

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

Calpine Corporation, <i>et al.</i>)	Docket Nos. EL16-49-000
)	
v.)	
)	
PJM Interconnection, L.L.C.)	
)	
PJM Interconnection, L.L.C.)	ER18-1314-000
)	ER18-1314-001
)	
PJM Interconnection, L.L.C.)	EL18-178-000
)	(Consolidated)

**AFFIDAVIT OF KATHLEEN SPEES AND SAMUEL A. NEWELL
REGARDING THE NEED FOR A SELF-SUPPLY EXEMPTION FROM MINIMUM
OFFER PRICE AND OTHER POLICY-SUPPORTED RESOURCE RULES**

Our names are Dr. Kathleen Spees and Dr. Samuel A. Newell. We are employed by The Brattle Group as Principals. On behalf of Dominion Energy Services, Inc. and Virginia Electric and Power Company (collectively, “Dominion”), we submit this affidavit presenting our recommendations for provisions enabling the continued participation of self-supply entities in light of the Federal Energy Commission Regulation’s (FERC or “Commission”) recent order and PJM Interconnection’s (PJM) proposed revisions to its Reliability Pricing Model (RPM) in this proceeding.

Our qualifications as experts derive from our extensive experience evaluating capacity markets and alternative market designs for resource adequacy. Our experience working for RTOs across North America and internationally has given us a broad perspective on the practical implications of nuanced capacity market design rules under a range of different

economic and policy conditions.¹ For PJM, we have worked with staff at various stages of the RPM's evolution to evaluate its performance and recommend enhancements.² We have also worked on many assignments for market participants operating within the PJM footprint, which has provided us insights on how the capacity market construct may impact the business decisions and other interests of suppliers, customers, utilities, and state regulators. We have also previously examined and recommended design parameters for prior self-supply exemption to the Minimum Offer Price Rule (MOPR).³

Dr. Spees is an economic consultant with expertise in wholesale electric energy, capacity, and ancillary service market design and analysis. She earned a Ph.D. in Engineering and Public Policy and an M.S. in Electrical and Computer Engineering from Carnegie Mellon University, and a B.S. in Mechanical Engineering and Physics from Iowa State University. Dr. Newell is an economist and engineer with 20 years of experience analyzing and modeling electricity wholesale markets, the transmission system, and market rules. He earned a Ph.D. in Technology Management and Policy from the Massachusetts Institute of Technology, an M.S. in Materials Science and Engineering from Stanford University, and a B.A. in Chemistry and Physics from Harvard College.

¹ We have worked with regulators, market operators, and market participants on matters related to resource adequacy and investment incentives in PJM Interconnection, ISO New England, New York, Ontario, Alberta, California, Texas, MISO, Italy, Russia, Greece, and Western Australia.

² See our four independent reviews of PJM's RPM and associated design parameters published in [2008](#), [2011](#), [2014](#), and 2018. The most recent of these is: Samuel A. Newell, David Luke Oates, Johannes P. Pfeifenberger, Kathleen Spees, Michael Hagerty, John Imon Pedtke, Matthew Witkin, and Emily Shorin, *Fourth Review of PJM's Variable Resource Requirement Curve*, Prepared for PJM Interconnection L.L.C., April 19, 2018 ("April 2018 Brattle PJM RPM Fourth Review").

³ See our analysis of PJM's MOPR in: Samuel A. Newell, "[Affidavit of Samuel A. Newell on Behalf of the 'Competitive Markets Coalition' Group of Generating Companies](#)," Docket No. ER13-535-000, Submittal 20121228-5253, Attachment A, December 28, 2012 ("December 2012 Newell Affidavit").

I. SUMMARY: INTEGRATED PUBLIC UTILITIES SHOULD BE EXEMPT FROM MINIMUM OFFER PRICE RULES, CAPACITY REPRICING VARIATIONS, AND OTHER RULES AFFECTING POLICY-SUPPORTED RESOURCES

New rules that may be developed in the present proceeding should focus on addressing the discord between PJM’s capacity market design and policy objectives within restructured states with competitive retail markets. These rules, including the potential for an expanded MOPR, capacity repricing, or related mechanisms should not apply to a self-supply entity with an obligation to serve customers. The business models of vertically-integrated utilities and public power entities (collectively, “Integrated Public Utilities”) are already harmonized with the PJM capacity market design.⁴ Thus, there is no justification for introducing mechanisms on Integrated Public Utilities that could impose RPM participation barriers, impede their resource planning activities, or impose excess costs on customers within their dedicated service territories.

The inconsistency at the heart of this docket is between restructured states’ policy goals and market outcomes in PJM’s capacity market. These retail choice states have chosen a regulatory model that relies on merchant investments to meet capacity needs. This means that PJM’s RPM must produce prices high enough to attract private investments when reserve margins fall in order to maintain reliability. However, this merchant investment model does not guarantee that the resulting mix of resource investments will necessarily be one that achieves those states’ other policy objectives, such as carbon abatement. Thus, several retail choice states have pursued a variety of policy mechanisms to influence resource investments and retention toward achieving a preferred supply mix.

PJM and some market participants are concerned that the restructured states’ policy actions have collateral impacts on the merchant investment model relied upon to meet those same states’ resource adequacy needs.⁵ State policymakers and environmentally-oriented constituents are equally concerned that the RPM market design does not adequately accommodate or help to achieve policy goals. This is an increasingly challenging

⁴ This testimony is sponsored by Virginia Electric and Power Company, dba Dominion Energy Virginia, a state-regulated vertically integrated public utility operating in PJM. Dominion Energy Virginia serves customers in Virginia, which offers retail choice for a limited subset of customers.

⁵ We have separately discussed our views on options for better harmonizing wholesale markets with the policies of restructured states; we do not present those views here because they are outside the scope of this affidavit. See Kathleen Spees, Johannes P. Pfeifenberger, Samuel Newell, and Judy Chang, [*Harmonizing Environmental Policies with Competitive Markets: Using Wholesale Power Markets to Meet State and Customer Demand for a Cleaner Electricity Grid More Cost Effectively*](#). July 2018.

disconnect, given recent increases in the number, scope, and scale of the restructured states' policies within the PJM footprint.

These same issues do not apply to traditionally-regulated states and public power entities with an obligation to serve end-users. Integrated Public Utilities engage in integrated resource planning and seek certificates of public convenience and necessity under state, city, or member oversight to meet capacity needs and other policy objectives. Integrated Public Utilities are already accommodated within RPM design and have been since the capacity market was first introduced. These self-suppliers could meet customers' resource adequacy needs with or without RPM, but are able to do so more cost-effectively as part of the broader PJM market. For 15 years, since the market's inception, the RPM has enabled essentially seamless coexistence and mutually beneficial trade between Integrated Public Utilities and the merchant market. Thus, any design changes adopted in this proceeding should address the inconsistencies applicable to restructured states without imposing costs or participation barriers on Integrated Public Utilities.

The Fixed Resource Requirement (FRR) construct should be bifurcated into two separate mechanisms designed for two separate purposes. The "Resource-Specific FRR" that may be introduced, should be specifically designed to address the circumstances of "Policy-Supported Resources" within retail choice states. The current "Self-Supply FRR" mechanism should be maintained for the separate and distinct purpose of offering Integrated Public Utilities the opportunity to pursue traditional resource planning activities and opt out of RPM auction participation.

In its comments, Dominion has proposed several adjustments to the parameters governing the participation of Self-Supply FRR entities within RPM. We have assisted Dominion in identifying parameters that would enable incrementally more Self-Supply FRR resources to sell into the RPM without introducing any adverse impacts on the performance of the merchant market. This would be achieved by maintaining thresholds that prevent Self-Supply FRR entities from selling excess supply into RPM whenever the broader market is also in excess, but that would use a new "Self-Supply FRR MOPR" to allow sales beyond these thresholds whenever the merchant market would otherwise be short on supply. We also recommend that merchant or non-regulated capacity resources should not be required to participate under the umbrella of a Self-Supply FRR, even if the resource is owned by a company that otherwise participates in Self-Supply FRR.

Integrated Public Utilities' resources should also be exempt from the MOPR, any capacity repricing variations that may be proposed, and any related mechanisms that could limit participation within RPM because their participation does not adversely affect restructured states or merchant market participants. Integrated Public Utilities' directly-owned and contracted resources should be exempt from the MOPR and other mechanisms affecting Policy-Supported Resources because:

- Integrated Public Utilities that maintain a relative balance of supply and demand do not have an incentive to inefficiently suppress capacity market prices;
- Integrated Public Utilities do not compete for the same customers as the merchant market;
- Integrated Public Utilities with modest net long or short positions have a minimal impact on prevailing capacity prices in the long run;
- Imposing MOPR on Integrated Public Utilities is likely to impose excess costs on customers and society; and
- Enabling Integrated Public Utilities to buy and sell capacity on the margin creates economic benefits for the system as a whole.

The capacity market design reforms adopted in this docket should focus on addressing the inconsistencies between restructured states’ policy preferences and RPM market outcomes. The reforms should not impose new costs or barriers on Integrated Public Utilities, for whom no such inconsistency exists. Consistency between the RPM and Integrated Public Utilities’ business model can be maintained by: (1) establishing separate Resource-Specific FRR and Self-Supply FRR mechanisms that are designed for two distinct purposes; and (2) reinstating a Self-Supply Exemption to the MOPR.

II. “SELF-SUPPLY FRR” AND “RESOURCE SPECIFIC FRR” SHOULD BE MAINTAINED AS TWO SEPARATE MECHANISMS, DESIGNED FOR TWO DISTINCT PURPOSES

The current Self-Supply FRR should be maintained regardless of whether a new Resource-Specific FRR is developed, because the two mechanisms serve two distinct purposes. If a new Resource-Specific FRR is developed, it should focus on the particular circumstances of Policy-Supported Resources in restructured states. With respect to the Self-Supply FRR, Dominion proposes to adopt certain design adjustments that would enable incrementally more participation in RPM. We have assisted Dominion in developing proposed parameters for those adjustments that will avoid introducing adverse impacts on the merchant market.

A. The Current “Self-Supply FRR” Mechanism Should Be Kept Separate from Any “Resource-Specific FRR” That May Be Developed

The new Resource-Specific FRR and the current Self-Supply FRR should be kept as separate mechanisms because they serve two distinct purposes as summarized in Table 1. The current Self-Supply FRR was designed to enable regulated states and Integrated Public Utilities to continue traditional resource planning practices; the new Resource-Specific FRR would be

designed to address the interaction of Policy-Supported Resources with the merchant investment model that supports the resource adequacy needs in retail choice states.⁶

Table 1. Key Distinctions between Self-Supply and Resource-Specific FRR Mechanisms

	Self-Supply FRR	Resource-Specific FRR
Status	In place since start of RPM (2007/08)	Proposed in the current proceeding (2018)
Purpose	Enabling Integrated Public Utilities to manage capacity needs, costs, risks, and policy goals on behalf of customers	Enable retail choice customers to avoid paying twice for capacity if the expanded MOPR prevents Policy-Supported Resources from clearing in RPM
Approach	Integrated Public Utility withdraws a balanced portfolio of supply and demand from RPM auctions, and accepts certain restrictions on bilateral sales and future RPM participation	Allow individual Policy-Supported Resources and an equal quantity of load to withdraw from RPM auctions
Relevant Supply Resources	An Integrated Public Utility’s full portfolio of self-supply resources (whether owned or contracted)	Individual Policy-Supported Resources for retail choice customers
Relevant Customers	Customers of Integrated Public Utilities serving a dedicated service territory	Load serving entities and customers in restructured states with retail competition

Sources: June 2018 FERC Order at ¶ 160-162; and April 2006 FERC RPM Order at ¶ 70-71.

The Self-Supply FRR has been part of the RPM since its inception. As FERC explained when approving the mechanism as part of the original RPM design, it allows “states or [Load Serving Entities (LSEs)] who wish to maintain maximum flexibility to manage their own risk to fulfill their own capacity needs” by opting out of the RPM capacity auctions.⁷ This enables an Integrated Public Utility “to supply its own long-term fixed resource requirement, as long as it does so for a sufficient period.”⁸ The rules and parameters associated with this Self-Supply FRR were developed specifically to address the context of Integrated Public Utilities that are pursuing integrated planning under state, municipality, or member oversight. The Self-Supply FRR provides these entities the flexibility to forgo participation in RPM

⁶ This “resource-specific FRR Alternative option” was proposed by the FERC and several variations have subsequently been discussed by PJM Stakeholders. See Federal Energy Regulatory Commission, “[Order Rejecting Proposed Tariff Revisions, Granting in Part and Denying in Part Complaint, and Instituting Proceeding Under Section 206 of the Federal Power Act](#),” 163 FERC ¶ 61,236 at ¶ 160, June 29, 2018 (“June 2018 FERC Order”).

⁷ See Federal Energy Regulatory Commission, “[Initial Order on Reliability Pricing Model](#),” 115 FERC ¶ 61,079 at ¶ 70 April 20, 2006 (“April 2006 FERC RPM Order”).

⁸ See April 2006 FERC RPM Order, at ¶ 71.

auctions, and includes various restrictions on capacity sales and future RPM participation designed to mitigate the potential for collateral effects on the merchant market.

In the present proceeding, FERC explains that a new Resource Specific FRR may be developed to “accommodate resources that receive out-of-market support, and mitigate or avoid the potential for double payment and over procurement.”⁹ Such a mechanism is proposed to accompany the expanded MOPR that could otherwise prevent some Policy-Supported Resources from clearing in PJM capacity auctions. If a Policy-Supported Resource fails to clear the market, it would result in some customers paying twice for capacity (once for the Policy-Supported Resource and once for cleared RPM capacity). The Resource-Specific FRR would allow resources receiving direct or indirect policy support and an equivalent quantity of customer demand to be removed from the PJM capacity market. The specifics of this new Resource-Specific FRR mechanism are not yet determined, but proposals by PJM and market participants correctly focus on addressing the specific context of Policy-Supported Resources and enabling customers to match with the relevant suppliers within the context of retail choice states.¹⁰ The rules for implementing this mechanism will naturally be driven by the distinct purpose of the resource-specific FRR and the business needs of the affected customers and resources within retail choice states.

The existing Self-Supply FRR and new proposed Resource-Specific FRR serve two distinct purposes, which are best served by two separate mechanisms as summarized in Table 1. We therefore recommend keeping the Self-Supply FRR separate from the Resource-Specific FRR, so that it can continue to serve its original purpose of supporting the planning practices of Integrated Public Utilities.

B. Self-Supply FRR Provisions Can be Modified to Enable Incrementally More Capacity Transactions without Introducing Adverse Impacts for the Merchant Market

In its comments, Dominion has proposed several adjustments to the rules governing the participation of Self-Supply FRR resources in RPM, as summarized in Table 2. We have assisted Dominion in developing design parameters that will enable incrementally more sales from entities participating under Self-Supply FRR, without introducing adverse impacts on the merchant market. We view these adjustments as a balanced tradeoff between: (1) providing more flexibility to Self-Supply FRR entities by relaxing restrictions to allow

⁹ See June 2018 FERC Order at ¶ 160.

¹⁰ For example, see Rob Gramlich and James F. Wilson, *Maintaining Resource Adequacy in PJM While Accommodating State Policies: A Proposal for the Resource-Specific FRR Alternative*, prepared on behalf of Sierra Club, Natural Resources Defense Council, District of Columbia Office of the People’s Counsel, and American Council on Renewable Energy, July 27, 2018.

additional utilization of their resources in the merchant market; and (2) preventing the Self-Supply FRR entities from offloading their risks and costs onto customers served by the merchant market.

The advantage of providing more flexibility to Self-Supply FRR entities is that it can sometimes produce economic benefits and cost savings to the system overall, particularly when the Self-Supply FRR entity is long on supply but the merchant market is otherwise short. If the merchant market is otherwise short, enabling more participation from Self-Supply FRR resources will better capture diversity benefits to the system as a whole. Customers served by the Self-Supply FRR entity will benefit through the sharing of the carrying costs of excess resources; customers served by the merchant market will benefit through the mitigation of a price spike that may otherwise have occurred because of the capacity shortage.

The disadvantage of providing too much flexibility is that it could create opportunities for Self-Supply FRR entities to offload risks from customers onto the merchant market. For example, consider the extreme case in which a Self-Supply FRR entity is allowed to sell 100% of its excess into the merchant market without restrictions. This would have an effect similar to allowing the FRR entity to operate with a vertical demand curve, though customers served under the merchant market would continue to face a sloping demand curve. The demand curve applied to the merchant market would likely need to be wider in order to absorb all of the supply and demand uncertainty for both the merchant and Self-Supply FRR customers. The overall effect would be to shift some risk and costs from the Self-Supply FRR customers to customers of the merchant market.

Based on a balance between these considerations, we have assisted Dominion in developing potential adjustments to the Self-Supply FRR parameters, as described in Table 2. Although we have not conducted a comprehensive modeling assessment of the resulting interactions between the merchant market and Self-Supply FRR entities to estimate precise economic impacts, we believe that the proposed adjustments will remain within in the “reasonable range” that will enable incrementally more sales into RPM without introducing any adverse impacts on the merchant market.

Table 2. Dominion’s Proposed Adjustments to Rules Governing the Participation of Self-Supply FRR Resources within RPM

	Current Rule	Dominion’s Proposed Rule
1. FRR Election Term Requirement	FRR entities are required to elect Self-Supply FRR or RPM participation for a minimum of five years	Reduce the FRR commitment period to a three-year term
2. Cap on Bilateral Capacity Sales into RPM	Cap on capacity sales is equal to the lesser of: (a) 25% of reliability requirement, or (b) 1,300 MW	Maintain the quantity caps Allow additional supply beyond the quantity cap to offer into the RPM auctions at or above a MOPR price at 100% of Net CONE
3. Threshold Quantity for Allowing Sales into RPM	A Self-Supply FRR entity can only sell excess into the RPM if first holding a “Threshold Quantity” of excess on behalf of its own customers The Threshold Quantity is the minimum of: (a) 3% excess, or (b) 450 MW excess	Maintain the Threshold Quantity of 3% excess, but allow this quantity to offer into RPM auctions at a MOPR price The first 1%, 2%, and 3% must offer at or above MOPR prices of 120%, 95%, and 75% of Net CONE respectively
4. “Merchant” Resources under Portfolio Accounting	Situation of merchant assets owned by a Self-Supply FRR entity is not explicitly addressed	Create a “merchant” or “non-regulated” resource designation that allows continued participation under RPM (even if the resource is owned by an entity engaged in Self-Supply FRR) Designated resources would be those that do not have direct or indirect cost-recovery treatment

Sources: PJM Interconnection LLC, “Reliability Assurance Agreement Among Load Serving Entities in the PJM Region,” Docket No. ER10-2710-006, September 17, 2010. For FRR Election Term Requirement, see section C, p. 135. For Cap on Bilateral Capacity Sales into RPM, see section E, p. 140. For Threshold Quantity for Allowing Sales into RPM, see section D.2, pp. 136-137. For the definition of “Threshold quantity,” see p. 26. For Portfolio Accounting, see section B.2, p. 134.

Election Period. First, Dominion proposes reducing the length of time for FRR election by the entity from five to three years. Under current rules, the FRR election period “locks” self-supply entities into the FRR mechanism for five years and prevents an entity which opted out of FRR from re-electing FRR for another five years. We believe that the election period likely should be somewhere within a reasonable range of three to five years. Anywhere within this range is likely long enough to prevent the Self-Supply FRR entity from opportunistically switching between FRR and RPM participation. The three to five year election period translates to six to eight years-ahead forward period over which the supply and demand uncertainties faced by self-suppliers can become quite large. These uncertainties would make it infeasible for the Self-Supply entity to determine its own net

position with enough accuracy to benefit from opportunistic switching. This is particularly true when combined with the quantity restrictions on FRR entity sales into RPM.

Cap on Sales into RPM. Second, Dominion proposes allowing sales in excess of the current cap, but only if the merchant market would otherwise be short. Currently, Self-Supply FRR entities are subject to a cap on capacity sales equal to 25% of reliability requirement or 1,300 MW, whichever is the smallest. Dominion proposes to maintain this quantity as the default cap on bilateral sales, but allow additional sales into RPM auctions as long as the FRR supply is offered at or above a MOPR price of 100% of Net CONE. This adjustment would achieve reliability and societal benefits by allowing FRR entities to help the merchant market fill capacity needs during short market conditions, but prevent them from exacerbating long market conditions if both the merchant market and FRR entity are long.

Threshold Quantity for Allowing Sales. Third, Dominion proposes allowing FRR entity sales into RPM below the threshold quantity, but again only when the merchant market would otherwise be short. Under the current rules, FRR entities that wish to sell their capacity excess are required to hold a Threshold Quantity of 3% or 450 MW (whichever is lower) above their own capacity requirement. Only excesses above that quantity are allowed to be sold bilaterally toward meeting RPM requirements. Dominion proposes to change this requirement to allow the resources held under the Threshold Requirement to offer into RPM auctions, but be restricted from clearing except when the RPM auction would otherwise be short. This would be achieved by requiring the 3% Threshold Quantity to be offered into the auctions at a staggered MOPR prices with: (a) the first 1% excess at or above 120% of Net CONE; (b) the next 1% excess (or 2% total) at or above 95% of Net CONE, and (c) the next 1% (or 3% total) at or above 75% of Net CONE. These price and quantity levels approximately correspond to the price and quantity requirements imposed on customers of the merchant market by the Variable Resource Requirement curve, and so in effect impose a similar obligation on both RPM and FRR customers to manage their own supply-demand uncertainties.¹¹ Similar to the prior change, this adjustment can create incremental reliability and economic benefits by allowing the FRR entity to help meet the needs of the merchant market during shortages, without exacerbating surpluses if the merchant market is already long.

“Merchant” or “Non-Regulated” Resources Owned by Self-Supply FRR Entities. Fourth, Dominion proposes to create a “merchant” or “non-regulated” resource designation that would allow certain resources to sell bilaterally and into RPM auctions, even if they are

¹¹ Calculated by linear interpolation of points on the PJM Variable Resource Requirement Curve, after rounding to the nearest 5% of Net CONE. See PJM Interconnection LLC., “PJM Open Access Transmission Tariff, Attachment DD,” Docket No. ER10-2710-000, at pp. 30-38, September 17, 2010.

owned by a Self-Supply FRR entity. Currently, FRR rules do not specifically address the situation of these resources. To earn the “merchant” or “non-regulated” designation, the owner would need to demonstrate that the resource does not earn direct or indirect cost recovery from customers covered under the Self-Supply FRR.

Adopting Dominion’s proposed changes to the Self-Supply FRR mechanism would have the overall effect of enabling incrementally more supply to participate under RPM, but only when the merchant market would otherwise be short on supply. These changes would help better manage shortage conditions and achieve system diversity benefits, without introducing any adverse impacts on the merchant market.

III. SELF-SUPPLYING INTEGRATED PUBLIC UTILITIES SHOULD BE EXEMPT FROM THE MOPR AND OTHER PROVISIONS LIMITING THE PARTICIPATION OF POLICY-SUPPORTED RESOURCES IN THE RPM

The MOPR should not be applied to Integrated Public Utilities that are fully participating under RPM because none of the reasons for implementing a MOPR are relevant in the context of integrated self-suppliers. These entities do not have the incentive to, or effect of, suppressing the prevailing prices applicable to the merchant market. Enabling unrestricted participation of Integrated Public Utilities’ supply and demand under RPM creates economic benefits for the customers in both the restructured and traditionally regulated regions of the PJM market.

A. Integrated Public Utilities that Maintain a Relative Balance of Supply and Demand Do Not Have an Incentive to Inefficiently Suppress Capacity Market Prices

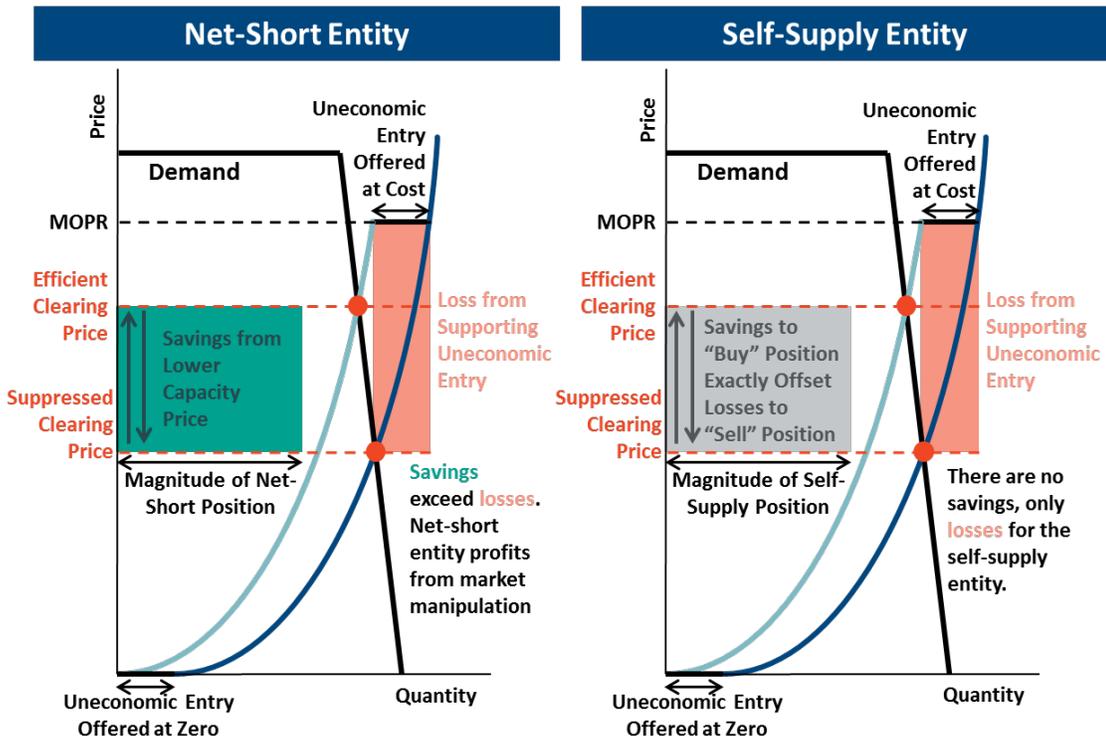
Integrated Public Utilities do not benefit from lower capacity prices, and therefore, have no incentive to support uneconomic excess capacity to achieve intentional price suppression.

Since the start of PJM’s RPM, the market has included a MOPR to prevent the intentional suppression of capacity prices by large net buyers.¹² Participants that buy significantly more capacity than they sell (“net short” participants) have an incentive to offer their capacity below cost in order to suppress prices. If that capacity would not have cleared with an economically-driven offer, the clearing price will be suppressed. The tradeoff is illustrated in the left diagram in Figure 1. If the participant’s net short position is large enough, the

¹² See Federal Energy Regulatory Commission, “[Order Denying Rehearing and Approving Settlement Subject to Conditions](#)” 117 FERC ¶ 61,331 at ¶ 103-04, December 22, 2006 (“2006 RPM Settlement Order”).

savings generated by the reduced clearing price (green rectangle area) will more than offset the loss from the uneconomic offer (red rectangle area). The MOPR establishes offer price floors for certain new generating resources in order to prevent this sort of manipulative capacity price suppression.¹³ The original rule was designed to target entities that have a significant net-short position, because they are the group with the most incentive to suppress capacity prices, as illustrated in Figure 1.

Figure 1. Price-Suppression Incentives for Net Short Entities and Disincentives against Price Suppression to Self-Suppliers



In 2011, PJM expanded the scope of the MOPR in order to apply the price floor to new generators receiving state-directed payments.¹⁴ The rationale for this extension was that state actors can have the same incentives of net-short entities to pay the costs of uneconomic new

¹³ In this context, we use the expression market manipulation to refer specifically to uneconomic trading. Uneconomic trading can be defined as intentionally losing money on uneconomic offers in order to “cause a significant price bias... to the benefit of financially leveraged price-taking positions that are tied to that price.” See Gary Taylor, Shaun Ledgerwood, Romkaew Broehm, and Peter Fox-Penner, *Market Power and Market Manipulation in Energy Markets: From the California Crisis to the Present*, (Public Utilities Reports, Inc., 2015), 194-195.

¹⁴ See PJM Interconnection, L.L.C., “[Application/Petition/Request/Tariff Filing](#),” FERC Docket No. ER11 2875 000, Submittal 20110211 5121, p. 3, February 11, 2011 (“2011 PJM Tariff Filing”).

capacity in order to achieve savings from price suppression to the benefit of all customers within that state.

The following year, PJM proposed and the FERC approved a MOPR exemption for generation owned or contracted by vertically integrated or municipal utilities.¹⁵ The Commission determined that:

“if a self-supply entity meets a sufficiently large proportion of its capacity needs through its own generation investment, it has little or no incentive to suppress capacity market prices. If the amount of non-self-supplied resources procured from RPM is sufficiently small, uneconomic entry would reduce the cost of procuring this portion by less than the amount spent on the uneconomic entry.”¹⁶

In order to qualify for the self-supply exemption, self-suppliers needed to demonstrate that they were neither net-long nor net-short beyond a specified limit.¹⁷ The self-supply exemption and various other rules were later overturned on procedural grounds that did not pertain to the merits of the rule itself.¹⁸

The self-supply exemption acknowledged that Integrated Public Utilities that have relatively balanced quantities of supply and demand have no incentive to intentionally suppress capacity prices, as illustrated on the right of Figure 1. Integrated Public Utilities typically maintain a relative balance of supply and demand, within a planning uncertainty margin. They are largely financially insulated from increases or decreases in capacity prices because they have similarly-sized buy and sell positions in the capacity market (matching its load obligations and capacity resource portfolio). Thus, as illustrated on the right of Figure 1, an exactly balanced Integrated Public Utility would have exactly offsetting buy and sell positions in RPM (identical overlapping gray rectangles), but would also have an economic loss from the economic entry (red rectangle area). Thus, a self-supply entity would face a net economic loss from the intentional suppression of capacity prices, with no net benefits.

¹⁵ See Federal Energy Regulatory Commission, “[Order Conditionally Accepting in Part, and Rejecting in Part, Proposed Tariff Provisions, Subject to Conditions](#),” 143 FERC ¶ 61,090 at ¶ 107, May 2, 2013 (“May 2013 FERC Order”).

¹⁶ See May 2013 FERC Order at ¶ 108.

¹⁷ The economic impacts and associated incentives based on various net-long and net-short positions and potential limits on offered self-supply exemptions are discussed in the December 2012 Newell Affidavit.

¹⁸ See [NRG Power Marketing, LLC v. FERC](#), No. 15 1452 (D.C. Cir. July 7, 2017).

See also Federal Energy Regulatory Commission, “[Order on Remand](#),” 161 FERC ¶ 61,252 at ¶ 2, December 8, 2017 (“2017 Remand Order”).

Preventing intentional price suppression remains today one of the primary reasons for applying MOPR, even though the purpose of MOPR is now expanded in scope by the current docket. Reinstating a self-supply MOPR exemption continues to be justified for self-supply entities that have a relative balance of supply and demand, given the lack of any incentive to suppress capacity prices.

B. Integrated Public Utilities Do Not Compete for the Same Customers as the Merchant Market

RPM was designed to accommodate both Integrated Public Utilities that are obligated to supply customers within their dedicated service territory and merchant resources that are competing to serve customers in states with retail choice. Allowing Integrated Public Utilities to continue their traditional self-supply business model does not impinge on the ability of the merchant market to support the needs of customers in retail choice states.

Restructured states have chosen to rely on merchant investments to meet the capacity needs of their customers, as illustrated on the left of Figure 2. The design of the RPM fulfills these states' needs for resource adequacy by supporting capacity prices in line with what merchant generators need to attract investments and maintain reliability. In the context of restructured states, the introduction of Policy-Supported Resources displaces the need for merchant capacity that would otherwise serve restructured states' customers, and may result in lower prevailing prices for a time until any excess capacity is overtaken by retirements or load growth. This poses a challenge to the merchant investment model relied upon to meet the capacity needs of restructured states' customers.

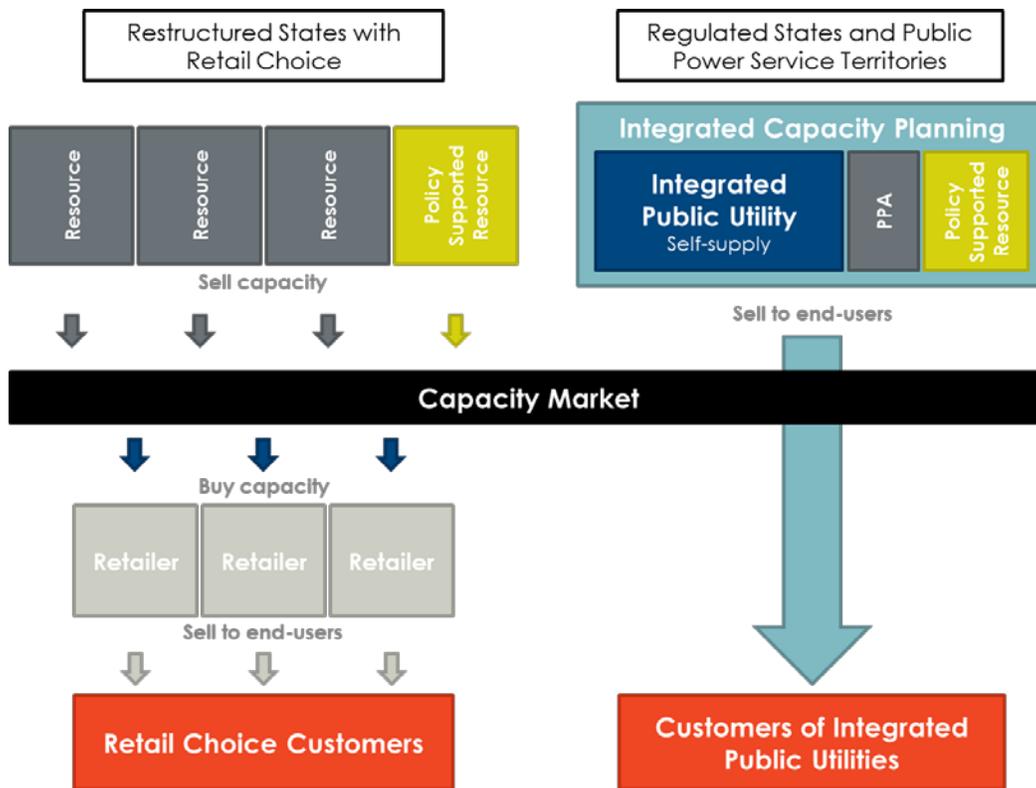
In contrast, vertically integrated utilities and public power entities have an obligation to serve end-users in their dedicated service territory at regulated rates, as illustrated on the right of Figure 2. These Integrated Public Utilities maintain a resource portfolio of their own generation assets and long-term contracts sufficient to meet their customers' needs. These entities engage in integrated resource planning processes under state, city, or member oversight to build or contract capacity resources when necessary. The Integrated Public Utility is the sole provider of electricity services selling directly to end-users within its service territory, and does not compete with merchant capacity sellers to serve those customers.¹⁹ The introduction of Policy-Supported Resources does not challenge the

¹⁹ Utilities and public power that rely on integrated planning often engage in competitive solicitations to procure capacity and energy under long-term contracts and so may create additional demand for merchant sellers in the forward timeframe relevant to planning activities, but these long-term contracts are settled far in advance of the RPM markets. For our purposes, we discuss the resources providing capacity to Integrated Public Utilities as "self-supply" resources, regardless of whether developed under direct ownership or contracted under long-term purchase agreements.

business model of Integrated Public Utilities because policy considerations have always been incorporated into the planning activities engaged in to serve the needs of these customers.

We note that there is, of course, some exchange of capacity on the margin between the merchant market and Integrated Public Utilities. Integrated Public Utilities buy from merchant resources when short (either on a spot basis or under a contract), and sell excess capacity back to support retail choice customers when long. However, this represents a modest amount of net capacity traded in one direction or the other and does not affect the underlying business models either for Integrated Public Utilities or for the merchant market serving restructured states.

Figure 2. Separate Regulatory Models for Serving Customers in Restructured States and in Regions Served by Integrated Public Utilities

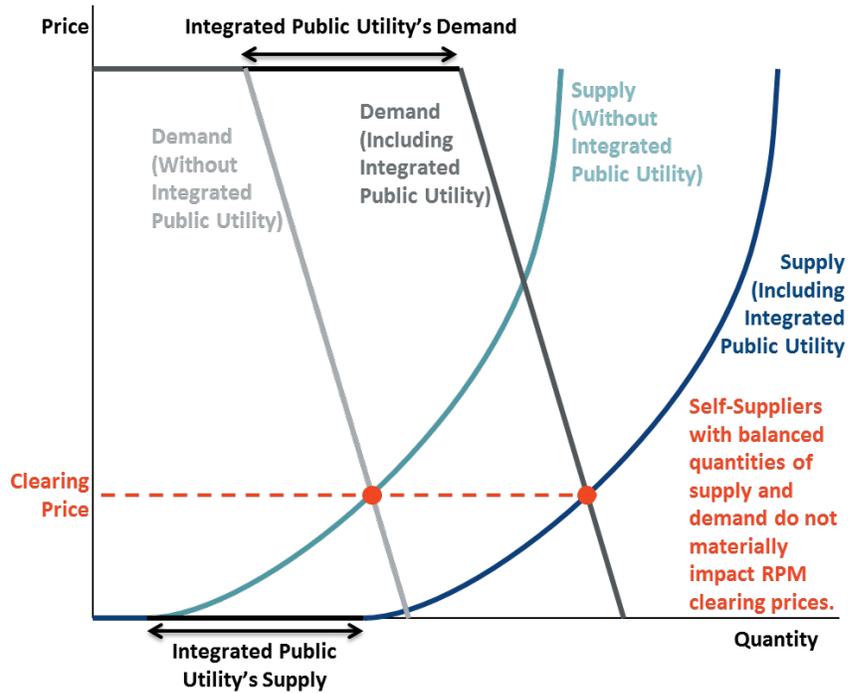


C. Integrated Public Utilities with Modest Long or Short Net Positions Have a Minimal Impact on Prevailing Capacity Prices in the Long Run

The participation of an Integrated Public Utility with perfectly balanced supply and demand has no impact on the capacity market prices. Prices would be the same with or without the self-supply entity, as illustrated in Figure 3. It does not matter what resources that self-supply entity uses to meet its own capacity needs, what those resources’ underlying costs are, what business model was used to develop them, or what state policies may contribute to their cost recovery, as long as the Integrated Public Utility maintains a relative balance of supply

and demand. Thus, the activities of Integrated Public Utilities with a balanced portfolio of supply and demand can coexist with the merchant market without affecting the average capacity prices earned by merchant suppliers or the overall function of RPM to support the resource adequacy needs of retail choice customers.

Figure 3. Self-Supply Entities with Balanced Supply and Demand Do Not Affect RPM Prices



Integrated Public Utilities generally maintain a relative balance of supply and demand, because they are obligated to do so based on their responsibility to engage in cost-effective planning on behalf of their customers or members. They do however typically carry some excess or deficit compared to their need in any one year, associated with lumpy investment and retirement decisions, and load forecast uncertainties. Thus, Integrated Public Utilities will generally participate in RPM with modest net long or net short positions which could have a small upward or downward impact on capacity prices. However, there will be little or no effect when looking on average across many years, because the net long or net short positions are small as a proportion of the market and tend to offset. Further, the price effects these supply and demand variations are adequately managed by the sloped Variable Resource Requirement curve, the slope of which is sufficient to mitigate the price volatility of all participants in RPM including both merchant market participants and Integrated Public Utilities.²⁰

²⁰ See April 2018 Brattle PJM RPM Fourth Review.

The natural balance of supply and demand achieved by Integrated Public Utilities is unlike the situation affecting restructured states. Under no circumstances would Integrated Public Utilities aim to or be allowed to support an ever-growing excess of supply beyond what is needed to serve customers, such that it could perpetually displace the need for merchant investments in restructured states.

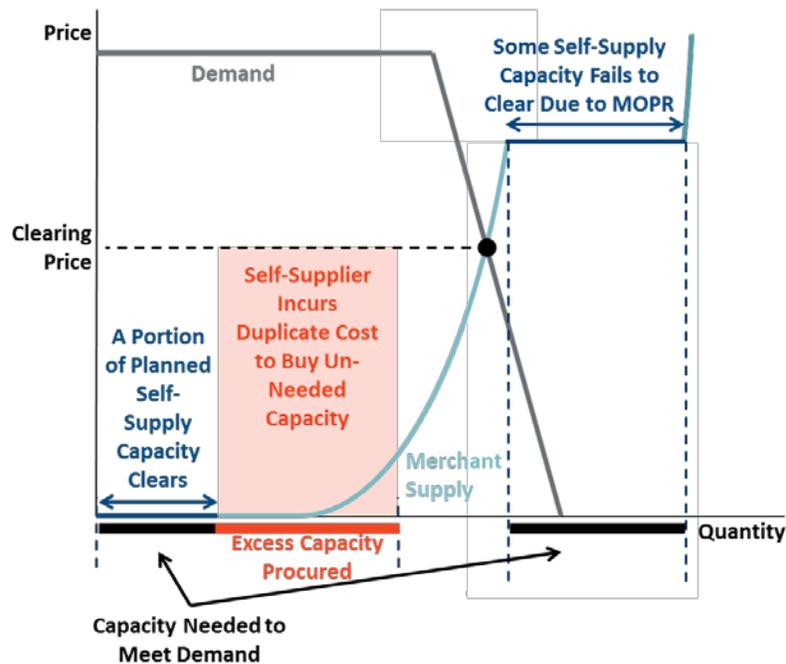
D. Imposing MOPR on Integrated Public Utilities is Likely to Impose Excess Costs on Customers and Society

If the MOPR were applied to Integrated Public Utilities, some of their rate-regulated resources might not clear the capacity auction, which would lead to customers paying twice for capacity (once through regulated rates for the planned resource, and again for a different merchant resource that cleared the capacity auction). This would also impose excess costs on society because more resources would be built or maintained than are needed to meet peak customer demand.

Figure 4 illustrates how MOPR imposed on an Integrated Public Utility's resource may result in excess costs to the utility's customers and to society. Typically, most self-supply resource decisions are made prior to the capacity auction and offered at a zero price if the resource is planned to be online in the delivery year. This participation approach guarantees that the rate-regulated resource will clear and can be used to meet the resource adequacy needs of customers. However, if the MOPR is imposed, the resource could be forced to offer at a higher price, which may prevent the self-supply resource from clearing. The Integrated Public Utility would then be obligated to procure other capacity for its customers. This would result in the Integrated Public Utilities customers paying twice for capacity: once through its regulated rates (for the rate-regulated resource that did not clear), and again for a different merchant resource that did clear as illustrated by the red rectangle area in Figure 4. These costs represent unnecessary deadweight loss to society as a whole, the costs of which would be borne by the Integrated Public Utility's customers. The potential for this double-payment outcome would impede the planning activities of regulated utilities and public power entities and impose excess costs on society.

In the context of net-short entities, the impact of the higher costs imposed by MOPR if the resource does not clear is intentional. In that circumstance, the higher costs serve the purpose of dis-incentivizing the manipulative suppression of capacity prices. However, in the context of Integrated Public Utilities, the inflated societal and customer costs would not serve any greater business or policy purpose.

Figure 4. Excess Costs Imposed on Integrated Public Utility Customers In the Event that a Rate-Regulated Resource Is MOPR'd and Fails to Clear in RPM



E. Enabling Integrated Public Utilities to Buy and Sell Capacity on the Margin Creates Economic Benefits for the System as a Whole

The system as a whole benefits from enabling trade between Integrated Public Utilities and the merchant capacity market. Imposing the MOPR or other restrictions on Integrated Public Utilities would create barriers to trade and introduce incentives to withdraw entirely from capacity market participation.

When Integrated Public Utilities have deficits or surpluses of capacity, allowing them to transact with the market ensures the best use of available resources. Customers of Integrated Public Utilities will benefit from the utilities’ participation in the market as it allows the “right-sizing” of their capacity holdings every year. They can monetize the excess capacity when long, purchase only the necessary quantity of capacity at a competitive price when short or to cover reserve margins, and reduce the average quantity of supply needed overall to meet the needs of end-use customers. Without this sharing of resources, some self-supply entities may identify the need to build additional resources when its own reserve margin tightens (even if the merchant market has enough excess supply to cost-effectively fill the need). Customers served primarily by the merchant market similarly benefit from the benefits of pooling diversity of supply and demand, which enables mutually beneficial trade.

The societal benefits of reserve sharing enabled by this trade will flow through to some combination of customers and market participants. Barring Integrated Public Utilities from

such transactions, whether through MOPR or other limitations on their activity, would introduce a societal deadweight loss.

IV. CONCLUSION: EXPANDED MOPR, CAPACITY REPRICING VARIATIONS, AND RELATED REFORMS SHOULD FOCUS ON ADDRESSING THE CHALLENGES FOR RESTRUCTURED STATES, WITHOUT IMPOSING COSTS AND PARTICIPATION BARRIERS ON INTEGRATED PUBLIC UTILITIES

The inconsistency between restructured states' policy goals and market outcomes is a significant challenge to the success of PJM's capacity market, but one that will not be solved by imposing costs or participation barriers on Integrated Public Utilities. For Integrated Public Utilities, no similar inconsistency exists. Thus, the current self-supply FRR should be separated from a new resource-specific FRR. Further, Integrated Public Utilities should be exempt from any application of the MOPR, capacity repricing variations, or any related mechanisms that may be introduced. These new mechanisms should be specifically focused on addressing the situation of policy resources that are supported by and for restructured state customers only. Any such rules should not apply to Integrated Public Utilities that have seamlessly engaged in mutually beneficial trade within the PJM capacity market for the last 15 capacity delivery years since RPM was introduced in 2007/08.

V. CERTIFICATION

We hereby certify that we have read the filing signed and know its contents are true as stated to the best of our knowledge and belief. We possess full power and authority to sign this filing.

Respectfully Submitted,



Kathleen Spees
The Brattle Group
1800 M Street NW, Suite 700
Washington, DC 20036
202.419.3390
kathleen.spees@brattle.com



Samuel A. Newell
The Brattle Group
One Beacon Street, Suite 2600
Boston, MA 02106
617.234.5725
sam.newell@brattle.com

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