

# 2020 Demand Response Operations Markets Activity Report: April 2020

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PJM Demand Side Response Operations

April 6, 2020



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Figure 1: DY 19/20 Active Participants in DR Programs

State	Zone	EDC	Economic		Emergency Energy Only		Load Management		Unique	
			Locations	MW	Locations	MW	Locations	MW	Locations	MW
DC	PEPCO	PEPCO	2	19.3			187	67.9	187	67.9
DE	DPL	DEMEC	9	5.1			28	17.9	29	22.5
DE	DPL	DOVDE					16	5.1	16	5.1
DE	DPL	DPL	4	158.2			181	214.0	181	214.0
DE	DPL	ODEC					11	4.3	11	4.3
IL	COMED	COMED	21	87.0			2,356	1,542.8	2,361	1,597.9
IL	COMED	GENEVA	1	1.0					1	1.0
IL	COMED	IMEAA1	1	0.3			1	1.7	1	1.7
IN	AEP	AEPIMP					143	315.1	143	315.1
IN	AEP	HEREC					1	22.2	1	22.2
IN	AEP	WVPA	1	6.1			1	6.1	2	12.2
IN	AEP	WVSDI					1	14.2	1	14.2
KY	AEP	AEPKPT					4	3.6	4	3.6
KY	DEOK	DEK					65	19.4	65	19.4
KY	EKPC	EKPC					9	123.2	9	123.2
MD	APS	AETSAP	14	35.3			127	105.9	128	109.4
MD	APS	FESCTH	1	1.8					1	1.8
MD	APS	FESCHG					4	1.2	4	1.2
MD	BGE	BC	48	647.8			675	713.4	681	731.1
MD	DPL	DPL	8	78.3			147	117.3	147	117.3
MD	DPL	EASTON					8	2.0	8	2.0
MD	DPL	ODEC	1	2.2			15	10.4	15	10.4
MD	PEPCO	PEPCO	5	368.1			154	442.0	157	442.6
MD	PEPCO	SMECO	4	0.7			116	42.1	116	42.1
MI	AEP	COSEDC					1	5.2	1	5.2
NJ	AECO	AE	4	51.7			212	108.6	212	108.6
NJ	AECO	VMEU					21	6.7	21	6.7
NJ	JCPL	JCBGS	4	81.7			353	136.7	355	217.2
NJ	PSEG	PSEG	16	59.3	1.0	0.5	909	253.8	915	282.2
NJ	RECO	RECO					16	2.6	16	2.6
NY	PENELEC	PaElec					1	1.4	1	1.4
OH	AEP	AEPOPT	38	318.4			813	483.7	817	620.9
OH	AEP	AMPO					60	60.0	60	60.0
OH	AEP	BUCK					2	20.2	2	20.2
OH	ATSI	AMPO					14	20.2	14	20.2
OH	ATSI	BUCK					2	6.0	2	6.0
OH	ATSI	CPP					14	15.2	14	15.2
OH	ATSI	OEEDC	5	21.2			920	762.9	921	765.9
OH	DAY	AMPO	1	7.0			9	4.7	9	4.7
OH	DAY	BUCK					2	4.2	2	4.2
OH	DAY	DAYEDC	6	4.4			186	147.7	186	147.7
OH	DEOK	AMPO					7	12.8	7	12.8
OH	DEOK	BUCK					2	1.6	2	1.6
OH	DEOK	DEOEDC	16	129.3			404	168.7	404	168.7
PA	APS	AECI					2	0.3	2	0.3
PA	APS	AETSAP	11	47.6			565	315.9	566	316.9
PA	ATSI	PAPWR	3	85.6			92	67.2	93	67.8
PA	DUQ	DLCO	5	16.0			357	109.8	359	125.6



State	Zone	EDC	Economic		Emergency Energy Only		Load Management		Unique	
			Locations	MW	Locations	MW	Locations	MW	Locations	MW
PA	METED	MetEd	29	37.6			429	210.9	433	217.6
PA	PECO	PE	37	129.6			994	320.4	1,003	392.2
PA	PENELEC	AECI					12	7.0	12	7.0
PA	PENELEC	PaElec	2	62.0			490	260.5	491	282.5
PA	PENELEC	WELLSB					3	0.2	3	0.2
PA	PPL	AMPO					6	1.1	6	1.1
PA	PPL	CTZECL					4	1.9	4	1.9
PA	PPL	PPL	26	211.5			1,107	518.6	1,117	626.8
PA	PPL	UGI-UI					14	3.1	14	3.1
TN	AEP	AEPAPT					11	6.2	11	6.2
VA	AEP	AEPAPT	3	6.4			206	250.0	206	250.0
VA	AEP	AMPO					16	11.5	16	11.5
VA	AEP	RADFRD					1	2.5	1	2.5
VA	AEP	VATECH					1	6.5	1	6.5
VA	APS	ODEC	3	0.9			55	36.5	55	36.5
VA	DOM	CVEC					4	3.2	4	3.2
VA	DOM	DOMEDC	40	34.4			783	632.7	783	632.7
VA	DOM	DOMVME					26	95.3	26	95.3
VA	DOM	NVEC	3	15.1			50	5.0	52	19.6
VA	DOM	ODEC	2	0.4			43	15.3	43	15.3
VA	DPL	ODEC					14	1.0	14	1.0
WV	AEP	AEPAPT	1	0.2			195	473.9	195	473.9
WV	APS	AETSAP	23	41.5			254	211.8	256	233.4
<b>Total</b>			<b>398</b>	<b>2,773</b>	<b>1</b>	<b>0.5</b>	<b>13,932</b>	<b>9,583</b>	<b>13,996</b>	<b>10,185</b>

Note:

- 1) Data as of 4/6/2020.
- 2) Load Management MW are in ICAP.
- 3) Economic MW are CSP reported Load Reduction values.
- 4) Residential Locations 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 Load Management and Economic reductions.
- 6) As of April 6, 2020, DY19/20 RPM Committed Values is 8,152 MW for Load Management.

Figure 2: DY 19/20 MWs in Load Management DR by Resource, Product, and Lead Times

Zone		BASE	CAPACITY PERFORMANCE	Lead Times (Minutes)			Total MW
				30	60	120	
<b>AECO</b>							
	Pre-Emergency	115.2	0.0	105.0	3.3	6.9	115.2
	Emergency	0.2	0.0	0.2	0.0	0.0	0.2
	Total	115.4	0.0	105.2	3.3	6.9	115.4
<b>AEP</b>							
	Pre-Emergency	1,604.1	28.8	848.1	134.6	650.2	1,632.9
	Emergency	48.0	0.0	28.2	0.8	19.0	48.0
	Total	1,652.2	28.8	876.3	135.5	669.2	1,680.9
<b>APS</b>							
	Pre-Emergency	601.8	39.2	401.1	9.2	230.7	641.0
	Emergency	30.6	0.0	21.7	0.0	8.9	30.6
	Total	632.4	39.2	422.8	9.2	239.6	671.6
<b>ATSI</b>							
	Pre-Emergency	571.9	210.4	350.3	27.3	404.8	782.3
	Emergency	89.1	0.0	22.9	2.6	63.6	89.1
	Total	661.0	210.4	373.1	29.9	468.4	871.4
<b>BGE</b>							
	Pre-Emergency	694.7	8.5	660.5	4.7	38.0	703.2
	Emergency	10.2	0.0	10.2	0.0	0.0	10.2
	Total	704.8	8.5	670.7	4.7	38.0	713.4
<b>COMED</b>							
	Pre-Emergency	1,484.2	1.3	1,064.6	40.3	380.5	1,485.4
	Emergency	59.1	0.0	30.2	4.1	24.7	59.1
	Total	1,543.2	1.3	1,094.8	44.5	405.3	1,544.5
<b>DAY</b>							
	Pre-Emergency	146.1	2.6	84.2	3.9	60.7	148.8
	Emergency	7.8	0.0	6.9	0.0	0.9	7.8
	Total	154.0	2.6	91.1	3.9	61.6	156.6
<b>DEOK</b>							
	Pre-Emergency	176.8	23.3	165.7	15.2	19.2	200.1
	Emergency	2.4	0.0	2.4	0.0	0.0	2.4
	Total	179.2	23.3	168.1	15.2	19.2	202.5
<b>DOM</b>							
	Pre-Emergency	623.5	0.0	148.4	34.0	441.2	623.5
	Emergency	127.9	0.0	89.8	13.0	25.1	127.9
	Total	751.5	0.0	238.1	47.0	466.3	751.5
<b>DPL</b>							
	Pre-Emergency	351.2	15.3	178.7	12.0	175.9	366.6
	Emergency	5.4	0.0	3.6	1.4	0.4	5.4
	Total	356.6	15.3	182.2	13.4	176.4	371.9
<b>DUQ</b>							
	Pre-Emergency	105.7	3.4	69.5	1.8	37.8	109.1
	Emergency	0.7	0.0	0.2	0.5	0.0	0.7
	Total	106.4	3.4	69.7	2.3	37.8	109.8
<b>EKPC</b>							
	Pre-Emergency	0.0	122.2	21.5	5.0	95.6	122.2
	Emergency	0.0	1.1	1.1	0.0	0.0	1.1
	Total	0.0	123.2	22.6	5.0	95.6	123.2

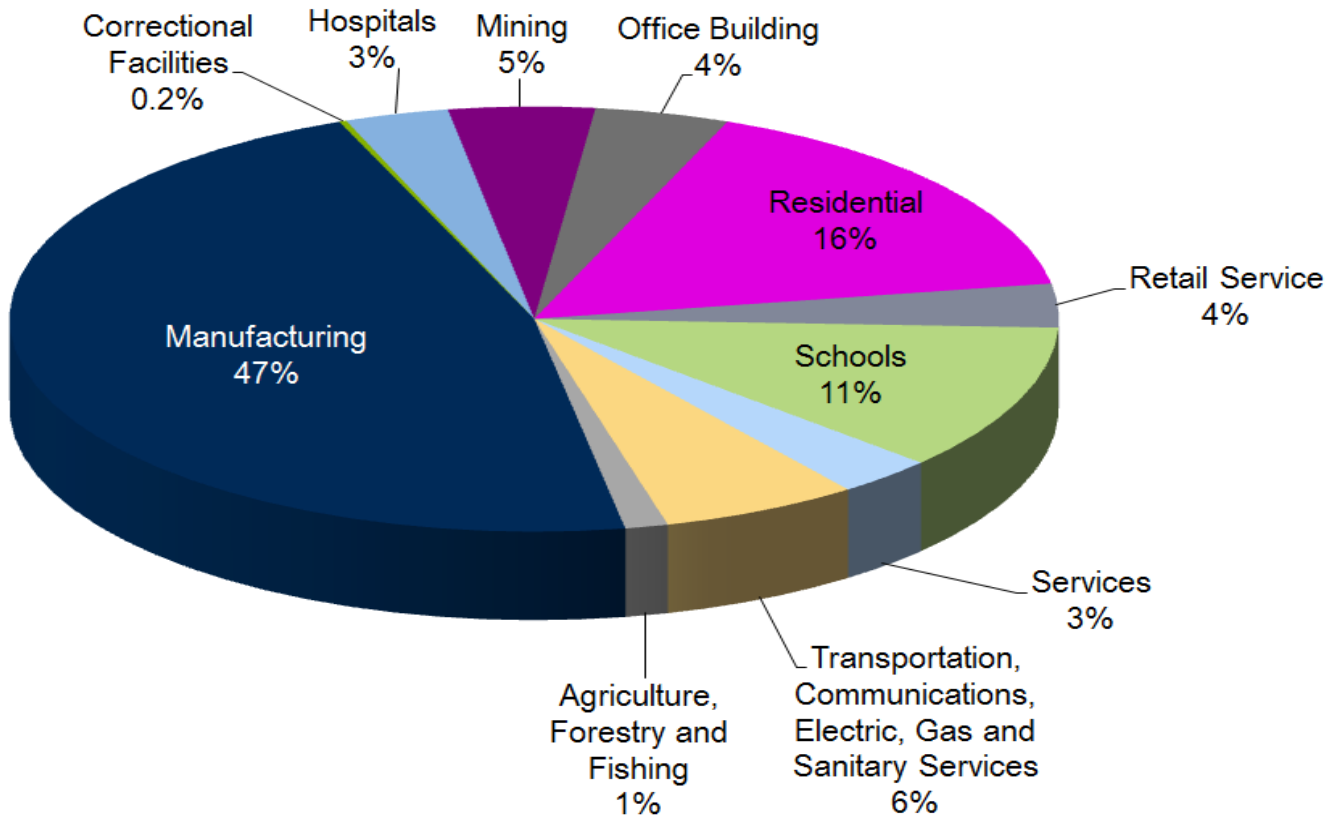
## Lead Times (Minutes)

Zone		BASE	CAPACITY PERFORMANCE	30	60	120	Total MW
<b>JCPL</b>							
	Pre-Emergency	131.6	0.4	100.9	2.1	29.0	132.0
	Emergency	0.0	4.7	4.7	0.0	0.0	4.7
	Total	131.6	5.1	105.6	2.1	29.0	136.7
<b>METED</b>							
	Pre-Emergency	209.4	0.0	115.4	13.8	80.2	209.4
	Emergency	1.5	0.0	1.5	0.0	0.0	1.5
	Total	210.9	0.0	116.9	13.8	80.2	210.9
<b>PECO</b>							
	Pre-Emergency	294.1	1.7	222.5	7.0	66.4	295.8
	Emergency	23.1	1.4	20.4	2.7	1.5	24.6
	Total	317.2	3.2	242.9	9.6	67.9	320.4
<b>PENELEC</b>							
	Pre-Emergency	249.2	16.8	109.4	9.3	147.3	266.0
	Emergency	2.9	0.3	1.0	2.1	0.0	3.1
	Total	252.1	17.0	110.4	11.4	147.3	269.1
<b>PEPCO</b>							
	Pre-Emergency	485.7	58.4	318.9	1.6	223.6	544.1
	Emergency	0.0	7.9	7.3	0.0	0.6	7.9
	Total	485.7	66.3	326.2	1.6	224.2	552.0
<b>PPL</b>							
	Pre-Emergency	489.4	32.5	273.5	30.4	218.0	521.9
	Emergency	2.0	0.8	1.1	0.0	1.7	2.8
	Total	491.4	33.3	274.6	30.4	219.6	524.7
<b>PSEG</b>							
	Pre-Emergency	221.6	29.0	202.0	4.7	43.8	250.6
	Emergency	3.2	0.0	0.0	0.0	3.2	3.2
	Total	224.8	29.0	202.0	4.7	47.0	253.8
<b>RECO</b>							
	Pre-Emergency	2.6	0.0	2.6	0.0	0.0	2.6
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0
	Total	2.6	0.0	2.6	0.0	0.0	2.6
<b>TOTAL</b>							
	Pre-Emergency	8,559.0	593.9	5,442.8	360.3	3,349.8	9,152.9
	Emergency	414.0	16.1	253.2	27.2	149.7	430.1
	Total	8,973.0	610.1	5,696.0	387.6	3,499.5	9,583.0

## Note:

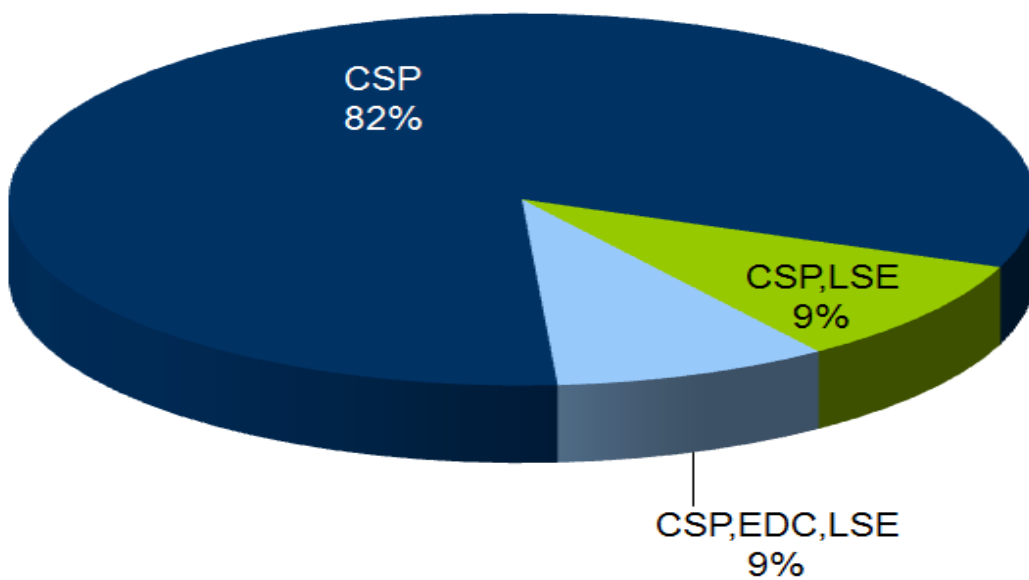
- 1) Data as of 4/6/2020.
- 2) Load Management MW are in ICAP.

Figure 3: DY 19/20 Confirmed Load Management DR Registrations Business Segments



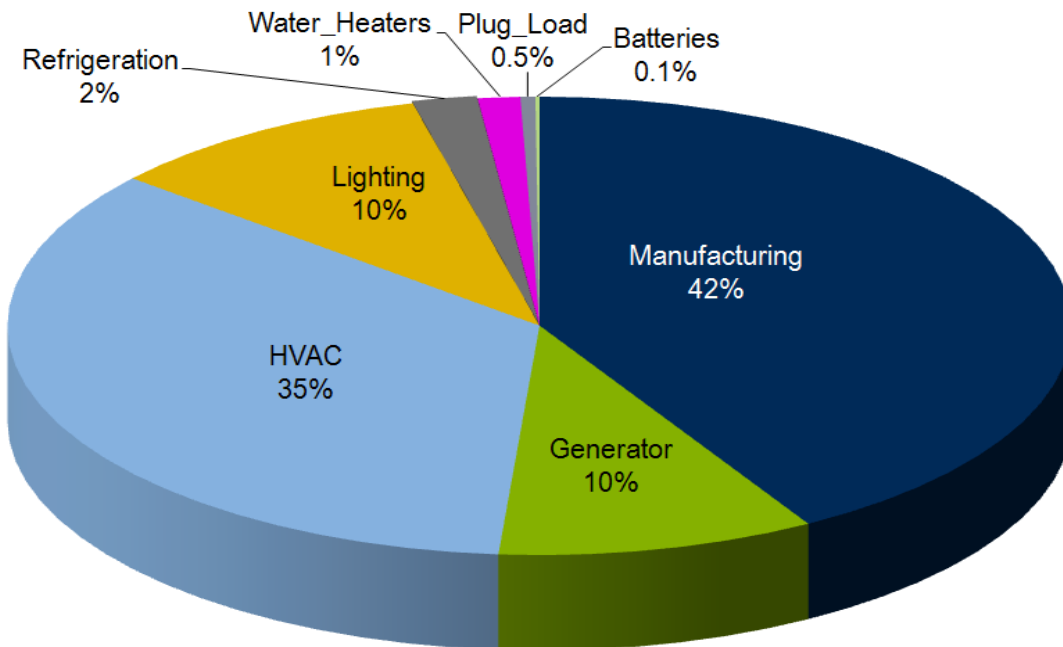
Note: Percent of Nominated Capacity (MWs). Includes Capacity Performance nominated MWs.

Figure 4: DY 19/20 Confirmed Load Management DR Registrations Owner/Company Type



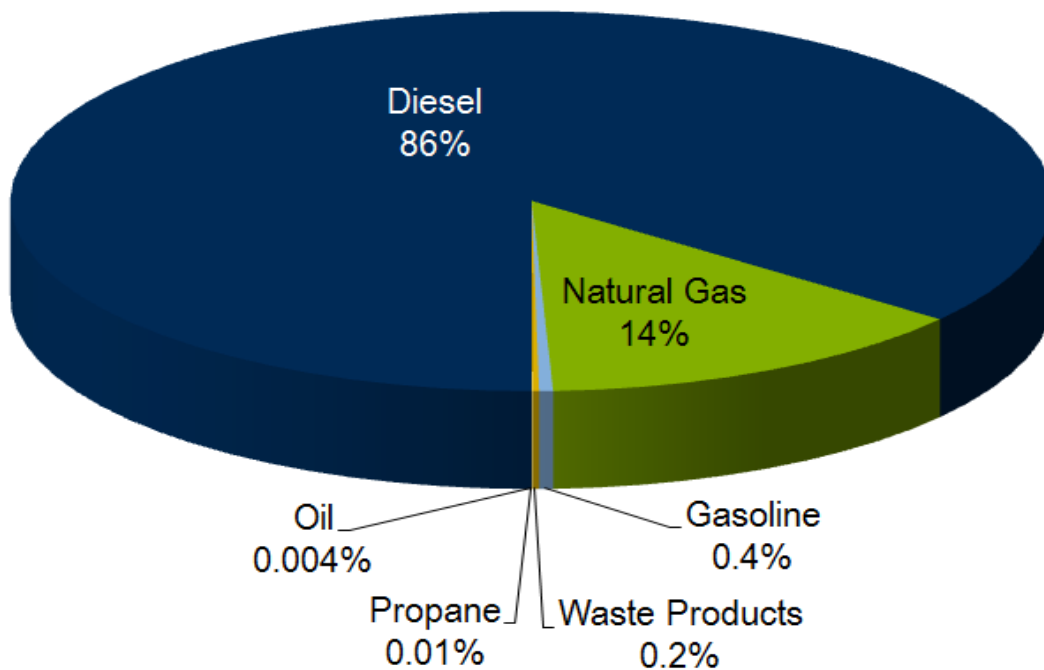
Note: Percent of Nominated Capacity (MWs). Includes Capacity Performance nominated MWs.

Figure 5: DY 19/20 Confirmed Load Management DR Registrations Customer Load Reduction Methods



Note: Percent of Nominated Capacity (MWs). Includes Capacity Performance nominated MWs.

Figure 6: DY 19/20 Confirmed Load Management DR Registrations Fuel Mix with Behind the Meter Generation



Note: Percent of Nominated Capacity (MWs). Includes Capacity Performance nominated MWs.



Figure 7: DY 19/20 Confirmed Load Management DR Registrations Generator and Permit Type

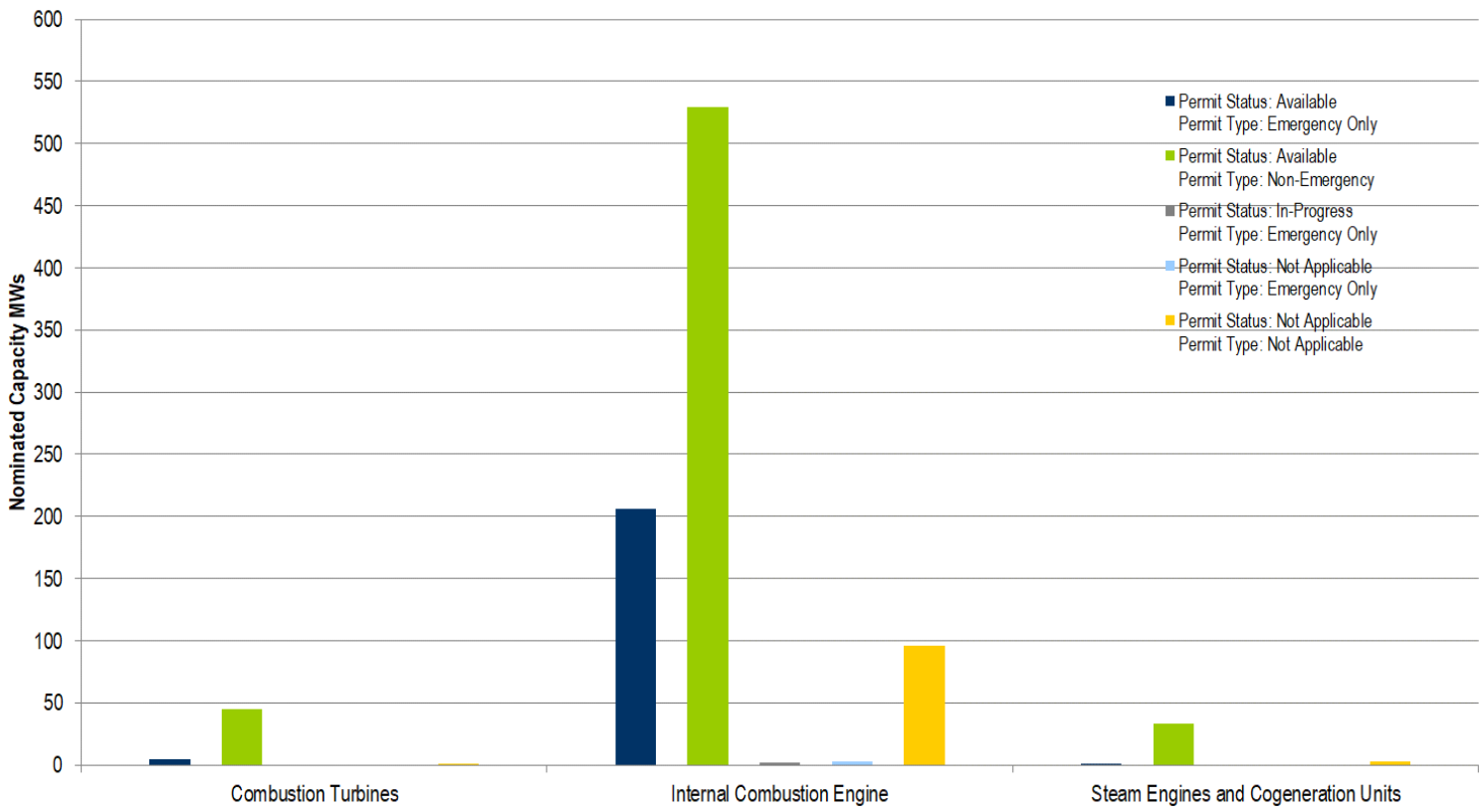
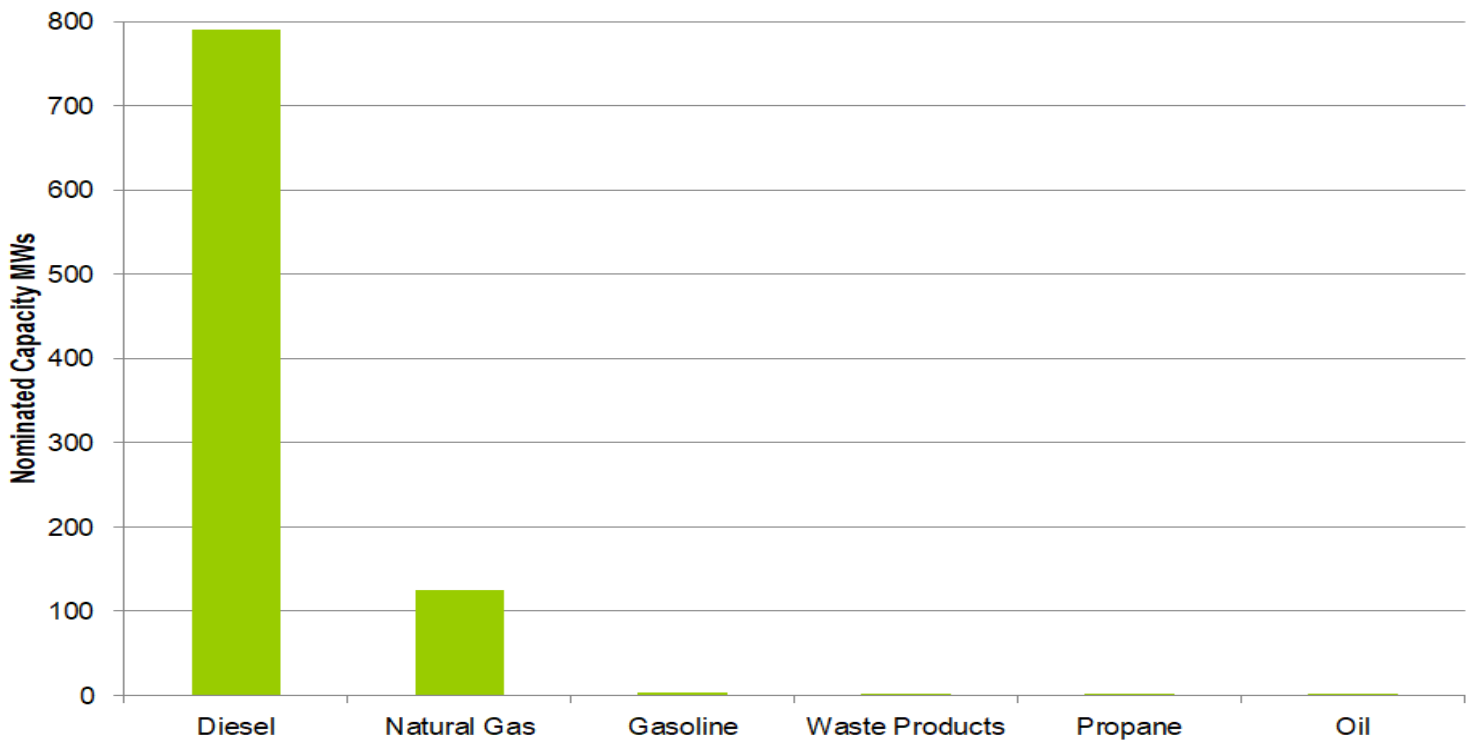
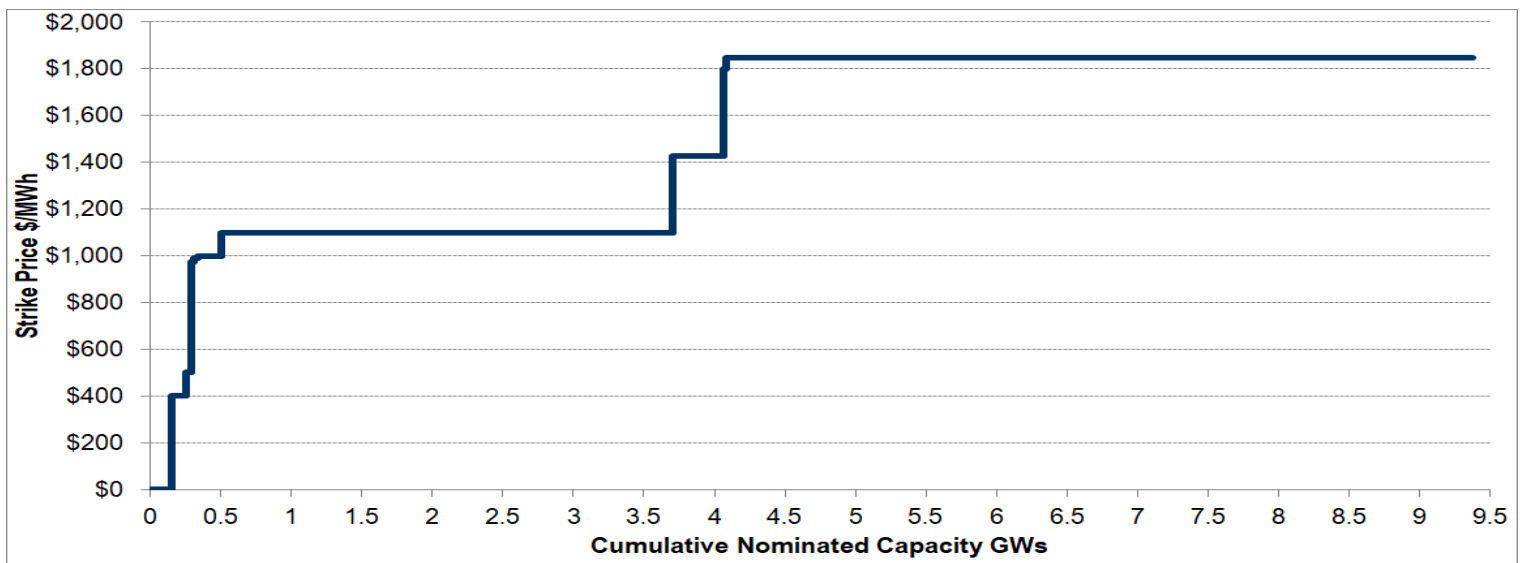


Figure 8: DY 19/20 Confirmed Load Management DR Registrations Fuel Mix with Behind the Meter Generation



**Figure 9: DY 19/20 Confirmed Load Management Full DR Registrations Energy Supply Curve:**

**Figure 10: Preliminary DY 20/21 Active Participants in Load Management Programs**

State	Zone	EDC	Load Management Locations	MW
DC	PEPCO	PEPCO	4	1.1
DE	DPL	DPL	1	11.0
IL	COMED	COMED	57	18.8
IN	AEP	AEPIMP	1	0.4
IN	AEP	WVSDI	1	2.3
MD	APS	AETSAP	2	0.4
MD	BGE	BC	36	9.8
MD	DPL	DPL	8	1.3
MD	PEPCO	PEPCO	11	6.3
NJ	AECO	AE	10	0.1
NJ	AECO	VMEU	2	0.8
NJ	JCPL	JCBGS	14	4.9
NJ	PSEG	PSEG	70	13.7
OH	AEP	AEPOPT	87	30.9
OH	ATSI	OEEDC	135	168.1
OH	DAY	DAYEDC	28	9.2
OH	DEOK	DEOEDC	9	0.6
PA	APS	AETSAP	111	54.6
PA	DUQ	DLCO	49	6.5
PA	METED	MetEd	2	0.0
PA	PECO	PE	26	1.4
PA	PENELEC	PaElec	57	16.2
PA	PPL	PPL	34	29.4
PA	PPL	UGI-UI	1	0.0
VA	DOM	DOMEDC	8	1.1
WV	AEP	AEPAPT	2	0.6
WV	APS	AETSAP	119	26.1
<b>Total</b>			<b>885</b>	<b>415.6</b>

Note:

1) Data as of 4/6/2020.

2) Load Management MW are in ICAP.

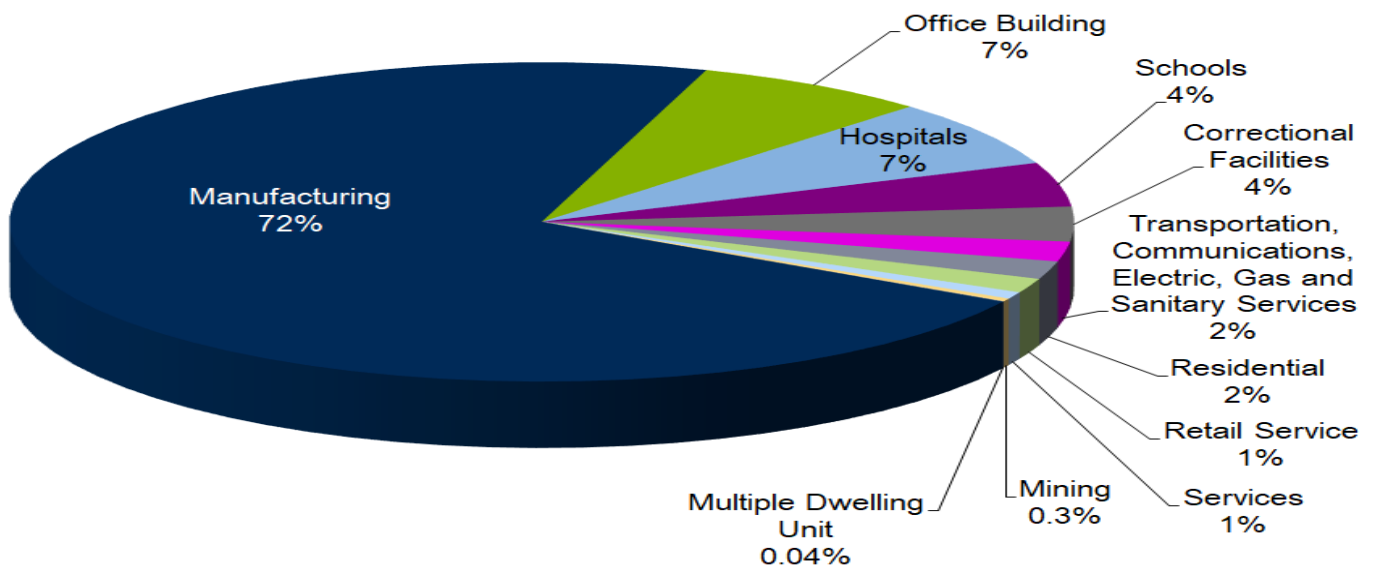
Figure 11: Preliminary DY 20/21 MWs in Load Management DR by Resource, Product, and Lead Times

Zone		CAPACITY PERFORMANCE		Lead Times (Minutes)			Total MW
		Annual	Seasonal	30	60	120	
<b>AECO</b>							
	Pre-Emergency	0.0	0.1	0.1	0.0	0.0	0.1
	Emergency	0.8	0.0	0.0	0.8	0.0	0.8
	Total	0.8	0.1	0.1	0.8	0.0	0.9
<b>AEP</b>							
	Pre-Emergency	30.1	2.7	7.7	0.0	25.1	32.8
	Emergency	1.5	0.0	1.5	0.0	0.0	1.5
	Total	31.6	2.7	9.2	0.0	25.1	34.3
<b>APS</b>							
	Pre-Emergency	80.7	0.4	20.7	4.4	56.0	81.1
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0
	Total	80.7	0.4	20.7	4.4	56.0	81.1
<b>ATSI</b>							
	Pre-Emergency	164.8	0.2	20.0	4.2	140.8	165.0
	Emergency	3.1	0.0	0.0	0.0	3.1	3.1
	Total	167.9	0.2	20.0	4.2	143.9	168.1
<b>BGE</b>							
	Pre-Emergency	9.4	0.5	9.6	0.0	0.2	9.8
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0
	Total	9.4	0.5	9.6	0.0	0.2	9.8
<b>COMED</b>							
	Pre-Emergency	18.3	0.5	18.8	0.0	0.0	18.8
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0
	Total	18.3	0.5	18.8	0.0	0.0	18.8
<b>DAY</b>							
	Pre-Emergency	9.0	0.2	6.7	0.0	2.5	9.2
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0
	Total	9.0	0.2	6.7	0.0	2.5	9.2
<b>DEOK</b>							
	Pre-Emergency	0.4	0.2	0.6	0.0	0.0	0.6
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.4	0.2	0.6	0.0	0.0	0.6
<b>DOM</b>							
	Pre-Emergency	1.1	0.0	1.1	0.0	0.0	1.1
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0
	Total	1.1	0.0	1.1	0.0	0.0	1.1
<b>DPL</b>							
	Pre-Emergency	12.3	0.0	1.3	11.0	0.0	12.3
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0
	Total	12.3	0.0	1.3	11.0	0.0	12.3
<b>DUQ</b>							
	Pre-Emergency	6.2	0.4	4.4	0.0	2.1	6.5
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0
	Total	6.2	0.4	4.4	0.0	2.1	6.5
<b>JCPL</b>							
	Pre-Emergency	0.8	0.3	0.6	0.0	0.5	1.0
	Emergency	3.9	0.0	3.9	0.0	0.0	3.9
	Total	4.7	0.3	4.5	0.0	0.5	4.9

Zone		CAPACITY PERFORMANCE		Lead Times (Minutes)			Total MW
		Annual	Seasonal	30	60	120	
<b>PECO</b>							
	Pre-Emergency	1.3	0.1	1.4	0.0	0.0	1.4
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0
	Total	1.3	0.1	1.4	0.0	0.0	1.4
<b>PENELEC</b>							
	Pre-Emergency	15.9	0.0	0.5	0.0	15.5	15.9
	Emergency	0.3	0.0	0.3	0.0	0.0	0.3
	Total	16.2	0.0	0.8	0.0	15.5	16.2
<b>PEPCO</b>							
	Pre-Emergency	3.3	0.0	2.9	0.0	0.3	3.3
	Emergency	4.1	0.0	4.1	0.0	0.0	4.1
	Total	7.3	0.0	7.0	0.0	0.3	7.3
<b>PPL</b>							
	Pre-Emergency	28.2	0.3	1.3	0.0	27.2	28.5
	Emergency	0.9	0.0	0.0	0.0	0.9	0.9
	Total	29.1	0.3	1.3	0.0	28.0	29.4
<b>PSEG</b>							
	Pre-Emergency	13.7	0.0	13.5	0.2	0.0	13.7
	Emergency	0.0	0.0	0.0	0.0	0.0	0.0
	Total	13.7	0.0	13.5	0.2	0.0	13.7
<b>TOTAL</b>							
	Pre-Emergency	395.3	5.9	111.2	19.8	270.1	401.2
	Emergency	14.5	0.0	9.8	0.8	4.0	14.5
	Total	409.8	5.9	121.0	20.6	274.1	415.7

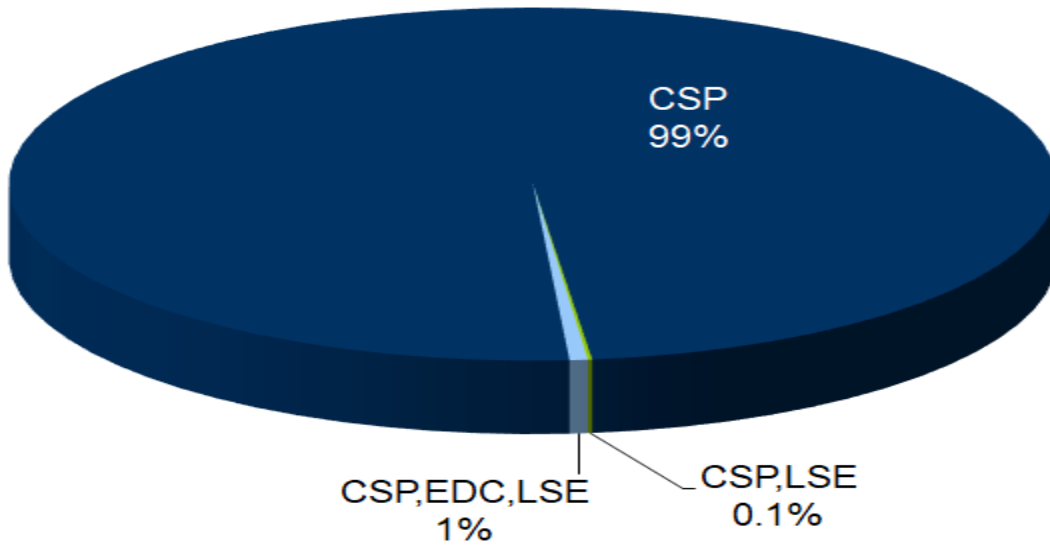
Note:  
 1) Data as of 4/6/2020.  
 2) Load Management MW are in ICAP.

Figure 12: Preliminary DY 20/21 Confirmed Load Management DR Registrations Business Segments



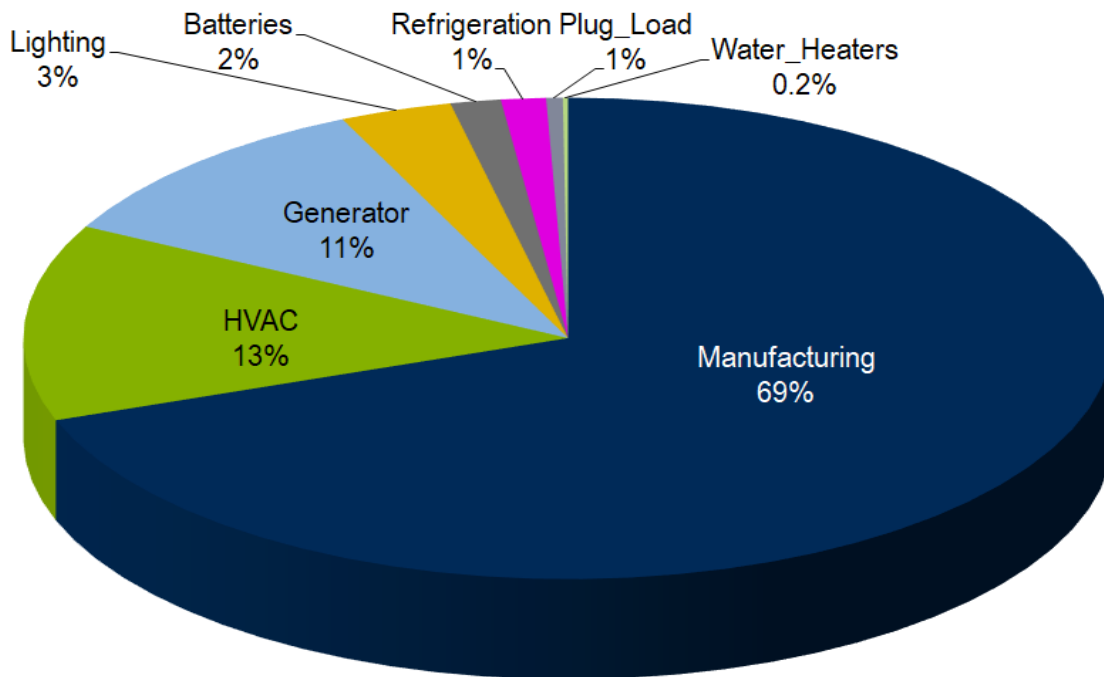
Note: Percent of Nominated Capacity (MWs).

Figure 13: Preliminary DY 20/21 Confirmed Load Management DR Registrations Owner/Company Type

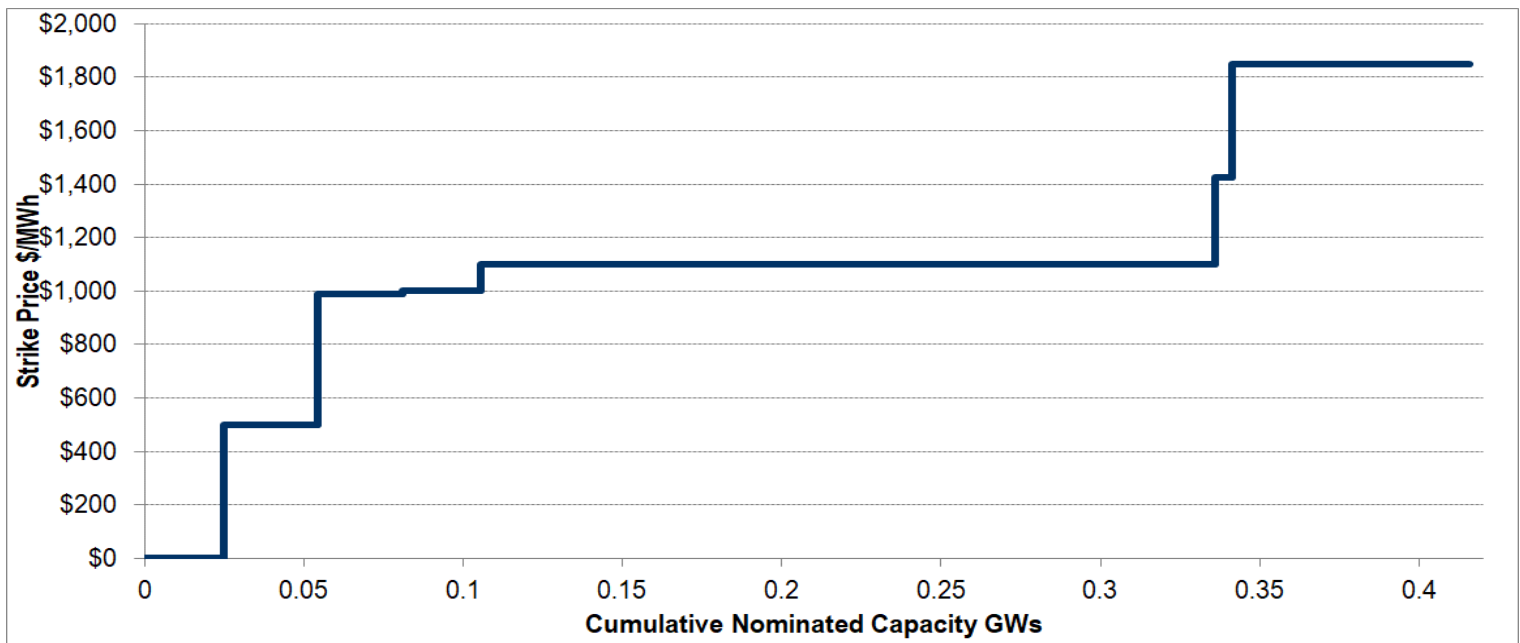


Note: Percent of Nominated Capacity (MWs).

Figure 14: Preliminary DY 20/21 Confirmed Load Management DR Registrations Customer Load Reduction Methods



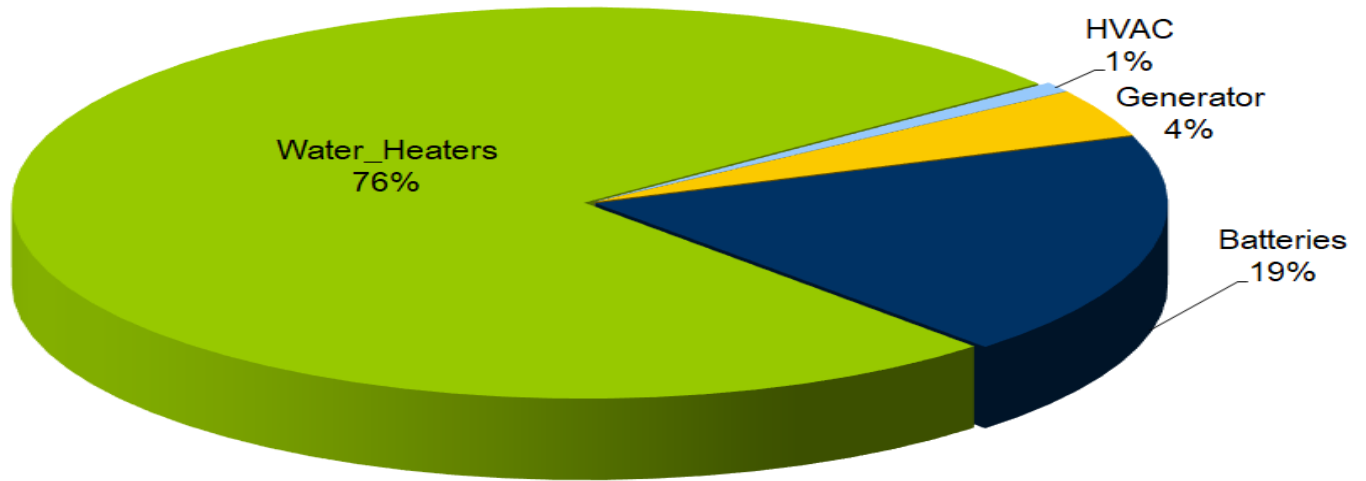
Note: Percent of Nominated Capacity (MWs).

**Figure 15: Preliminary DY 20/21 Confirmed Load Management Full DR Registrations Energy Supply Curve:**

**Figure 16: 2020 Economic Demand Response Capability in the Ancillary Service Markets**

Synch Reserves	Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Locations	MAD	103	103	103									
	Non-MAD	29	31	31									
	RTO	132	134	134									
<b>Average Number of Unique Participating Locations per Month:</b>					<b>133</b>								
MWs	MAD	511	511	511									
	Non-MAD	347	352	352									
	RTO	857	863	863									
<b>Average MWs per Month:</b>		<b>861</b>											
Regulation	Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Locations	RTO	149	149	149									
<b>Average Number of Unique Participating Locations per Month:</b>					<b>149</b>								
MWs	RTO	98	98	98									
<b>Average MWs per Month:</b>		<b>98</b>											

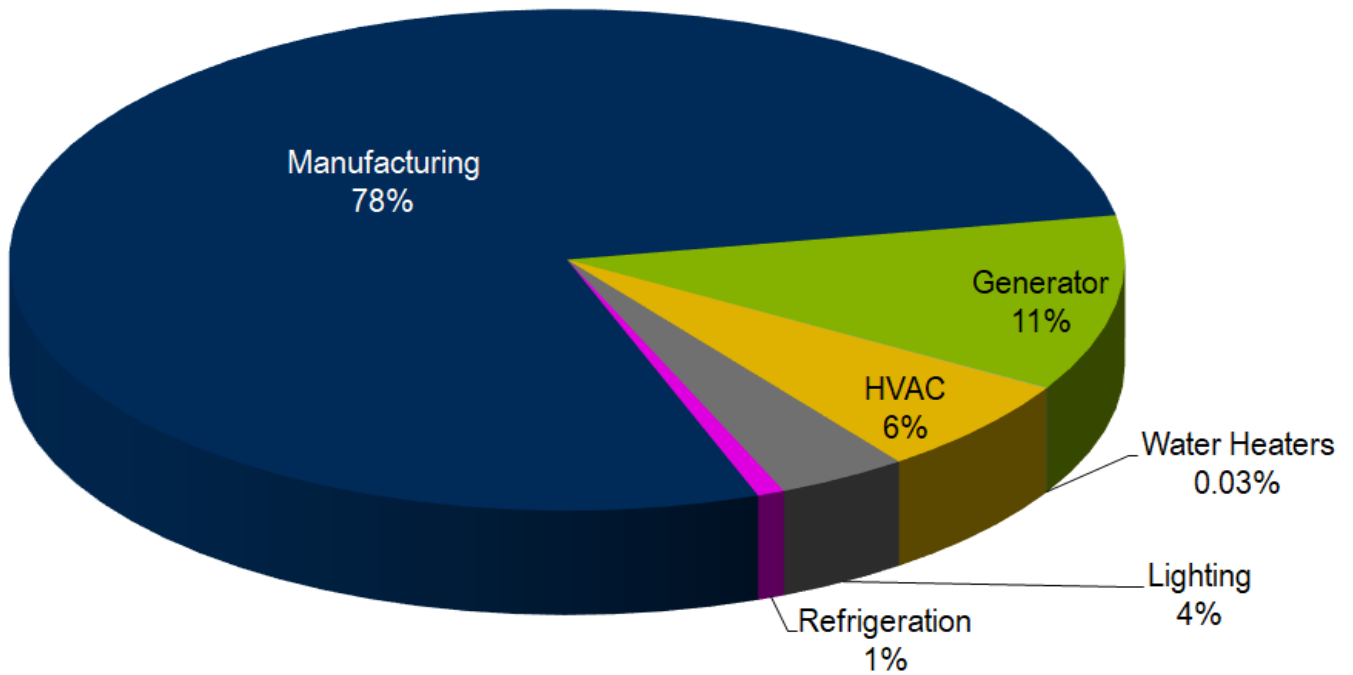
Capability represents total amount that may be offered. Actual offered and cleared volume may be significantly lower and is represented in subsequent figures/tables in report

Figure 17: 2020 PJM Demand Response Confirmed Regulation Registrations Load Reduction Methods



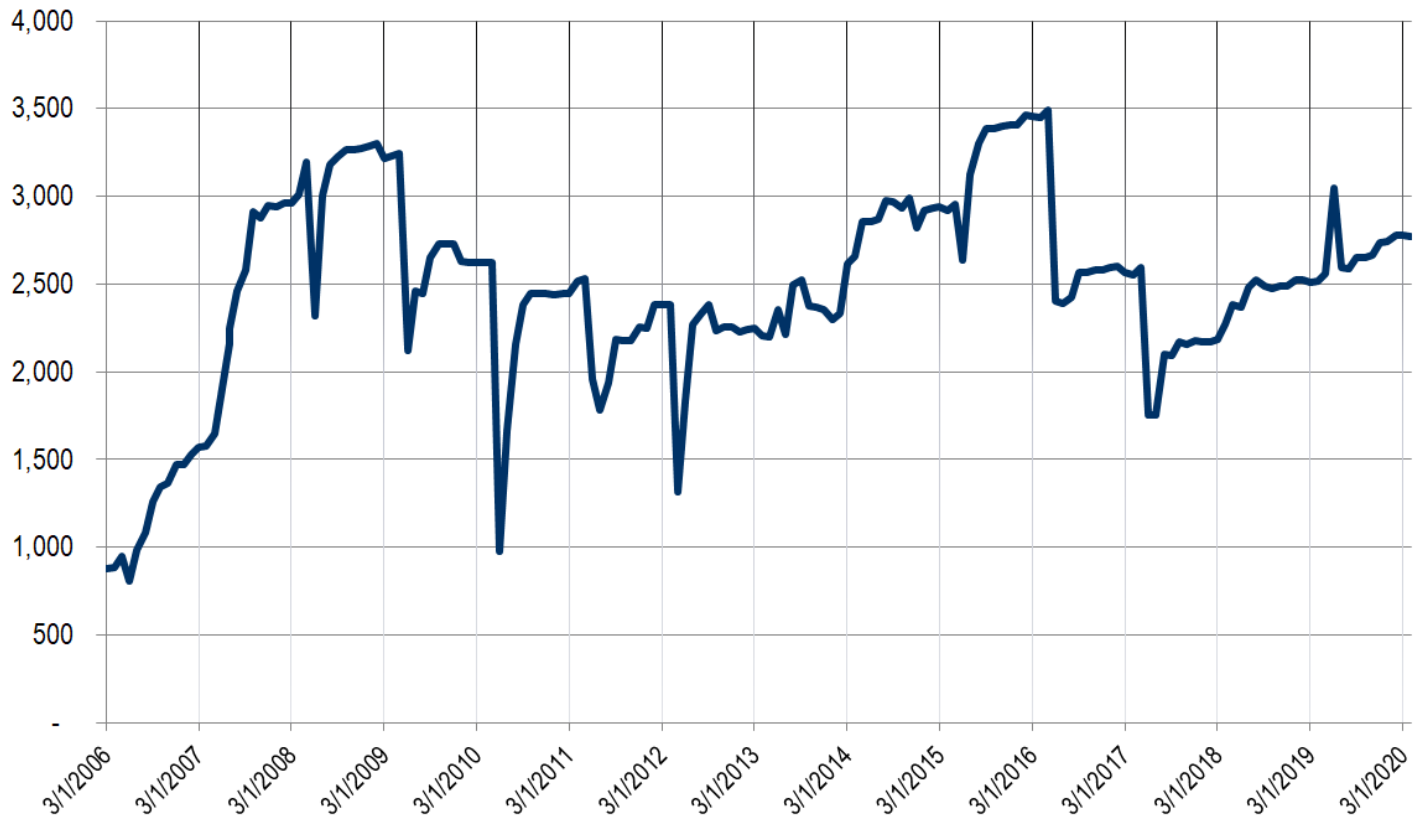
Note: Percent of CSP Reported Load Reduction MWs

Figure 18: 2020 PJM Demand Response Confirmed Synch Reserve Registrations Load Reduction Methods:



Note: Percent of CSP Reported Load Reduction MWs

Figure 19: PJM Economic Demand Response Capability in Energy Market (3/1/2006-4/6/2020)

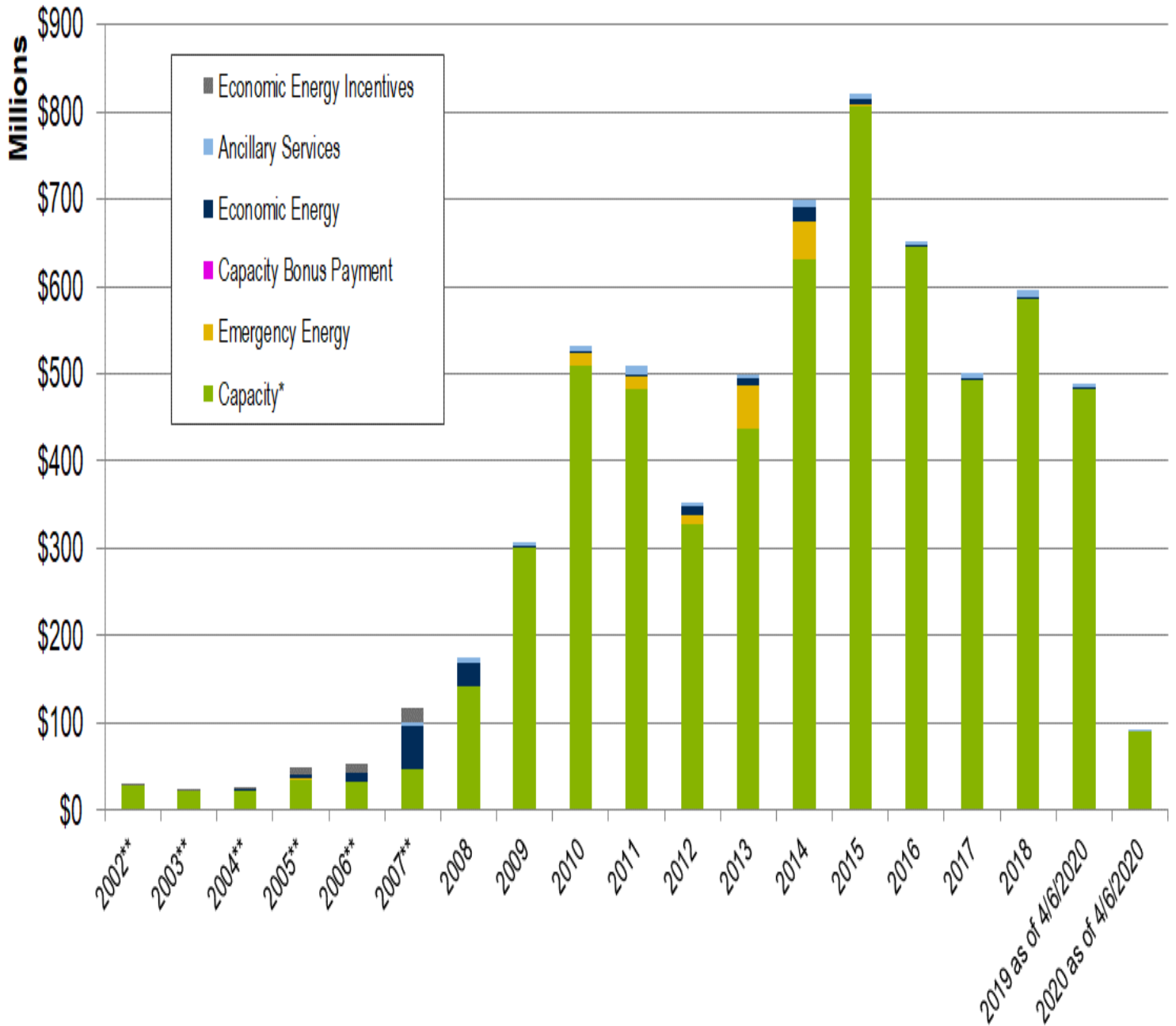


Capability represents total amount that may be offered. Actual offered and cleared volume may be significantly lower and is represented in subsequent figures/tables in report.

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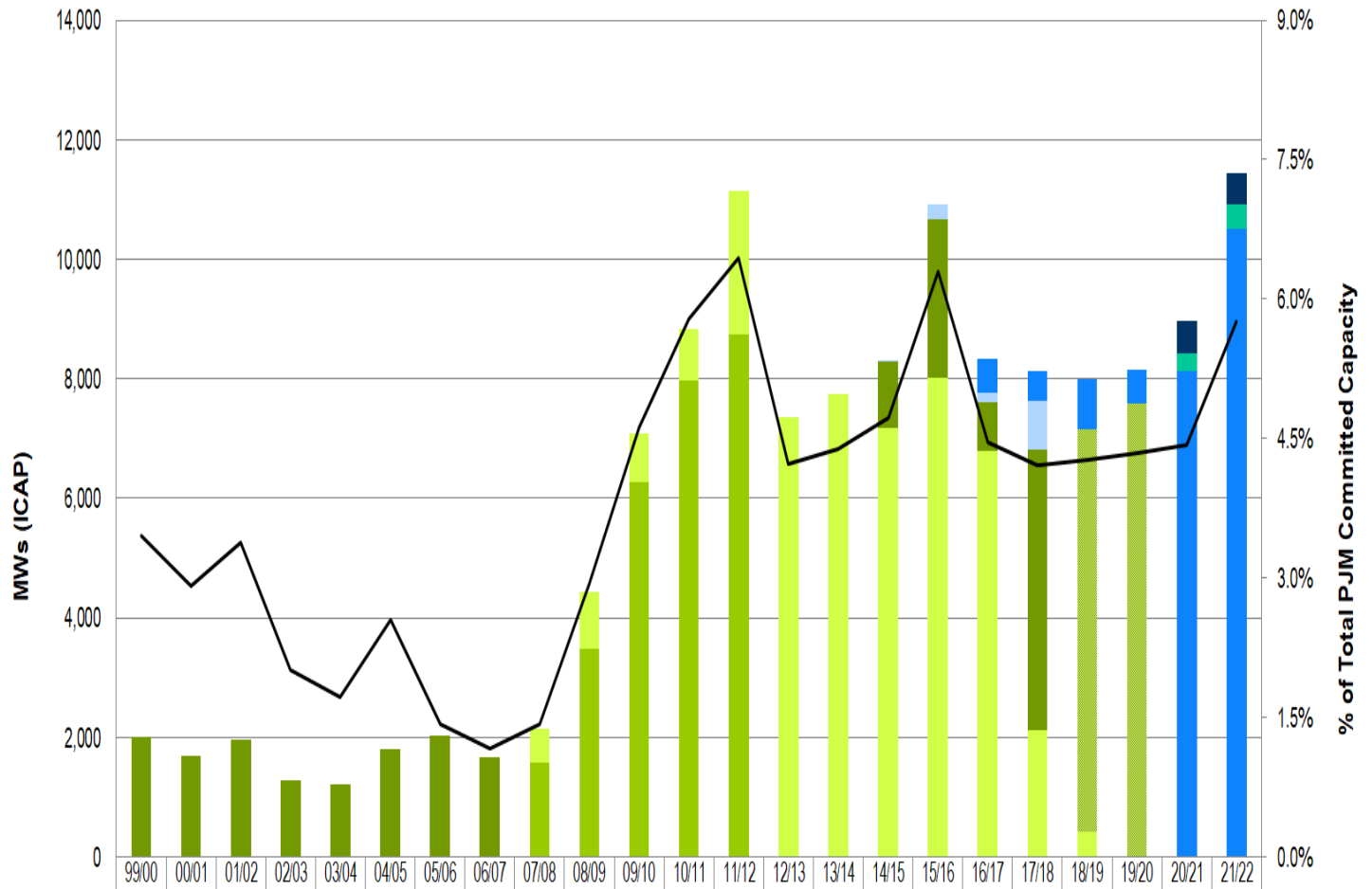
Figure 20: PJM Estimated Revenue for Economic and Load Management DR Markets



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

\*\*PJM assumes capacity value at \$50 MW Day (PJM does not know the value of capacity credits in the forward market prior to RPM; only a portion of capacity was purchased through the daily capacity market at the time).

Figure 21: PJM Demand Response Committed MWs by Delivery Year



PRD																					558	510	
Summer - CP																						291	415
Annual - CP																	574	493	843	556	8128	10504	
Base DR																							
Annual - DR																							
Extended Summer - DR																							
Limited - DR																							
Limited - ILR																							
Limited - ALM																							
DR as % of Total PJM Committed Capacity	3.5%	2.9%	3.4%	2.0%	1.7%	2.5%	1.4%	1.2%	1.4%	2.9%	4.6%	5.8%	6.4%	4.2%	4.4%	4.7%	6.3%	4.5%	4.2%	4.3%	4.3%	4.4%	5.8%

- Notes:
- 1) Data represents net commitment value (for each product specified) on 4/6/2020.
  - 2) RPM was implemented DY 07/08.
  - 3) DY 21/22 MWs include results from Base and First Incremental Auction.
  - 4) ALM MWs are seasonal averages for Delivery Years before 07/08.

**Figure 22: 2020 Economic Demand Response Monthly Registration Participation**

State	Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IL	COMED	1	1										
NJ	JCPL	1											
	PSEG	2											
PA	METED	3											
	PECO	1											
	PENELEC	2											
<b>Total</b>		<b>10</b>	<b>1</b>										

Average Unique Participating Registrations per Month: 6

**Figure 23: 2020 Economic Demand Response Monthly Registration Participation Day-Ahead Activity**

State	Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IL	COMED												
NJ	JCPL	1											
	PSEG	2											
PA	METED	1											
	PECO	1											
	PENELEC	1											
<b>Total</b>		<b>6</b>											

Average Unique Participating Registrations per Month (Day-Ahead): 6

**Figure 24: 2020 Economic Demand Response Monthly Registration Participation Real-Time Activity**

State	Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IL	COMED	1	1										
NJ	JCPL												
	PSEG												
PA	METED	2											
	PECO												
	PENELEC	1											
<b>Total</b>		<b>4</b>	<b>1</b>										

Average Unique Participating Registrations per Month (Real-Time): 3

**Figure 25: 2020 Economic Demand Response Monthly MWh Reductions**

State	Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IL	COMED	17	13										
NJ	JCPL	0											
	PSEG	496											
PA	METED	61											
	PECO	86											
	PENELEC	352											
<b>Total</b>		<b>1,013</b>	<b>13</b>										

Total MWh: 1,027

**Figure 26: 2020 Economic Demand Response Monthly MWh Reductions Day-Ahead Activity**

State	Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IL	COMED												
NJ	JCPL	0											
	PSEG	496											
PA	METED	44											
	PECO	86											
	PENELEC	331											
<b>Total</b>		<b>958</b>											

Total Day-Ahead MWh: 958

**Figure 27: 2020 Economic Demand Response Monthly MWh Reductions Real-Time Activity**

State	Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IL	COMED	17	13										
NJ	JCPL												
	PSEG												
PA	METED	17											
	PECO												
	PENELEC	21											
<b>Total</b>		<b>55</b>	<b>13</b>										

Total Real-Time MWh: 69

Figure 28: 2020 Estimated Economic DR Load Reduction MWh by Load Reduction Method

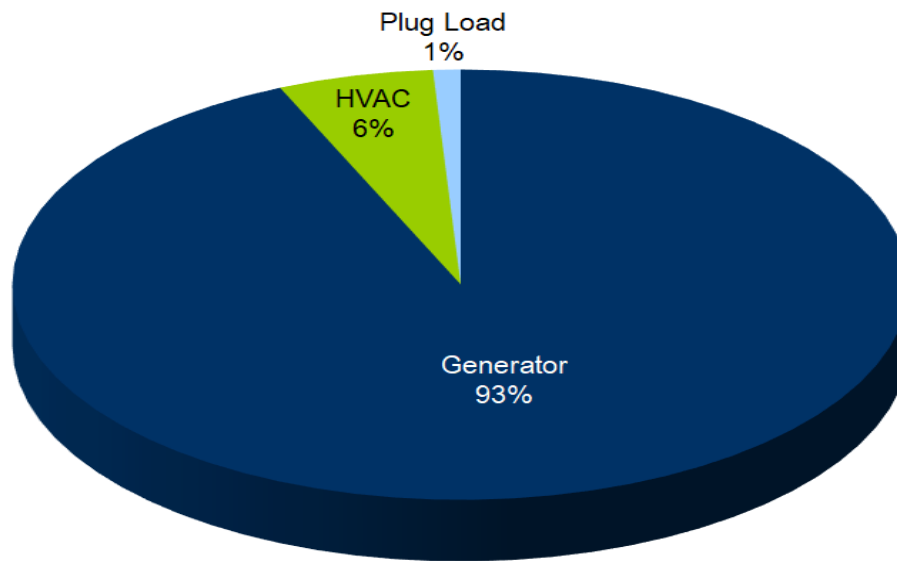


Figure 29: 2020 Economic Demand Response Monthly Energy Market Revenue

State	Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IL	COMED	\$421	\$252										
NJ	JCPL	\$1,876											
	PSEG	\$12,880											
PA	METED	\$1,960											
	PECO	\$3,509											
	PENELEC	\$9,653											
<b>Total</b>		<b>\$30,300</b>	<b>\$252</b>										

Total CSP Credits: \$30,552

Figure 30: 2020 Economic Demand Response Monthly Energy Market Revenue Day-Ahead Activity

State	Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IL	COMED												
NJ	JCPL	\$1,876											
	PSEG	\$12,880											
PA	METED	\$1,439											
	PECO	\$3,509											
	PENELEC	\$9,205											
<b>Total</b>		<b>\$28,908</b>											

Total Day-Ahead CSP Credits: \$28,908

Figure 31: 2020 Economic Demand Response Monthly Energy Market Revenue Day-Ahead Activity

State	Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IL	COMED	\$421	\$252										
NJ	JCPL												
	PSEG												
PA	METED	\$522											
	PECO												
	PENELEC	\$449											
<b>Total</b>		<b>\$1,391</b>	<b>\$252</b>										

Total Real-Time CSP Credits: \$1,644

**Figure 32: 2020 Economic Demand Response Energy Market Cost Allocation by Zone**

Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AECO	\$307	\$3										
AEP	\$4,802	\$41										
APS	\$1,908	\$15										
ATSI	\$2,392	\$23										
BGE	\$1,244	\$12										
COMED	\$3,134	\$29										
DAY	\$725	\$7										
DEOK	\$945	\$9										
DOM	\$3,927	\$30										
DPL	\$698	\$5										
DUQ	\$468	\$4										
EKPC	\$526	\$5										
JCPL	\$762	\$6										
METED	\$587	\$4										
OVEC	\$4.40	\$0										
PECO	\$1,374	\$10										
PENELEC	\$574	\$5										
PEPCO	\$1,146	\$9										
PPL	\$1,319	\$8										
PSEG	\$1,456	\$13										
RECO	\$47	\$0										
Exports	\$1,955	\$16										
<b>TOTAL</b>	<b>\$30,300</b>	<b>\$252</b>										

Total Zonal Charges: \$30,552

**Figure 33: 2020 Economic Demand Response Day-Ahead Energy Market Cost Allocation by Zone**

Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AECO	\$355	\$0										
AEP	\$5,620	\$0										
APS	\$2,228	\$0										
ATSI	\$2,776	\$0										
BGE	\$1,424	\$0										
COMED	\$3,687	\$0										
DAY	\$829	\$0										
DEOK	\$1,100	\$0										
DOM	\$4,608	\$0										
DPL	\$818	\$0										
DUQ	\$546	\$0										
EKPC	\$622	\$0										
JCPL	\$874	\$0										
METED	\$690	\$0										
OVEC	\$5.11	\$0										
PECO	\$1,618	\$0										
PENELEC	\$710	\$0										
PEPCO	\$1,330	\$0										
PPL	\$1,646	\$0										
PSEG	\$1,680	\$0										
RECO	\$54	\$0										
Exports	\$2,174	\$0										
<b>TOTAL</b>	<b>\$35,396</b>	<b>\$0</b>										

Total Day-Ahead Zonal Charges: \$35,396

**Figure 34: 2020 Economic Demand Response Real-Time Energy Market Cost Allocation by Zone**

Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AECO	-\$48	\$3										
AEP	-\$818	\$41										
APS	-\$320	\$15										
ATSI	-\$384	\$23										
BGE	-\$180	\$12										
COMED	-\$552	\$29										
DAY	-\$104	\$7										
DEOK	-\$155	\$9										
DOM	-\$681	\$30										
DPL	-\$120	\$5										
DUQ	-\$78	\$4										
EKPC	-\$96	\$5										
JCPL	-\$112	\$6										
METED	-\$103	\$4										
OVEC	-\$0.71	\$0										
PECO	-\$244	\$10										
PENELEC	-\$137	\$5										
PEPCO	-\$184	\$9										
PPL	-\$327	\$8										
PSEG	-\$224	\$13										
RECO	-\$7	\$0										
Exports	-\$219	\$16										
<b>TOTAL</b>	<b>-\$5,096</b>	<b>\$252</b>										

Total Real-Time Zonal Charges: -\$4,844

**Figure 35: 2020 Load Management Demand Response Monthly Capacity Revenue from RPM**

Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AECO	\$451,066	\$421,965	\$421,965									
AEP	\$3,565,436	\$3,335,408	\$3,335,408									
APS	\$2,361,289	\$2,208,948	\$2,208,948									
ATSI	\$2,422,538	\$2,266,246	\$2,266,246									
BGE	\$651,153	\$609,143	\$609,143									
COMED	\$9,961,211	\$9,318,552	\$9,318,552									
DAY	\$551,678	\$516,086	\$516,086									
DEOK	\$628,567	\$588,015	\$588,015									
DOM	\$1,818,792	\$1,701,451	\$1,701,451									
DPL	\$1,171,216	\$1,095,654	\$1,095,654									
DUQ	\$619,442	\$579,478	\$579,478									
EKPC	\$431,396	\$403,564	\$403,564									
JCPL	\$626,062	\$585,671	\$585,671									
METED	\$801,598	\$749,882	\$749,882									
PECO	\$1,635,718	\$1,530,188	\$1,530,188									
PENELEC	\$857,760	\$802,420	\$802,420									
PEPCO	\$147,322	\$137,817	\$137,817									
PPL	\$1,862,026	\$1,741,895	\$1,741,895									
PSEG	\$1,196,021	\$1,118,858	\$1,118,858									
RECO	\$31,919	\$29,860	\$29,860									
<b>Total</b>	<b>\$31,792,211</b>	<b>\$29,741,101</b>	<b>\$29,741,101</b>									

Total Capacity Credits: \$91,274,413

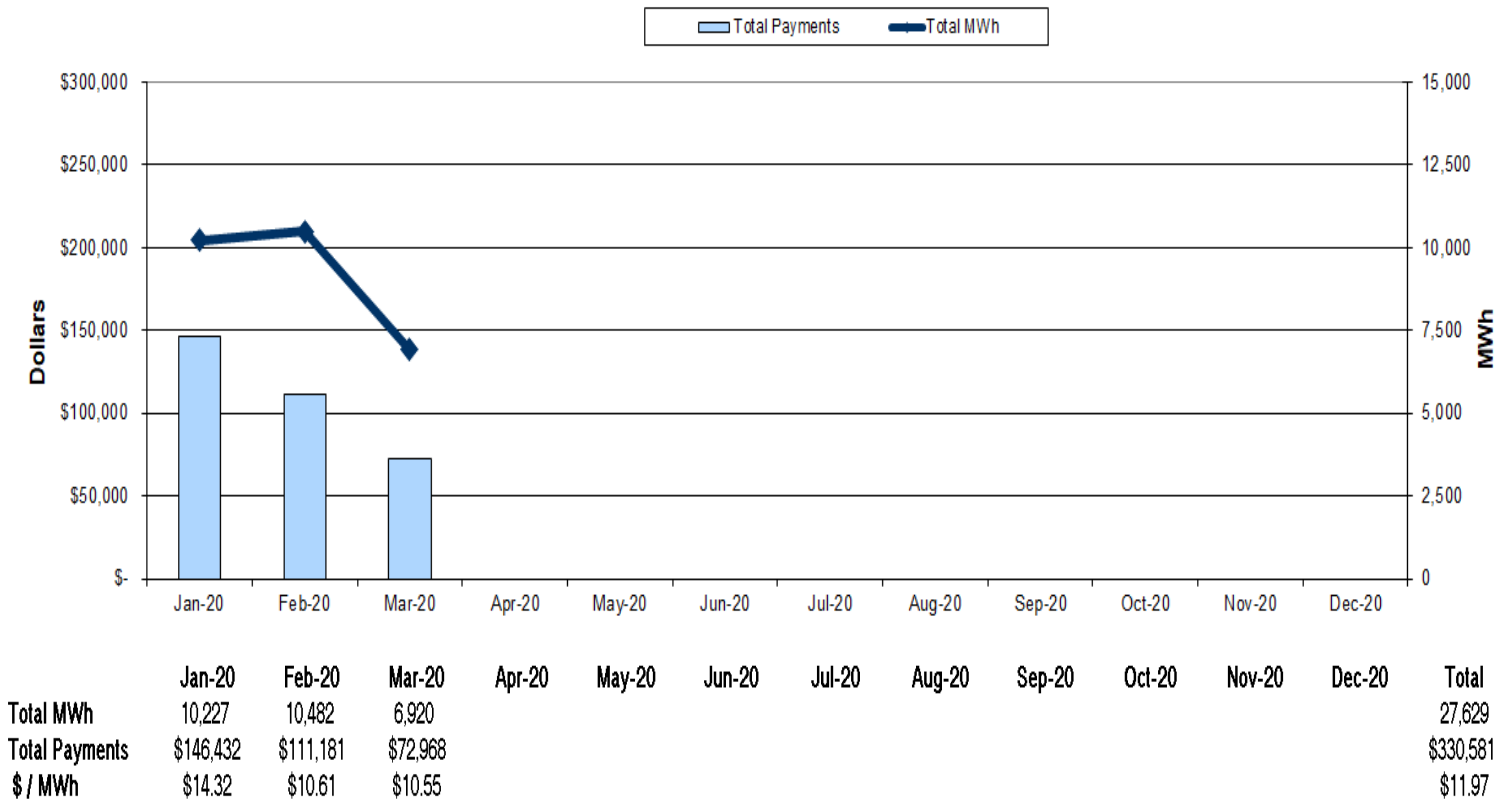
**Figure 36: 2020 Economic Demand Response Dispatched vs Settled Real-Time Energy Market Summary**

Time		CSPs		Zone		Registrations			MWh			Registration Hours		
Year	Month	Dispatched	Settled	Dispatched	Settled	Dispatched	Settled	%	Dispatched	Settled	%	Dispatched	Settled	%
2020	1	3	3	3	3	4	4	100%	54	55	102%	178	178	100%
2020	2	2	1	2	1	2	1	50%	12	14	117%	86	53	62%
2020	3	2		2		2			21			59		
2020	4													
2020	5													
2020	6													
2020	7													
2020	8													
2020	9													
2020	10													
2020	11													
2020	12													
<b>YTD Totals</b>						<b>8</b>	<b>5</b>	<b>63%</b>	<b>87</b>	<b>69</b>	<b>79%</b>	<b>323</b>	<b>231</b>	<b>72%</b>
<b>YTD Average</b>		<b>2</b>		<b>2</b>										

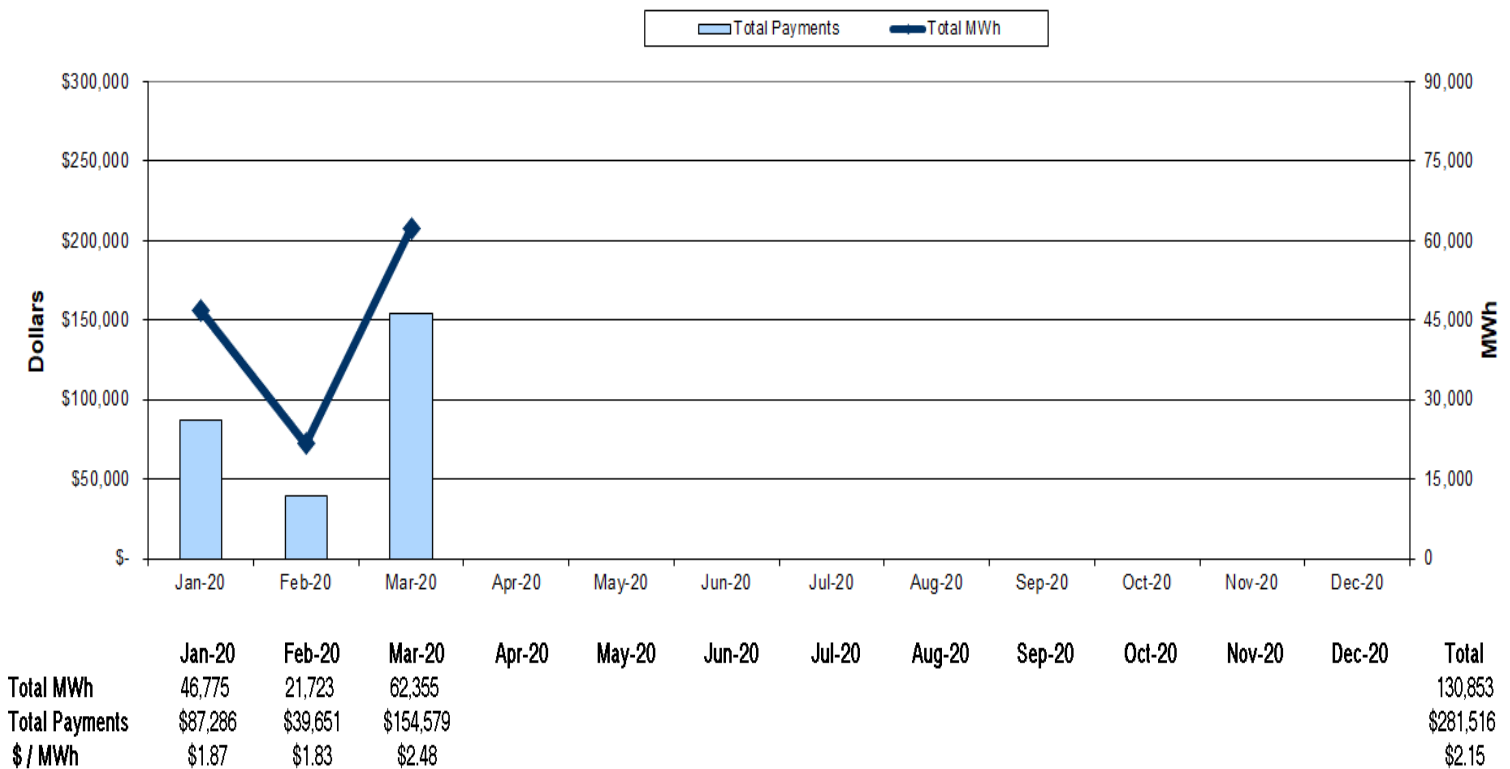
**Figure 37: 2020 Economic Demand Response Cleared vs Settled Day-Ahead Energy Market Summary**

Time		CSPs		Zone		Registrations			MWh			Registration Hours		
Year	Month	Cleared	Settled	Cleared	Settled	Cleared	Settled	%	Cleared	Settled	%	Cleared	Settled	%
2020	1	5	5	5	5	6	6	100%	1,159	958	83%	269	269	100%
2020	2	3		2		3			201			59		
2020	3	3		2		3			82			19		
2020	4													
2020	5													
2020	6													
2020	7													
2020	8													
2020	9													
2020	10													
2020	11													
2020	12													
<b>YTD Totals</b>						<b>12</b>	<b>6</b>	<b>50%</b>	<b>1,442</b>	<b>958</b>	<b>66%</b>	<b>347</b>	<b>269</b>	<b>78%</b>
<b>YTD Average</b>		<b>4</b>		<b>3</b>										

**Figure 38: 2020 Economic Demand Response Regulation Market Participation**



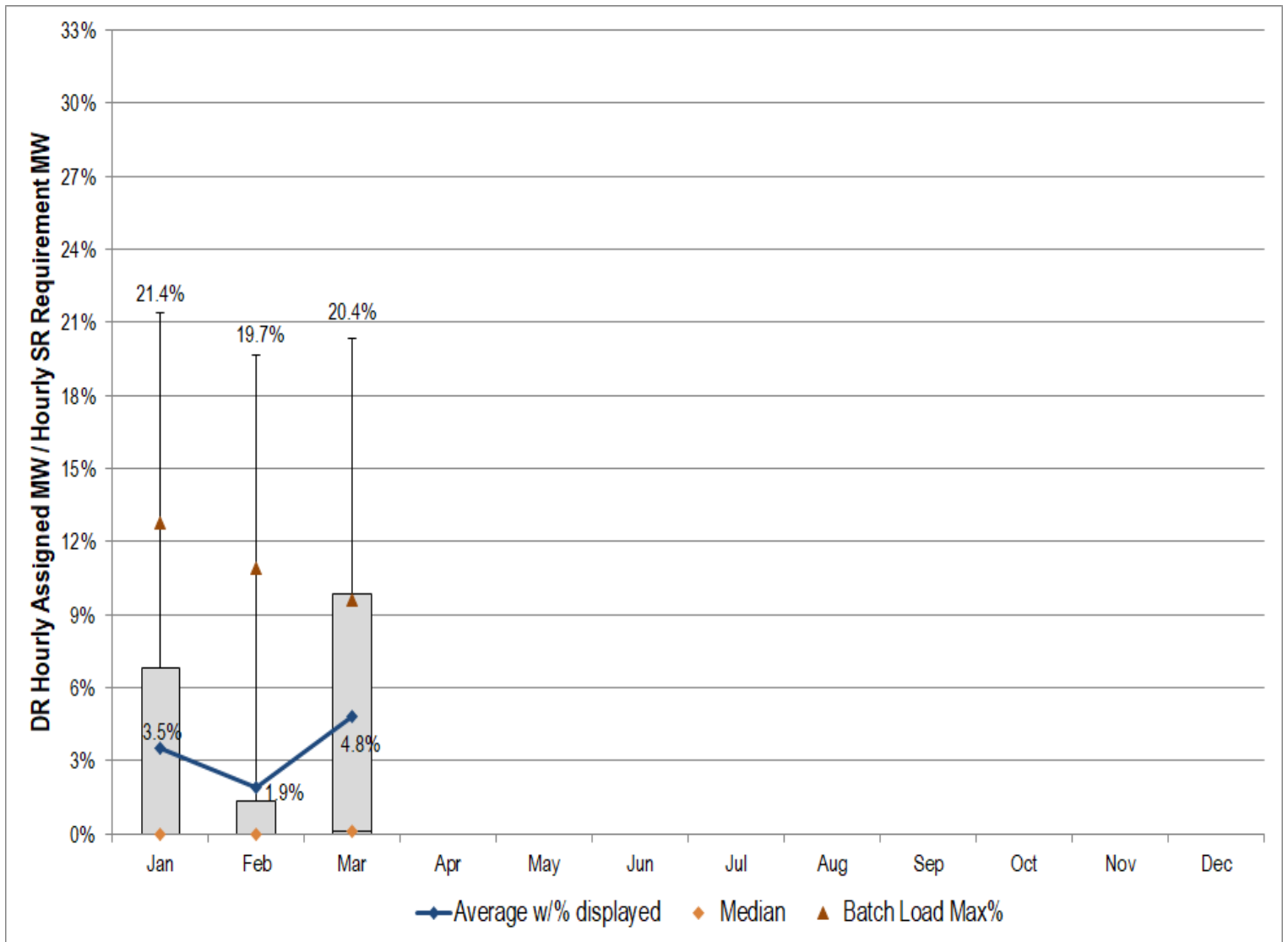
**Figure 39: 2020 Economic Demand Response Synchronous Reserve Market Participation**



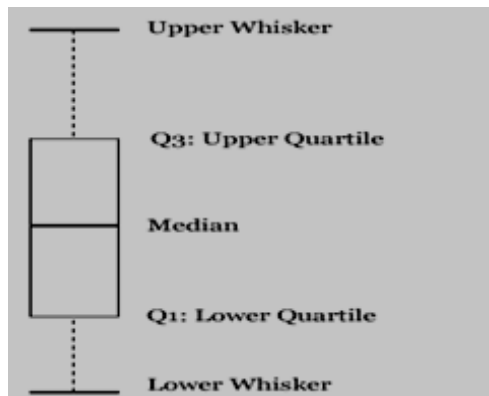
Note: For Figures 38 and 39 above, MWh=sum of the settled MW. Example: 1 MW load available for 12 hours = 12 MWh.



Figure 40: Economic DR Synchronous Reserve Penetration Distribution (Box-plot) for 2020



- 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