

# Load Management Performance Report 2010/2011

December 2010



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For additional detailed information on any of the topics discussed, please refer to the appropriate PJM manual which can be found by accessing: <http://www.pjm.com/documents/manuals.aspx>



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## Executive Summary

Historically, Load Serving Entities in PJM have had the ability to meet their capacity requirements through the commitment of Demand Side Resources. With the advent of the Reliability Pricing Model, Demand Side Resources are able to participate in the capacity procurement process as either Demand Resources or Interruptible Load for Reliability. During the 2010/2011 Delivery Year PJM experienced six Load Management events requiring resources to reduce their load in response to PJM's call and, for those resources not called upon during the events, testing was required to demonstrate their capability to deliver the reductions committed to meet capacity requirements. The purpose of this report is to provide detailed results of the events as well as the results of the second year of Demand Side Resource testing.

PJM called on Load Management six times during the 2010/2011 Delivery year. There was at least one call in each month from May through September. Performance during each event was good achieving an aggregate performance value of 100% over all of the events. The events varied in many dimensions. There were large and small sub-zonal events, a large multi-zone event, an event outside of the compliance period and the event lengths varied from 3 hours to the maximum of 6 hours. Not all CSPs responded with their committed amounts in all zones but that number was small. Underperformance penalties totaled \$9 million or about 1.6% of the total DR and ILR revenue of \$584 million. CSP credits for energy reduced during the events totaled \$14 million.

The test results for the 2010/2011 Delivery Year demonstrate that in aggregate, committed Demand Side Resources performed at 111% of their committed capacity values. Test results in excess of committed capacity values totaled 624 MW for the 5,734 MW of Demand Side Resources required to test. Similar to performance during the events, individually not all CSPs tested to their committed zonal amounts, but again that number was small. Test failure charges totaled \$4 million, less than 1% of total revenue.

## Load Management Overview

PJM Interconnection, L.L.C. (PJM) procures capacity for its system reliability through the Reliability Pricing Model (RPM). The sources for meeting system reliability are divided into four groups:

- 1) Generation Capacity
- 2) Transmission Upgrades
- 3) Demand Side Resources - Load Management
- 4) Energy Efficiency

For the 2010/2011 Delivery Year<sup>1</sup>, Load Management Resources were registered as either Demand Resource (DR) or Interruptible Load for Reliability (ILR). DR may be bid into the RPM's Base Residual Auction, one of the Incremental Auctions, or may take on a capacity obligation through the bilateral market. ILR is registered in the spring prior to the commencement of the Delivery Year until 2012/2013 when ILR has been eliminated per the Federal Energy Regulatory Commission (FERC) approved tariff. Although the timing and methods for becoming DR or ILR Resources are different from one another, within the Delivery Year the performance obligations for both types of Resources are the same.

DR and ILR agree to be interrupted up to ten (10) times per Delivery Year by PJM. The interruptions may be up to six (6) consecutive hours in duration on non-holiday weekdays from noon until 8 PM EPT in the months from May through September (and from 2 PM until 10 PM EPT from October through April). The interruptions must be implemented within two hours of notification by PJM. Those Resources that can be fully implemented within one hour of notification are considered Short Lead Time Resources, while those that require more than one hour but not more than two hours of notification are considered Long Lead Time Resources. This agreement by Load Management Resources to allow PJM to provide notice of the interruptions enables PJM to procure less generation capacity while maintaining the same level of reliability according to the current reliability criteria and practices within the PJM market.

DR and ILR compliance can be more complex to measure than compliance for generation resources meeting their capacity obligations. In order to ensure the reliability service for which a Resource is paid has actually been provided, PJM utilizes three different types of Measurement and Verification methodologies. DR and ILR Resources can choose to be measured using:

- Direct Load Control (DLC) – Load Management for non-interval metered customers which is initiated directly by a Curtailment Service Provider's (CSP) market operations center, employing a communication signal to cycle HVAC or water heating equipment. This is traditionally done for residential consumers and requires the necessary statistical study as outlined in PJM Manual 19.
- Firm Service Level (FSL) – Load Management achieved by a customer reducing its load to a pre-determined level upon the notification from the CSP's market operations center. Industrial customers with a high load factor normally use this approach because they understand the electricity usage for their base

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<sup>1</sup> The Delivery Year for the capacity construct corresponds to PJM's Planning Year which runs each year from June 1 until May 31 of the following year

electrical equipment that must operate even during an emergency situation. This is one of the easiest to verify since the firm service level amount is simply compared to the metered load during an event or test.

- Guaranteed Load Drop (GLD) – Load Management achieved by a customer reducing its load when compared to what the load would have been absent the PJM emergency or test event. This is normally utilized by customers that have a variable load profile to capture the impact of the system relative to what it would have been during the time periods under review.

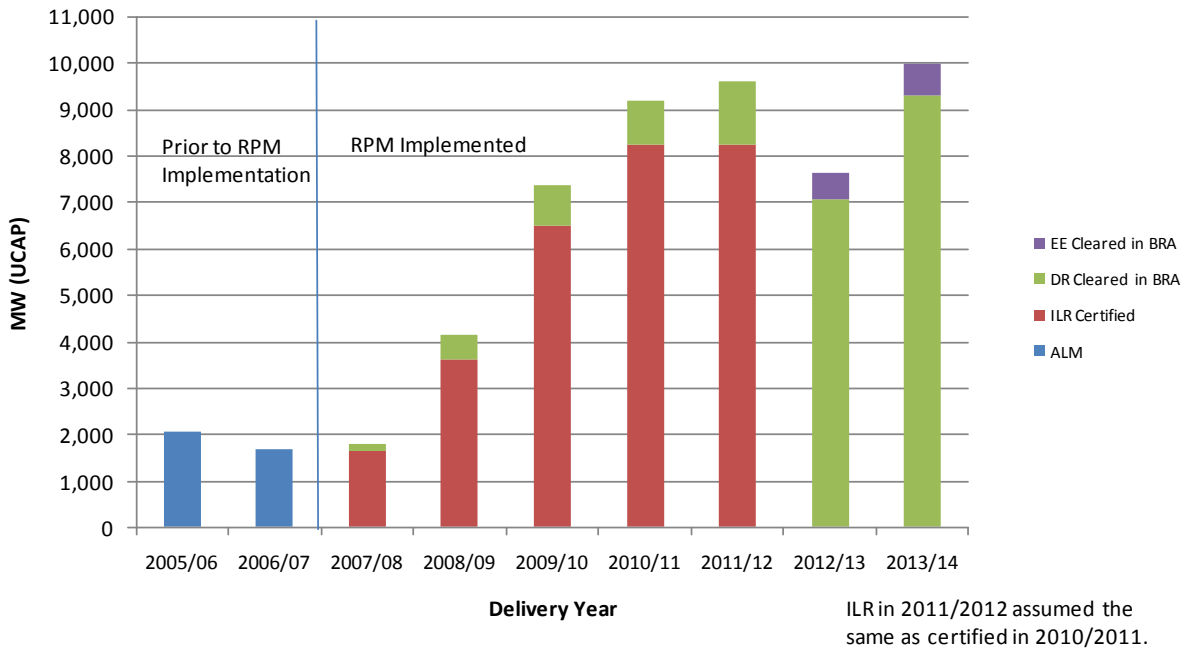
## Load Management Participation Summary

The capacity numbers in this report are in terms of either Installed Capacity (ICAP) or Unforced Capacity (UCAP) depending upon which is most relevant. PJM calculates the Resource amounts required to meet the reliability standard in terms of UCAP which is also utilized to measure compliance with a RPM commitment. PJM determines the UCAP value of different types of Resources that are offered into the RPM auctions based on methods described in the PJM manuals.

For a conventional generation resource, ICAP value is the summer net dependable rating. The UCAP value is the ICAP value reduced by historical average forced outage and forced derating. Therefore, the UCAP value represents the average availability of capacity from a generating unit after forced outages and forced deratings. For a Load Management Resource, ICAP value is the nominated load reduction. The nominated load reduction for a Firm Service Level, Guaranteed Load Drop, or Direct Load Control resource is calculated in accordance with the PJM Capacity Market Manual, Manual 18. The UCAP value is calculated in two steps: First, the nominated load reduction is discounted to account for its reduced impact during higher load periods by multiplying by the Demand Resource Factor. Then, the value is increased to gross up the load reduction by the approved reserve margin.

Load Management participation in the PJM capacity construct has increased over time. ALM participation four years ago in the 2006/2007 Delivery Year was under 1,700 Megawatts (MW). However, the Load Management commitments from the current year through the 2013/2014 Delivery Year average over 7,500 MW each year and up to nearly 10,000 MW by 2013/2014. (Note that there is a dip in Delivery Year 2012/2013. This is likely due to being the first year without ILR. There could be more commitments made during DY 2012/2013 incremental auctions.) This increase in participation by Load Management Resources reduces the need for generation capacity by providing reductions in demand at the system operator's request. Below is a graphical representation of the growth in Load Management participation at PJM in MWs of UCAP.

**Figure 1: Load Management Participation History (UCAP)**



In PJM, capacity is priced based on location to reflect the locational reliability requirements in various sub-regions of the market. The location of the capacity commitments are grouped by the Transmission Zones. Although capacity obligations are measured in UCAP, the most straightforward examination of Load Management participation by Zone is in MWs of ICAP. An ICAP value is converted to UCAP by applying a DR factor and Forecast Pool Requirement (FPR) factor<sup>2</sup>. The DR factor accounts for load forecast uncertainty<sup>3</sup> while the FPR is an adjustment for unforced reserve margin. For the 2010/2011 Delivery Year, Load Management Resources represented 8,823 MW of ICAP while total registered Load Management represented 9,052 MW. Registered Load Management may be in excess of the commitment if the CSP has indicated they have the potential to deliver an amount that is higher than their actual commitment<sup>4</sup>.

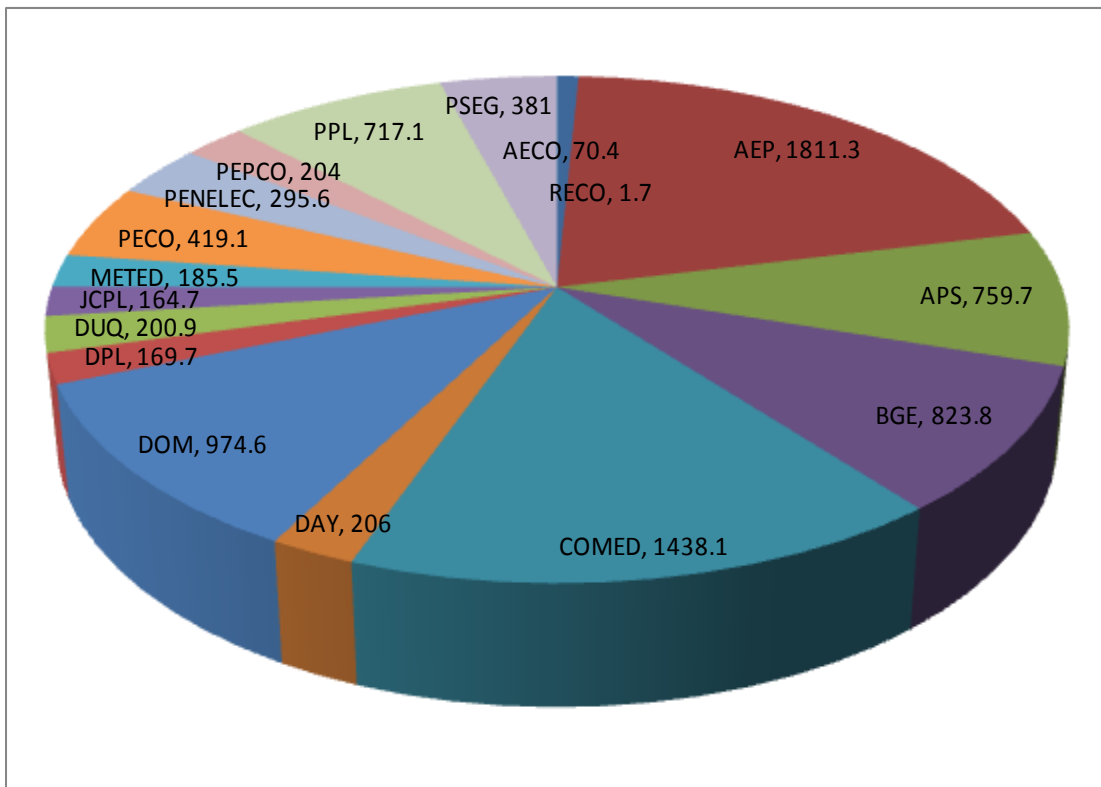
<sup>2</sup> The amount equal to one plus the unforced reserve margin (stated as a decimal number) for the PJM Region.

<sup>3</sup> See “Demand Resource (DR) Factor”; <http://www.pjm.com/~media/committees-groups/committees/cmec/20090805/20090805-item-07b-dr-factor.ashx>

<sup>4</sup> For example, a CSP may clear 10 MW of resources in an RPM auction but register 11 MW load reduction capability by end use customers to fulfill such commitment.

Following is an illustration of how the commitments of Load Management Resources were spread across the 17 Zones for the 2010/2011 Delivery Year. 62 members operate as a Curtailment Service Provider where approximately 1 million end use customers across almost every segment (residential, commercial, industrial, government, education, agricultural, etc.) participate as a Load Management resource

**Figure 2: 2010/2011 Load Management Participation by Zone (ICAP)**



Atlantic City Electric (AECO), American Electric Power (AEP), Allegheny Power (APS), Baltimore Gas and Electric (BGE), Commonwealth Edison (COMED), Dayton Power & Light (DAY), Dominion Virginia Power (DOM), Delmarva Power and Light (DPL), Duquesne Light (DUQ), Jersey Central Power & Light (JCPL), Metropolitan Edison (METED), PECO (PECO), Pennsylvania Electric Company (PENELEC), Potomac Electric Power Co. (PEPCO), PPL Electric Utilities Corp. (PPL), Public Service Electric and Gas Co. (PSEG), Rockland Electric Company (RECO).

Figure 3 below illustrates the percentage of ICAP registered by the major methods where 49% represents Guaranteed Load Drop that is not exclusively provided by a back up generation resource as measured through the output of the back up generator, 7% represents Guaranteed Load Drop that is exclusively provided through a back up generation resource, 36% represents Firm Service Level and 8% represent residential direct load control type resources.<sup>5</sup>

**Figure 3: Percent of Registered ICAP**

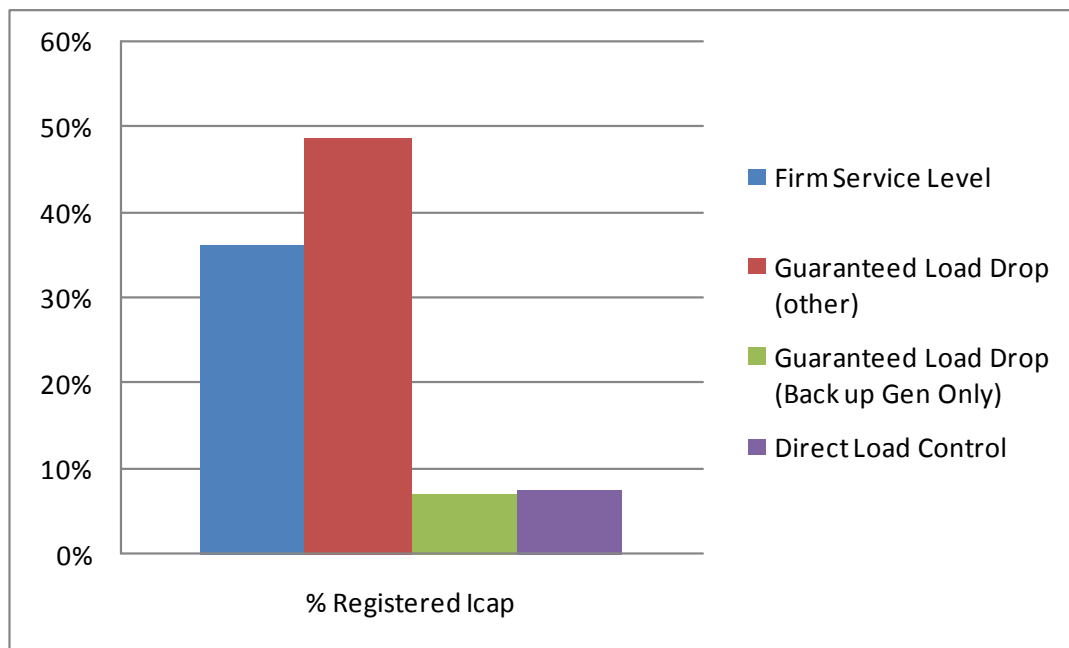
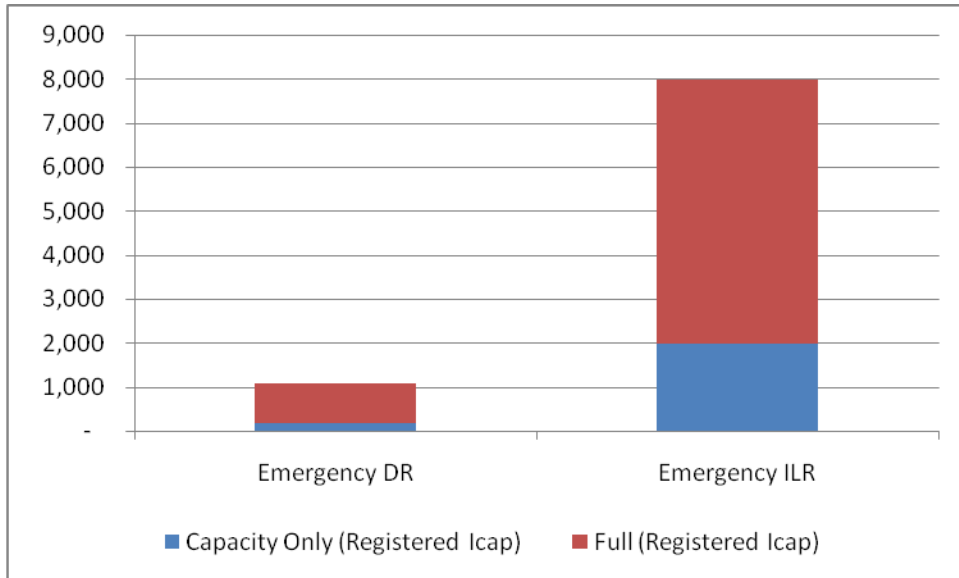


Figure 4 represents the current number of registration ICAP MWs for ILR compared to DR where the registration type is further segmented to show the number of MWs registered as an Emergency Full resource that receive both capacity revenue stream as well as an emergency energy revenue stream when there is an emergency load management event compared to the number of MWs registered as Capacity Only which indicates the CSP is not eligible for any emergency energy payments during an event. 7,982 MW were registered as ILR while 1,070 MW were registered as DR while approximately 24% of the total was registered as Capacity Only.

<sup>5</sup> Firm Service Level and Guaranteed Load Drop (other) may include load reductions achieved with back up generation done in conjunction with another type of control within the facility. Guaranteed Load Drop (back up gen only) represents an estimate of facilities that substantiate load reduction based on meter data from the back up generator, exclusively.

**Figure 4: MW of Registered ICAP as DR and ILR**



## 2010 Load Management Events

Load Management Resources with an emergency load response registration are relied upon by PJM planning and PJM system operations to help maintain the safe and reliable operation of the PJM region. PJM had six Load Management events in 2010. Following is an overview of PJM Load Management events over the past 11 years.

**Figure 5: Load Management Event History**

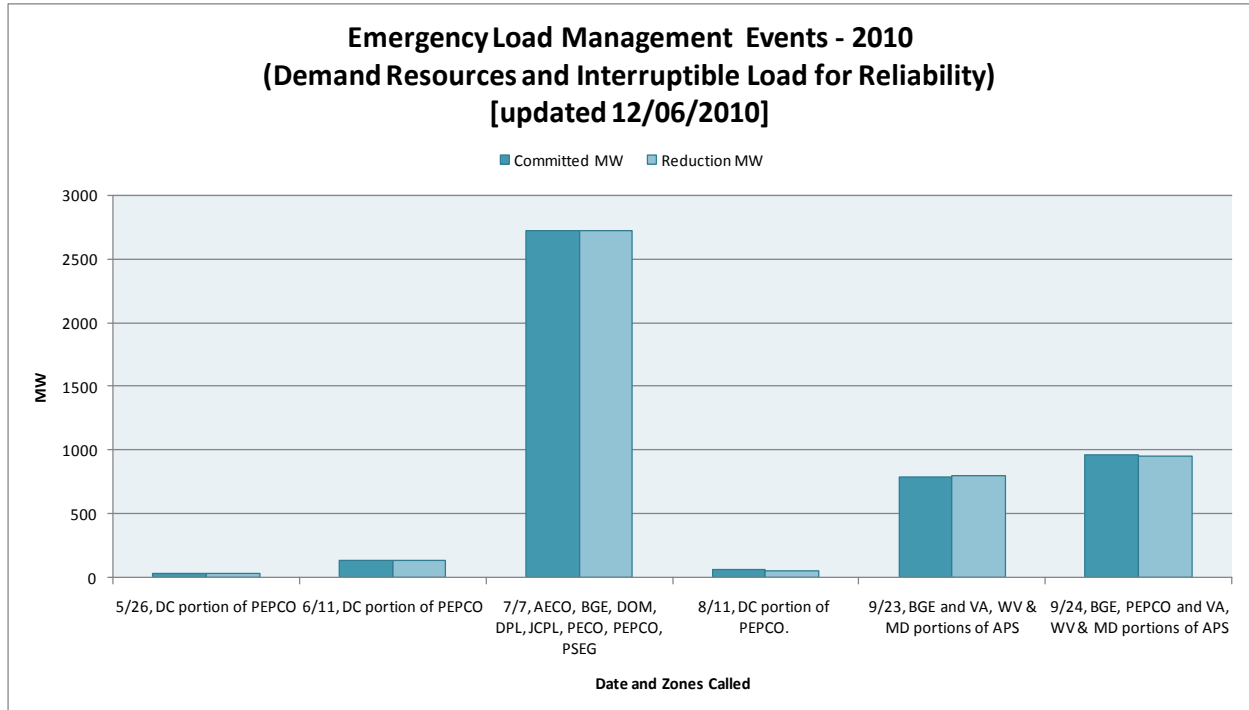
Delivery Year	Event History
2010/2011	Friday, September 24 <sup>th</sup> , HE 1400 <sup>6</sup> – 1800 <sup>7</sup> Thursday, September 23 <sup>rd</sup> , HE 1200 -2000 Wednesday, August 11 <sup>th</sup> , HE 1500 – 1900 Wednesday, July 7 <sup>th</sup> , HE 1500 – 1900 Friday, June 11 <sup>th</sup> , HE 1700 – 2000
2009/2010	Wednesday, May 26 <sup>th</sup> , HE 1900 – 2000
2008/2009	No events
2007/2008	Wednesday, August 8 <sup>th</sup> , HE 1500 - 1800
2006/2007	Thursday, August 3 <sup>rd</sup> , HE 1500 – 1900 Wednesday, August 2 <sup>nd</sup> , HE 1600 – 1900
2005/2006	Thursday, August 4 <sup>th</sup> , HE 1600 - 1700 Wednesday, July 27 <sup>th</sup> , HE 1400 - 1800
2004/2005	No events
2003/2004	No events
2002/2003	Tuesday, July 30 <sup>th</sup> , HE 1300 - 1800 Monday, July 29 <sup>th</sup> , HE 1500 - 1800 Wednesday, July 3 <sup>rd</sup> , HE 1300 – 1800
2001/2002	Friday, August 10 <sup>th</sup> , HE 1300 - 1400 Thursday, August 9 <sup>th</sup> , HE 1300 - 1800 Wednesday, August 8 <sup>th</sup> , HE 1400 - 1800 Wednesday, July 25 <sup>th</sup> , HE 1600 - 1700
2000/2001	No events

<sup>6</sup> HE in the table is an abbreviation for Hour Ending. For example, HE 1500 – 1800 is the same as the expression 2:00 PM until 6:00 PM.

<sup>7</sup> The times shown for each event are the beginning and end of compliance reporting times. Events are not called or released exactly on the hour and all Resources are expected to improve reliability by decreasing load or increasing generation as soon as practicable. The times shown are a summary of all Zones but the event may have been shorter or not even called in some Zones.

PJM calls Load Management events by zone (or sub-zone) and by lead time. This allows PJM to address system conditions in a targeted, measured and phased manner. Figure 6 below depicts the overall performance by zone for each of the 2010 Load Management events:

**Figure 6: 2010 Load Management Events**



Each event's performance measurement can be further broken down by the specific zones called upon and the lead time of the resources. The 2010 events varied in the number of zones where reductions were required. Three events included only a single zone (or sub-zone) while the other three involved multiple zones. Performance during the each of the 2010 Load Management events, by zone and lead time, is depicted in Figure 7 below. Zonal performance ranged from 87% to 106%.

**Figure 7: 2010 Load Management Event Performance by Zone**

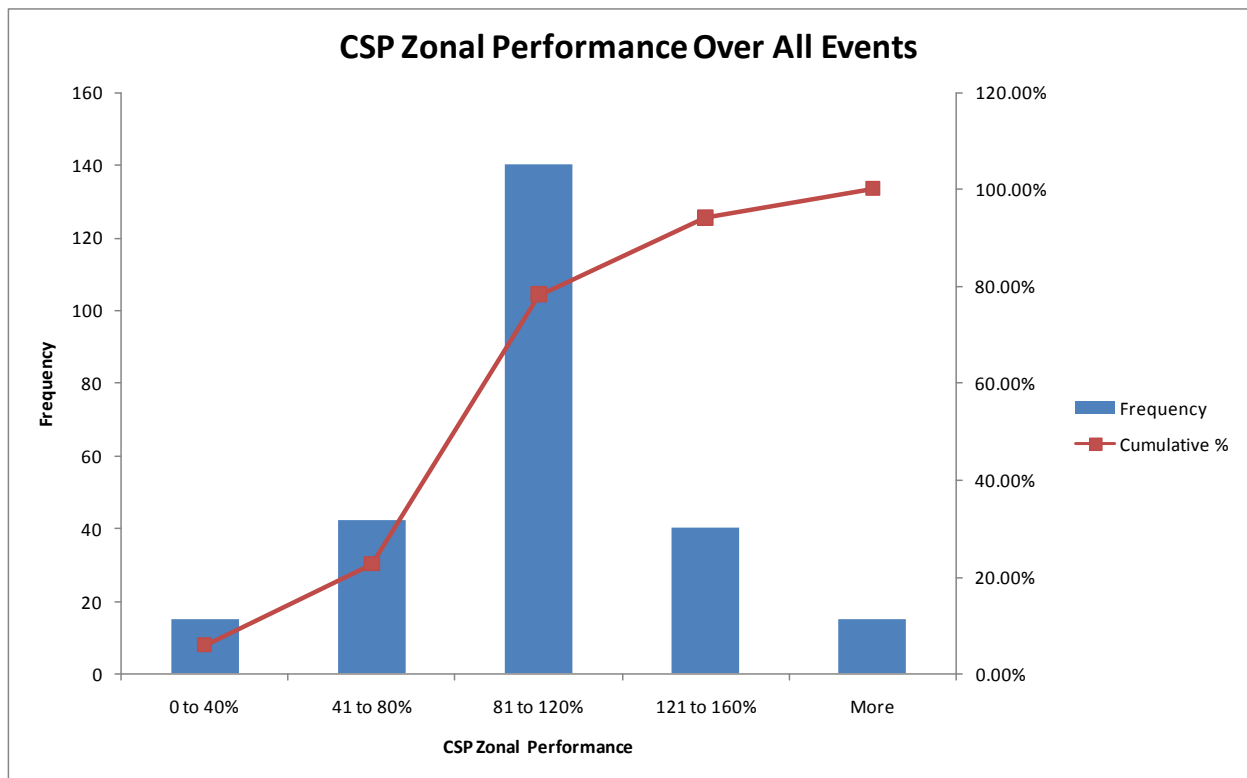
Eventdate	Committed MW	Reduction MW	Over/under Performance MW	Performance Percentage	Zone	Lead Time
5/26/2010	34	32	-2	94%	PEPCO	Long
6/11/2010	137	132	-6	96%	PEPCO	Long
7/7/2010	70	72	1	102%	AECO	Long
7/7/2010	410	422	12	103%	BGE	Long
7/7/2010	975	935	-39	96%	DOM	Long
7/7/2010	138	144	6	104%	DPL	Long
7/7/2010	155	155	1	100%	JCPL	Long
7/7/2010	419	438	19	105%	PECO	Long
7/7/2010	179	171	-9	95%	PEPCO	Long
7/7/2010	380	384	4	101%	PSEG	Long
8/11/2010	60	53	-7	89%	PEPCO	Long
9/23/2010	1.5	1.3	-0.2	87%	APS	Short
9/23/2010	378	366	-12	97%	APS	Long
9/23/2010	410	433	23	106%	BGE	Long
9/24/2010	378	355	-23	94%	APS	Long
9/24/2010	410	430	20	105%	BGE	Long
9/24/2010	179	173	-7	96%	PEPCO	Long

Note: The PEPCO events on 5/26, 6/11 and 8/11 and the APS events of 9/23 and 9/24 were sub-zonal events. For PEPCO, the sub-zone called upon was the DC portion of PEPCO. For APS, the sub-zone called upon was the VA, WV and MD portions of APS.

## CSP Events Performance

CSP performance is measured for each event by zone for all resources that were dispatched by PJM. The combined ILR and DR reductions made in a zone are compared to each CSP's reduction commitment. Under performance is penalized and over performance can be rewarded (within limits and to the extent that there were underperformance penalties paid, see Event Performance Penalties). Figure 8 below depicts the performance of all CSP/zone combinations over all 2010 Load Management events. It can be seen that performance is normally distributed. Fifty-six percent of CSPs zonal performance was within the 81% to 120% range while 88% were between 41% and 160%. And, as expected, some performed better, others worse.

**Figure 8: CSP Zonal Performance Over All Events**



## Registration Events Performance

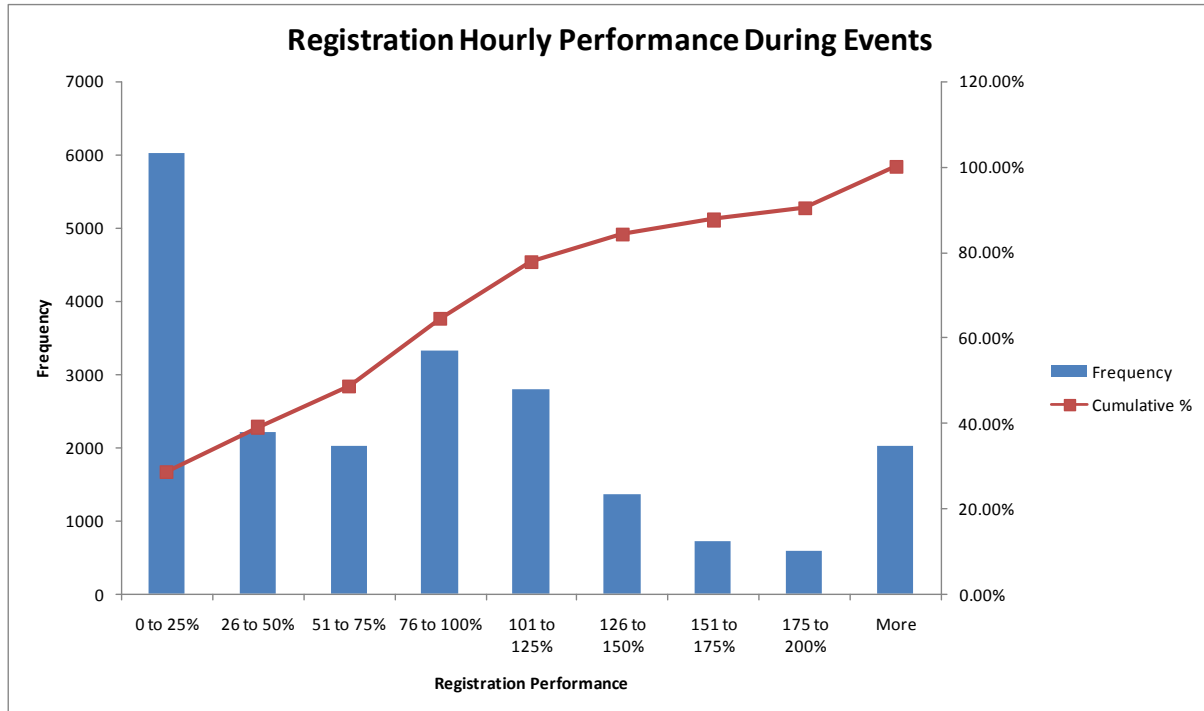
Although CSP compliance is aggregated to a zonal level, PJM initially calculates performance by registration by end use customer by event by hour. Figure 9 below depicts the individual hourly performance of each registration called on for the 2010 Load Management events. Unlike the CSP performance above, the registration performance does not exhibit a normal distribution. Rather, the distribution has significant amount of activity in each “tail” which represents more extreme hourly resource event under and over performance. These tails represent large numbers of registrations with low performance values (less than 25%) and another group with high performance values (greater than 200%) which offset through the aggregation of overall portfolio performance.

This effect is when, within a CSPs portfolio of registrations, some registrations over perform for the benefit of those that under perform yielding an aggregate performance that is satisfactory. The high performance can come from two possible situations. First, a site with a relatively high PLC may conservatively register with a reduction commitment that is much lower than the PLC and when called on to perform, would provide a reduction well in excess of its’ registered commitment. The second situation is when a site with a relatively low PLC (i.e. a site that makes an effort to lower its load on days likely to be peak load days in order to avoid a high capacity cost) registers with a low reduction commitment because it is limited by its low PLC. However, when this site is called on to perform, it will also provide a reduction well in excess of its registered commitment. In both situations the excess reductions are applied to the CSP’s portfolio and can offset under-performers<sup>8</sup>.

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<sup>8</sup> This second situation raises both a compliance and policy issue and was discussed at length in the Load Management Task Force, Markets Implementation Committee and reviewed at the Markets and Reliability Committee as a potential “Double Counting” issue. Namely, should reductions achieved by registrations whose load was above its PLC at the time of the event be available to offset underperformance of other registrations since such resources have already received a “benefit” for the reductions through a reduced peak load contribution or “PLC”. Resolution of the issues was deferred by stakeholders until May 2011.

**Figure 9: Registration Hourly Event Performance**



## Event Performance Penalties

Load Management Event Penalties are assessed by CSP and zone and then disbursed to CSPs that overperform and where necessary to LSEs. However, to preserve confidentiality, the results are reported on an aggregated basis. Load Management Event Penalties and Credits are currently billed as an annual lump sum. Figure 10 summarizes the annual charges and credits by Event. The total amount of Load Management Event Penalties assessed for the 2010 events is \$9,459,125/year. To put this value into context it is important to note that total CSP revenues for ILR and DR are approximately \$584 million per year. The penalty charges are about 1.6% of the total revenue. The Load Management Event Charges collected from CSPs are first allocated on a pro-rata basis to those CSPs that provided load reductions in excess of the amount obligated. Any Load Management Event Charges not allocated to over-performing CSPs are further allocated to all LSEs in the RTO pro-rata based on Load Contribution.

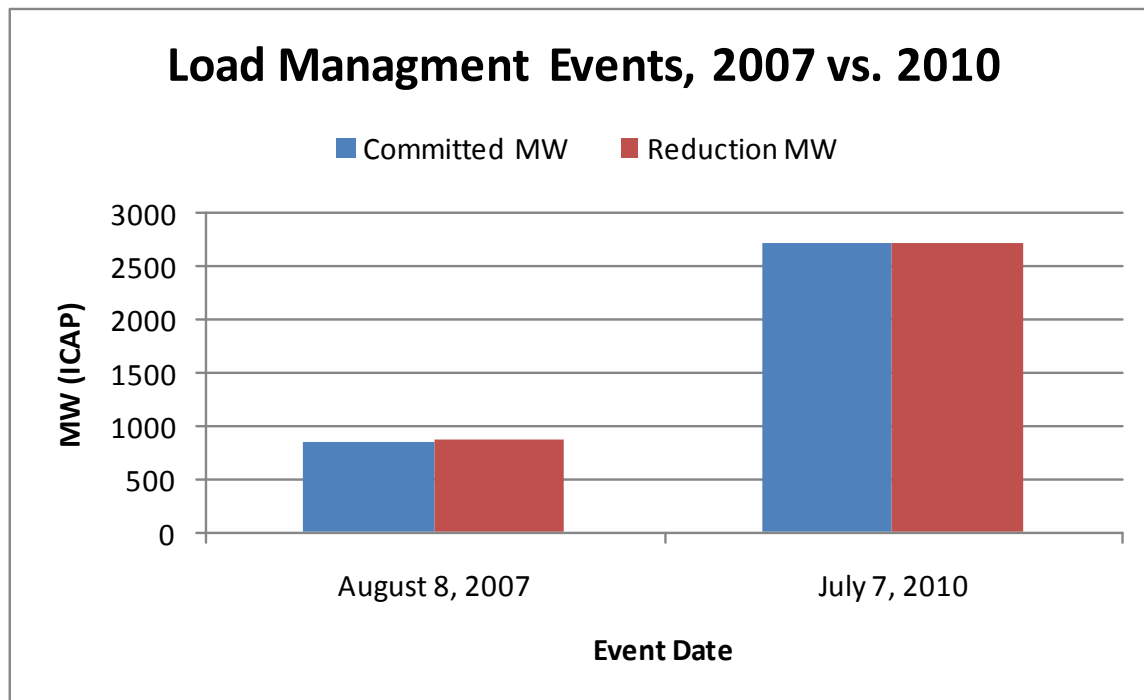
**Figure 10: Load Management Event Penalties and Credits**

	Annual Penalties	Annual Credits to Overperformers	Annual Credits to LSEs
June 11, 2010 LM Event	\$267,109	\$166,673	\$100,436
July 7, 2010 LM Event	\$5,000,305	\$2,321,905	\$2,678,400
August 11, 2010 LM Event	\$176,533	\$64,934	\$111,599
September 23, 2010 LM Event	\$1,661,964	\$948,940	\$713,024
September 24, 2010 LM Event	\$2,353,214	\$1,127,564	\$1,225,650
<b>Total</b>	<b>\$9,459,125</b>	<b>\$4,630,016</b>	<b>\$4,829,109</b>

### Event Comparison to 2007

PJM compared the performance results of the August 8, 2007 event with an event of similar scope in 2010 -- the July 7<sup>th</sup> event. The 2007 event included 11 zones called on in a staggered fashion. Like in 2007, the July 2010 event was multi-zone (8 zones) and was called in a staggered fashion. The results show that the performance of the events was very similar. Performance in 2007 was 103% compared to 100% in 2010. Figures 11 - 13 below depict the overall performance as well as the individual zonal performance for each event.

**Figure 11: Overall Event Performance 2007 and 2010**



**Figure 12: Load Management Event Zonal Performance 2007**

<b>August 8, 2007</b>				
<b>Zone</b>	<b>Committed MW</b>	<b>Reduction MW</b>	<b>Over/under Performance MW</b>	<b>Performance Percentage</b>
AECO	7	8	1	122%
BGE	256	261	5	102%
DOM	11	14	3	126%
DPL	32	33	1	104%
JCPL	9	11	1	113%
ME	37	39	2	106%
PECO	110	84	-27	76%
PENELEC	1	4	2	247%
PEPCO	28	48	20	171%
PPL	244	257	13	105%
PSEG	103	104	1	101%
<b>Total</b>	<b>839</b>	<b>862</b>	<b>23</b>	<b>103%</b>

**Figure 13: Load Management Event Zonal Performance 2010**

<b>July 7, 2010</b>				
<b>Zone</b>	<b>Committed MW</b>	<b>Reduction MW</b>	<b>Over/under Performance MW</b>	<b>Performance Percentage</b>
AECO	70	72	1	102%
BGE	410	422	12	103%
DOM	975	935	-39	96%
DPL	138	144	6	104%
JCPL	155	155	1	100%
PECO	419	438	19	105%
PEPCO	179	171	-9	95%
PSEG	380	384	4	101%
<b>Total</b>	<b>2725</b>	<b>2720</b>	<b>-5</b>	<b>100%</b>

## Emergency Energy Settlements

For emergency events, Full Emergency type registrations are entitled to submit settlements for the energy reductions provided. The compensation is based on each registration’s strike price and the LMPs during the event. Unlike economic settlements, emergency energy settlements do not subtract the retail rate. Figure 14 shows the settlement values for each of the 2010 Load Management Events.

**Figure 14: Emergency Energy Settlements for 2010 Events**

Load Management Events	Emergency Energy Settlements
5/26/2010	\$124,298
6/11/2010	\$541,253
7/7/2010	\$7,467,344
8/11/2010	\$265,619
9/23/2010	\$2,416,548
9/24/2010	\$2,981,501
<b>Total</b>	<b>\$13,796,563</b>

## Reductions for Compliance and Emergency Energy Settlements

Load reductions during emergency events are calculated separately for purposes of compliance and emergency energy settlements. When calculating the reduction values used for compliance, the specific methodology depends on the type selected by the CSP during the registration: GLD, FSL or DLC. For GLD a CSP further determines the specific baseline calculation that results in the best estimate of what the facility’s load would have been absent the reduction made for the Load Management event<sup>9</sup>. The CSP has five different calculation methods available to achieve the best estimate. For FSL the CSP simply reports the load level of the facility during the hours of the event and that value is subtracted from the PLC. Finally, for DLC the CSP reports exactly when the signal was sent to the end use customers to control the specific switches. Compliance reductions are calculated for all participants of an event.

When calculating reduction values for emergency energy settlements the procedure is different. For GLD and FSL the CSP calculates hourly reductions during events by subtracting the load at the facility during each hour from the load of the facility prior to the start of the event. For DLC, the CSP reports the load reduction from its approved estimation technique. Emergency energy settlements are only available to Full Emergency registrations. In order to receive a payment for an energy reduction the CSP must submit accurate data within the prescribed timeframe (60 days from the event). Not all CSPs submit settlement data and if a facility had already reduced its load prior to the event, it cannot receive an emergency energy payment. Further, Emergency Capacity Only registrations by definition do not receive an emergency energy payment.

<sup>9</sup> The CSP may also use meter data from a back up generation resource to determine the net metered load reduction at the site.

PJM analyzed compliance and emergency settlement data for the July 7<sup>th</sup> event for resources registered as Full Emergency to get an understanding of the difference in the measurement of load reduction based on capacity compliance rules compared to emergency energy rules. Average hourly load reductions based on capacity compliance rules were 2,280 MW while average hourly load reductions based on emergency energy settlements for the same hours<sup>10</sup> were 1,844 MW. The 3 primary reasons for the difference are: 1) customers that may have reduced load earlier for the specific day, 2) the fundamental difference in how the load reductions are measured and 3) participants that did not submit the appropriate data for either capacity compliance or energy settlements.

## 2010 Load Management Tests

The implementation of the forward capacity market, RPM, has incited an increase in capacity-based demand response which has been beneficial to the region. Given the increasing dependence on demand response to maintain reliability, PJM has implemented annual Load Management Tests as a means to assess performance of Load Management resources that has not been called on to participated in as actual emergency event.

The Load Management Test is initiated by a Curtailment Service Provider (CSP) that has a capacity commitment. The CSP must simultaneously test all Resources in a Zone if PJM has not called an event in that Zone by August 15<sup>th</sup> of a given Delivery Year. If a PJM-initiated Load Management Event is called in a Zone between June 1<sup>st</sup> and September 30<sup>th</sup> there is no test requirement and no Test Failure Charges would be assessed for that Zone.

The timing of a Load Management Test is intended to represent the conditions when a PJM-initiated Load Management event might occur in order to assess performance during a relative period. Therefore, a Load Management Test may occur from June 1<sup>st</sup> through September 30<sup>th</sup> on a non-holiday weekday during any hour from 12 noon until 8 PM EPT. All of a CSP's committed DR and certified ILR resources in the same Zone are required to test at the same time for a one hour period. The requirement to test all resources in a zone simultaneously is necessary to ensure that test conditions are as close to realistic as possible. It is requested that the CSP notify PJM of intent to test 48 hours in advance to allow coordination with PJM dispatch.

There is not a limit on the number of tests a CSP can perform. However, a CSP may only submit data for one test to be used by PJM to measure compliance. If the CSP's Zonal Resources collectively achieve a reduction greater than 75% of the CSP's committed MW volume during the test, the CSP may choose to retest only the Resources in that Zone that failed to meet their individual nominated value.

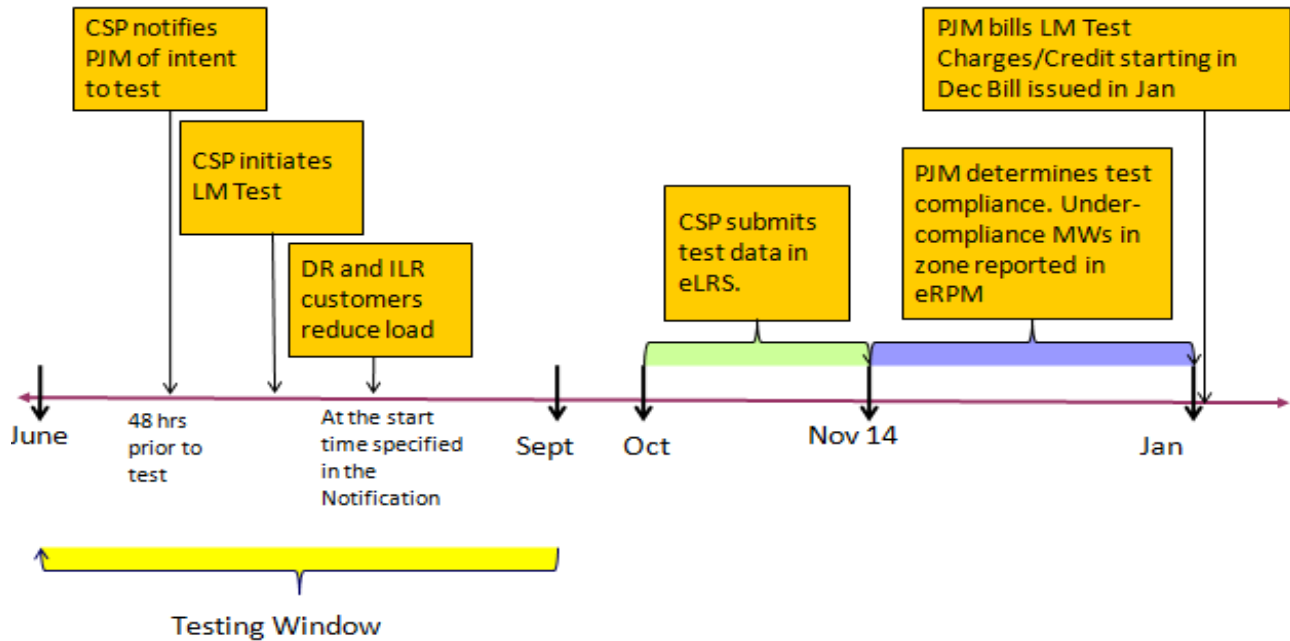
In a Delivery Year without a PJM-initiated Load Management Event, CSPs must submit their test data using PJM's Load Response System (eLRS). For the 2010/2011 Delivery Year, the test data deadline was November 14, 2010. PJM reviews the information and contacts the CSP for additional supporting information where necessary. PJM

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<sup>10</sup> Note when evaluating all of the emergency energy settlement hours, which can include hours before and after the hours in the compliance window, the results differ. Reductions based on compliance rules are the same at 2,280 MW, but the average emergency energy settlement value was 1,496 MW.

determines test compliance and reports the information in PJM’s RPM system (eRPM) during December. Any Load Management charges or credits are normally issued in January on the December bill.

**Figure 15: Load Management Test Timeline**



Load Management Resources are assessed a Test Failure Charge if their test data demonstrates that they did not meet their commitment level. The Test Failure Charge is calculated based on the CSP’s Weighted Daily Revenue Rate which is the amount the CSP is paid for their RPM commitments in each Zone. The Weighted Daily Revenue Rate takes into consideration the different prices DR and ILR can be paid in the same Zone. For example, a CSP can clear DR in the Base Residual and/or Incremental Auctions and/or register ILR in the same Zone, all of which are paid different rates. The penalty rate for under-compliance is the greater of 1.2 times the CSP’s Weighted Daily Revenue Rate or \$20 plus the Weighted Daily Revenue Rate. If a CSP didn’t clear in a RPM auction or certify ILR resources in a Zone, the CSP-specific Revenue Rate will be replaced by the PJM Weighted Daily Revenue Rate for such Zone.

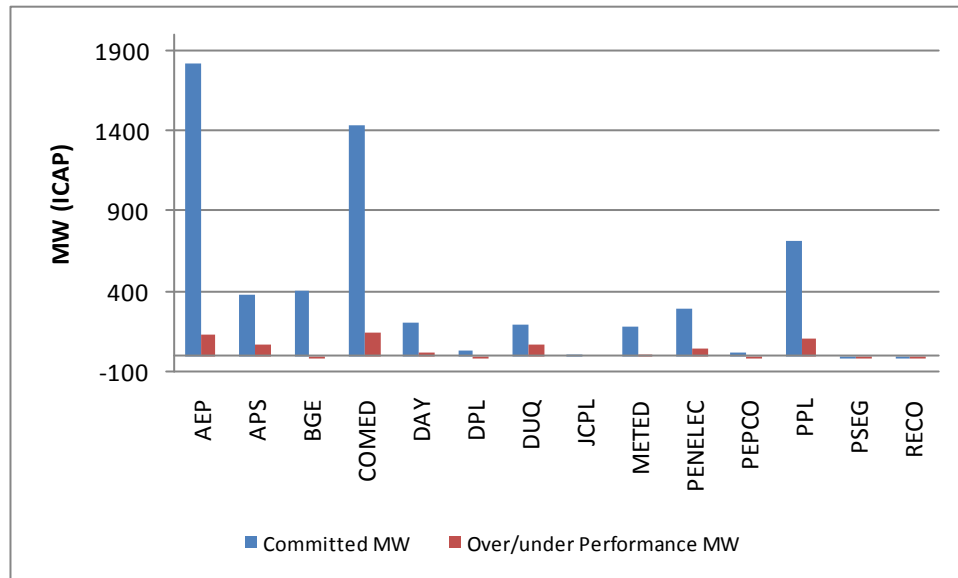
## Load Management Test Results

There were 5,734 MW in ICAP of committed Load Management Resources that were not called upon to participate in any of the 2010/2011 Delivery Year emergency events. As a result, these resources were required to perform a test to assess their performance capability. This commitment was made by 64 CSPs in 14 Zones with a total of 199 CSP/Zone combinations. The over-compliance across all Zones and CSPs totaled 624 MW which equates to a performance level of 111%. Of the 5,734 MW of committed MWs, 83 MW were retested. Those 83 MW that were retested resulted in zero MW of over-compliance after the retest. In tabular form, the Zonal results are as follows:

**Figure 16: Load Management Obligations, Compliance, and Test Performance (ICAP)**

Test Results				
Zone	Committed MW	Reduction MW	Over/under Performance MW	Performance Percentage
AEP	1826	1961	135	107%
APS	381	448	68	118%
BGE	414	416	2	100%
COMED	1438	1591	153	111%
DAY	206	227	21	110%
DPL	32	32	0	100%
DUQ	201	270	69	134%
JCPL	10	10	0	100%
METED	186	201	16	108%
PENELEC	296	349	53	118%
PEPCO	25	25	1	103%
PPL	717	822	105	115%
PSEG	1	1	0	106%
RECO	2	3	2	193%
<b>Total</b>	<b>5734</b>	<b>6358</b>	<b>624</b>	<b>111%</b>

**Figure 17: Load Management Test Obligations and Compliance (ICAP)**



The performance on an individual CSP/Zone basis varied. Overall, 162 CSP/Zone combinations complied or over-complied in the Load Management Tests for the 2010/2011 Delivery Year. The over-compliance averaged just over 4 MW per CSP/Zone combination and totaled 675 MW of over-compliance. There were 37 CSP/Zone combinations that under-complied. The under-compliance averaged just over 1 MW per CSP/Zone combination for a total of 51 MW of under-compliance.

Test Failure Charges for the 2010/2011 Delivery Year are applied on an individual CSP/Zone basis for settlement purposes. However, the Test Failure Charges are reported on an aggregate basis here to preserve confidentiality. The average Penalty Rate for the 2010/2011 Delivery Year is \$208.58/MW-day. This Penalty Rate is an average of \$207.75/day when weighted by the under-compliance amounts. The annual penalties for under-compliance total just over \$4 million which will be allocated to RPM LSEs pro-rata based on their Daily Load Obligation Ratio. To better understand the order of magnitude, the under-compliance penalties compare to the total Load Management annual credits of just over \$584 million. Therefore, the under-compliance penalties are less than 1% of the Load Management credits in the RPM.

## Recommendations

PJM is actively working through the stakeholder process to enhance Load Management products based on prior year's recommendations and other stakeholder identified suggestions. In the future, PJM does not expect to include a recommendation section in this report since proposed enhancements are initiated directly through the stakeholder process.