UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Demand Response Coalition	)	
v.	)	Docket No. EL13-57-000
PJM Interconnection, L.L.C.	)	

COMMENTS OF THE INDEPENDENT MARKET MONITOR FOR PJM

Pursuant to Rule 211 of the Commission's Rules and Regulations,[1] Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM[2] ("Market Monitor"), submits these comments responding to the complaint filed by the Demand Response Coalition ("DRC") on April 2, 2013 ("April 2nd Complaint"). DRC complains on both procedural and substantive grounds about rules recently incorporated in Manual 18, referred to as "DR Plan Enhancements."

The Market Monitor takes no position on whether the DR Plan Enhancements properly belong in the tariff or the manuals. But regardless of where they are located, the DR Plan Enhancements are plainly within the scope of existing tariff requirements for Planned DR. In fact the DR Plan Enhancements do not go far enough to meet the existing tariff standards, which require that participants offering DR demonstrate "that such resource shall have the capability to provide a reduction in demand, or otherwise control load," fifteen days prior to the Base Residual Auction into which they intend to offer

---

1 18 CFR § 385.211 (2011).

2 Capitalized terms used herein and not otherwise defined have the meaning used in the PJM Open Access Transmission Tariff ("OATT") or the PJM Reliability Assurance Agreement ("RAA").

Planned DR. The DR Plan Enhancements also do not go far enough to protect the market from the counterproductive speculative activity which the April 2nd Complaint explicitly admits and supports (at 25 – 27).

DRC's assertions that the DR Plan Enhancements impose "unnecessary barriers to entry" for Planned Demand Resources (DR) or otherwise place an unjust, unreasonable or unduly discriminatory burden on DR have no merit. On the contrary, the DR Plan Enhancements are not even the minimum needed to treat Planned Demand Resources in a manner comparable to Planned Generation Capacity Resources.

The DR Plan Enhancements are a first step towards bringing PJM's administrative practices into compliance with the existing tariff requirements and closing the gap between the requirements that apply to Planned DR and the more stringent requirements that apply to Planned Generation Capacity. Leaving the enforcement of the tariff in its current state would be discriminatory. If the Commission takes any action in response to this complaint, it should be to ensure that PJM is administering the tariff in a manner fully consistent with its existing requirements.

The Complaint should be dismissed.

I. COMMENTS

A. If the Commission Determines That the DR Plan Enhancements Must Be Filed, Then It Should Direct PJM to File Them.

DRC objects that the DR Plan Enhancements are unlawful because they have not been filed.[3] The Market Monitor takes no position on whether the DR Plan Enhancements and/or the associated officer certification forms belong in the tariff or the manuals. If the

[3] DRC at 21–22.

Commission determines that the DR Plan Enhancements belong in the tariff, PJM should be directed to file them.[4]

B. The DR Plan Enhancements Are Within the Scope of Existing Tariff Requirements for Planned DR; They Are Less Than What the Tariff Requires.

1. The DR Plan Enhancements Are Less Than the Tariff Requirement That "Providers of Planned Demand Resources must provide a timeline including the milestones, which demonstrates to PJM's satisfaction that the Planned Demand Resources will be available for the start of the Delivery Year, 15 business days prior to a Base Residual Auction."

Section A.5 of Schedule 6 to the RAA provides:

> An entity offering for sale, designating for self-supply, or including in any FRR Capacity Plan any Planned Demand Resource must demonstrate, in accordance with standards and procedures set forth in the PJM Manuals, that such resource *shall have the capability to provide a reduction in demand, or otherwise control load*, on or before the start of the Delivery Year for which such resource is committed. Providers of Planned Demand Resources *must provide a timeline including the milestones*, which demonstrates to PJM's satisfaction that the Planned Demand Resources *will be available for the start of the Delivery Year, 15 business days prior to a Base Residual Auction* or Incremental Auction. PJM may verify the Provider's adherence to the timetable at any time. (Emphasis added.)

This provision requires that DR, like generation, meet certain standards that demonstrate a specific planned resource at a specific location and with specific capabilities to reduce load is identified that can meet a capacity obligation three years in the future. A core principle of PJM capacity markets from their inception has been to avoid reliance on slice of system, financial or speculative resources and to instead ensure that only specific, identified physical assets are included in the supply of capacity. For example, financially firm liquidated damages contracts cannot be capacity resources because they are not

---

[4] *See, e.g.*, KeySpan Ravenswood, LLC v. FERC, 474 F.3d 804, 811 (D.C. Cir. 2007) (citing City of Cleveland v. FERC, 773 F.2d 1368, 1376 (D.C. Cir. 1985)).

physically firm. Planned Generation Resources are required to be "participating in the generation interconnection process under Part IV, Subpart A of the PJM Tariff," and, depending on the unit's circumstances, meet one of the following milestones: "Interconnection Service is scheduled to commence on or before the first day of the Delivery Year for which such resource is to be committed to RPM or to an FRR Plan; (ii) a System Impact Study Agreement has been executed prior to the Base Residual Auction for such Delivery Year; (iii) an Interconnection Service Agreement has been executed prior to any Incremental Auction for such Delivery Year in which such resource plans to participate."[5] This rule ensures a specific commitment to install a resource with specific capabilities. The fact that meeting any of these milestones requires a significant investment of time and resources is not deemed an unreasonable barrier to entry to generation resources. No assertion that capacity sellers prefer another business model or prefer not to have to meet these standards is grounds for not complying with this core requirement of the capacity market.

Comparable requirements apply to Planned DR under the existing tariff. Section A.5 provides that sponsors of Planned DR, like the sponsors of Planned Generation Capacity Resources, must demonstrate that a specific resource will have the capability to provide capacity. This requirement cannot be met without the identification of a particular resource and its capability to provide capacity. Section A.5 of the existing tariff specifically requires that a Curtailment Service Provider ("CSP") submit to PJM a timeline for developing the resource's capabilities fifteen days prior to the relevant RPM auction.

Section A.5 could be read to require the CSP to have a firm legal obligation, a contract, with a customer as a condition for the inclusion of that customer's site in the CSP's program. The DR Plan Enhancements do not require a contract, but they do require a demonstrable basis for the CSP that includes a site in its resource portfolio that there is an

---

[5] RAA § 1.70.

identified site, that the CSP is the exclusive sponsor of the resource and that the CSP has a specific plan to develop the resource's capability to respond when called. Without enforcement of this requirement, multiple CSPs and the resource itself could offer and clear the same resource in an auction. Multiple offers based on the same resource are not compatible with the principle that RPM obtains advance commitments from specific physical resources. Such multiple offers for the same generation resource are not permitted. Without enforcement of this requirement, DR sellers could make offers in capacity market auctions based solely on speculation without any expenditure or effort to establish a physical basis for the offer. The result is not an efficient market outcome and could result in the crowding out of legitimate generation or DR offers.

It appears that section A.5 has not been enforced as stringently as it could have been. According to the complaint (at 21), PJM has not been implementing section A.5 consistent with the DR Plan Enhancements, although it has the authority to do so. According to the complaint, CSPs have been offering DR based on resources that constitute nothing more than a marketing plan. If true, this behavior would be inconsistent with the design of RPM and terms of section A.5. The April 2nd Complaint admits (at 23, 26–27) that CSPs offer speculative DR in capacity auctions and argues that such behavior should not only be permitted to continue but encouraged.

DRC argues (at 21) with reference to section A.5: "Prior to adopting the DR Plan Enhancements, PJM appeared to implement this provision more or less literally. A timeline, along with an explanatory narrative, was required by PJM." The Market Monitor does not agree that PJM has implemented section A.5 literally. That is exactly the problem the DR Plan Enhancements are intended to solve. PJM's objective is to bring PJM's administration of the tariff into compliance and to address the problem with speculative DR that focused stakeholder attention on this issue. The DR Plan Enhancements do not go far enough. The DR Plan Enhancements do constitute a first step. If any action is taken in this proceeding regarding the DR Plan Enhancements other than requiring that they be included in the tariff in order to add specificity to section A.5, it would be appropriate to strengthen them

consistent with the tariff requirement that RPM rely on physical resources regardless of whether Planned Generation Capacity Resources or Demand Resources.

2. The DR Plan Enhancement Thresholds for Documentation Are An Improvement But Not Adequate.

The Market Monitor performed an analysis of the extent to which generation resources and demand side resources buy out of the positions taken in Base Residual Auctions prior to the Delivery Year. The analysis is described in the Market Monitor's report of December 11, 2012 ("December 11th Report"), included here as an Attachment.[6] The analysis showed that DR sellers buy out of the positions they take in Base Residual Auctions at rates substantially higher than generation resource sellers. This is consistent with the hypothesis that some DR may be offered in Base Residual Auctions with no contemplation of its physical delivery.[7]

The April 2nd Complaint further supports this hypothesis and makes clear that a standard CSP business model is to bid speculatively in the BRA and only subsequently decide, based in part on Base Residual Prices and in part on Incremental Auction prices (at 19 – 20), whether to provide physical DR or to buy out of the obligation.

The DR Plan Enhancements may help to prevent the level of speculative DR from growing, but they do not go far enough in defining thresholds for requiring additional documentation from DR providers. The key section provides:

> For the flagged zones, all CSP DR Sell Offer Plans would be assessed to determine, for each CSP, how much of their total offered MW in the flagged zone would require additional documentation. Any offered MWs in excess of the higher of 1) the

---

6 Market Monitor, Analysis of Replacement Capacity for RPM Commitments: June 1, 2007 to June 1, 2012 (December 11, 2013).

7 The Base Residual Auctions provide the key investment signal in RPM given the must offer and must buy requirements. BRAs operating in conjunction with the incremental auctions (IAs) are not a form of staggered procurement. The IAs allow participants to cover short physical positions and PJM to engage in limited fine tuning of capacity procurement based on revised reliability margins.

> CSP's maximum zonal DR/ILR registrations from previous three delivery years; 2) a CSP's cleared MWs from prior BRAs (for the next three future delivery years); or 3) 10 MW would be identified as requiring additional information.[8]

The use of a CSP's cleared MW from a prior BRA is the critical variable as it likely to be the highest level, but it is not an adequate threshold because it does not recognize that the CSP may have a consistent history of buying out of cleared BRA MW positions and only delivering a part of those positions physically. In fact, the December 11th Report documented that this has been the case for significant number of DR providers.

The IMM recommended an alternative approach, considered but not adopted in the stakeholder process, that is preferable because it addresses this issue directly. The alternative approach provides:

> For the flagged zones, all CSP DR Sell Offer Plans would be assessed to determine, for each CSP, how much of their total offered MW in the flagged zone would require additional documentation. Additional information would be required for any offered MWs in excess of the higher of 1) the CSP's maximum zonal DR/ILR registrations from previous three delivery years; 2) a CSP's cleared MWs from prior BRAs (for the next three future delivery years) would be *netted with the DR repurchase share percentage by the CSP or the market participant for the last DY for which complete data is available*; or 3) 10 MW [emphasis added].[9]

The IMM's alternative approach would use a CSP's cleared MW from a prior BRA, net of the CSP's expected buy out of that position based on the most recent buy out behavior of the CSP. The alternative approach reflects the actual share of the CSP's BRA

---

8 *See* DR Plan Enhancement Final Report (March 28, 2013) at 2, presented to the PJM Markets and Reliability Committee meeting convened March 28, 2013, which can be accessed at: < *http://www.pjm.com/~/media/committees-groups/committees/mrc/20130328/20130328-item-04-dr-plan-enhancement-final-report.ashx*>.

9 *Id*. at 4.

position that was physically provided while the approach proposed by PJM in this matter ignores the prior buy out of the CSPs' position.

Contrary to DRC's complaint, the DR Plan Enhancements are within PJM's tariff authority but do not go far enough to address the existing problem of speculative DR.

C. The DRC Approach Is Not Consistent With The Efficient Operation of Markets

The approach to RPM design and operation advocated in the April 2nd Complaint is not consistent with the efficient operation of the PJM capacity market.

Despite the requirement in the RPM tariff that capacity resources be physical and not financial resources, the April 2nd Complaint asserts that DR should be treated differently because that is the way that CSPs have operated to date. But the business practices of CSPs (April 2nd Complaint at 26 – 27) should conform to the market rules and not the other way around.

The April 2nd Complaint asserts that DR should be permitted to make speculative offers in Base Residual Auctions, which would then be finalized only after the BRA price has been established (at 26). This is a very direct assertion that DR should have a special status in the capacity auctions. No set of participants in the capacity auctions should have special status that exempts them from the requirement to make physical commitments prior to the auction. The proposed approach would effectively reinstate the discredited and defunct ILR product, which permitted DR sellers to commit only after the BRA price was determined. The proposed approach would transform DR capacity resources from a physical product into a financial product. Such transformation is inconsistent with the fundamental rules of the PJM capacity market. Such a transformation would uniquely give DR sellers access to this financial product in capacity markets.

Contrary to the April 2nd Complaint (at 19) PJM does not propose to bar DR sellers from any form of participation in Incremental Auctions. But one result of PJM's proposal would certainly and appropriately be to modify the incentives of DR sellers to routinely buy out of large portions of their BRA positions in Incremental Auctions. There is a reason

that generation resource sellers do not buy out of their BRA obligations at the same rate as DR sellers. That is because generation resources have had to make a financial commitment to a physical asset in order to offer into the BRA. The incentive to buy out of a BRA position based on the IA price looks very different when the BRA offer required a financial commitment and a physical resource. When DR resources are required to make such a commitment, the level of buy outs in IAs will return to an efficient level.

Permitting DR to participate as a financial resource is not consistent with the efficient operation of the capacity market. Speculative DR, including the identical DR resource offered by multiple parties, is less expensive to provide, can therefore offer at a lower price and can therefore displace generation resources offering at competitive prices. Speculative DR is less expensive to provide because it does not require a financial commitment or the work associated with identifying a physical resource, getting associated commitments and developing a plan to provide DR. If the DR seller does not like the BRA auction clearing price, according to the April 2nd Complaint, the DR seller can buy out of its position. The end result can be that a physical generating resource was displaced by a non-existent DR offer which is bought out in a subsequent IA or via a bilateral transaction.

The resulting BRA auction price is not efficient as a result. The purchased generation and the purchased DR are not consistent with the efficient outcome as a result.

DRC argues (at 28) that, "Less supply volume offered into the BRA will lead to higher capacity prices." But the exclusion of speculative supply that does not meet the tariff definition of a capacity resource will make the market more efficient. The purpose of DR is not to suppress the price, and a lower price is not a necessary indicator of efficient markets as the Minimum Offer Price Rule (MOPR) discussion addressing monopsony power illustrates. The capacity market design should permit competition among comparable products and the lowest possible price (but no lower) consistent with competition will be the result.

D. The DR Plan Enhancements Do Not Impose an Unnecessary Barrier to Entry for Planned DR or Otherwise Unreasonably Burden DR.

DRC complains (at 24–26) that the DR Plan Enhancements constitute an "unnecessary barrier to entry" or are otherwise unjust or unreasonable. DRC's arguments do not accurately describe how the DR Plan Enhancement rules will work. But even if the DRC Plan Enhancements were as stringent as DRC claims, they would not treat DR more stringently than generation and would not constitute an unnecessary barrier to entry.

DRC complains (at 18) that the officer's certification in the DR Plan Enhancements requires a representation "that the demand response supplier 'reasonably expects . . . to physically deliver all megawatts that clear the RPM Auction through Demand Resource registrations by the specified Delivery Year.'" DRC argues that [t]he certification appears to require the officer to certify that 100% of the DR resources that clear the auction will be physically delivered with demand resources, even if the officer has a reasonable expectation that as little as one megawatt of clearing capacity will be ultimately provided during the Delivery Year by something other than demand resources—such as generating resource capacity purchased in the incremental auctions."

DRC is correct. An officer of a CSP should reasonably believe that the CSP will physically deliver one hundred percent its offered MW, if cleared, without relying, as part of the business plan, on buying out of any part of the DR position. A supplier of Planned Generation Capacity Resources should also contemplate one hundred percent physical delivery. This requirement does not, however, prohibit a CSP from covering an obligation that cannot be met for unexpected reasons through the incremental auctions. It does not expose the officer or the CSP to any kind of liability for a bona fide offer establishing an obligation that cannot be met because of unforeseen events.

DRC's assertion (at 19), that the rules should permit speculative offers based on an expectation that the obligations will be met through purchases of replacement capacity in the incremental auctions, then its position is exactly the problem that needs to be addressed. The tariff rules cited by DRC explain participation in the incremental auction on the basis of

"need."[10] The rules permit "any reason" based on need. Buying out positions in the incremental auctions as part of a speculative plan does not meet the tariff requirement of need.

DRC at 22–23 complains that the effective date is "is [u]nreasonably [c]lose to the 2016/2017 Base Residual Auction." Participants can comply if they refrain from offering MW that are not bona fide physical offers. The tariff clearly requires that offers be based on physical resources and has had those requirements from the outset. Stakeholders have been aware for months that offers not meeting the physical standard were subject to question under the tariff.

PJM could enforce the rules incorporated in the DR Plan Enhancements right now without the PJM filing. PJM's filing serves the purpose of clearly stating PJM's intentions, which is a positive, but is not required in this case. The DR Plan Enhancements fall short of what the current tariff requires. The timing for implementing the DR Plan Enhancements is reasonable. To not implement the DR Plan Enhancements would continue to put the RPM market at risk.

DRC claims (at 24) that the DR Plan Enhancements "are unnecessary barriers to demand resource participation in capacity markets and are diametrically opposed to Federal policy," referencing Section 1252(f) of the Energy Policy Act of 2005.[11] DRC is incorrect. The market rules needed to define complex products such as capacity are not unnecessary barriers to entry. These market rules are needed to ensure the efficient operation of the markets and needed to protect the public from market power. Nothing exempts DR from rules that define DR in a manner comparable to other capacity resources nor can such a requirement be reasonably construed as an unnecessary barrier to entry. DRC does not object to and has not objected to the current tariff language which clearly

---

[10] *See* DRC at 19, citing OATT Attachment DD § 5.4(d).

[11] Energy Policy Act of 2005, § 1252(f), Pub. L. 109-58 (uncodified).

requires that DR be based on identified physical resources prior to offers in auctions, but merely complains that PJM has not actually enforced that requirement.

DRC argues (at 24–27) that the DR Plan Enhancements unjustly and unreasonably interfere with offering DR in the Base Residual Auctions. A substantial amount of existing DR is offered in the BRAs. The requirements for Planned DR are no more stringent, and there is no reason why a CSP cannot include Planned DR in its portfolio. Unlike generators who have to make significant investments and significant commercial commitments in order to submit an offer, even under the DR Plan Enhancements a CSP only needs to have identified a customer with DR capability, an exclusive right to rely on that specific customer's site and a plan to develop that site's capability to respond. Planned DR would continue to have a competitive advantage over Planned Generating Resources even under the DR Plan Enhancements.

DRC's complaint has no merit and should be dismissed. The only action that could be useful at this time would be to require PJM to strengthen the DR Plan Enhancements.

II. CONCLUSION

The Market Monitor respectfully requests that the Commission afford due consideration to these comments as the Commission resolves the issues raised in this proceeding.

Respectfully submitted,

Jeffrey W. Mayes

General Counsel
Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Valley Forge Corporate Center
Eagleville, Pennsylvania 19403
(610) 271-8053
jeffrey.mayes@monitoringanalytics.com

Joseph E. Bowring
Independent Market Monitor for PJM
President
Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Valley Forge Corporate Center
Eagleville, Pennsylvania 19403
(610) 271-8051
joseph.bowring@monitoringanalytics.com

Dated: April 15, 2013

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Eagleville, Pennsylvania,
this 15th day of April, 2013.

Jeffrey W. Mayes
General Counsel
Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Valley Forge Corporate Center
Eagleville, Pennsylvania 19403
(610) 271-8053
jeffrey.mayes@monitoringanalytics.com

ATTACHMENT

Monitoring Analytics

Analysis of Replacement Capacity for RPM Commitments:

June 1, 2007 to June 1, 2012

The Independent Market Monitor for PJM

December 11, 2012

This page intentionally left blank.

Introduction

The PJM Power Providers Group (P3), requested that the Independent Market Monitor for PJM (IMM or MMU) review and report on the extent to which there is a substantial difference between the amount of Demand Resources (DR) cleared in RPM Auctions and the amount of DR that registers and is in service during the relevant Delivery Year.[1]

The IMM has, in prior State of the Market Reports, reported on total DR cleared in RPM Auctions for specific Delivery Years compared the level of DR available in each Delivery Year. This report includes the results of a more comprehensive analysis by the IMM of the extent to which all types of capacity resources clear in RPM Auctions and are available during Delivery Years. The report goes beyond the specific request of P3 and answers the question for all types of capacity resources. When a capacity resource is not available for a Delivery Year, the owner of the capacity resource my purchase replacement capacity. Replacement capacity is the vehicle used to offset any reduction in capacity from a resource which is not available for a Delivery Year.

Cleared and make-whole sell offers in RPM Auctions are binding commitments to provide capacity for the relevant Delivery Year.[2, 3] Replacement capacity can be used to fulfill a Capacity Resource commitment and avoid deficiency and penalty charges.[4, 5] The RPM rules addressing the need to purchase replacement capacity in RPM Incremental Auctions (IAs) list only reasons related to physical reductions in the capacity of the sold resources:

> The need to purchase replacement Capacity Resources may arise for any reason, including but not limited to resource retirement, resource cancellation or construction delay, resource derating, EFORd increase, a decrease in the Nominated Demand Resource Value of a Planned Demand

---

1 P3 members own generation assets, own transmission assets, own DR assets, offer retail service and serve load

2 PJM. "Manual 18: PJM Capacity Market," Revision 16 (September 27, 2012), p. 82.

3 See definition of Capacity Resource in PJM Reliability Assurance Agreement among Load-Serving Entities in the PJM Region, Article 1. See also PJM Reliability Assurance Agreement among Load-Serving Entities in the PJM Region Schedule 6, 9, & 10.

4 PJM. "Manual 18: PJM Capacity Market," Revision 16 (September 27, 2012), p. 138.

5 OATT Attachment DD (Reliability Pricing Model) § 8.1.

> Resource, delay or cancellation of a Qualifying Transmission Upgrade, or similar occurrences.[6]

The RPM rules do not define qualifying reasons for approval of replacement capacity transactions. Capacity Market Sellers do not have to identify the reasons for purchasing replacement capacity.[7]

Replacement capacity transactions can be completed only after the EFORds for the Delivery Year are finalized, November 30 prior to the Delivery Year, but before the start of the Delivery Day.[8] Replacement capacity can be from a range of sources: cleared buy bids in RPM Incremental Auctions; available capacity from Capacity Resources within a Capacity Market Seller's portfolio; Excess Commitment Credits for the 2010/2011 Delivery Year forward; [9] Excess Interruptible Load for Reliability (ILR) MW Credits for the 2009/2010 through 2011/2012 Delivery Years;[10] and Locational UCAP transactions from another Capacity Market Seller.[11] Replacement capacity must be located in the same Locational Deliverability Area (LDA), or a constrained child LDA within that LDA, within the parent LDA and, beginning with the 2014/2015 Delivery Year, have the same or better temporal availability characteristics (Annual, Extended Summer, Limited). Replacement capacity used to reduce DR commitments must be specified for no less than the balance of the Delivery Year.[12]

---

6 OATT Attachment DD § 5.4(d).

7 There are other potential reasons Capacity Market Sellers could utilize replacement capacity, including opportunities to commit a specific unit to an FRR capacity plan or to export capacity from a specific unit from PJM. These were not analyzed in this report.

8 PJM. "Manual 18: PJM Capacity Market," Revision 16. (September 27, 2012), p. 138.

9 Effective with the 2010/2011 Delivery Year, Excess Commitment Credits are allocated to Load Serving Entities (LSEs) that are charged a Locational Reliability Charge when the PJM Reliability Requirement decreases resulting in excess procured capacity. See OATT Attachment DD § 5.12(b)(viii).

10 For the 2009/2010 through the 2011/2012 Delivery Years, Excess ILR MW Credits are allocated to LSEs that are charged a Locational Reliability Charge when the certified ILR exceeds the Forecast ILR Obligation for the LDA, provided the amount does not exceed the ratio of increase in load charges divided by the Final Zonal ILR Price within the LDA. See OATT Attachment DD § 5.13.

11 OATT Attachment DD § 5.3A.

12 PJM. "Manual 18: PJM Capacity Market," Revision 16 (September 27, 2012), p. 138.

The following related RPM Market rule changes were implemented during the period analyzed:

- For the 2007/2008 and 2008/2009 Delivery Years, the RPM rules did not permit certified ILR to be withdrawn after certification.
- Effective for the 2009/2010 through 2011/2012 Delivery Year, certified ILR could withdraw at any time up until one day prior to the start of the Delivery Year.[13]
- For the 2007/2008, 2008/2009, and 2010/2011 Delivery Years, the deadline for ILR certification was three months prior to the start of the Delivery Year.
- Effective for the 2009/2010 Delivery Year, the deadline for ILR certification was May 1, 2009, or one month prior to the start of the Delivery Year.[14]
- Effective for the 2011/2012 Delivery Year, the ILR certification deadline changed from three months to two months prior to the start of the Delivery Year.[15]
- Effective with the 2012/2013 Delivery Year, the ILR demand side product was eliminated.[16]
- Effective with the 2012/2013 Delivery Year, the Short Term Resource Procurement Target (STRPT) and the related RPM Incremental Auction redesign were implemented.
- Effective March 27, 2009, the penalty structure changed, including a revision to the Daily Deficiency Rate.[17] The prior Daily Deficiency Rate was equal to the higher of two times the seller's weighted average resource clearing price for the resource or the Net Cost of New Entry in an LDA. The revised Daily Deficiency Rate is equal to the seller's weighted average resource clearing price for the resource plus the higher of 0.20 times the seller's weighted average resource clearing price for the resource or $20 per MW-day.
- Effective with the 2012/2013 Delivery year, the Reporting and Compliance provisions of the Emergency Load Response Program were revised.[18] For Guaranteed Load Drop (GLD) end-use customers, the calculation of load reduction for event and test compliance was revised to be capped at the end-use customer's peak load contribution (PLC).

---

13 See 126 FERC ¶ 61,275 (2009) at P 200(B).

14 See 126 FERC ¶ 61,275 (2009) at P 89.

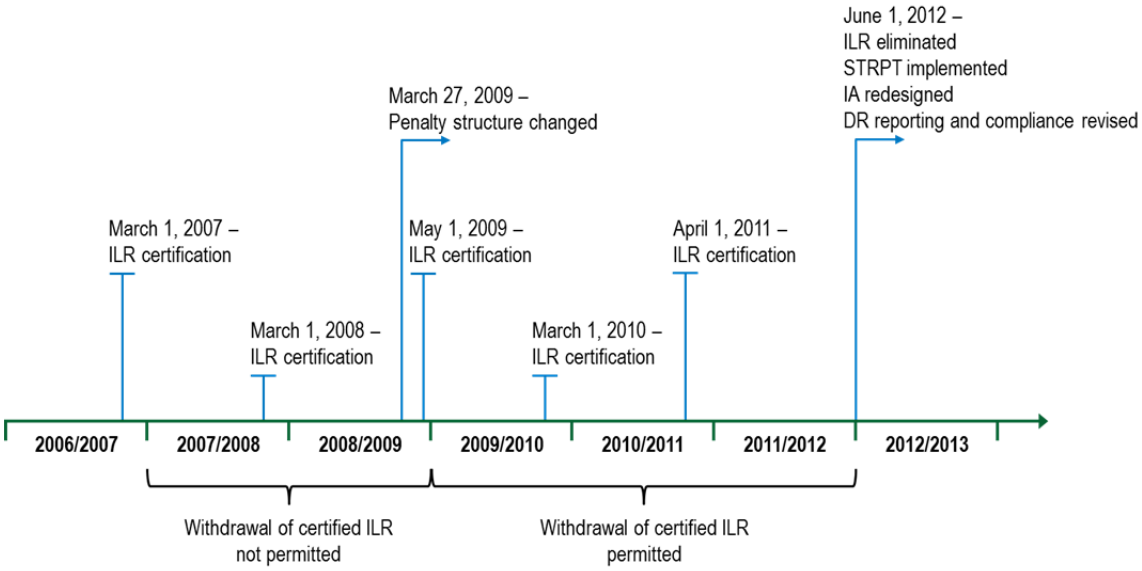
15 See PJM Interconnection, L.L.C., Letter Order in Docket No. ER10-366-000 (January 22, 2010).

16 See 126 FERC ¶ 61,275 (2009) at P 83.

17 See 126 FERC ¶ 61,275 (2009) at P 180.

18 138 FERC ¶ 61,138 (2012).

Figure 1 Timeline of relevant RPM deadlines and changes



Analysis

The following resource classifications are considered in this report: Generation Resources, internal Generation Resources, internal Generation Resources that are in service, internal Generation Resources that are not in service, external Generation Resources, Demand Resources (DR), and Energy Efficiency (EE) Resources.[19, 20] For this analysis, Generation Resources are defined as not in service for a Delivery Year if the resource was not in service at the time of its initial offer in an RPM Auction for the Delivery Year. This distinction is designed to provide insights into whether replacement behavior differed between resources in service and not in service at the time of the initial offer. As replacement capacity can vary on a daily basis, the data presented in this report are for June 1 of each year from 2007 through 2012.[21]

---

19 FRR commitments are not included in this report.

20 RPM data for Energy Efficiency Resources are not available prior to the 2011/2012 Delivery Year. The Energy Efficiency Resource type was eligible to be offered in RPM Auctions beginning with the 2012/2013 Delivery Year and also for RPM Incremental Auctions in the 2011/2012 Deliver Year.

21 Delivery years are from June 1 through May 31.

RPM Commitments and Replacements

Table 1 through Table 7 show the following information by identified resource classifications:

- RPM Cleared – MW cleared in RPM Auctions for the given delivery year.
- Net Replacements – RPM commitment reductions using replacement capacity less RPM commitment additions, including Locational UCAP transactions, on the replacement resources.
- RPM Commitments – RPM cleared capacity plus Net Replacements.
- RPM Commitment Shortages – a failure to satisfy an RPM commitment for which replacement capacity was not obtained and for which Daily Capacity Resource Deficiency Charges are assessed.

For any identified resource classification Net Replacements include all the sources of replacement capacity used to replace RPM commitments from that classification, net of the replacement capacity provided from that resource classification. Table 1 through Table 5 include this information for Generation Resources. Table 1 includes information on all Generation Resources while Table 2 through Table 5 include this information for subcategories of Generation Resources. Table 6 includes this information for Demand Resources including the MW associated with Relief from Deficiency Charges. Under the RPM rules, DR sellers can request relief from Capacity Resource Deficiency Charges due to the permanent departure of the associated load from the system.[22] Table 6 also includes MW of registered DR. A Demand Resource with RPM commitments and certified ILR must be registered in PJM's Load Response System (eLRS). Table 7 includes information for Energy Efficiency resources.

Table 1 RPM commitments for Generation Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)				
	RPM Cleared	Net Replacements	RPM Commitments	RPM Commitment Shortage	RPM Commitments Less Commitment Shortage
01-Jun-07	129,281.6	0.0	129,281.6	(8.1)	129,273.5
01-Jun-08	130,070.4	(726.5)	129,343.9	(187.9)	129,156.0
01-Jun-09	133,137.3	(1,593.5)	131,543.8	(0.4)	131,543.4
01-Jun-10	133,073.3	(3,662.7)	129,410.6	(1.1)	129,409.5
01-Jun-11	132,279.6	(5,775.4)	126,504.2	(79.3)	126,424.9
01-Jun-12	131,876.9	(7,112.1)	124,764.8	(121.3)	124,643.5

[22] OATT Attachment DD § 8.4.

Table 2 RPM commitments for internal Generation Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)				
	RPM Cleared	Net Replacements	RPM Commitments	RPM Commitment Shortage	RPM Commitments Less Commitment Shortage
01-Jun-07	127,660.8	0.0	127,660.8	(8.1)	127,652.7
01-Jun-08	128,444.0	(715.7)	127,728.3	(187.9)	127,540.4
01-Jun-09	131,415.2	(1,827.8)	129,587.4	(0.4)	129,587.0
01-Jun-10	130,952.3	(3,445.7)	127,506.6	(1.1)	127,505.5
01-Jun-11	130,457.6	(5,761.0)	124,696.6	(79.3)	124,617.3
01-Jun-12	130,360.4	(6,988.8)	123,371.6	(64.9)	123,306.7

Table 3 RPM commitments for internal Generation Resources in service: June 1, 2007 to June 1, 2012

	UCAP (MW)				
	RPM Cleared	Net Replacements	RPM Commitments	RPM Commitment Shortage	RPM Commitments Less Commitment Shortage
01-Jun-07	127,614.0	0.0	127,614.0	(8.1)	127,605.9
01-Jun-08	128,334.1	(707.2)	127,626.9	(182.8)	127,444.1
01-Jun-09	130,930.7	(2,030.3)	128,900.4	(0.4)	128,900.0
01-Jun-10	130,251.4	(3,403.1)	126,848.3	(1.1)	126,847.2
01-Jun-11	127,778.8	(4,983.1)	122,795.7	(2.2)	122,793.5
01-Jun-12	127,362.4	(7,057.2)	120,305.2	(17.3)	120,287.9

Table 4 RPM commitments for internal Generation Resources not in service: June 1, 2007 to June 1, 2012

	UCAP (MW)				
	RPM Cleared	Net Replacements	RPM Commitments	RPM Commitment Shortage	RPM Commitments Less Commitment Shortage
01-Jun-07	46.8	0.0	46.8	0.0	46.8
01-Jun-08	109.9	(8.5)	101.4	(5.1)	96.3
01-Jun-09	484.5	202.5	687.0	0.0	687.0
01-Jun-10	700.9	(42.6)	658.3	0.0	658.3
01-Jun-11	2,678.8	(777.9)	1,900.9	(77.1)	1,823.8
01-Jun-12	2,998.0	68.4	3,066.4	(47.6)	3,018.8

Table 5 RPM commitments for external Generation Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)				
	RPM Cleared	Net Replacements	RPM Commitments	RPM Commitment Shortage	RPM Commitments Less Commitment Shortage
01-Jun-07	1,620.8	0.0	1,620.8	0.0	1,620.8
01-Jun-08	1,626.4	(10.8)	1,615.6	0.0	1,615.6
01-Jun-09	1,722.1	234.3	1,956.4	0.0	1,956.4
01-Jun-10	2,121.0	(217.0)	1,904.0	0.0	1,904.0
01-Jun-11	1,822.0	(14.4)	1,807.6	0.0	1,807.6
01-Jun-12	1,516.5	(123.3)	1,393.2	(56.4)	1,336.8

Table 6 RPM commitments and registrations for Demand Resources: June 1, 2007 to June 1, 2012[23]

	UCAP (MW)						Registered DR		
	RPM Cleared	Net Replacements	Relief from Charges	RPM Commitments	RPM Commitment Shortage	RPM Commitments Less Commitment Shortage	ICAP (MW)	UCAP Conversion Factor	UCAP (MW)
01-Jun-07	127.6	0.0	0.0	127.6	0.0	127.6		1.03260	
01-Jun-08	559.4	(40.0)	0.0	519.4	(58.4)	461.0	488.0	1.03426	504.7
01-Jun-09	892.9	(474.7)	0.0	418.2	(14.3)	403.9	570.3	1.03308	589.2
01-Jun-10	962.9	(516.3)	0.0	446.6	(7.7)	438.9	572.8	1.03455	592.6
01-Jun-11	1,826.6	(1,052.4)	0.0	774.2	0.0	774.2	1,117.9	1.03455	1,156.5
01-Jun-12	8,752.6	(2,253.6)	(11.7)	6,487.3	(34.9)	6,452.4	7,443.7	1.03690	7,718.4

Table 7 RPM commitments for Energy Efficiency Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)				
	RPM Cleared	Net Replacements	RPM Commitments	RPM Commitment Shortage	RPM Commitments Less Commitment Shortage
01-Jun-07	0.0	0.0	0.0	0.0	0.0
01-Jun-08	0.0	0.0	0.0	0.0	0.0
01-Jun-09	0.0	0.0	0.0	0.0	0.0
01-Jun-10	0.0	0.0	0.0	0.0	0.0
01-Jun-11	76.4	0.2	76.6	0.0	76.6
01-Jun-12	666.1	(34.9)	631.2	(2.3)	628.9

Table 8 shows the percentage of cleared capacity which was replaced for each of the identified resource classifications, net of the replacement capacity provided from that resource classification. Of the identified resource classifications, the percent of net replacement capacity to cleared capacity was highest for DR on average. Beginning in 2009/2010, the percentage of net replacement for DR RPM commitments was the highest of the categories by a substantial amount. The percentage of net replacement capacity for DR RPM commitments was more than 50 percent on June 1, 2009, 2010 and 2011 and more than 25 percent on June 1, 2012. The next highest resource classification percent of net replacement capacity was for internal Generation Resources not in service. The percentage of net replacement capacity to cleared capacity for internal Generation Resources not in service also showed the greatest variability, with a net addition of RPM commitments for some delivery years.[24]

Table 9 shows the percentage of total cleared capacity which was replaced for each of the identified resource classifications. Of the identified resource classifications, the percent of gross replacement capacity to cleared capacity was highest for DR on average.

---

[23] Registered DR data are not available from PJM for the 2007/2008 Delivery Year.

[24] A net addition of RPM commitments means that, on a net basis, the resources in the identified resource classification were the replacement resources for other resources and added RPM commitments.

Beginning in 2009/2010, the percentage of gross replacement for DR RPM commitments was the highest of the categories by a substantial amount. The percentage of gross replacement capacity for DR RPM commitments was more than 55 percent on June 1, 2009 and 2010, more than 65 percent on June 1, 2011 and more than 40 percent on June 1, 2012. The next highest resource classification percent of gross replacement capacity was for external Generation Resources. The percentage of replacement capacity to cleared capacity for internal Generation Resources not in service also showed substantial variability.

The level of DR gross replacement activity declined after the termination of the ILR product, from 65 percent in the 2011/2012 Delivery Year to 44.2 percent in the 2012/2013 Delivery Year. In the 2012/2013 Delivery Year, about 40 percent of DR replacement MW for the 2012/2013 Delivery Year came from the selling company's portfolio, suggesting that was a result of the measurement and verification order. If that is the case, the remaining replacement capacity MW constituted about 27 percent of cleared capacity for the 2012/2013 Delivery Year.

Table 8 Net replacements to cleared capacity by resource classifications: June 1, 2007 to June 1, 2012

	Generation	Internal Generation	Internal Generation in Service	Internal Generation Not in Service	External Generation	Demand Resources	Energy Efficiency Resources
01-Jun-07	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
01-Jun-08	(0.6%)	(0.6%)	(0.6%)	(7.7%)	(0.7%)	(7.2%)	
01-Jun-09	(1.2%)	(1.4%)	(1.6%)	41.8%	13.6%	(53.2%)	
01-Jun-10	(2.8%)	(2.6%)	(2.6%)	(6.1%)	(10.2%)	(53.6%)	
01-Jun-11	(4.4%)	(4.4%)	(3.9%)	(29.0%)	(0.8%)	(57.6%)	0.3%
01-Jun-12	(5.4%)	(5.4%)	(5.5%)	2.3%	(8.1%)	(25.7%)	(5.2%)

Table 9 Total replacements to cleared capacity by resource classification: June 1, 2007 to June 1, 2012

	Generation	Internal Generation	Internal Generation in Service	Internal Generation Not in Service	External Generation	Demand Resources	Energy Efficiency Resources
01-Jun-07	(0.1%)	(0.1%)	(0.1%)	0.0%	0.0%	0.0%	
01-Jun-08	(2.0%)	(2.0%)	(2.0%)	(7.7%)	(1.3%)	(9.8%)	
01-Jun-09	(3.7%)	(3.6%)	(3.5%)	(4.8%)	(12.5%)	(56.6%)	
01-Jun-10	(5.0%)	(4.8%)	(4.8%)	(6.2%)	(12.1%)	(55.6%)	
01-Jun-11	(7.4%)	(7.3%)	(6.8%)	(29.5%)	(13.1%)	(63.7%)	(1.0%)
01-Jun-12	(10.4%)	(10.3%)	(10.4%)	(3.4%)	(19.2%)	(44.2%)	(25.4%)

DR and Interruptible Load for Reliability (ILR)

Capacity load resources participating in the Interruptible Load for Reliability (ILR) program were interruptible load resources that were not offered in RPM Auctions, but were certified and received the Final Zonal ILR Price. The ILR product was eliminated as of the 2012/2013 Delivery Year. Table 10 shows the following for the years when ILR was an approved product:

- ICAP – certified ILR MW in terms of installed capacity (ICAP).
- UCAP Conversion Factor – for Load Management Resources, equal to the Demand Resource Factor times the Forecast Pool Requirement.
- UCAP – certified ILR MW in terms of unforced capacity (UCAP), equal to certified ILR in terms of ICAP times the UCAP Conversion Factor.
- Revenue – the Final Zonal ILR Price times the certified ILR in terms of UCAP.
- Weighted Average Price – the weighted average price paid for certified ILR, or revenue divided by certified ILR in terms of UCAP.

Table 10 Certified ILR: June 1, 2007 to June 1, 2011

	ICAP (MW)	UCAP Conversion Factor	UCAP (MW)	Revenue ($ per day)	Weighted Average Price ($ per MW-day)
01-Jun-07	1,584.6	1.03260	1,636.3	$146,838	$89.74
01-Jun-08	3,488.5	1.03426	3,608.1	$438,571	$121.55
01-Jun-09	6,273.8	1.03308	6,481.5	$943,263	$145.53
01-Jun-10	7,961.3	1.03455	8,236.4	$1,436,196	$174.37
01-Jun-11	8,730.7	1.03455	9,032.6	$993,946	$110.04

A specific type of replacement activity was possible for DR resources during the period that ILR was a product. As an example, a Demand Resource was sold in a Base Residual Auction (BRA) for a delivery year. That resource was then replaced through a purchase of replacement capacity at a lower price in an Incremental Auction. That resource was then sold as an ILR resource for the same delivery year. Such activity would increase revenues as a result of the direct replacement activity and as a result of the sale of the resource in the ILR program at the Final Zonal ILR Price.[25] As another example, a specific DR resource was sold in an IA. That resource was then replaced. That resource was then sold as an ILR resource for the same delivery year at the Final Zonal ILR Price. Such activity would increase revenues as a result of the replacement transaction, although this would likely be less than for the case of an initial sale in a BRA, and as a result of the sale of the resource in the ILR program at the Final Zonal ILR Price.

The RPM rules did not prevent a Capacity Market Seller from replacing an RPM commitment for a specific Demand Resource and then certifying the same sites as an ILR resource. DR sites only need to be registered prior to the start of the Delivery Day to avoid RPM Commitment Compliance penalties. ILR resources did not need to be certified until one to three months prior to the start of the delivery year, depending on the RPM rules in place at the time. This created an opportunity to swap commitments

[25] The Final Zonal ILR Price is the Preliminary Zonal Capacity Price less the Base Zonal Capacity Transfer Rights (CTR) Credit Rate adjusted for the results of the Second Incremental Auction.

between the RPM and the ILR program. Capacity Market Sellers could replace RPM commitments for Demand Resources and subsequently certify the intended DR sites to the ILR program.

The reasons for such transactions included the opportunity to: sell DR in a BRA; buy out of the DR position in an IA at a lower price; sell the same DR as ILR; and be subject to less stringent requirements.[26] As Capacity Market Sellers are not required to register DR sites if the RPM commitments are replaced, the intended DR sites were not identified and no definitive link between the sites associated with replaced DR commitments and certified ILR sites can be established. However, the combination of DR replacement transactions for DR RPM commitments and certified ILR MW in an equal or greater amount for the same company and zone is consistent with this scenario.

Table 11 shows potential DR to ILR swapping for the years when ILR was an approved product:

- UCAP (MW) – MW amount of replacements for DR RPM commitments for which there were certified ILR MW in an equal or greater amount for the same DR seller and the same zone, or the potential MW swapped from DR to ILR.
- RPM Cleared – RPM revenue per day for the sale of the DR MW in a BRA or an IA.
- RPM Replacements – charges for the replacement capacity. For replacement transactions associated with cleared buy bids in RPM Incremental Auctions, the charge is equal to the clearing price in the RPM Auction. For sources of replacement capacity other than cleared buy bids, the LDA clearing price in the last RPM Auction for the Delivery Year was imputed as the charge for replacement capacity.
- ILR – ILR revenue for the potential MW swapped from DR to ILR, or the UCAP column times the Final Zonal ILR Price.
- Net RPM and ILR – the sum of the RPM and ILR revenue associated with the potential MW swapped from DR to ILR, net of the replacement charges.
- Effective Price – the net effective price for the potential DR to ILR swapped MW, equal to the Net RPM and ILR column divided by the UCAP column.

A comparison of the effective price column, the net price received for a MW of DR which was replaced and then sold as ILR, and the RPM weighted average price, shows the profitability of such activity.

---

[26] Prior to February 1, 2011, Demand Resources committed to RPM had to be registered to participate in the Full Program Option in PJM's Emergency Load Response program and could not participate in the Capacity Only Option. ILR Resources could be registered in either the Full Program Option or Capacity Only Option. See 134 FERC ¶ 61,066 (2011).

Table 11 Potential DR to ILR swapping: June 1, 2007 to June 1, 2011

		Revenue ($ per Day)					
	UCAP (MW)	RPM Cleared	RPM Replacements	ILR	Net RPM and ILR	Effective Price ($ per MW-day)	RPM Weighted Average Price ($ per MW-day)
01-Jun-07	0.0	$0	$0	$0	$0	NA	NA
01-Jun-08	36.7	$5,461	($367)	$5,267	$10,361	$282.31	$148.80
01-Jun-09	359.7	$72,327	($30,575)	$69,849	$111,601	$310.26	$201.08
01-Jun-10	491.2	$82,904	($24,560)	$85,704	$144,048	$293.26	$168.78
01-Jun-11	870.0	$55,548	($13,265)	$95,735	$138,018	$158.64	$63.85

Sources of Replacement Capacity

Table 13 through Table 19 show for each identified resource classification:

- Replacement capacity from the following sources:
  - Cleared Buy Bids – replacement capacity purchased in an RPM Incremental Auction.
  - Replacement Transactions – available capacity from a Generation Resource, Demand Resource, and/or Energy Efficiency Resource within a provider's portfolio.
  - Locational UCAP Transactions – available capacity from another Capacity Market Seller's Generation Resource, Demand Resource, and/or Energy Efficiency Resource.[27]
  - Excess Commitment Credits – replacement capacity from Excess Commitment Credits.
  - Excess ILR MW Credits – replacement capacity from Excess ILR MW Credits.
- Commitment Reductions using Replacements – RPM commitment reductions using replacement capacity; or the sum of the Cleared Buy Bids, Replacement Transactions (Gen, DR, EE), Locational UCAP Transactions (Gen, DR, EE), Excess Commitment Credits, and Excess ILR MW Credits columns.
- Commitment Additions on Replacement Resources – RPM commitment additions for resources that were the replacement resources for other resources from the identified resource classification.
- Net Replacements – RPM commitment reductions using replacement capacity less RPM commitment additions on the replacement resources.

[27] To assign MW to the replacement resource types for resources utilizing Locational UCAP based replacement capacity, the Buyer's LDA-specific Locational UCAP MW associated with each replacement resource type were allocated to the resource level based on the resource's share of the Locational UCAP based replacement MW.

The Commitment Reductions using Replacements results are the gross replacement values, or the total RPM commitments for the identified resource classification that was replaced. The Commitment Additions on Replacement Resources are resources from the identified resource classification that were used as replacement capacity either for the same resource classification or another resource classification. The Net Replacements are the net replacement values, or the gross replacement values net of the resources used as replacement capacity. Net replacements are the net amount of the identified resource classification which was replaced, after accounting for the fact that some of the same identified resource classification was used to replace other capacity. The gross replacement value is the best measure of the total amount of capacity for an identified resource classification that was replaced in a year. The net replacement value is a measure of the extent to which an overall resource classification was replaced in a year.

Table 12 shows the similar information as Table 13-Table 19 for all Capacity Resources, with the Commitment Reductions value broken out by the following:

- Commitment Reductions using Replacement Resources – RPM commitment reductions using replacement capacity from replacement resources; or the sum of Replacement Transactions (Gen, DR, EE) and Locational UCAP Transactions (Gen, DR, EE).
- Commitment Reductions using Other Sources - RPM commitment reductions using replacement capacity from sources other than replacement resources; or the sum of the Cleared Buy Bids, Excess Commitment Credits, and Excess ILR MW Credits columns.

Table 12 shows that the Commitment Reductions using Replacement Resources column and the Commitment additions on Replacement Resources column should net to zero.[28]

Table 12 Sources of replacement capacity for all Capacity Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)												
		Replacement Transactions			Locational UCAP Transactions								
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacement Resources	Commitment Reductions using Other Sources	Commitment Additions on Replacement Resources	Net Replacements
01-Jun-07	0.0	118.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	118.5	0.0	118.5	0.0
01-Jun-08	766.5	1,819.4	15.0	0.0	0.0	0.0	0.0	0.0	0.0	1,834.4	766.5	1,834.4	766.5
01-Jun-09	1,708.6	3,253.1	31.1	0.0	35.8	0.0	0.0	0.0	359.7	3,320.0	2,068.3	3,320.1	2,068.2
01-Jun-10	1,816.4	2,595.5	19.4	0.0	335.7	0.0	0.0	959.9	1,403.5	2,950.6	4,179.8	2,951.4	4,179.0
01-Jun-11	1,805.2	3,467.1	98.3	1.0	538.1	12.7	0.0	2,735.2	2,287.2	4,117.2	6,827.6	4,117.2	6,827.6
01-Jun-12	9,185.9	4,650.0	1,597.5	134.5	1,937.6	13.2	0.0	213.4	0.0	8,332.8	9,399.3	8,331.5	9,400.6

[28] The small difference between these two values for some delivery years is the result of under or over utilization of replacement capacity associated with Locational UCAP transactions.

Table 13 Sources of replacement capacity for Generation Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)											
		Replacement Transactions			Locational UCAP Transactions							
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
01-Jun-07	0.0	118.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	118.5	118.5	0.0
01-Jun-08	726.5	1,819.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,545.9	1,819.4	726.5
01-Jun-09	1,322.6	3,201.4	0.0	0.0	0.0	0.0	0.0	0.0	358.5	4,882.5	3,289.0	1,593.5
01-Jun-10	1,384.8	2,595.5	0.0	0.0	285.7	0.0	0.0	955.8	1,372.9	6,594.7	2,932.0	3,662.7
01-Jun-11	1,192.6	3,437.1	0.0	0.0	538.1	0.0	0.0	2,601.9	2,010.9	9,780.6	4,005.2	5,775.4
01-Jun-12	6,976.2	4,647.6	52.6	0.0	1,862.6	0.0	0.0	159.4	0.0	13,698.4	6,586.3	7,112.1

Table 14 Sources of replacement capacity for internal Generation Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)											
		Replacement Transactions			Locational UCAP Transactions							
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
01-Jun-07	0.0	118.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	118.5	118.5	0.0
01-Jun-08	726.5	1,797.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,524.1	1,808.4	715.7
01-Jun-09	1,319.8	3,077.4	0.0	0.0	0.0	0.0	0.0	0.0	270.1	4,667.3	2,839.5	1,827.8
01-Jun-10	1,380.0	2,497.6	0.0	0.0	285.7	0.0	0.0	848.2	1,325.9	6,337.4	2,891.7	3,445.7
01-Jun-11	1,192.1	3,436.4	0.0	0.0	538.1	0.0	0.0	2,433.4	1,942.4	9,542.4	3,781.4	5,761.0
01-Jun-12	6,758.7	4,609.3	52.6	0.0	1,827.6	0.0	0.0	159.4	0.0	13,407.6	6,418.8	6,988.8

Table 15 Source of replacement capacity for internal Generation Resource in service: June 1, 2007 to June 1, 2012

	UCAP (MW)											
		Replacement Transactions			Locational UCAP Transactions							
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
01-Jun-07	0.0	118.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	118.5	118.5	0.0
01-Jun-08	718.1	1,797.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,515.6	1,808.4	707.2
01-Jun-09	1,312.9	3,065.5	0.0	0.0	0.0	0.0	0.0	0.0	265.6	4,644.0	2,613.7	2,030.3
01-Jun-10	1,356.6	2,477.9	0.0	0.0	285.7	0.0	0.0	848.2	1,325.8	6,294.2	2,891.1	3,403.1
01-Jun-11	1,180.6	3,409.5	0.0	0.0	238.1	0.0	0.0	2,023.1	1,901.5	8,752.8	3,769.7	4,983.1
01-Jun-12	6,709.5	4,557.1	52.6	0.0	1,827.6	0.0	0.0	159.4	0.0	13,306.2	6,249.0	7,057.2

Table 16 Sources of replacement capacity for internal Generation Resources not in service: June 1, 2007 to June 1, 2012

	UCAP (MW)											
		Replacement Transactions			Locational UCAP Transactions							
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
01-Jun-07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-08	8.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	0.0	8.5
01-Jun-09	6.9	11.9	0.0	0.0	0.0	0.0	0.0	0.0	4.5	23.3	225.8	(202.5)
01-Jun-10	23.4	19.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	43.2	0.6	42.6
01-Jun-11	11.5	26.9	0.0	0.0	300.0	0.0	0.0	410.3	40.9	789.6	11.7	777.9
01-Jun-12	49.2	52.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	101.4	169.8	(68.4)

Table 17 Sources of replacement capacity for external Generation Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)											
		Replacement Transactions			Locational UCAP Transactions							
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
01-Jun-07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-08	0.0	21.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.8	11.0	10.8
01-Jun-09	2.8	124.0	0.0	0.0	0.0	0.0	0.0	0.0	88.4	215.2	449.5	(234.3)
01-Jun-10	4.8	97.9	0.0	0.0	0.0	0.0	0.0	107.6	47.0	257.3	40.3	217.0
01-Jun-11	0.5	0.7	0.0	0.0	0.0	0.0	0.0	168.5	68.5	238.2	223.8	14.4
01-Jun-12	217.5	38.3	0.0	0.0	35.0	0.0	0.0	0.0	0.0	290.8	167.5	123.3

Table 18 Sources of replacement capacity for Demand Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)											
		Replacement Transactions			Locational UCAP Transactions							
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
01-Jun-07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-08	40.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	55.0	15.0	40.0
01-Jun-09	386.0	51.7	31.1	0.0	35.8	0.0	0.0	0.0	1.2	505.8	31.1	474.7
01-Jun-10	431.6	0.0	19.4	0.0	50.0	0.0	0.0	4.1	30.6	535.7	19.4	516.3
01-Jun-11	612.6	30.0	98.3	0.2	0.0	12.7	0.0	133.3	276.3	1,163.4	111.0	1,052.4
01-Jun-12	2,169.6	2.4	1,544.7	12.7	67.7	13.2	0.0	54.0	0.0	3,864.3	1,610.7	2,253.6

Table 19 Sources of replacement capacity for Energy Efficiency Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)											
		Replacement Transactions			Locational UCAP Transactions							
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
01-Jun-07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-09	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-11	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.8	1.0	(0.2)
01-Jun-12	40.1	0.0	0.2	121.8	7.3	0.0	0.0	0.0	0.0	169.4	134.5	34.9

Table 20 through Table 26 show the percentage of MW associated with the sources of replacement capacity to total replacement capacity for the identified resource classifications along with an indication of the major source of replacement capacity. For the days analyzed with the exception of June 1, 2012, the major source of replacement capacity for Generation Resources, internal Generation Resources, and internal Generation Resources in service was available capacity from other Generation Resources completed through a replacement capacity transaction from within a provider's portfolio. The sources of replacement capacity for internal Generation Resources not in service and external Generation Resources varied by Delivery Year, with the major sources including cleared buy bids, available capacity from other Generation Resources completed through a replacement capacity transaction from within a provider's portfolio, and Excess Commitment Credits.

The major source of replacement capacity for DR was cleared buy bids. In Table 18, the value reported for commitment reductions using replacements on June 1, 2012 reflects replacement capacity for non-viable MW under the revised Reporting and Compliance provisions of the Emergency Load Response Program.[29] Non-viable MW are cleared MW for DR in RPM Auctions held under the former Reporting and Compliance rules and which were determined to be ineligible as capacity under the revised rules governing measurement and verification. Of the 3,864.3 MW of replacement capacity for DR, 939.4 MW were associated with non-viable MW.

The major source of replacement capacity for EE Resources was available capacity from other EE Resources completed through a replacement capacity transaction from within a provider's portfolio.

Table 20 Sources of replacement capacity to total replacements for Generation Resources: June 1, 2007 to June 1, 2012

		Replacement Transactions			Locational UCAP Transactions						
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
01-Jun-07	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Replacement Transactions - Gen
01-Jun-08	28.5%	71.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Replacement Transactions - Gen
01-Jun-09	27.1%	65.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.3%	100.0%	Replacement Transactions - Gen
01-Jun-10	21.0%	39.4%	0.0%	0.0%	4.3%	0.0%	0.0%	14.5%	20.8%	100.0%	Replacement Transactions - Gen
01-Jun-11	12.2%	35.1%	0.0%	0.0%	5.5%	0.0%	0.0%	26.6%	20.6%	100.0%	Replacement Transactions - Gen
01-Jun-12	50.9%	33.9%	0.4%	0.0%	13.6%	0.0%	0.0%	1.2%	0.0%	100.0%	Cleared Buy Bids

Table 21 Sources of replacement capacity to total replacements for internal Generation Resources: June 1, 2007 to June 1, 2012

		Replacement Transactions			Locational UCAP Transactions						
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
01-Jun-07	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Replacement Transactions - Gen
01-Jun-08	28.8%	71.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Replacement Transactions - Gen
01-Jun-09	28.3%	65.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.8%	100.0%	Replacement Transactions - Gen
01-Jun-10	21.8%	39.4%	0.0%	0.0%	4.5%	0.0%	0.0%	13.4%	20.9%	100.0%	Replacement Transactions - Gen
01-Jun-11	12.5%	36.0%	0.0%	0.0%	5.6%	0.0%	0.0%	25.5%	20.4%	100.0%	Replacement Transactions - Gen
01-Jun-12	50.4%	34.4%	0.4%	0.0%	13.6%	0.0%	0.0%	1.2%	0.0%	100.0%	Cleared Buy Bids

Table 22 Sources of replacement capacity to total replacements for internal Generation Resources in service: June 1, 2007 to June 1, 2012

		Replacement Transactions			Locational UCAP Transactions						
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
01-Jun-07	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Replacement Transactions - Gen
01-Jun-08	28.5%	71.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Replacement Transactions - Gen
01-Jun-09	28.3%	66.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.7%	100.0%	Replacement Transactions - Gen
01-Jun-10	21.6%	39.4%	0.0%	0.0%	4.5%	0.0%	0.0%	13.5%	21.1%	100.0%	Replacement Transactions - Gen
01-Jun-11	13.5%	39.0%	0.0%	0.0%	2.7%	0.0%	0.0%	23.1%	21.7%	100.0%	Replacement Transactions - Gen
01-Jun-12	50.4%	34.2%	0.4%	0.0%	13.7%	0.0%	0.0%	1.2%	0.0%	100.0%	Cleared Buy Bids

[29] For the Demand Response Transition Provision, see OATT Attachment DD § 5.14A.

Table 23 Sources of replacement capacity to total replacements for internal Generation Resources not in service: June 1, 2007 to June 1, 2012

		Replacement Transactions			Locational UCAP Transactions						
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
01-Jun-07											
01-Jun-08	98.8%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Cleared Buy Bids
01-Jun-09	29.6%	51.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	19.3%	100.0%	Replacement Transactions - Gen
01-Jun-10	54.2%	45.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	100.0%	Cleared Buy Bids
01-Jun-11	1.5%	3.4%	0.0%	0.0%	38.0%	0.0%	0.0%	52.0%	5.2%	100.0%	Excess Commitment Credits
01-Jun-12	48.5%	51.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Replacement Transactions - Gen

Table 24 Sources of replacement capacity to total replacements for external Generation Resources: June 1, 2007 to June 1, 2012

		Replacement Transactions			Locational UCAP Transactions						
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
01-Jun-07											
01-Jun-08	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Replacement Transactions - Gen
01-Jun-09	1.3%	57.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	41.1%	100.0%	Replacement Transactions - Gen
01-Jun-10	1.9%	38.0%	0.0%	0.0%	0.0%	0.0%	0.0%	41.8%	18.3%	100.0%	Excess Commitment Credits
01-Jun-11	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	70.7%	28.8%	100.0%	Excess Commitment Credits
01-Jun-12	74.8%	13.2%	0.0%	0.0%	12.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Cleared Buy Bids

Table 25 Sources of replacement capacity to total replacements for Demand Resources: June 1, 2007 to June 1, 2012

		Replacement Transactions			Locational UCAP Transactions						
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
01-Jun-07											
01-Jun-08	72.7%	0.0%	27.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Cleared Buy Bids
01-Jun-09	76.3%	10.2%	6.1%	0.0%	7.1%	0.0%	0.0%	0.0%	0.2%	100.0%	Cleared Buy Bids
01-Jun-10	80.6%	0.0%	3.6%	0.0%	9.3%	0.0%	0.0%	0.8%	5.7%	100.0%	Cleared Buy Bids
01-Jun-11	52.7%	2.6%	8.4%	0.0%	0.0%	1.1%	0.0%	11.5%	23.7%	100.0%	Cleared Buy Bids
01-Jun-12	56.1%	0.1%	40.0%	0.3%	1.8%	0.3%	0.0%	1.4%	0.0%	100.0%	Cleared Buy Bids

Table 26 Sources of replacement capacity to total replacements for Energy Efficiency Resources: June 1, 2007 to June 1, 2012

		UCAP (MW)									
		Replacement Transactions			Locational UCAP Transactions						
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE	Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
01-Jun-07											
01-Jun-08											
01-Jun-09											
01-Jun-10											
01-Jun-11	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Replacement Transactions - EE
01-Jun-12	23.7%	0.0%	0.1%	71.9%	4.3%	0.0%	0.0%	0.0%	0.0%	100.0%	Replacement Transactions - EE

Revenue

If a capacity resource is committed for a Delivery Year but is unable to satisfy the RPM commitment during the Delivery Year, the Capacity Market Seller receives RPM revenue based on the market clearing price(s) and is charged for any replacement capacity and/or RPM commitment shortages. Table 27 through Table 33 show the following for the identified resource classifications:

- RPM Cleared – RPM revenue per day for cleared capacity in RPM Auctions for the given delivery year, or cleared MW in RPM Auctions times the LDA clearing price.
- Net Replacements – cost of net replacement capacity. For replacement transactions associated with cleared buy bids in RPM Incremental Auctions, the charge is equal to the clearing price in the RPM Auction. For sources of replacement capacity other than cleared buy bids, the LDA clearing price in the last RPM Auction for the Delivery Year was imputed as the charge for replacement capacity. There is a defined price, the clearing price, for replacement capacity associated with cleared buy bids in RPM Incremental Auctions, whereas there is no defined price captured in PJM's eRPM for replacement capacity sourced from a provider's own capacity portfolio or transacted through a locational UCAP. The LDA clearing price is the best available information as to the market value of the resources.
- Capacity Resource Deficiency Charge – charges assessed on RPM Commitment Shortages. Deficiency charges decreased effective in the 2009/2010 Delivery Year as a result of the change in the penalty structure.

Table 27 RPM revenue for Generation Resources: June 1, 2007 to June 1, 2012

	Revenue ($ per Day)				
	RPM Cleared	Net Replacements	RPM Commitments	Capacity Resource Deficiency Charge	RPM Commitments Less Commitment Shortage
01-Jun-07	$11,603,143	$0	$11,603,143	($3,202)	$11,599,941
01-Jun-08	$16,580,270	($11,670)	$16,568,599	($73,791)	$16,494,808
01-Jun-09	$20,376,592	($109,372)	$20,267,220	($92)	$20,267,128
01-Jun-10	$22,984,703	($183,135)	$22,801,568	($230)	$22,801,338
01-Jun-11	$14,423,911	($35,274)	$14,388,637	($2,293)	$14,386,344
01-Jun-12	$9,851,831	($77,479)	$9,774,351	($4,520)	$9,769,831

Table 28 RPM revenue for internal Generation Resources: June 1, 2007 to June 1, 2012

	Revenue ($ per Day)				
	RPM Cleared	Net Replacements	RPM Commitments	Capacity Resource Deficiency Charge	RPM Commitments Less Commitment Shortage
01-Jun-07	$11,534,520	$0	$11,534,520	($3,202)	$11,531,318
01-Jun-08	$16,397,655	($11,562)	$16,386,093	($73,791)	$16,312,301
01-Jun-09	$20,196,185	($118,744)	$20,077,441	($92)	$20,077,349
01-Jun-10	$22,664,116	($172,285)	$22,491,831	($230)	$22,491,601
01-Jun-11	$14,229,190	($35,202)	$14,193,987	($2,293)	$14,191,694
01-Jun-12	$9,829,086	($76,532)	$9,752,553	($2,463)	$9,750,090

Table 29 RPM revenue for internal Generation Resources in service: June 1, 2007 to June 1, 2012

	Revenue ($ per Day)				
	RPM Cleared	Net Replacements	RPM Commitments	Capacity Resource Deficiency Charge	RPM Commitments Less Commitment Shortage
01-Jun-07	$11,531,795	$0	$11,531,795	($3,202)	$11,528,593
01-Jun-08	$16,385,365	($11,477)	$16,373,888	($72,650)	$16,301,238
01-Jun-09	$20,133,201	($125,892)	$20,007,309	($92)	$20,007,217
01-Jun-10	$22,548,233	($170,155)	$22,378,078	($230)	$22,377,848
01-Jun-11	$13,956,598	($31,303)	$13,925,295	($290)	$13,925,005
01-Jun-12	$9,655,114	($75,502)	$9,579,612	($1,392)	$9,578,220

Table 30 RPM revenue for internal Generation Resources not in service: June 1, 2007 to June 1, 2012

	Revenue ($ per Day)				
	RPM Cleared	Net Replacements	RPM Commitments	Capacity Resource Deficiency Charge	RPM Commitments Less Commitment Shortage
01-Jun-07	$2,725	$0	$2,725	$0	$2,725
01-Jun-08	$12,290	($85)	$12,205	($1,142)	$11,063
01-Jun-09	$62,983	$7,148	$70,131	$0	$70,131
01-Jun-10	$115,883	($2,130)	$113,753	$0	$113,753
01-Jun-11	$272,592	($3,900)	$268,692	($2,002)	$266,690
01-Jun-12	$173,971	($1,030)	$172,941	($1,071)	$171,870

Table 31 RPM revenue for external Generation Resources: June 1, 2007 to June 1, 2012

	Revenue ($ per Day)				
	RPM Cleared	Net Replacements	RPM Commitments	Capacity Resource Deficiency Charge	RPM Commitments Less Commitment Shortage
01-Jun-07	$68,623	$0	$68,623	$0	$68,623
01-Jun-08	$182,615	($108)	$182,507	$0	$182,507
01-Jun-09	$180,408	$9,372	$189,780	$0	$189,780
01-Jun-10	$320,587	($10,850)	$309,737	$0	$309,737
01-Jun-11	$194,722	($72)	$194,650	$0	$194,650
01-Jun-12	$22,745	($947)	$21,798	($2,056)	$19,742

Table 32 RPM revenue for Demand Resources: June 1, 2007 to June 1, 2012

	Revenue ($ per Day)					
	RPM Cleared	Net Replacements	Relief from Charges	RPM Commitments	Capacity Resource Deficiency Charge	RPM Commitments Less Commitment Shortage
01-Jun-07	$15,129	$0	$0	$15,129	$0	$15,129
01-Jun-08	$96,847	($400)	$0	$96,447	($21,267)	$75,180
01-Jun-09	$180,170	($40,465)	$0	$139,704	($3,478)	$136,226
01-Jun-10	$165,030	($25,815)	$0	$139,215	($1,513)	$137,702
01-Jun-11	$152,448	($16,267)	$0	$136,181	$0	$136,181
01-Jun-12	$724,543	($19,067)	($193)	$705,283	($5,478)	$699,806

Table 33 RPM revenue for Energy Efficiency Resources: June 1, 2007 to June 1, 2012

	Revenue ($ per Day)				
	RPM Cleared	Net Replacements	RPM Commitments	Capacity Resource Deficiency Charge	RPM Commitments Less Commitment Shortage
01-Jun-07	$0	$0	$0	$0	$0
01-Jun-08	$0	$0	$0	$0	$0
01-Jun-09	$0	$0	$0	$0	$0
01-Jun-10	$0	$0	$0	$0	$0
01-Jun-11	$382	$1	$383	$0	$383
01-Jun-12	$31,256	($1,221)	$30,036	($93)	$29,943

Parent Company Analysis

Given the results for replacement capacity transactions on a resource basis, this section reports data on net replacement activities aggregated to a parent company level.

Table 34 through Table 40 show the number of companies by net replacement percentage for the identified resource classifications. The number of companies includes both companies that replaced RPM commitments and companies that provided replacement capacity. Figure 2 through Figure 8 show scatter plots of company replacement percentages for the identified resource classifications. For companies with cleared Generation Resources, internal Generation Resources, internal Generation Resources in service, and external Generation Resources the majority of companies replaced 0 to 25 percent of the cleared capacity for Generation Resources. For companies with cleared DR and internal Generation Resources not in service, the distribution of replacement percentages was more scattered, with a majority of companies with cleared DR replacing zero capacity and a higher percentage of companies replacing 75 to 100 percent of cleared capacity for the given resource type.

Table 34 Number of parent companies by replacement percentage for Generation Resources: June 1, 2007 to June 1, 2012

	Number of Companies					
	0 Percent	> 0 Percent and <= 25 Percent	> 25 Percent and <= 50 Percent	> 50 Percent and <= 75 Percent	> 75 Percent and < 100 Percent	100 Percent
01-Jun-07	55	0	0	0	0	0
01-Jun-08	27	32	1	0	0	0
01-Jun-09	34	34	1	0	0	0
01-Jun-10	37	27	5	1	0	3
01-Jun-11	38	35	3	0	2	3
01-Jun-12	51	35	3	2	1	4

Table 35 Number of parent companies by replacement percentage for internal Generation Resources: June 1, 2007 to June 1, 2012

	Number of Companies					
	0 Percent	> 0 Percent and <= 25 Percent	> 25 Percent and <= 50 Percent	> 50 Percent and <= 75 Percent	> 75 Percent and < 100 Percent	100 Percent
01-Jun-07	52	0	0	0	0	0
01-Jun-08	23	32	1	0	0	0
01-Jun-09	29	32	1	0	0	0
01-Jun-10	31	27	5	1	0	3
01-Jun-11	31	36	3	0	2	3
01-Jun-12	44	33	3	1	1	3

Table 36 Number of parent companies by replacement percentage for internal Generation Resources in service: June 1, 2007 to June 1, 2012

	Number of Companies					
	0 Percent	> 0 Percent and <= 25 Percent	> 25 Percent and <= 50 Percent	> 50 Percent and <= 75 Percent	> 75 Percent and < 100 Percent	100 Percent
01-Jun-07	52	0	0	0	0	0
01-Jun-08	23	32	1	0	0	0
01-Jun-09	29	32	1	0	0	0
01-Jun-10	31	27	5	1	0	2
01-Jun-11	32	35	2	0	2	2
01-Jun-12	40	31	2	2	1	3

Table 37 Number of parent companies by replacement percentage for internal Generation Resources not in service: June 1, 2007 to June 1, 2012

	Number of Companies					
	0 Percent	> 0 Percent and <= 25 Percent	> 25 Percent and <= 50 Percent	> 50 Percent and <= 75 Percent	> 75 Percent and < 100 Percent	100 Percent
01-Jun-07	2	0	0	0	0	0
01-Jun-08	2	2	0	0	0	1
01-Jun-09	4	3	0	1	0	0
01-Jun-10	2	5	1	1	0	1
01-Jun-11	3	6	3	0	0	3
01-Jun-12	15	5	2	0	0	1

Table 38 Number of parent companies by replacement percentage for external Generation Resources: June 1, 2007 to June 1, 2012

	Number of Companies					
	0 Percent	> 0 Percent and <= 25 Percent	> 25 Percent and <= 50 Percent	> 50 Percent and <= 75 Percent	> 75 Percent and < 100 Percent	100 Percent
01-Jun-07	14	0	0	0	0	0
01-Jun-08	12	4	0	0	0	0
01-Jun-09	15	3	0	0	0	0
01-Jun-10	15	2	0	0	0	0
01-Jun-11	16	1	0	0	0	0
01-Jun-12	17	3	0	1	0	1

Table 39 Number of parent companies by replacement percentage for Demand Resources: June 1, 2007 to June 1, 2012

	Number of Companies					
	0 Percent	> 0 Percent and <= 25 Percent	> 25 Percent and <= 50 Percent	> 50 Percent and <= 75 Percent	> 75 Percent and < 100 Percent	100 Percent
01-Jun-07	4	0	0	0	0	0
01-Jun-08	4	1	0	0	0	0
01-Jun-09	4	1	0	1	1	0
01-Jun-10	4	1	0	0	0	2
01-Jun-11	14	0	3	1	0	2
01-Jun-12	26	9	6	0	4	2

Table 40 Number of parent companies by replacement percentage for Energy Efficiency Resources: June 1, 2007 to June 1, 2012

	Number of Companies					
	0 Percent	> 0 Percent and <= 25 Percent	> 25 Percent and <= 50 Percent	> 50 Percent and <= 75 Percent	> 75 Percent and < 100 Percent	100 Percent
01-Jun-07						
01-Jun-08						
01-Jun-09						
01-Jun-10						
01-Jun-11	4	0	0	0	0	0
01-Jun-12	6	0	1	1	0	1

Table 41 through Table 47 show the following for the identified resource classifications:

- RPM Cleared – MW cleared in RPM Auctions for the given delivery year and the net replacement percentage range at the parent company level.
- Net Replacements – RPM commitment reductions using replacement capacity less RPM commitment additions on the replacement resources for the given replacement percentage range at the parent company level.
- Total Net Replacements – RPM commitment reductions using replacement capacity less RPM commitment additions on the replacement resources, or the sum of Net Replacements for all the replacement percentage ranges.

Table 41 RPM cleared and replacement capacity by replacement percentage at parent company level for Generation Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)												
	0 Percent		> 0 Percent and <= 25 Percent		> 25 Percent and <= 50 Percent		> 50 Percent and <= 75 Percent		> 75 Percent and < 100 Percent		100 Percent		
	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	Total Net Replacements
01-Jun-07	129,281.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-08	34,693.2	0.0	95,246.5	(678.4)	130.7	(48.1)	0.0	0.0	0.0	0.0	0.0	0.0	(726.5)
01-Jun-09	27,524.7	13.3	105,605.8	(1,604.0)	6.8	(2.8)	0.0	0.0	0.0	0.0	0.0	0.0	(1,593.5)
01-Jun-10	41,145.5	172.6	90,981.4	(3,313.1)	721.0	(299.3)	5.8	(3.3)	0.0	0.0	219.6	(219.6)	(3,662.7)
01-Jun-11	24,621.3	53.3	106,591.3	(4,883.2)	164.9	(55.0)	0.0	0.0	233.4	(221.8)	668.7	(668.7)	(5,775.4)
01-Jun-12	12,503.2	1,001.7	115,539.5	(5,776.8)	450.2	(154.9)	2,859.0	(1,659.0)	44.8	(42.9)	480.2	(480.2)	(7,112.1)

Table 42 RPM cleared and replacement capacity by replacement percentage at parent company level for internal Generation Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)												
	0 Percent		> 0 Percent and <= 25 Percent		> 25 Percent and <= 50 Percent		> 50 Percent and <= 75 Percent		> 75 Percent and < 100 Percent		100 Percent		
	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	Total Net Replacements
01-Jun-07	127,660.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-08	33,196.5	9.7	95,116.8	(677.3)	130.7	(48.1)	0.0	0.0	0.0	0.0	0.0	0.0	(715.7)
01-Jun-09	29,838.8	86.7	101,569.6	(1,911.7)	6.8	(2.8)	0.0	0.0	0.0	0.0	0.0	0.0	(1,827.8)
01-Jun-10	40,487.3	159.3	89,522.6	(3,082.8)	717.0	(299.3)	5.8	(3.3)	0.0	0.0	219.6	(219.6)	(3,445.7)
01-Jun-11	22,874.7	53.3	106,547.7	(4,868.8)	137.1	(55.0)	0.0	0.0	229.4	(221.8)	668.7	(668.7)	(5,761.0)
01-Jun-12	11,738.3	1,001.8	114,988.8	(5,778.3)	409.0	(154.9)	2,745.0	(1,580.0)	44.8	(42.9)	434.5	(434.5)	(6,988.8)

Table 43 RPM cleared and replacement capacity by replacement percentage at parent company level for internal Generation Resources in service: June 1, 2007 to June 1, 2012

	UCAP (MW)												
	0 Percent		> 0 Percent and <= 25 Percent		> 25 Percent and <= 50 Percent		> 50 Percent and <= 75 Percent		> 75 Percent and < 100 Percent		100 Percent		
	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	Total Net Replacements
01-Jun-07	127,614.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-08	33,196.5	9.7	95,006.9	(668.8)	130.7	(48.1)	0.0	0.0	0.0	0.0	0.0	0.0	(707.2)
01-Jun-09	10,551.4	80.8	120,372.5	(2,108.3)	6.8	(2.8)	0.0	0.0	0.0	0.0	0.0	0.0	(2,030.3)
01-Jun-10	40,425.6	161.0	88,904.9	(3,061.7)	715.3	(299.3)	5.8	(3.3)	0.0	0.0	199.8	(199.8)	(3,403.1)
01-Jun-11	22,851.2	67.0	104,580.0	(4,771.3)	104.8	(43.6)	0.0	0.0	229.4	(221.8)	13.4	(13.4)	(4,983.1)
01-Jun-12	11,749.1	1,005.5	112,035.1	(5,854.1)	287.9	(106.8)	2,811.0	(1,624.4)	44.8	(42.9)	434.5	(434.5)	(7,057.2)

Table 44 RPM cleared and replacement capacity by replacement percentage at parent company level for internal Generation Resources not in service: June 1, 2007 to June 1, 2012

	UCAP (MW)												
	0 Percent		> 0 Percent and <= 25 Percent		> 25 Percent and <= 50 Percent		> 50 Percent and <= 75 Percent		> 75 Percent and < 100 Percent		100 Percent		
	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	Total Net Replacements
01-Jun-07	46.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-08	37.3	0.0	65.0	(0.9)	0.0	0.0	0.0	0.0	0.0	0.0	7.6	(7.6)	(8.5)
01-Jun-09	366.5	216.2	106.5	(5.2)	0.0	0.0	11.5	(8.5)	0.0	0.0	0.0	0.0	202.5
01-Jun-10	51.5	0.0	607.7	(11.1)	7.6	(3.4)	14.3	(8.3)	0.0	0.0	19.8	(19.8)	(42.6)
01-Jun-11	62.4	0.0	1,772.1	(43.6)	167.7	(57.7)	0.0	0.0	0.0	0.0	676.6	(676.6)	(777.9)
01-Jun-12	1,945.8	141.2	943.5	(33.6)	102.2	(32.7)	0.0	0.0	0.0	0.0	6.5	(6.5)	68.4

Table 45 RPM cleared and replacement capacity by replacement percentage at parent company level for external Generation Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)												
	0 Percent		> 0 Percent and <= 25 Percent		> 25 Percent and <= 50 Percent		> 50 Percent and <= 75 Percent		> 75 Percent and < 100 Percent		100 Percent		
	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	Total Net Replacements
01-Jun-07	1,620.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-08	143.2	0.0	1,483.2	(10.8)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(10.8)
01-Jun-09	460.9	399.4	1,261.2	(165.1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	234.3
01-Jun-10	957.3	14.1	1,163.7	(231.1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(217.0)
01-Jun-11	663.2	219.7	1,158.8	(234.1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(14.4)
01-Jun-12	1,118.5	37.0	238.3	(35.6)	0.0	0.0	114.0	(79.0)	0.0	0.0	45.7	(45.7)	(123.3)

Table 46 RPM cleared and replacement capacity by replacement percentage at parent company level for Demand Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)												
	0 Percent		> 0 Percent and <= 25 Percent		> 25 Percent and <= 50 Percent		> 50 Percent and <= 75 Percent		> 75 Percent and < 100 Percent		100 Percent		
	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	Total Net Replacements
01-Jun-07	127.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-Jun-08	376.5	0.0	182.9	(40.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(40.0)
01-Jun-09	100.1	0.0	335.2	(52.9)	0.0	0.0	51.6	(35.8)	406.0	(386.0)	0.0	0.0	(474.7)
01-Jun-10	42.0	0.0	439.3	(34.7)	0.0	0.0	0.0	0.0	0.0	0.0	481.6	(481.6)	(516.3)
01-Jun-11	97.1	12.7	0.0	0.0	903.5	(299.9)	196.4	(135.6)	0.0	0.0	629.6	(629.6)	(1,052.4)
01-Jun-12	1,494.8	54.3	1,970.3	(356.0)	4,727.4	(1,469.2)	0.0	0.0	493.8	(416.4)	66.3	(66.3)	(2,253.6)

Table 47 RPM cleared and replacement capacity by replacement percentage at parent company level for Energy Efficiency Resources: June 1, 2007 to June 1, 2012

	UCAP (MW)												
	0 Percent		> 0 Percent and <= 25 Percent		> 25 Percent and <= 50 Percent		> 50 Percent and <= 75 Percent		> 75 Percent and < 100 Percent		100 Percent		
	Cleared UCAP (MW)	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	RPM Cleared	Net Replacements	Total Net Replacements
01-Jun-07													
01-Jun-08													
01-Jun-09													
01-Jun-10													
01-Jun-11	76.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
01-Jun-12	594.1	5.2	0.0	0.0	57.7	(28.6)	10.3	(7.5)	0.0	0.0	4.0	(4.0)	(34.9)

Figure 2 Company replacement percentages for Generation Resources: June 1, 2007 to June 1, 2012

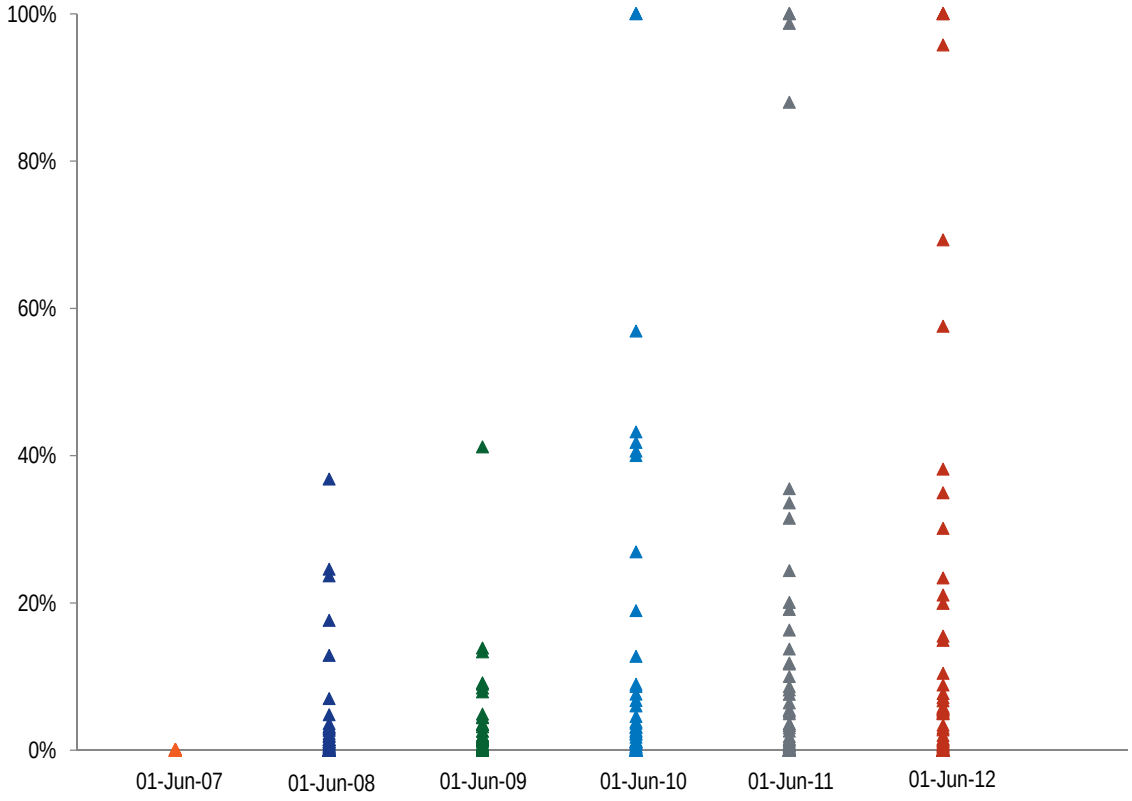


Figure 3 Company replacement percentages for internal Generation Resources: June 1, 2007 to June 1, 2012

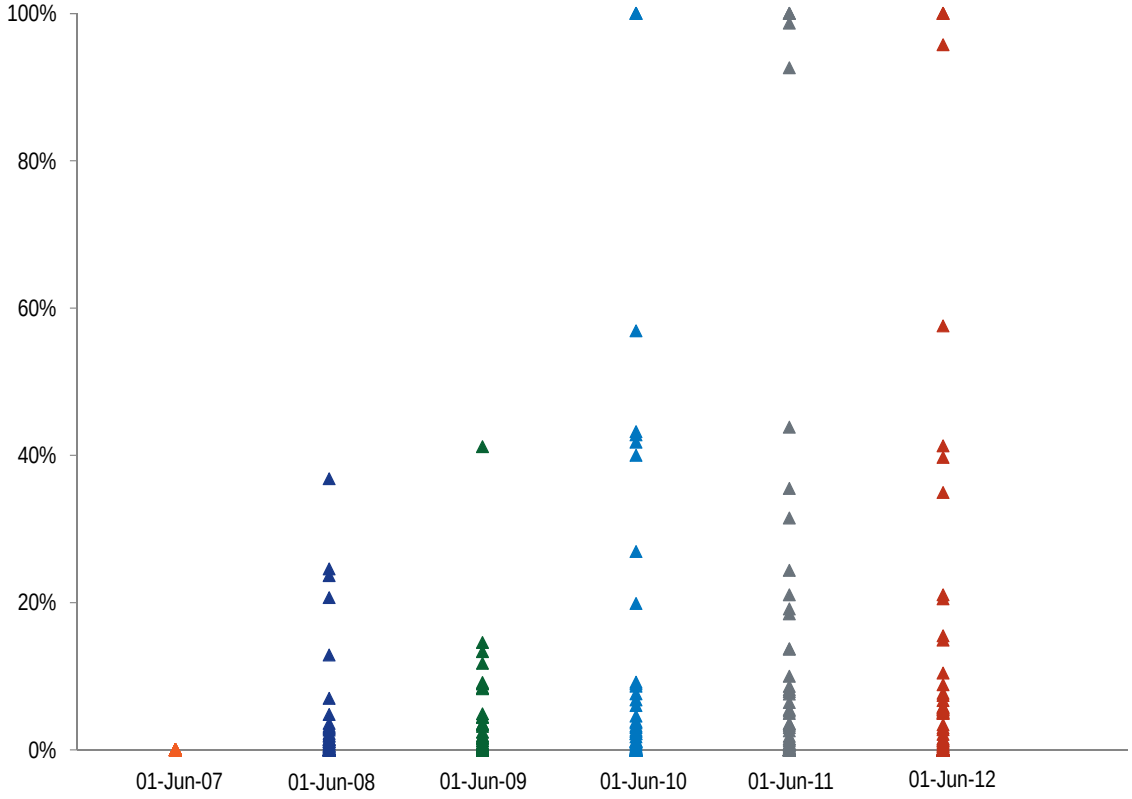


Figure 4 Company replacement percentages for internal Generation Resources in service: June 1, 2007 to June 1, 2012

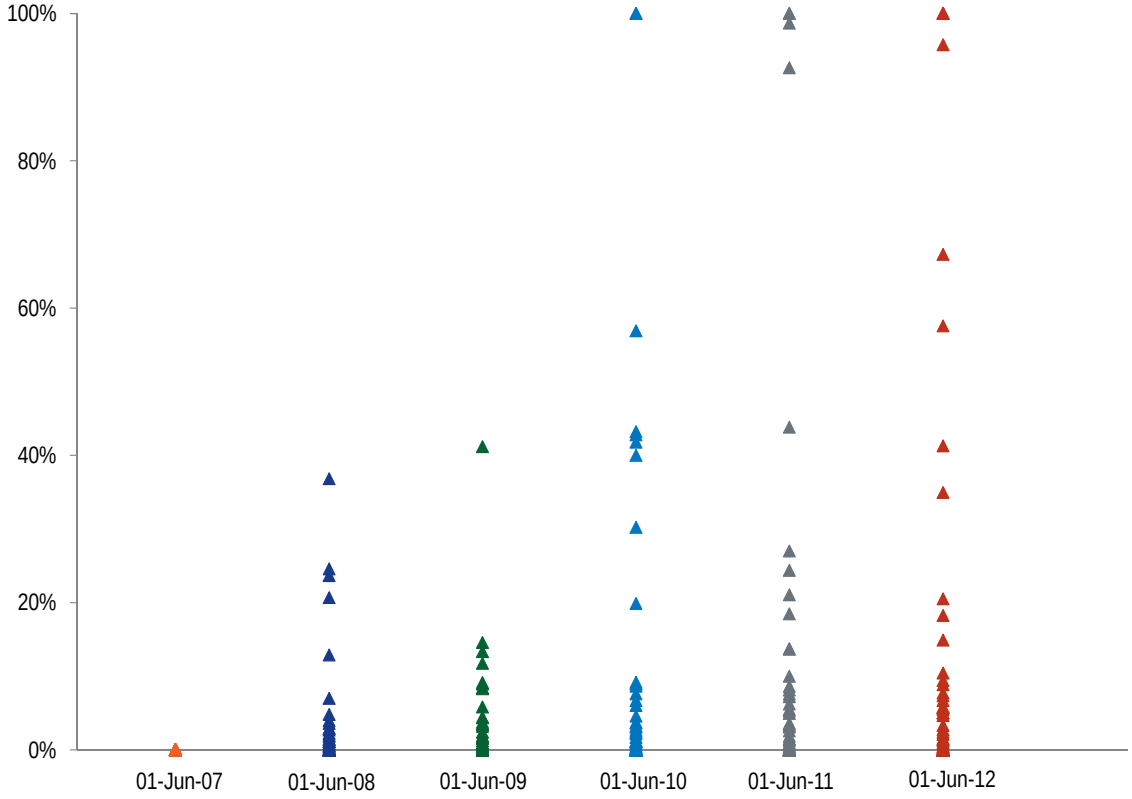


Figure 5 Company replacement percentages for internal Generation Resources not in service: June 1, 2007 to June 1, 2012

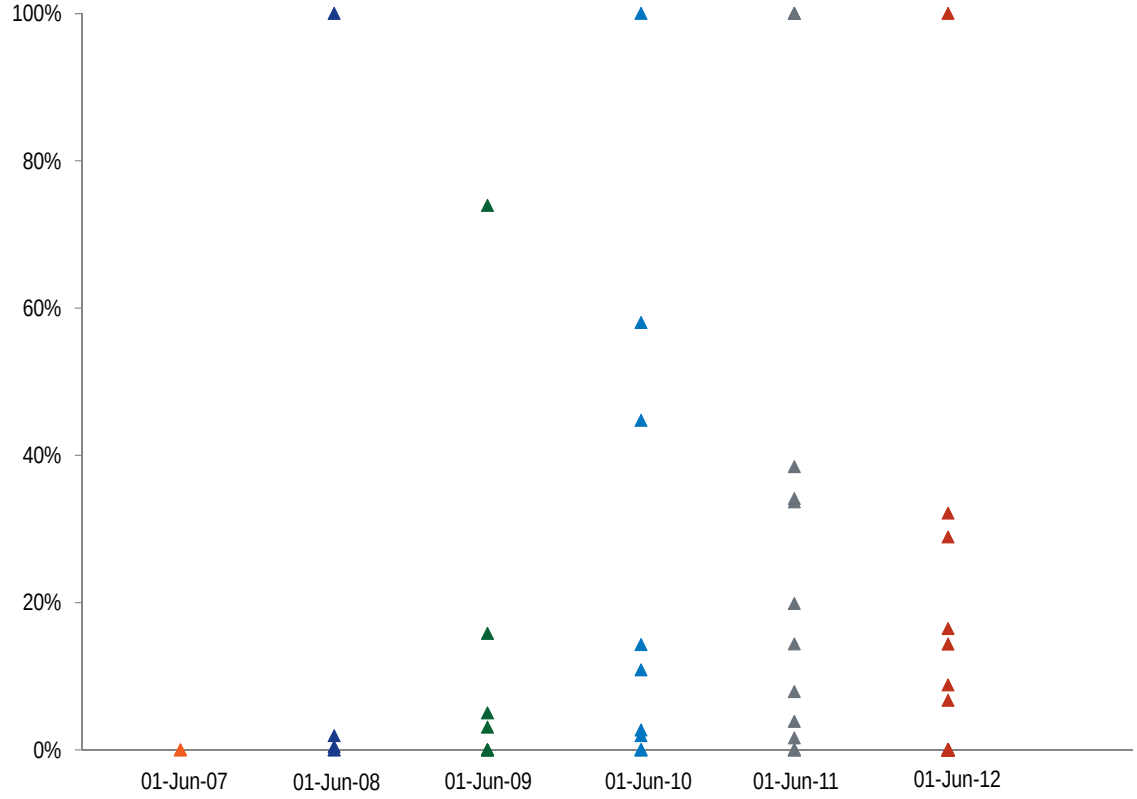


Figure 6 Company replacement percentages for external Generation Resources: June 1, 2007 to June 1, 2012

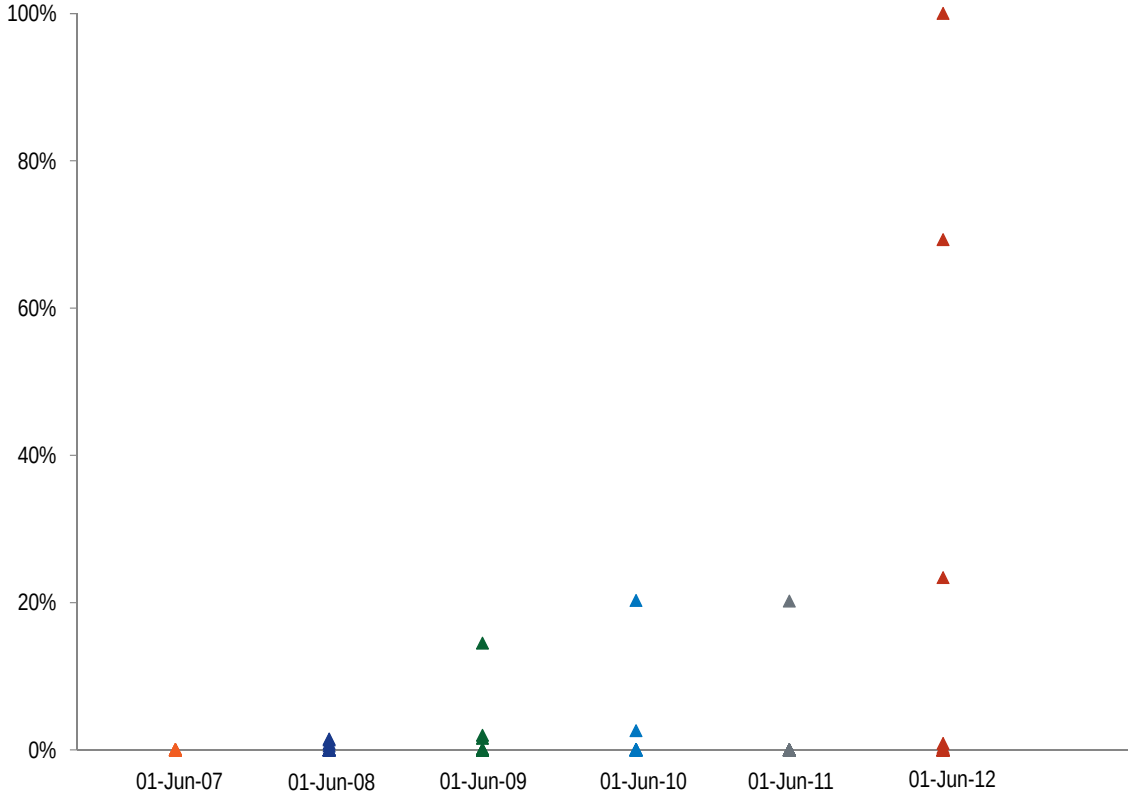


Figure 7 Company replacement percentages for Demand Resources: June 1, 2007 to June 1, 2012

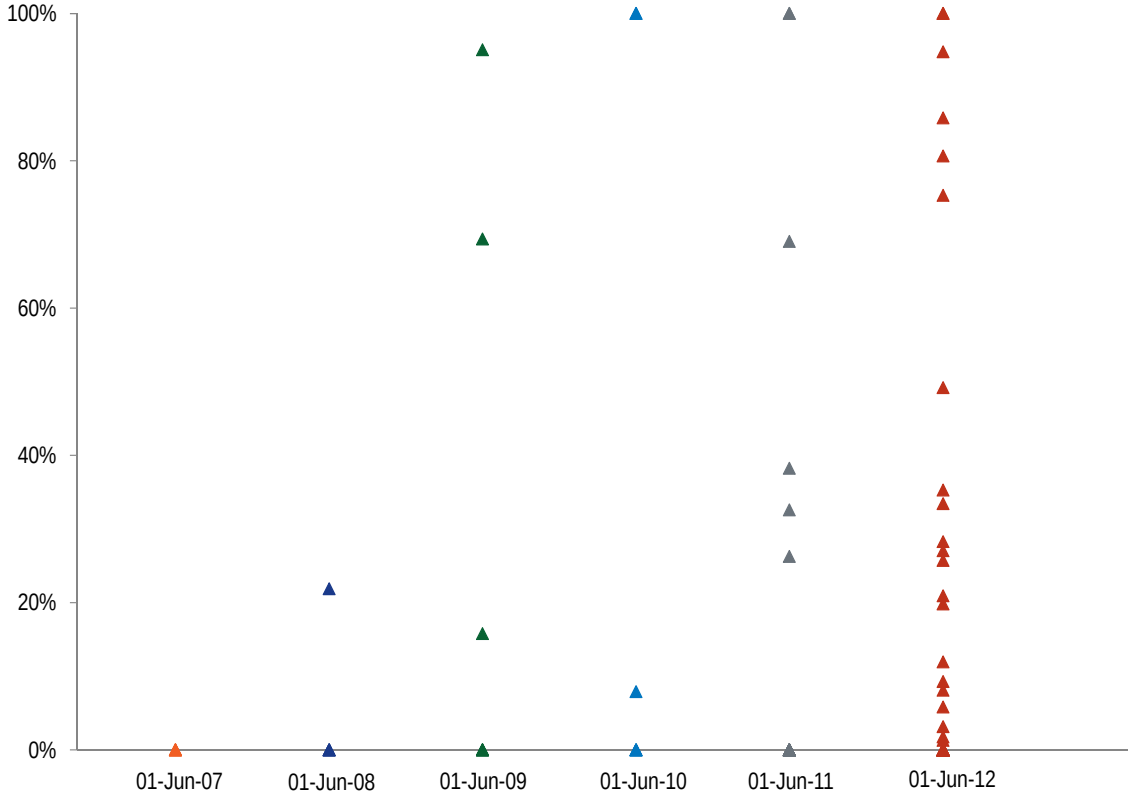
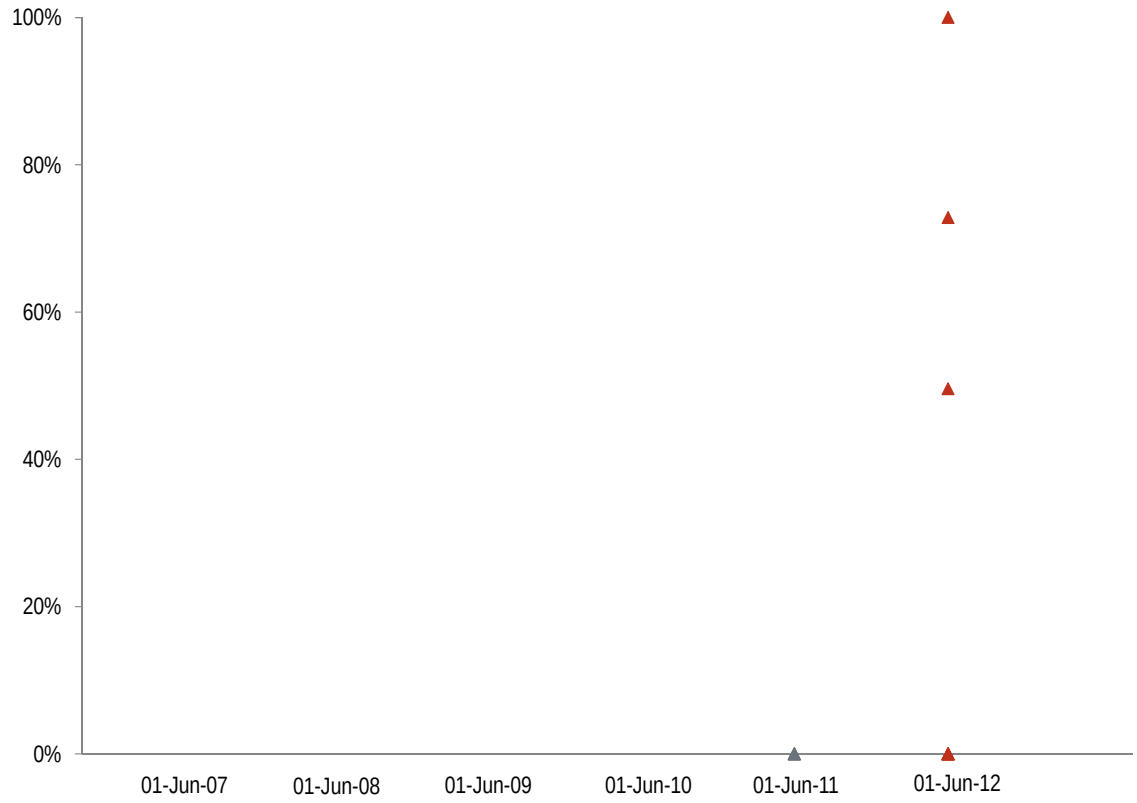


Figure 8 Company replacement percentages for Energy Efficiency Resources: June 1, 2007 to June 1, 2012



Conclusion

Sellers of Demand Resources in RPM auctions disproportionately replace those commitments compared to sellers of other resource types. The causes of such behavior are likely varied. Most fundamentally, DR is a different resource type than generation. While generation typically has a lead time close to the three year lead time for RPM Auctions, DR typically have much shorter lead times. It is reasonable to expect that DR providers do not receive commitments from new customers until relatively close to the delivery year and certainly well after the RPM BRA is run for that delivery year. Thus, some sales of DR based on assumptions about signing up specific customers is an inherent part of procuring DR and the associated benefits that DR brings to the PJM market.

The interaction between DR rules and ILR rules created strong incentives to increase replacement activity as reflected in the very high levels of replacement activity for the 2009/2010, 2001/2011 and 2011/2012 Delivery Years. The termination of the ILR product eliminated those specific incentives.

In the 2012/2013 Delivery Year, DR providers also faced the FERC requirement to change measurement and verification methods to reflect PLC. The result was that some previously cleared DR MW were determined to be non-viable using acceptable measurement and verification methods. The non-viable MW had to be replaced or be subject to penalties. The Commission order included a transition provision which protected DR sellers from purchasing more expensive replacement capacity than the initial sale price.[30] The requirement to replace non-viable MW contributed to the level of replacement activity for the 2012/2013 Delivery Year but does not explain all such activity. The level of replacement purchases was less for the 2012/2013 Delivery Year than it had been for prior delivery years. About 40 percent of DR replacement MW for the 2012/2013 Delivery Year came from the selling company's portfolio, suggesting that these replacement MW were a result of the measurement and verification order.

After accounting for the impact of the order addressing measurement and verification practices, the level of DR gross replacement activity declined significantly after the termination of the ILR product, from 65 percent in the 2011/2012 Delivery Year to about 27 percent of cleared capacity for the 2012/2013 Delivery Year.

The IMM has identified no evidence that any Curtailment Service Providers (CSPs) are purely financial entities that sell DR positions in capacity auctions with no intention of providing a physical resource and fully buy out of those positions every year. A rule requiring that DR providers demonstrate that they are actually in the business of providing DR resources would be an appropriate part of any package of rule changes related to this issue.

The evidence shows that some DR providers, including CSPs and individual customers, do regularly purchase replacement capacity for a substantial portion of their RPM commitments for DR at a significant discount to the initial sale price.

The results of the report raise the broader question of what a commitment to sell capacity in an RPM Auction means. Is such a sale a commitment to provide physical capacity to the market? Or is such a sale purely a financial transaction, which can be liquidated or replaced whenever profitable? Is the ability to buy out of capacity transactions in incremental auctions a reasonable response to market incentives?

Since signing up customers three years in advance is not a reasonable requirement for DR providers, how can the market be assured that DR sellers are selling DR only with the intent and ability to actually provide physical DR during the delivery year and is that a reasonable requirement?

---

[30] See 138 FERC ¶ 61,138 at PP 42–44 (2011); 137 FERC ¶ 61,108 at P 81 (2011).

The risks to the markets associated with the sale of DR without any supporting information on the plausibility of the underlying assets include the risk that multiple CSPs could be assuming that they will win the same customers and the risk that sellers are taking speculative positions with a low probability of fulfilling them. The result in both cases is that the system is less reliable than it might otherwise be because the full amount of DR that cleared the RPM Auction is not actually available, the price to other capacity resources has been suppressed by the sale of the speculative DR, new entry of other capacity resources could have been forestalled by the sale of speculative DR, and there may not be adequate replacement resources available with short notice prior to the delivery year.

The rationale for the Short Term Resource Procurement Target (2.5 percent demand curve offset) has been that this will permit some short lead time DR to compete in the Third Incremental Auction. It has been established that this did not occur in the 2014/2015 BRA, because the limited DR and summer DR were fully subscribed in the BRA. One way to ensure that this option remains is to reserve all Limited DR and Extended Summer DR sales to the Third Incremental Auction and to purchase no Limited DR or Extended Summer DR in the BRA or First and Second IAs. This would ensure the sale of such resources closer to the delivery year and increase the incentives to have actual customer locations to provide the DR.

The purpose of this report is to provide more detailed information to PJM participants on the question of replacement capacity activity with the goal of informing the discussion about the appropriate market design. One of the goals of the IMM is to help ensure competitive markets and to help encourage market solutions.

Prior to addressing any perceived need for change, it is essential to clarify the definition and role of capacity resources in the PJM market and in maintaining reliability in PJM. For example, it is necessary to clarify the rules specifying whether the sale of capacity in an RPM Auction or to meet an RPM obligation is a commitment to provide a physical resource and when that commitment is enforceable. Only once this definitional issue is addressed can appropriate rule changes be developed.

The IMM suggests potential rule changes that could contribute to addressing the uncertainty associated with the level of DR that can be expected in a Delivery Year. The suggested rule changes are just a starting place. The IMM looks forward to a robust discussion on the market design issues and expects that the PJM markets will be improved as a result.

- Develop rules for planned DR that require specification of actual sites above a MW threshold, and specification of the nature of sites on which offers are based.
- Require DR providers to maintain detailed business plans supporting offered levels of DR and provide them to the IMM and PJM upon request.

- Require DR providers to provide evidence of an intent and capability to provide physical resources.
- Consider a cap on planned DR by LDA at a percentage of MW at existing registered sites. The level of the cap could be based on the current DR share of capacity in an LDA and the history of replacement capacity transactions.
- Reserve all Limited and Extended Summer DR sales to the Third Incremental Auction.