Load Management Report

2024/2025

Septermber 2025

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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

Load Management Demand Resources (Emergency and Pre-emergency DR) has the ability to participate as a capacity resource in the PJM capacity market (Reliability Pricing Model or RPM) or to support a Load Serving Entity's Fixed Resource Requirement (FRR) plan. There was one DR product available during the 2024/2025 Delivery Year – Capacity Performance DR.

A Curtailment Service Provider (CSP) is the PJM member that nominates the end use customer location(s) as a capacity resource and is fully responsible for the performance of the resource. Load Management is required to respond to PJM Pre-Emergency or Emergency Load Management events, based on the seasonal availability period (see Table 2: DR product availability), or receive a penalty if the event is in a PAI. PJM may declare Emergency Load Management events outside the required availability window but does not measure capacity compliance in such cases (resources are eligible for emergency energy revenue if they reduce load). Load Management that is not dispatched during its availability period must perform a mandatory test to demonstrate it can meet its capacity commitment or receive a penalty.

Table 1 shows both the PAI event and test performance values for the past 13 delivery years. In the years where there was more than one event, the event performance is the event MW weighted average of all of the events. Test performance was 103% for 2024/2025 Delivery Year. New test rules came in effect starting the 2023/2024 Delivery Year. New rules that allow non-PAI event performance to be substituted for test performance came into effect in the 2024/2025 Delivery Year.

Table 1: Annual performance summary. Only events with mandatory compliance are included.

	Load Management	
Delivery year	**Event performance**	**Test performance**
2012/13	104%	116%
2013/14	94%	129%
2014/15	No Events	144%
2015/16	No Events	134%
2016/17	No Events	153%
2017/18	No Events	163%
2018/19	No Events	146%
2019/20	78%	150%
2020/21	No Events	160%
2021/22	No Events	154%
2022/23	125%	410%
2023/24	No Events*	122%
2024/25	No Events*	103%

* Effective 23/24 performance only reflects PAI events

Overview

PJM Interconnection, L.L.C. procures capacity for its system reliability through the Reliability Pricing Model (RPM). Members may also meet their reliability requirement through a Fixed Resource Requirement ("FRR") plan. The sources for meeting system reliability are divided into four groups:

1) Generation Capacity
2) Transmission Upgrades
3) Load Management (Pre-Emergency and Emergency Demand Resources)
4) Energy Efficiency

Table 2 provides the required availability periods Load reductions must be fully implemented within 30 minutes of notification by PJM unless granted an exception for additional lead time. Those resources that cannot be fully implemented within 30 minutes of notification and qualify for an exception may respond within either 60 or 120 minutes depending on their capabilities.

Table 2: DR product availability window

DR Product	Max. interruptions	Max. event duration (hrs)	Availability period	Availability Hours (EPT)
Capacity Performance	Unlimited	12 15	June – October, May November - April	10AM – 10PM 6AM – 9PM

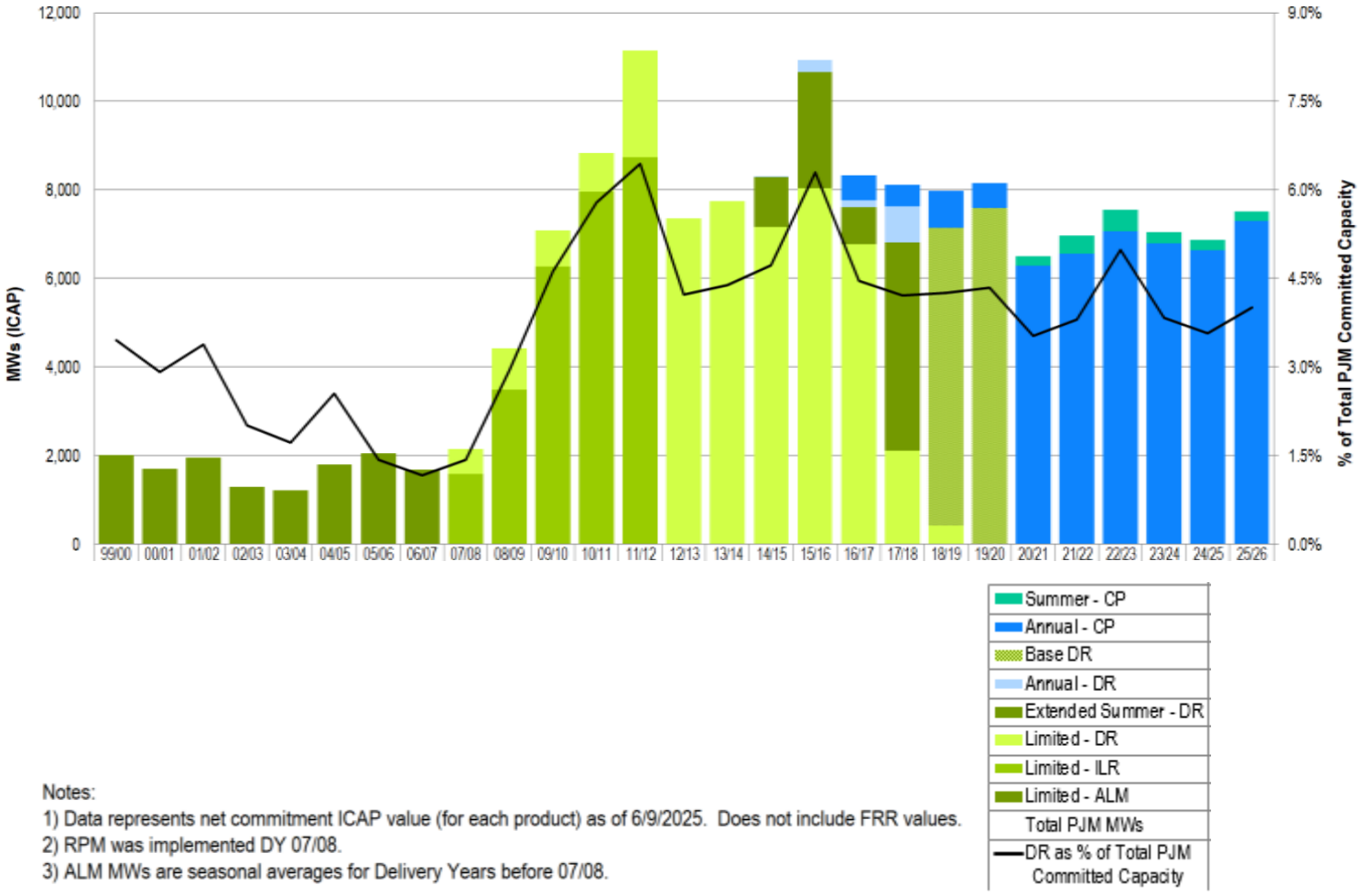
DR compliance can be more complex to measure than compliance for generation resources meeting their capacity obligations. In order to ensure the reliability service for which a resource is paid has actually been provided, PJM utilizes two different types of measurement and verification methodologies. DR Resources can choose the most appropriate of the following measurement methodologies:

- Firm Service Level (FSL) – Load Management achieved by a customer reducing its load to a pre-determined level. The customer must be able to reduce load to or below the pre-determined level which must be lower than the amount of capacity reserved for the customer as represented by the peak load contribution (PLC).
- Guaranteed Load Drop (GLD) – Load Management achieved by a customer reducing its load below the PLC when compared to what the load would have been absent the PJM event or test.

Participation Summary

Figure 1 shows Load Management Commitments by Delivery Year from 1999/2000 through 2025/2026 based on what cleared in the RPM auctions (BRA, IAs, and CP Transition Auctions) or as part of a LSEs FRR plan. Load Management participation in the PJM capacity market substantially increased from the 2007/08 Delivery Year through the 2011/2012 Delivery Year, then declined, and has varied slightly since. The final commitment values for the next Delivery Year are uncertain since the values can still be adjusted in the Incremental Auctions and via replacement Capacity transactions. For the 2024/2025 Delivery Year, Load Management capacity commitments represented 7,350 MW of ICAP while total nominated Load Management represented 7,215MW which means a deficiency charge was assessed for the shortfall.

Figure 1: PJM Demand Response Committed MWs by Delivery Year



Notes:
1) Data represents net commitment ICAP value (for each product) as of 6/9/2025. Does not include FRR values.
2) RPM was implemented DY 07/08.
3) ALM MWs are seasonal averages for Delivery Years before 07/08.

Table 3 shows the committed ICAP for the 2024/2025 Delivery Year. Over thirty PJM members or affiliates operate as a Curtailment Service Provider and over 2 million end use customers across almost every segment (residential, commercial, industrial, government, education, agricultural, etc.) participate as Load Management resources.

Table 3: Committed Load Management ICAP, DY 2024/2025

Area	Committed Load Management ICAP (MW)
MAD	2,910
Rest of RTO	4,440
Total	**7,350**

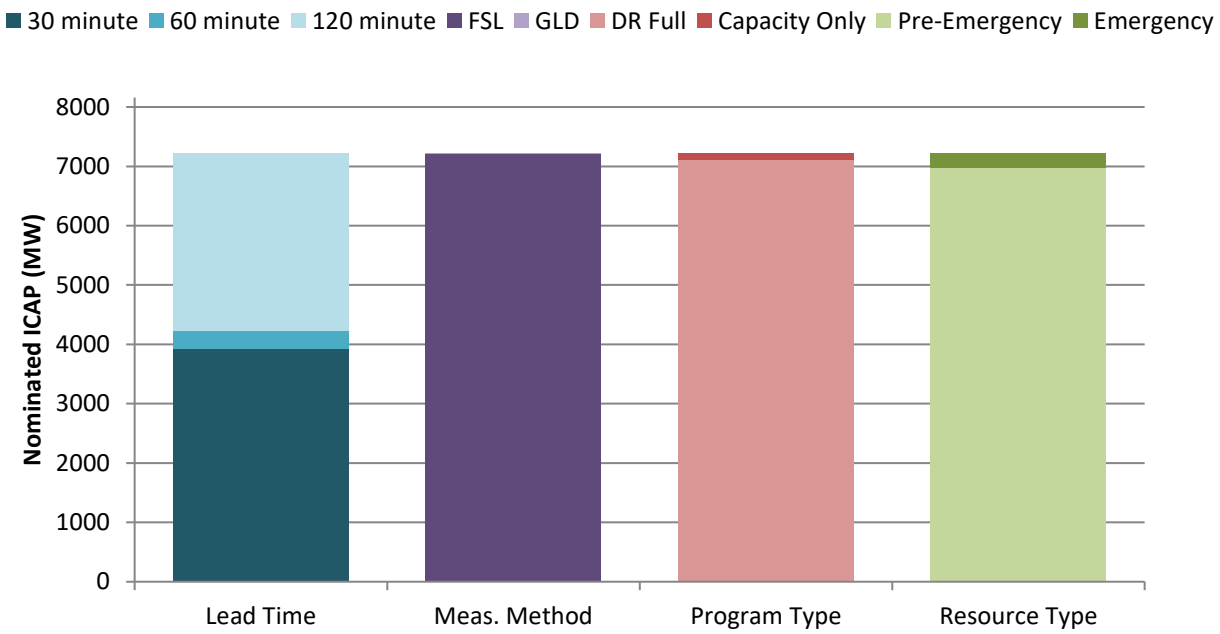
Load Management resources are registered by Lead Time, Product Type, Measurement Method, Program Type, and Resource Type. Figure 2 shows the breakdown of Committed ICAP for each item. Fifty four percent of resources were able to respond in 30 minutes, while 42% qualified for a 120 minute exception, and the remaining 4% qualified for a 60 minute exception.

Ninety nine percent of committed ICAP is registered as Load Management DR Full. The remaining 1% is registered as Capacity Only. Load Management Full resources are eligible to receive both capacity revenue and emergency energy revenue when there is Load Management event. Capacity Only receives capacity revenue but is not eligible for emergency energy payments during Load Management events. Capacity Only registrations are typically only used registrations that participate with two different CSPs – one for Load Management and another for the Energy and Ancillary Service markets.

Load Management resource designations are split into Pre-Emergency and Emergency. The default designation is Pre-Emergency; Figure 2 shows that 97% of committed ICAP fell into this category. The Emergency classification is for registrations that use behind the meter generation with environmental restrictions that only allow them to run during PJM emergency conditions. Three percent of resources met this condition.

The compliance measurement method is 99.9% Firm Service Level (FSL), and only 0.1% Guaranteed Load Drop.

Figure 2: Nominated ICAP for DR by Resource Type, Lead Time, Program Type, and Measurement Method for the 2024/2025 Delivery Year.



Test Requirement Overview

If a Load Management Registration is not dispatched in a mandatory Load Management event, then PJM will test the Registration over a two hour period during the delivery year. The Load Management Tests are initiated by PJM to simulate an actual Load Management event. It will simultaneously test all Registrations of the same product type in a Zone if PJM has not dispatched a mandatory event for those Registrations. If a PJM-initiated Load Management Event is dispatched for those Registrations during the product availability period, there is no test requirement and no Test Failure Charges would be assessed to a CSP for those Registrations. Rather, their performance will be based on the Load Management events.

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 similar period. The Capacity Performance Product will be tested on a non-holiday weekday in June – March of the DY from 11AM – 6PM for a duration of two hours. The load reduction quantity is calculated as the average of the two hourly load reduction values. The requirement to test all resources in a zone simultaneously is necessary to ensure that test conditions are as close to realistic as possible. Notice of tests is provided to CSPs using a three tiered method: first, PJM will post to its website which zones that will be tested in a two week window that opens one week after the posting; second, by 10am the day before a Zone is to be tested PJM will post on its website its intention to test the Zone; third, on the event day for Load Management tests CSPs will receive their test start time via their required web service polling of DR Hub at the Registrations' notification time.

Depending on a CSP's performance during the test two types of retests are available to help improve the test score. If the CSP's Zonal Resources collectively achieve a reduction greater than 75% of the CSP's committed MW (average daily commitment from June through September) volume then the CSP may choose to conduct retests of Registrations in that Zone that failed to meet their individual nominated value. The retest(s) is scheduled at the CSP's discretion during the normal test hours so long as the retest is conducted in the same season as the test. There is no limit on the number of these retests a CSP can perform. However, a CSP may only select one retest in a Zone to be used by PJM to measure compliance. The CSP must notify PJM of intent to retest 48 hours in advance to allow coordination with PJM dispatch.

If the CSP's Zonal Resources collectively achieve a reduction of 75% or lower of the CSP's committed MW volume, the CSP may request that PJM schedule a one-time only retest in that Zone of Registrations that failed to meet their individual nominated value. PJM will notify the CSP by 10am on the day prior to the retest and will be in the same season as the test. On the event day for Load Management retests CSPs will receive their test start time via their required web service polling of DR Hub at the Registrations' notification time.

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 can be paid in the same Zone. For example, a CSP can clear DR in the Base Residual and/or Incremental Auctions 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 in a Zone, the CSP-specific Revenue Rate will be replaced by the PJM Weighted Daily Revenue Rate for such Zone.

Beginning with the 2024/2025 Delivery Year CSPs may elect to use performance values demonstrated during Load Management events that were not occurring during PAI's. Performance of registrations groped by zone, resource type, product type and lead time can be elected for use as test performance by the CSP if the event duration is 30 minutes or greater.

Test Performance

DR resources committed for the Delivery Year were required to perform tests to assess their performance capability. The testing result was 209 MW of over-compliance or a performance level of 103% across all zones. Zonal performance ranged between 85%-159%.

Table 4. Load Management commitments, compliance, and test performance, DY2024/2025

Area	Committed ICAP (MW)	Test commitment (MW)*	Reduction (MW)	Over/under performance (MW)	Performance %
MAD	2,910	2,596	2,674	78	103%
Rest of RTO	4,440	4,300	4,431	131	103%
Total	**7,350**	**6,896**	**7,105**	**209**	**103%**

* *Test commitment = Commitment ICAP – Daily Deficiency MW – exempt MW – PAI MW*

Test Failure Charges for the 2024/2025 Delivery Year are applied on an individual CSP/Zone basis for settlement purposes. The Test Failure Charges are reported on an aggregate basis here to preserve confidentiality. The weighted average Penalty Rate for the 2024/2025 Delivery Year is $59/MW-day. The annual penalties for under-compliance total about $18M which will be allocated to RPM LSEs pro-rata based on their Daily Load Obligation Ratio. Penalties equal 15% of total Capacity Market revenue.

Table 5. Load Management Test Penalties, DY2024/2025

Product	Penalties $	Shortfall (MW)	Average Weighted Penalty Rate ($/MW-day)	Penalties as % of Total LM Credits ($116M)
Capacity Performance	$ 18,225,311	835	$59	15%

Resources that do not register enough customers to meet their Committed MWs will receive a daily deficiency charge. Deficiency charges are applied on a daily basis. Participants remedy their deficiency through bilateral transactions or the purchase of capacity in an incremental auction. For 2024/2025 Delivery Year CPS received $10.2M of deficiency charges.

Table 6. Load Management Deficiency Charges, DY 2024/2025

Product	Average Weighted Deficiency Charge ($/MW-day)	Total charges ($)
Capacity Performance	$55	$10,242,954

Emergency Test Settlements

When a CSP participates in a Load Management test or retest(s) the Load Management Full registrations being tested may receive energy settlements for the two hours of the test or retest(s). For the 2024/2025 tests the total energy payments were $357,393.

Events

There was one non-PAI event in 2024/25 on February 19, 2025 in DOM-ASHBURN subzone. The total Emergency Energy payments were $321,238 for this event based on an average 46MW load drop.