

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

PJM Interconnection, L.L.C.)	ER19-1486-000
)	EL19-58-000

COMMENTS OF THE CLEAN ENERGY ENTITIES

Pursuant to Rule 212 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission (the “Commission”), 18 C.F.R. § 385.212 (2016), the American Wind Energy Association (“AWEA”)¹, the Solar Energy Industries Association (“SEIA”)² and the Solar Council (“Council”)³ (collectively, the “Clean Energy Entities”), respectfully submit these comments (“Comments”) in support of PJM Interconnection, L.L.C.’s (“PJM”) March 29, 2019 filing submitted in the above-captioned proceeding related to enhancing price formation in its reserve markets.⁴

I. INTRODUCTION

The United States’ wholesale electricity markets need to be reformed in order to effectively and efficiently manage the changing resource mix underway in the nation’s electricity

¹ AWEA is a national trade association representing a broad range of entities with a common interest in encouraging the expansion and facilitation of wind energy resources in the United States. AWEA’s members include active participants in the markets administered by PJM.

² SEIA is the national trade association of the U.S. solar energy industry, which now employs more than 242,000 Americans. SEIA works with its member companies to build jobs and diversity, champion the use of cost-competitive solar in America, remove market barriers and educate the public on the benefits of solar energy. The comments contained in this filing represent the position of SEIA as an organization, but do not necessarily reflect the views of any particular member with respect to any issue.

³ The Solar Council is a group of companies participating in AWEA’s RTO Advisory Council that own, operate, develop, and finance solar projects and act, in coordination with AWEA, to advance joint goals before the Federal Energy Regulatory Commission and the nation’s regional transmission markets and independent system operators.

⁴ See Enhanced Price Formation in Reserve Markets of PJM Interconnection, L.L.C., Docket No. EL19-58-000, et al. (Mar. 29, 2019) (“PJM Filing”).

sector⁵ in a reliable and cost-effective manner. One of the key characteristics that Regional Transmission Organizations and Independent System Operators (collectively, “RTOs”) will need to accomplish this goal is flexibility, that is, the grid’s ability “to respond and adapt to changes in uncontrollable or non-dispatchable factors such as consumption (load), wind speed, solar insolation, other generator output deviations, forced generation outages and transmission disruptions.”⁶ Operational flexibility is needed to maintain the power balance and the system’s required reserves to integrate new technologies as net load – which is effectively load minus the output of “variable generation” – such as utility-scale wind and solar, behind-the-meter resources, distributed energy resources (“DERs”), smart meters, and other types of technologies that are being deployed at an accelerated rate, and which generally make load more price responsive. A flexible grid will also provide additional reliability benefits, and will reduce unpriced, market distorting, out-of-market actions that, according to PJM, it frequently takes today.⁷

Like all RTOs, PJM will need a more flexible grid in order to balance the system’s net load in the future as new and different types of resources come online. Importantly, the Clean Energy Entities believe that PJM should design its market to acquire this operational flexibility in a transparent and technology-neutral manner, as opposed to taking unpriced out-of-market actions that distort price signals and will likely end up being more costly to consumers in the

⁵ See, e.g., Matt Egan, *America’s Renewable Energy Set to Surpass Coal for the First Month Ever*, CNN BUSINESS (Apr. 29, 2019), <https://www.cnn.com/2019/04/29/business/renewable-energy-coal-solar/index.html>.

⁶ See Michael Goggin, et al., *Customer Focused and Clean: Power Markets for the Future 3* (2018), https://windsolaralliance.org/wp-content/uploads/2018/11/WSA_Market_Reform_report_online.pdf (“WSA Paper”).

⁷ See, e.g., PJM Filing at 22.

long run.⁸ The Clean Energy Entities believe PJM's proposal constitutes a significant step in accomplishing this goal via transparent market price signals.

Accordingly, while the PJM Filing is not a comprehensive proposal to promote flexibility in its markets, the Clean Energy Entities support the PJM Filing because it represents a positive step towards achieving a more operationally flexible grid, a modern wholesale power market design, and corrects many aspects of PJM's current market design that are unjust and unreasonable. PJM's proposal accomplishes this principally by procuring additional reserves that will give PJM operators the additional operational flexibility needed to balance net load now and into the future. This will be particularly important moving forward because this task is likely to become more challenging as net load becomes more uncertain.

As discussed further herein, the Clean Energy Entities agree with PJM that its current rules for procuring and pricing reserves is unjust and unreasonable.⁹ Further, the Clean Energy Entities believe that PJM has met its burden under Section 206 of the Federal Power Act ("FPA"), and has not only shown that its existing rules are unjust and unreasonable, but has also proposed a market design for procuring and pricing reserves that is just and reasonable and could be accepted by the Commission.¹⁰ Notwithstanding the foregoing, the Clean Energy Entities note that there are other potential just and reasonable market designs for procuring and pricing reserves that could be implemented. Accordingly, the Clean Energy Entities also discuss some of these alternative considerations in the event that the Commission does not find that PJM's proposed market design for procuring and pricing reserves is just and reasonable.

⁸ This is due to the fact that market participants could provide a less expensive solution at a lower cost than the out-of-market actions that PJM operators routinely take today.

⁹ See generally PJM Filing at 15-43 (discussing how PJM's current market design is unjust and unreasonable).

¹⁰ See generally PJM Filing at 43-113 (describing why PJM's proposed rules are just and reasonable).

II. PJM’S CURRENT MARKET DESIGN IS NOT JUST AND REASONABLE

A. Overview of the Clean Energy Entities’ Position

The Clean Energy Entities agree with PJM that its current market design related to procuring and pricing reserves is not just and reasonable. This is because, *inter alia*,: 1) most resources supplying Tier 1 Synchronized Reserve are undercompensated in an unduly discriminatory manner and as a result, do not have an incentive to respond to operator instructions when called upon and have historically had unacceptably low response rates; 2) PJM operator actions result in muted price signals; 3) the current \$850/MWh reserve penalty factor is inadequate; and 4) misalignment in PJM’s day-ahead and real-time reserve markets results in inadequate forward procurement and related market inefficiencies. Accordingly, for the reasons outlined in the PJM Filing, and as explained further herein, there is “substantial evidence” for the Commission to conclude that PJM’s current market rules related to procuring and pricing reserves are unjust and unreasonable.¹¹

B. PJM’s Current Two-Tier Synchronized Reserve Construct is Unjust and Unreasonable

As explained in the PJM Filing, under PJM’s current market rules, there are two types of Synchronized Reserve products, Tier 1 and Tier 2, which are used to meet PJM’s Synchronized Reserve Requirement. Tier 1 is provided from non-emergency resources that are online and generating, but have available capacity to increase generation within 10 minutes if needed. All resources meeting the definition of Tier 1 are “deemed to be available” to provide Tier 1

¹¹ See *e.g. Ameren Serv. Co. v. Midwest Indep. Transmission Sys. Operator, Inc.*, 124 FERC ¶ 61,173, at P 9 (2008) (“Under section 206(b) of the FPA . . . [it] is the Complainants’ responsibility to demonstrate, on the basis of *substantial evidence*, both that the rate in effect is unjust and unreasonable and that their proposed alternative rate is just and reasonable.”) (citations omitted, emphasis added).

reserves.¹² Further, unlike Tier 2 resources, there is no penalty assessed if a Tier 1 resource is selected as one of the resources used to satisfy the reserve requirement, but then fails to respond if actually called upon by PJM during a reserve event to increase output (or reduce load if the resource is a demand response resource).¹³ PJM demonstrates that the status quo compensation scheme has led to an unacceptably low response rate from Tier 1 resources.¹⁴

Tier 2 resources include generators that would have been “producing at their maximum output to maximize their energy profits, but have been requested by PJM to reduce their output to create reserve capability.”¹⁵ Tier 2 resources must submit offers to be eligible to satisfy the reserve requirements, and if a Tier 2 resource clears the market but fails to perform during a reserve event, it is subject to a penalty of a loss of revenue.¹⁶ Notably, PJM’s market clearing process assumes that all available Tier 1 reserve capability is essentially free, despite the fact that this reserve capability is counted toward the system’s Synchronized Reserve Requirement.¹⁷ If the Synchronized Reserve Requirement cannot be met solely by Tier 1 resources, then PJM procures reserves from Tier 2 resources to meet the remainder of the requirement. Notably, if Tier 2 resources are assigned and there is a non-zero clearing price, only Tier 2 resources are paid the clearing price.¹⁸

¹² See PJM Filing at 15.

¹³ See *id.*

¹⁴ See *id.* at 17-20.

¹⁵ See *id.* at 15-16.

¹⁶ See *id.* at 16.

¹⁷ See *id.*

¹⁸ See *id.*

The Clean Energy Entities agree with PJM that this construct is unjust and unreasonable, most notably because under the current construct, Tier 1 and Tier 2 resources are compensated differently for providing the same service. As a general principle, the Clean Energy Entities believe that any service that is provided to fulfill a power system need (such as Synchronized Reserve) should be clearly defined, and that all resources should be eligible to provide such service in a technology-neutral manner and receive compensation for providing such service.

Accordingly, for the aforementioned reasons, as well as the reasons specified by PJM,¹⁹ PJM's current two-tier Synchronized Reserve construct is unjust and unreasonable with respect to resources that provide Tier 1 reserves, and has demonstrably led to poor performance by Tier 1 resources. PJM's proposal to consolidate the Tier 1 and Tier 2 reserve products into a single product remedies these issues by compensating all resources that provide Synchronized Reserves in the same manner, and thus gives all such resources the appropriate incentives to perform if called upon by PJM to provide reserves.

C. PJM's Current ORDC Curves Are Unjust and Unreasonable

In PJM, real-time reserve markets for Synchronized Reserve, Primary Reserve, and 30-Minute Reserve are cleared using ORDCs for each product, and under PJM's current market design, these three ORDCs take the shape of a step function with three steps.²⁰ When PJM's minimum reserve requirement ("MRR") cannot be met, the reserve shortage is priced administratively using the penalty factor specified in the applicable ORDC, and the penalty factor is used to determine the price for being unable to meet PJM's MRR.²¹ Moreover, the price

¹⁹ See *id.* at 15-23.

²⁰ See *e.g. id.* at 23-24.

²¹ See *id.*

established by this process is intended to signal to the market that the system is approaching a reserve shortage, and because PJM co-optimizes energy and reserves, the penalty factor is also included in the calculation of the Locational Marginal Prices (“LMPs”) for energy.²²

PJM’s current ORDCs are unjust and unreasonable for two main reasons. First, as PJM notes, the current \$850/MWh penalty factor is too low and will trigger “economic shortages” because PJM currently takes actions that cost more than \$850/MWh, such as purchases from pre-emergency demand response resources and emergency purchases, to avert shortage.²³ Accordingly, the current \$850/MWh penalty factor is unjustifiably low.

Secondly, the ORDC curves are unjust and unreasonable because they do not value additional reserves procured beyond the MRR. The current ORDC curves assign a value of \$0/MWh to such reserves despite the fact that such reserves add value to the system. Notably, PJM explains that its operators routinely use biased dispatch schedules in order to procure more reserves in an effort to ensure that the system carries sufficient reserves, particularly when operators feel the system is likely to fall short of reserves.²⁴ The current ORDCs have also proven inadequate to maintain the PJM system’s MRR in all intervals throughout a given year. According to PJM’s estimates, the PJM system would have been short of the MRR in nearly 30% of all five-minute intervals in 2018 had PJM’s operators not engaged in biasing behavior, and had instead procured reserves based solely on what the ORDCs would have suggested.²⁵

²² See *id.* at 24.

²³ See *id.* at 25-26, 48-49.

²⁴ See *e.g.*, Affidavit of Christopher Pulong on Behalf of PJM Interconnection, L.L.C. (“Pulong Aff.”) at P 26 (attached to PJM Filing).

²⁵ See PJM Filing at 54 (citing Pulong Aff. at PP 12-16).

As PJM notes, the Commission has already recognized that quantities of resource adequacy procured above the system's installed reserve requirement for a given delivery year still have value. For example, in examining PJM's current capacity market demand curve (the "Variable Revenue Requirement" curve), the Commission found it was just and reasonable to construct a downward-sloping demand curve that assigns a non-zero value to capacity procured in excess of the installed reserve requirement because such capacity increases reliability.²⁶ Similarly here, once the system's MRR is met, the marginal reliability benefit of each megawatt procured above the MRR declines, but such megawatts still have value beyond \$0/MWh, which the current ORDC curves do not recognize. PJM's proposed ORDC curves reflect the marginal reliability benefit of each megawatt procured above the MRR, and are thus a marked improvement compared to PJM's current, unjust and unreasonable ORDC curves.

D. Lack of Alignment Between Day-ahead and Real-time Markets For Synchronized Reserves is Unjust and Unreasonable

As explained by PJM, "[e]very other [RTO] has a methodology to procure the reserve products needed in real-time in advance of the operating day except PJM."²⁷ Specifically, PJM's current market design procures and schedules 30-minute reserves in the day-ahead market but does not have a comparable 30-minute reserve product in real-time. Furthermore, PJM only procures 10-minute reserves in the real-time market, but not in the day-ahead market.²⁸ This misalignment creates structural differences between the day-ahead and real-time markets that can limit the extent to which the day-ahead and real-time market outcomes converge and, as PJM

²⁶ See PJM Filing at 37-38 (citing *PJM Interconnection, L.L.C.*, 117 FERC ¶ 61,331 (2006)).

²⁷ See PJM Filing at 39.

²⁸ See *e.g. id.* at 39-40.

notes, can create inefficiencies with respect to procuring reserves,²⁹ as well as undesirable arbitrage opportunities.³⁰

The misalignment between PJM's day-ahead and real-time products can also create reliability concerns. For example, PJM's current practice for 10-minute reserves can cause reliability concerns because failing to procure sufficient 10-minute reserves in the day-ahead market could result in the system being short 10-minute reserves in real-time.³¹ Additionally, PJM does not currently maintain 30-minute reserves in real-time given that PJM currently lacks a 30-minute reserve product in the real-time market.³² These reliability issues can be remedied by procuring the same reserve products in both the day-ahead and real-time markets, which will also give PJM a more reliable means to monitor the amount of reserves it has available to it.³³ As PJM notes, many other RTOs align their day-ahead and real-time reserve products, and PJM is the only RTO that does not procure the reserve products it needs in real-time (*i.e.*, 10-minute reserves) in its day-ahead market.³⁴ For the foregoing reasons, the current misalignment between the day-ahead and real-time markets for Synchronized Reserves in PJM is unjust and unreasonable.

²⁹ *See id.* at 42.

³⁰ *See id.* at 43.

³¹ *See id.* at 39.

³² *See id.* at 40.

³³ *See id.* at 47.

³⁴ *See id.* at 39.

E. Taken Together, The Foregoing Features of PJM's Reserve Markets Are Unjust and Unreasonable And Are Likely To Become More Problematic In The Future

As explained, the market design elements that PJM seeks to revise are currently unjust and unreasonable. Moreover, PJM's current market construct for procuring reserves, particularly the functional form of the ORDC curve, is likely to become more problematic moving forward as more price-responsive and dispatchable load, DERs, and utility-scale variable resources are added to the system. These well documented and reasonably foreseeable trends will make net load more uncertain and require PJM operators to have more operational flexibility to maintain the system's power balance and the required levels of each reserve product. If PJM's current market design is maintained, it will not provide PJM's operators with the operational flexibility needed to account for more uncertain net load moving forward, which will in turn lead to less transparent market outcomes. Such a result is unjust and unreasonable, and must be remedied by the Commission.

III. ANALYSIS OF JUST AND REASONABLE REPLACEMENT RATE

A. PJM's Proposal is Just And Reasonable And Could Be Accepted by the Commission

The Clean Energy Entities believe that PJM's proposed replacement rate (*i.e.* market design for procuring and pricing reserves) is just and reasonable because it will give PJM the operational flexibility needed to balance an increasingly variable and unpredictable net load. The proposal constitutes a step in the right direction towards a market design that recognizes the operational flexibility that PJM will need in the future as net load becomes more uncertain. Further, as previously described, the Commission has already found aspects of PJM's proposal to be just and reasonable in other RTO reserve markets, particularly PJM's proposal to consolidate

the Tier 1 and Tier 2 Synchronized Reserve products into a single product, as well as PJM's proposal to align the reserve products procured in the day-ahead and real-time markets.³⁵

With respect to the ORDC penalty factor, the Clean Entity Entities agree with PJM that PJM's proposed \$2,000/MWh penalty factor for each reserve product is just and reasonable because, based on PJM's current market construct and proposed cap on emergency purchases, \$2,000/MWh aligns with the highest cost action an operator would take to procure additional reserves that would be reflected in market prices (*i.e.*, a resource's opportunity cost of foregoing energy revenues to provide reserves or the cost of an emergency purchase). As PJM notes, PJM's current rules, which have been approved by the Commission, add the penalty factors for each product to be just and reasonable,³⁶ although PJM proposes to remove the currently applicable cap in the instant proceeding.³⁷

Furthermore, the Clean Energy Entities believe that the downward-sloping ORDC construct that PJM proposes is just and reasonable. As noted previously, the Commission has already found that a downward-sloping demand curve is just and reasonable in capacity markets because it appropriately reflects the incremental value of additional capacity and reduces price volatility.³⁸ The same rationale can be applied here to reserve products instead of capacity. The Clean Energy Entities also agree with PJM that its proposed shape of the ORDC curves are just and reasonable. The proposed slope of the ORDCs, which define the rate at which the value of an additional megawatt of reserves falls when the system has already met its MRR, is just and

³⁵ See *e.g.* PJM Filing at 17; note 34, *supra*.

³⁶ See PJM Filing at 11.

³⁷ See *id.* at 12.

³⁸ See note 26, *supra*.

reasonable because it will be “directly based on and determined by the uncertainty that forecast errors and similar uncertainties will cause the system to fall short of the MRR.”³⁹ Additionally, using a market-based construct to procure the operational flexibility to meet PJM’s system needs is superior to its current practice of relying heavily on out-of-market actions because market-based constructs are more transparent and result in more accurate energy and ancillary service prices that reflect the true cost of serving load and maintaining a sufficient quantity of reserves. The Clean Energy Entities support and generally prefer transparent, market-based outcomes to out-of-market actions by operators that are not directly priced, but nonetheless affect market outcomes. This position is in line with Commission Order No. 844, in which the Commission cited transparency as a key goal in its price formation effort and stressed the importance of transparency.⁴⁰ Accordingly, the Clean Energy Entities believe that PJM’s proposal to adjust the ORDC curves will more accurately price the biasing activities that PJM operators currently take outside of the market-clearing process, which will enhance overall price transparency in PJM’s energy and ancillary services markets.

Moreover, over time, PJM’s proposal will likely lower costs to consumers. This is because higher energy and ancillary services (“EAS”) revenues that will result from adopting PJM’s proposal will offset capacity market revenues.⁴¹ As EAS revenues increase relative to

³⁹ See PJM Filing at 55.

⁴⁰ See *Uplift Cost Allocation and Transparency in Markets Operated by Regional Transmission Organizations and Independent System Operators* (Order No. 844), 163 ¶ 61,041 (2018). In Order No. 844, the Commission stated that “Lack of transparency concerning both uplift costs and operator-initiated actions can also limit valuable input from stakeholders, for example, during RTO/ISO transmission planning processes, or in committees that review RTO/ISO resource adequacy. Ensuring system needs are transparent to market participants is a critical step in finding cost-effective solutions to the operational challenges RTOs/ISOs face to support reliable operations and resilience” *Id.* at P 3.

⁴¹ Under PJM’s current capacity market construct, capacity market seller offer caps are calculated in a manner that lowers the offer cap based on historic E&S revenues. Lower market seller offer caps generally result in lower capacity market prices. The demand curve in the capacity market is also based on the estimated net Cost of New Entry (“CONE”) for a new reference resource, and this estimate also includes an estimate of the reference resource’s

capacity revenues, PJM's market will provide more granular price signals for reliability services compared to today's capacity market because EAS market price signals are more precise and granular than capacity market price signals. This shifting emphasis towards EAS revenues away from capacity market revenues will effectively place higher value on more flexible resources to provide reliability services to PJM, as EAS market prices more precisely reflect where and when the system's reliability needs are at the least cost to consumers, as opposed to generic "capacity", which is only loosely tied to the reliability needs of the system at specific times and places.

For the foregoing reasons, PJM's proposed market design outlined in the PJM Filing is just and reasonable.

B. In The Event That The Commission Does Not Find That PJM's Proposal Is Just And Reasonable, Just And Reasonable Alternatives Exists And Could Be Adopted By PJM

The Clean Energy Entities recognize that some aspects of PJM's proposal are more controversial than others. For example, PJM's proposal to use a \$2,000/MWh penalty factor for each reserve product and add them together when each product is below the applicable MRR received a significant amount of attention during PJM's stakeholder process preceding the PJM Filing.⁴² That being said, the Clean Energy Entities submit that the record clearly demonstrates that the current \$850/MWh penalty factor, as well as the current step-function shape of the ORDC curves, are unjust and unreasonable for the reasons described previously herein and in the PJM Filing. Accordingly, in the event that the Commission finds that PJM's current construct is

expected EAS revenues. Over time, higher EAS revenues would also lower Net Cone estimates, which, holding other effects constant, could also result in lower capacity market prices.

⁴² See, e.g., *Vistra Proposal*, Presented to PJM Stakeholders at January 24, 2019 meeting of the PJM Markets and Reliability Committee, available at <https://www.pjm.com/-/media/committees-groups/committees/mrc/20190124/20190124-item-03-energy-price-formation-vistra-alternate.ashx> ("Vistra Proposal"). The Vistra Proposal was an alternative proposal considered by PJM's stakeholders that proposed different reserve penalty factors than what was ultimately filed by PJM, as well as a phased implementation of the new penalty factors.

unjust and unreasonable, but that PJM has *not* met its burden under FPA Section 206 in proposing a just and reasonable replacement rate (*i.e.* market design for procuring and pricing reserves), the Clean Energy Entities submit that alternative just and reasonable replacement rates exist that the Commission could direct PJM to adopt.

For example, while the Clean Energy Entities believe that PJM's proposal to add the penalty prices associated with each reserve product, including locational shortages, is just and reasonable, there are other just and reasonable means to account for shortages of multiple reserve products. Indeed, determining the administratively-determined prices that occur when the PJM system is short one or more reserve products – a construct that is referred to as shortage pricing – requires a balance of several competing factors, and there are several just and reasonable ways to strike such a balance.

On one hand, there is a desire to have high shortage prices that will induce reactions from generation and load resources that will resolve the shortage in a timely manner that maintains reliability. If the shortage price is defined appropriately, such shortage prices will generally lead to more efficient short-run behavior because generation and load resources will act to resolve shortage conditions through a market mechanism as opposed to PJM's operators taking out-of-market actions. Such shortage prices would also enhance long-run efficiencies because they would incent investment, to the extent needed, in either new generation resources or new price-responsive load technologies that will enable market participants to respond more quickly to shortage events in the future.

However, the Commission must also balance these goals against other concerns, such as ensuring that LMPs reasonably reflect the cost of serving load and the fact that PJM's prior auctions for capacity assumed a certain level of energy and ancillary revenues forecasts that may

be exceeded if the Commission were to adopt PJM's proposal. There are also legitimate concerns that PJM's proposed additive nature of the penalty factors for each product and subzone does not result in shortage prices that reflect the marginal value of reserves to load because it is not based on the value of lost load.

Generally speaking, Clean Energy Entities believe that the ORDC penalty factors for the three products could be designed so that the sum of the penalty factors results in a scarcity price that reflects the marginal value of the reliability that the reserves cumulatively provide. Such a penalty factor regime could more accurately reflect each reserve product's incremental contribution to maintaining reliability, which is typically measured in terms of the probability that the system has to shed load. If the Commission wishes, the Commission could hold a technical conference or hearing to develop a more extensive record on the appropriate values for the three penalty factors, as well as the manner in which they should be combined together in the event of a shortage of two or more products. If the Commission prefers to avoid a technical conference or hearing, the Clean Energy Entities believe that applying an absolute cap to the ORDC penalty factors may also be reasonable. Such a cap would define the highest shortage price that could be set in PJM. Several proposals for such a cap were discussed during the PJM stakeholder process preceding the PJM Filing.⁴³

Therefore, if the Commission finds PJM's proposed penalty factors, and the manner in which they are added together, or any other aspect of PJM's proposal, is not just and reasonable, the Clean Energy Entities respectfully request that the Commission find PJM's current market construct with respect to procuring and pricing reserves to be unjust and unreasonable, and either

⁴³ See, e.g., *Vistra Proposal*; *DC-OPC Energy Price Formation Proposal*, Presented to PJM Stakeholders at January 24, 2019 meeting of the PJM Markets and Reliability Committee, available at <https://www.pjm.com/-/media/committees-groups/committees/mrc/20190124/20190124-item-03b-energy-price-formation-dc-opc-presentation.ashx>.

direct PJM to file a compliance filing implementing a just and reasonable market design prescribed by the Commission, or order a technical conference or hearing to further develop a record examining what a just and reasonable market design would be. In either event, maintaining PJM's current market design with respect to procuring and pricing reserves would not be a just and reasonable outcome.

IV. CONCLUSION

For the foregoing reasons, the Clean Energy Entities respectfully request that the Commission consider its Comments herein.

Respectfully submitted,



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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 Washington, D.C. this 15th day of May, 2019.



Steven Shparber

Document Content(s)

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