

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

PJM Interconnection, L.L.C.

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Docket No. ER13-2108-001

**ANSWER AND MOTION FOR LEAVE TO ANSWER
OF THE INDEPENDENT MARKET MONITOR FOR PJM**

Pursuant to Rules 212 and 213 of the Commission’s Rules and Regulations,¹ Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM (“Market Monitor”), submits this answer to the pleadings filed August 23, 2013, in response to revisions to the rules for Demand Resources (“DR”) participating in the PJM Reliability Pricing Model (“RPM”) proposed August 2, 2013 (“August 2nd Filing”), including the protest of Converge, Inc. (“Converge”), the comments of Viridity Energy, Inc. (“Viridity”) and the protest of the PSEG Companies (“PSEG”).² Each of these pleadings requests rejection of the August 2nd Filing. The Market Monitor agrees that the August 2nd Filing should be rejected, but on condition that PJM be directed to enforce the existing rules applicable to offers of Planned Demand Resources in RPM Base Residual Auctions (“BRAs”).

RPM was designed to procure a physical capacity product. This requires an offer of a specific physical resource including a specific location.³ Conversely, a non-physical offer does not specify a resource or location. The rules requiring physical offers have not been

¹ 18 CFR § 385.212 & 213 (2013).

² The “PSEG Companies” include Public Service Electric and Gas Company, PSEG Power LLC and PSEG Energy Resources & Trade LLC.

³ See OATT Attachment DD § 5.5.

enforced with respect to Planned DR, and as a result, DR has been offered on a non-physical and apparently speculative basis, rather than on a physical basis as required.

In the course of analyzing replacement capacity transactions through the Incremental Auctions (“IAs”) in RPM, the Market Monitor has determined that sellers of Demand Resources in RPM Auctions disproportionately replace those commitments compared to sellers of other resource types.⁴ In some cases, these replacement transactions may have covered non-physical offers that the seller hoped to cover with a future physical procurement. In other case, these replacement transactions may have covered non-physical offers based on speculation about relative prices in the BRA and IAs, and there never was a bona fide plan to make them physical. It is difficult to distinguish the motives if the seller is not a purely financial entity, but persistent high levels of replacement capacity purchases by sellers of DR is consistent with a role for both explanations.

These non-physical sales suppress prices in the RPM Base Residual Auctions (“BRAs”) which negatively affects the ability of the market to procure physical resource three years forward, consistent with its design. The August 2nd Filing represents an effort to respond to the problem identified in the Market Monitor’s analysis. Unfortunately, this filing does not go far enough to address a long-standing failure to implement the existing rules. The better approach is to implement the existing rules.

The current rules require that sellers of DR in RPM auctions must show that DR is based on real customers and provide a timeline for providing that DR. Proper enforcement

⁴ See IMM, Analysis of Replacement Capacity for RPM Commitments: June 1, 2007 to June 1, 2012 (December 12, 2012), which can be accessed at: http://www.monitoringanalytics.com/reports/Reports/2012/IMM_Report_Replacement_Capacity_Activity_20121211.pdf. The IMM is working on an updated report with improved analysis and conclusions revised consistent with the position stated in this pleading. The updated report will be released in the near future. Most of the improved analysis is included in an IMM presentation at the PJM Markets Implementation Committee meeting on July 23, 2013, which can be accessed at: http://www.monitoringanalytics.com/reports/Presentations/2013/IMM_MIC_Replacement_Capacity_Activity_Rev_20130723.pdf.

of those rules would reduce, if not eliminate, the disproportional reliance on replacement capacity, and the associated price suppressing and market distorting effects would be avoided. Accordingly, the Market Monitor agrees with protests and comments requesting rejection of the August 2nd Filing, but on condition that PJM be directed to enforce the existing rules.

I. BACKGROUND

Section A.5 of Schedule 6 to the PJM Reliability Reassurance Agreement (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.]⁵

PJM rules require that Planned DR must be a specific, physical resource that shall be able to provide the identified reduction in the Delivery Year, and that the entity offering the Planned DR must demonstrate that it is a specific physical resource at a specific location prior to the offer whether in a BRA or IA or FRR capacity plan. The timetable and

⁵ This rule is also codified in Section A.5 of Attachment DD-1 to the OATT. The definition of "Planned Demand Resource" in Section 1.69 of the RAA confirms the Market Monitor's interpretation: "Planned Demand Resource shall mean a Demand Resource that does not currently have the capability to provide a reduction in demand or to otherwise control load, but that is *scheduled* to be capable of providing such reduction or control on or before the start of the Delivery Year for which such resource is to be committed, as determined in accordance with the requirements of Schedule 6" [emphasis added].

milestones to meet this obligation are subject to verification by PJM at any time prior to the Delivery Year. This rule requires identification of a specific customer and a specific site, but does not require a contract.

This rule has not been properly enforced. Under the current application of the rules, DR providers may not have identified Planned DR customers, may not have clear plans for implementing DR measures for these customers, and may not receive commitments from new customers until relatively close to the Delivery Year and well after the RPM BRA is run for that Delivery Year. This is not consistent with the rules.

The current application of the rules allows DR providers to register sites relatively close to the Delivery Year. The rules for registering end-use customer sites just before the commencement of the Delivery Year, however, have created confusion about the nature of DR that may be offered into Base Residual Auctions. It has been incorrectly assumed that the rules permit a seller of DR to offer DR without having identified the customers and site locations that, upon having developed the capability, will take the actions necessary to provide DR.

The rules require a seller to “provide a timeline including the milestones, which demonstrates to PJM’s satisfaction that the Planned Demand Resources will be available” 15 days prior to the auction. Curtailment Service Providers (“CSPs”) cannot meet this requirement without having identified the specific customers, evaluated their capabilities at the sites of their operation, evaluated the willingness of the customers to develop such capabilities, or determined that the site was not already committed to another party. CSPs routinely provide and PJM accepts in lieu of timelines an advance indication of a MW quantity that will be offered with no information concerning from whom or how. Regardless of whether one agrees with the Market Monitor’s interpretation or the somewhat more rigorous but reasonable interpretation that PSEG argues, CSPs are not currently demonstrating physical Planned DR, and this failure has a negative impact on clearing prices in the BRAs. This approach does not fall within PJM’s discretion under the rules.

Failure to implement the current rules for physical DR has meant submittal and acceptance of Planned DR in Base Residual Auctions that reflects only a CSP's speculative estimate of MW that could be registered in the Delivery Year, or be replaced in an Incremental Auction. This is not in dispute; Comverge explicitly confirms this point (at 14–20). There is no reason to expect that the Planned DR offered in a BRA, under the rules as currently applied, represents DR that will be physically available in the Delivery Year. The evidence shows that DR providers, including CSPs and individual customers, do regularly purchase replacement capacity for a substantial portion of their BRA commitments for DR at a significant discount to the initial sale price.

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 dynamic that can result is the speculative DR suppresses prices in the BRA and displaces physical generation assets. Those generation assets then have an incentive to offer at a low price, including offers at zero and below cost, in IAs in order to ensure some capacity market revenue for long lived physical resources which the owners expect to maintain for multiple years. The result is lower IA prices which permit the buyback of the speculative DR at prices below the BRA prices which encourages the greater use of speculative DR.

II. ANSWER

The Market Monitor agrees with protests and comments that request rejection of the August 2nd Filing. The Market Monitor largely agrees with the rationale presented by PSEG, but disagrees with the rationale presented by Comverge and Viridity. Certain other comments in this proceeding support the August 2nd Filing, because the parties believe it will strengthen the rules requiring physical DR.⁶ The current rules are not the problem; the problem is the proper implementation and enforcement of the current rules. Accepting the August 2nd Filing would, contrary to the purpose of its supporters, weaken and confuse the current rules and PJM's existing authority to ensure physical DR.

Comverge and Viridity oppose the August 2nd Filing based on arguments that the rules should not require physical DR. These arguments are actually collateral attacks on existing and approved rules that forbid exactly the types of activities in which Comverge and Viridity seek to engage. The Market Monitor's criticism of those arguments is not to defend the August 2nd Filing, but to defend the current rules, which, if enforced, would make the August 2nd Filing unnecessary.

A. Evidence Exists Showing the Problem Posed by Non-Physical DR, Including Financially Speculative DR.

Comverge objects to PJM's statement that levels of Demand Resources offered in the BRA for the 2015/2016 Delivery Year "appear to be aggressive" is not supported by any evidence. The Market Monitor's analysis of data, including the recent updated report, which is attached, provides sufficient evidence that the failure to enforce physical DR is allowing non-physical offers of DR to suppress prices and distort the markets.⁷

⁶ See, e.g., Comments of the Electric Power Supply Association, ER13-2108 (August 23, 2013).

⁷ Some parties cite to a prior version of the attached report, which remains available online. E.g., Joint Comments of the Dayton Power and Light Company and American Electric Power Service Corporation in Support of PJM Interconnection, L.L.C., ER13-1208-000 (August 23, 2013) at 5-6 nn.10-13.

Table 1 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 and 2013. 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.⁸

Table 1 Net replacements to cleared capacity by resource classifications: June 1, 2007 to June 1, 2013

	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%)	(29.1%)	(0.8%)	(57.6%)	0.3%
01-Jun-12	(5.4%)	(5.4%)	(5.5%)	2.3%	(8.1%)	(25.7%)	(5.2%)
01-Jun-13	(6.1%)	(5.9%)	(5.7%)	(11.9%)	(19.7%)	(30.7%)	13.3%

Table 2 shows the percentage of total cleared capacity which was replaced for each of the identified resource classifications. The gross replacement capacity values for DR used to determine the percentages in Table 2 include transactions that shift RPM commitments

⁸ 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.

from a planned resource to an existing resource based on revised registered sites in PJM's eLRS. Of the identified resource classifications, the percent of gross replacement capacity to cleared capacity was highest for DR on average. 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 more than 40 percent on June 1, 2012, and more than 70 percent on June 1, 2013. The next highest resource classification percent of gross replacement capacity was for external Generation Resources. The percentage of gross replacement capacity to cleared capacity for internal Generation Resources not in service also showed substantial variability.

In Table 2, the percentage values reported for total replacements to cleared capacity for DR on June 1, 2012 and 2013 reflect replacement capacity for non-viable MW under the revised Reporting and Compliance provisions of the Emergency Load Response Program.⁹ 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. After accounting for the non-viable MW based on DR Capacity Transition Credit nominations to PJM, the percentage of gross replacements to cleared capacity for DR would be 33.4 percent for June 1, 2012 and 61.8 percent for June 1, 2013.

⁹ For the Demand Response Transition Provision, see OATT Attachment DD § 5.14A.

Table 2 Total replacements to cleared capacity by resource classification: June 1, 2007 to June 1, 2013

	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%)	(25.2%)
01-Jun-13	(8.8%)	(8.6%)	(8.5%)	(12.5%)	(21.4%)	(71.8%)	(70.4%)

It has been asserted that selling high and buying low is just a market transaction and therefore does not constitute a problem. But permitting DR to be effectively an option in the BRA rather than requiring DR to be a commitment to provide a physical asset gives DR an unfair advantage and creates a self fulfilling dynamic that incents more of the same behavior. The result is an increasing share of total capacity resources that are limited DR, which are clearly not a substitute for generating capacity which is on call 8,760 hours per year. The Market Monitor recommends that the rules now requiring physical DR be implemented and enforced as written.

B. The Requirements to Demonstrate Physical DR Are Not Unduly Burdensome.

Comverge complains (at 14) that the August 2nd Filing “appears to rule out the use of market-based business plans or other reasonable projections of available demand resources that CSPs have been allowed to employ historically in the RPM Auction process.” This argument is misplaced. This is exactly the activity that the existing rules are designed to prevent. The failure to correctly implement the rules does not justify these practices. Had the existing rules been properly implemented, no problem would exist and no need for the August 2nd Filing would exist.

Comverge and Viridity argue that CSPs should be permitted to offer DR based solely on marketing goals to enroll customers in a given area. There is significant competition among CSPs to enroll customers, and some customers, particularly the larger ones, may decide to participate directly in RPM Auctions. In a given area, offers by multiple

CSPs and customers interacting directly with PJM may result in counting the same sites multiple times. Such a result would be double counting and more than double counting the same resource.

Double counting still assumes bona fide intentions to back an offer with a physical resource. In some cases, a seller may have no intention to eventually include a customer. There would be no way to determine whether some portion of a marketing plan was really speculation about relative prices in the BRA and IAs.

Whatever the nature of non-physical DR offers, they compete with physical DR and existing and planned physical generation capacity in the BRA. This undercuts efficient pricing in RPM three-year-forward market. This is not consistent with RPM's design and purpose, and subverts a purpose of RPM, to ensure the market has procured sufficient physical resources in advance of a Delivery Year. RPM is designed to send an efficient entry signal in the BRAs. The IAs allow parties to cover existing physical obligations and for PJM to balance procurement levels based on updated demand forecasts. Requiring physical offers means an offer curve in each BRA that is consistent with the specific resources that the market can provide in the Delivery Year three years forward.

C. The Existing Rules Treat Physical Planned Generation Capacity Resources and Physical Planned DR Consistently.

Comverge argues (at 14–15) that the revisions included in the August 2nd Filing pose “unnecessary barriers to demand resource participation in capacity markets and are diametrically opposed to Federal policy.” This argument has no merit. Capacity is a resource adequacy product that exists by definition in the market rules. RPM consistently defines capacity in PJM as a physical product.¹⁰ Requirements that DR meet criteria to establish that it is a physical are not barriers. DR that is not physical is not capacity as the RPM defines it. The Commission-approved tariff constitutes Federal policy in the case.

¹⁰ See OATT Attachment DD § 5.5.

Comverge provides no evidence that Congress contemplated any of the issues raised here in legislation concerning demand response.

Comverge argues (at 15) that it is unduly discriminatory that the August 2nd Filing “restrict[s] only the rights of demand resources to make purchases in the incremental auctions.” PJM has enforced the physical requirement for Planned Generation Capacity Resources (i.e. a plan and milestones to demonstrate progress in developing the resource’s capability).¹¹ PJM has not enforced similar requirements for Planned Demand Resources. It is Comverge and Viridity who seek a special and discriminatory exemption from the basic requirement that offered capacity be physical. To grant that request would be discriminatory and unduly disadvantage other participants.

Comverge’s and Viridity’s arguments do reveal one of many flaws in the August 2nd Filing relative to the current unenforced rules. Consistent and non-discriminatory enforcement of the current rules that all planned resources, whether generation or DR, show that they are physical, would remove the need for rules that treat generation and DR inconsistently, as proposed in the August 2nd Filing.

D. There is No Evidence that the Rules Must Accept Non-Physical DR, and Risk Incenting Speculative DR, in Order to Grow Physical DR Participation in RPM.

Comverge argues (at 16–20) that the growth of DR participation in RPM would be unduly hampered by rules that “attempt to restrict participation in capacity markets to only demand resource commitments that are locked in three to four (or more) years into the

¹¹ RAA § 1.70 (“Planned Generation Capacity Resource shall mean a Generation Capacity Resource participating in the generation interconnection process under Part IV, Subpart A of the PJM Tariff, for which: (i) 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; and (iv) no megawatts of capacity have cleared an RPM Auction for any prior Delivery Year.”).

future.” The Market Monitor initially considered this argument, and, on first impression had concerns that RPM’s three-year-forward design, which was established with reference to the time needed to construct a new CT, could somehow disadvantage DR.¹² After additional detailed review of the current market rules for DR, and after review of the data on DR participation in RPM, the Market Monitor finds no evidence supporting this conclusion.

For a Sell Offer to be physical DR, there must be an identified site capable of reducing demand at the direction of PJM, whether directly or through another party. A physical site cannot offer its capacity more than once for a Delivery Year. PSEG argues that a contract is required, and it would be reasonable for PJM to interpret the rules to include such a requirement.¹³ PSEG’s reading is simple and straightforward, but it may also be reasonable within PJM’s discretion under the existing rules for Planned DR to require sellers to demonstrate exclusive rights to offer DR without having secured a firm and final contractual commitment from a customer to participate. Such evidentiary criteria would include, at a minimum, identification of the site (e.g. owner and address), a description of the site’s capability to provide DR, a viable timeline for the development of that site’s capability to provide DR, and confirmation that the site is included in only one seller’s offer for a Delivery Year.

¹² IMM, Analysis of Replacement Capacity for RPM Commitments: June 1, 2007 to June 1, 2012 (December 11, 2012), which can be accessed at: http://monitoringanalytics.com/reports/Reports/2012/IMM_Report_Replacement_Capacity_Activity_20121211.pdf.

¹³ PSEG at 2, citing OATT Attachment DD § 5.5 (“A Capacity Market Seller may submit a Sell Offer for a Capacity Resource in a Base Residual or Incremental Auction only if such seller owns or has the contractual authority to control the output or load reduction capability of such resource and has not transferred such authority to another entity. Capacity Resources must satisfy the capability and deliverability requirements of Schedules 9 and 10 of the PJM Reliability Assurance Agreement, and, as applicable, the requirements for Demand Resources or Energy Efficiency Resources in Attachment DD-1 and Schedule 6 of the Reliability Assurance Agreement.”).

Requiring physical offers from DR does not mean that circumstances for a particular DR customer cannot change between the BRA and the Delivery Year for valid reasons. Circumstances can and do change for physical generation. The IAs exist in part to assist participants to address such changed circumstances. There is no reason that requiring physical offers at the time of the BRA would deter participation.

The rules require registration prior to the commencement of the Delivery Year.¹⁴ This affords Planned DR the flexibility that Comverge and Viridity claim to need in order to grow participation. If a physical site on which a CSP was relying to meet its DR obligation becomes incapable or never becomes capable of providing DR at a particular location, nothing restricts the CSP from replacing the site with another site in the same Zone or sub-Zone.

If a CSP cannot identify physical DR in time for a BRA, it can offer that DR into an IA. Once the resource enters a physical portfolio, a CSP can offer the resource into the next BRA. No significant delay is needed to ensure that physical DR is offered. The harm to the market caused by price suppression from non-physical DR in the BRAs is significant. Attempting to include non-physical DR in a market with stringent physical requirements for other Capacity Resources undermines the market design.

The evidence shows growing levels of participation of physical DR in RPM.¹⁵ There is no reason to suppose that enforcing rules requiring physical DR will inhibit the growth of physical DR. Enforcement of the rules requiring physical DR will inhibit the growing problem of non-physical DR offers in BRAs. This will decrease the replacement activity necessary, and eliminate non-physical DR offers that have not identified specific customers.

¹⁴ RAA Schedule 6 § A.6.

¹⁵ *2013 Quarterly State of the Market Report for PJM: January through June*, Section 4: Capacity Market, Table 4-9 at 134.

E. Efficient Prices Will Benefit the Markets.

Comverge argues (at 20) that the August 2nd Proposal will “lead to higher capacity market prices,” and that “more energy will be consumed and more pollutants will be released into the environment and fewer reliability resources will be available.” Enforcing physical Planned DR may lead to higher prices in BRAs, but such prices would be efficient and reflect the actual available supply of physical capacity resources, as intended.

Comverge’s argument about energy usage and environmental effects confuses capacity and energy, and is irrelevant. However, enforcing requirements for physical DR makes it more likely, not less likely, that physical DR will be delivered and not replaced by other types of Capacity Resources. Non-physical or speculative DR offered into a BRA may be replaced in an IA with generation capacity that did not clear the BRA, perhaps older, less efficient and higher emission units. In that case, the approach of Comverge and Viridity would have the opposite of their stated impact. Indeed, non-physical DR may have deterred entry by new more efficient and cleaner units that require a longer lead time by suppressing BRA clearing prices.

III. MOTION FOR LEAVE TO ANSWER

The Commission’s Rules of Practice and Procedure, 18 CFR § 385.213(a)(2), do not permit answers to answers or protests unless otherwise ordered by the decisional authority. The Commission has made exceptions, however, where an answer clarifies the issues or assists in creating a complete record.¹⁶ In this answer, the Market Monitor provides the

¹⁶ See, e.g., *N.Y. Indep. Sys. Operator, Inc.*, 121 FERC ¶61,112 at P 4 (2007) (answer to protest accepted because it provided information that assisted the Commission in its decision-making process); *PJM Interconnection, L.L.C.*, 119 FERC ¶61,318 at P 36 (2007) (accepted answer to answer that “provided information that assisted ... decision-making process”); *California Independent System Operator Corporation*, 110 FERC ¶ 61,007 (2005) (answer to answer permitted to assist Commission in decision-making process); *New Power Company v. PJM Interconnection, L.L.C.*, 98 FERC ¶ 61,208 (2002) (answer accepted to provide new factual and legal material to assist the Commission in decision-making process).

Commission with information useful to the Commission's decision-making process and which provides a more complete record. Accordingly, the Market Monitor respectfully requests that this answer be permitted.

IV. CONCLUSION

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

Respectfully submitted,



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Dated: September 12, 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 12th day of August, 2013.



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Attachment



Monitoring
Analytics

**Analysis of Replacement Capacity for
RPM Commitments:
June 1, 2007 to June 1, 2013**

The Independent Market Monitor for PJM

September 12, 2013

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Introduction

The IMM has, in State of the Market Reports, reported on total Demand Resources (“DR”) cleared in RPM Auctions for specific Delivery Years compared to 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. When a capacity resource is not available for a Delivery Year, the owner of the capacity resource may 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. This report is an update to the IMM report, *Analysis of Replacement Capacity for RPM Commitments: June 1, 2007 to June 1, 2012* (December 11, 2012).¹ This report includes data through June 1, 2013 and additional tables. This report also includes new conclusions and recommendations which supersede those in the prior report.

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 Monitoring Analytics, LLC. *Analysis of Replacement Capacity for RPM Commitments: June 1, 2007 to June 1 2012*. *Monitoring Analytics* (December 11, 2012), which can be accessed at: http://www.monitoringanalytics.com/reports/Reports/2012/IMM_Report_Replacement_Capacity_Activity_20121211.pdf.

² PJM. “Manual 18: PJM Capacity Market,” Revision 19 (June 1, 2013), p. 77.

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 19 (June 1, 2013), p. 127.

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, 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 19 (June 1, 2013), p. 127.

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 19 (June 1, 2013), p. 127.

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 Years, 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 at P 200(B) (2009).

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

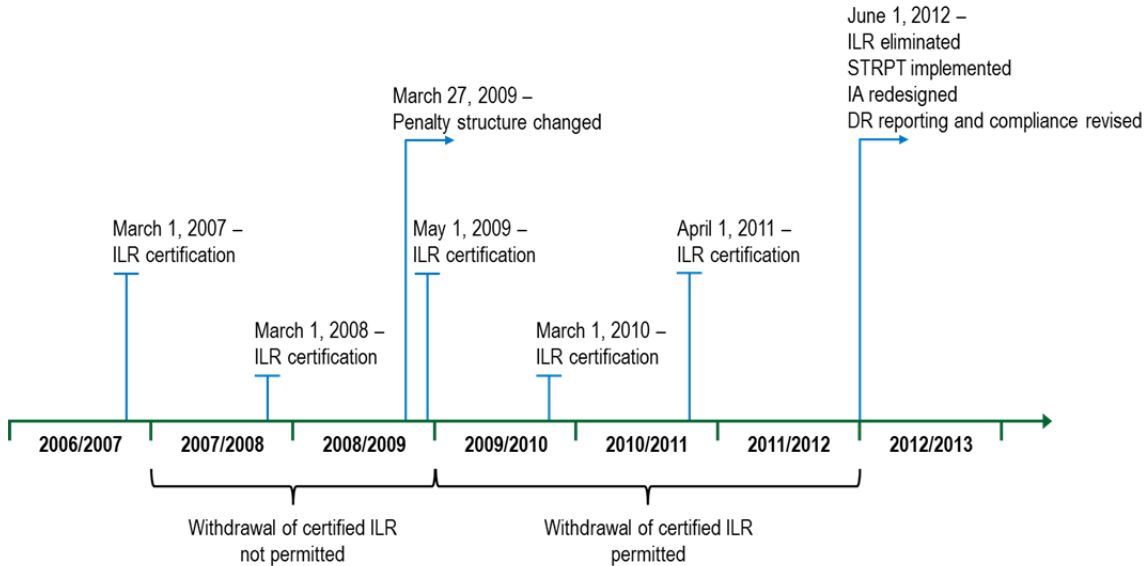
¹⁵ See PJM Interconnection, L.L.C., Letter Order in Docket No. ER10-366-000 (January 22, 2010).

¹⁶ See 126 FERC ¶ 61,275 at P 38 (2009).

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

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 2013.²¹

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.
- 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 capacity for which RPM commitments were replaced from a replacement source other than that identified resource classification (negative) plus capacity from that identified resource classification used to replace capacity from another resource classification (positive). For Net Replacements, the replacement capacity provided from an identified resource classification that is used to replace capacity in the same resource classification nets to zero, regardless of the owners of the resources. For example, Table 11 shows the total RPM commitments for Generation Resources which were replaced for June 1, 2013 was 13,054.4 MW and the total RPM commitment additions on Generation Resources which were used as replacement resources for June 1, 2013 was 4,012.9 MW, or net replacements of 9,041.5 MW.

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) prior to the start of the relevant delivery year.²³ Table 7 includes information for Energy Efficiency resources.

For example, in Table 1, of 148,160.7 MW of Generation Resources cleared in RPM Auctions for the 2013/2014 Delivery Year, 9,041.5 MW of RPM commitments for

²² OATT Attachment DD § 8.4.

²³ PJM. "Manual 18: PJM Capacity Market," Revision 19 (June 1, 2013), p. 45.

Generation Resources were replaced by purchases in RPM Incremental Auctions, by some other resource type, or Excess Commitment Credits after accounting for some Generation Resources being used to replace other resource types.

Table 1 RPM commitments for Generation Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)			RPM Commitment Shortage	RPM Commitments Less Commitment Shortage
	RPM Cleared	Net Replacements	RPM Commitments		
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	(117.2)	124,647.6
01-Jun-13	148,160.7	(9,041.5)	139,119.2	(21.4)	139,097.8

Table 2 RPM commitments for internal Generation Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)			RPM Commitment Shortage	RPM Commitments Less Commitment Shortage
	RPM Cleared	Net Replacements	RPM Commitments		
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	(60.8)	123,310.8
01-Jun-13	145,732.2	(8,562.3)	137,169.9	(21.4)	137,148.5

Table 3 RPM commitments for internal Generation Resources in service: June 1, 2007 to June 1, 2013

	UCAP (MW)			RPM Commitment Shortage	RPM Commitments Less Commitment Shortage
	RPM Cleared	Net Replacements	RPM Commitments		
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	127,784.0	(4,983.1)	122,800.9	(2.2)	122,798.7
01-Jun-12	127,362.4	(7,057.2)	120,305.2	(13.2)	120,292.0
01-Jun-13	141,717.7	(8,086.4)	133,631.3	(21.4)	133,609.9

Table 4 RPM commitments for internal Generation Resources not in service: June 1, 2007 to June 1, 2013

	UCAP (MW)			RPM Commitment Shortage	RPM Commitments Less Commitment Shortage
	RPM Cleared	Net Replacements	RPM Commitments		
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	2,673.6	(777.9)	1,895.7	(77.1)	1,818.6
01-Jun-12	2,998.0	68.4	3,066.4	(47.6)	3,018.8
01-Jun-13	4,014.5	(475.9)	3,538.6	0.0	3,538.6

Table 5 RPM commitments for external Generation Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)			RPM Commitment Shortage	RPM Commitments Less Commitment Shortage
	RPM Cleared	Net Replacements	RPM Commitments		
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
01-Jun-13	2,428.5	(479.2)	1,949.3	0.0	1,949.3

Table 6 RPM commitments and registrations for Demand Resources: June 1, 2007 to June 1, 2013²⁴

	UCAP (MW)						Registered DR UCAP		
	RPM Cleared	Net Replacements	Relief from Charges	RPM Commitments	RPM Commitment Shortage	RPM Commitments Less Commitment Shortage	ICAP (MW)	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
01-Jun-13	10,779.6	(3,314.4)	0.0	7,465.2	(30.5)	7,434.7	8,240.1	1.04208	8,586.8

²⁴ Registered DR data are not available from PJM for the 2007/2008 Delivery Year.

Table 7 RPM commitments for Energy Efficiency Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)			RPM Commitment Shortage	RPM Commitments Less Commitment Shortage
	RPM Cleared	Net Replacements	RPM Commitments		
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	(5.1)	626.1
01-Jun-13	904.2	120.6	1,024.8	(13.5)	1,011.3

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 and 2013. 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.²⁵

Table 9 shows the percentage of total cleared capacity which was replaced for each of the identified resource classifications. The gross replacement capacity values for DR used to determine the percentages in Table 9 include transactions that shift RPM commitments from a planned resource to an existing resource based on revised registered sites in PJM's eLRS. Of the identified resource classifications, the percent of gross replacement capacity to cleared capacity was highest for DR on average. 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 more than 40 percent on June 1, 2012, and more than 70 percent on June 1, 2013. The next highest resource classification percent of gross replacement capacity was for external Generation Resources. The

²⁵ 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.

percentage of gross 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 63.7 percent for June 1, 2011 to 44.2 percent for June 1, 2012 but then increased to 71.8 percent for June 1, 2013.

In Table 9, the percentage values reported for total replacements to cleared capacity for DR on June 1, 2012 and 2013 reflect replacement capacity for non-viable MW under the revised Reporting and Compliance provisions of the Emergency Load Response Program.²⁶ 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.²⁷ After accounting for the non-viable MW based on DR Capacity Transition Credit nominations to PJM, the percentage of gross replacements to cleared capacity for DR would be 33.4 percent for June 1, 2012 and 61.8 percent for June 1, 2013.

Table 8 Net replacements to cleared capacity by resource classifications: June 1, 2007 to June 1, 2013

	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%)	(29.1%)	(0.8%)	(57.6%)	0.3%
01-Jun-12	(5.4%)	(5.4%)	(5.5%)	2.3%	(8.1%)	(25.7%)	(5.2%)
01-Jun-13	(6.1%)	(5.9%)	(5.7%)	(11.9%)	(19.7%)	(30.7%)	13.3%

²⁶ For the Demand Response Transition Provision, see OATT Attachment DD § 5.14A.

²⁷ See 138 FERC ¶ 61,138 at PP 42–44 (2011); 137 FERC ¶ 61,108 at P 81 (2011).

Table 9 Total replacements to cleared capacity by resource classification: June 1, 2007 to June 1, 2013

	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%)	(25.2%)
01-Jun-13	(8.8%)	(8.6%)	(8.5%)	(12.5%)	(21.4%)	(71.8%)	(70.4%)

Sources of Replacement Capacity

Table 11 through Table 17 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.²⁸
 - 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.

²⁸ 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 were replaced. The reported gross replacement capacity values for DR in Table 16 include transactions that shift RPM commitments from a planned resource to an existing resource based on revised registered sites in PJM's eLRS. 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 amount of the identified resource classification which was replaced, after accounting for the fact that some in the same identified resource classification was used as replacement 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.

Table 10 shows the similar information as Table 11 through Table 17 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 10 shows that the Commitment Reductions using Replacement Resources column and the Commitment Additions on Replacement Resources column should net to zero.²⁹

Table 10 Sources of replacement capacity for all Capacity Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)												Net	
	Replacement Transactions				Locational UCAP Transactions				Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacement Resources	Commitment Reductions using Other Sources		Commitment Additions on Replacement Resources
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE							
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	133.0	1,937.6	13.2	0.0	213.4	0.0	8,331.3	9,399.3	8,330.0	9,400.6	
01-Jun-13	12,021.2	3,214.3	4,403.9	708.4	798.6	26.3	48.9	214.2	0.0	9,200.4	12,235.4	9,200.5	12,235.3	

²⁹ 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 11 Sources of replacement capacity for Generation Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)												
	Replacement Transactions				Locational UCAP Transactions				Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE						
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	
01-Jun-13	8,772.2	3,212.2	167.2	0.0	718.6	0.0	0.0	184.2	0.0	13,054.4	4,012.9	9,041.5	

Table 12 Sources of replacement capacity for internal Generation Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)												
	Replacement Transactions				Locational UCAP Transactions				Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE						
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	
01-Jun-13	8,294.8	3,173.7	162.3	0.0	718.6	0.0	0.0	184.2	0.0	12,533.6	3,971.3	8,562.3	

Table 13 Source of replacement capacity for internal Generation Resource in service: June 1, 2007 to June 1, 2013

	UCAP (MW)												
	Replacement Transactions				Locational UCAP Transactions				Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE						
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	
01-Jun-13	7,828.2	3,140.0	162.3	0.0	718.6	0.0	0.0	184.2	0.0	12,033.3	3,946.9	8,086.4	

Table 14 Sources of replacement capacity for internal Generation Resources not in service: June 1, 2007 to June 1, 2013

	UCAP (MW)												
	Replacement Transactions				Locational UCAP Transactions				Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE						
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)	
01-Jun-13	466.6	33.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	500.3	24.4	475.9	

Table 15 Sources of replacement capacity for external Generation Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)												
	Replacement Transactions				Locational UCAP Transactions				Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE						
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	
01-Jun-13	477.4	38.5	4.9	0.0	0.0	0.0	0.0	0.0	0.0	520.8	41.6	479.2	

Table 16 Sources of replacement capacity for Demand Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)												
	Replacement Transactions				Locational UCAP Transactions				Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE						
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	
01-Jun-13	3,212.3	2.1	4,208.6	144.6	80.0	25.1	46.3	25.6	0.0	7,744.6	4,430.2	3,314.4	

Table 17 Sources of replacement capacity for Energy Efficiency Resources: June 1, 2007 to June 1, 2013

	Replacement Transactions				UCAP (MW)				Excess Commitment Credits	Excess ILR MW Credits	Commitment Reductions using Replacements	Commitment Additions on Replacement Resources	Net Replacements
	Cleared Buy Bids	Gen	DR	EE	Locational UCAP Transactions		EE						
					Gen	DR							
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	120.3	7.3	0.0	0.0	0.0	0.0	167.9	133.0	34.9	
01-Jun-13	36.7	0.0	28.1	563.8	0.0	1.2	2.6	4.4	0.0	636.8	757.4	(120.6)	

Table 18 through Table 24 show the percentage of MW associated with each of 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. The gross replacement capacity values for DR used to determine the percentages in Table 23 include transactions that shift RPM commitments from a planned resource to an existing resource based on revised registered sites in PJM’s eLRS. For the days analyzed with the exception of June 1, 2012 and 2013, 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 for each of the days analyzed with the exception of June 1, 2013, where the major source was available capacity from other DR. In Table 16, the values reported for commitment reductions using replacements on June 1, 2012 and 2013 reflect replacement capacity for non-viable MW under the revised Reporting and Compliance provisions of the Emergency Load Response Program.³⁰ 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 on June 1, 2012, 939.4 MW were associated with non-viable MW based on DR Capacity Transition Credit nominations to PJM. Of the 7,744.6 MW of replacement capacity for DR on June 1, 2013, 1,081.7 MW

³⁰ For the Demand Response Transition Provision, see OATT Attachment DD § 5.14A.

were associated with non-viable MW based on DR Capacity Transition Credit nominations to PJM.

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 18 Sources of replacement capacity to total replacements for Generation Resources: June 1, 2007 to June 1, 2013

	Replacement Transactions				Locational UCAP Transactions			Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE				
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
01-Jun-13	67.2%	24.6%	1.3%	0.0%	5.5%	0.0%	0.0%	1.4%	0.0%	100.0%	Cleared Buy Bids

Table 19 Sources of replacement capacity to total replacements for internal Generation Resources: June 1, 2007 to June 1, 2013

	Replacement Transactions				Locational UCAP Transactions			Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE				
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
01-Jun-13	66.2%	25.3%	1.3%	0.0%	5.7%	0.0%	0.0%	1.5%	0.0%	100.0%	Cleared Buy Bids

Table 20 Sources of replacement capacity to total replacements for internal Generation Resources in service: June 1, 2007 to June 1, 2013

	Replacement Transactions				Locational UCAP Transactions			Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE				
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
01-Jun-13	65.1%	26.1%	1.3%	0.0%	6.0%	0.0%	0.0%	1.5%	0.0%	100.0%	Cleared Buy Bids

Table 21 Sources of replacement capacity to total replacements for internal Generation Resources not in service: June 1, 2007 to June 1, 2013

	Replacement Transactions				Locational UCAP Transactions			Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE				
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
01-Jun-13	93.3%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Cleared Buy Bids

Table 22 Sources of replacement capacity to total replacements for external Generation Resources: June 1, 2007 to June 1, 2013

	Replacement Transactions				Locational UCAP Transactions			Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE				
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
01-Jun-13	91.7%	7.4%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	Cleared Buy Bids

Table 23 Sources of replacement capacity to total replacements for Demand Resources: June 1, 2007 to June 1, 2013

	Replacement Transactions				Locational UCAP Transactions			Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE				
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
01-Jun-13	41.5%	0.0%	54.3%	1.9%	1.0%	0.3%	0.6%	0.3%	0.0%	100.0%	Replacement Transactions - DR

Table 24 Sources of replacement capacity to total replacements for Energy Efficiency Resources: June 1, 2007 to June 1, 2013

	Replacement Transactions				UCAP (MW) Locational UCAP Transactions			Excess Commitment Credits	Excess ILR MW Credits	Total Replacements	Major Source of Replacements
	Cleared Buy Bids	Gen	DR	EE	Gen	DR	EE				
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	23.9%	0.0%	0.1%	71.6%	4.3%	0.0%	0.0%	0.0%	0.0%	100.0%	Replacement Transactions - EE
01-Jun-13	5.8%	0.0%	4.4%	88.5%	0.0%	0.2%	0.4%	0.7%	0.0%	100.0%	Replacement Transactions - EE

To better understand the supply associated with cleared buy bids used as replacement capacity in Table 10, the cleared Generation Resources, Demand Resources, Energy Efficiency Resources, and PJM sell offers in RPM Incremental Auction were allocated on

a pro rata basis to the cleared buy bids used as replacement capacity. Table 25 through Table 32 show the cleared buy bids in the specified RPM Incremental Auction used as replacement capacity for each of the identified resource classifications broken out by the type of cleared sell offer (Generation, DR, EE, or PJM) based on this allocation method.³¹

For example, Table 10 shows that the replacement capacity which came from cleared buy bids in RPM Incremental Auctions is 12,021.2 MW for June 1, 2013. That amount is pro rated, by Incremental Auction, to Generation, DR, EE and PJM sell offers in Table 25. The total in Table 25, on June 1, 2013, is 12,021.2.

Table 25 Cleared buy bids used as replacement capacity for all Capacity Resources: June 1, 2007 to June 1, 2013

	First Incremental Auction				UCAP (MW) Second Incremental Auction				Third Incremental Auction				Total
	Gen	DR	EE	PJM	Gen	DR	EE	PJM	Gen	DR	EE	PJM	
01-Jun-07													
01-Jun-08									747.0	19.5	0.0	0.0	766.5
01-Jun-09									1,708.6	0.0	0.0	0.0	1,708.6
01-Jun-10									1,784.1	32.3	0.0	0.0	1,816.4
01-Jun-11	346.7	0.0	0.0						954.4	432.5	71.6	0.0	1,805.2
01-Jun-12	376.4	566.3	0.0	743.6	623.6	236.0	20.3	2,311.8	1,122.8	953.1	94.0	2,138.0	9,185.9
01-Jun-13	1,529.7	421.4	39.0	2,834.3	894.8	453.9	102.9	2,633.8	2,166.0	380.8	56.4	508.4	12,021.2

Table 26 Cleared buy bids used as replacement capacity for Generation Resources: June 1, 2007 to June 1, 2013

	First Incremental Auction				UCAP (MW) Second Incremental Auction				Third Incremental Auction				Total
	Gen	DR	EE	PJM	Gen	DR	EE	PJM	Gen	DR	EE	PJM	
01-Jun-07													
01-Jun-08									707.0	19.5	0.0	0.0	726.5
01-Jun-09									1,322.6	0.0	0.0	0.0	1,322.6
01-Jun-10									1,361.1	23.7	0.0	0.0	1,384.8
01-Jun-11	126.6	0.0	0.0	0.0					697.6	316.1	52.3	0.0	1,192.6
01-Jun-12	259.0	525.5	0.0	605.8	553.7	205.3	17.6	1,955.0	933.2	723.2	53.7	1,144.2	6,976.2
01-Jun-13	1,372.8	397.5	25.2	2,480.1	599.3	337.9	63.3	1,710.8	1,428.5	269.8	39.5	47.5	8,772.2

Table 27 Cleared buy bids used as replacement capacity for internal Generation Resources: June 1, 2007 to June 1, 2013

	First Incremental Auction				UCAP (MW) Second Incremental Auction				Third Incremental Auction				Total
	Gen	DR	EE	PJM	Gen	DR	EE	PJM	Gen	DR	EE	PJM	
01-Jun-07													
01-Jun-08									707.0	19.5	0.0	0.0	726.5
01-Jun-09									1,319.8	0.0	0.0	0.0	1,319.8
01-Jun-10									1,356.3	23.7	0.0	0.0	1,380.0
01-Jun-11	126.6	0.0	0.0	0.0					697.3	316.0	52.3	0.0	1,192.1
01-Jun-12	248.4	503.8	0.0	592.4	553.7	205.3	17.6	1,955.0	858.2	671.9	52.8	1,099.8	6,758.7
01-Jun-13	1,269.9	367.3	23.9	2,324.6	598.2	337.3	63.2	1,707.6	1,267.3	250.7	37.9	46.9	8,294.8

³¹ The rules introducing the potential inclusion of PJM sell offers or buy bids in RPM Incremental Auctions were effective with the 2012/2013 Delivery Year.

Table 28 Cleared buy bids used as replacement capacity for internal Generation Resources in service: June 1, 2007 to June 1, 2013

	UCAP (MW)												Total
	First Incremental Auction				Second Incremental Auction				Third Incremental Auction				
	Gen	DR	EE	PJM	Gen	DR	EE	PJM	Gen	DR	EE	PJM	
01-Jun-07													
01-Jun-08									698.9	19.2	0.0	0.0	718.1
01-Jun-09									1,312.9	0.0	0.0	0.0	1,312.9
01-Jun-10									1,333.2	23.4	0.0	0.0	1,356.6
01-Jun-11	126.4	0.0	0.0	0.0					689.9	312.6	51.7	0.0	1,180.6
01-Jun-12	248.4	503.8	0.0	592.4	544.2	204.5	16.9	1,940.0	850.4	665.7	52.1	1,091.1	6,709.5
01-Jun-13	1,247.1	360.9	19.9	2,043.6	589.8	332.2	61.3	1,669.5	1,180.6	240.5	37.0	45.7	7,828.2

Table 29 Cleared buy bids used as replacement capacity for internal Generation Resources not in service: June 1, 2007 to June 1, 2013

	UCAP (MW)												Total
	First Incremental Auction				Second Incremental Auction				Third Incremental Auction				
	Gen	DR	EE	PJM	Gen	DR	EE	PJM	Gen	DR	EE	PJM	
01-Jun-07													
01-Jun-08									8.1	0.3	0.0	0.0	8.4
01-Jun-09									6.9	0.0	0.0	0.0	6.9
01-Jun-10									23.1	0.3	0.0	0.0	23.4
01-Jun-11	0.2	0.0	0.0	0.0					7.4	3.4	0.6	0.0	11.5
01-Jun-12	0.0	0.0	0.0	0.0	9.5	0.8	0.6	15.0	7.8	6.2	0.7	8.7	49.2
01-Jun-13	22.8	6.3	4.0	281.0	8.4	5.1	2.0	38.1	86.6	10.2	0.9	1.1	466.6

Table 30 Cleared buy bids used as replacement capacity for external Generation Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)												Total
	First Incremental Auction				Second Incremental Auction				Third Incremental Auction				
	Gen	DR	EE	PJM	Gen	DR	EE	PJM	Gen	DR	EE	PJM	
01-Jun-07													
01-Jun-08									0.0	0.0	0.0	0.0	0.0
01-Jun-09									2.8	0.0	0.0	0.0	2.8
01-Jun-10									4.8	0.0	0.0	0.0	4.8
01-Jun-11	0.0	0.0	0.0	0.0					0.3	0.1	0.0	0.0	0.5
01-Jun-12	10.6	21.7	0.0	13.4	0.0	0.0	0.0	0.0	75.0	51.3	1.0	44.5	217.5
01-Jun-13	103.0	30.2	1.3	155.5	1.1	0.5	0.1	3.2	161.2	19.1	1.6	0.6	477.4

Table 31 Cleared buy bids used as replacement capacity for Demand Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)												Total
	First Incremental Auction				Second Incremental Auction				Third Incremental Auction				
	Gen	DR	EE	PJM	Gen	DR	EE	PJM	Gen	DR	EE	PJM	
01-Jun-07													
01-Jun-08									40.0	0.0	0.0	0.0	40.0
01-Jun-09									386.0	0.0	0.0	0.0	386.0
01-Jun-10									423.0	8.6	0.0	0.0	431.6
01-Jun-11	220.1	0.0	0.0	0.0					256.9	116.4	19.3	0.0	612.6
01-Jun-12	98.2	39.0	0.0	136.5	70.0	30.7	2.7	356.8	187.7	227.7	40.0	980.3	2,169.6
01-Jun-13	156.9	23.9	13.8	354.2	293.1	113.5	39.5	904.7	726.2	109.0	16.8	460.7	3,212.3

Table 32 Cleared buy bids used as replacement capacity for Energy Efficiency Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)												Total
	First Incremental Auction				Second Incremental Auction				Third Incremental Auction				
	Gen	DR	EE	PJM	Gen	DR	EE	PJM	Gen	DR	EE	PJM	
01-Jun-07													
01-Jun-08													
01-Jun-09													
01-Jun-10													
01-Jun-11	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
01-Jun-12	19.2	1.7	0.0	1.2	0.0	0.0	0.0	0.0	1.9	2.3	0.2	13.5	40.1
01-Jun-13	0.0	0.0	0.0	0.0	2.4	2.5	0.1	18.3	11.3	1.9	0.0	0.2	36.7

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 33 through Table 39 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 – charges per day for net replacement capacity. For replacement transactions associated with cleared buy bids in RPM Incremental Auctions, the charge is equal to the LDA 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 per day 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 33 RPM revenue for Generation Resources: June 1, 2007 to June 1, 2013

	Revenue (\$ per Day)			Capacity Resource	RPM Commitments Less
	RPM Cleared	Net Replacements	RPM Commitments	Deficiency Charge	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	(\$4,237)	\$9,770,114
01-Jun-13	\$17,039,629	(\$184,838)	\$16,854,792	(\$5,384)	\$16,849,408

Table 34 RPM revenue for internal Generation Resources: June 1, 2007 to June 1, 2013

	Revenue (\$ per Day)			Capacity Resource	RPM Commitments Less
	RPM Cleared	Net Replacements	RPM Commitments	Deficiency Charge	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	(\$2,181)	\$9,750,372
01-Jun-13	\$16,977,778	(\$178,257)	\$16,799,521	(\$5,384)	\$16,794,137

Table 35 RPM revenue for internal Generation Resources in service: June 1, 2007 to June 1, 2013

	Revenue (\$ per Day)			Capacity Resource	RPM Commitments Less
	RPM Cleared	Net Replacements	RPM Commitments	Deficiency Charge	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	\$13,956,624	(\$31,303)	\$13,925,321	(\$290)	\$13,925,031
01-Jun-12	\$9,655,114	(\$75,502)	\$9,579,612	(\$1,109)	\$9,578,503
01-Jun-13	\$16,608,499	(\$162,974)	\$16,445,526	(\$5,384)	\$16,440,142

Table 36 RPM revenue for internal Generation Resources not in service: June 1, 2007 to June 1, 2013

	Revenue (\$ per Day)			Capacity Resource Deficiency Charge	RPM Commitments Less Commitment Shortage
	RPM Cleared	Net Replacements	RPM Commitments		
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	\$272,566	(\$3,900)	\$268,666	(\$2,002)	\$266,664
01-Jun-12	\$173,971	(\$1,030)	\$172,941	(\$1,071)	\$171,870
01-Jun-13	\$369,278	(\$15,283)	\$353,995	\$0	\$353,995

Table 37 RPM revenue for external Generation Resources: June 1, 2007 to June 1, 2013

	Revenue (\$ per Day)			Capacity Resource Deficiency Charge	RPM Commitments Less Commitment Shortage
	RPM Cleared	Net Replacements	RPM Commitments		
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
01-Jun-13	\$61,852	(\$6,581)	\$55,271	\$0	\$55,271

Table 38 RPM revenue for Demand Resources: June 1, 2007 to June 1, 2013

	Revenue (\$ per Day)					RPM Commitments Less Commitment Shortage
	RPM Cleared	Net Replacements	Relief from Charges	RPM Commitments	Capacity Resource Deficiency Charge	
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
01-Jun-13	\$1,530,726	(\$229,965)	\$0	\$1,300,761	(\$3,569)	\$1,297,192

Table 39 RPM revenue for Energy Efficiency Resources: June 1, 2007 to June 1, 2013

	Revenue (\$ per Day)				RPM Commitments Less Commitment Shortage
	RPM Cleared	Net Replacements	RPM Commitments	Capacity Resource Deficiency Charge	
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	(\$207)	\$29,829
01-Jun-13	\$59,173	\$4,346	\$63,519	(\$1,277)	\$62,242

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 40 through Table 46 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. The distribution of replacement percentages was more scattered for companies with cleared DR, EE Resources, and internal Generation Resources not in service than for companies with cleared resources in the other identified resource classifications. A higher percentage of companies with cleared DR, EE Resources, and internal Generation Resources not in service replaced 75 to 100 percent of cleared capacity for the given resource type than companies with cleared resources in the other identified resources classifications.

Table 40 Number of parent companies by replacement percentage for Generation Resources: June 1, 2007 to June 1, 2013

	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	54	0	0	0	0	0
01-Jun-08	27	32	1	0	0	0
01-Jun-09	34	33	1	0	0	0
01-Jun-10	37	26	5	1	0	3
01-Jun-11	37	35	3	0	2	3
01-Jun-12	51	34	3	2	1	4
01-Jun-13	61	41	3	2	0	2

Table 41 Number of parent companies by replacement percentage for internal Generation Resources: June 1, 2007 to June 1, 2013

	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	51	0	0	0	0	0
01-Jun-08	22	32	1	0	0	0
01-Jun-09	29	31	1	0	0	0
01-Jun-10	31	26	5	1	0	3
01-Jun-11	30	36	3	0	2	3
01-Jun-12	44	32	3	1	1	3
01-Jun-13	54	38	3	2	0	1

Table 42 Number of parent companies by replacement percentage for internal Generation Resources in service: June 1, 2007 to June 1, 2013

	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	51	0	0	0	0	0
01-Jun-08	22	32	1	0	0	0
01-Jun-09	29	31	1	0	0	0
01-Jun-10	31	26	5	1	0	2
01-Jun-11	31	35	2	0	2	2
01-Jun-12	40	30	2	2	1	3
01-Jun-13	50	38	2	2	0	1

Table 43 Number of parent companies by replacement percentage for internal Generation Resources not in service: June 1, 2007 to June 1, 2013

	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
01-Jun-13	17	3	3	0	0	2

Table 44 Number of parent companies by replacement percentage for external Generation Resources: June 1, 2007 to June 1, 2013

	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
01-Jun-13	18	6	0	0	1	1

Table 45 Number of parent companies by replacement percentage for Demand Resources: June 1, 2007 to June 1, 2013

	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
01-Jun-13	21	9	8	3	5	8

Table 46 Number of parent companies by replacement percentage for Energy Efficiency Resources: June 1, 2007 to June 1, 2013

	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
01-Jun-13	7	0	1	0	1	2

Table 47 through Table 53 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 additions on the replacement resources for the given replacement percentage range at the parent company level less RPM commitment reductions using replacement capacity.

- Total Net Replacements – RPM commitment additions on the replacement resources less RPM commitment reductions using replacement capacity, or the sum of Net Replacements for all the replacement percentage ranges.

Table 47 RPM cleared and replacement capacity by replacement percentage at parent company level for Generation Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)													Total Net Replacements
	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		
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	0.0
01-Jun-08	24,252.7	0.0	105,687.0	(678.4)	130.7	(48.1)	0.0	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	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)	0.0	(3,662.7)
01-Jun-11	13,689.7	53.3	117,522.9	(4,883.2)	164.9	(55.0)	0.0	0.0	233.4	(221.8)	668.7	(668.7)	0.0	(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)	0.0	(7,112.1)
01-Jun-13	13,081.3	105.3	130,869.9	(6,538.5)	591.6	(238.9)	3,281.0	(2,032.5)	0.0	0.0	336.9	(336.9)	0.0	(9,041.5)

Table 48 RPM cleared and replacement capacity by replacement percentage at parent company level for internal Generation Resources: June 1, 2007 to June 1, 2013

	UCAP (MW)													Total Net Replacements
	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		
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	0.0
01-Jun-08	22,756.0	9.7	105,557.3	(677.3)	130.7	(48.1)	0.0	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	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)	0.0	(3,445.7)
01-Jun-11	11,943.1	53.3	117,479.3	(4,868.8)	137.1	(55.0)	0.0	0.0	229.4	(221.8)	668.7	(668.7)	0.0	(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)	0.0	(6,988.8)
01-Jun-13	12,346.8	105.3	129,468.5	(6,348.1)	587.8	(238.9)	3,281.0	(2,032.5)	0.0	0.0	48.1	(48.1)	0.0	(8,562.3)

Table 49 RPM cleared and replacement capacity by replacement percentage at parent company level for internal Generation Resources in service: June 1, 2007 to June 1, 2013

	UCAP (MW)													Total Net Replacements
	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		
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	0.0
01-Jun-08	22,756.0	9.7	105,447.4	(668.8)	130.7	(48.1)	0.0	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	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)	0.0	(3,403.1)
01-Jun-11	11,919.6	67.0	115,516.8	(4,771.3)	104.8	(43.6)	0.0	0.0	229.4	(221.8)	13.4	(13.4)	0.0	(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)	0.0	(7,057.2)
01-Jun-13	36,890.3	207.4	101,170.3	(6,098.7)	466.7	(206.5)	3,142.3	(1,940.5)	0.0	0.0	48.1	(48.1)	0.0	(8,086.4)

Table 50 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, 2013

	UCAP (MW)													Total Net Replacements
	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		
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	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)	0.0	(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	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)	0.0	(42.6)
01-Jun-11	57.2	0.0	1,772.1	(43.6)	167.7	(57.7)	0.0	0.0	0.0	0.0	676.6	(676.6)	0.0	(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)	0.0	68.4
01-Jun-13	1,575.9	14.1	1,365.5	(84.7)	961.9	(294.1)	0.0	0.0	0.0	0.0	111.2	(111.2)	0.0	(475.9)

Table 51 RPM cleared and replacement capacity by replacement percentage at parent company level for external Generation Resources: June 1, 2007 to June 1, 2013

	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			Total Net Replacements
	RPM	Net		RPM	Net		RPM	Net		RPM	Net		RPM	Net		RPM	Net		
Cleared	Replacements		Cleared	Replacements		Cleared	Replacements		Cleared	Replacements		Cleared	Replacements		Cleared	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	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	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	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	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	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)	0.0	0.0	45.7	(45.7)	0.0	0.0	(123.3)
01-Jun-13	837.8	1.1	1,084.3	(17.3)	0.0	0.0	0.0	0.0	0.0	217.6	(174.2)	288.8	(288.8)	0.0	0.0	288.8	(288.8)	0.0	(479.2)

Table 52 RPM cleared and replacement capacity by replacement percentage at parent company level for Demand Resources: June 1, 2007 to June 1, 2013

	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			Total Net Replacements
	RPM	Net		RPM	Net		RPM	Net		RPM	Net		RPM	Net		RPM	Net		
Cleared	Replacements		Cleared	Replacements		Cleared	Replacements		Cleared	Replacements		Cleared	Replacements		Cleared	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	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	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	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	481.6	(481.6)	0.0	0.0	(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)	0.0	0.0	629.6	(629.6)	0.0	0.0	(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)	0.0	0.0	66.3	(66.3)	0.0	0.0	(2,253.6)
01-Jun-13	558.6	175.0	2,859.0	(400.1)	5,659.5	(1,696.6)	631.3	(385.7)	430.1	(365.9)	641.1	(641.1)	0.0	0.0	641.1	(641.1)	0.0	0.0	(3,314.4)

Table 53 RPM cleared and replacement capacity by replacement percentage at parent company level for Energy Efficiency Resources: June 1, 2007 to June 1, 2013

	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			Total Net Replacements
	RPM	Net		RPM	Net		RPM	Net		RPM	Net		RPM	Net		RPM	Net		
Cleared	Replacements		Cleared	Replacements		Cleared	Replacements		Cleared	Replacements		Cleared	Replacements		Cleared	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	0.0	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)	0.0	0.0	4.0	(4.0)	0.0	0.0	(34.9)
01-Jun-13	870.5	143.5	0.0	0.0	16.6	(6.6)	0.0	0.0	14.0	(13.2)	3.1	(3.1)	0.0	0.0	3.1	(3.1)	0.0	0.0	120.6

Figure 2 Company replacement percentages for Generation Resources: June 1, 2007 to June 1, 2013

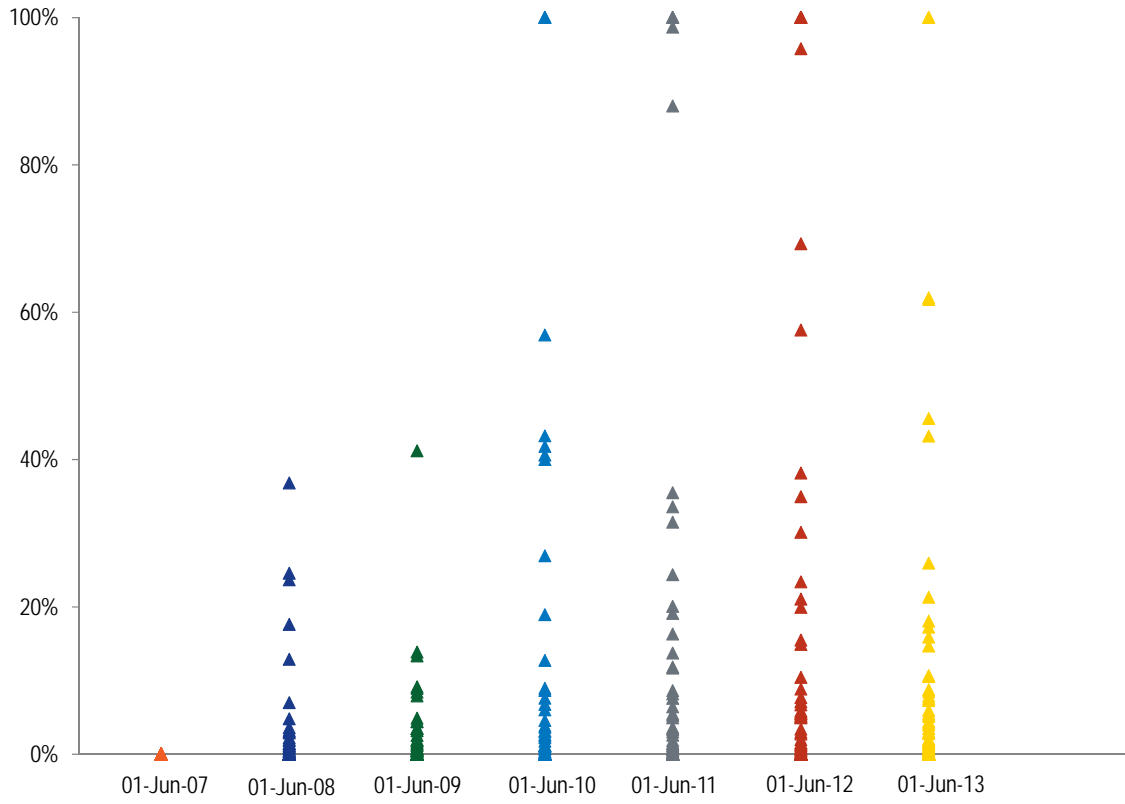


Figure 3 Company replacement percentages for internal Generation Resources: June 1, 2007 to June 1, 2013

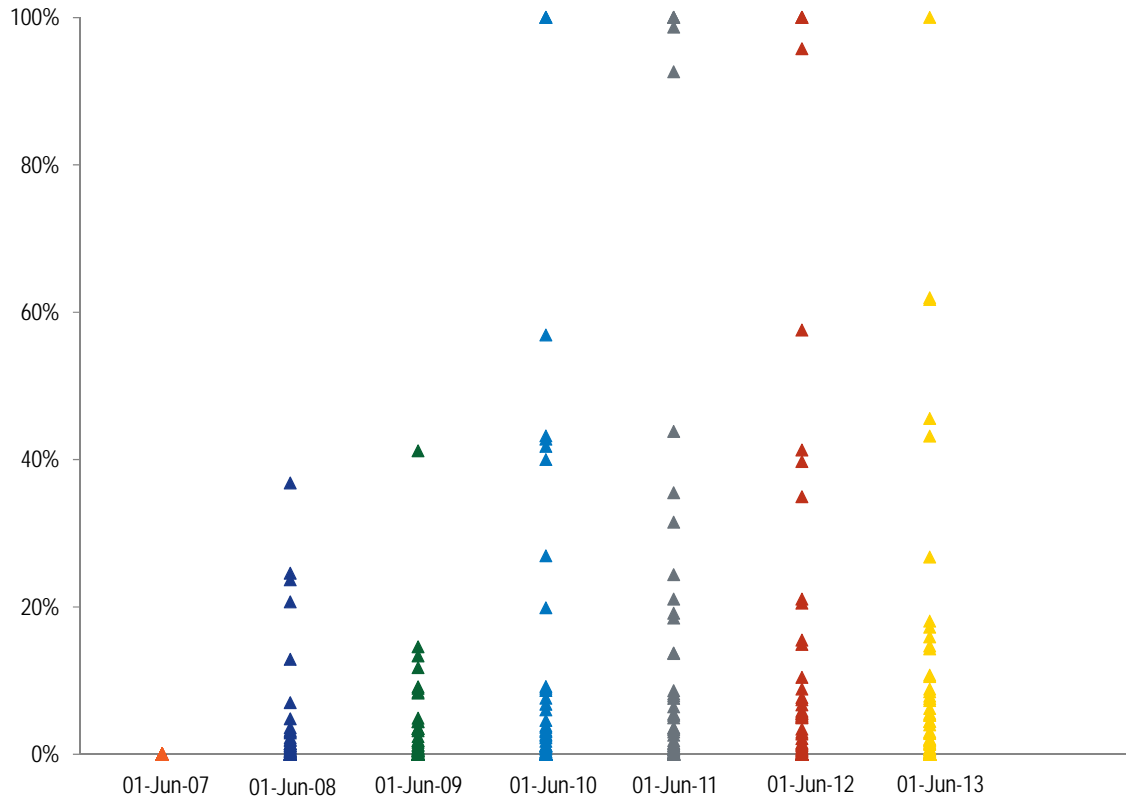


Figure 4 Company replacement percentages for internal Generation Resources in service: June 1, 2007 to June 1, 2013

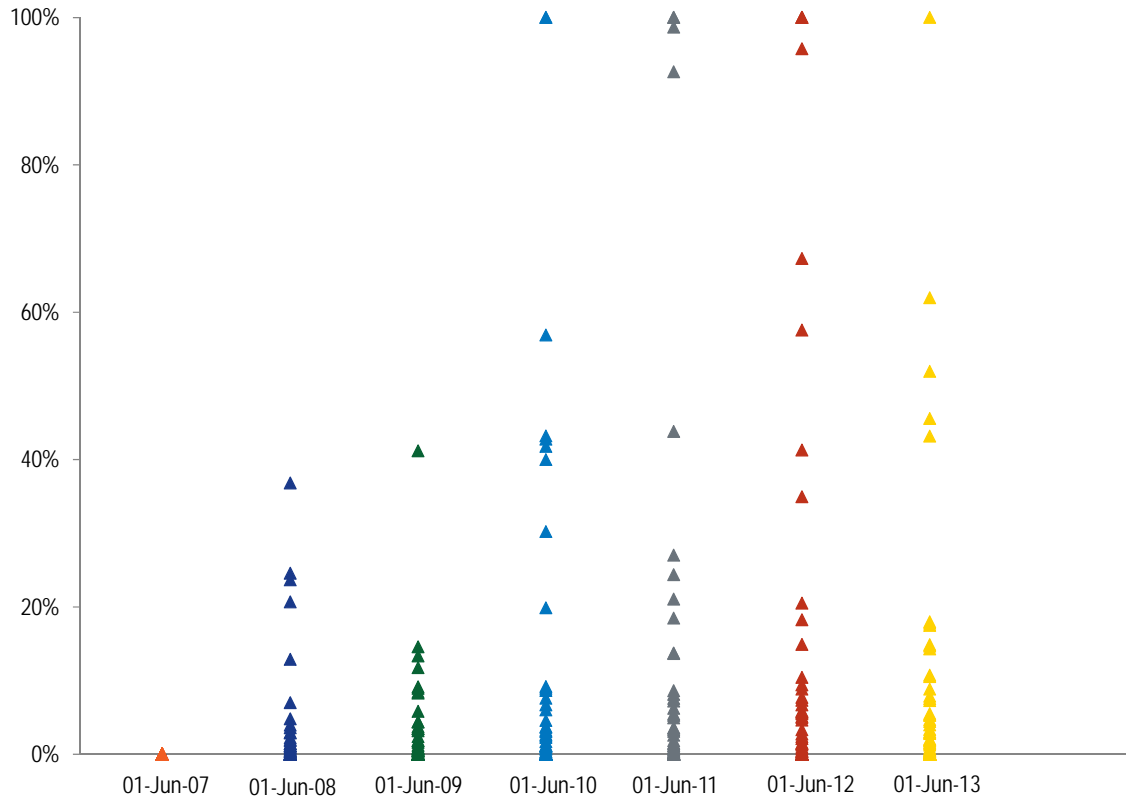


Figure 5 Company replacement percentages for internal Generation Resources not in service: June 1, 2007 to June 1, 2013

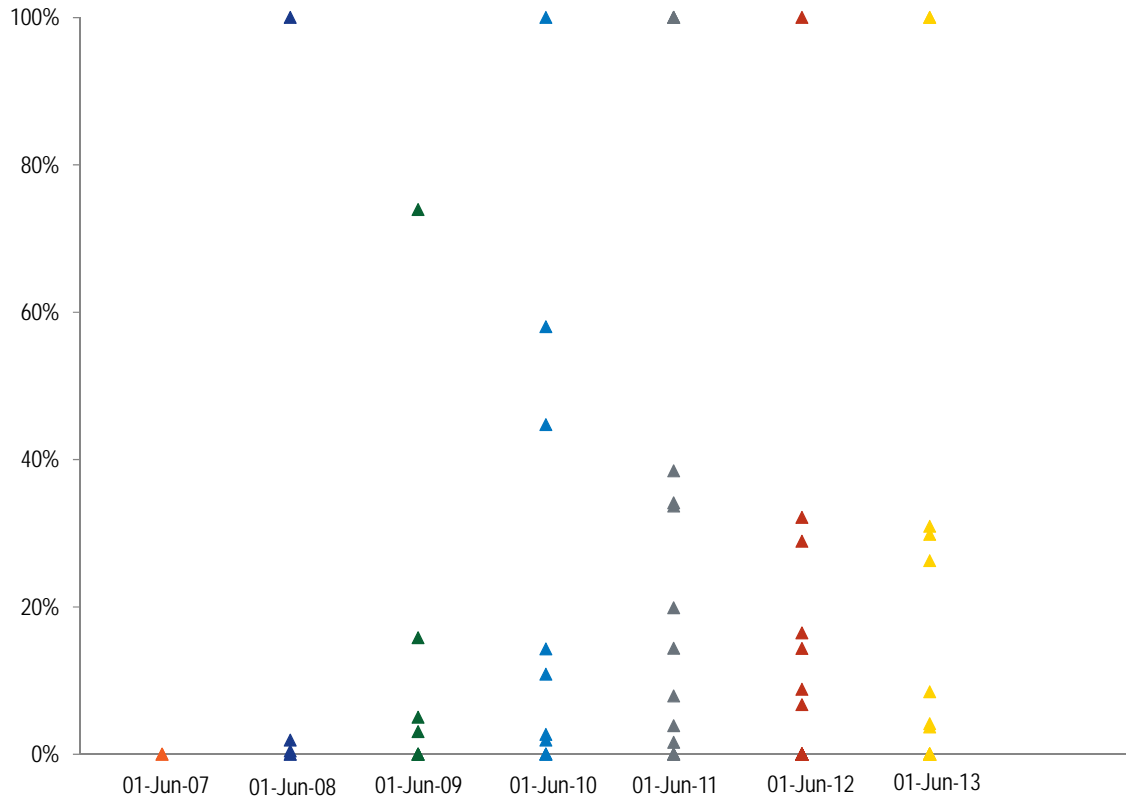


Figure 6 Company replacement percentages for external Generation Resources: June 1, 2007 to June 1, 2013

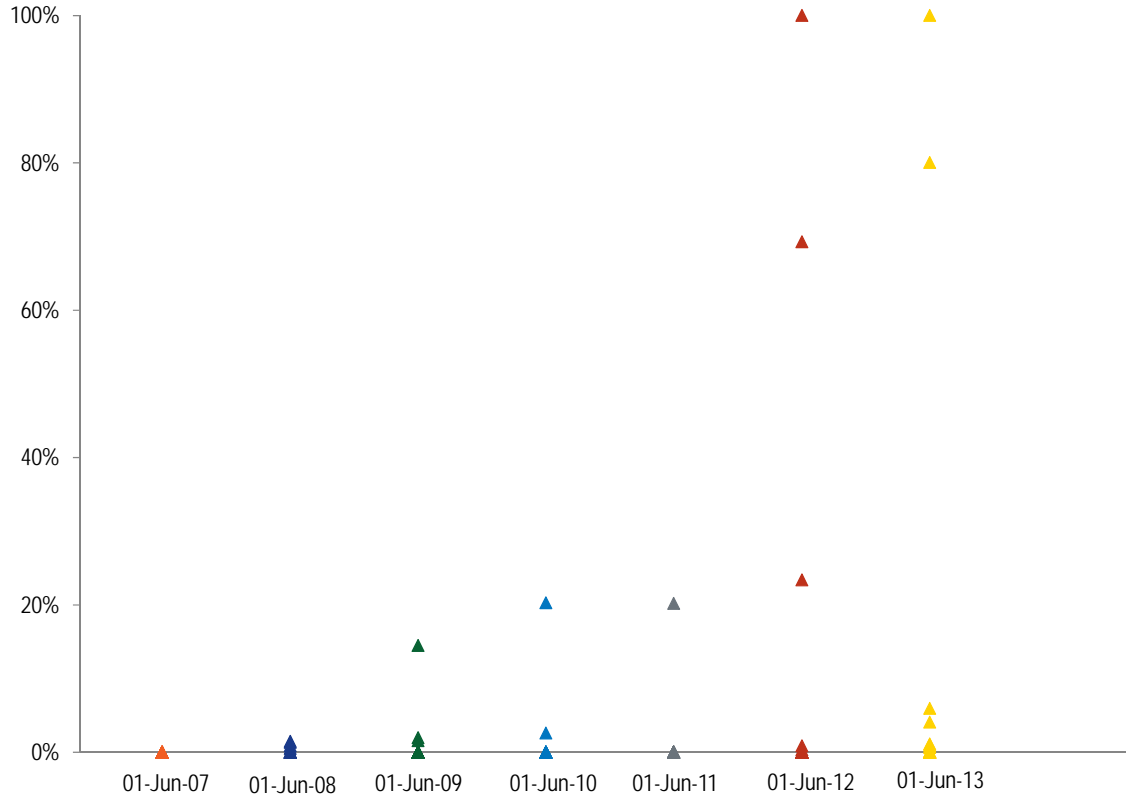


Figure 7 Company replacement percentages for Demand Resources: June 1, 2007 to June 1, 2013

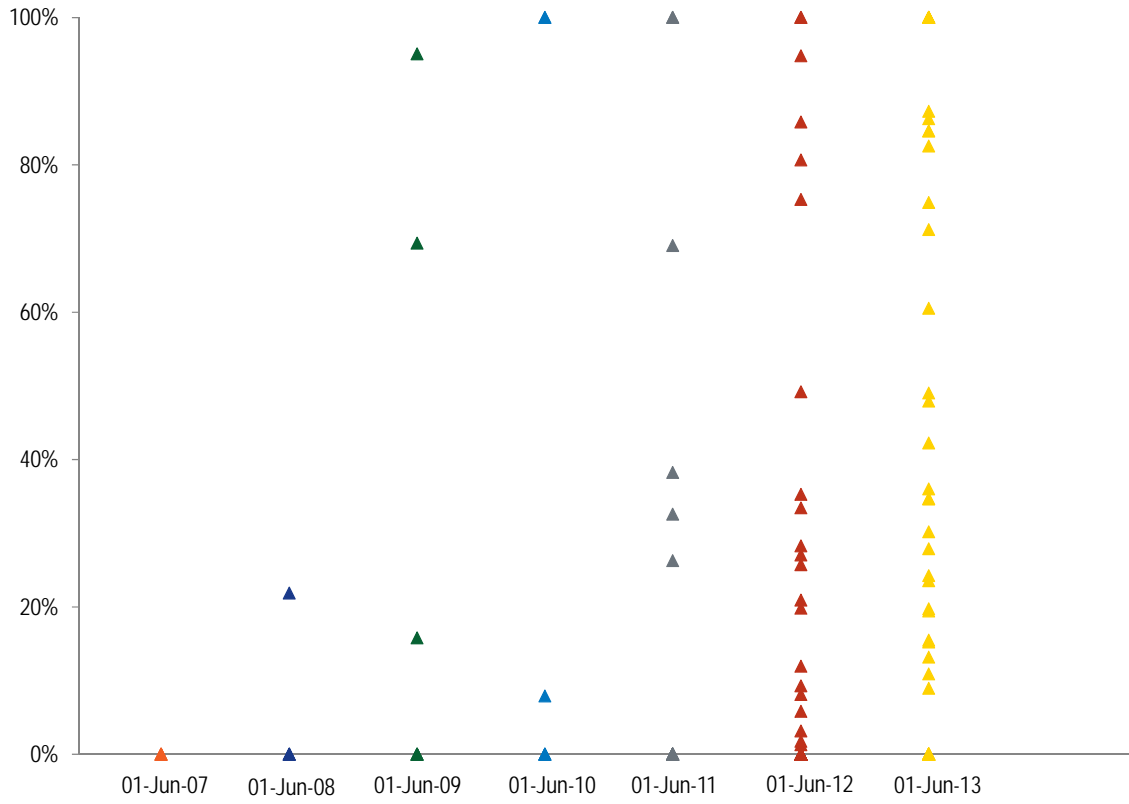
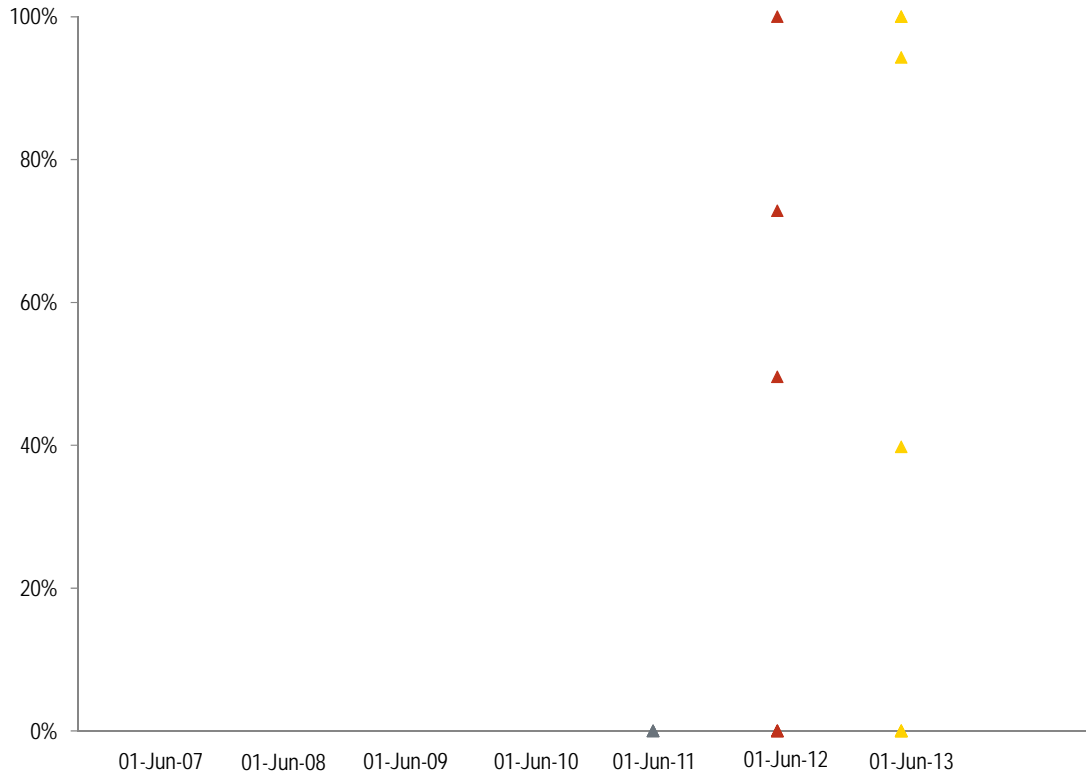


Figure 8 Company replacement percentages for Energy Efficiency Resources: June 1, 2007 to June 1, 2013



Conclusion

Sellers of Demand Resources in RPM Auctions disproportionately replace those commitments compared to sellers of other resource types.

Contrary to the current application of the PJM rules, the sellers of DR in BRAs must be based on real customers and provide a timeline for providing that DR. This is precisely what the current rules require.

Section A.5 of Schedule 6 to the PJM Reliability Reassurance Agreement (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.]³²

The definition of "Planned Demand Resource" in Section 1.69 of the RAA confirms the Market Monitor's interpretation:

Planned Demand Resource shall mean a Demand Resource that does not currently have the capability to provide a reduction in demand or to otherwise control load, but that is *scheduled* to be capable of providing such reduction or control on or before the start of the Delivery Year for which such resource is to be committed, as determined in accordance with the requirements of Schedule 6 [emphasis added].

The rules require that Planned DR must be a specific, physical resource that shall be able to provide the identified reduction in the Delivery Year, and that the entity offering the Planned DR must demonstrate how its capability will be provided, prior to the offer whether in a BRA or IA or FRR capacity plan. The timetable and milestones to meet this obligation are subject to verification by PJM at any time prior to the Delivery Year. This rule requires a specific customer and a specific site, but does not require a contract.

The Market Monitor recommends that this rule be implemented as written.

Under the current application of the rules, DR providers may not have identified customers, may not have clear plans for implementing DR measures and may not receive commitments from new customers until relatively close to the delivery year and well after the RPM BRA is run for that delivery year. This is not consistent with the rules.

The current application of the rules allows DR providers to register sites relatively close to the Delivery Year. The rules for registering end-use customer sites just before the commencement of the Delivery Year, however, have created confusion about the nature of DR that may be offered into Base Residual Auctions. It has been incorrectly assumed that the rules permit a seller of DR to offer DR without having commitments from customers to provide DR. Curtailment Service Providers (CSPs) have routinely offered

³² This rule is also codified in Section A.5 of Attachment DD-1 to the OATT.

Planned DR in BRAs without having identified the specific customers, evaluated their capabilities at the sites of their operation, evaluated the willingness of the customers to develop such capabilities, or determined that the site was not already committed to another party. This has meant acceptance of DR in Base Residual Auctions that reflects only a CSP's speculation about whether or not it could sign up actual customers. There is no reason to expect that the Planned DR offered in a BRA, under the rules as currently applied, represents DR expected to be physically available in the Delivery Year. The evidence shows that DR providers, including CSPs and individual customers, do regularly purchase replacement capacity for a substantial portion of their BRA commitments for DR at a significant discount to the initial sale price.

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 dynamic that can result is the speculative DR suppresses prices in the BRA and displaces physical generation assets. Those generation assets then have an incentive to offer at a low price, including offers at zero and below cost, in IAs in order to ensure some capacity market revenue for long lived physical resources which the owners expect to maintain for multiple years. The result is lower IA prices which permit the buyback of the speculative DR at prices below the BRA prices which encourages the greater use of speculative DR.

It has been asserted that selling high and buying low is just a market transaction and therefore does not constitute a problem. But permitting DR to be effectively an option in the BRA rather than requiring DR to be a commitment to provide a physical asset gives DR an unfair advantage and creates a self fulfilling dynamic that incents more of the same behavior. The result is an increasing share of total capacity resources that are limited DR, which are clearly not a substitute for generating capacity which is on call 8,760 hours per 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 Incremental Auctions. It has been established that this did not occur in the 2014/2015 BRA, because the Limited DR and Extended 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 IMM has pointed out that both the 2.5 percent demand curve offset and the definition of Limited DR as an inferior product significantly suppress capacity market prices. It would be ironic if speculative Limited DR is permitted in the RPM in order to give it a chance to compete when it has already been provided extraordinary advantages at the expense of a significantly less efficient market design.³³

DR should be treated like any other capacity resource and be required to provide annual service and be required to make offers in capacity auctions based on verifiable evidence of a physical commitment. That the DR business model may have relied on speculative offers is no reason to continue that practice. The practice has had demonstrable negative impacts on capacity markets. If DR aggregators cannot get commitments three years ahead for new customers, they should get such commitments in the year of the delivery year for Third IAs. Once customers are established and understand the market and the associated risks and benefits, they can be offered into BRAs, consistent with the tariff rules.

The requirement to be a physical resource should be applied to all resource types, including planned generation and imports. The same logic applies to all resource types and the rules should be applied to all resource types in order to ensure an effective and efficient capacity market in PJM.

³³ See the *2012 State of the Market Report for PJM*, Volume II, Section 4 – Capacity Market available at http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2012/2012-som-pjm-volume2-sec4.pdf.