

Load Management Performance Report 2011/2012

December 2011





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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

Demand Side Resources have the ability to participate as a capacity resource in the PJM capacity market (Reliability Pricing Model or “RPM”) or to support a Load Serving Entities Fixed Resource Requirement (“FRR”) plan. For the 2011/2012 Delivery Year there are two different Load Management product types available which have the same availability requirement: Demand Resources (“DR”) and Interruptible Load for Reliability (“ILR”). A Curtailment Service Provider (“CSP”) is the PJM member that nominates the end use customer(s) as a capacity resource and is fully responsible for the performance of the resource. Load Management products are required to respond to PJM Load Management event which may occur from noon through 8pm on non-holiday weekdays from June through September during PJM system emergencies or receive a penalty. Load Management that is not dispatched during a system emergency must perform a mandatory test to demonstrate it can meet its capacity commitment or receive a penalty.

PJM called on Load Management (ILR and DR) three times during the 2011. Figure 1 below shows a summary of the events. There were two calls made in May and one in July. The 2 May events occurred at the end of the 2010/2011 Deliver Year and were outside the mandatory compliance period. Performance during each May event was lower than expected (80%) and much lower than the committed amount of capacity (40%). Since the events took place outside of the compliance measurement period, reductions are expected to be lower than during the compliance measurement months. When there is a potential for an event to occur outside of the compliance measurement period, PJM estimates an expected level of reductions based on input from the CSP. CSPs had indicated they expected resources would be able to deliver 50% of their commitments. CSPs are incented to perform by the ability to receive emergency energy revenue and to help during a system emergency Load Management performance for the July event was 91% of required reductions which was lower than expected. Performance is mandatory in July and, accordingly, PJM expected performance to be closer to 100%. The 91% performance result is lower than the 2010/2011 overall result of 100%.

Figure 1: 2011 Load Management Events Summary

Event Date and Zones	Committed MW*	Reduction MW	Performance
5/26, Norfolk portion of DOM	71	58	82%
5/31, Mid-Atlantic , DOM	1,033	856	83%
7/22, BGE, DPL, DUQ, JCPL, METED, PECO	2,296	2,097	91%

*Note: Committed MW for May events are the expected MW.

The summer 2011 events varied in size and length. The two May events were short (one and two hours) and small (one sub-zonal) in comparison to the July event that was a large multi-zone event during wide spread record breaking heat. On July 22nd the heat indices in the Delaware Valley ranged from 110°F to 120°F. The event lasted for four hours in two zones, five hours in four zones and the maximum duration of six hours in the BGE zone. Not all CSPs responded with their committed amounts in all of the zones where they participate. In the July event 55% of the CSP/zones did not -- compared to 40% last summer. Conversely, 45% met or exceeded their commitments (vs. 60% last year). Underperformance penalties¹ totaled \$5.6 million or about 1.3% of the total DR and ILR revenue of \$420 million. CSP credits for energy reduced during all three events totaled \$15 million.

¹ May events occur outside of the compliance measurement period and there are no event penalties.

DR and ILR that was not dispatched during the July emergency event were required to perform a mandatory 1 hour test. Each CSP must test all DR/ILR resources that were not required to respond to the July event in a zone at the same time. The test results for the 2011/2012 Delivery Year demonstrate that in aggregate, committed Demand Side Resources performed at 107% of their committed capacity values. Test results in excess of committed capacity values totaled 660 MW for the 8,860 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 that number was small. Test failure charges totaled \$6.4 million, about 1.5% 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 2011/2012 Delivery Year², 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. This is the last year for ILR. 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

² 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.

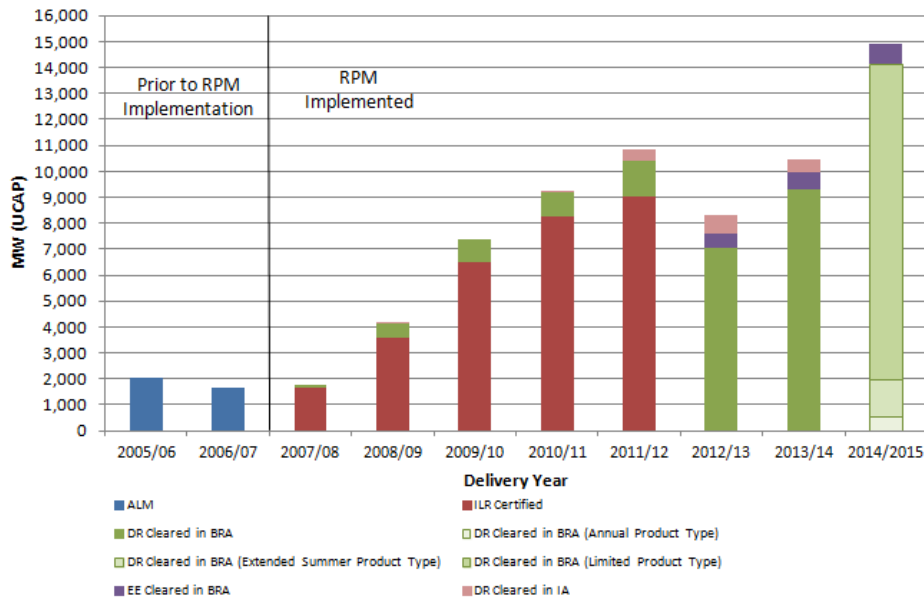
Load Management Participation Summary

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 five 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 2014/2015 Delivery Year average over 10,600 MW each year and up to 14,000 MW by 2014/2015. (Note that there is a dip in Delivery Year 2012/2013. This is likely due to being the first year without ILR.) 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 2: 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 factor³ and Forecast Pool Requirement (FPR) factor⁴. The DR factor accounts for load forecast uncertainty while the FPR is an adjustment for unforced reserve margin. For the 2011/2012 Delivery Year, Load Management Resources commitments represented 11,442 MW⁵ of ICAP while total registered Load Management represented 11,821 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 commitment⁶.

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

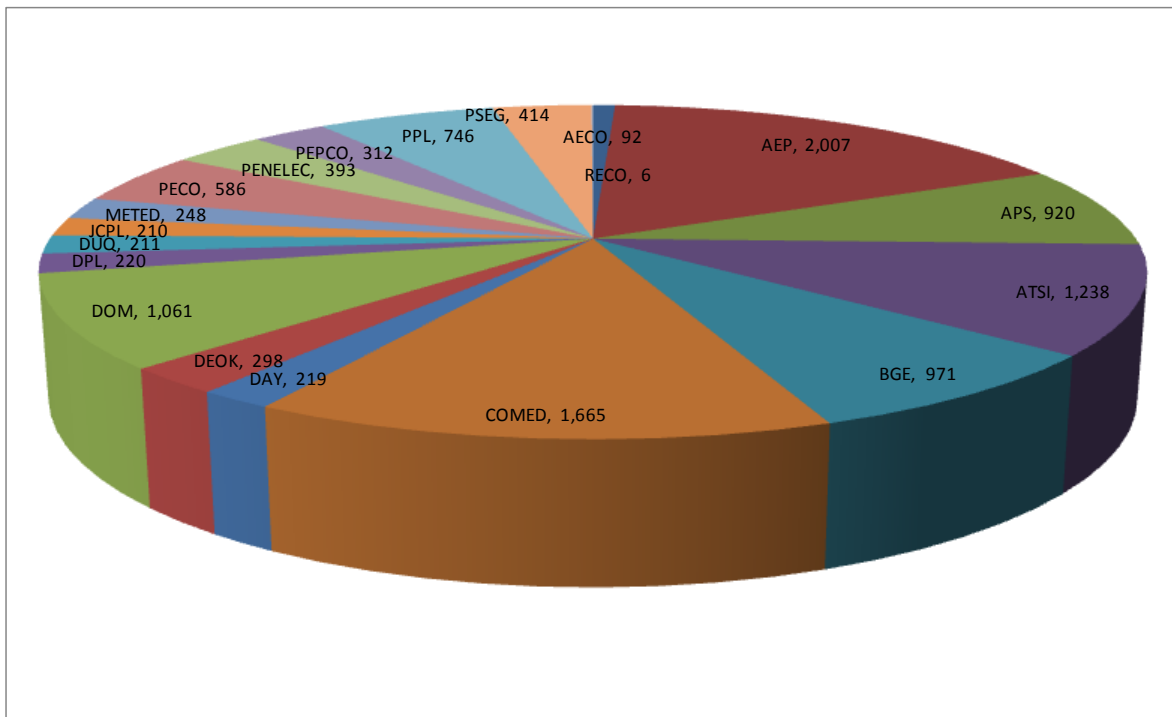
⁴ The amount equal to one plus the unforced reserve margin (stated as a decimal number) for the PJM Region.

⁵ Includes RPM auctions and FRR commitments

⁶ 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 registration of Load Management Resources were spread across the 19 Zones for the 2011/2012 Delivery Year (note that the DEOK zone will not be effective until January 1, 2012). Ninety-seven members operate as a Curtailment Service Provider where over 1 million end use customers across almost every segment (residential, commercial, industrial, government, education, agricultural, etc.) participate as a Load Management resource

Figure 3: 2011/2012 Load Management Participation by Zone (MW ICAP)



Atlantic City Electric (AECO), American Electric Power (AEP), American Transmission Systems, Inc (ATSI), Allegheny Power (APS), Baltimore Gas and Electric (BGE), Commonwealth Edison (COMED), Dayton Power & Light (DAY), Dominion Virginia Power (DOM), Delmarva Power and Light (DPL), Duke Energy Ohio and Kentucky (DEOK), 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 4 below illustrates the percentage of ICAP registered by the major methods where 53% represents Guaranteed Load Drop that is not exclusively provided by a back up generation resource as measured through the output of the backup generator, 8% represents Guaranteed Load Drop that is exclusively provided through a back up generation resource, 32% represents Firm Service Level and 8% represent residential direct load control type resources.⁷ Note that although MWs from resources registered as Guaranteed Load Drop via Generation account for 8% of the total nominated load, event and test data submissions show that generator output accounts for 6% of the nominated total, slightly less than the registered amount.

Figure 4: Percent of Registered ICAP

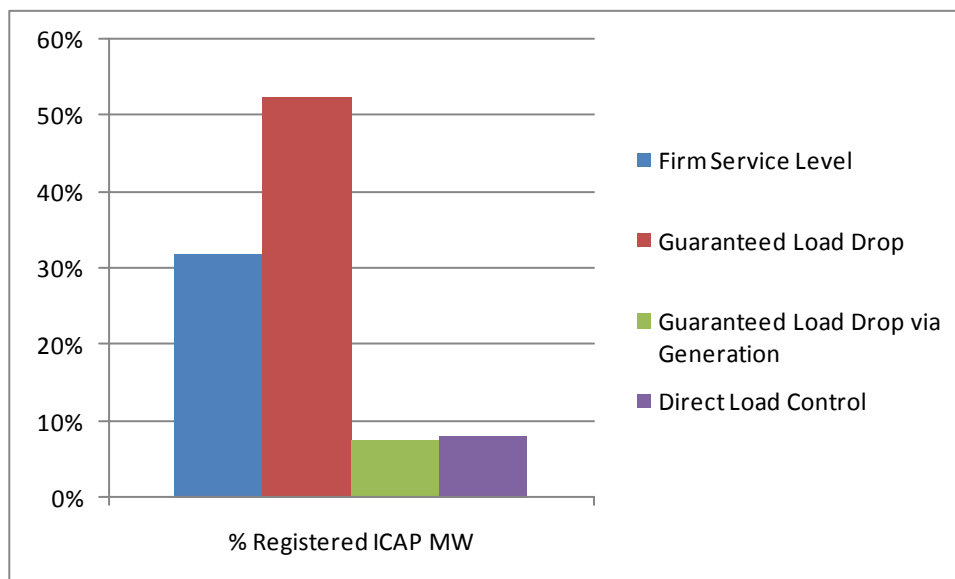
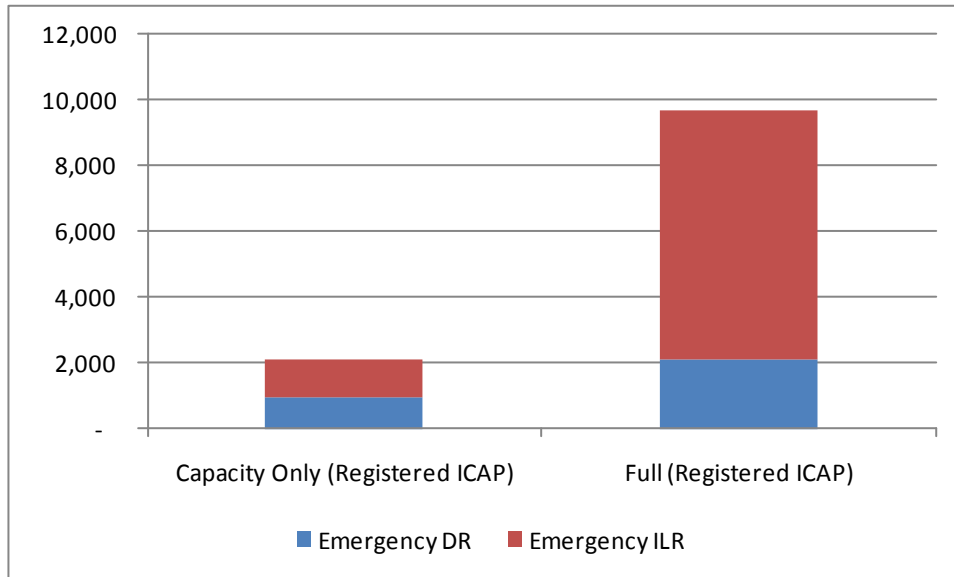


Figure 5 represents the current number of registration ICAP MWs for ILR compared to DR. The registration type is further segmented to show the number of MWs registered as an Emergency Full resource that receive both capacity revenue stream as well as an emergency energy revenue stream when there is an 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. 8,731 MW were registered as ILR while 3,090 MW were registered as DR while approximately 18% of the total was registered as Capacity Only.

⁷ 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 5: MW of Registered ICAP as DR and ILR



2011 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 three Load Management events in 2011 (two at the end of 2010/2011 DY and one in 2011/2012 DY). Following is an overview of PJM Load Management events over the past 12 years.

Figure 6: Load Management Event History

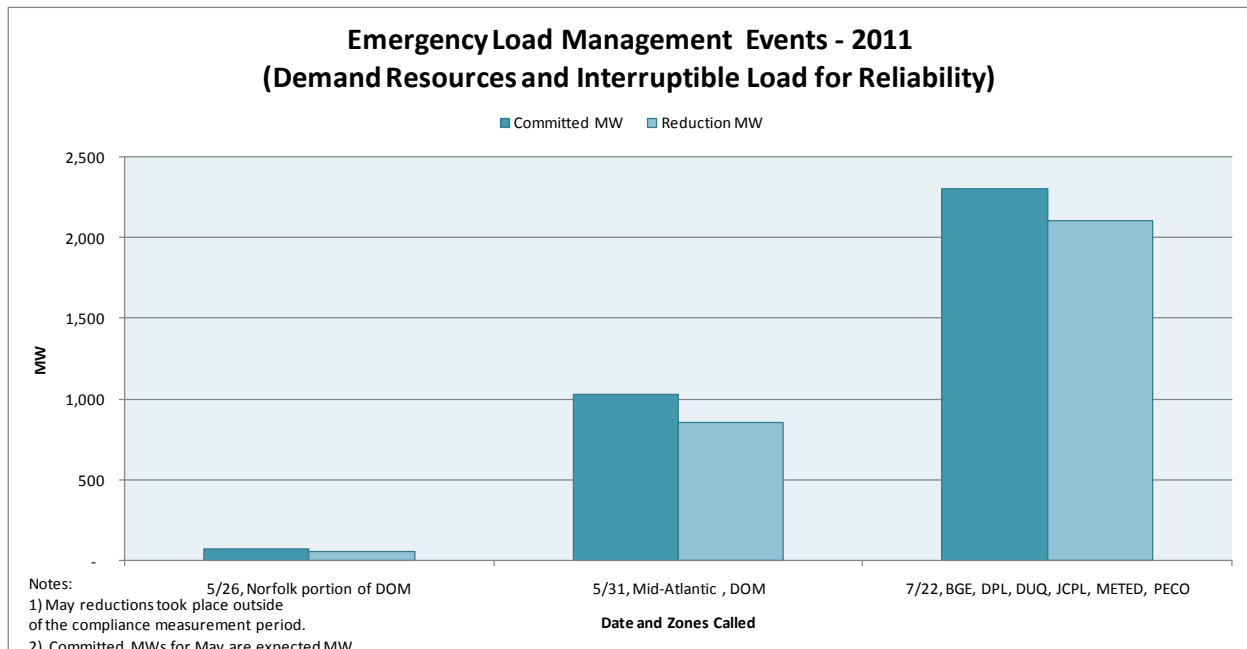
Delivery Year	Event History
2011/2012	Friday, July 22 nd , HE 1300 ⁸ – 1900 ⁹
2010/2011	Tuesday, May 31 st , HE 1800 – 1900 Thursday, May 26 th , HE 1800 – 1800 Friday, September 24 th , HE 1400 – 1800 Thursday, September 23 rd , HE 1200 - 2000 Wednesday, August 11 th , HE 1500 – 1900 Wednesday, July 7 th , HE 1500 – 1900 Friday, June 11 th , HE 1700 – 2000
2009/2010	Wednesday, May 26 th , HE 1900 – 2000
2008/2009	No events
2007/2008	Wednesday, August 8 th , HE 1500 - 1800
2006/2007	Thursday, August 3 rd , HE 1500 – 1900 Wednesday, August 2 nd , HE 1600 – 1900
2005/2006	Thursday, August 4 th , HE 1600 - 1700 Wednesday, July 27 th , HE 1400 - 1800
2004/2005	No events
2003/2004	No events
2002/2003	Tuesday, July 30 th , HE 1300 - 1800 Monday, July 29 th , HE 1500 - 1800 Wednesday, July 3 rd , HE 1300 – 1800
2001/2002	Friday, August 10 th , HE 1300 - 1400 Thursday, August 9 th , HE 1300 - 1800 Wednesday, August 8 th , HE 1400 - 1800 Wednesday, July 25 th , HE 1600 - 1700
2000/2001	No events

⁸ 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.

⁹ 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 7 below depicts the overall performance for each of the 2011 Load Management events:

Figure 7: 2011 Load Management Events



Looking further into each event, the Figures 8, 9 and 10 below show the hourly performance values for each event. As can be seen in both overall and hourly performance, the results are lower than anticipated. Review of the data shows that not just a single CSP had performance issues. There was a general lower than expected performance. The May events took place in the final week (and in the case of May 31, the final day) of the 2010/2011 DY. Many CSPs did not expect an event that late in the DY and some end-use sites were about switch CSPs for the upcoming DY. These may be reasons for lower than anticipated performance.

In the July event the under-performance cannot be attributed to one or two CSPs. Under-performance was a general problem. The data do show that some single large end-use sites had performance problems. Their relatively large size puts greater reliance on them for overall performance. PJM plans to discuss the performance with CSPs. It should be noted that the under-performing CSPs were charged penalties in accordance with PJM rules.

Figure 8: May 26, 2011 Hourly Performance

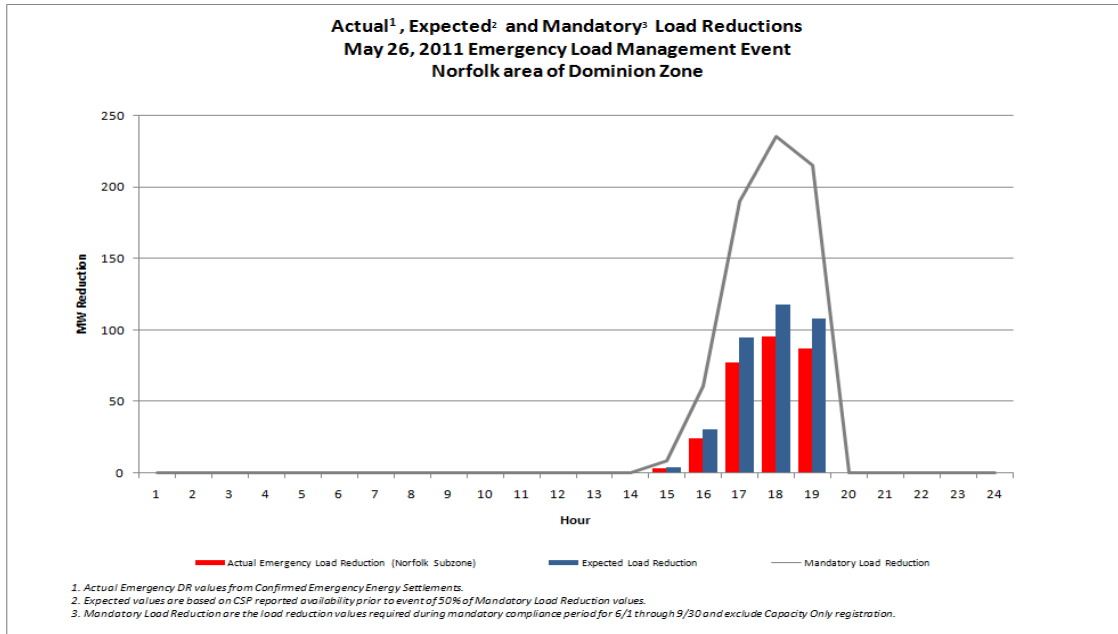


Figure 9: May 31, 2011 Hourly Performance

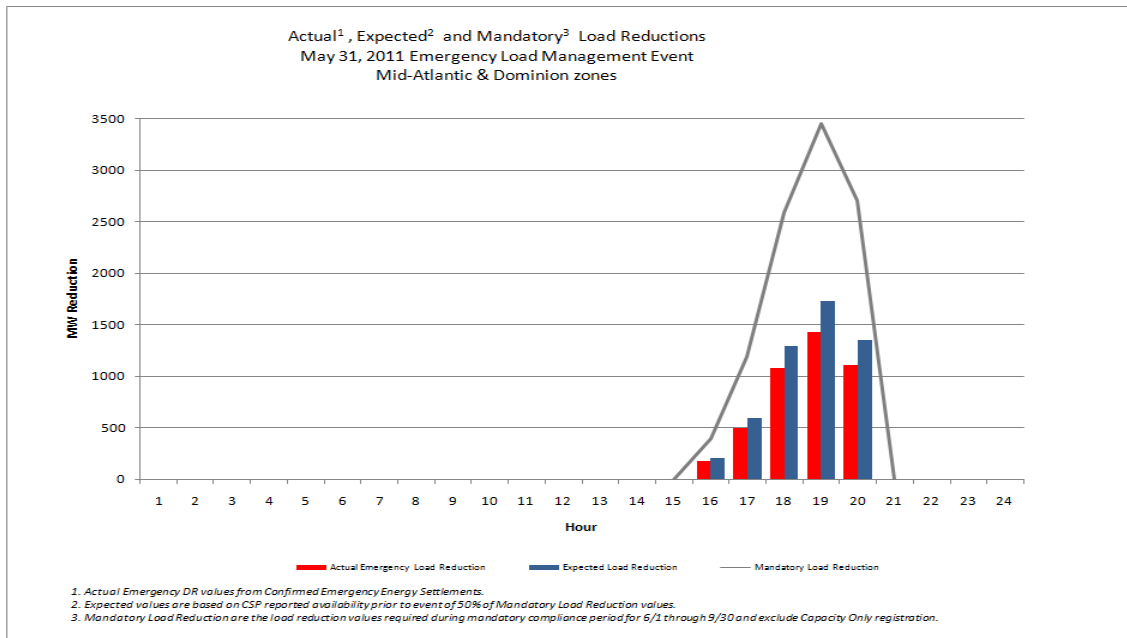
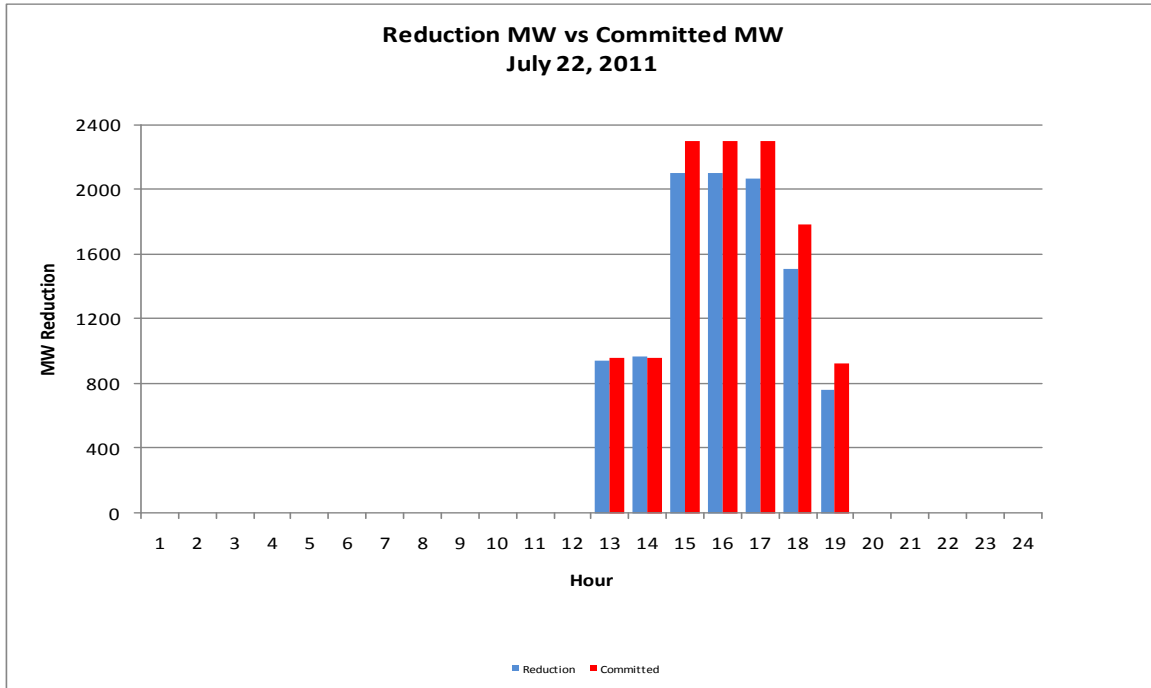


Figure 10: July 22, 2011 Hourly Performance



Event performance measurement can also be broken down by the specific zones called upon and the lead time of the resources. Long lead time resources were called on for both events in May. The May 26th event was in the Norfolk subzone of Dominion and the 31st event was in the Mid-Atlantic zones. The July 22, 2011 event was called in six zones for long lead time resources. In the BGE zone short lead time resources were also called. Performance for that Load Management event, by zone and lead time, is depicted in Figure 11 below. Zonal performance ranged from 87% to 106%.

Figure 11: 2011 Load Management Event Performance by Zone

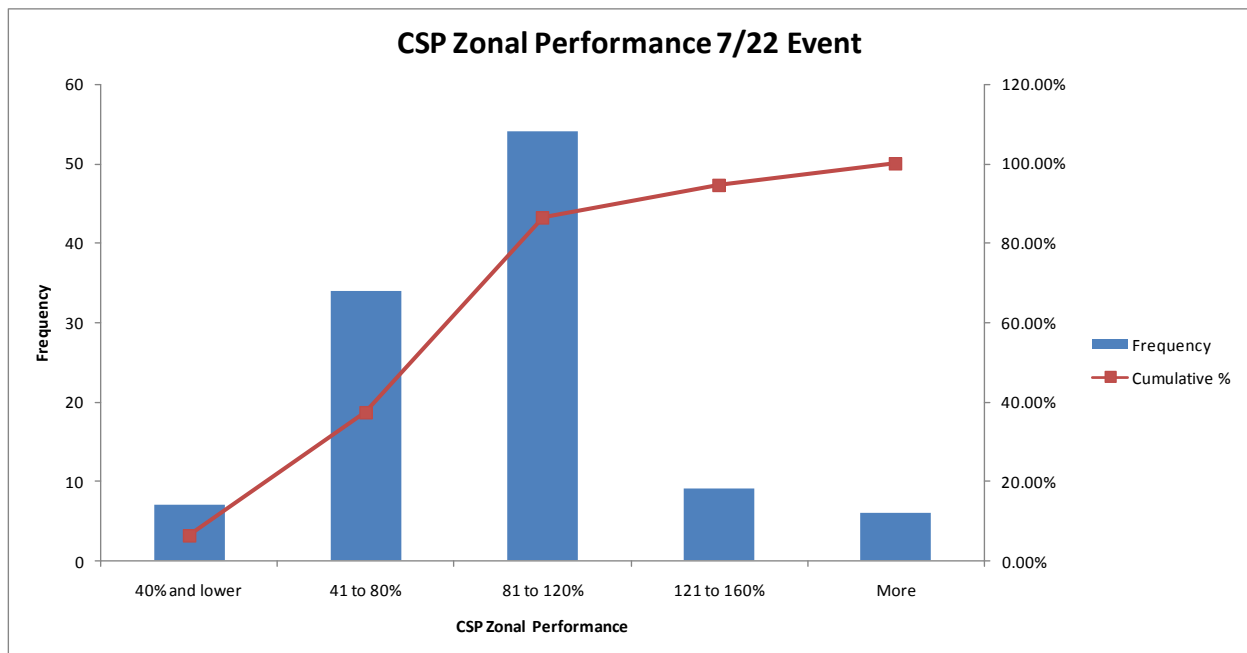
Eventdate	Committed MW	Reduction MW	Performance MW	Performance Percentage	Zone	Lead Time
5/26/2011	71	58	-13	82%	DOM	Long
5/31/2011	756	655	-101	87%	Mid-Atlantic	Long
5/31/2011	277	201	-76	73%	DOM	Long
7/22/2011	518	522	4	101%	BGE	Short
7/22/2011	439	440	1	100%	BGE	Long
7/22/2011	167	128	-39	77%	DPL	Long
7/22/2011	182	163	-19	90%	DUQ	Long
7/22/2011	177	141	-36	80%	JCPL	Long
7/22/2011	240	206	-34	86%	METED	Long
7/22/2011	573	497	-76	87%	PECO	Long

Notes on May 26 and 31: Events were in DY 2010/2011 outside of compliance measurement period. Committed MW is average expected MW.

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 12 below depicts the performance of all CSP/zone combinations over the July 2011/2012 DY Load Management event. It can be seen that performance is approximately 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 12: CSP Zonal Performance 7/22 Event



When comparing the event performance in 2011 with that of 2010 we see shifted results. In 2011 the CSP zonal performance shows a measurable shift out of the 81% to 120% and 121% to 160% categories into the 41 to 80% range – consistent with the lower 2011 event performance results. The portion of CSP zonal performance at both tails of the distribution was virtually unchanged. Figure 13 below depicts the performance of all CSP/zone combinations over all of both the 2010 and 2011 Load Management events. It should be noted that there was only a single compliance event in 2011 as compared to five in 2010.

Figure 13: CSP Zonal Performance 2010 vs. 2011

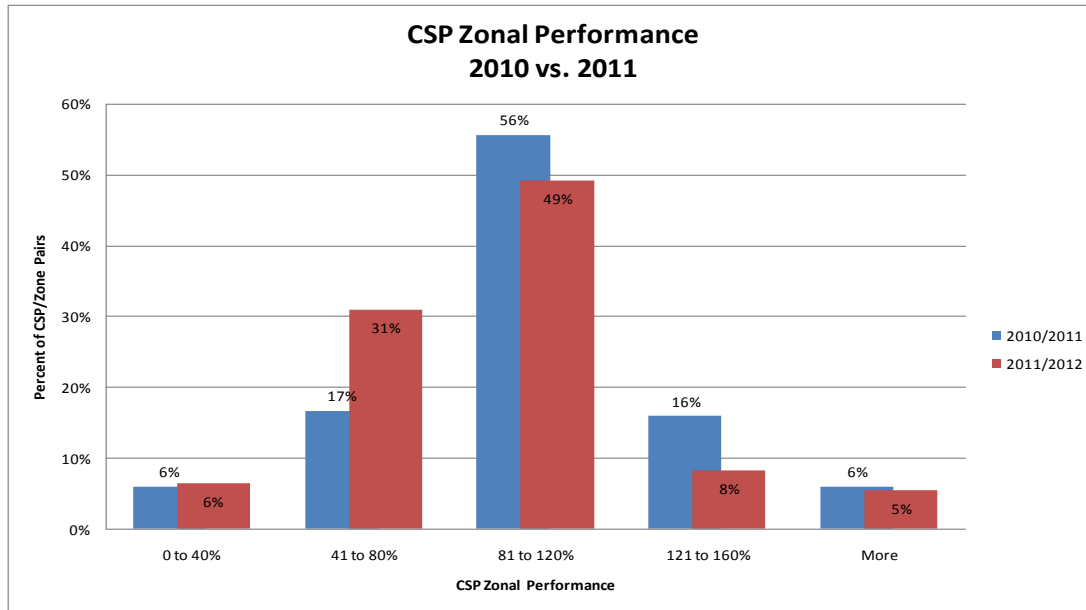
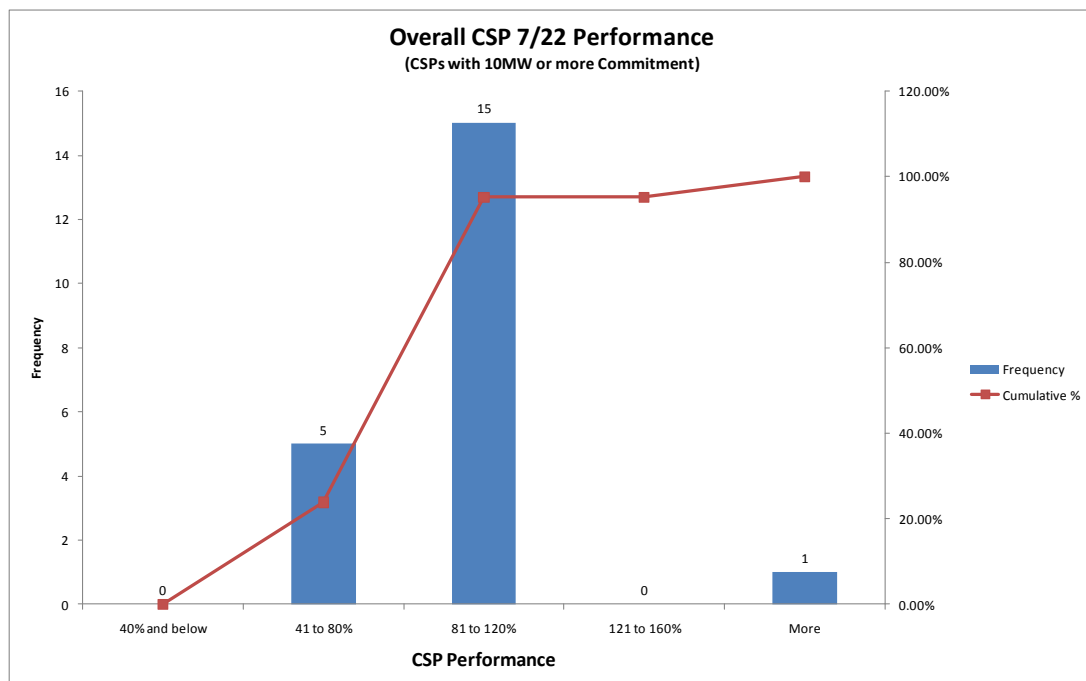


Figure 14 shows the combined – across zones -- performance of large CSPs for the event. There were 21 CSPs with commitments of at least 10MWs. For purposes of the analysis these are considered large CSPs. The majority performed in the normal range, but a sizeable number were in the 41 to 80 percent range. One large CSP showed performance above 160% and none of them had performance score below 40%.

Figure 14: Overall Large CSP July 22 Performance



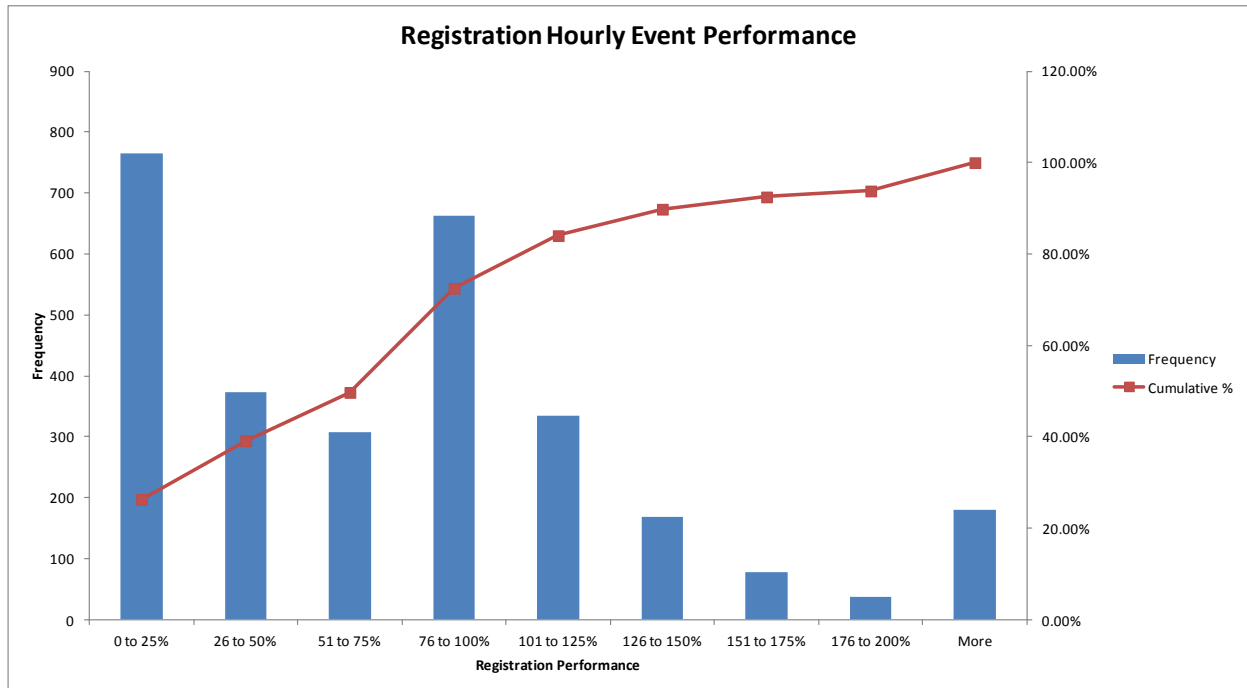
Registration Events Performance

Although CSP compliance is aggregated to a zonal level, PJM initially calculates performance by registration by end use customer by event by hour. Figure 15 below depicts the individual hourly performance of each registration called on for the 2011 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 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-performers¹⁰.

¹⁰ 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. Namely, should reductions achieved by registrations whose load was above its PLC (high reduction to PLC ratio registrations) at the time of the event be available to offset underperformance of other registrations. The “high reduction to PLC ratio” registrations have already received a benefit for the reductions through a reduced PLC and the resultant low capacity cost. The FERC has issued an order disallowing these reductions in the future. The order has a provision to allow a three year transition period.

Figure 15: Registration Hourly Event Performance



Event Performance Penalties

Load Management Event Penalties are assessed by CSP and zone and then disbursed to CSPs that over-perform 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 16 summarizes the annual charges and credits by Event. The total amount of Load Management Event Penalties assessed for the 2011 events is \$5.6 million/year. To put this value into context it is important to note that total CSP revenues for ILR and DR are approximately \$420 million per year. The penalty charges are about 1.3% 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 16: Load Management Event Penalties and Credits

	Annual Penalties	Annual Credits to Overperformers	Annual Credits to LSEs
May 26, 2011 LM Event	\$ -	\$ -	\$ -
May 31, 2011 LM Event	\$ -	\$ -	\$ -
July 22, 2011 LM Event	\$ 5,609,918.94	\$ 622,275.77	\$ 4,987,643.17
Total	\$ 5,609,918.94	\$ 622,275.77	\$ 4,987,643.17

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 17 shows the settlement values for each of the 2011 Load Management Events.

Figure 17: Emergency Energy Settlements for 2011 Events

Load Management Events	Emergency Energy Settlements
5/26/2011	\$167,895
5/31/2011	\$4,064,090
7/22/2011	\$10,601,309
Total	\$14,833,294

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 event¹¹. 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

¹¹ The CSP may also use meter data from a back up generation resource to determine the net metered load reduction at the site.

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 fully 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.

PJM analyzed compliance and emergency settlement data for the July 7th 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 1,856 MW while average hourly load reductions based on emergency energy settlements for the same hours¹² were 1,724 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.

2011 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 had not been called on to participate in an 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 15th of a given Delivery Year. If a PJM-initiated Load Management Event is called in a Zone between June 1st and September 30th there is no test requirement and no Test Failure Charges would be assessed to a CSP 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 1st through September 30th 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

¹² 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 1,856 MW, but the average emergency energy settlement value was 1,485 MW.

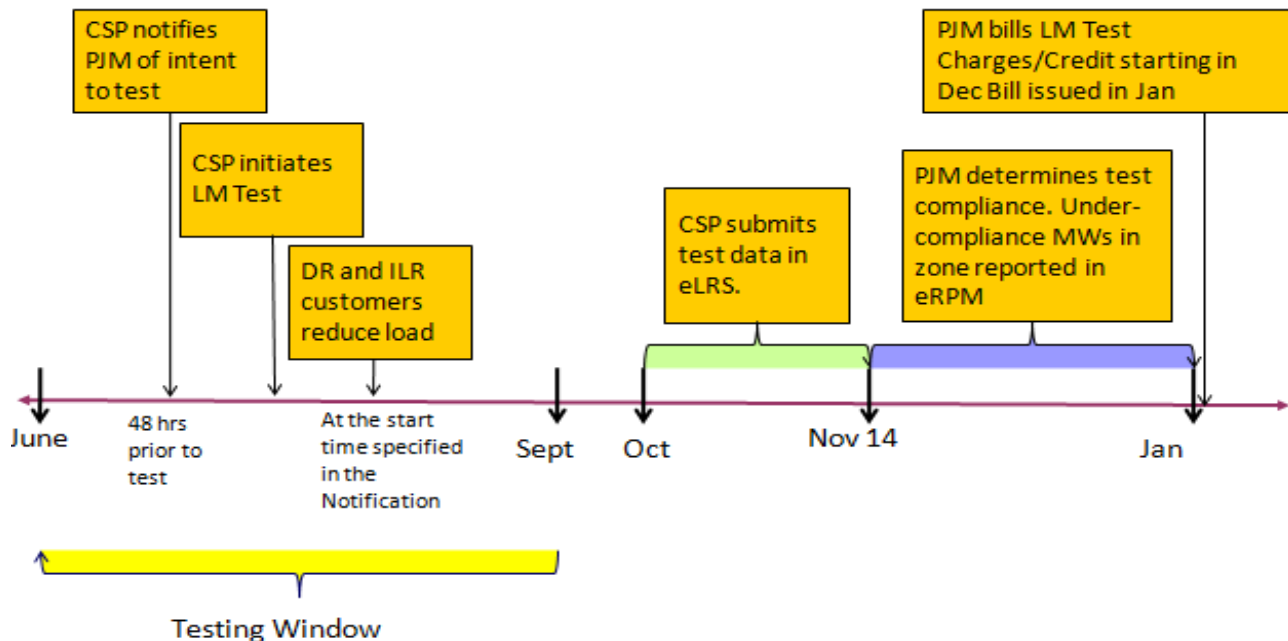
test at the same time for a one hour period. The requirement to test all resources in a zone simultaneously is necessary to ensure that test conditions are as close to realistic as possible. It is requested that the CSP notify PJM of intent to test 48 hours in advance to allow coordination with PJM dispatch.

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 the Resources in that Zone that failed to meet their individual nominated value.

New for 2011/2012, CSPs made notification and confirmation of their tests and retests to PJM via eLRS. In previous years the notification process was done via email and confirmation was inferred based on data submissions. The new eLRS functions improved the test/retest administration efficiency by reducing both the number of missed tests and unclear date and times of tests and retests.

CSPs must submit their test data using PJM's Load Response System (eLRS). For the 2011/2012 Delivery Year, the test data deadline was November 14, 2011. PJM reviews the information and contacts the CSP for additional supporting information where necessary. PJM 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 18: 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.

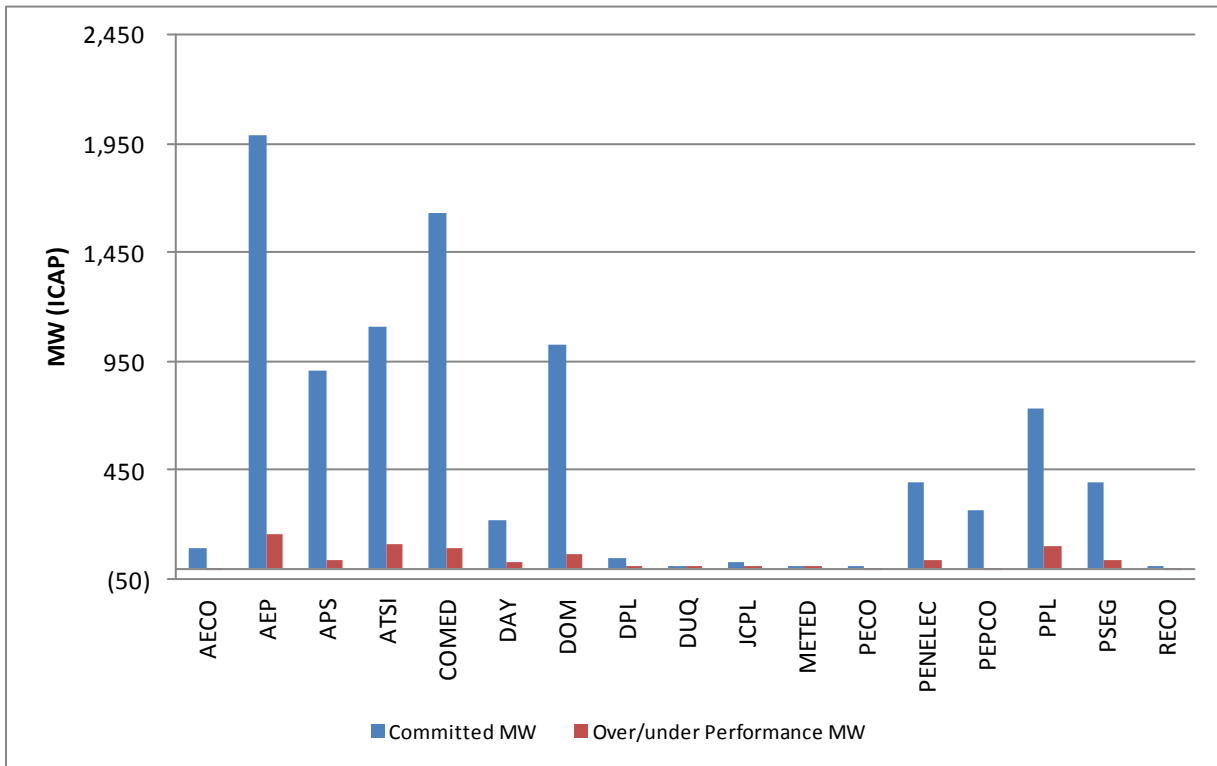
Load Management Test Results

There were 8,860 MW in ICAP of committed Load Management Resources that were not called upon to participate in the 2011/2012 Delivery Year emergency event. As a result, these resources were required to perform a test to assess their performance capability. Testing was performed by 83 CSPs in 17 Zones which resulted in a total of 260 CSP/Zone combinations. The over-compliance across all Zones and CSPs totaled 660 MW which equates to a performance level of 107%. Of the 8,860 MW of committed MWs, 234 MW were retested. Those 234 MW that were retested resulted in zero MW of over-compliance after the retest. In tabular form, the Zonal results are as follows:

Figure 19: Load Management Commitments, Compliance, and Test Performance (ICAP)

Zone	Test Results			
	Committed MW	Reduction MW	Over/under Performance MW	Performance Percentage
AECO	90	90	0	100%
AEP	1,991	2,148	157	108%
APS	908	943	35	104%
ATSI	1,107	1,220	113	110%
COMED	1,633	1,729	96	106%
DAY	219	243	25	111%
DOM	1,025	1,088	63	106%
DPL	49	49	0	100%
DUQ	5.9	7.5	1.6	127%
JCPL	27	27	0	100%
METED	3.8	5.2	1.4	136%
PECO	1.4	1.2	-0.2	86%
PENELEC	393	433	40	110%
PEPCO	268	260	-9	97%
PPL	734	837	103	114%
PSEG	398	436	38	110%
RECO	6.4	4.6	-1.8	72%
Total	8,860	9,521	660	107%

Figure 20: Load Management Test Obligations and Compliance (ICAP)



The performance on an individual CSP/Zone basis varied. Overall, 191 CSP/Zone combinations complied or over-complied in their Load Management Tests for the 2011/2012 Delivery Year. The over-compliance averaged just over 4 MW per CSP/Zone combination and totaled 792 MW of over-compliance. There were 69 CSP/Zone combinations that under-complied. The under-compliance averaged just over 2 MW per CSP/Zone combination for a total of 132 MW of under-compliance.

Test Failure Charges for the 2011/2012 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 2011/2012 Delivery Year is \$127.87/MW-day. This Penalty Rate is an average of \$130.37/day when weighted by the under-compliance amounts. The annual penalties for under-compliance total just over \$6.4 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 \$420 million. Therefore, the under-compliance penalties are about 1.5% of the Load Management credits in the RPM.