0	0.0	0.0	175.2	175.2
	Total	1514.1	56.1	0.0	41.7	347.7	1180.7	1570.1
APS								
	Pre-Emergency	445.2	104.0	0.4	0.4	0.5	548.7	549.6
	Emergency	83.4	6.0	0.0	0.0	0.0	89.5	89.5
	Total	528.7	110.1	0.4	0.4	0.5	638.2	639.1
ATSI								
	Pre-Emergency	486.1	39.3	0.0	0.0	5.5	519.9	525.4
	Emergency	246.3	5.0	0.0	0.0	0.0	251.3	251.3
	Total	732.5	44.3	0.0	0.0	5.5	771.3	776.8
BGE								
	Pre-Emergency	655.9	26.4	5.1	509.9	0.0	177.5	687.4
	Emergency	69.8	10.0	0.0	0.0	0.0	79.8	79.8
	Total	725.7	36.4	5.1	509.9	0.0	257.3	767.2
COMED								
	Pre-Emergency	686.8	121.0	0.0	0.0	43.1	764.6	807.8
	Emergency	293.6	29.8	0.0	0.0	0.0	323.4	323.4
	Total	980.4	150.8	0.0	0.0	43.1	1088.0	1131.2
DAY								
	Pre-Emergency	118.7	2.3	0.0	0.0	28.8	92.2	121.0
	Emergency	26.1	0.1	0.0	0.0	0.0	26.2	26.2
	Total	144.8	2.4	0.0	0.0	28.8	118.4	147.2
DEOK								
	Pre-Emergency	242.2	2.8	0.0	0.0	13.7	231.4	245.0
	Emergency	33.6	0.0	0.0	0.0	0.0	33.6	33.6
	Total	275.9	2.8	0.0	0.0	13.7	265.0	278.7
DOM								
	Pre-Emergency	476.0	24.9	27.5	0.0	14.2	514.1	528.3
	Emergency	334.4	0.0	0.0	0.0	0.0	334.4	334.4
	Total	810.4	24.9	27.5	0.0	14.2	848.5	862.7

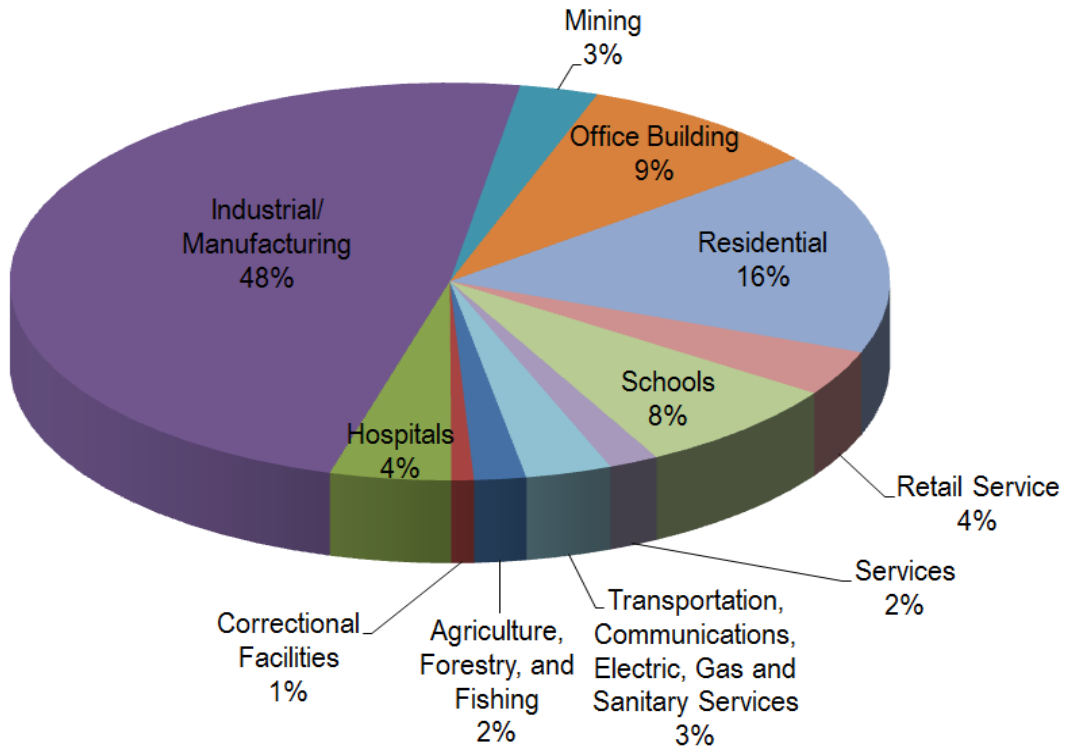


Zone	Resource	DR Product			Lead Times (Minutes)			Total DR
		Limited	Extended	Annual	30	60	120	MW
DPL								
	Pre-Emergency	117.2	116.8	0.0	0.0	0.0	234.0	234.0
	Emergency	17.6	0.9	0.0	0.0	0.0	18.5	18.5
	Total	134.8	117.7	0.0	0.0	0.0	252.5	252.5
DUQ								
	Pre-Emergency	81.4	5.5	0.0	0.0	0.0	86.9	86.9
	Emergency	10.6	0.1	0.0	0.0	0.0	10.7	10.7
	Total	92.0	5.6	0.0	0.0	0.0	97.6	97.6
EKPC								
	Pre-Emergency	123.2	0.0	0.0	0.0	0.0	123.2	123.2
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	123.2	0.0	0.0	0.0	0.0	123.2	123.2
JCPL								
	Pre-Emergency	120.5	13.0	0.0	0.0	21.4	112.0	133.5
	Emergency	13.6	0.0	0.0	0.0	0.0	13.6	13.6
	Total	134.1	13.0	0.0	0.0	21.4	125.6	147.1
METED								
	Pre-Emergency	177.9	10.6	0.0	0.0	2.3	186.2	188.5
	Emergency	39.2	9.7	0.0	0.0	0.0	48.9	48.9
	Total	217.1	20.3	0.0	0.0	2.3	235.1	237.4
PECO								
	Pre-Emergency	270.0	12.5	0.0	0.0	0.3	282.1	282.4
	Emergency	108.2	14.0	0.0	0.0	0.1	122.1	122.2
	Total	378.1	26.5	0.0	0.0	0.5	404.2	404.7
PENELEC								
	Pre-Emergency	222.3	24.8	0.0	0.0	6.8	240.3	247.1
	Emergency	47.8	3.4	0.0	0.0	0.0	51.2	51.2
	Total	270.1	28.2	0.0	0.0	6.8	291.5	298.3
PEPCO								
	Pre-Emergency	154.0	333.6	0.0	0.0	0.0	487.7	487.7
	Emergency	52.0	8.5	0.0	0.0	0.0	60.6	60.6
	Total	206.0	342.2	0.0	0.0	0.0	548.2	548.2
PPL								
	Pre-Emergency	494.8	39.1	0.0	56.1	0.4	477.4	533.9
	Emergency	81.8	5.2	0.0	0.0	0.0	86.9	86.9
	Total	576.6	44.3	0.0	56.1	0.4	564.3	620.9
PSEG								
	Pre-Emergency	298.0	27.2	0.6	86.3	0.6	239.0	325.8
	Emergency	16.9	0.0	9.5	9.5	0.0	16.9	26.4
	Total	314.9	27.2	10.1	95.8	0.6	255.9	352.2

Zone	Resource	DR Product			Lead Times (Minutes)			Total DR
		Limited	Extended	Annual	30	60	120	MW
RECO								
	Pre-Emergency	2.2	1.8	0.0	0.0	0.0	4.0	4.0
	Emergency	0.6	0.0	0.0	0.0	0.0	0.6	0.6
	Total	2.8	1.8	0.0	0.0	0.0	4.6	4.6
TOTAL								
	Pre-Emergency	6569.2	1002.8	33.4	694.5	485.5	6425.5	7605.5
	Emergency	1643.5	101.2	9.5	9.5	0.1	1744.5	1754.1
	Total	8212.7	1104.0	42.9	704.0	485.7	8169.9	9359.6

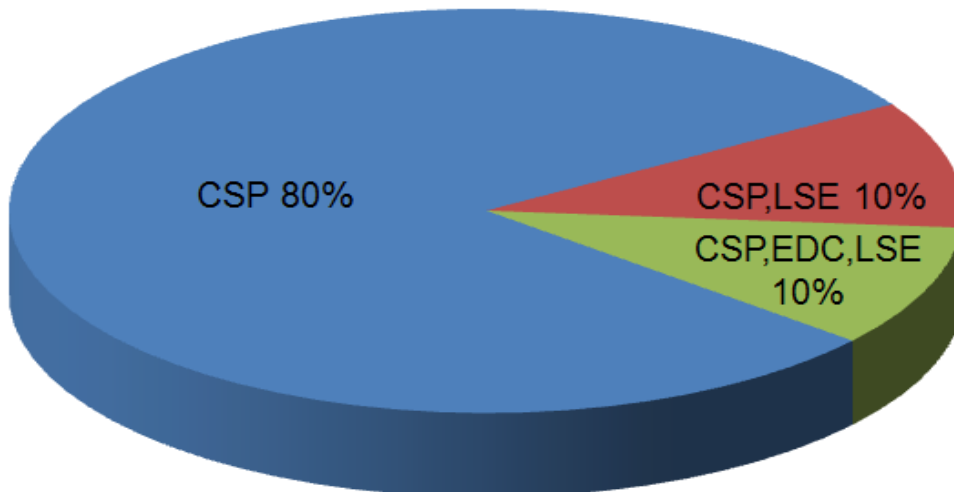
Note: MWs are Nominated Capacity (MWs)

Figure 3: DY 14/15 Confirmed Load Management DR Registrations Business Segments



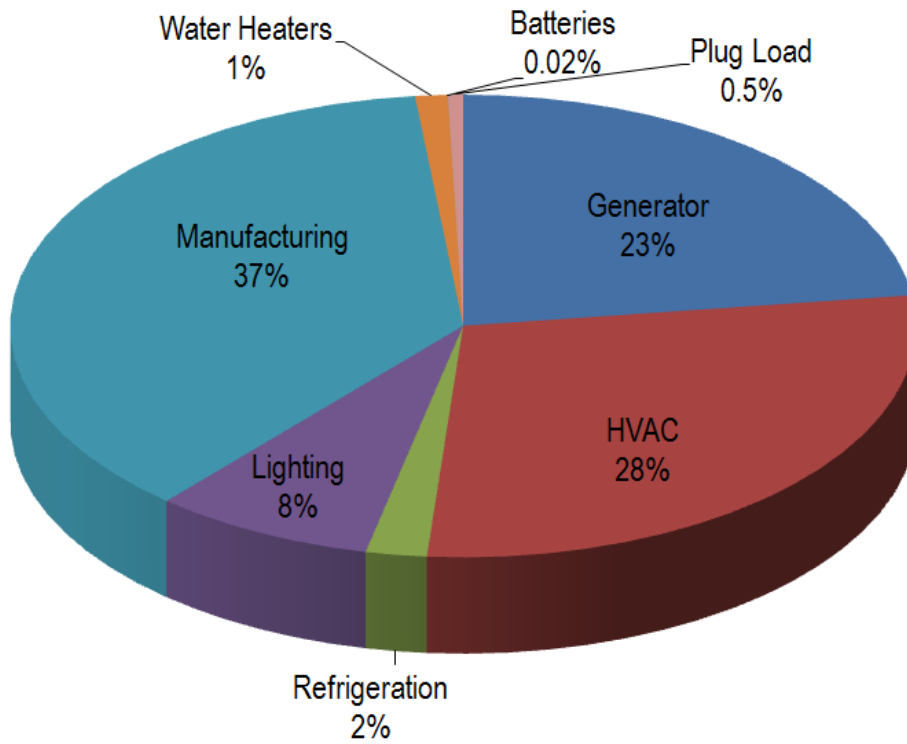
Note: Percent of Nominated Capacity (MWs)

Figure 4: DY 14/15 Confirmed Load Management DR Registrations Owner/Company Type



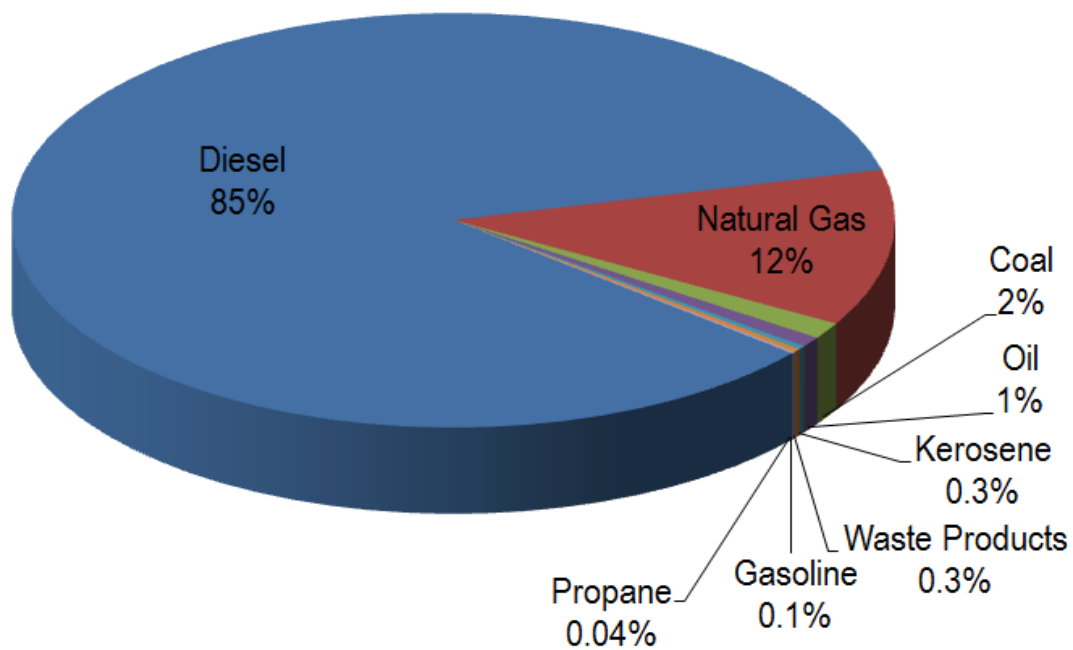
Note: Percent of Nominated Capacity (MWs)

Figure 5: DY 14/15 Confirmed Load Management DR Registrations Customer Load Reduction Methods



Note: Percent of Nominated Capacity (MWs)

Figure 6: DY 14/15 Confirmed Load Management DR Registrations Fuel Mix with Behind the Meter Generation



Note: Percent of Nominated Capacity (MWs)

Figure 7: DY 14/15 Confirmed Load Management DR Registrations Generator and Permit Type

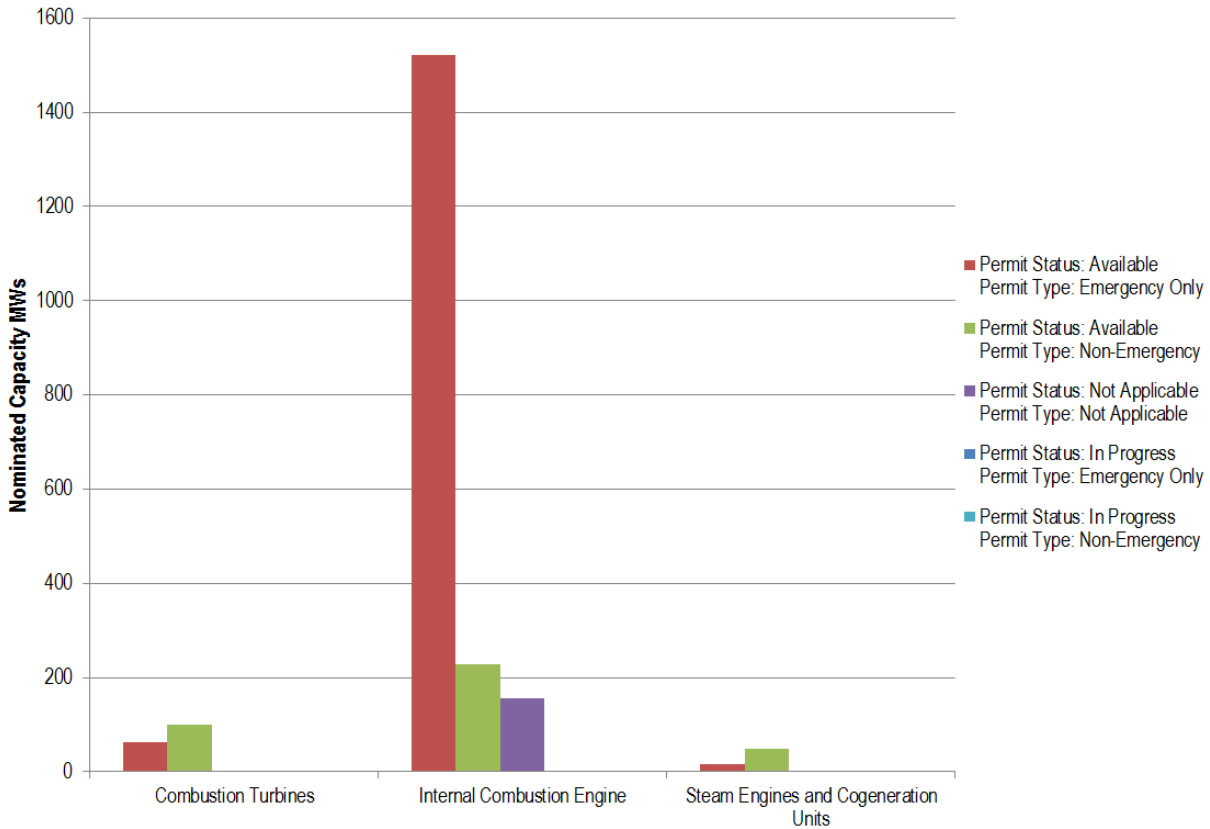


Figure 8: DY 14/15 Confirmed Load Management DR Registrations Fuel Mix with Behind the Meter Generation

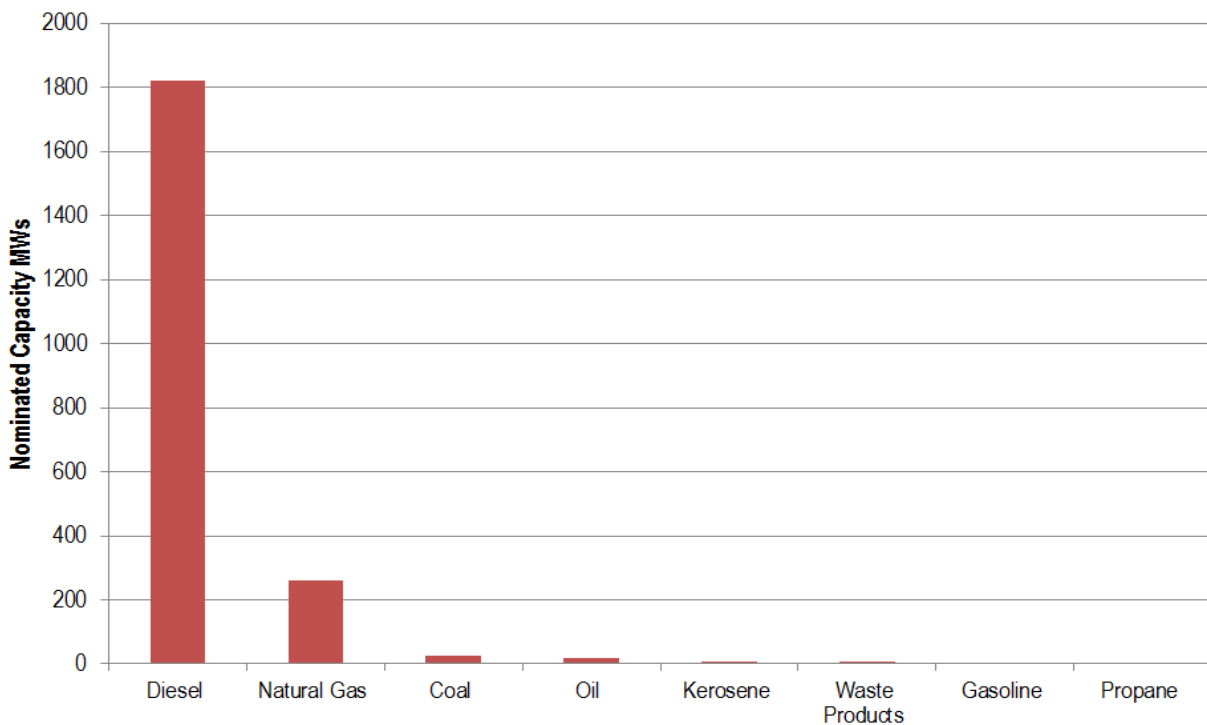


Figure 9: DY 14/15 Confirmed Load Management Full DR Registrations Energy Supply Curve:

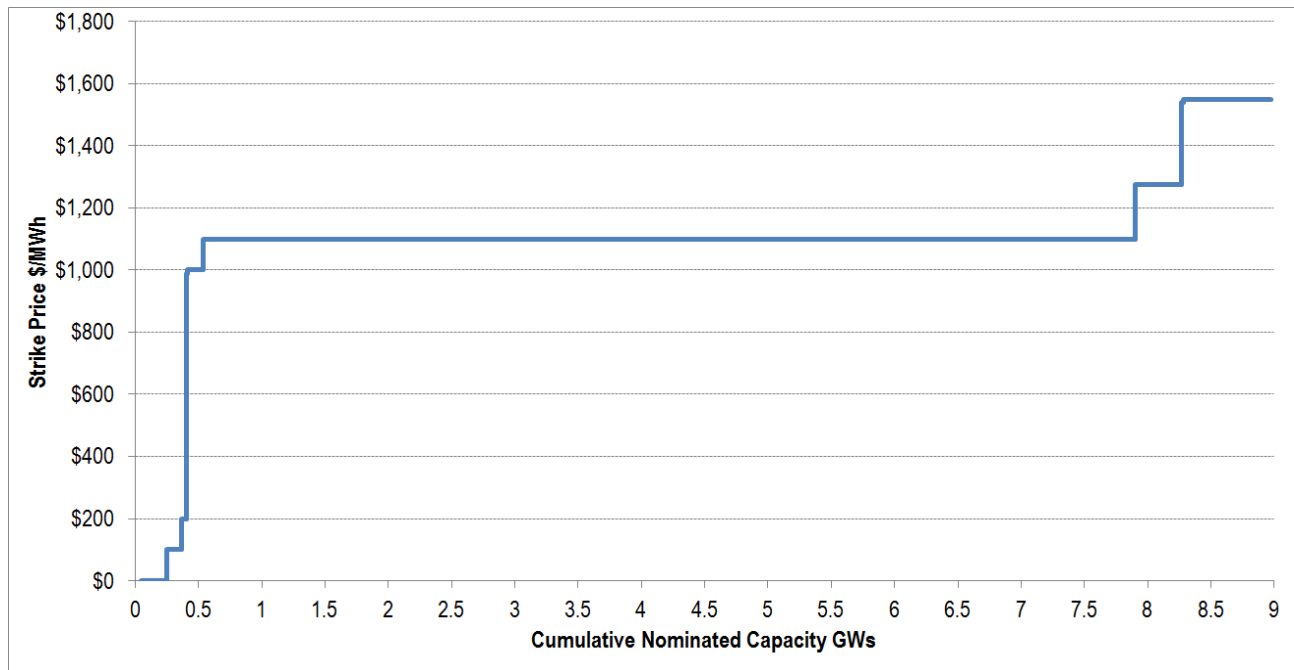


Figure 10: Preliminary DY 15/16 Active Participants in PJM Load Management DR Programs:

State	Zone	EDC	Emergency DR Locations	MW
DE	DPL	DPL	6	23.6
IL	COMED	COMED	57	75.1
IN	AEP	HEREC	1	26.7
IN	AEP	WVPA	1	2.0
IN	AEP	WVSDI	1	55.6
MD	APS	AETSAP	6	0.5
MD	BGE	BC	35	14.4
MD	DPL	DPL	6	0.2
MD	PEPCO	PEPCO	5	7.3
NJ	AECO	AE	11	0.3
NJ	JCPL	JCBGS	20	7.1
NJ	PSEG	PSEG	19	0.6
OH	AEP	AEPOPT	55	59.3
OH	ATSI	OEEDC	30	287.4
OH	DAY	DAYEDC	28	50.1
OH	DEOK	DEOHIO	19	8.8
PA	APS	AETSAP	94	56.6
PA	ATSI	PAPWR	3	0.1
PA	DUQ	DLCO	19	2.4
PA	METED	MetEd	10	1.3
PA	PECO	PE	24	38.1
PA	PENELEC	PaElec	47	29.4
PA	PPL	PPL	28	39.0
VA	DOM	DOMEDC	46	1.0
WV	AEP	AEPAPT	9	6.6
WV	AEP	APWVP	4	0.3
WV	APS	AETSAP	121	38.5
Total			705	832

Note:

1) Data as of 3/5/2015.

2) Emergency MW are in ICAP.

3) Residential Direct Load Control (DLC) reported as one location not total number of end use sites in that program.

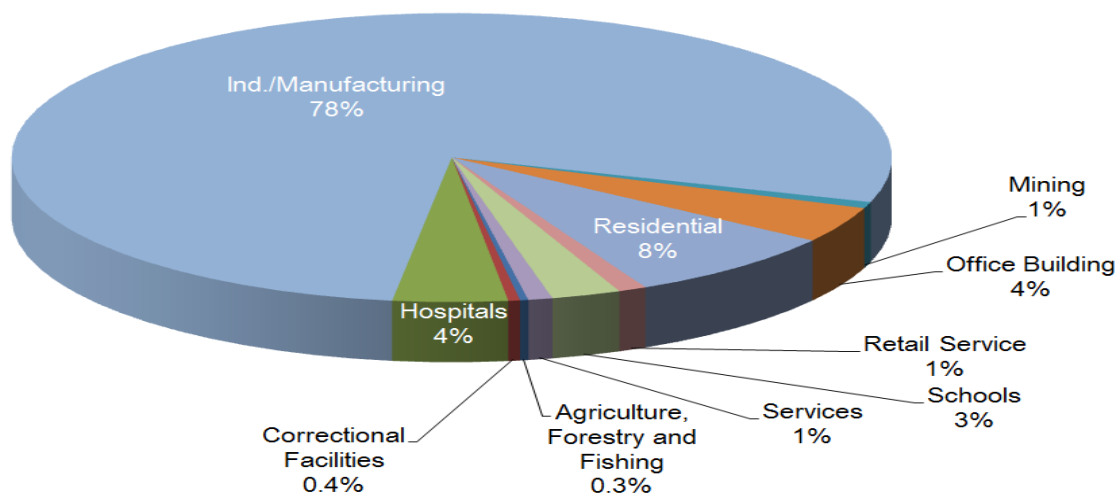
Figure 11: Preliminary DY 15/16 MWs in PJM Load Management DR by Resource, Product, and Lead Times

Zone		DR Product			Lead Times (Minutes)			Total DR MW
		Limited	Extended	Annual	30	60	120	
AECO								
	Pre-Emergency	0.3	0.0	0.0	0.3	0.0	0.0	0.3
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.3	0.0	0.0	0.3	0.0	0.0	0.3
AEP								
	Pre-Emergency	114.9	35.1	0.0	76.2	0.0	73.8	150.0
	Emergency	0.0	0.5	0.0	0.5	0.0	0.0	0.5
	Total	114.9	35.6	0.0	76.6	0.0	73.8	150.5
APS								
	Pre-Emergency	42.7	52.9	0.0	50.8	7.2	37.6	95.5
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	42.7	52.9	0.0	50.8	7.2	37.6	95.5
ATSI								
	Pre-Emergency	280.5	7.1	0.0	25.9	1.3	260.4	287.5
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	280.5	7.1	0.0	25.9	1.3	260.4	287.5
BGE								
	Pre-Emergency	0.7	0.0	0.0	0.7	0.0	0.0	0.7
	Emergency	13.7	0.0	0.0	3.6	0.0	10.1	13.7
	Total	14.4	0.0	0.0	4.3	0.0	10.1	14.4
COMED								
	Pre-Emergency	60.0	15.0	0.0	64.6	0.0	10.4	75.1
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	60.0	15.0	0.0	64.6	0.0	10.4	75.1
DAY								
	Pre-Emergency	50.1	0.0	0.0	31.4	0.0	18.7	50.1
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	50.1	0.0	0.0	31.4	0.0	18.7	50.1
DEOK								
	Pre-Emergency	8.8	0.0	0.0	0.0	0.0	8.8	8.8
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	8.8	0.0	0.0	0.0	0.0	8.8	8.8
DOM								
	Pre-Emergency	1.0	0.0	0.0	1.0	0.0	0.0	1.0
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	1.0	0.0	0.0	1.0	0.0	0.0	1.0
DPL								
	Pre-Emergency	0.3	23.5	0.0	23.8	0.0	0.0	23.8
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.3	23.5	0.0	23.8	0.0	0.0	23.8
DUQ								
	Pre-Emergency	1.3	1.1	0.0	1.5	0.0	0.9	2.4
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	1.3	1.1	0.0	1.5	0.0	0.9	2.4
JCPL								
	Pre-Emergency	0.7	0.0	0.0	0.4	0.0	0.4	0.7
	Emergency	6.4	0.0	0.0	6.4	0.0	0.0	6.4
	Total	7.1	0.0	0.0	6.8	0.0	0.4	7.1

METED								
Pre-Emergency	1.3	0.0	0.0	0.2	0.0	1.1	1.3	
Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	1.3	0.0	0.0	0.2	0.0	1.1	1.3	
PECO								
Pre-Emergency	31.5	6.5	0.0	37.8	0.0	0.2	38.1	
Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	31.5	6.5	0.0	37.8	0.0	0.2	38.1	
PENELEC								
Pre-Emergency	29.4	0.0	0.0	0.3	0.0	29.1	29.4	
Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	29.4	0.0	0.0	0.3	0.0	29.1	29.4	
PEPCO								
Pre-Emergency	0.1	0.0	0.8	0.9	0.0	0.0	0.9	
Emergency	6.4	0.0	0.0	6.4	0.0	0.0	6.4	
Total	6.5	0.0	0.8	7.3	0.0	0.0	7.3	
PPL								
Pre-Emergency	0.6	37.7	0.0	38.3	0.0	0.0	38.3	
Emergency	0.0	0.7	0.0	0.2	0.0	0.5	0.7	
Total	0.6	38.4	0.0	38.5	0.0	0.5	39.0	
PSEG								
Pre-Emergency	0.6	0.0	0.0	0.4	0.2	0.0	0.6	
Emergency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	0.6	0.0	0.0	0.4	0.2	0.0	0.6	
TOTAL								
Pre-Emergency	624.9	178.9	0.8	354.5	8.6	441.5	804.6	
Emergency	26.5	1.2	0.0	17.0	0.0	10.6	27.7	
Total	651.4	180.1	0.8	371.5	8.6	452.2	832.3	

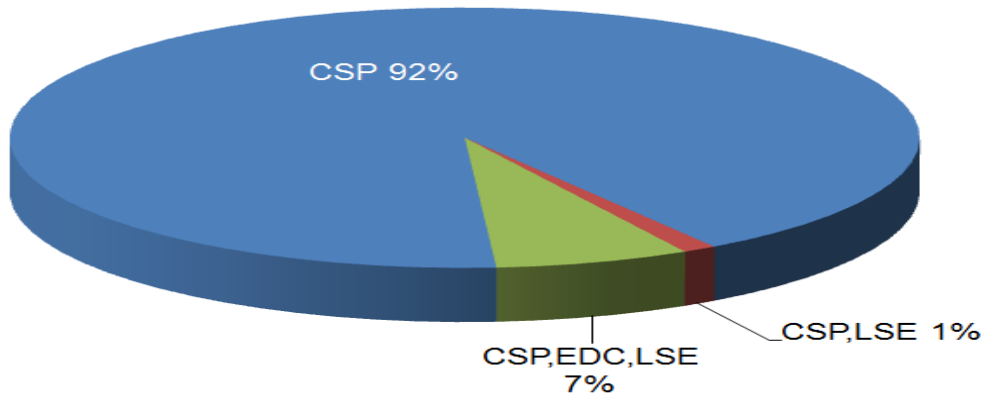
Note: MWs are Nominated Capacity (MWs)

Figure 12: Preliminary DY 15/16 Confirmed Load Management DR Registrations Business Segments



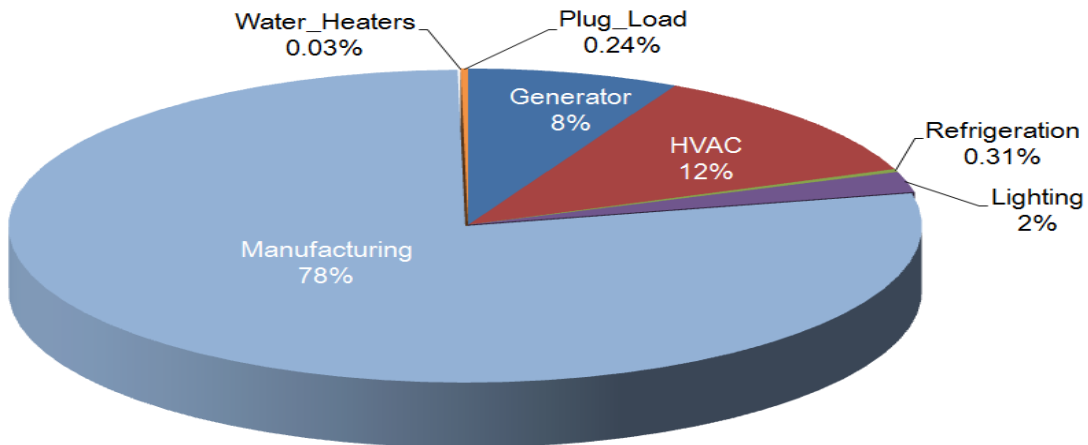
Note: Percent of Nominated Capacity (MWs)

Figure 13: Preliminary DY 15/16 Confirmed Load Management DR Registrations Owner/Company Type



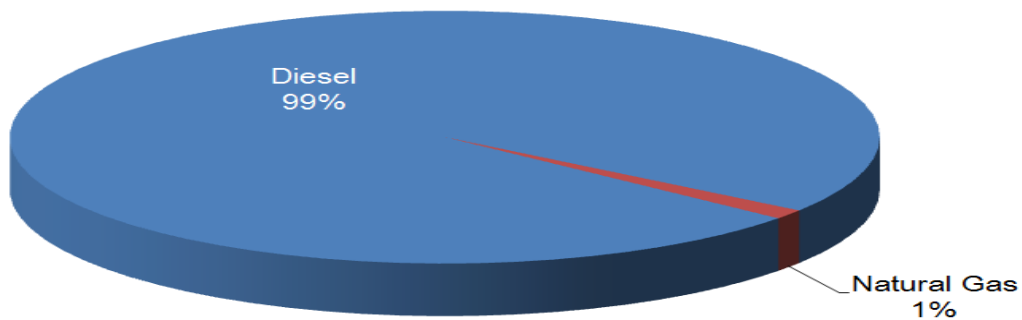
Note: Percent of Nominated Capacity (MWs)

Figure 14: Preliminary DY 15/16 Confirmed Load Management DR Registrations Load Reduction Methods



Note: Percent of Nominated Capacity (MWs)

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



Note: Percent of Nominated Capacity (MWs)

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

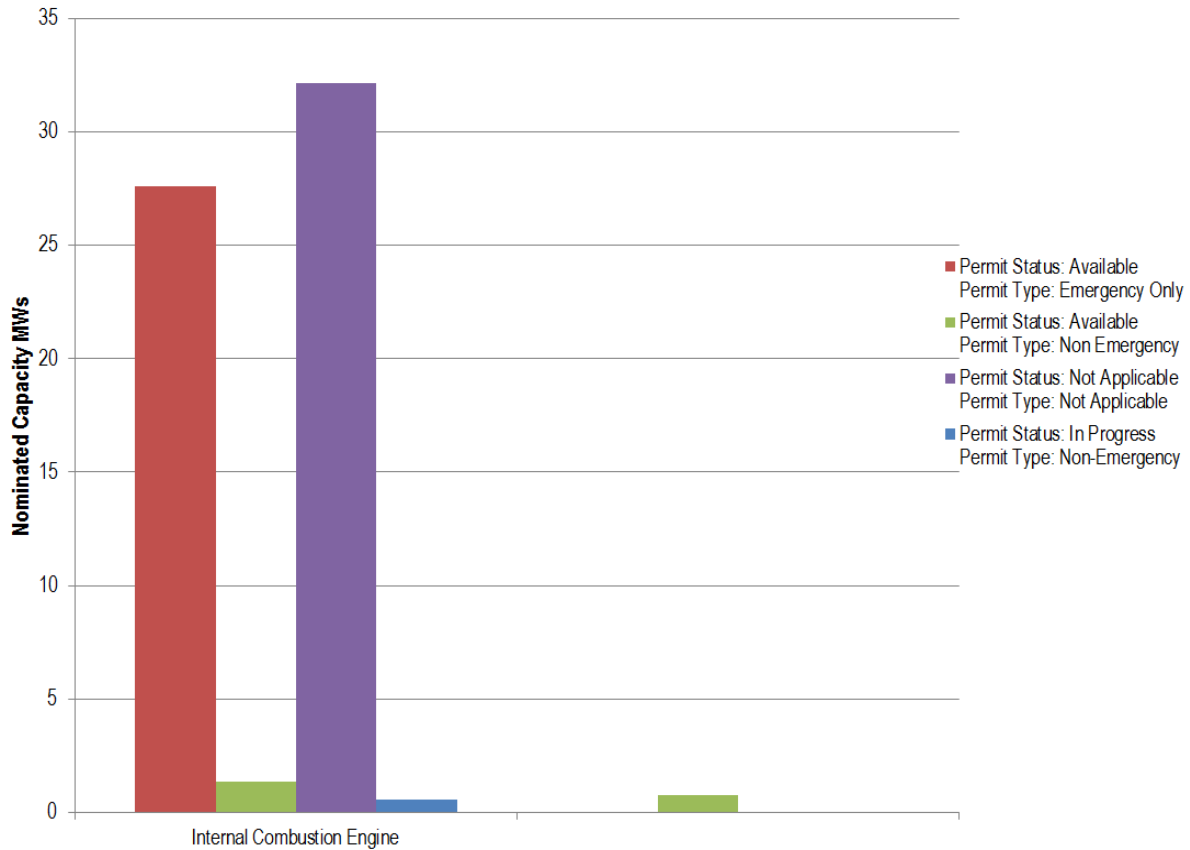


Figure 17: Preliminary DY 15/16 Confirmed Load Management DR Fuel Mix with Behind the Meter Generation

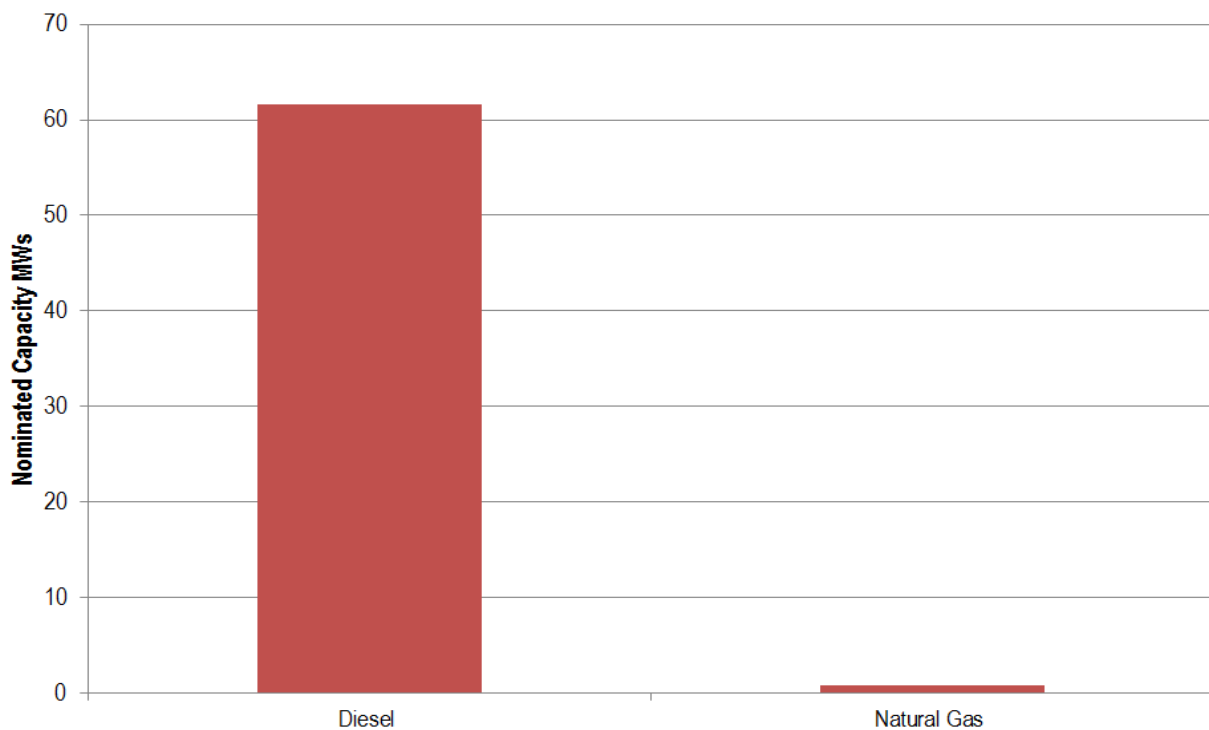


Figure 18: Preliminary DY 15/16 Confirmed Load Management Full DR Registrations Energy Supply Curve:

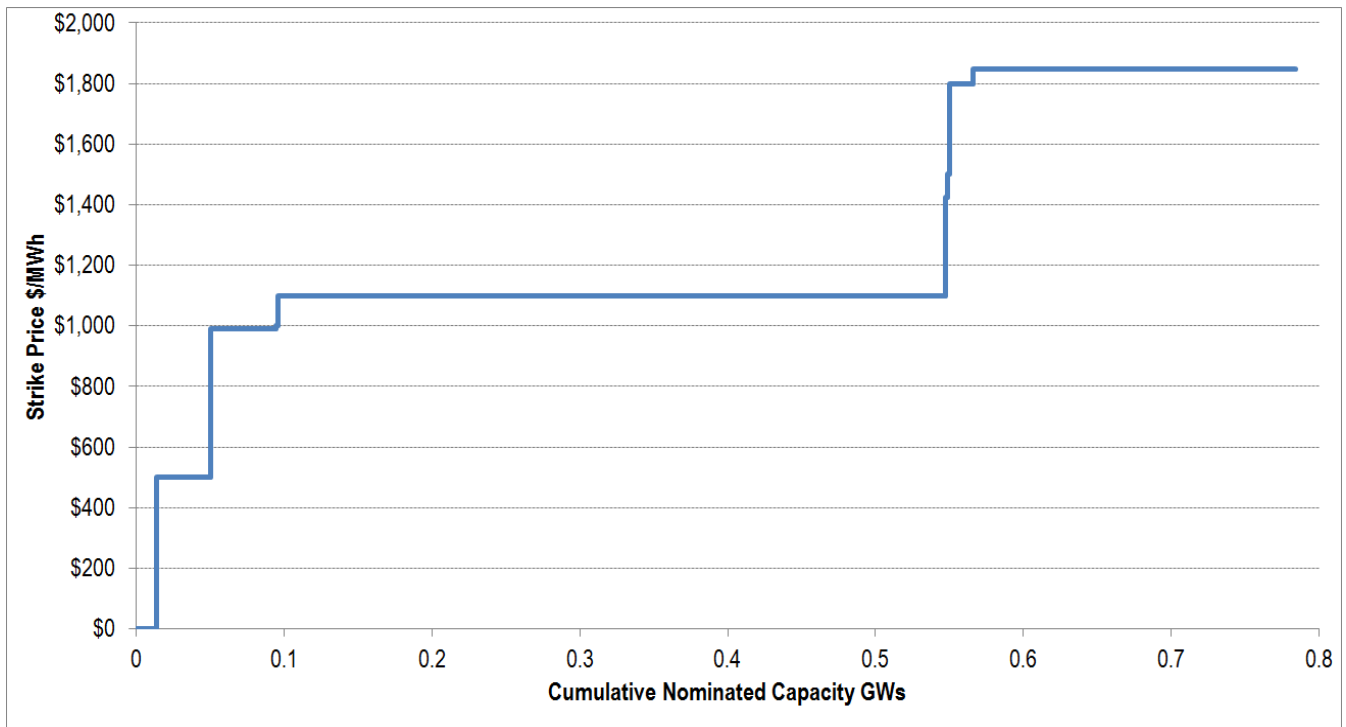
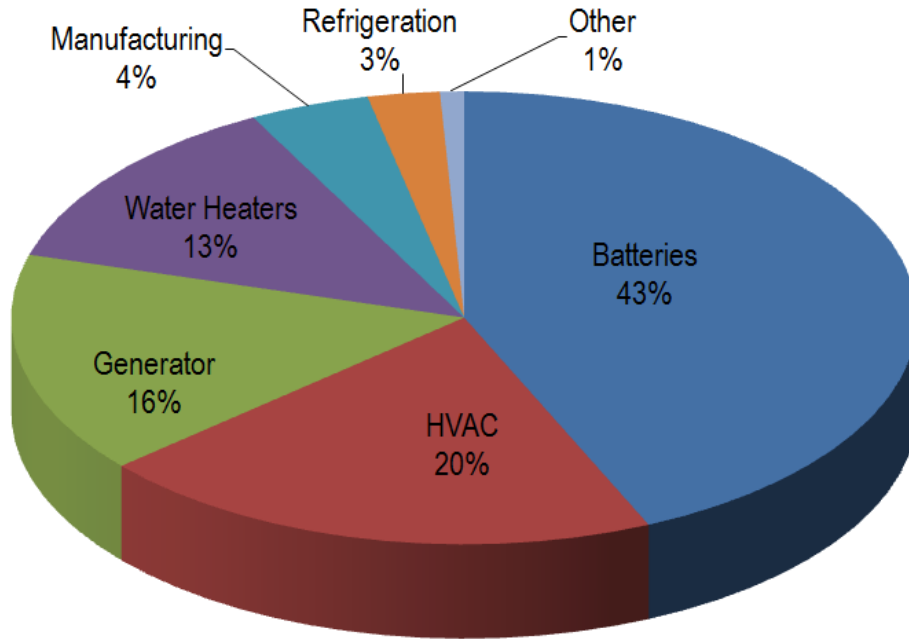


Figure 19: PJM Economic Demand Response Capability in Ancillary Service Markets (2015):

Synch Reserves		Zone	Jan	Feb
Locations		MAD	139	142
		Non-MAD	1	1
		RTO	140	143
Average Number of Unique Participating Locations per Month:			142	
MWs		MAD	329	330
		Non-MAD	6	6
		RTO	335	336
Average MWs per Month:			335	
Regulation		Zone	Jan	Feb
Locations		RTO	274	274
	Average Number of Unique Participating Locations per Month:			274
		RTO	12	12
Average MWs per Month:			12	

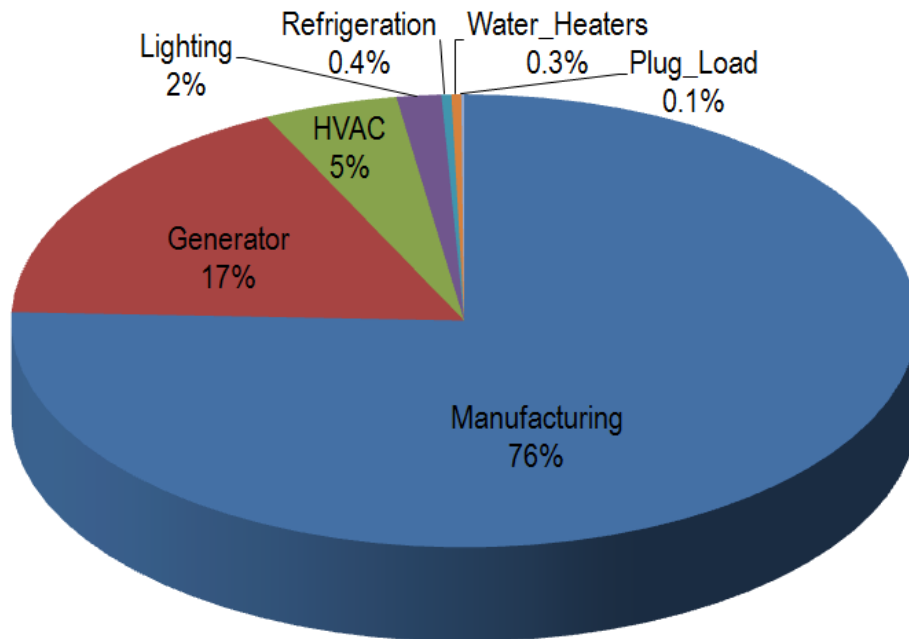
Capability represents total amount that may be offered. Actual offered and cleared volume may be significantly lower and is represented in subsequent figures/tables in report

Figure 20: PJM Demand Response Confirmed Regulation Registrations Load Reduction Methods



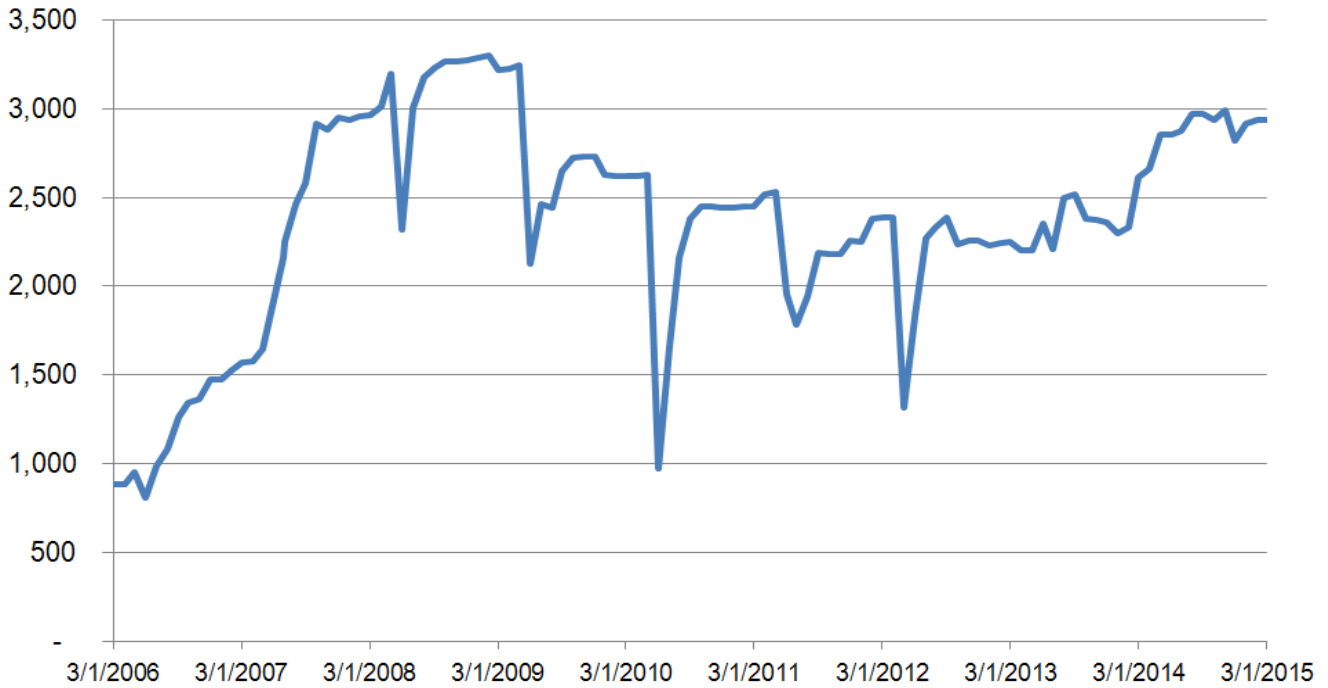
Note: Percent of CSP Reported Load Reduction MWs

Figure 21: PJM Demand Response Confirmed Synch Reserve Registrations Load Reduction Methods



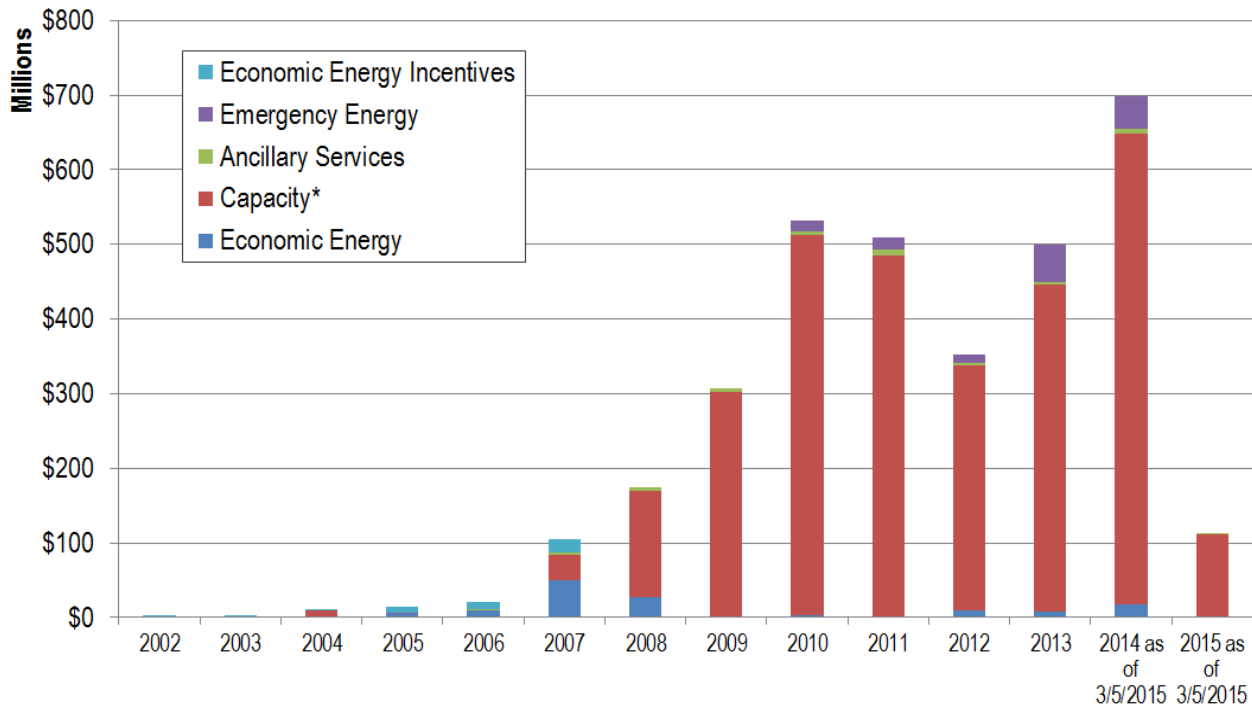
Note: Percent of CSP Reported Load Reduction MWs

Figure 22: PJM Economic Demand Response Capability in Energy Market (3/1/2006-2/5/2015)



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 23: PJM Estimated Revenue for Economic and Load Management DR Markets



*Capacity Net Revenue inclusive of Capacity Credits and Charges.

Figure 24: 2015 Economic Demand Response Monthly Registration Participation

State	Zone	Jan	Feb
IL	COMED	3	3
NJ	JCPL		1
	PSEG	3	1
OH	AEP		1
PA	PECO	3	2
	PENELEC	1	
	PPL	2	
VA	DOM	4	1
WV	APS	1	
Total		17	9

Average Unique Participating Registrations per Month: 13

Figure 25: 2015 Economic Demand Response Monthly Registration Participation Day-Ahead Activity

State	Zone	Jan	Feb
IL	COMED		
NJ	JCPL		
	PSEG	2	1
OH	AEP		1
PA	PECO		
	PENELEC	1	
	PPL	2	
VA	DOM	1	
WV	APS		
Total		6	2

Average Unique Participating Registrations per Month (Day-Ahead): 4

Figure 26: 2015 Economic Demand Response Monthly Registration Participation Real-Time Activity

State	Zone	Jan	Feb
IL	COMED	3	3
NJ	JCPL		1
	PSEG	1	
OH	AEP		
PA	PECO	3	2
	PENELEC		
	PPL		
VA	DOM	3	1
WV	APS	1	
Total		11	7

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

Figure 27: 2015 Economic Demand Response Monthly MWh Reductions

State	Zone	Jan	Feb
IL	COMED	221	330
NJ	JCPL		1
	PSEG	462	370
OH	AEP		6
PA	PECO	16	3
	PENELEC	174	
	PPL	540	
VA	DOM	5,959	5
WV	APS	93	
Total		7,465	714

Total MWh: 8,179

Figure 28: 2015 Economic Demand Response Monthly MWh Reductions Day-Ahead Activity

State	Zone	Jan	Feb
IL	COMED		
NJ	JCPL		
	PSEG	452	370
OH	AEP		6
PA	PECO		
	PENELEC	174	
	PPL	540	
VA	DOM	2	
WV	APS		
Total		1,167	376

Total Day-Ahead MWh: 1,543

Figure 29: 2015 Economic Demand Response Monthly MWh Reductions Real-Time Activity

State	Zone	Jan	Feb
IL	COMED	221	330
NJ	JCPL		1
	PSEG	10	
OH	AEP		
PA	PECO	16	3
	PENELEC		
	PPL		
VA	DOM	5,957	5
WV	APS	93	
Total		6,298	339

Total Real-Time MWh: 6,636

Figure 30: Economic Demand Response Monthly Energy Market Revenue (2015)

State	Zone	Jan	Feb
IL	COMED	\$7,427	\$8,131
NJ	JCPL		\$23
	PSEG	\$35,915	\$54,440
OH	AEP		\$928
PA	PECO	\$1,772	\$92
	PENELEC	\$8,090	
	PPL	\$47,561	
VA	DOM	\$470,133	\$607
WV	APS	\$9,292	
Total		\$580,189	\$64,220

Total CSP Credits: \$644,409

Figure 31: Economic Demand Response Monthly Energy Market Revenue Day-Ahead Activity (2015)

State	Zone	Jan	Feb
IL	COMED		
NJ	JCPL		
	PSEG	\$34,993	\$54,440
OH	AEP		\$928
PA	PECO		
	PENELEC	\$8,090	
	PPL	\$47,561	
VA	DOM	\$111	
WV	APS		
Total		\$90,753	\$55,368

Total Day-Ahead CSP Credits: \$146,121

Figure 32: Economic Demand Response Monthly Energy Market Revenue Real-Time Activity (2015)

State	Zone	Jan	Feb
IL	COMED	\$7,427	\$8,131
NJ	JCPL		\$23
	PSEG	\$922	
OH	AEP		
PA	PECO	\$1,772	\$92
	PENELEC		
	PPL		
VA	DOM	\$470,022	\$607
WV	APS	\$9,292	
Total		\$489,436	\$8,852

Total Real-Time CSP Credits: \$498,288

Figure 33: Economic Demand Response Energy Market Cost Allocation by Zone (2015)

Zone	Jan	Feb
AECO	\$6,580	\$719
AEP	\$94,892	\$10,628
APS	\$38,121	\$4,253
ATSI	\$45,116	\$5,146
BGE	\$25,594	\$2,743
COMED	\$51,411	\$6,656
DAY	\$12,541	\$1,342
DEOK	\$17,538	\$2,049
DOM	\$78,079	\$8,308
DPL	\$14,995	\$1,622
DUQ	\$8,358	\$906
EKPC	\$10,181	\$1,132
JCPL	\$15,300	\$1,610
METED	\$11,281	\$1,201
PECO	\$28,159	\$3,073
PENELEC	\$12,425	\$1,404
PEPCO	\$23,601	\$2,507
PPL	\$31,582	\$3,400
PSEG	\$28,174	\$3,109
RECO	\$942	\$103
Exports	\$25,319	\$2,307
TOTAL	\$580,189	\$64,220

Total Zonal Charges: \$644,409

Figure 34: Economic Demand Response Day-Ahead Energy Market Cost Allocation by Zone (2015)

Zone	Jan	Feb
AECO	\$1,009	\$488
AEP	\$13,344	\$7,091
APS	\$5,506	\$2,830
ATSI	\$6,450	\$3,418
BGE	\$3,734	\$1,832
COMED	\$6,730	\$4,377
DAY	\$1,775	\$893
DEOK	\$2,322	\$1,355
DOM	\$10,801	\$5,545
DPL	\$2,214	\$1,089
DUQ	\$1,089	\$597
EKPC	\$1,440	\$756
JCPL	\$2,351	\$1,097
METED	\$1,689	\$814
PECO	\$4,241	\$2,080
PENELEC	\$1,810	\$931
PEPCO	\$3,435	\$1,670
PPL	\$4,712	\$2,298
PSEG	\$4,275	\$2,056
RECO	\$144	\$68
Exports	\$3,573	\$1,507
TOTAL	\$82,644	\$42,795

Total Day-Ahead Zonal Charges: \$125,438

Figure 35: Economic Demand Response Real-Time Energy Market Cost Allocation by Zone (2015)

Zone	Jan	Feb
AECO	\$5,571	\$231
AEP	\$81,548	\$3,537
APS	\$32,614	\$1,423
ATSI	\$38,666	\$1,727
BGE	\$21,860	\$911
COMED	\$44,682	\$2,279
DAY	\$10,766	\$449
DEOK	\$15,216	\$694
DOM	\$67,278	\$2,763
DPL	\$12,780	\$533
DUQ	\$7,269	\$309
EKPC	\$8,741	\$376
JCPL	\$12,949	\$512
METED	\$9,593	\$387
PECO	\$23,917	\$993
PENELEC	\$10,615	\$473
PEPCO	\$20,166	\$838
PPL	\$26,870	\$1,102
PSEG	\$23,900	\$1,053
RECO	\$798	\$35
Exports	\$21,746	\$800
TOTAL	\$497,545	\$21,426

Total Real-Time Zonal Charges: \$518,971

Figure 36: Load Management Demand Response Monthly Capacity Revenue from RPM (2015)

Zone	Jan	Feb
AECO	\$832,282	\$751,739
AEP	\$6,399,998	\$5,780,644
APS	\$3,492,803	\$3,154,790
ATSI	\$3,841,060	\$3,469,344
BGE	\$5,311,878	\$4,797,825
COMED	\$6,041,237	\$5,456,601
DAY	\$902,087	\$814,788
DEOK	\$341,676	\$308,610
DOM	\$5,338,145	\$4,821,550
DPL	\$1,593,999	\$1,439,741
DUQ	\$868,800	\$784,722
EKPC	\$10,230	\$9,240
JCPL	\$1,766,944	\$1,595,949
METED	\$1,610,323	\$1,454,485
PECO	\$3,358,207	\$3,033,220
PENELEC	\$1,730,838	\$1,563,337
PEPCO	\$3,583,429	\$3,236,645
PPL	\$5,389,586	\$4,868,013
PSEG	\$5,642,193	\$5,096,174
RECO	\$122,927	\$111,031
Total	\$58,178,643	\$52,548,452

Total Capacity Credits: \$110,727,095

Figure 37: 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	5	16	11	69%	7,109	6,298	89%	696	369	53%
2015	2	8	1	14	4	39	7	18%	12,961	339	3%	1,596	138	9%
2015	3	2		3		5			421			62		
2015	4													
2015	5													
2015	6													
2015	7													
2015	8													
2015	9													
2015	10													
2015	11													
2015	12													
YTD Totals						60	18	30%	20,492	6,636	32%	2,354	507	22%
YTD Average		5	3	8	5									

Figure 38: 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	4	6	4	10	6	60%	2,982	1,167	39%	923	246	27%
2015	2	8	1	9	2	14	2	14%	4,329	376	9%	712	112	16%
2015	3	1		2		2			69			26		
2015	4													
2015	5													
2015	6													
2015	7													
2015	8													
2015	9													
2015	10													
2015	11													
2015	12													
YTD Totals						26	8	31%	7,381	1,543	21%	1,661	358	22%
YTD Average		5	3	6	3									

Note: For Figures 37 and 38 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 39: Economic Demand Response Regulation Market Participation (2015)

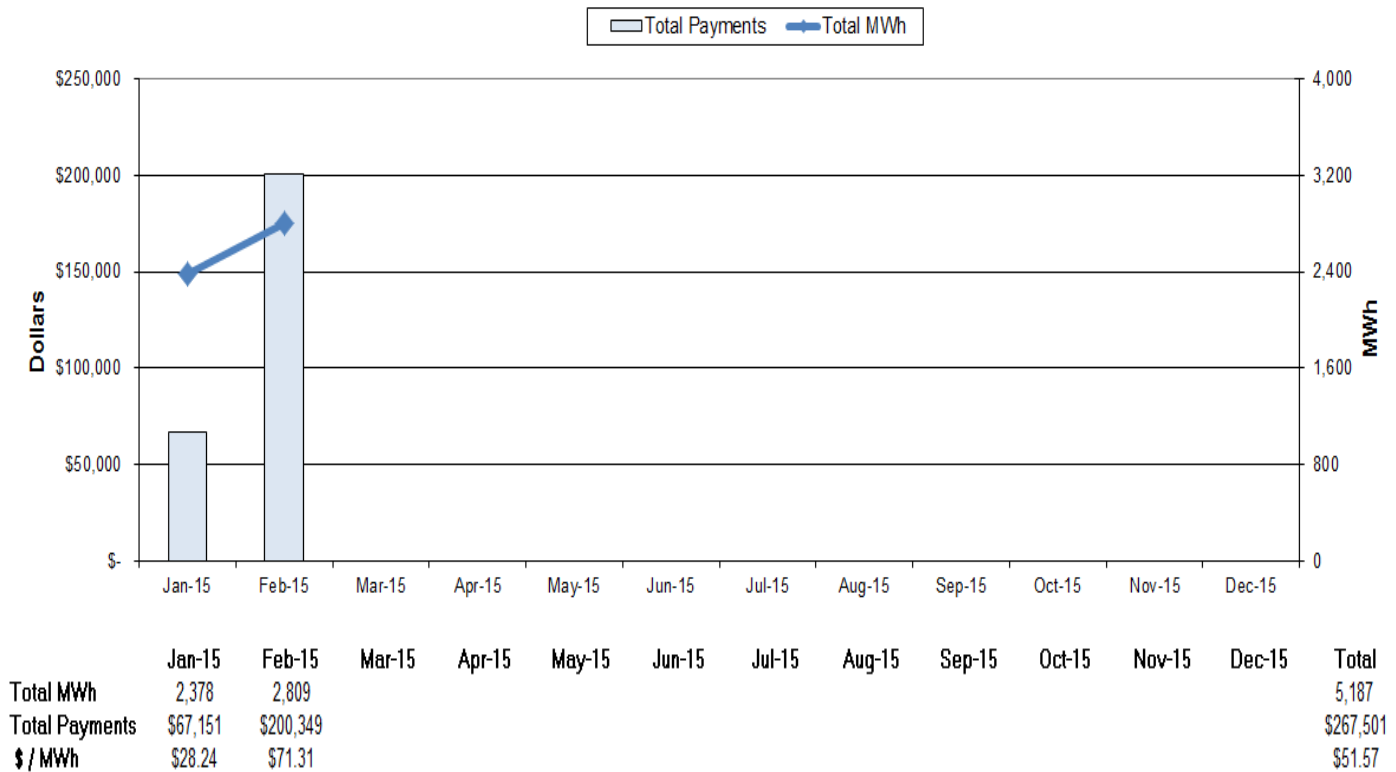
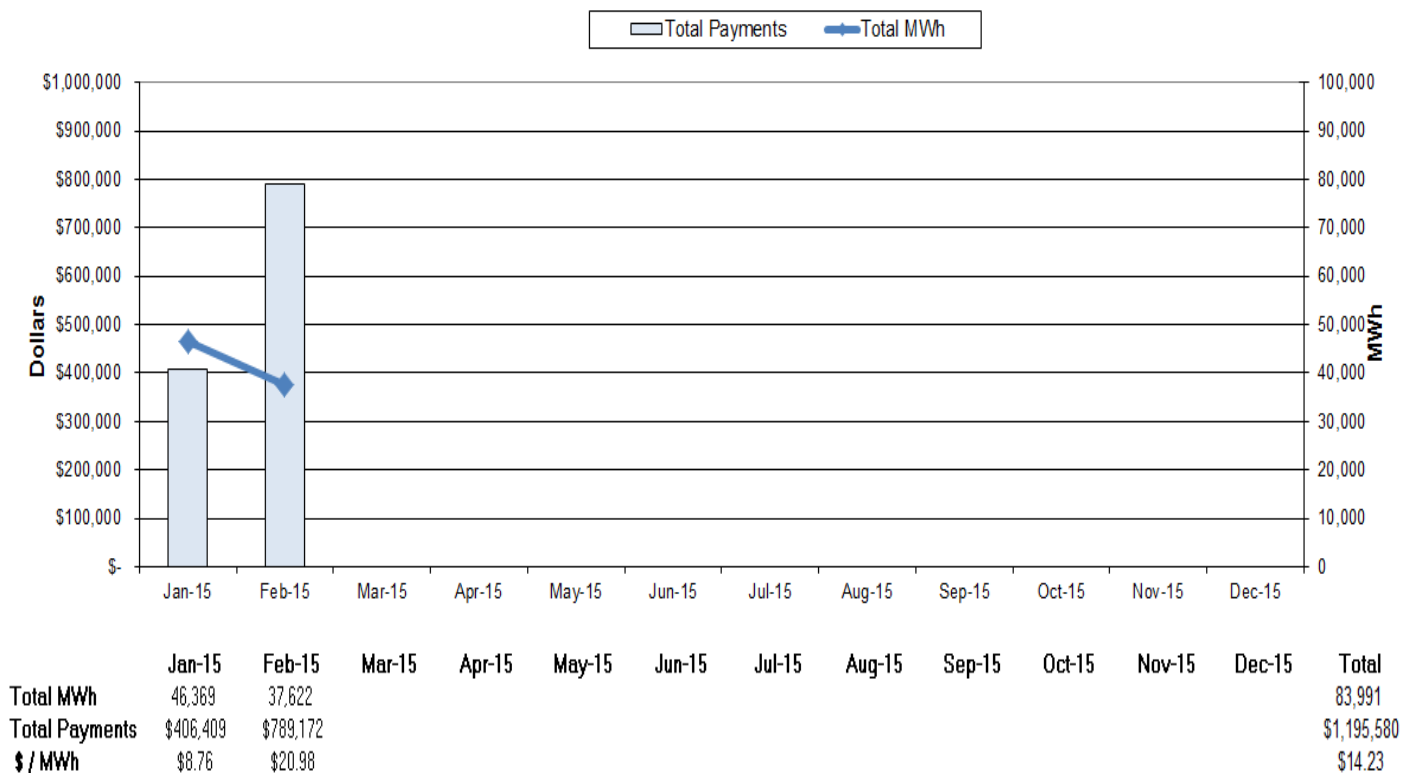
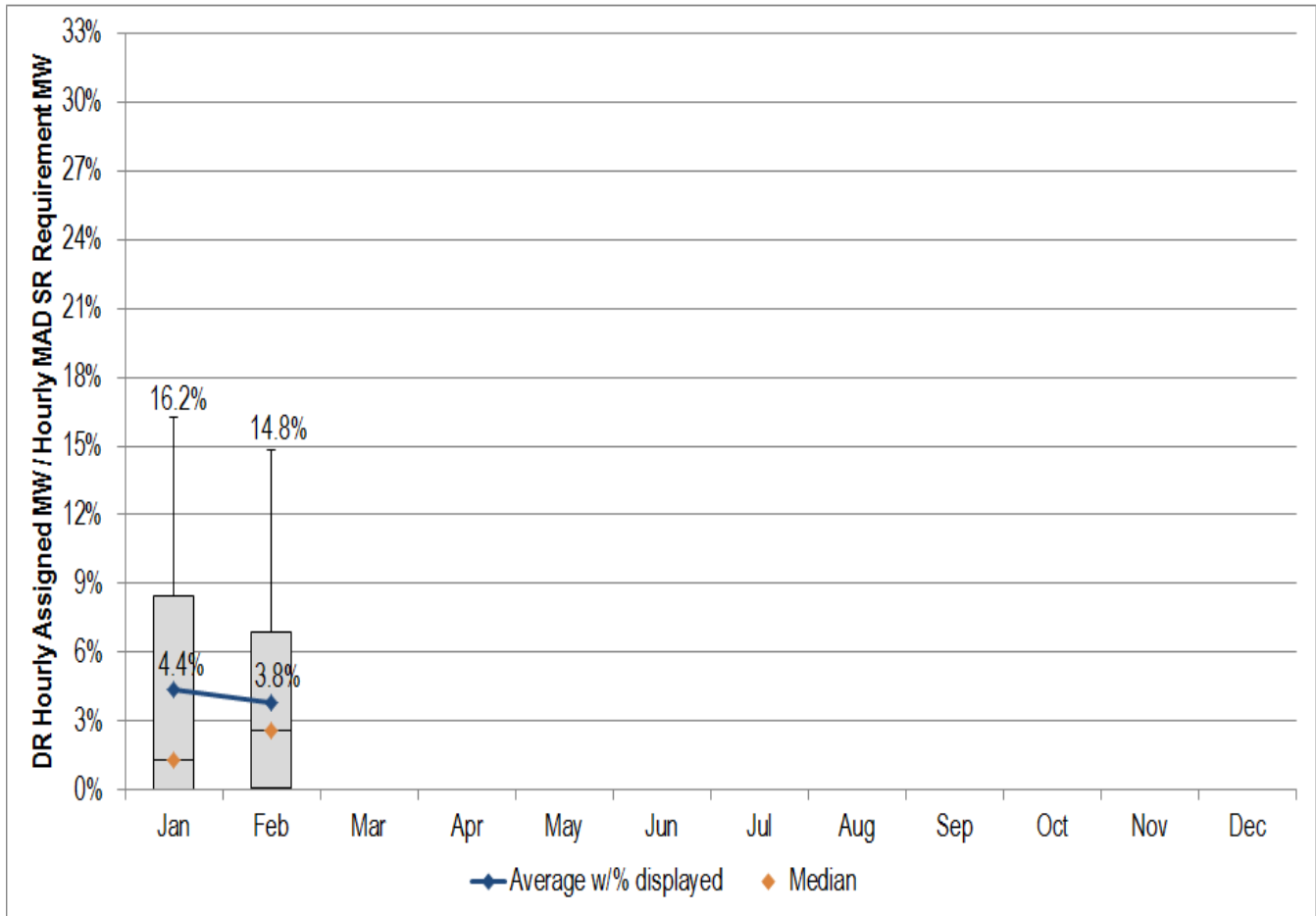


Figure 40: Economic Demand Response Synchronous Reserve Market Participation (2015)



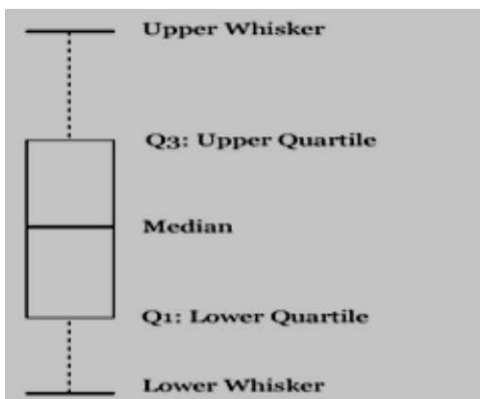
Note: For Figures 39 and 40 above, MWh=sum of the settled MW. Example: 1 MW load available for 12 hours = 12 MWh.

Figure 41: 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