UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C.	)	**Docket Nos. ER23-729-000**
	)	**EL23-19-000**
	)	
	)	**(Not Consolidated)**

PROTEST OF THE PJM POWER PROVIDERS GROUP

Pursuant to Rule 211 of the Federal Energy Regulatory Commission's ("Commission" or "FERC") Rules of Practice and Procedure,[1] and the Commission's December 27, 2022 Combined Notice of Filings #1, The PJM Power Providers Group ("P3")[2] submits this Protest, along with supporting affidavits from former FERC Chairman Joseph T. Kelliher ("Kelliher Affidavit") (Attachment A) and Dr. Roy J. Shanker ("Shanker Affidavit") (Attachment B). This Protest addresses the December 23, 2022 filings in the above-captioned dockets by PJM Interconnection, L.L.C. ("PJM").

SUMMARY

PJM's proposals in these proceedings invite the Commission to look past PJM's violation of its own Tariff, ignore nearly a century's worth of precedent on the filed rate doctrine, jettison the Commission's commitment to market integrity, and adopt a proposed Tariff change for which PJM has carried none of its statutory responsibilities and which will not even address the issue that gave rise to these proceedings. In short, PJM has hit a Grand Slam of bad ideas.

[1] 18 C.F.R. § 385.211 (2022).

[2] P3 is a non-profit organization dedicated to advancing federal, state and regional policies that promote properly designed and well-functioning electricity markets in the PJM Interconnection, L.L.C. ("PJM") region. Combined, P3 members own over 67,000 MWs of generation assets and produce enough power to supply over 50 million homes in the PJM region covering 13 states and the District of Columbia. For more information on P3, visit www.p3powergroup.com. The comments contained herein represent the position of P3 as an organization, but not necessarily the views of any member with respect to any issue.

PJM's filings mischaracterize and omit numerous material facts regarding the Tariff, the steps PJM took in applying it for the December 2022 Base Residual Auction ("BRA"), and the extent to which PJM had—or at least should have had—advance notice that the clearing price for the Delmarva Power & Light – South ("DPL-South" or "DPL-S") Locational Deliverability Area ("LDA") would rise to the level produced by the December 2022 BRA. Ultimately, those mistakes have caused PJM to miss the mark both on diagnosing the issue it is concerned about and in crafting its proposed solution. The real issue underlying this proceeding is that PJM's method of determining the LDA Reliability Requirements—*i.e.,* its method of forecasting the generation resources that will be available in an LDA and will participate in a particular BRA—is rendered inaccurate by Tariff provisions exempting Planned Generation Capacity Resources and certain existing resources from the Reliability Pricing Model ("RPM") must-offer requirement.

Despite PJM's misdirection, one thing is as clear as day: according to the Tariff, the only step of the BRA that PJM has not yet completed is posting the final results that it calculated pursuant to the Tariff. Aside from that ministerial step, PJM has applied the existing Tariff rules for the December 2022 BRA in their entirety, and PJM has possessed—but refused to post—the final results of that Tariff-dictated process since December 19, 2022.

PJM's refusal to do so violates the Tariff requirement that, after conducting the BRA, PJM must post the results "as soon thereafter as possible."[3]

Further, PJM's proposal to apply its proposed solution to the December 2022 BRA after completing all but one step in the Tariff's rules applicable to that auction represents a blatant violation of the filed rate doctrine and the rule against retroactive ratemaking. Under long-

[3] Tariff, Attach. DD § 5.11(e).

standing judicial precedent, the filed rate doctrine and rule against retroactive ratemaking apply with equal force to the non-rate terms of the Tariff and the rates resulting from application of the Tariff—both of which PJM's proposal would retroactively alter. PJM's arguments to the contrary are unavailing. As explained by the Chairman Kelliher, a FERC order accepting PJM's proposal for the December 2022 BRA would create terrible precedent, undermine the Commission's commitment to competitive markets, and have ripple effects well beyond PJM.

PJM has also failed to carry its statutory burdens under the Federal Power Act ("FPA") and the Administrative Procedure Act ("APA"). Specifically, PJM has not demonstrated that its proposed solution is just and reasonable, whether adopted as a rate change under FPA section 205 or as a replacement rate under FPA section 206. In fact, as explained by Dr. Shanker, PJM's proposed solution will not even address the issue that gave rise to PJM's filings. Neither has PJM carried its burden to demonstrate, under FPA section 206, that the existing Tariff is unjust and unreasonable. PJM's half-hearted attempt to challenge the existing Tariff fails for several reasons, including that PJM has presented no solid evidence regarding the financial impact—in the December 2022 BRA or future BRAs—of applying the current Tariff under the specific circumstances PJM alleges to be problematic. Further, in presenting its proposed changes under FPA section 205 and FPA section 206, PJM has utterly failed to satisfy its burden to present evidence sufficient to support its proposal, as required by the APA, and thus has failed to give the Commission the evidence necessary to lawfully accept PJM's proposal.

Finally, as Dr. Shanker explains, there is a much simpler and more effective solution to the issue that gave rise to PJM's filings. If PJM wishes to improve the accuracy of the LDA Reliability Requirements that it uses as auction parameters, PJM could impose a deadline, in advance of the BRA, by which any resource that is exempt from the RPM must-offer obligation

would be required to exercise that option and notify PJM of its decision. PJM could incorporate that information into its LDA Reliability Requirement calculations, thus eliminating the forecast risk that animated these proceedings, while permitting resources that are exempt from the RPM must-offer obligation to retain their option not to participate in the BRA.

For all of these reasons, the Commission should reject PJM's section 205 and section 206 filings and permit PJM to fully and thoughtfully consider these issues with stakeholders through the normal stakeholder process.

I. BACKGROUND

PJM's forward capacity market, the RPM, consists of a highly structured process set forth in detail by the Tariff. In the normal course, PJM conducts an annual BRA to obtain commitments to supply capacity during a Delivery Year three years in the future, with follow-on Incremental Auctions in between the BRA and the Delivery Year.[4] The price signals produced by the RPM auctions are intended, in part, to attract investment in the new and existing generation resources that are needed to support electric reliability in the PJM region.[5]

The product procured through those auctions is the Capacity Performance product, which adjusts each capacity resource's capacity revenue based on its performance during emergency conditions.[6] Most, but not all, generation resources are required to offer into all RPM auctions, unless they qualify for an exception.[7] That requirement is commonly referred to as the RPM

[4] Tariff, Attach. DD § 5.4.

[5] *See, e.g.*, *PJM Interconnection, L.L.C.*, 155 FERC ¶ 61,157, at P 112 (2016); *see also* Shanker Affidavit at 36 ("PJM adopted this design with an eye to creating a 'correct' representation of the future and presumably a balancing of the risks described above and the related constructive price signals to market participants.").

[6] Tariff, Attach. DD § 5.5A (capacity resource types).

[7] *Id.* § 6.6A(a).

"must-offer obligation."[8] However, the Tariff exempts the following types of resources from the RPM must-offer obligation: Planned Generation Capacity Resources, Intermittent Resources, Capacity Storage Resources, Demand Resources, Energy Efficiency Resources, and Hybrid Resources consisting exclusively of components that in isolation would be Intermittent Resources or Capacity Storage Resources.[9]

The Tariff sets forth the mechanics of the auction process in detailed terms. Among other things, PJM is required to (1) develop the parameters that will be used in each BRA, (2) publish information about those parameters, (3) obtain and review Sell Offers from Market Sellers based on those auction parameters, and (4) compute the auction clearing prices based on those parameters and conduct a market power review of the results.[10] The clearing prices are calculated by an optimization algorithm, the rules of which are set forth in the Tariff.[11] PJM's rights and obligations concerning its review of those clearing prices are explicitly spelled out in the Tariff.[12] PJM has extremely limited ability to adjust those results. The Tariff expressly describes the narrow circumstances under which PJM can use the optimization algorithm to recompute the clearing prices and the equally narrow circumstances under which the results produced by the auction may be considered non-final.[13] The Tariff also sets forth a precise

[8] Shanker Affidavit at 16-17, 36; *see also* Tariff, Attach. DD § 6.6A(a) (referring to the "must-offer requirement").

[9] Tariff, Attach. DD § 6.6A(c).

[10] *Id.* §§ 5.11. 5.12, and 6.2.

[11] *Id.* §§ 5.12 and. 5.14.

[12] *See, e.g., id.* § 6.2 (permitting PJM to recompute the optimization algorithm to clear the auction with Market Seller Offer Caps in place); *id*. at § 15(allowing PJM to review each LDA that has a Locational Price Adder).

[13] *Id.* § 6.2.

timeline for the auction process, and requires that, after an auction is conducted, PJM must post the results "as soon thereafter as possible."[14]

Due to a series of major market overhauls driven, in part, by the Commission and, in part, by PJM's acquiescence to political winds of change, the three-year forward auction schedule has been thrown out of the window in recent years.[15] PJM obtained Commission approval to conduct the BRAs for the 2023/2024, 2024/2025, 2025/2026 and 2026/2027 Delivery Years between 2022 and 2023.[16] The BRA for the 2024/2025 Delivery Year was scheduled to commence on December 7, 2022.

One of the parameters of the December 2022 BRA, and all BRAs, is the LDA Reliability Requirement.[17] The LDA Reliability Requirement represents the amount of local generation and imports needed to serve that LDA's load, and it is based on PJM's calculation of the Capacity Export Transfer Objective ("CETO") for that particular LDA.[18] Since the dawn of PJM's days as a Regional Transmission Operator ("RTO"), PJM has used the same model to develop its CETO calculations—*i.e.,* the Probabilistic Reliability Index Study Model ("PRISM").[19] Each LDA Reliability Requirement is based on PJM's calculation of the CETO for that particular LDA.[20] PJM's CETO calculations require it to make forecasts regarding the generation resources that PJM expects to exist in an LDA within the planning horizon at issue.[21] Those

[14] Tariff, Attach. DD § 5.11(e).

[15] *See PJM Interconnection, LLC*, 178 FERC ¶ 61,122 at P 13 (2022).

[16] *Id.* at PP 7, 13.

[17] *See* Tariff, Attach. DD §§ 5.11(a), (a)(v); Shanker Affidavit at 13.

[18] Shanker Affidavit at 10-13.

[19] *Id.* at 10.

[20] *Id.* at 10-14.

[21] *Id.* at 14 ("[I]n calculating the CETO for an LDA, PJM includes Planned Resources that it forecasts to be available inside of the LDA for the BRA Delivery Year as part of the in-LDA Capacity Resources.").

forecasts necessarily require PJM to make various assumptions regarding those generation resources, including whether each of them will offer into the RPM.[22]

Those assumptions involve tradeoffs from a system planning perspective. How conservative or not those assumptions will determine how the load in each LDA will be served. If PJM assumes a relatively low amount of generation will exist in the LDA, more transmission capacity will be needed to serve the load via imports from outside the LDA. Conversely, if PJM assumes a relatively high amount of generation will exist in the LDA, a higher percentage of the load will be served by local generation resources and less transmission capacity will be needed for imports. In turn, those assumptions will impact the price signal the RPM will send concerning the need for generation resources within the LDA.

In developing the parameters specifically for the December 2022 BRA, PJM conducted and published multiple analyses, including a sensitivity study in July 2022 ("July 2022 Sensitivity Study").[23] The July 2022 Sensitivity Study showed that, if 260 MW of generation resources that were expected to participate in the BRA did not end up participating, the clearing price for the DPL-South LDA would reach the cap of $431.26 per MW-day.[24] PJM did not adjust its assumptions regarding the DPL-South LDA based on the July 2022 Sensitivity Study.[25]

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[22] Shanker Affidavit at 14-17.

[23] *Id.* at 22; *see also* PJM, 2023/2024 Auction Information, BRA Scenario Analysis, *available at* https://pjm.com/markets-and-operations/rpm (Excel spread sheet labeled "2023-2024-bra-scenario-analysis.xlsx" created July 1, 2022 by Josh Bruno)). The URL link provided here is to the location on the PJM website at which the July 2022 Sensitivity Study was stored during the preparation of this Protest and the Shanker Affidavit. In preparing the Shanker Affidavit and this Protest, Dr. Shanker and P3 accessed that document through the PJM website on multiple occasions. However, it appears that on or about January 20, 2023—*i.e.*, the comment deadline for these proceedings—PJM removed the July 2022 Sensitivity Study from its website. Accordingly, P3 has included, as Attachment C to this Protest, the version of the July 2022 Sensitivity Study that Dr. Shanker and P3 downloaded from the PJM website. *See* Attachment C.

[24] Shanker Affidavit at 22-23.

[25] *See generally* PJM 205 Filing.

On December 7, 2022, PJM opened the December 2022 BRA.[26] Pursuant to the Tariff, Sell Offers and PRD offers were due on December 13.[27] On December 21, 2022, PJM announced that, due to "a narrow set of circumstances" impacting the DPL-South LDA, PJM would withhold the final results of the auction and make an "emergency Section 205 filing" and "also likely submit a companion Section 206 filing."[28] PJM later indicated that it would "release[]" auction outcomes that it described as "indicative" and "preliminary."[29] However, based on stakeholder feedback, PJM later announced that it would not "post indicative results."[30] On December 23, PJM submitted the two filings at issue in these proceedings, one pursuant to FPA section 205 and one pursuant to FPA section 206.[31]

[26] PJM Interconnection, L.L.C., Proposed Amendment to the Locational Deliverability Area Reliability Requirement Filed Pursuant to section 205 of the Federal Power Act, Request for Waiver of Notice Requirement, and Request for Extended Comment Period of 28 Days, Dkt. No. ER23-729-000, at 8 (filed Dec. 23, 2022) ("PJM 205 Filing").

[27] *Id.*

[28] https://insidelines.pjm.com/pjm-updates-members-on-2024-2025-capacity-auction-results; Shanker Affidavit at 9.

[29] https://insidelines.pjm.com/pjm-updates-members-on-2024-2025-capacity-auction-results.

[30] https://insidelines.pjm.com/pjm-updates-members-on-2024-2025-capacity-auction-results. P3 was among the stakeholders that requested that PJM not post "indicative results," because the Tariff does not allow for the calculation of "indicative results" or the posting thereof. P3's position has consistently been that, in accordance with the Tariff, PJM should have posted the final results on December 20, 2022, as planned and consistent with PJM's historic practice of posting results within two weeks of the opening of the BRA. *See* https://insidelines.pjm.com/pjm-capacity-auction-for-2024-2025-delivery-year-opens/ (announcing that the December 2022 BRA "bidding window will close on Dec. 13, and results will be reported on Dec. 20").

[31] *See* PJM 205 Filing; PJM Interconnection, L.L.C., Section 206 Filing Alleging that the Locational Deliverability Area Reliability Requirement is Unjust and Unreasonable as Applied in a Particular Locational Deliverability Area in the 2024/2025 Base Residual Auction And Requesting that the Commission Establish a Refund Effective Date of December 23, 2022, and Request for an Extended Comment Period of 28 Days, Dkt. No. EL23-19-000 (filed Dec. 23, 2022) ("PJM Complaint").

II. PROTEST

A. PJM Has Violated its Tariff by Refusing to Close the December 2022 Auction and Post the Final Clearing Prices Produced by the Existing Rules

The BRA auction is a precisely structured process, with each of the required steps expressly prescribed by the Tariff. For other steps, the Tariff provides PJM discretion to make judgement calls within the bounds of the Tariff. For some steps, PJM has no discretion. Here, PJM has deviated from the Tariff-defined auction process, abused its discretion, and exceeded its authority under the Tariff.

Prior to each BRA, PJM is required to establish and post the auction parameters that will be used in the BRA.[32] Among other things, PJM must post the LDA Reliability Requirement "for each [LDA] for which a separate Variable Resource Requirement Curve has been established for such [BRA], including . . . the CETO and CETL values for all Locational Deliverability Areas."[33] To administer the auction, PJM must then receive Buy Bids and Sell Offers based on the auction parameters, and "[d]etermin[e] the clearing price that reflects all such inputs."[34] The process for determining the clearing price is straightforward: PJM uses a computer to run an "optimization algorithm" using the Tariff prescribed inputs,[35] and that algorithm follows specific computational steps to calculate the Preliminary Zonal Capacity Prices, Adjusted Zonal Capacity Prices, and Final Zonal Capacity Prices.[36] The outputs of that optimization algorithm are the clearing prices.[37] With those results in hand, PJM must then

[32] *See* Tariff, Attach. DD § 5.11.

[33] *Id.* § 5.11(a)(v).

[34] *Id.* § 3.2(h).

[35] *See id.* § 5.12.

[36] *See id.* § 5.14(f).

[37] *See id.* § 5.14.

conduct a market power review and, if required, "recompute [the] algorithm with [market seller offer caps] in place."[38]

"***After conducting***" the auction by following those steps, PJM is required to "post the results of [the] auction ***as soon thereafter as possible***[.]"[39]

Thus while posting auction results is both the logical and required last step in the auction process, it is also clear that the posting is, as Chairman Kelliher explains, a "ministerial step" that is done after the actual auction has been conducted.[40] PJM cannot use the ministerial act of posting a Tariff-mandated result to bootstrap an exit ramp by which PJM can modify parameters that were posted, and relied upon, *before* the auction was conducted as a means of modifying potentially unpalatable results that emerge *after* the auction has been conducted consistent with the existing Tariff.

Running the optimization algorithm and conducting the required market power review pursuant to the existing Tariff provisions are each steps in conducting an auction. As the Tariff clearly prescribes, *after conducting the auction*, PJM must post the results "as soon … as possible." With respect to the December 2022 BRA, it was possible for PJM to post the results on December 20th as was originally planned[41] and it is abundantly clear that the results were known to PJM at the time.[42] However, PJM did not like the results and therefore unilaterally decided not to post them. PJM's failure to post the auction results constitutes a clear violation of its Tariff.

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[38] Tariff, Attach. DD § 6.2.

[39] *See id.* § 5.11(e) (emphasis added)

[40] Kelliher Affidavit at 14.

[41] *See* https://insidelines.pjm.com/pjm-capacity-auction-for-2024-2025-delivery-year-opens/ (announcing that the December 2022 BRA "bidding window will close on Dec. 13, and results will be reported on Dec. 20").

[42] *See* https://insidelines.pjm.com/pjm-updates-members-on-2024-2025-capacity-auction-results.

To be sure, the Tariff does provide that clearing prices could be subject to further revision after PJM completes the above steps, but only in two specific circumstances, neither of which apply in this instance.

First, PJM must file with FERC—within seven days of the deadline for sellers to submit Sell Offers in the BRA—a report of any determinations made under Tariff Sections 5.14(h) (concerning the Minimum Offer Price Rule), 6.5(a)(ii) (concerning mitigation of Planned Generation Capacity Resources), and 6.7(c) (concerning unit-specific Avoidable Cost Rates).[43] If PJM makes such a FERC filing and no entity objects or if, in the event that an objection is filed, FERC does not issue an order within sixty days modifying PJM's decision, PJM's determination "shall be final."[44] However, if an entity does object to the PJM determination at issue and FERC issues a decision within sixty days modifying PJM's determination, then the "[f]inal auction results shall reflect any decision made by FERC regarding the report."[45] Although that provision appears to permit clearing prices to be changed after PJM has followed the Tariff-mandated BRA process, that provision is irrelevant to this case because PJM has not claimed that the BRA clearing prices are non-final by operation of Section 6.2.[46]

Second, Section 5.11(e) of the Tariff provides that—"[i]f PJM discovers a potential *error* in the *initial posting of auction results*"—PJM can follow a particular process to "post modified results" and "corrected auction results."[47] That process includes specific deadlines that PJM

[43] *See* Tariff, Attach. DD § 6.2(c).

[44] *Id.*

[45] *Id.*

[46] *See* Kelliher Affidavit at 11-14; Shanker Affidavit 3-4 (discussing overall conclusions requiring the publishing of the BRA results).

[47] *See* Tariff, Attach. DD § 5.11(e).

must meet when notifying Market Participants of the error and determining whether to post modified auction results and, ultimately, corrected modified auction results.

That particular portion of Section 5.11(e) does not apply to this case because PJM has not identified a legitimate "error" in the clearing prices. An "error" means a "mistake."[48] In the context of applying the Tariff, that means a mistake in applying the terms and conditions of the Tariff. But PJM has admitted to no mistake in its application of the Tariff.[49] PJM asserts that it properly conducted the BRA according to the existing Tariff rules. The alleged problem PJM has identified is that, due to the existing Tariff rules permitting Planned Generation Capacity Resources and Intermittent Resources to decline to participate in a BRA without providing PJM advance notice, the long-standing method for determining the LDA Reliability Requirement will produce higher prices in an LDA if Planned Generation Capacity Resources and Intermittent Resources exercise their right not to submit Sell Offers in the BRA.[50]

PJM does not assert that it made a mistake in applying either of those rules—*i.e.* the calculation of the LDA Reliability Requirement or the RPM must-offer exemption for Planned Generation Capacity Resources and Intermittent Resources. PJM simply does not like the numerical result that properly applying those rules produced for the DPL-South LDA in the December 2022 BRA. But whether or not PJM likes the numerical result is irrelevant under the Tariff. The Tariff does not permit PJM to conceal the auction clearing prices from Market Participants when the Tariff is faithfully and accurately applied and produces a legitimate clearing price. To the extent PJM believes that the existing rules might produce an unjust and unreasonable result under certain factual circumstances even though the Tariff is properly

[48] Error Definition, *Black's Law Dictionary* (11th ed. 2019).

[49] *See* PJM 205 Filing at 8; Kelliher Affidavit at 3.

[50] *See* PJM 205 Filing at 8-10; Shanker Affidavit at 32-33.

applied, P3 asserts that such a scenario would represent an opportunity for prospective improvement, similar to numerous other instances in which PJM and its stakeholders, after reviewing the auction results, have decided to alter some element of the capacity market rules to enhance the capacity market's effectiveness. But an opportunity for improvement that manifests through proper administration of the Tariff rules is not an "error" under Section 5.11(e).

Further, even assuming *arguendo* that PJM had properly identified an "error" in the clearing prices, the presence of such an error does not relieve PJM of the obligation to post the auction results as soon as possible after the BRA. Although Section 5.11(e) provides that "the deadlines set forth" in that section "shall not apply if the referenced auction results are under publicly noticed review by the FERC,"[51] that language has no bearing on PJM's obligation to post the initial auction results. Pursuant to the first sentence of the first paragraph in Section 5.11(e), the auction results must be filed "as soon . . . as possible" after conducting the BRA. "As soon . . . as possible" is not a "deadline;" it is a legal standard. The only "deadlines" in Section 5.11(e) appear in the first, second, and fourth sentences of the second paragraph of that section—which require PJM to act by 5:00 p.m. of the fifth, seventh, and tenth Business Days "following the initial publication of the results of the auction." Thus, even if PJM identifies an "error" in the clearing prices and the auction results are under publicly noticed FERC review, those conditions would only suspend the specific 5:00 p.m. deadlines listed in the Section 5.11(e).[52] PJM would still be required to post the results as soon as possible after conducting the BRA.

[51] *See* Tariff, Attach. DD § 5.11(e).

[52] In any event, PJM has not been relieved of any these 5:00 p.m. deadlines in connection with the December 2022 BRA, because the Commission has issued no public notice stating that it is reviewing the auction results pursuant to Section 5.11(e).

Furthermore, these two very limited exceptions do not permit PJM to post "indicative" auctions results rather than final auction results. Nowhere does the Tariff contemplate the posting of "indicative" auction results; rather such an action would be contrary to the competitive framework of BRA. It would not only be a clear violation of the Tariff, but would also sow confusion and chaos among Market Participants, regulators, and consumers alike.

With regard to the December 2022 BRA, based on PJM's own public statements, PJM had the results of the optimization algorithm by December 19, 2022, and possible even earlier. Nearly a month has passed since that date, and PJM still has not posted the results. PJM has therefore violated its obligation to post the results as soon as possible after conducting the BRA. Upon rejecting PJM's Section 205 and Section 206 filings, for the reasons discussed below, the Commission should direct PJM to immediately post the final and binding results of the December 2022 BRA even though this posting will be well past what can be considered a reasonable interpretation of the Tariff.

B. PJM's Proposal to Change the Rules for The December 2022 Auction Violates the Filed Rate Doctrine and the Rule Against Retroactive Ratemaking

The FPA provisions "mandating the open and transparent filing of rates and broadly proscribing their retroactive adjustment are known collectively as the filed rate doctrine."[53] That doctrine "bind[s] regulated entities to charge only the rates filed with FERC and to change their rates only prospectively."[54] As a result, the Commission "has no authority under the [FPA] to allow retroactive change in the [filed] rates."[55]

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[53] *Okla. Gas & Elec. Co. v. FERC ("Oklahoma Gas")*, 11 F.4th 821, 829 (D.C. Cir. 2021) (quoting *Old Dominion Elec. Coop. v. FERC ("Old Dominion")*, 892 F.3d 1223, 1230 (D.C. Cir. 2018)) (internal quotations omitted).

[54] *Oklahoma Gas*, 11 F.4th at 829.

[55] *Id.* (quoting *Old Dominion*, 892 F.3d at 1230) (internal quotations omitted).

PJM's proposal to change the rules of the December 2022 BRA and recompute the clearing prices under the new rules would, if permitted, violate the filed rate doctrine. PJM has already administered the BRA pursuant to the terms of the Tariff and computed the clearing prices for the region and each LDA (including DPL-South) consistent with those terms. Further, by PJM's own admission, PJM has taken the extraordinary step of computing an alternative clearing price for the DPL-South LDA using a method (*i.e.* the one PJM proposed in this proceeding) that currently is not permitted by the Tariff. The filed rate doctrine requires the Commission to reject PJM's attempt to change the Tariff rules applicable to the December 2022 BRA and the resulting clearing price for the DPL-South LDA. As explained by Chairman Kelliher in the affidavit attached hereto, the Commission's failure to do so would establish a radioactive precedent that would undermine confidence not only in the RTO/ISO markets, but in the Commission itself.[56]

i. The Filed Rate Includes the Existing Optimization Algorithm, the Auction Parameters Used as Inputs Thereto, and the Resulting Clearing Prices

It is well established that the filed rate doctrine applies with equal force to both the "rates" and the "non-rate terms" set forth in a tariff.[57] "The [FPA] provides no grounds for distinguishing rate and non-rate terms, but rather binds parties to the terms in the filed rate."[58] The filed rate doctrine applies with equal strength in the context of competitive wholesale markets and the non-rate terms set forth in RTO/ISO tariffs, specifically including PJM's.[59]

[56] *See* Kelliher Affidavit at 4, 23-25.

[57] *See* 16 U.S.C. § 824d(d); *see also Nantahala Power & Light Co. v. Thornburg*, 476 U.S. 953, 966-67 (1986) ("[T]he filed rate doctrine is not limited to 'rates' *per se*.").

[58] *Oklahoma Gas*, 11 F.4th at 830.

[59] *See Old Dominion*, 892 F.3d at 1230.

As concerns the December 2022 BRA, the filed rate includes numerous non-rate terms and the ultimate clearing prices computed pursuant to those terms. The non-rate terms include, *inter alia*, the following: the rules governing the various auction parameters to be used in the BRA, the rules by which PJM is required to develop—and notify sellers of—those auction parameters in advance of the BRA, the rules concerning sellers' development and submission of Sell Offers based on the parameters developed prior to commencing the BRA, PJM's review of those Sell Offers, the rules governing the optimization algorithm used to compute clearing prices, the process PJM must follow to review the results of the optimization algorithm's computations, the specific grounds on which PJM is permitted to make adjustments to parameters and recompute the optimization algorithm, and the obligation to post those results "as soon thereafter as possible." Critically, the method of determining the LDA Reliability Requirement for DPL-South—and whether PJM is permitted to make adjustments to that auction parameter—is an explicit, non-rate term in PJM's Tariff.[60]

Of necessity, the Tariff requires PJM to establish the DPL-South LDA Reliability Requirement prior to conducting the BRA.[61] That has been the case since the RPM was established,[62] and PJM applied the Tariff in that manner in conducting the December 2022

[60] Kelliher Affidavit at 8, 16, 19.

[61] *See, e.g.*, Tariff, Attach. DD §§ 5.11(a), (a)(v) (requiring PJM to post—"*prior to conducting the [BRA]*"—the "*[LDA] Reliability Requirement* and the Variable Resource Requirement ["VRR"] Curve for each [LDA] for which a separate [VRR] Curve has been established for such [BRA], including the details of any adjustments to account for Price Responsive Demand ["PRD"] and any associated PRD Reservation Prices, and the CETO and CETL values for all [LDAs]") (emphases added); *id.* § 5.12(a) (explaining that the Reliability Requirements, and VRRs based thereon, are necessary parameters of the optimization algorithm that produces the BRA clearing prices for the region and each LDA); *id.* § 5.10(a)(vi)(B) (requiring that, in order to establish the parameters of the VRR Curve, "[PJM] shall determine the PJM Region Reliability Requirement and the *[LDA] Reliability Requirement* for each [LDA] for which a [VRR] Curve has been established for such [BRA] on or before February 1, *prior to the conduct of the [BRA]* for the first Delivery Year in which the new values will be applied, in accordance with the Reliability Assurance Agreement.") (emphases added).

[62] *PJM Interconnection, LLC, 117* FERC ¶ 61,331 (2006) (approving settlement filed by PJM and multiple PJM market participants establishing RPM and creating 23 LDAs).

BRA.[63] Based on those parameters, sellers then submit their Sell Offers into the BRA.[64] The Tariff then requires PJM to run the optimization algorithm based on the LDA Reliability Requirement, and other auction parameters, and the submitted Sell Offers.[65]

All of those steps, expressly set forth in the Tariff, are "non-rate terms" of the filed rate which PJM has already taken in administering the December 2022 BRA. Further, the clearing prices produced by the December 2022 BRA as a result of PJM's following those terms of the Tariff represent the "rate terms" of the filed rate—*i.e.* the rates PJM will charge for the December 2022 BRA under the existing Tariff. In other words, as a factual matter, the December 2022 BRA has concluded. By its own admission, PJM has applied the terms of the existing Tariff and produced clearing prices pursuant to those rules.[66] Market Sellers are entitled to rely on—and did, in fact, rely on—those non-rate and rate terms of the filed rate,[67] and neither PJM nor FERC is authorized to retroactively impose different non-rate or rate terms for the December 2022 BRA.[68] And yet, PJM is now concealing the results of that process and seeking approval to implement new non-rate terms of the filed rate, retroactively apply the filed rate with

[63] *See* https://pjm.com/markets-and-operations/rpm (providing planning parameter spreadsheets and documents categorized by Delivery Year, including the 2024/2025 Delivery Year, and their website publication dates); *see also* PJM Manual 18: PJM Capacity Market, PJM Interconnection, L.L.C., at 102-104, available at https://www.pjm.com/-/media/documents/manuals/m18.ashx.

[64] *See PJM Manual 18: PJM Capacity Market,* PJM Interconnection, L.L.C., 102-104 (RPM Auction timeline) https://www.pjm.com/-/media/documents/manuals/m18.ashx ; *see also* PJM 205 Filing at 24 ("Undeniably, Capacity Market Sellers have submitted bids into the auction based on the planning parameters.").

[65] Tariff, Attach. DD § 5.12.

[66] *See, e.g.,* PJM 205 Filing at 2 ("the application of the Locational Deliverability Area Reliability Requirement in its present form involving small LDAs results in a mismatch with prices not reflecting the actual reliability requirements of the LDA.").

[67] *See* Kelliher Affidavit at 16; Shanker Affidavit at 30-32; *see also* PJM 205 Filing at 24.

[68] *E.g.*, *ISO New England Inc. New England Power Generators Ass'n, Inc. v. Iso New England Inc.,* 176 FERC ¶ 61,176 at 12 (2021); *Rolling Hills Generating, L.L.C.* 181 FERC ¶ 61,190 (2022) (Danly, Comm'r, dissenting at P 2); *see also* Kelliher Affidavit at 6-7; *id.* at 18 ("The Commission has no authority to provide equitable exceptions or retroactive modifications to a Tariff, regardless of whether the change is to a rate or non-rate provision.").

the new non-rate terms, and produce new clearing prices for the December 2022 BRA. If permitted, that would constitute a blatant violation of the filed rate.

It would also fly in the face of decades of Commission precedent.[69] Approving PJM's rate change for the December 2022 BRA would also be counter to the Commission's entire catalog of precedent on forward capacity market deadlines.[70] As explained below, establishing the precedent PJM seeks in these proceedings would have dire consequences for the RTO/ISO markets, severely undermining investor confidence in those markets. The Commission should unequivocally reject PJM's invitation to do so.

ii. PJM's Arguments to the Contrary Are Unavailing

PJM first argues that applying its proposed Tariff change to the December 2022 BRA is only a prospective change because "the auction remains ongoing" until PJM "post[s] the final auction results."[71] There are three problems with that rationale.

First, whether the auction "remains ongoing" is irrelevant to the filed rate doctrine analysis. Even if the auction is still "ongoing"—which, as a factual matter, is not the case—PJM

[69] *See* Kelliher Affidavit at 4, 28-29.

[70] *Rolling Hills Generating, L.L.C.* 181 FERC ¶ 61,190 (Danly, Comm'r, dissenting at P 2) ("the filed rate doctrine is a nearly impenetrable shield' and does not yield, 'no matter how compelling the equities.…the Commission has no statutory authority to provide equitable exceptions or retroactive modifications to the tariff. And it does not matter whether the proposed change is to a rate or non-rate term." (internal quotations and citations omitted)); *EDF Renewables, Inc.*, 181 FERC ¶ 61,189 (Danly, Comm'r, dissenting at P 2) (same); *Savion LLC*, 181 FERC ¶ 61,188 (2022) (Danly, Comm'r, dissenting at P 2)(same); *Lightsource Renewable Energy Dev., LLC,* 181 FERC ¶ 61,187 (2022) (Danly, Comm'r, dissenting at P 2) (same); *Andro Hydro, LLC,* 178 FERC ¶ 61,007 (2022) (Danly, Comm'r, concurring at PP 1-3) (finding "[t]he Commission has no power to retroactively change the filed rate" in the context of generator missing an ISO-NE tariff-mandated deadline to participate in sixteenth annual Forward Capacity Auction); *ISO New England Inc. New England Power Generators Ass'n, Inc. v. Iso New England Inc.,* 176 FERC ¶ 61,176 at P 12 ("the filed rate doctrine forbids a regulated entity from charging rates for its services other than those properly on file with the appropriate federal regulatory authority. The corollary rule against retroactive ratemaking prohibits the Commission from adjusting current rates to make up for a utility's over- or under-collection in prior periods.**");** *ISO New England Inc. New England Power Generators Ass'n, Inc. v. Iso New England Inc.,* 175 FERC ¶ 71,177 at P 53 (2021) (same).

[71] PJM 205 Filing at 23.

skips over the fact that it has already applied numerous non-rate terms of the existing Tariff as part of that "ongoing" process, and those steps are now in the rear-view mirror. PJM's requested relief would require back-tracking to rerun those steps under new rules, rather than simply completing as-yet-untaken steps in the "ongoing" process under new rules. Before this proceeding began, PJM set the parameters of the December 2022 BRA over several months; opened the window for submitting BRA offers on December 7, 2022; received the Sell Offers reflecting the existing auction parameters[72]; closed the window for submitting Sell Offers on December 13, 2022; ran the optimization algorithm to compute clearing prices; applied its market power mitigation rules without issue, as indicated by the fact that PJM filed no market power mitigation report with the Commission "[w]ithin seven days after the deadline for submission of Sell Offers;" and apparently reviewed the auction results sufficiently to satisfy itself that it has no concerns with the optimization algorithm's results other than the price produced in the DPL-South LDA.

All of those steps were taken pursuant to the existing Tariff. And in order for PJM to implement its requested relief in a manner that would produce competitive results,[73] it would need to retake all of them. Troublingly, PJM has indicated that it would not retake all of those steps, and would instead "simply" rerun the optimization algorithm under the new rules.[74] But, even if PJM could "simply" rerun the optimization algorithm, that step alone would represent retroactive application of non-rate terms of the filed rate. It would also impermissibly disregard market participants' substantial reliance interests related to the existing Tariff.[75]

[72] PJM 205 Filing at 24 ("Undeniably, Capacity Market Sellers have submitted bids into the auction based on the planning parameters.").

[73] Shanker Affidavit at 30-32.

[74] *See* PJM 205 filing at 23.

[75] Shanker Affidavit at 30-32; *see* Kelliher Affidavit at 25-28.

Second, as a matter of Tariff operation, the auction is not actually "ongoing." As explained above, the BRA process is strictly prescribed in the Tariff. The only permissible method of computing clearing prices is by running the optimization algorithm after properly setting the required auction parameters. The Tariff provides no mechanism by which PJM can validly obtain "preliminary auction data" or "preliminary price calculations" of the type it describes in its filing.[76] Further, PJM itself has publicly admitted that it has computed final clearing prices, under both the existing Tariff and the rule changes it has proposed in this proceeding.[77] Accordingly, the clearing prices on which PJM has based its filing are valid computations produced by properly running the optimization algorithm.[78] In the former case, the clearing prices produced by the Tariff are known—and resources that cleared the auction are entitled to those prices as the "rate" terms of the filed rate. PJM's expressed concern gives away the farm: the stated purpose of PJM's filings is to prevent the clearing prices produced by the existing Tariff from taking effect, which necessarily requires PJM to know the clearing prices that would take effect.

[76] Section 5.14(f) of Attachment DD of the Tariff does provide that in determining the Zonal Capacity Prices based on the optimization algorithm, where, in relevant part, PJM shall "calculate and post the Preliminary Zonal Capacity Prices for each Delivery Year following the [BRA] for such Delivery Year." Tariff, Attach. DD § 5.14(f)(i). The Preliminary Zonal Capacity Prices, however, are not analogous to the "preliminary auction data" or "preliminary price calculations" that the PJM describes in its filing, which PJM characterizes as permitting PJM to garner rough approximations of clearing prices for LDAs. Determined in accordance with the optimization algorithm, the Preliminary Zonal Capacity Prices for each Zone are calculated as the sum of (i) the marginal value of system capacity for the PJM Region, without taking into consideration locational constraints; (ii) the Location Price Adder for the LDA in which the Zone is located; (iii) an adjustment to account for adders paid to Annual Resources and Extended Summer Demand Resources in the LDA for which the zone is located; (iv) an adjustment to account for Make-Whole Payments; and (v) an adjustment to provide payment for PRD credits. *Id.*

[77] PJM 205 Filing at 2-3.

[78] P3 asserts that, if the clearing prices on which PJM based its filings in this proceeding are not valid computations produced by properly running the optimization algorithm, then whatever steps PJM took to obtain those clearing prices is impermissible under the Tariff and constitute an additional Tariff violation by PJM. Further, as discussed below, if PJM obtained the clearing prices in any manner other than through properly and fully applying the Tariff rules, including the optimization algorithm, then PJM cannot carry its statutory burden to demonstrate that its Tariff changes in this proceeding are acceptable.

Third, it cannot be the case that the December 2022 BRA is "ongoing" and subject to rule changes until PJM "posts the final auction results," whenever that might be. That would permit PJM to unilaterally and indefinitely suspend the operation of the BRA, despite having already taken all of the Tariff-prescribed steps short of posting the results. The filed rate doctrine is not so flimsy. If the rate term of the filed rate has been calculated pursuant to the Tariff-prescribed process, it empirically exists regardless of whether PJM wants to release it to the public. PJM's theory to the contrary—*i.e.* unless and until "final results [are] posted, there is not a final rate for which any entity has an entitlement"[79]—is fundamentally at odds with the principles of transparency at the heart of the filed rate doctrine and the statutory provisions from which it arises.

Next, PJM argues that its proposed Tariff change does not violate the filed rate doctrine because the Tariff "provides notice of the ability of PJM to make emergency filings to address 'imminent severe economic harm.'"[80] There are two problems with that claim. First, a provision allowing PJM to make emergency FPA Section 205 filings only provides notice that PJM may make FPA Section 205 filings with proper, prospective-only application. It does not provide PJM the authority to make FPA Section 205 filings with retroactive effect, nor does it provide sellers and customers with notice that PJM may do so—whether in connection with an underway BRA or otherwise. Second, PJM's argument presumes that "imminent severe economic harm" is present in this case. In this case, PJM has applied a Tariff that has been found to be just and reasonable and the clearing prices produced are consistent with economic principles and reflect the supply and demand dynamics in the DPL-South LDA, inclusive of PJM's best estimate of

[79] PJM 205 Filing at 24.

[80] *Id.* at 26 (quoting Tariff § 9.2(b)).

supply conditions within DPL-South exactly as it has done in previous auctions for all separately identified LDAs. A properly applied Tariff that produces an economically rational result that is consistent with the overall auction paradigm cannot fairly be characterized as "severe economic harm." Rather, it reflects a competitive market outcome for an LDA that is short on generation, and a just and reasonable rate for attracting the generation resources that LDA needs within the timeframe in which it needs them.[81]

PJM also argues that it can change the LDA Reliability Requirement for the December 2022 BRA without violating the filed rate doctrine because the Tariff specifically places sellers on notice that the LDA Reliability Requirement might change. That argument misinterprets the Tariff provision at issue and misunderstands the "boundaries of the statutory requirements that comprise the filed rate doctrine."[82] The specific Tariff provision that PJM cites, Tariff, Attachment DD Section 5.11(e), concerns the specific information PJM must post after it conducts the BRA, and when it must post that information: "After conducting the [RPM] Auctions, *PJM will post the results* of each auction as soon thereafter as possible, *including any adjustments* to PJM Region or LDA Reliability Requirements to reflect [PRD] with a PRD Reservation Price equal to or less than the applicable [BRA] clearing price."[83] Contrary to PJM's assertion, Section 5.11(e) does not grant PJM the authority to adjust the LDA Reliability Requirements—whether to reflect PRD or otherwise. PJM's authority to adjust the LDA Reliability Requirements to reflect PRD stems from Tariff Section 5.10(a), which provides that PJM shall reflect PRD "in the derivation of the [VRR] Curve, in accordance with the

[81] Shanker Affidavit at 24 ("The purpose of RPM is to provide price signals for where generation is needed and it is needed in DPL-South.").

[82] *See Oklahoma Gas*, 11 F.4th at 831.

[83] Tariff, Attach. DD § 5.11(e) (emphases added).

methodology specified in the PJM Manuals."[84] Further, even when PRD is offered into a BRA—which PJM did not indicate occurred with respect to the DPL-South LDA in the December 2022 BRA[85]—that PRD does not alter the LDA Reliability Requirement parameter that was set in advance of the BRA. Rather, the PRD changes the shape of the demand curve *during* the optimization algorithm's calculations. The solution produced by the optimization algorithm allows PJM to procure less capacity in the LDA and can impact the clearing price for the LDA, but that is methodologically distinct from altering the LDA Reliability Requirement that was used as an *ex ante* parameter in the optimization algorithm that generated that result.[86] The parameters that were used in the optimization algorithm are still correct and unchanged, even if PRD offers might reduce the final demand with the applicable LDA.

iii. PJM's Equitable Arguments Do Not Penetrate the Filed Rate Doctrine

PJM's arguments that the results of the December 2022 BRA under the existing Tariff would produce "severe economic harm" are not only unfounded, they are entirely irrelevant to the question of whether PJM's proposed changes can be implemented for the December 2022 BRA. The filed rate doctrine and the rule against retroactive ratemaking is "a nearly impenetrable shield" that "leave[s] the Commission no discretion to waive the operation of a filed rate or to retroactively change or adjust a rate for good cause or for any other equitable considerations."[87]

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[84] Tariff, Attach. DD § 5.10(a).

[85] *See generally* PJM 205 Filing (failing to identify any PRD offers in December 2022); PJM Complaint (same); *see also* Tariff, Attachment DD § 5.10(a); PJM, Manual 18, at 39-45, available at https://www.pjm.com/-/media/documents/manuals/m18.ashx.

[86] Shanker Affidavit at 9.

[87] *Old Dominion*, 892 F.3d at 1230 (citing *Columbia Gas Transmission Corp. v. FERC,* 895 F.2d 791, 794-797 (D.C. Cir. 1990); *West Deptford Energy, LLC v. FERC,* 766 F.3d 10, 12 (D.C. Cir. 2014); *Arkansas Louisiana Gas Co. v. Hall,* 453 U.S. 571, 578 (1981)).

The courts have left zero play in the joints on this issue. As the Supreme Court has explained, "[t]his rule is undeniably strict, and it obviously may work hardship in some cases, but it embodies the policy which has been adopted by Congress in the regulation of interstate commerce in order to prevent unjust discrimination."[88] The D.C. Circuit has repeatedly applied the rule in that manner when reviewing Commission orders, including in recent cases involving RTO/ISO tariffs, despite litigants' repeated appeals to the equitable considerations raised by the filed rate doctrine's harsh financial consequences.

PJM's appeal to equity rings hollow for another reason, too. As noted, what PJM characterizes as "severe economic harm" is, in fact, a price signal indicating that the DPL-South LDA needs additional generation. Not just planned facilities with uncertain commercial operation dates, but actual steel in the ground that will produce electrons.[89] For PJM's market to work, and attract the investment needed, it needs to be given the opportunity to work. As explained below, if the rules of a particular BRA can be changed post-auction, or even mid-auction, whenever PJM is concerned that proper application of the existing Tariff will produce prices that PJM does not like, that would significantly increase the risk of any capital deployed in the market. That increased risk would translate into higher offer prices, reflecting the resulting risk premiums, and ultimately could make it difficult for resource owners and investors to deploy the capital needed to develop and maintain the resource fleet required to serve the demands of consumers in the PJM region.[90] Further, permitting these types of *ex post* Tariff changes would discourage good risk management and hedging practices due to the uncertainty around what risks

[88] *Louisville & N.R. Co. v. Maxwell*, 237 U.S. 94, 97 (1915).

[89] Shanker Affidavit at 24.

[90] *Id.*

need to be managed and hedged.[91] Fortunately, the filed rate doctrine stands as a firewall against that prospect in this proceeding, preventing the further degradation of the PJM market through a rushed, outcome-oriented market design change. In short, strict adherence to the filed rate doctrine here will produce the most equitable and durable result, in addition to the only legally supportable one.

iv. Adopting PJM's Interpretation of the Filed Rate Doctrine Would Create Terrible Precedent with Ripple Effects Well Beyond PJM

Under the competitive market paradigm, the Commission has consistently recognized the importance of providing rate certainty and maintaining market integrity. Without fail, the Commission has adamantly resisted requests to the rerun RTO auctions in order to provide remedial relief in FPA Section 206 complaint proceedings or in response to judicial remands, on the grounds that doing so would "undermine confidence in markets."[92] The courts also have recognized the importance of "ensuring rate predictability" in their consideration of Commission orders relating to changes in RTO market rules.[93] If the Commission were to accept PJM's proposal, it would throw all of that policy and precedent out of the window. In doing so, the

[91] *See* Shanker Affidavit at 24 ("This is the RPM auction working as designed and post-auction manipulation will not fix the underlying issue or capacity position and will only serve to undermine confidence in the market."). *Further*, as specifically concerns the December 2022 BRA, due to the likelihood that buyers in the DPL-South LDA have hedged their capacity price risk and/or adopted other risk management strategies, there are serious questions about whether and to what extent buyers and/or consumers will be directly impacted by the December 2022 BRA's clearing price for the DPL-South LDA.

[92] *PJM Interconnection, LLC*, 169 FERC ¶ 61,237 at P 10 (2019) (noting the Commission "generally does not order a remedy that requires re-running a market because market participants participate in the market with the expectation that that rules in place and the outcomes will not change after the results are set); *PJM Interconnection, LLC*, 161 FERC ¶ 61,252 at P 59 (2017); *Astoria Generating Co. LP v. New York Indep. Sys. Operator, Inc*., 140 FERC ¶ 61,189 at P. 141 (2012); *PPL EnergyPlus v. N.Y. Indep. Sys. Operator Corp*., 115 FERC ¶ 61,383 at P 30 (2006); *Calif. Indep. Sys. Operator Corp*., 120 FERC § 61,271 at P 24 (2007); *New York Indep. Sys. Operator, Inc*., 113 FERC § 61,340 at P 17 (2005); *Pacific Gas Transmission Co*., 82 FERC ¶ 61,227, 61,875 (1998) (holding that despite a finding of violation "the public interest in market stability outweighs the need for reposting"); *Pan-Alberta Gas (U.S.) Inc. v. Pacific Gas & Elec. Co*., 72 FERC ¶ 61,092, 61,505 (1995) (finding that despite a violation in capacity allocation, setting aside a transaction would "cause a disruption in the market.")); Kelliher Affidavit at 25,

[93] Kelliher Affidavit at 25 (citing *Old Dominion*, 892 F.3d at 1230).

Commission would undermine confidence in the PJM market, all other RTO markets, and the Commission itself.[94]

The Commission has emphasized that abiding by market rules is necessary to enable an RTO to effectively administer wholesale markets.[95] Consistent with that principle, the Commission has generally disfavored rerunning markets because the harm outweighs the benefit—even in instances where, unlike here, an RTO has committed an error implementing its existing tariff.[96] In such instances, the Commission has held that rerunning the market "would do far more harm to wholesale electricity markets than is justifiable or appropriate … and would be fundamentally unfair to market participants."[97] It is indisputable that rerunning auctions creates regulatory risk going forward and dissuades investors from investing capital in a market where the results of auctions are constantly subject to later change.[98] Accordingly, the Commission has a perfect record of declining requests for that remedial relief because granting it would breed insurmountable regulatory uncertainty.[99]

The Commission also has a longstanding policy of disfavoring last minute Section 205 tariff changes—even where, unlike here, those changes would be only prospective—because those changes would upset settled expectations and reliance on current RTO tariff provisions.[100]

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[94] Kelliher Affidavit at 25.

[95] *GenOn Energy Mgmt, LLC v. ISO New England*, 152 FERC ¶ 61,044 at P 50 (2015); *Northeast Utils. Serv. Co*., 135 FERC ¶ 61,123 at P 13 (2011) (emphasizing it is important to abide by RTO market rules to enable effective administration of RTO markets); Kelliher Affidavit at 26.

[96] *Bangor Hydro-Elec. Co. v. ISO New England Inc*., 97 FERC ¶ 61,339 at 62,590 (2001), *reh'g denied*, 98 FERC ¶ 61,298 (2002); Kelliher Affidavit at 26.

[97] *Bangor Hydro-Elec. Co.*, 97 FERC ¶ 61,339 at 62,590.

[98] *Midwest Indep. Transmission Sys. Operator, Inc*., 162 FERC ¶ 61,173 at P 19 (2018); *PJM Interconnection, LLC*, 161 FERC ¶ 61,252 at P 58 (2017); Kelliher Affidavit at 27.

[99] *PJM Interconnection, LLC,* 161 FERC § 61,252 at P 55; Kelliher Affidavit at 27.

[100] Kelliher Affidavit at 27.

For instance, the Commission rejected a FPA Section 205 filed by ISO New England, Inc. that would be effective 48 days later, but still in time for the applicable auction, characterizing the filing as an "eleventh hour" filing that would upset expectations based on the current tariff provisions.[101]

Upholding the principles of competitive markets is no less important now than in the past. Accordingly, the Commission should affirm its bedrock policy and precedent disfavoring retroactive market design changes by denying PJM's invitation to eviscerate the filed rate doctrine as applied to the December 2022 BRA. If the Commission were to do otherwise, market participants would no longer be able to rely on any PJM (or any other RTO/ISO) market assumptions, statements, or publications as everything would always be subject to change *ex post* at the whim of the RTO/ISO. And the resulting flimsiness of RTO/ISO market rules would extend well beyond PJM. Market participants and investors with positions in *all* Commission jurisdiction markets would be faced with heretofore unprecedented degrees of regulatory uncertainty, undermining confidence in the markets. That is not a legacy this Commission should welcome.

v. Permitting PJM's Proposed Tariff Change to Take Effect by Operation of Law Would Run Afoul of the Filed Rate Doctrine, Require Expedited Judicial Review, and Exacerbate the Cloud of Uncertainty Already Looming over the PJM Capacity Market

The fact that the Commission currently is short one member, raising the specter of a possible 2-2 deadlock vote on PJM's proposed Tariff changes under FPA Section 205, makes it critical that a majority of the Commission promptly and unambiguously uphold the filed rate doctrine and reject PJM's attempt to conduct the December 2022 BRA under alternative rules.

[101] *ISO New England, Inc.*, 132 FERC ¶ 61,136 at P 22 (2010); Kelliher Affidavit at 27-28.

Pursuant to FPA Section 205(g)(1), if the Commission permits PJM's proposed Tariff change under Section 205 to take effect for the December 2022 BRA "without issuing an order accepting or denying the change because the Commissioners are divided two against two as to the lawfulness of the change," then the Commission's "failure to issue an order accepting or denying the change by the Commission shall be considered to be an order issued by the Commission accepting the change for purposes of" seeking agency rehearing.[102] In this scenario, that outcome would be nothing short of a disaster for the December 2022 BRA, which likely would be subject to litigation for several years.[103]

Although rate changes can take effect by operation of law, the U.S. Constitution and the structure of the FPA each impose limits on what exactly is permitted to take effect by operation of law. Specifically, the Due Process Clause and the Takings Clause of the Constitution, and the FPA's statutory provisions that constitute the filed rate doctrine, bind public utilities, including PJM, regardless of whether the Commission issues an order on a utility's proposed rate changes.[104] A public utility cannot, whether intentionally or unintentionally, take advantage of short-staffing at the Commission to put in place a rate that blatantly violates the Constitution or the filed rate doctrine.

For example, if PJM suddenly decided now, in January 2023, to take advantage of a lack of quorum (or potential 2-2 deadlock) at the Commission in order to impose a new stated rate for the BRA conducted in May 2022 for the 2023/2024 Delivery Year, that rate change would run

[102] *See* 16 U.S.C. § 824d(g)(1).

[103] That outcome also could cause cascading delays to future auctions.

[104] *See, e.g.*, 16 U.S.C. § 824d(a) ("All rates and charges made, demanded, or received by any public utility for or in connection with the transmission or sale of electric energy subject to the jurisdiction of the Commission, and all rules and regulations affecting or pertaining to such rates or charges *shall be just and reasonable*, and *any such rate or charge that is not just and reasonable is hereby declared to be unlawful*."); *see also infra* n.105-106.

afoul of the FPA even in the absence of a Commission order. Because Congress has deemed the filed rate to have the force and effect of law, and market sellers with resources that cleared in the BRA for the 2023/2024 Delivery Year are entitled to rely on that filed rate, an action by PJM that deprives those sellers of that right—with no meaningful opportunity to adjudicate their claims before the Commission and receive a decision from the agency—would constitute a deprivation of their rights under the Constitution's Due Process Clause.[105] Further, if the rate that PJM retroactively imposed in that example was below the cost that a seller would incur to satisfy the capacity supply obligation it obtained through the BRA, PJM's action would also be confiscatory, in violation of the Constitution's Takings Clause.[106] The Courts have long held that the Takings Clause imposes a lower bound on the FPA's "just and reasonable" standard. That floor exists regardless of whether the confiscatory rate placed on file under the FPA was the subject of a Commission order. Constitutional rights do not dissolve just because the Commission is unable to issue a written, majority decision.

Accordingly, applying FPA Section 205(g) to permit a rate change that violates the filed rate doctrine to take effect in the absence of Commission action would violate the Due Process Clause and, depending on the nature of the rate change, potentially the Takings Clause. As a result, in this proceeding, if PJM's Tariff change is permitted to take effect for the December 2022 BRA by operation of Section 205(g), that application of Section 205(g) would be

[105] *See, e.g.*, *Mathews v. Eldridge*, 424 U.S. 319, 332 (1976) ("The fundamental requirement of due process is the opportunity to be heard 'at a meaningful time and in a meaningful manner.'").

[106] *See Duquesne Light Co. v. Barasch*, 488 U.S. 299, 308 (1989) ("If the rate does not afford sufficient compensation, the State has taken the use of utility property without paying just compensation and so violated the Fifth and Fourteenth Amendments."); *Bluefield Waterworks & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679, 690 (1923) ("Rates which are not sufficient to yield a reasonable return on the value of the property used at the time it is being used to render service are unjust, unreasonable, and confiscatory, and their enforcement deprives the public utility company of its property in violation of the Fourteenth Amendment.").

unconstitutional and PJM's Tariff change would necessarily be void *ab initio* on at least one Constitutional ground.

Of course, reaching a judicial resolution on the problems that applying FPA Section 205(g) presents in this situation could take several years. The uncertainty posed by that litigation is likely to bring the simmering frustrations with PJM and FERC's treatment of the RPM to a boil. Due to the whipsawing changes to PJM's Minimum Offer Price Rule, both pendulum swings of which are the subject of years'-long pending judicial appeals, and the Commission's sea-change in PJM's Market Seller Offer Cap rules, which are also still pending judicial appeal, the PJM RPM is currently a political windsock. The last thing the RPM needs at this time is another knee-jerk reaction, motivated by political concerns, that is sure to layer on additional litigation risk and further alienate needed investment capital. For all of the reasons discussed in this Section II.B, the Commission should conclude that PJM's proposal to apply its Tariff changes to the December 2022 BRA is impermissible, reject that proposal without delay, and begin to repair the investment climate of the PJM markets.

C. Even if the Filed Rate Doctrine Were Not Operative, PJM Has Not Carried its Statutory Burdens Under the FPA or the APA

Whether for the December 2022 BRA, future auctions, or both, PJM has not demonstrated that its proposal is just and reasonable either as a rate change under FPA Section 205 or as a replacement rate under FPA Section 206, nor has PJM demonstrated that the existing Tariff is unjust and unreasonable under FPA Section 206. Further, PJM has not presented sufficient information to satisfy its obligation, under Section 7(c) of the APA,[107] to provide sufficient evidence to support its proposed Tariff change under either Section 205 or Section 206

[107] 5 U.S.C. § 556(d).

of the FPA. PJM's failure to satisfy these statutory obligations presents several independent bases for the Commission to reject both of PJM's filings. The Commission should promptly do so.

i. PJM Has Not Demonstrated that its Proposed Rate Is Just and Reasonable Whether as a Rate Change Under FPA Section 205 or as a Replacement Rate Under FPA Section 206

Under FPA Section 205, PJM bears the burden of proving that its proposal to change the Tariff pursuant to FPA Section 205 "lawful."[108] To do so, PJM must demonstrate, based on a preponderance of evidence, that its proposed rate change is "just and reasonable" and not "unduly discriminatory or preferential." As the proponent of the rate change, PJM must also "ensure that there is a sufficient evidentiary record for the Commission to make a reasoned decision,"[109] which requires PJM to, among other things, provide evidence of "a rational connection" between its proposed Tariff change and the facts that gave rise to that proposal.[110] PJM has failed to satisfy those FPA and APA burdens.

1. <u>As an Initial Matter, PJM Has Mischaracterized the Problem it Is Trying to Solve</u>

PJM asserts that, when the optimization algorithm produced a clearing price for the DPL-South LDA that PJM did not like, PJM "further investigat[ed]" and "discovered the primary driver of the anomaly."[111] Unfortunately, PJM's "investigation" only observed a symptom, instead of diagnosing the cause of the purported "anomaly." PJM has misapprehended the

[108] *Emera Maine v. FERC*, 854 F.3d 9, 24 (D.C. Cir. 2017) (citing *Ala. Power Co. v. FERC*, 993 F.2d 1557, 1571 (D.C. Cir. 1993)).

[109] *Indicated SPP Transmission Owners v. Sw. Power Pool, Inc.*, 165 FERC ¶ 61,005, at P 10 (2018).

[110] *See TransCanada Power Mktg. Ltd. v. FERC*, 811 F.3d 1, 9 (D.C. Cir. 2015) (explaining that, in order to satisfy the APA, there must be "a rational connection between the facts found and the choice made") (citing *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983)); *accord Puget Sound Energy, Inc.*, 132 FERC ¶ 61,128, at P 31 (2010) (finding that, in order for rate changes proposed under FPA Section 205 to be just and reasonable, "such solutions must fit the problems they are intended to solve").

[111] *See* PJM 205 Filing at 10.

"primary driver" of the clearing price, misdiagnosed that clearing price as an "anomaly," and crafted its proposed rate change to address the wrong problem. As a result, PJM has made a case in favor of a rate change that is fundamentally flawed. That rate change does not pass muster under the FPA, and PJM's attempt to persuade the Commission otherwise falls short under the APA.

In PJM's framing, the "issue" that animated its Section 205 filing is a "gap in the Tariff rules that address a circumstance where large Planned Generation Capacity Resources, which include planned Intermittent Resources, have an outsized impact on the reliability needs in a small LDA and those resources do not participate in the RPM Auction."[112] PJM's framing mischaracterizes the "issue" that gave rise to its Section 205 and Section 206 filings. There is no "gap" in the Tariff.[113] What PJM describes as a "gap" is simply a known risk that, like many others in the RPM process, are a function of making assumptions to forecast future market conditions. It is baked into PJM's long-standing method of calculating LDA Reliability Requirements, which requires PJM to make predictions about the uncertain development timelines and market participation of generation resources.[114]

Each LDA Reliability Requirement is based on PJM's calculation of the CETO for that particular LDA.[115] PJM's chosen method[116] of calculating CETO is based on forecasts concerning the generation resources that PJM expects to exist in the LDA within the planning horizon at issue. Among other things, PJM must specifically forecast the amount of new

[112] PJM 205 Filing at 18.

[113] *See id.*

[114] Shanker Affidavit at 14.

[115] *Id.* at 13-14.

[116] *Id.* at 11.

capacity that will be built in the LDA, whether that capacity will enter service when expected, and whether it will offer into the RPM. Each of those forecasts requires PJM to make various assumptions.[117]

Those assumptions involve tradeoffs from a system planning perspective. How conservative or not those assumptions will determine how the load in each LDA will be served. If PJM assumes a relatively low amount of generation will exist in the LDA, more transmission capacity will be needed to serve the load via imports from outside the LDA. Conversely, if PJM assumes a relatively high amount of generation will exist in the LDA, a higher percentage of the load will be served by local generation resources and less transmission capacity will be needed for imports. In turn, those assumptions will impact the price signal the RPM will send concerning the need for generation resources within the LDA.

That type of forecasting necessarily poses risk that the forecasts will be inaccurate. But the particular approach PJM has long-used for making its forecasts concerning generation resources when calculating CETO, and the approach PJM used in setting the LDA Reliability Requirement for DPL-South in the December 2022 BRA, heightens that risk. PJM's CETO calculation assumes that all planned and existing generation resources in an LDA will be in-service within the planning horizon and it further assumes that all of those resources will offer into the BRA. PJM ignores the facts that (1) planned resources and existing intermittent resources, storage resources, energy efficiency resources, and demand response resources all have the free option under the Tariff not to participate in a BRA;[118] and (2) there are many reasons why such resources would exercise that option, including the possibility that they could

[117] Shanker Affidavit at 25-29.

[118] Tariff, Attach. DD § 6.6A(c); Shanker Affidavit at 16.

face supply chain disruptions or other issues that could delay their project milestones.[119] *The CETO forecasting error that flows from these assumptions—rather than the alleged "gap" in the Tariff—is the real issue underlying PJM's filings in these proceedings.*

If these assumptions by PJM prove to be inaccurate for a particular LDA when the BRA is conducted, the market will—by design—send a corresponding price. If PJM's forecast assumption is high relative to the resources that show up in the BRA, prices will rise, sending the necessary corrective price signal to the market.[120] Conversely, if PJM's forecast assumption is low relative to the resources that show up in the BRA, prices will fall, signaling a level of reduced need in that LDA.[121]

That design is rational, from the perspectives of both system reliability planning and economic theory, because it reflects the following realities: (1) the LDA is expected be short of the generation PJM forecasted that would be available and needed to serve its load, so the market should send a higher price signal to attract the investment needed to serve that load—within the timeframe in which the investment is needed; (2) if the reason the LDA is short is that one or more generators that are large in relation to the LDA's load exercised their option not to offer, the impact on the LDA Reliability Requirement will be higher than if relatively small generators failed to show up, and the clearing price will reflect this difference; and (3) as the planning horizon gets shorter, and the lead time for resource development gets tighter, bringing resources online within that horizon gets more challenging and more expensive.

[119] Similarly, existing Capacity Resources with the option not to offer may also have changing views of future market conditions that could cause them to decide not to sell capacity (or as much capacity) in the future as they did in the past.

[120] Shanker Affidavit at 24, 35-36.

[121] *Id.*

Contrary to PJM's assertion, this issue was not "recently identified."[122] PJM's CETO forecasting model has been in place since before PJM was established as an RTO.[123] The relationship between the size of an LDA and the impact that a relatively large generation resource can have on the CETO calculation underlying the LDA's Reliability Requirement is simple and has been well-understood.[124] Every time PJM runs the PRISM Model for an LDA, which it has done multiple times per year for many years, the fact that CETO is a function of the generation assumptions is necessarily front-and-center. Determining the amount of generation needed to serve load in the LDA and from where it will come is, after all, the purpose of developing the LDA Reliability Requirements. PJM would have to be willfully ignorant to not observe that inaccurate assumptions about the presence of a large generation resource in a small LDA, or any other set of assumptions that significantly overestimates of the amount of generation that will be present in such an LDA, can have a significant impact on the accuracy of that LDA's CETO and the LDA Reliability Requirement based thereon.

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[122] *See* PJM 205 Filing at 18.

[123] Shanker Affidavit at 11 (citing to PJM whitepaper titled *PJM Generation Adequacy Analysis: Technical Methods Capacity Adequacy Planning Department* dated October 2003 *available at* https://www.pjm.com/-/media/planning/res-adeq/20040621-white-paper-sections12.ashx.

[124] Dr. Shanker provides the following example:

> [C]onsider an LDA with a Reliability Requirement of 1000 MW UCAP (Unforced Capacity) that has a single internal unit of 1100 MW with a 9.1% EFORd (Equivalent Forced Outage Rate demand adjusted) for a UCAP of 1000 MW. Looked at on a simple stand-alone basis the internal resources are either 1000 UCAP (90.9% of the time) or 0 UCAP (9.1% of the time). These are the 2 points on this simple internal supply probability distribution. It should be clear that 9.1% of the time the LDA will have zero internal resources, so its CETO must be large enough to meet this requirement, e.g. at least 1000 MWs. (ignoring planned outages etc.). Alternatively assume that the same LDA has 11,000 100KW internal generators, each with an EFORd of 9.1%. Again, there is 1000 MW of internal UCAP. But now, the probability of fully random outages exceeding 9.1% of the time for 11,000 independent generators approaches zero, and again in this simple world the CETO now approaches zero.

Shanker Affidavit at 13.

That this phenomenon could easily manifest in the DPL-South LDA specifically in the December 2022 BRA should have been obvious to PJM. As of August 25, 2022, the PJM system had 1221 existing Capacity Resources, totaling 181,959.1 MW, excluding Planned Generation, Demand Response, Energy Efficiency, and External Generation Resources. Of that, only 56 generation units, totaling 1,688 MW, were located in DPL-South.[125] The fact that approximately 4.6% of PJM's generation units were located in DPL-South, and those units represented less than 1% of PJM's total MW, clearly indicates that DPL-South is a small zone with mostly small resources.[126] Just based on that simple math alone, PJM should have known that the CETO and LDA Reliability Requirement for DPL-South would be highly sensitive to assumptions regarding large MW additions within the LDA.[127]

As a matter of fact, based on documentation that PJM itself generated in developing the parameters to be used in the December 2022 BRA, it appears that PJM did know, or should have known, that this outcome for the DPL-South LDA was likely, or at least was a distinct possibility. In the planning parameters for the 2024/2025 Delivery Year which PJM issued in August 2022, showing changes from the 2023/2024 planning parameters, the LDA Reliability Requirement for DPL-South increased by 373 MW, or 12%.[128] This is exactly the figure that PJM now presents in its filings in these proceedings, claiming that this is a surprise problem that warrants blowing up the December 2022 BRA after it has already been run.[129] Similar to the

[125] Shanker Affidavit at 18-19.

[126] *Id.* at 19.

[127] *Id.* at 20 ("For three months ahead of the BRA, PJM made all market participants aware that there would a material increase in the LDA Reliability Requirement for DPL-South. Anyone with a calculator could duplicate Figure 3 from publicly posted information and also conclude that the net increase forecast of 613 MW would have to be met from an increase in Planned Resources").

[128] *Id.* at 17.

[129] *See* PJM 205 Filing at 11 (explaining that the LDA Reliability Requirement for "DPL-S, which is the smallest modeled LDA in PJM, increased by approximately 12% from the prior year").

increase in the DPL-South LDA Reliability Requirement prior to the December 2022 BRA, PJM also should have known in advance that there was a non-trivial risk that the "large Planned Generation Capacity Resource and planned Intermittent Resources"[130] that did not participate in the BRA would not do so. After all, PJM is well aware that those types of resources do not have an RPM must-offer obligation,[131] and PJM has information about the development milestones of all resources seeking to interconnect to the PJM-operated transmission system.[132] PJM is also well aware of the supply chain disruptions caused by the COVID-19 pandemic, U.S. trade policies, and general economic downturn, all of which are affecting generation project timelines.[133] Accordingly, PJM had all of the information it needed to foresee that the unnamed "large Planned Generation Capacity Resource and planned Intermittent Resources" might not, and perhaps were unlikely to, participate in the December 2022 BRA.

Indeed, as noted by Dr. Shanker, PJM itself specifically modeled the conditions that would produce this type of pricing in the DPL-South LDA in its sensitivity studies conducted for the 2023/2024 BRA which were posted in July 2022.[134] Specifically, PJM identified an amount of MW in the DPL-South LDA—*i.e.*, 260 MW—that, if removed from the LDA, would result in the clearing price hitting the price cap of $431.26 per MW-day.[135] Given that PJM forecasted approximately 613 MW of Planned Resources in DPL-South for the December 2022 BRA, none

[130] PJM 205 Filing at 16.

[131] *See* Tariff, Attach. DD § 6.6A(c) (exempting Intermittent Resources from the RPM must-offer obligation); *Id.* at § 5.6.1 (same); Shanker Affidavit at 14-15 ("it is completely foreseeable that those resources without such an obligation do not offer into the auction").

[132] *See* Tariff, Attach. DD § 5.11A.

[133] *See* PJM 205 Filing at 27 (citing *PJM Interconnection, L.L.C.,* 171 FERC ¶ 61,208 (2020) (permitting PJM to use a revised updated PJM Region Peak Load Forecast in light of the major forecasted economic consequences of Covid-19)).

[134] 2023/2024 Auction Information, BRA Scenario Analysis, Scenario 8, *available at* https://pjm.com/markets-and-operations/rpm; *supra* n.23.

[135] Shanker Affidavit at 23.

of which are required to offer into the BRA, PJM should have known based on its own modeling that the clearing price for the DPL-South LDA could be at or near the cap. PJM's attempt to undermine the filed rate doctrine based on its failure to see what was right in front of its face is inexcusable.

PJM's failure to thoughtfully and comprehensively investigate the optimization algorithm's clearing price for the DPL-South LDA has caused it to mischaracterize the variables that produced that clearing price. Instead, PJM has rushed to judgment based on an oversimplified analysis, and presented a flawed rate change proposal that is untethered from the facts and void of stakeholder input. PJM's resulting attempt to support that rate change lacks the evidentiary support needed to satisfy PJM's burden under the FPA or the APA, thereby precluding the Commission from issuing an APA-compliant order implementing that rate change.[136]

2. PJM's Proposed Rate Change Fails to Address the Concerns that Gave Rise to This Proceeding, Has Not Been Shown to Produce Just and Reasonable Results, and Must Be Rejected

Regardless of whether the Commission accepts PJM's characterization of the issue as a surprise outcome caused by an unforeseeable "gap" in the Tariff, or P3's explanation that the issue is a well understood design feature of PJM's CETO forecasting model, PJM's proposed rate change does not address either issue and does not pass muster under either the FPA or the APA.[137]

[136] *See TransCanada*, 811 F.3d at 9; *Puget Sound Energy, Inc.*, 132 FERC ¶ 61,128 at P 31.

[137] *See Puget Sound Energy, Inc.*, 132 FERC ¶ 61,128, at P 31 (2010) (finding that, in order for rate changes proposed under FPA Section 205 to be just and reasonable, "such solutions must fit the problems they are intended to solve").

PJM's proposed solution is to (1) redefine LDA Reliability Requirement to "exclude . . . any Planned Generation Capacity Resource in an LDA that does not participate in the relevant RPM Auction as projected internal capacity and in the [CETO] model where the [LDA] Reliability Requirement for the [BRA] increases by more than one percent over the reliability requirement for the [BRA] used from the prior Delivery Year's [BRA] . . . for that LDA due to the cumulative addition of such Planned Generation Capacity Resources;" and (2) alter the optimization algorithm rules to allow PJM to include in it "any revised [LDA] Reliability Requirement based on the actual participation of Planned Generation Capacity Resources[.]"[138] In addition to the filed rate doctrine concerns described above, there are at least three problems with the merits of that proposed solution.

First, it does not address the problem that PJM itself identified in these proceedings, because it applies only to "Planned Generation Capacity Resources." As PJM has explained, these proceedings arose because PJM made assumptions about the BRA participation of one Planned Generation Capacity Resource and a large quantity of Intermittent Resources. PJM emphasized that Intermittent Resources pose the same concern "particularly . . . where a proportionately large quantity of solar resources are planned in a near-winter peaking LDA, such as DPL-South, because solar resources are not as productive in the winter than the summer months."[139] Yet PJM has entirely omitted Intermittent Resources from its proposed solution.[140]

Furthermore, when it comes to forecasting a resource's participation in a BRA, several other types of resources pose the same problem as Planned Generation Capacity Resources and planned Intermittent Resources. Section 6.6A(c) of the Tariff exempts from the RPM must-offer

[138] PJM 205 Filing at 21.

[139] *Id.* at 14.

[140] *Id.* at 18-20.

obligation ***all*** Intermittent Resources, Capacity Storage Resources, Demand Resources, Energy Efficiency Resources, and Hybrid Resources consisting exclusively of components that in isolation would be Intermittent Resources or Capacity Storage Resources. Those resources are exempt from the RPM must-offer obligation, and thus have the option not to offer into a BRA, regardless of whether they are merely planned or already existing. As a result, PJM faces the same uncertainty in predicting whether those resources will participate in a particular BRA as is posed by Planned Generation Capacity Resources.[141] PJM has provided no explanation for why its proposed solution only applies to Planned Generation Capacity Resources, nor has PJM provided any evidence indicating that adjusting the optimization algorithm based only on those resources would produce accurate LDA Reliability Requirements and resulting clearing prices. PJM has not demonstrated how this approach is just and reasonable and not unduly discriminatory or preferential.

Second, PJM's proposed solution imposes an arbitrary and unsupported threshold. Specifically, PJM may exclude from the CETO model "any Planned Generation Capacity Resource where the [LDA] Reliability Requirement for the [BRA] increases by more than one percent over the reliability requirement for the [BRA] used from the prior Delivery Year's [BRA] . . . for that LDA due to the cumulative addition of such Planned Generation Capacity Resources."[142] PJM has provided no explanation for how it arrived at that one percent threshold, how often adjustments would be made using that threshold (based on either historical experience or future expectations), or how implementing that threshold would impact reliability and clearing prices. Although PJM has vaguely asserted that its proposal is expected to reduce the clearing

[141] Shanker Affidavit at 17, 36-37.

[142] PJM 205 Filing at 12.

price for the DPL-South LDA in the December 2022 BRA, PJM has provided no concrete evidence concerning the rate impact on that zone—much less the other LDAs—either for the December 2022 BRA or future auctions. Based on the Planning Parameters PJM issued in August 2022, in which four LDAs aside from DPL-South have Reliability Requirement increases of more than one percent, it is reasonable to assume that PJM's proposed rate change will produce mid-auction adjustments more frequently than PJM has indicated.

Third, PJM has not explained how the resulting rates its proposal will produce for the DPL-South LDA in the December 2022 LDA are economically rational. As noted, the DPL-South LDA is already short on generation and, based on the amount of internal resources that did not participate in the December 2022 BRA, it appears that the LDA is experiencing difficulty making up that shortfall.[143] The existing Tariff, which has already been found to be just and reasonable, has produced a price that apparently reflects those fundamentals—ratcheting up to provide a stronger price signal for investment in the DPL-South LDA. Based on the limited information PJM has provided, it appears that PJM's proposal would not provide that level of price signal. Further, PJM has not recognized the tradeoff inherent in its proposal: although PJM asserts that updating the LDA Reliability Requirement after the submission of Sell Offers to account for non-participating resources will render the LDA Reliability Requirements more accurate, PJM ignores the fact that doing so will necessarily render Sell Offers less accurate—because they will be based on the LDA Reliability Requirement that PJM announced as an auction parameter at the beginning of the BRA, a parameter that PJM describes in these

[143] Absent an appropriate price signal, those difficulties could be long-lived, particularly if they are the result of Capacity Resources that lack an RPM must-offer obligation declining to offer capacity in order to avoid the potential liabilities associated with a capacity supply obligation. Shanker Affidavit at 24, 35.

proceedings as "inaccurate."[144] PJM must, at minimum, recognize this tradeoff and provide evidence demonstrating that, notwithstanding the tradeoff and the fact that Sell Offers would be based on a parameter PJM considers to be "inaccurate," its proposed solution will produce clearing prices that accurately reflect supply and demand dynamics.

Each of the above shortcomings by PJM constitutes an independent basis for concluding that PJM has failed to carry its FPA and APA burdens to demonstrate that its proposed solution is just and reasonable, whether as a rate change under FPA Section 205 or as a replacement rate under FPA Section 206.

ii. PJM Has Not Demonstrated that the Existing Tariff is Unjust and Unreasonable Under FPA Section 206

Under FPA Section 206, "the burden of proof to show that any rate, charge, classification, rule, regulation, practice, or contract is unjust, unreasonable, unduly discriminatory, or preferential shall be upon … the complainant."[145] Accordingly, because PJM filed the Section 206 Complaint, PJM bears the burden of proof to demonstrate that its existing Tariff is unjust, unreasonable, or unduly discriminatory or preferential. In order to satisfy that burden, PJM must also satisfy the evidentiary burden of proof imposed by the APA, discussed above.[146] PJM has not satisfied those burdens, nor has it made even a half-hearted attempt to do so.

As PJM explains at the outset of its Complaint, PJM filed the Complaint "out of an abundance of caution so as to provide the Commission with the ability to make modifications to

[144] *See* PJM 205 Filing at 20-22 (describing the LDA Reliability Requirement parameter that is updated mid-auction as the "accurate[]" version of that parameter and the LDA Reliability Requirement parameter used prior to such an update as "inaccurate").

[145] Federal Power Act § 206(b).

[146] *See supra* § II.C.i.

PJM's proposed tariff remedy, if it so chooses, without running afoul of the *NRG* precedent governing FPA section 205 applications."[147] PJM goes on to declare that "[s]hould PJM's section 205 application be granted, PJM places parties on notice that it would consider this FPA section 206 filing to be moot and withdrawn."[148] As those statements make clear, the purpose of PJM's Complaint is not to prove that the existing Tariff is unjust and unreasonable. Rather, it is a precautionary procedural tool to give the Commission the option to alter PJM's proposed rate change without exceeding its authority under FPA section 205. In other words, the Complaint's primary target is PJM's own FPA section 205 proposal, not the existing Tariff.[149]

In any event, PJM's arguments for why the existing Tariff is unjust and unreasonable fall flat for several reasons. First, PJM has failed to "[c]learly identify the action or inaction which is alleged to violate" the FPA.[150] PJM goes to great lengths to conceal the actual cause of the alleged problem. Throughout both of PJM's filings, PJM blames the failure of certain "large Planned Generation Capacity Resources and planned Intermittent Resources" to participate in the BRA consistent with PJM's projections. But it is not at all clear what action or inaction is responsible for the problem as PJM has described it. What is responsible for the LDA Reliability Requirement allegedly being "inaccurate?" Is it PJM's CETO model? Is it the assumptions PJM makes about generation resources when deciding whether to include them in the CETO model?

[147] *See* PJM Complaint at n.4 (citing *NRG Power Mktg., LLC v. FERC*, 862 F.3d 108 (D.C. Cir. 2017)).

[148] *Id.*

[149] Of course, the Commission did not need PJM to file a section 206 complaint to avoid running afoul of *NRG*. The Commission can avoid running afoul of *NRG* on its own by *sua sponte* instituting a section 206 investigation. PJM is well aware of that fact, which indicates that PJM's Complaint was also motivated by a desire to establish an earlier effective date for the section 206 docket. The obvious implication of that motivation is that, despite its arguments to the contrary, PJM recognizes that its actions in these dockets run afoul of the filed rate doctrine and, as a result, PJM is attempting to reduce the perceived egregiousness of its retroactive changes. Unfortunately for PJM, retroactive changes are retroactive regardless of how far back in time they reach.

[150] 18 C.F.R. § 385.206(b)(1).

Is it generation owners' decisions not to offer a modeled resource in the BRA? If so, which specific generation owners? Is it the Tariff rules exempting certain generation owners from the RPM must offer obligation? Is it PJM's failure to engage in due diligence and update the LDA Reliability Requirements in advance of the BRA when it receives information from planned resources through the interconnection process which indicates the resource is not likely to be available in the timeframe PJM previously projected? PJM's superficial and cryptic diagnosis gives the Commission no basis to conclude that any particular Tariff provision, action, or inaction is unjust and unreasonable.

Second, the limited evidence PJM has provided about the clearing prices that are produced under the existing Tariff cannot support the complaint for an additional reason: PJM has obfuscated the process by which it generated that evidence. PJM repeatedly asserts that its proposed rate change will not violate the filed rate doctrine because it has not posted the BRA results and the calculations on which it has based its filings in these proceedings are just "preliminary." And yet PJM attempts to rely on those results to declare the existing Tariff unjust and unreasonable. PJM cannot have it both ways. The December 2022 BRA results cannot simultaneously be both preliminary (for filed rate doctrine purposes) and final (for purposes of impeaching the Tariff). If those results are preliminary and do not actually represent the clearing price produced by the BRA under the existing Tariff, as PJM contends, then PJM must at least explain in detail how it calculated those results, how that method relates to the existing Tariff, and why those preliminary results impeach the Tariff despite the fact that they were not produced by strictly following the Tariff.[151]

[151] *See* 18 C.F.R. § 385.206(b)(8) (complaint must include "all documents that support the facts in the complaint in possession of, or otherwise attainable by, the complainant").

Third, PJM has not demonstrated that, to the extent the LDA Reliability Requirement produced by the existing Tariff is "inaccurate," that inaccuracy actually produces unjust and unreasonable results. The only "evidence" PJM presents is the unsupported assertion that the existing Tariff produces a clearing price for the DPL-South LDA in the December 2022 BRA which is "approximately" four times higher than the clearing price that would be produced by PJM's replacement rate. That is "argument" not "evidence," but even if it were considered evidence, it is not enough to demonstrate that the Tariff is unjust and unreasonable, particularly in light of the ample record evidence to the contrary presented in the affidavit of Dr. Shanker. Further, even if that lone unsupported assertion could be sufficient, PJM's failure to provide any details or supporting documents or testimony renders the information unreliable and the Complaint inadequately supported.[152] By PJM's own admission, the alleged "inaccuracy" has produced a clearing price for the DPL-South LDA that signals new generation is needed in that LDA, in which fewer resources participated than PJM forecast. PJM has not attempted to explain why or how this price signal is unjust and unreasonable for a zone that is demonstrated to be short on generation based on PJM's own auction participation forecasts, and in which it apparently is difficult to build new generation on the timeline that PJM has assumed in its CETO model.

Each of the aforementioned deficiencies in PJM's Complaint represents an independent basis on which to reject the Complaint, and the Commission should promptly do so.

[152] *See* 18 C.F.R. § 385.206(b)(8) (complaint must include "all documents that support the facts in the complaint in possession of, or otherwise attainable by, the complainant").

iii. As Demonstrated in the Attached Affidavit of Dr. Shanker, PJM Could Address the Concern it Has Identified by Establishing a Deadline, Prior to Determining the Reliability Requirement for Each Auction, by which Planned and Existing Resources with the Option not to Offer Must Notify PJM Whether They Will or Will Not Participate in the Auction

If either PJM believes that its method of forecasting LDA Reliability Requirements is insufficiently predictive of the Planned Generation Capacity Resources and Intermittent Resources that ultimately will participate in RPM auctions, there is a much simpler and more effective solution available that will not only address PJM's concern but that also will provide increased certainty to the market.[153]

As explained above, PJM's approach to calculating an LDA's CETO and LDA Reliability Requirement assumes that all planned an existing generation resources in the LDA at issue will be in-service within the planning horizon and will offer into the BRA. For most resources, there is little to no risk that that assumption will prove inaccurate, because the default setting in the RPM rules is that resources are <u>required</u> to offer into the BRA.[154] A Seller may seek an exception to that must-offer obligation pursuant to Section 6.6A(c) of the Tariff, but such exceptions are permitted only if the Seller can demonstrate that the resource at issue "is reasonably expected to be physically incapable of satisfying the requirements of a Capacity Performance Resource."[155] Further, that request must be accompanied by a plain showing the steps the Seller will take "for the resource to become physically capable of satisfying the requirements of a Capacity Performance Resource," and the Seller must provide PJM progress

[153] Shanker Affidavit at 35-36.

[154] *See* Tariff, Attach. DD § 6.6A ("For the 2018/2019 Delivery Year and subsequent Delivery Years, the installed capacity of every Generation Capacity Resource located in the PJM region that is capable (or that can reasonably become capable) of qualifying as a Capacity Performance Resource shall be offered as a Capacity Performance Resource . . . in all RPM Auctions for each such Delivery Year[.]").

[155] *Id.* § 6.6A(c).

reports 120 days prior to subsequent Incremental Auctions and approximately 150 days prior to subsequent BRAs.[156] In other words, for most resources, the Tariff ensures that PJM's assumptions about the auction participation of generation resources will be highly accurate, and it does so by imposing strict obligations on Sellers to either offer into the auctions or obtain an exception that itself obligates the Seller to notify PJM well in advance of each auction as to whether its exception will apply for that auction.[157]

Those default rules do not apply to the specific types of resources that gave rise to the concerns PJM has expressed in these proceedings. Planned Generation Capacity Resources, Intermittent Resources, Capacity Storage Resources, Demand Resources, Energy Efficiency Resources, and Hybrid Resources consisting exclusively of components that in isolation would be Intermittent Resources or Capacity Storage Resources are all exempt from the RPM must-offer obligation.[158] Further, that blanket exemption does not impose any of the obligations that apply to generation resources that obtain an exception from the RPM must-offer obligation.[159] Most troublingly, resources that qualify for the blanket exemption have no obligation to notify PJM about whether they will be physically capable of satisfying the requirements of a Capacity Performance Resource or whether they will exercise their option to not participate in an upcoming auction.[160] PJM As a result, PJM's assumptions regarding whether those resources will participate are vastly more uncertain that PJM's assumptions about resources with an RPM must-offer obligation or an exception therefrom.

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[156] Tariff, Attach. DD § 6.6A(c).

[157] *Id.* §§ 6.6A(a), (c).

[158] *Id.* § 6.6A(c); Shanker Affidavit at 16.

[159] *See* Shanker Affidavit at 16-17, 35.

[160] *See id.*

As Dr. Shanker explains, this is the true source of the LDA Reliability Requirement forecast risk that PJM has identified, and there is a straightforward, elegant solution for eliminating this risk. Dr. Shanker's proposal is "simply to require that any seller/supplier of capacity with an option not to participate in the upcoming BRA must formally execute that option in advance of the BRA, through a binding declaration to either offer or not offer in that BRA."[161] Dr. Shanker explains that, if such a resource declares that it will offer in the BRA, its offer will be subject to all of the rules that apply to offers from Planned and existing resources in that BRA.[162] In terms of timing, Dr. Shanker proposes that declarations of whether such resources will exercise their option not to offer in a BRA should be made thirty (30) days prior to PJM's posting of the planning parameters for that BRA.[163] In other words, the declarations would be due approximately 120 days prior to the BRA, which closely aligns with the existing Tariff deadline for resources that have received an exception from the must-offer obligation to notify PJM of their status for the upcoming auction.[164]

This Tariff change would preserve the option for Planned Generation Capacity Resources, Intermittent Resources, Capacity Storage Resources, Demand Resources, Energy Efficiency Resources, and Hybrid Resources consisting exclusively of components that in isolation would be Intermittent Resources or Capacity Storage Resources to not offer into RPM auctions, while also providing PJM with certainty regarding how those options will be exercised when PJM is establishing the parameters—including the CETO figures and LDA Reliability Requirements—to be used in the BRA. This will eliminate the risk that PJM's LDA Reliability

[161] Shanker Affidavit at 37.

[162] *Id.*

[163] *Id.*

[164] *Id.* at 38-39.

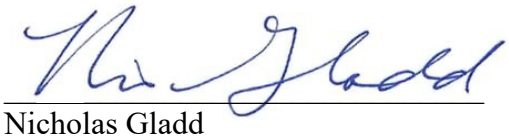
Requirements might turn out to be inaccurate and will do so with minimal burden to a subset of market participants, changing the timing of their decision to match the timing required of market participants that have obtained exceptions to the RPM must-offer obligation. As discussed in detail above, Dr. Shanker's solution is far superior to PJM's flawed proposal in these dockets.

Further, as Dr. Shanker explains, the forecast risk presented by resources that are exempt from the RPM must-offer obligation is likely to increase in the future. As more and more Planned Generation Capacity Resources, Intermittent Resources, Capacity Storage Resources, Demand Resources, Energy Efficiency Resources, and Hybrid Resources seek to enter the market, spurred on by increasingly aggressive federal and state energy policies, the uncertainty concerning the development timelines and auction participation of those resources can be expected to have increasing impacts on PJM's CETO and LDA Reliability Requirement calculations. This is yet another reason the Commission should reject PJM's reckless, rushed proposal in these proceedings. The proper course in this situation is to conduct a thoughtful stakeholder process to fully consider the nature of the issue PJM has identified and explore solutions for future auctions which, like Dr. Shanker's solution, are effective, consistent with competitive market principles, and lawful.

III. CONCLUSION

For the foregoing reasons, the Commission should dismiss PJM's Section 205 and Section 206 filings in these proceedings, holding that (1) applying PJM's proposed Tariff changes to the December 2022 BRA would violate the filed rate doctrine and the rule against retroactive ratemaking, and (2) PJM has not satisfied its burdens under FPA Section 205, FPA Section 206, or Section 7(c) of the APA. In so doing, the Commission should direct PJM to immediately post the final results of the December 2022 BRA.

Respectfully submitted,



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January 20, 2023

Attachment A

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C.	)	Docket No. ER23-729-000
	)	Docket No. EL23-19-000

AFFIDAVIT OF THE HON. JOSEPH T. KELLIHER
ON BEHALF OF
THE PJM POWER PROVIDERS GROUP

I. Executive Summary

1. My name is Joseph T. Kelliher. I am the principal of Joseph Kelliher Consulting, an advisory and consulting business. I was formerly Chairman and Commissioner of the U.S. Federal Energy Regulatory Commission ("FERC" or "Commission") (2003-2009). Subsequently I served as Executive Vice President for Federal Regulatory Affairs for NextEra Energy, Inc. (2009-2020), the largest U.S. electricity company, a national electricity company that conducts business in every region of the country, including every regional transmission organization ("RTO") and independent system operator, either as a generator, marketer, or transmission owner. As I explain below, I have over forty years' experience and expertise with energy policy and regulatory issues. As Chairman and Commissioner I considered changes to RTO market rules, applied the filed rate doctrine and rule against retroactive ratemaking, and evaluated whether complainants met their burden of proof under Section 206 of the Federal Power Act ("FPA") in hundreds of decisions. As a senior executive of the nation's largest electricity company charged with managing FERC regulation, I assessed market confidence in various RTOs and evaluated how the filed rate doctrine and rule against retroactive ratemaking bore on RTO market rule filings and whether complaints filed by NextEra Energy or others satisfied their FPA Section 206 burden. As Chairman and Commissioner, I sought to be careful that Commission decisions not only maintained confidence in RTO markets but in the Commission itself.

2. On December 23, 2022, PJM Interconnection ("PJM") made a pair of FPA Section 205 and Section 206 filings[1] to amend the definition of Locational Deliverability Area Reliability

[1] The PJM FPA Section 205 and Section 206 filings are substantially the same, so I refer to them collectively as the "December 23rd Filings." Page cites to the filings will be to the FPA Section 205 filing, unless otherwise indicated.

Requirement ("LDA Reliability Requirement") in the PJM Open Access Transmission Tariff ("Tariff") to exclude Planned Generation Capacity Resources from the calculation of the requirement if the addition of such resources materially increases the reliability requirement and such resources do not participate in the Reliability Pricing Model ("RPM") auctions.[2] PJM represents that the proffered amendment is needed to allow the RPM auctions to use a more accurate LDA Reliability Requirement in clearing the auctions.[3] The true object is to retroactively change auction parameters in order to change results that PJM subjectively asserts are too high in one LDA and lower the clearing price.

3. In its December 23rd Filings PJM states that when conducting the 2024-2025 Base Residual Auction ("BRA"), a significant amount of Planned Generation Capacity Resources that it expected to participate in the auction did not offer in the auction despite being included in the LDA Reliability Requirement.[4] It states that as a result the LDA Reliability Requirement for one LDA, Delmarva Power & Light South ("DPL-South"), was overstated.[5] In conducting the RPM auctions, PJM utilizes the Variable Resource Requirement ("VRR") Curve for the PJM Region as well as for certain LDAs, including DPL-South, to establish the level of capacity resources needed to provide an acceptable level of reliability.[6] The LDA Reliability Requirement plays a central role in shaping the VRR Curve, which is used as the demand curve for RPM auctions.[7]

[2] December 23rd Filings at 1.
[3] *Id*. at 2.
[4] *Id.*
[5] *Id.*
[6] *Id*. at 10.
[7] *Id*. at 10-11.

4. PJM claims that the clearing price for DPL-South under the existing Tariff would be more than four times what the clearing price would be if the Planned Generation Capacity Resources that did not offer in the auction are excluded from the LDA Reliability Requirement.[8] PJM further asserts that absent the proposed amendment the auction would not reflect the actual reliability needs of DPL-South and would force Load Serving Entities in the LDA to procure more capacity than is needed to meet the area's actual reliability needs.[9] PJM characterizes the auction outcome under the current Tariff with respect to DPL-S as "aberrant,"[10] "in error,"[11] "inaccurate,"[12] and "anomalous,"[13] although it identifies no error in Tariff administration. PJM claims the amendment was intended to address a "unique circumstance that was recently discovered during the auction process"[14] that was "unanticipated."[15]

5. However, it is plain that what prompted PJM to make the December 23rd Filings was not a fidelity to accuracy in auction parameters, but a desire to change the auction results, specifically the clearing price in DPL-South. PJM states plainly that "this filing would reduce charges that Load Serving Entities would otherwise have to pay absent these revisions."[16] PJM intends to use the new definition of LDA Reliability Requirement to re-run the DPL-South auction that concluded more than a month ago, retroactively changing the parameters of the 2024-2025 BRA in order to lower the auction price for DPL-South.[17] The LDA Reliability Requirement parameters of that auction were posted on August 29, 2022, Seller offers were

[8] December 23rd Filings at 2, 17, 29, 31.
[9] *Id*. at 3.
[10] *Id*.
[11] *Id*. at 31.
[12] *Id*. at 4, 9, 20, and 22.
[13] *Id*. at 9.
[14] *Id*. at 5, 8.
[15] *Id*. at 8.
[16] *Id*. at 5.
[17] *Id*. at 2-4

submitted starting December 7, 2022, and the BRA closed on December 13, 2022. PJM has calculated the auction results, but so far has refused to post the results that should have been posted on December 20, 2022 under PJM's auction schedule. It is PJM's calculation of the results that hurriedly spurred the December 23rd Filings, ten days after the auction closed. In its December 23rd Filings, PJM did not identify any violation of its Tariff that it may have committed or concede any error that it may have made in its administration of the Tariff, so the auction operated consistent with the Tariff, producing a result in DPL-South that is also consistent with the Tariff.

6. I was asked by The PJM Power Producers Group ("P3")[18] to evaluate the December 23rd Filings and provide an opinion on whether the filings were consistent with Commission policy relating to maintaining confidence in RTO markets. In the course of doing so I evaluated whether the December 23rd Filings are consistent with the filed rate doctrine and rule against retroactive ratemaking, since that is material as to whether the filings are consistent with Commission policy regarding the integrity of RTO markets. I also considered whether the December 23rd Filings satisfied the limited notice exception to the filed rate doctrine. Finally, I considered whether PJM satisfied its burden of proof under FPA Section 206.

7. I conclude, based on my review of the December 23rd Filings and Commission policy and court precedent, applying my experience and expertise with energy policy matters, that:

    a. The December 23rd Filings are inconsistent with the filed rate doctrine and rule against retroactive ratemaking and fall outside the limited notice exception;

[18] P3 is a non-profit organization that supports the development of properly designed and well-functioning power markets in PJM.

b. The December 23rd FPA Section 206 complaint fails to satisfy the complainant's burden of proof;

c. Approval of the December 23rd Filings would damage market certainty and undermine confidence in RTO markets, contrary to longstanding Commission policy.

8. My opinions are based on my nearly 40 years of experience with energy policy matters, on both the giving and receiving end of energy policymaking. I previously noted my service as Commission Chairman and Commissioner (2003-09) and Executive Vice President-Federal Regulatory Affairs with NextEra Energy, Inc. (2009-20). I also served as Senior Policy Advisor to the U.S. Secretary of Energy (2001-03), where I advised the President, Vice President, and Secretary and the White House energy task force on the California and Western Power Crisis and development of the National Energy Strategy. In addition, I was Majority Counsel for the House Commerce Committee (1995-2000), responsible for electricity legislation. In that role I drafted comprehensive electricity legislation approved by the Subcommittee on Energy and Power, portions of which were later included in the Energy Policy Act of 2005, which I implemented as Commission Chairman.

9. During my service as Commission Chairman and Commissioner I voted on more than 7,000 orders. Based on a Westlaw search, hundreds of these votes related to RTO market rules, the filed rate doctrine and rule against retroactive ratemaking, and FPA Section 206 complaints. During my Commission service, I consistently voted to uphold the requirements of FPA Section 206, which demand that complainants meet their burden to show that existing rate and non-rate tariff provisions are unjust and unreasonable or unduly discriminatory or preferential, dismissing complaints that failed to satisfy their burden.

II. PJM's December 23rd Filings are Inconsistent with the Filed Rate Doctrine and Rule Against Retroactive Ratemaking

A. Filed Rate Doctrine and Rule Against Retroactive Ratemaking

10. FPA Section 206 authorizes FERC to fix or change wholesale and transmission rates and charges, but only prospectively.[19] When a public utility desires to alter its rates it must provide 60 days' notice.[20] While the Commission may waive the notice requirement for good cause,[21] it has no authority under the Act to allow retroactive changes in rates charged.[22] Under FPA Section 206, when the Commission finds a rate just and unreasonable, it "shall determine the just and reasonable rate … to be *thereafter* observed and in force,"[23] limiting the Commission to ordering prospective rate changes. As the Supreme Court has stated, "[n]ot only do the courts lack authority to impose a different rate than the one approved by the Commission, but the Commission itself has no power to alter a rate retroactively."[24] The filed rate doctrine is rooted in the language of the Federal Power Act, specifically two statutory provisions, Section 205(c), which requires utilities to file rate schedules with the Commission, and Section 206(a), which allows the Commission to fix rates and charges, but only prospectively. These statutory provisions mandating the open and transparent filing of rates, limiting a public utility to charging only those rates on file, and broadly proscribing their retroactive adjustment are known collectively as the "filed rate doctrine."

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[19] 16 U.S.C. § 824e(a).
[20] *Id*. § 824d(d).
[21] *Id.*
[22] *Old Dominion Elec. Cooperative v. FERC,* 892 F.3d 1223, 1226 (D.C. Cir. 2018) ("*ODEC*"); *Consolidated Edison Co. v. FERC*, 958 F.2d 429, 434 (D.C. Cir. 1992).
[23] 16 U.S.C. § 824e(b) (emphasis added).
[24] *Arkansas Louisiana Gas Co. v. Hall*, 453 U.S. 571, 578 (1981).

11. The related rule against retroactive ratemaking often overlaps with the filed rate doctrine, focusing on how the current rate is determined.[25] Under this rule, the Commission is prohibited from adjusting current rates to make up for previous over- or under-collections of costs in prior periods.[26] The rule against retroactive ratemaking is a logical outgrowth of the filed rate doctrine[27] that bars the Commission's retroactive substitution of an unreasonably high or low rate with a just and reasonable rate.[28] Under the rule, the Commission may not allow a public utility to recoup past losses from a rate that is too low,[29] and likewise the Commission may not force a public utility to lower its current rates to make up for overcollections in previous periods.[30] Together, the filed rate doctrine and rule against retroactive ratemaking leave the Commission with virtually no discretion to waive operation of a filed rate or retroactively change or adjust a rate for good cause or for any other equitable consideration[31] and act as a "nearly impenetrable shield,"[32] ensuring rate predictability and integrity.

12. Significantly, the filed rate doctrine is not limited to rate provisions and extends to non-rate tariff provisions "directly affect[ing] … rates,[33] including deadlines and milestones for the conduct of auctions. Just as rate provisions may not be changed retroactively, the FPA "prohibits changes, not just to a rate, but also to 'any such rate, charge, classification, or

[25] *Associated Gas Distributors v. FERC*, 898 F.2d 809, 810 (D.C. Cir. 1990 (*per curiam*) (Williams, J., concurring) (describing relationship between filed rate doctrine and rule against retroactive ratemaking).
[26] *Towns of Concord v. FERC*, 955 F.2d 67, 71 & n.2 (D.C. Cir. 1992).
[27] *Associated Gas Distributors*, 898 F.2d at 810.
[28] *Id.*
[29] *City of Piqua v. FERC*, 610 F.2d 950, 954 (D.C. Cir. 1979).
[30] *FPC v. Hope Natural Gas Co*., 320 U.S. 591, 595-96 (1944).
[31] *Towns of Concord v. FERC*, 955 F.2d 67, 71 n.2 (D.C. Cir. 1992).
[32] *ODEC*, 892 F.3d at 1230.
[33] *Nantahala Power & Light Co. v. Thornburg*, 476 U.S. 953, 966-67 (1986).

service, or in any rule, regulation, or contract relating thereto'" and for that reason "[n]on-rate terms within a tariff may not be changed retroactively."[34]

13. While the filed rate doctrine is a "nearly impenetrable shield," there is a notice exception to the doctrine and the rule against retroactive ratemaking. That exception is quite narrow, however. No violation of the filed rate doctrine occurs when market participants are on adequate notice that resolution of some specific issue may cause a later adjustment in a rate.[35] There are two well-established circumstances in which the courts have found there is adequate notice.[36] First, when a tariff has a formula for calculating a rate, which clearly states that charges will derive from application of the formula.[37] When the very terms of the filed rate warn customers that a tariff rate may fluctuate based on an identified formula with specified cost drivers, then the rate is allowed to change with the fluctuations of those inputs.[38] In effect, the formula is the rate on file. Under formula rates, rate changes are pre-ordained by operation of the Tariff itself and are therefore not retroactive.

14. The PJM Tariff is a combination of rates and non-rate terms, with multiple rules that result in fluctuations of various rates, including rates set through auction, such as the BRA. The LDA Reliability Requirement is a non-rate term that can affect the rates set by the BRA auction. But the PJM Tariff provides notice on how the LDA Reliability Requirement could affect rates, by providing milestones for establishing LDA Reliability Requirement parameters well in advance of an auction. To be clear, the Tariff provides no notice that the parameters posted

[34] *Oklahoma Gas & Elec. Co. v. FERC*, 11 F.4th 821, 830 (D.C. Cir. 2021) (*citing* FPA § 205(d)).
[35] *Natural Gas Clearinghouse v. FERC*, 965 F.2d 1066, 1075 (D.C. Cir. 1992).
[36] *Oklahoma Gas & Elec. Co.*, 11 F.4th at 831. The Commission previously stated the notice exception has been limited to formula rates and court remands "[f]or the most part." *West Deptford Energy, LLC, v. FERC*, 766 F.3d 10, 22 (D.C. Cir. 2014).
[37] *ODEC*, 892 F.3d at 1231-32.
[38] *Id.* at 1231.

before the auction could be changed at any point, certainly no notice they could change after offers are submitted in reliance on those parameters of after the auction closes. Second, the filed rate doctrine is not violated when a court invalidates a filed rate as unlawful, requiring the Commission to consider making retroactive changes to the rate. As the U.S. Court of Appeals for the District of Columbia Circuit stated recently, "we have generally declined to find notice outside these 'two limited circumstances.'"[39]

15. While there is a limited notice exception to the filed rate doctrine and rule against retroactive ratemaking, there is no such equitable exception. The courts have uniformly held the filed rate doctrine is a "nearly impenetrable shield" that does not yield "no matter how compelling the equities might be."[40] The Supreme Court has required "strict adherence to the filed rate … despite its harsh consequences."[41] The U.S. Court of Appeals for the District of Columbia Circuit has held the Commission has "no discretion to waive the operation of a filed rate or to retroactively change or adjust a rate for good cause *or for any other equitable considerations*."[42] The same court observed that "[o]nce a tariff is filed, the Commission has no statutory authority to provide equitable exceptions or retroactive modifications to the tariff."[43]

B. PJM's Argument that its Tariff Amendment is Consistent with the Filed Rate Doctrine and Rule Against Retroactive Ratemaking Falls Flat

16. PJM offers various arguments in an attempt to persuade that its December 23rd Filings are consistent with the filed rate doctrine and rule against retroactive ratemaking, namely:

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[39] *Oklahoma Gas & Elec. Co.*, 11 F.4th at 831 (*citing ODEC* at 1227).
[40] *ODEC*, 892 F.3d at 1230.
[41] *Maislin Indus., U.S., Inc. v. Primary Steel, Inc.*, 497 U.S. 116, 132 (1990).
[42] *ODEC*, 892 F.3d at 1230 (emphasis added).
[43] *Oklahoma Gas & Elec. Co.*, 11 F.4th at 824-25.

a. The proposed amendment does not violate any specific deadline or date contained in the Tariff;[44]

b. The proposed amendment effectuates an existing tariff provision providing prior notice to stakeholders that PJM might seek FERC approval of tariff amendments where "imminent severe economic harm to consumers" merits a prompt Section 205 filing;[45]

c. The proposed amendment "will only impact future actions not yet taken in the auction process";[46] and

d. "[B]ecause no capacity awards have been made or final results posted, there is not a final rate for which any entity has an entitlement or settled expectation at this time."[47]

i. PJM's Tariff Amendment Would Retroactively Change Tariff Milestones

17. All of these arguments are either exaggerations or half-truths and fall well short of showing that PJM's proposed Tariff amendments are in fact not retroactively changing a filed rate. Let's review the arguments in the order presented by PJM. First, PJM asserts that the waiver would not violate any specific deadline or date but does not and cannot make the same claim with respect to tariff *milestones*. Under the Tariff, PJM was required to post certain relevant information "*prior to conducting the Base Residual Auction for such Delivery Year*," including the LDA Reliability Requirement and VRR Curve for each LDA for which separate VRR Curves have been established for such BRA auction.[48] The information required to be posted by the Tariff includes the offer time window for the BRA auction. PJM posted the information required by the Tariff on August 29, 2022. Interestingly, nowhere in the December 23rd Filings

[44] December 23rd Filings at 24.
[45] *Id.*
[46] *Id.*
[47] *Id.*
[48] PJM Tariff, Attachment DD § 5.11(a)(v) (emphasis added).

does PJM acknowledge that the LDA Reliability Requirement and other parameters were posted nearly five months ago. Presumably PJM deduced that acknowledging the passage of time would make it more difficult for their amendment to be accepted as prospective. Under the schedule posted by PJM in accordance with the Tariff, bidding commenced on December 7, 2022 and closed on December 13, 2022. That schedule provided that auction results would be posted on December 20, 2022, exactly one month ago.

18. Importantly, under the Tariff *all* of these milestones *precede* PJM's December 23rd Filings. Just because the Tariff does not specify that the BRA open on December 7, 2022 and close on December 13, 2022 doesn't meant those events have not occurred in a manner prescribed by the Tariff and are now in the past. PJM's proposal would change the parameters governing BRA auction in order to revise auction prices in DPL-South months after those parameters were posted on in August 2022, weeks after bids were submitted, weeks after bidding closed, and weeks after the auction results were calculated by PJM, but not posted.

19. Notwithstanding, PJM asserts its filing would be prospective because even though it would be effective *after* auction parameters were posted, *after* offers were submitted in reliance on those parameters, *after* the auction closed, and *after* auction results were calculated, it would take effect *before* PJM posted auction results and awarded capacity contracts. If the beginning of wisdom is calling things by their proper name, this cannot be called prospective.

ii. PJM's Notice Claims Fall Well Outside Limited Notice Exception to Filed Rate Doctrine

20. Second, while there is a limited notice exception to the filed rate doctrine, the December 23rd Filings fall well outside that limited exception. PJM reaches for the narrow notice exception to the filed rate doctrine and rule against retroactive ratemaking and attempts to argue that bidders had notice of possible changes to the planning parameters, pointing to Section 9.2(b)

of its Tariff and Section 5.11(e) of Attachment DD of its Tariff. These provisions provide no such notice that the LDA Reliability Requirement is subject to retroactive revision months after being posted in accordance with Section 5.11(a) of Attachment DD, weeks after offers were submitted, and weeks after the BRA auction closed.

21. PJM declares that Section 9.2(b) "allows PJM to propose changes [in the Tariff] where there is imminent severe economic harm,"[49] which is at best an exaggeration. PJM is a public utility and under the FPA it can file tariff changes at any time under FPA Section 205. It is "allowed" to file tariff changes by the FPA, not Section 9.2(b) of its Tariff. This Tariff provision, which PJM claims is "effectuated" by the December 23rd Filings, actually provides no sort of notice that PJM might make a future FPA Section 205 filing to retroactively change the parameters governing an auction after the auction results are calculated. PJM implies that Section 9.2(b) of its Tariff somehow authorizes retroactive ratemaking that prevents "imminent severe economic harm to electric consumers,"[50] but that minor provision does no such thing, being limited to providing notice to PJM stakeholders that it "*may file with less than a full 7 day advance consultation in circumstances* where … imminent severe economic harm to electric consumers *requires a prompt Section 205 filing*."[51] The words "imminent severe economic harm to electric consumers" do appear in Section 9.2(b), but only in the context of providing notice that PJM might curtail advance consultation, nothing more. At most Section 9.2(b) expedites a PJM FPA Section 205 filing that would have earlier *prospective* effect than otherwise. That's it. The "notice" in question here is notice that PJM might make a FPA Section 205 filing with less than the usual advance consultation under certain circumstances,

[49] December 23rd Filings at 28.
[50] *Id*. at 28-30.
[51] PJM Tariff § 9.2(b) (emphasis added).

not notice that such filing would seek to make retroactive changes to the PJM Tariff. As such, Section 9.2(b) hardly provides notice to market participants and stakeholders that PJM would seek retroactive changes to any provision in its nearly 5,000 page Tariff. It is a gross misrepresentation to suggest otherwise.

22. PJM's arguments about how its amendment is needed to "effectuate" Section 9.2(b) strain beyond the breaking point. PJM argues that "section 9.2(b) would be *meaningless* if PJM is not allowed to apply the revised rule that addresses the identified Tariff gap … before auction results are finalized for the 2024-2025 BRA."[52] Putting aside that PJM has hardly established that a "gap" exists, this argument is less than straightforward. What does Section 9.2(b) provide for? Curtailed advance consultation with stakeholders before making a FPA Section 205 filing at the Commission, allowing for an expedited filing, which would, upon approval of the Commission, then be applied on a prospective basis. Nothing more. Regardless of the fate of the December 23rd Filings PJM will still be able to rely on Section 9.2(b) to curtail advance consultation under the right circumstances.

23. PJM further claims that Section 5.11 of Attachment DD provides notice that LDA Reliability Requirement parameter may be adjusted to exclude Planned Generation Capacity Resources that do not participate in the auction because the Tariff authorizes PJM to make adjustments to reflect Price Responsive Demand. If anything, this undermines PJM's position, since tariff language that provides notice of adjustments limited to Price Responsive Demand provides no sort of notice of any other retroactive parameter changes PJM might wish to make. To the contrary, it shows the Commission limited adjustments only to Price Responsive Demand.

[52] December 23rd Filings at 29 (emphasis added).

iii. PJM's Bid to Stop the Auction Clock Cannot Roll Back Time

24. Third, in an effort to balance a reluctant nod to candor with a desire to represent that PJM's proposed amendment will not have retroactive effect, PJM uses tortured language such as insisting that the amendment "will only impact future actions not yet taken in the auction process."[53] To translate, the amendment would "only impact" final auction prices months after auction information was posted, weeks after offers were submitted in reliance on that information, weeks after the auction closed, and weeks after prices have been calculated to some degree of finality. PJM would have us believe that the 2024/2025 BRA are a Schrodinger's Cat – the auction process appears to be final, except for the ministerial step of posting the auction results that PJM apparently has in hand but refuses to formally post – are the auction results final or preliminary? PJM argues the auction is not complete because it has not yet announced auction results, asserting it is free to change market rules governing bidding that commenced on December 7, 2023 and closed on December 13, 2022 at any point up to posting the results and awarding contracts – even after price calculation.

25. Frankly, PJM's December 23rd Filings display a schizophrenic attitude towards the finality of the auction results. In places PJM strains to avoid admitting the DPL-South results have been finalized, through the device of characterizing them as "preliminary auction data"[54] and "preliminary price calculation."[55] But it is difficult to accept that PJM would go to the lengths of making an emergency filing with an immediate effective date and invoke a Tariff provision limited to "imminent severe economic harm" based on preliminary data that would necessarily

[53] December 23rd Filings at 24.
[54] *Id*. at 2, 16.
[55] *Id*. at 9.

be speculative in nature. If PJM's calculations of the DPL-South auction results are indeed preliminary and speculative PJM would have no basis to invoke Section 9.2(b) of its Tariff and curtail notice to stakeholders. If the 2024-2025 BRA auction results are as speculative and tentative as PJM claims in parts of its December 23rd Filings, then PJM has failed to carry their burden under FPA Section 206, since it is well established a complaint based on mere speculation must be dismissed.

26. But in other places PJM drops the veil, acknowledging that it has calculated the auction results in DPL-South. Indeed, that calculation is what caused PJM to make its filing. PJM admits that the results are final enough to make such definitive statements as: "absent acceptance of this filing, consumers in the DPL-S LDA *would have to pay more than four times more* for capacity in one Delivery Year than they otherwise should have paid if an accurate Locational Deliverability Area Reliability Requirement is used to clear the auction. Given *this imminent severe economic harm to electric consumers in DPL-S* [will occur] if PJM were to complete the auction clearing process and award capacity commitments absent the proposed amendment …."[56] This is quite a different tone and description of the finality of the auction results than PJM uses elsewhere.

27. PJM can't have it both ways; the DPL-South auction price cannot be both final and preliminary at the same time. The only explanation for these shifting characterizations is that PJM is trying to thread the needle, representing the auction results as final enough to satisfy its FPA Section 206 burden, but not so final that its tariff amendment would be seen as violating the filed rate doctrine and rule against retroactive ratemaking. Both gambits should be rejected.

[56] December 23rd Filings at 31 (emphasis added).

iv. PJM Incorrectly Maintains the Filed Rate Doctrine is Limited to Protecting "Settled Expectations" Regarding Rates

28. Fourth, PJM's argument that there is no final rate because no capacity awards have been made or final results posted so "there is no final rate for which any entity has an entitlement or settled expectations at this time" is perhaps the most slippery of the bunch.[57] Based on many prior Commission decisions involving the filed rate doctrine as it applies to changes in RTO market rules and auction parameters it is inconceivable that PJM does not understand that the filed rate doctrine applies to non-rate tariff provisions and is not limited to rate provisions. In point of fact, the most recent fulsome discussion of the filed rate doctrine in Commission and federal court decisions focused entirely a non-rate tariff provision, not a rate provision.[58] Notwithstanding, PJM advances an argument implying that the filed rate doctrine is limited to rate provisions, and it is free to retroactively change a non-rate tariff provision as long as no party is deprived of any "entitlement or settled expectation."

29. When it comes to application of the filed rate doctrine the question is not whether the PJM's proposed Tariff amendment would deprive of any party of any "entitlement or settled expectation," but whether it would retroactively amend any provision of the Tariff, whether that provision is a rate or non-rate provision. As discussed above, the amendment would retroactively amend the LDA Reliability Requirement parameters months after they were established, weeks after offers were made in reliance on those parameters, weeks after the auction closed, and weeks after PJM apparently calculated the auction results, in order to change the auction result. Disturbingly, PJM ignores that the "settled expectations" of market

[57] December 23rd Filings at 24.
[58] *Oklahoma Gas & Elec. Co. v. FERC*, 11 F.4th 821.

participants is not limited to final auction prices but extends to expectations that the auction will be conducted consistent with the Tariff at the time of the auction.

30. PJM's argument limiting settled expectations and reliance interests on the final clearing price is also misplaced, ignoring that market participants rely on the Tariff and on PJM's faithful administration of the Tariff when they make sell offers into an auction. They have a "settled expectation" that the auction parameters they relied on when making a sell offer will remain in place, and not changed after an auction closes. The Commission understands the importance of reliance interests. So much so that it has rejected FPA Section 205 filings that proposed to make *prospective* changes to RTO auction rules too close to the auction on the grounds doing so would upset expectations based on the current tariff provisions.[59] What is interesting is that in that decision, *ISO New England, Inc*., the RTO submitted market rule changes *48 days in advance* of the auction, which the Commission characterized as an "eleventh-hour" filing that upset expectations of market participants who were relying on the existing tariff.[60] By contrast, the December 23rd Filings would make changes to auction parameters *five months after* those parameters were posted.

31. As PJM acknowledged in the December 23rd Filings, PJM is required by its tariff to post the auction results "as soon … as possible" after conducting the auction.[61] The auction schedule PJM posted in accordance with the Tariff indicated it would post the auction results on December 20, 2022. While PJM claims that it is impossible to conclude an auction that they have consistently closed in a matter of days in the past,[62] the only explanation for why PJM

[59] *ISO New England, Inc*., 132 FERC ¶ 61,136 (2010).
[60] *Id*. at P 22.
[61] PJM Tariff, Attachment DD § 5.11(e).
[62] December 23rd Filings at 9.

has not posted the auction results and awarded contracts it that it simply chooses not to do so. PJM seems to believe that it has the discretion to interpret "as soon … as possible" to mean "whenever," since it implies in the December 23rd Filings that it intends to refrain from announcing the auction results and awarding contracts indefinitely, until the Commission disposes of its amendment. PJM lacks that discretion. While, unsurprisingly, "as soon … as possible" is not a defined term in the Tariff, the meaning of the term is not elusive and PJM's past practice of quickly announcing auction results within days of auction close has given it a well understood meaning.

32. If PJM's administration of its Tariff had been consistent with its prior interpretation, it would have posted the auction results and awarded contracts December 20, 2022. Instead, PJM has resolved to not post auction results and award capacity contracts "as soon as possible" after auctions resulted are calculated, delaying announcing auction results and contract awards indefinitely, which is plainly inconsistent with its Tariff. In my view, by refusing to post the auction results and award contracts, PJM is violating its Tariff.

C. PJM's Argument Essentially Seeks Preemptive Equitable Remedies from an Agency that Lacks Equitable Powers

33. PJM's bid for retroactive changes in its Tariff seems rooted in equity considerations, since, as previously discussed, it is transparently designed to retroactively change and lower auction prices in DPL-S resulting from correct administration of a just and reasonable Tariff from a level PJM has deemed "too high." But as discussed above federal courts have repeatedly held that the Commission has no discretion to waive operation of a filed rate or retroactively change a rate for equitable grounds. The filed rate doctrine is a nearly impenetrable shield "no matter

how compelling the equities."[63] As a result, the Commission has no authority to provide equitable exceptions or retroactive modifications to a Tariff, regardless of whether the change is to a rate or non-rate provision.

D. PJM's Tariff Amendment Violates the Filed Rate Doctrine and Rule Against Retroactive Ratemaking

34. It seems apparent that PJM has made final calculations of the DPL-South auction results and is resorting to the device of labelling them as "preliminary" in a bid to avoid the rule against retroactive ratemaking. PJM plainly states that it is attempting to modify provisions of its Tariff that governed bidding that began on December 7, 2022 and closed on December 13, 2002 to retroactively change the auction results and lower prices to prevent what it considers to be over-collection. PJM insists the change is not retroactive as long as PJM refuses to post the results, contrary to its Tariff obligations. The analysis of whether the December 23rd Filings violate the filed rate doctrine and rule against retroactive ratemaking is fairly straightforward. First, is the LDA Reliability Requirement that PJM proposes to amend a non-rate term of the Tariff? It is not disputed that the definition of LDA Reliability Requirement and the requirement to post the requirement in advance of a BRA auction are part of the Tariff. PJM concedes as much, since an amendment is required to change the definition of LDA Reliability Requirement. Second, does this non-rate provision "directly affect" rates. Again, PJM concedes it does, since PJM argues this non-rate term is the cost driver for a four-fold increase in DPL-South clearing prices and amending it would avoid that increase. That means the LDA Reliability Requirement is within the ambit of the filed rate doctrine and rule against retroactive ratemaking. Attachment DD is part of the Tariff so Section 5.11(a) regarding

[63] *ODEC*, 892 F.3d at 1230.

posting of information relevant to bidding is subject to the same filed rate doctrine protections as rate provisions. Finally, is PJM proposing to change a non-rate term retroactively. PJM's argument that changing Tariff provisions months after relevant information was posted in accordance with the Tariff, weeks after offers were submitted, and weeks after the auction closed is prospective as long as the changes occur before the results are posted is the same as saying that changing the way the United States elects Presidents from an electoral system to the popular vote after 80 million votes have been cast and tallied but not yet announced is also a prospective change. PJM's argument that its proposal does not violate the filed rate doctrine and the rule against retroactive ratemaking does not stand up to scrutiny and the Commission must reject the December 23rd Filings.

35. PJM does not declare that it has violated its Tariff and concedes no error in administration of the Tariff, so it also appears undisputed that the DPL-South auction results that PJM finds so offensive are the product of correct application of the Tariff, a tariff the Commission has found is just and reasonable. Even if PJM refuses to disclose the auction results, its stated purpose in the December 23rd Filings is to change the auction results that is refuses to post and deems too high. But those prices, whatever they are, are the product of correct administration of a just and reasonable tariff. While PJM declares that its Tariff is not just and reasonable absent its proffered amendment,[64] as a legal matter the PJM Tariff has been found by the Commission to be just and reasonable and remains so until and unless the Commission – not PJM – finds otherwise.

[64] December 23rd Filings at 10.

III. PJM has Failed to Meet its Burden Under Section 206 of the Federal Power Act

36. Under FPA Section 206, "the burden of proof to show that any rate, charge, classification, rule, regulation, practice, or contract is unjust, unreasonable, unduly discriminatory, or preferential shall be upon … the complainant."[65] Accordingly, for its amendment to be accepted, PJM bears the burden of proof to demonstrate that its existing Tariff is unjust, unreasonable, or unduly discriminatory or preferential. But what showing has PJM made? PJM insists that the auction is still in process,[66] that it has not completed the auction,[67] and it only has "preliminary auction data"[68] and "preliminary price calculations"[69] in hand suggesting the DPL-South clearing price might be significantly higher than in the prior commitment period. PJM offers no material facts to support its complaint, at best it offers a back-of-the-envelope calculation, a guess. This is rank speculation and falls far short of satisfying its FPA Section 206 burden.[70] As the Commission recently stated, "The Commission has consistently found that a party challenging a rate pursuant to FPA section 206 will have failed to provide a sufficient evidentiary record showing the filed rate to be unjust, unreasonable or unduly discriminatory if the entirety of the challenging party's submittal is comprised of unsubstantiated speculation."[71] To meet its burden, a complainant cannot offer mere allegations, it must make

[65] 16 U.S.C. § 824e(b).
[66] December 23rd Filings at 2, 8, 22-3, 25, 31.
[67] *Id*. at 9.
[68] *Id*. at 2, 16.
[69] *Id*. at 9.
[70] *Midwest Indep. Transmission Sys. Operator, Inc*. 115 FERC ¶ 61,224 at P 14, *order on reh'g*, 117 FERC ¶ 61,108 (2006) (dismissing a Section 206 complaint that did nothing more than present "unsubstantiated allegations"); *NextEra Energy Resources, LLC v. ISO New England Inc.,* 156 FERC ¶ 61,150 at P 16 (dismissing Section 206 complaint because "Complainants' allegations are speculative and the complaint lacks sufficient evidence of harm").
[71] *CAlifornians for Renewable Energy v. Calif. Indep. Sys. Operator Corp*., 174 FERC ¶ 61,204 at P 32 (2021).

an adequate proffer of evidence to support its claim.[72] All that PJM has offered here is speculation about the results of an auction that it claims is incomplete and still in process, a back-of-the-envelope estimate, a veiled plea that the Commission "trust us." Its assertions cannot be considered material facts, only allegations.

37. As discussed above, PJM's schizophrenic description of the finality of its calculation of the DPL-South auction results seems to be designed largely to skirt the filed rate doctrine and the rule against retroactive ratemaking. PJM wants the auction calculation to appear final enough to support a FPA Section 206 complaint, but not so final that its FPA Section 205 filing would be doomed under the filed rate doctrine and rule against retroactive ratemaking. As a result, both filings are defective. PJM seems to believe that refusing to post the final auction calculations allows it so assert that its FPA Section 205 amendment does not violate the filed rate doctrine, characterizing the auction as still in process and the results as only "preliminary auction data" and "preliminary price calculations." But the effort to slip by the filed rate doctrine defeats PJM's FPA Section 206 complaint, since the "preliminary auction data" from an auction that purportedly is still in process cannot suffice to meet its FPA Section 206 burden. PJM's argument centers on the *results* of the auction after properly applying non-rate terms in the Tariff. But PJM does not even offer any material facts as to those results, instead it contents itself with asserting that results are "too high" and the parameters bidders relied on must be adjusted nearly two months after offers commenced, well over a month after the auction closed.

38. Significantly, in its December 23rd Filings PJM does not assert that any tariff violation has occurred and concedes no error on its behalf in its administration of the Tariff. In other words, a tariff that the Commission has found to be just and reasonable was properly applied. What

[72] *Id.* (*citing BP West Coast Products, LLC v. SFPP, LP*, 121 FERC ¶ 61,239 at P 35 (2007)).

PJM objects to is the results obtained under correct application of the just and reasonable Tariff provisions currently in effect, and in effect at the time of the auction. PJM's argument recalls a decision the Commission rendered in 2008 when I was Chairman, namely *Maryland Public Service Commission.*[73] In that order the Commission dismissed a FPA Section 206 complaint directed at changing PJM RPM auction results. The Commission noted that the purpose of the RPM was to obtain forward binding commitments from capacity resources to be available in order to ensure reliability and create sufficient incentives for new generation projects and demand resources to participate.[74] The Commission further observed that complainants made no argument that a tariff violation occurred and that in the absence of any tariff violation the Commission must conclude the auction was conducted consistent with the RPM design and the Tariff. Rejecting the complaint, the Commission held that "[c]hanging a rate and quantity already determined in accordance with existing tariff provisions on which parties have relied would defeat the purpose of the forward binding commitment, and undo incentives for new capacity resources,"[75] noting that its decision was consistent with the Federal Power Act, the structure of RPM, the PJM Tariff, and "in accord with Commission precedent in dealing with other challenges to rates determined through bidding procedures."[76]

39. Even if the mere speculation offered by PJM to support its December 23rd Filings sufficed to satisfy its FPA Section 206 burden, it must also propose a remedy that is just and reasonable. For the reasons discussed more fully in the Shanker Affidavit, PJM's proposed remedy is poorly supported and must be rejected.[77] PJM's support for the one percent material threshold

[73] *Maryland Pub. Serv. Comm'n v. PJM Interconnection, LLC*, 124 FERC ¶ 61,276 (2008).
[74] *Id.* at P 26.
[75] *Id.*
[76] *Id*. at P 32.
[77] Shanker Affidavit at 32-35.

for excluding Planned Generation Capacity Resources from the LDA Reliability Requirement appears to be two lonely, conclusory sentences: "It is reasonable to base the materiality threshold using one percent as the standard because it is the cumulative addition of sufficiently large Planned Generation Capacity Resources in a small LDA that causes the identified issue. Using a materiality standard of one percent avoids having to arbitrarily define a MW value for what constitutes a small LDA."[78] There are problems with this rationale. First, PJM has stated the auction is still in process and it only has preliminary auction data in hand, so whether or not an "identified issue" even exists has not been established. Second, if the existence of the "identified issue" is in doubt, then PJM's representation that one percent was the cumulative addition that "caused" the "identified issue" cannot be accepted. Third, on its face, a one percent standard appears to be too inclusive to constitute materiality, since it would be triggered by virtually any increase in the LDA Reliability Requirement. In any event, PJM offers no support for its proposed amendment. Perhaps the ten days between the close of the auction and the December 23rd Filings left PJM too little time to develop an amendment that was not arbitrary and capricious by virtue of a materiality standard that deems virtually any increase in the reliability requirement to be material.

IV. Accepting the PJM December 23rd Filings Would be Inconsistent with Commission Policy Recognizing the Need to Maintain Confidence in RTO Markets

40. Even if for purposes of argument the filed rate doctrine and rule against retroactive ratemaking do not apply to retroactive changes to non-rate Tariff provisions that directly affect rates such as auction parameters and milestones and mere speculation suffices to support a FPA Section 206 complaint, the Commission should reject the PJM December 23rd Filings on policy grounds. The Commission has consistently recognized the importance of assuring market

[78] December 23rd Filings at 19-20.

certainty and maintaining market integrity, even to the extent of opposing the re-running RTO auctions to provide refunds as remedies in FPA Section 206 complaint proceedings and in response to court remands, where Commission has discretion to order re-running of markets, on the grounds that doing so would "undermine confidence in markets."[79] Federal courts also have recognized the importance of "ensuring rate predictability" in their consideration of Commission orders relating to changes in RTO market rules.[80] Even PJM recognizes the need for market certainly, although strangely it argues that market certainty is best served by retroactively changing auction parameters after offers have been submitted in reliance on those parameters, and after the auction has closed.[81] Commission approval of the December 23rd Filings would undermine confidence not only in RTO markets but in the Commission itself. Arguably, it would be even more damaging to effectively authorize re-running markets under the auspices of a FPA Section 205 filing, since under the filed rate doctrine those filings are limited to authorizing prospective tariff changes.

[79] *PJM Interconnection, LLC*, 169 FERC ¶ 61,237 at P 10 (2019) (noting the Commission "generally does not order a remedy that requires re-running a market because market participants participate in the market with the expectation that that rules in place and the outcomes will not change after the results are set); *PJM Interconnection, LLC*, 161 FERC ¶ 61,252 at P 59 (2017); *Astoria Generating Co. LP v. New York Indep. Sys. Operator, Inc*., 140 FERC ¶ 61,189 at P 141 (2012); *PPL EnergyPlus v. N.Y. Indep. Sys. Operator Corp*., 115 FERC ¶ 61,383 at P 30 (2006); *Calif. Indep. Sys. Operator Corp*., 120 FERC ¶ 61,271 at P 24 (2007); *New York Indep. Sys. Operator, Inc*., 113 FERC ¶ 61,340 at P 17 (2005); *Pacific Gas Transmission Co*., 82 FERC ¶ 61,227, 61,875 (1998) (holding that despite a finding of violation "the public interest in market stability outweighs the need for reposting"); *Pan-Alberta Gas (U.S.) Inc. v. Pacific Gas & Elec. Co*., 72 FERC ¶ 61,092, 61,505 (1995) (finding that despite a violation in capacity allocation, setting aside a transaction would "cause a disruption in the market.").

[80] *ODEC*, 892 F.3d at 1230.

[81] December 23rd Filings at 5, 32.

41. The Commission has held that abiding by market rules is necessary to enable an RTO to effectively administer markets[82] and has generally disfavored re-running markets, explaining that doing so is an extraordinary measure that would create market uncertainty for market participants and require resolving complex questions. Further, the Commission has found that re-running markets would do more harm to electric markets than is justifiable[83] and that "re-running the markets would likely harm customers …."[84] The Commission has declined to re-run markets even where – unlike here – the RTO committed an error implementing its existing tariff, holding that doing so "would do far more harm to wholesale electricity markets than is justifiable or appropriate … and would be fundamentally unfair to market participants."[85] The Commission has long recognized maintaining market confidence includes encouraging reliance on RTO market rules.

42. PJM's December 23rd Filings effectively ask the Commission to allow it to re-run the BRA auction, at least in DPL-South. While PJM has refused to post the clearing prices, they have announced their estimate that the auction results in DPL-South are roughly four times the result in the last BRA.[86] Deeming that result unjust and unreasonable, a determination left to the Commission, not PJM, PJM has asked the Commission for authority to retroactively change the parameters that governed the auction and re-run it, in a naked bid to change the results of the auction and lower prices in DPL-South. PJM seems to believe that retroactively changing

[82] *GenOn Energy Mgmt, LLC v. ISO New England*, 152 FERC ¶ 61,044 at P 50 (2015); *Northeast Utils. Serv. Co*., 135 FERC ¶ 61,123 at P 13 (2011) (emphasizing it is important to abide by RTO market rules to enable effective administration of RTO markets).
[83] *Dominion Energy Mktg., Inc. v. ISO New England,* 155 FERC ¶ 61,121 at P 23 (2016); *Ameren Servs. Co*., 127 FERC ¶ 61,121 at P 17 (2009); *Bangor Hydro-Elec. Co. v. ISO New England*, 97 FERC ¶ 61,339 at 62,590 (2001), *reh'g denied*, 98 FERC ¶ 61,298 (2002).
[84] *PJM Interconnection, LLC*, 169 FERC ¶ 61,237 at P 23 (2019); *PJM Interconnection, LLC*, 161 FERC ¶ 61,252 at P 60 (2017).
[85] *Bangor Hydro-Elec. Co*., 97 FERC at 62,590.
[86] December 23rd Filings at 2, 17, 29, 31.

auction parameters that bidders relied on and re-running the auction does not run afoul of the Commission's long-standing opposition to re-running auctions as long as the clearing prices in the first auction are not fully disclosed.

43. There is a long line of Commission decisions refusing to re-run RTO auctions on policy grounds, even where the Commission has legal authority to do so as a result of a Section 206 complaint or court remand. Commission disfavors re-running markets because market participants participate in the market with the expectation that the rules in place and the outcomes will not change after the results are set. Re-running past auctions creates regulatory risk going forward, since investors would be unlikely to invest capital in a market if the results were subject to change at a later date.[87] For that reason, the Commission has held that re-running the markets undermines the markets themselves by creating uncertainty for market participants and generally eschews directing auctions to be re-run.[88] While these cases have generally involved re-running auctions after the results are announced, and here the results have only been hinted at, the policy considerations are the same. While the auction results have not yet been formally posted, PJM has broadcast the order of magnitude of the changes in DPL-South, namely an estimated four-fold increase compared to the prior auction.

44. The Commission has also disfavored RTO FPA Section 205 tariff amendments that proposed *prospective* tariff changes with insufficient notice, on policy grounds, namely the need to avoid upsetting expectations and reliance on current RTO tariff provisions. As discussed above, in *ISO New England, Inc*.[89] the Commission rejected a FPA Section 205 filed by ISO New

[87] *Midwest Indep. Transmission Sys. Operator, Inc*., 162 FERC ¶ 61,173 at P 19 (2018); *PJM Interconnection, LLC*, 161 FERC ¶ 61,252 at P 58 (2017).
[88] *PJM Interconnection, LLC,* 161 FERC § 61,252 at P 55 (2017).
[89] *ISO New England, Inc*., 132 FERC ¶ 61,136 (2010).

England that would be effective 48 days later, characterizing the filing as an "eleventh hour" filing that would upset expectations based on the current tariff provisions.[90] The Commission held that market participants had a reasonable expectation the current RTO market rules would remain in effect for the upcoming auction.[91] That reliance is even stronger here, since that reliance occurred nearly two months ago when offers were submitted in reliance on parameters posted in August 2022 than PJM proposes to revise after the auction has closed and the results were calculated. If the Commission deemed 48 days of notice of a prospective change an eleventh-hour filing that would upset expectations, the same policy considerations about assuring market confidence and recognizing reliance interests should compel the agency to reject the retroactive changes in the December 23rd Filings attempt to change current RTO market parameters after an auction and after the results are known to PJM.

45. In its filings, PJM holds itself out as defending the integrity of the PJM markets by promptly addressing a market rule flaw that results in unjust and unreasonable rates. Its commitment to market integrity would be more believable if its proposed Tariff amendments were prospective in nature, as required by FPA Section 205. It would also be more believable if PJM's actions were more consistent. But PJM's actions here stand in stark contrast with how it has acted when different market rule flaws cause price suppression in auction clearing prices, rates that PJM recognized as unjust and unreasonable for being too low.[92] Here, PJM slapped together a rushed Tariff amendment to address a purported market rule flaw ten days after the 2024-2025 BRA auction closed. It was so urgent to address this flaw that PJM not only requested

[90] *ISO New England, Inc*., 132 FERC ¶ 61,136 at P 22.
[91] *Id*. at P 29.
[92] *PJM Interconnection, LLC*, 147 FERC ¶ 61,060 (2014) (approving tariff amendment that recognized limits on amount of external capacity resources PJM can reliably import in future BRAs).

waiver of the 60-day notice period in FPA Section 205(d), it proposed that the amendment have retroactive effect. But when faced with a market rule flaw in 2013 *that had been suppressing capacity prices for three years*, PJM took no urgent action.[93] Instead, it convened a stakeholder process over a period of months that developed a Tariff amendment that – correctly – would make a prospective change. There was no emergency filing, no filing after seven-day advance consultation, no request to waive the 60-day notice. It is hard to avoid the conclusion that PJM is more tolerant of market rule flaws that produce unjust and unreasonable rates that are too low than for those that produce rates that are too high. That is a hallmark of politicized decision-making, ends-result oriented decision-making, rather than a commitment to market integrity, and raises concerns about PJM's commitment to capacity market rules that encourage generation entry and capital investment.

46. I still believe the Commission is committed to market integrity, but take solace in the strong line of court precedent applying the filed rate doctrine and rule against retroactive ratemaking, and holding complainants to their burden under FPA Section 206. I trust that the Commission will act on the December 23rd Filings in a manner consistent with the FPA and court precedent. The most embarrassing Commission legal defeats with respect to RTO policy were in the *Atlantic City I* and *II* decisions.[94] There, the D.C. Circuit castigated the Commission for

[93] The PJM filing that proposed limits on external capacity resources noted over-estimating imports of these resources may have suppressed auction prices for three years. PJM Interconnection, L.L.C., Transmittal Letter, at 2, Dkt. No. ER14-503 (filed Nov. 29, 2013) (stating "external resources whose offers clear an RPM auction but do not accurately reflect the cost of delivering capacity into PJM suppress RPM capacity prices, with tangible adverse reliability consequences. PJM has seen thousands of MW of generation capacity resource retirements after each of the last three years' BRAs as generation owners assess the viability of their plants in light of … suppressed capacity prices.").

[94] *Atlantic City Elec. Co. v. FERC*, 295 F.3d 1 (D.C. Cir. 2002) ("*Atlantic City I"*), *enforcing mandate*, 329 F.3d 856 (2003) ("*Atlantic City II"*).

ignoring the stark limits on its statutory authority and the plain language of the FPA.[95] For the Commission to accept the Tariff amendment it would have to not only ignore the limits that the FPA places upon it but also upwards of 100 years of court precedent. In all likelihood, it would suffer a stinging and embarrassing court defeat that would eclipse the debacle of *Atlantic City I* and *II*.

[95] *Atlantic City I* at 11 (vacating the Commission's order on the grounds it "trump[ed] the plain meaning of a statute" and ignored the limits on Commission's authority).

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C.	)	**Docket Nos. ER23-729-000**
	)	**EL23-19-000**
	)	
	)	**(Not Consolidated)**

AFFIDAVIT

I, Joseph T. Kelliher, do hereby swear and affirm under penalty of law that the statements in the foregoing Affidavit of the Honorable Joseph T. Kelliher on behalf of The PJM Power Providers Group are true to the best of my knowledge, information, and belief.

Executed this 20th day of January, 2023.

Joseph T. Kelliher

District of Columbia
Signed and sworn to (or affirmed) before me
on 1-20-23 by Joseph T. Kelliher
Date Name(s) of Individual(s) making Statement

Signature of Notarial Officer

15684309.1 Notary
Title of Office

My commission expires: 10-14-2026

FAITH MONIQUE MANUEL
NOTARY PUBLIC
MY COMM. EXPIRES 10-14-2026
DISTRICT OF COLUMBIA

Attachment B

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

	)	Docket No. EL23-19-000
PJM Interconnection LLC,	)	Docket No. ER23-729-000
	)	

Affidavit
Of
Roy J. Shanker Ph. D.

ON BEHALF OF

THE PJM POWER PROVIDERS GROUP

January 20, 2023

Affidavit of Roy J. Shanker Ph. D.

1. My name is Roy J. Shanker. My address is P. O. Box 1480, Pebble Beach, California, 93953.

2. I have been asked by The PJM Power Providers ("P3") to review the December 23, 2022 filings made by the PJM Interconnection, L.L.C. ("PJM") under Section 205 and Section 206 of the Federal Power Act (FPA) in FERC Docket Nos. ER23-729-000 and EL23-19-000, respectively (collectively "PJM Filings").

I. Qualifications and Experience

3. My resume, attached as Attachment RJS-1, summarizes my experience in numerous regulatory proceedings before state commissions and FERC. As detailed therein, I have over 49 years of experience covering a broad range of issues in the electric utility industry, and I have worked as an independent consultant for the past 42 years. I have worked extensively in the PJM and New York Independent System Operator, Inc. ("NYISO") markets during their initial development, particularly with respect to the establishment of the capacity markets. In each of those markets, I was involved with the formulation and underlying rationales for the capacity market designs. In PJM, this experience has included many incremental changes, including the introduction of the Reliability Pricing Model ("RPM"), the subsequent adjustments to limit the role of inferior capacity products, the introduction of the Capacity Performance ("CP") or Pay for Performance ("PfP") rules, the debates related to the Market Seller Offer Caps and Minimum Offer Price Rule.

4. Attachment RJS-1 summarizes relevant engagements to this affidavit, including not only PJM and NYISO projects focused on capacity markets, but also extensive capacity market design work in both the Midcontinent Independent System Operator, Inc. ("MISO") and ISO New England, Inc. ("ISO-NE") markets. A partial summary of relevant capacity market design-related engagements over just the last five years where I have submitted either written testimony, affidavits or Amici Curiae briefs includes (numbers in parenthesis refer to the index number in Attachment A): Docket No. EL-19-63 (251); EL19-47 (250); Amici Curiae Brief before the

Supreme Court (249); EL18-178 (248); EL18-169 (247); EL18-1314; EL17-32 and 36 Technical Conference and Comments (243) ; EL13-535 (242); Amici Curiae Brief before the Second Circuit (241); Amici Curiae Brief before the Seventh Circuit (240); AD-17-11 invited technical session speaker (239); EL17-32 filing (238); EL15-70, -71, -72 technical session and affidavit (235-6); EL15-64 (232); EL14-55 (228); RM10-17 (227). In the prior 226 engagements where testimony or an affidavit was submitted, I would estimate approximately another 50 engagements were related to RTO/ISO capacity market design issues or the analytics of calculating capacity value.

5. I have been involved and continue to be involved in virtually all areas of market design and development, and I actively participate in stakeholder activities in PJM on behalf of various market participants. Much of this activity relates to RPM and adequacy-related concepts in the market design. (*e.g.*, the current Resource Adequacy Senior Task Force where PJM is considering the potential redesign of the Capacity market.). I have also participated in all of the stakeholder processes related to Capacity Capability and capacity market design within PJM that directly addressed Effective Load Carrying Capability ("ELCC") issues and locational issues (which are at the heart of the questions in front of the Commission in these Dockets). On multiple occasions I have been invited to speak before the Commission in its technical sessions, many of which have addressed capacity markets in general and the PJM capacity market specifically.

6. I have a bachelor's degree from Swarthmore College and both a masters degree and doctorate degree from Carnegie-Mellon University.

II. Conclusions

7. Based on my review of the PJM Filings, I conclude that PJM's requests should be denied and the Commission should direct PJM to immediately publish the final results of the Base Residual Auction ("BRA") for the 2024/2025 Delivery Year. I reach this conclusion for the following reasons:

- As represented by PJM, with the exception of posting the final results, the auction was conducted and concluded fully within the scope of the existing Tariff provisions, and there has been no indication of any inappropriate behavior or Tariff violations by any Market Sellers. Therefore, the results obtained prior to any proposed Tariff modification (which may only occur prospectively) are binding and should be honored. PJM presents no substantive explanation why its conducting an auction consistent with the Tariff should be rejected, other than its apparent unhappiness with the high price that resulted in one Locational Deliverability Area ("LDA").

- The general cause of the high price in the Delmarva Power & Light – South ("DPL-South") LDA reflects a known and knowable allocation of risk within the market design. As with many planning parameters, PJM must forecast certain future conditions. This creates inherent uncertainty and risk. When coupled with preferential options for certain Capacity Resources, this risk is amplified.

- The specific results in this instance simply reflect a realization of that risk. Further, there were public and well understood indications of this risk—specifically for the DPL-South LDA—when PJM first presented its Planning Parameters for the BRA in late August, 2022. Knowledgeable parties, including PJM, should have understood the potential for the high price ultimately produced by the BRA when this information was released, and should have understood that such a risk was entirely consistent with the relevant Tariff provisions. In fact, third parties that had less information than PJM anticipated the exact outcome that PJM now laments. And PJM itself estimated this outcome almost down to the dollar in its prior sensitivity studies.

- Had PJM deemed these risks inappropriate, the right time to have filed for changes in its rules would have been prior to fixing the auction parameters, allowing market participants to act upon such information (*e.g.*, enter into hedges or take other market actions), and most certainly prior to having "opened the

envelope" of the sell offers and computed a clearing price that they apparently did not like.

- Instead, PJM chose to "open the envelope," review offers, and then engage in a subjective *ex post* review and seek to retroactively change the Planning Parameters and effectively re-run the auction without further opportunity for sellers and others to adjust their strategies or positions.

- Proposing to do so while ignoring the harms to those that had acted in reliance on the Tariff and the associated information provided by PJM is unjust and unreasonable.

- Even if PJM's running of the auction revealed shortcomings in its Tariff, the remedy is not to upend the Tariff, and violate it by unwinding a Tariff-compliant auction. PJM should instead, as is typical, seek changes to the Tariff that would impact future auctions, after following a robust stakeholder process.

- As a remedy, PJM offers an ill-considered adjustment that does not allow market participants to modify their prior actions or solve the underlying problem. Under PJM's proposed solution, the exact same circumstances that PJM decries can still occur in the future. PJM's proposal ignores a fundamental element of this risk: the ability of a large and growing share of existing Capacity Resources to exercise their discretion in determining whether or not to offer to sell into the BRA without providing PJM any advance notice of whether they will exercise that option. By leaving this free option in place, the problem never goes away.

- Finally, should the Commission wish to modify the BRA rules prospectively, I have identified and recommend an alternative modification that eliminates this risk for auction buyers and effectively shifts the risk to those who can best control it, *i.e.* auction sellers.

III. Recommendations

8. First and foremost, the Commission should reject PJM's Filings without prejudice to future Tariff modifications concerning the issue underlying these proceedings. If the Commission and PJM wish to prospectively modify the Tariff with respect to the current level of risk caused by the interaction of forecasting the Reliability Requirement while some Capacity Resources have the option not to participate, there is a simple modification that can be applied going forward.

9. That modification is to change the timeline on which *both* existing and planned Capacity Resources with options to offer into a BRA, must exercise that option. By simply moving the execution date (*i.e.* the deadline by which all of these resources with options must declare that they will or will not offer in the upcoming BRA) from the actual BRA to 30 days before the Planning Parameters are posted (*i.e.* a movement of approximately 120 days forward from the status quo and which is comparable to the Tariff deadline for other existing Capacity Resource participation decisions) this risk will be eliminated from the auction process for buyers and appropriately (in my opinion) assigned to the parties most knowledgeable about managing that risk, the offering Capacity Resource. If such a resource declares that it will participate in the BRA, it would be bound by that decision, and similarly so for any Capacity Resource with an option to participate that declines to participate.[1]

10. In turn, the LDA Reliability Requirement would then be calculated with a known set of local participating generation resources and the type of variance in LDA supply and demand at issue here would be eliminated. This also obviously fixes the value of the Capacity Export Transfer Objective ("CETO"). This solution is simple, straight-forward to implement, and meets all, not just a portion, of the concerns that PJM has expressed about the allocation of risk associated with the flexible option right, i.e. the right to participate or not participate in a BRA and other RPM auctions, held by some existing and Planned Capacity Resources. It also makes

[1] I acknowledge that another alternative would be to eliminate this type of option entirely. I have not made a recommendation on this alternative.

these Resources more comparable to those without such an option, at least with respect to the calculation of the CETO and association LDA Reliability Requirement[2].

IV. Detailed Discussion of Findings and Conclusions

A. The Auction Was Conducted and Concluded Consistent Within the Tariff Requirements and Therefore the Results, Prior to Any New Tariff Provisions Being Proposed, are Valid and Should be Binding.

11. Prior to discussing the details of the mechanics that PJM incompletely described in the PJM Filings, it is worth noting important facts that were omitted and not presented to the Commission in the PJM Filings. While it is difficult to articulate a negative from an event that did not happen, the absence of any comments by PJM with respect to how the Tariff requirements were fully met is telling. PJM rules dictate a very specific timeline of actions that must be taken prior to the commencement and conclusion of a BRA.[3]

12. With respect to the overall BRA process, PJM has not identified or otherwise indicated that there was any violation of the auction process or rules as defined in Tariff, Attachment DD Section 5.4 (Reliability Pricing Model Auctions)**.**[4] Nor has the Independent Market Monitor identified any breaches from the requirements of Attachment DD, Section 6 (Market Power Mitigation).[5]

- PJM knew going into the auction, based on its own studies of the BRA conducted in June, 2022 for the 2023/2024 Delivery Year, that the Planning Parameters

[2] I will use Locational Delivery Area ("LDA") Reliability Requirement and Local Reliability Requirement interchangeable. I believe LDA Reliability Requirement is clearer in the context of these filings.
[3] *See* PJM Auction Schedules for adjustment to normal 3-year cycle. Under https://pjm.com/markets-and-operations/rpm the related Excel spreadsheet is posted at the top left above the header "Delivery Years". See Manual 18 Section 5.2 for the general BRA actions. https://www.pjm.com/-/media/documents/manuals/m18.ashx
[4] Tariff, Attachment DD § 5.4 (Reliability Pricing Model Auctions)**.**
[5] *Id.*

clearing indicated a potential shortage in DPL-South and pricing at the market cap. PJM's own sensitivity studies make this very clear.

- PJM has not indicated that there were any uncured tasks or that any associated information needed to be submitted prior to the BRA.

- PJM did not indicate that any schedules or rule protocols were violated prior to the commencement of the BRA on December 7, 2022, or its conclusion on December 13, 2022. In fact, PJM only voiced its concerns on December 21, the day after they were to post the auction results.[6]

- PJM did not indicate any breaches of any Tariff conditions in developing the necessary information needed for these tasks and the actual auction itself.

- In particular, PJM did not indicate or state that it had any problems or issues associated with the calculation of the CETOs for the relevant LDAs, the development of the associated LDA Reliability Requirements for such LDAs, or its forecast of Planned Resources. PJM presumably relied on the same information that it always has for these evaluations.

- PJM did not identify any problems with the Resource Model identifying Capacity Resources or with the IMM's review of offers and Sellers' obligations.

- PJM did not identify and deficiencies or inappropriate offers submitted that were not properly corrected or improperly included.

[6] https://pjm.com/-/media/committees-groups/committees/mc/2022/20221221/item-03-2024-2025-bra-update-and-pjm-notice-of-consultation-with-the-members-committee.ashx

- PJM and the IMM did not identify any Sellers subject to the must-offer provisions of Attachment DD that failed to offer into the BRA.[7]

- PJM and the IMM did not identify (or fail to mitigate) any offers above the Market Seller Offer Cap.[8]

- PJM and the IMM did not identify (or fail to mitigate) any offers that were in violation of the Minimum Offer Price Rule.

- PJM did not identify any factors that kept it from properly executing the BRA as identified by Attachment DD in its entirety.

- PJM did not indicate any computational limitations or infeasibility in processing the submitted offers.

- PJM did not indicate that it could not understand or process any of the submitted offers, and de facto admits that it did "open the envelope" of such offers and analyze the offers in a manner sufficient to clear the market and determine prices.

- PJM did not indicate any failure or irregularity with Price Responsive Demand ("PRD") offers. Any PRD offers received were apparently submitted in a proper and timely manner. PJM's discussion of these offers and their role in the auction process seems irrelevant.

- PJM obviously reviewed the offers and calculated prices in order to reach its conclusions regarding the resulting pricing in the DPL-South LDA. Their concerns were conveyed to stakeholders on December 21 more than a week after the auction period closed a day after the scheduled posting of results. All

[7] *See* Tariff, Attachment DD § 5.6 (Offer Requirement for Capacity Resources); *id.* § 6.6 (Offer Requirement for Capacity Resources, within the context of Market Mitigation).
[8] *See id.* § 6.4.

indications were that PJM could have posted such results but simply chose not to.[9]

13. The only specific information we have that PJM provided is that after the above full compliance with the Tariff and Manuals, the receipt of all necessary offers, and evaluation of the offers (*e.g.,* "opening the envelopes"), PJM became concerned not about any failure or violation of the Tariff , but its own subjective evaluation of the prices produced by the auction offers coupled with known and knowable results related to PJM's own forecasts coupled with offer optionality granted under the PJM Tariff to a subset of Capacity Resources that do not have a must offer obligation.

B. Background on PJM's Method of Determining CETO and Reliability Requirements

14. The summary that PJM presented of the process to identify the CETO for an LDA and the associated Reliability Requirement for the locality is correct, but incomplete. It is worth taking a few steps backwards in the process to fully understand the context of what happened.

[9] PJM also indicates that consideration of PRD was not completed and that could modify the Planning Parameters. That is an incorrect representation of the participation of PRD in the BRA. PRD represents an offer on the demand side to limit energy consumption at a given price. These PRD offers are also submitted during the same offer period when Sell Offers are submitted, and importantly after the Planning Parameters are set. PJM's comment, and unfortunately the tariff language, is misleading. The accepted PRD, based on the offers (PRD and Sell) submitted in the overall optimization process does lead to a modified demand curve. And a demand curve is part of the Planning Parameters. But this is a post-auction-offer-closing demand curve determined *ex post*, not the demand curve established as the Planning Parameter that was used in the BRA, and does not play any further role in the determination of BRA auction prices than that recognized in the optimization process. The cleared PRD obviously changes demand requirements. *See, e.g.*, Manual 18 at p.40 ("A PRD Provider that is committing PRD in Base Residual Auction or Third Incremental Auction must also submit a PRD election in the Capacity Exchange system which indicates the Nominal PRD Value in MWs that the PRD Provider is willing to commit at different reservation prices ($/MW-day). The PRD election by PRD Providers will result in a change in the shape of the RTO/LDA VRR Curves used in the RPM Auctions. Based on the PRD elections and Resource Clearing Price in the RPM Auction, PJM will determine the Nominal PRD Value committed by each PRD Provider. Those PRD Providers that elected to provide PRD at reservation prices equal to or less than the Resource Clearing Price will have the corresponding value of PRD committed in the RPM Auction."), available at https://www.pjm.com/-/media/documents/manuals/m18.ashx.

15. With respect to reliability requirements, PJM must obviously have a load forecast to set the obligations it wishes to meet at a given reliability level.[10] The load forecast is coupled with generation information in a Reserve Requirements Analysis to determine the Installed Reserve Margin ("IRM")/Forecast Pool Requirement necessary to meet a 1 day in ten year Loss of Load Expectation ("LOLE") target. The analytic engine that conducts this study is the Probabilistic Reliability Index Study Model ("PRISM").[11] For the RTO as a whole, PRISM is run for two areas, and for the CETO analysis, the key focus of PJM's Filings, it is run as a single area with a single external support. Simply put, the model compares the distribution of peak loads for each week to a distribution of available generation (accounting for forced and planned outages) and calculates the overlap of the high end of the load distribution to the low end of the generation supply distribution. The overlap there reflects the joint probabilities when load is expected to exceed generation available. See Figure 1 below.[12] This is referred to as a convolution approach to estimating reliability.[13] The model also assumes all load and generation are at the same location, *i.e.* it assumes infinite transmission.

[10] *See, e.g.*, 2023 Load Report, available at https://pjm.com/-/media/library/reports-notices/load-forecast/2023-load-report.ashx.

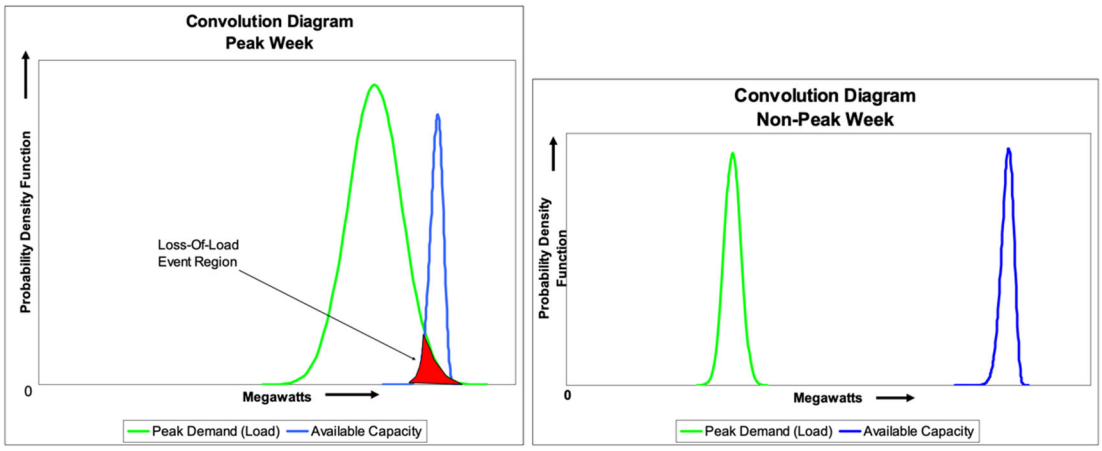
[11] PJM has been using PRISM since at or near the beginning of the RTO. It is based on a legacy model that General Electric developed for Baltimore Gas and Electric. *See PJM Generation Adequacy Analysis: Technical Methods*, at 3 (dated Oct. 2003), available at https://www.pjm.com/-/media/planning/res-adeq/20040621-white-paper-sections12.ashx.

[12] *Id.* at 9 (showing Figure 1, labeled therein as Diagram 4).

[13] *Id.* at 1. The tool developed and used by PJM for this purpose essentially uses a convolution of expected load distributions with expected capacity availability distributions to determine the loss-of-load probability ("LOLP") of the PJM system.

Figure 1

Diagram 4



16. One of the underlying issues of concern here is the statistical computational method for estimating the distribution of available generation (the blue distribution in Figure 1). This is a binomial distribution reflecting the probability of a given amount of capacity being available based on the combinations of configurations of all units being either available or not. The cited PJM paper from 2003 makes an important observation, one well known to system planners for decades before (*e.g.*, the original GE/BG&E model from the mid 1960's):

> Note the standard deviation of the capacity distribution is relatively small. This is due to the large number of units within PJM. With over 700 units, the possible range of system unit average unavailability decreases significantly and clusters around the mean. This tight standard deviation on the capacity distribution applies to both peak and non-peak weeks and serves to reduce the loss of load probability.[14]

17. Also, the converse is true, a smaller number of generators, coupled with larger individual generator sizes leads to a much broader probability distribution of generation resources. In fact, just having one unit significantly larger than any other can significantly skew the distribution as the import capability to a LDA has to be able to respond to that failure.

[14] *Id.* at 8.

18. For example, consider an LDA with a Reliability Requirement of 1000 MW UCAP ("Unforced Capacity") that has a single internal unit of 1100 MW with a 9.1% EFORd (Equivalent Forced Outage Rate demand adjusted) for a UCAP of 1000 MW. Looked at on a simple stand-alone basis the internal resources are either 1000 UCAP (90.9% of the time) or 0 UCAP (9.1% of the time). These are the 2 points on this simple internal supply probability distribution. It should be clear that 9.1% of the time the LDA will have zero internal resources, so its CETO must be large enough to meet this requirement, *e.g.*, at least 1000 MWs (ignoring planned outages, etc.). Alternatively assume that the same LDA has 11,000 100KW internal generators, each with an EFORd of 9.1%. Again, there is 1000 MW of internal UCAP. But now, the probability of fully random outages exceeding 9.1% of the time for 11,000 independent generators approaches zero, and again in this simple world the CETO now approaches zero.

19. Another underlying factor is related to the assumption of infinite transmission capability. This is obviously not true, and a key virtue of RPM is its ability to reasonably address locational transmission limitations. This is where the CETO process comes in. In order to be assured that the PRISM results for reliability of the RTO as a whole are reasonable, PJM uses PRISM as a single area (plus assistance) planning tool to assure that sufficient transfer capability is available from the rest of PJM into the LDA of concern. The LOLE standard in this evaluation is one event in 25 years. This must be stricter than the RTO 1 in 10-year standard because it is a proxy for infinite transmission. The analysis then establishes the LDA Reliability Requirement as the sum of the Capacity Resources inside of the LDA plus the amount of additional resources needed from outside of the LDA to reach the 1 in 25 target LOLE. This import level for the 1 in 25 calculation is the CETO. With regard to this calculation PRISM uses the same convolution approach, and it has exactly the same properties as described above for the evaluation of the RTO as a whole.

C. The Cause of the High Prices in the DPL-South LDA Was Known and Knowable and an Inherent Risk Purposefully Built Into RPM—The Observed Result Relates to Inherent Forecast Risk and The Assignment of That Risk That Has Always Been Present In RPM and Was Clearly Visible in the Planning Parameters PJM Released 3 Months Prior to the Auction.[15]

20. Importantly, in calculating the CETO for an LDA, PJM includes Planned Resources that it forecasts to be available inside of the LDA for the BRA Delivery Year as part of the in-LDA Capacity Resources. **This forecast is important as it is intended to assure reliability while not unduly biasing the future pricing in the LDA.** If future expected additions were ignored, and more resources were added to the LDA than forecasted, the price in the LDA would be expected to be "too low" based on the Capacity Resources actually participating in the auction. In that case, there would be unexpected supply. Alternatively, if the PJM forecast of Planned Resources is too high, and fewer resources actually participate than forecasted, then the prices might be seen as "too high" as less supply internal to the LDA was provided than used to set the overall Reliability Requirement.

21. PJM seems to have forgotten this symmetry of risk allocation tied to the use of a forecast in its characterization of the BRA results. All parties should have been aware of this. Certainly, as discussed below, PJM, the IMM, and market participants had more than enough information as early as the end of August/beginning of September, 2022 (and likely much earlier) to recognize not only the general risk (which they should have known) but also the specific risk associated with DPL-South and the CETO calculations. This is discussed more below.

22. Simply stated, the issue of too much or too few Planned Resources being predicted in the PJM forecasts used for the LDA Reliability Requirement is an inherent forecast requirement with totally understood risk (certainly its presence if not the exact magnitude). *Load bears the risk if PJM over-forecasts planned resource and realized auction offers are less than forecasted, and*

[15] PJM revised the Planning Parameters in the interim between this release and the actual auction, but the relevant parameters, the CETO, Reliability Requirement, and CETL for DPL-South remained the same.

competing suppliers bear the risk if PJM under-forecasts Planned Resources and the excess generation not anticipated, that would have raised the LDA internal expectation of supply, results in lower prices. This should clarify that PJM's problem really relates to the actual forecast assumptions it typically makes in many ways for every auction and the associated forecast risks, not the overall market design. As will be seen below, not only are the risks here inherent, but were more than reasonably predictable (and symmetrical to both load and generators).

23. Importantly, these forecasting errors are expected to send the right adjustment signals for future auctions. If actual new entry of Planned Resources is delayed and prices increase, that may encourage further entry or better incentives to accelerate new entry or increase the level of offers from resources who could have offered but chose not to. If there is more than forecasted Planned Resources, there would be a corresponding drop in prices and a signal to delay or cancel new generation or retire existing generation. This error structure feedback was a known fact and discussed in the initial RPM stakeholder process. Obviously, the magnitude of the forecast error, and the option behavior (discussed in next section) will change the magnitude of the impacts, and might indeed create a motivation, prospectively, to change the market design.

D. PJM Also Omits a Material Fact from Its Filing and Apparently Its Analyses

24. Clearly, there is no guarantee that PJM's forecast of the amount of future Planned Resources that will enter the market and offer into the BRA will offer at the forecast level. It would be naïve to ignore this fact, particularly in today's world that building schedules are delayed for a myriad of reasons, including the often cited "supply chain." Regardless, knowing that certain capacity resource do not have an obligation to offer into the capacity market, it is completely foreseeable that some portion of those resources without such an obligation do not offer into the auction.

25. But PJM also makes a material omission from its presentation to the Commission related to factors that may cause its forecast of the LDA Reliability Requirement to be biased to the high side, as was the case here. As currently structured, PJM has no reason to believe that **both all**

existing and all planned Capacity Resources in certain categories will offer in any specific BRA, yet PJM has ignored the potential of multiple and growing categories of existing resources having the option not to offer their capacity into the auction regardless of their prior offer behavior . While the original RPM rules may have anticipated generally universal "must offer" requirements for new and existing Capacity Resources (typically traditional thermal units), the current Tariff **exempts a broad range of new and existing Capacity Resources from a must offer obligation via a free option to offer or not.**

26. The omission of the full breadth of the optionality to offer that PJM ignores in both its current development of the Local Reliability Requirement and its proposed remedy is a very favorable exception to its general "must offer" provisions related Capacity Resources offering into the BRA/RPM process. But it must be properly recognized in the PJM Planning Parameter forecasting process, and it is not.

27. Specifically, Attachment DD, Section 5.6.1 of the Tariff states:

> A Capacity Market Seller that owns or controls one or more Capacity Storage Resources, Intermittent Resources, Demand Resources, or Energy Efficiency Resources **may** submit a Sell Offer as a Capacity Performance Resource in a MW quantity consistent with their average expected output during peak-hour periods but for ELCC Resources, for the 2023/2024 Delivery Year and subsequent Delivery Years, such MW quantity shall not to exceed the Accredited UCAP of the resource.

(emphasis added).

And similarly, Attachment DD Section 6.6A states:

> Intermittent Resources, Capacity Storage Resources, Hybrid Resources consisting exclusively of components that in isolation would be Intermittent Resources or Capacity Storage Resources, Demand Resources, and Energy Efficiency Resources **shall not be required to offer as a Capacity Performance Resource, but shall not be precluded** from being offered as a Capacity Performance Resource at a level that demonstrably satisfies such requirements.

(emphasis added).

28. These Tariff provisions make clear that the "must offer" obligations in the RPM are materially limited, particularly with the wave of existing and new wind, solar and storage

resources that comprise the majority of future additions to the system. Each year the number of MWs with the ability but not the requirement to offer will increase. Each year PJM's forecast requirements to develop the "in LDA" resources (both planned and existing) becomes more complicated (when it finally recognizes this omission), and less accurate as more and more units have the option decide whether or not to offer into the BRA and assume associated obligations and risk penalties.

29. It is possible that this type of change in behavior via use of the option even happened in the 2024/25 BRA. We have no available specific DPL-South data on that other than the general observations of the IMM regarding the reduced offers of intermittent resources into the auction. Thus, while PJM has focused its forecast of the "in LDA Capacity Resources" on the addition of Planned Resources, the real forecasting issue is understanding **both** the level and exercise of the option to offer for both new and existing exempted resources, **plus** the completion risk and decision making of the resources not exempt from a must offer obligation.

30. Indeed, the IMM explicitly explained to PJM and all stakeholders that *over 50% of intermittent Capacity Resources with the option not to offer, did not offer in the 2023-2024 auction held 6 months earlier:*

> There are two reasons for the difference between the 348.1 MW impact calculated by the MMU and the 1,300 MW impact calculated by PJM. PJM calculated the impact based on the maximum capability of the [intermittent] units included in the 2026 RTEP. But some of those resources were not registered for the 2023/2024 BRA and some of those resources that could have offered in the 2023/2024 BRA did not offer. **PJM's analysis assumes that all affected units offered the maximum capability into the 2023/2024 BRA. The MMU identified 7,367.2 MW of ELCC capacity eligible for the 2023/2024 BRA but less than half of the eligible ELCC capacity was offered.**[16]

[16] Monitoring Analytics, Analysis of the 2023/2024 RPM Base Residual Auction, at 74 (dated Oct. 28, 2022) (emphasis added), available at

31. This is not a flaw, but again a known feature of the market design, and was, to my understanding, included to intentionally give greater offer flexibility to certain subset of resources. This discrepancy among resources creates risk by adding uncertainty to the forecast, and in turn a greater variance for the forecast of in-LDA Capacity Resources, and in turn to the actual realized results.

32. I discuss in Section IV.H how the failure to address this offer optionality makes PJM's proffered solution/remedy an incomplete solution to the very problem that brought them before the Commission.

E. Regardless of PJM's Omission, the Potential Likelihood of Very High Prices in the DPL-South LDA Was Easily Foreseen, Identified by Market Observers, and the Associated Potential Risks Were Either Accepted, Ignored, or Not Recognized by PJM.

33. Given the above, the first thing that all parties should have been aware of was the small size of the DPL-South LDA, and as discussed above, the structural aspects of the PRISM modeling and convolution when there are smaller amounts of total demand and a mix of large and small units, particularly large units that have no "must offer" obligation. The following discussion uses information that was made available to all stakeholders at the end of August 2022. This data was posted in PJM' Planning Parameters and Resource Model available on the PJM website.[17]

34. PJM as a whole had 181,959.1 MW ICAP (Summer Rating) of existing Capacity Resources and 1221 units as of August 25, 2022. This excludes Planned Generation, Demand

http://www.monitoringanalytics.com/reports/Reports/2022/IMM_Analysis_of_the_20232024_RPM_Base_Residual_Auction_20221028.pdf.

[17] 2024/2025 Delivery Year Information, Generation Resource Model, presented with 2024/2025 Delivery Year Materials available at https://pjm.com/markets-and-operations/rpm. As noted, several versions of these Planning Parameters were posted prior to the auction but all had the same information regarding DPL-South.

Response, Energy Efficiency and External Generation Resources.[18] In contrast DPL-South had only 1688 MW ICAP (Summer Rating) and 56 units.[19] Of note, DPL-South contains less than 1% of the total Capacity Resources in MWs and about 4.6% of the individual units, with most being quite small. These observations alone should have always required PJM to exercise caution with the CETO and Reliability requirements as the basic notions of low variance in the supply probability distributions are not met, particularly when coupled with the presence and addition of units more than 10 times the average for the LDA[20]. There also appears to be about 100 MW of existing Intermittent, Solar and Battery Resources with options to sell or not into the BRA.[21]

35. The 2024/2025 Planning Parameters issued in late August (and updated without change to the relevant DPL-South data) provide the next flag.[22] Here it is shown that the Reliability Requirement for the LDA increased by 373 MW or 12%, in comparison to virtually no changes in the Reliability Requirements for other regions. See Figure 2 below.[23] PJM later modified these parameters on October 24, but the parameters for DPL-South remained the same regarding the Reliability Requirement and the overall change in the Reliability Requirement. (Figure 3) The CETL changed by only 1 MW. Importantly, when comparing the 2023/2024 versus 2024/25 parameters, we also find that the CETO decreased by only 240 MW while the total (existing and forecasted) internal Capacity Resource increased by 613 MW UCAP. This is in figure 4 below. This difference 373 MW (613-240) is the source of the change in the Reliability Requirement (CETO + Internal Resources =Reliability Requirement. Change in Reliability Requirement is (Change in CETO plus Change in Internal Requirements). This large net increase of Reliability Requirement in excess of the decrease in CETO (remember the conclusion about changes being about the same in CETO and Increases in generation when very large LDA and/or all very small

[18] 2024/2025 Delivery Year Information, Generation Resource Model, presented with 2024/2025 Delivery Year Materials available at https://pjm.com/markets-and-operations/rpm.
[19] *Id.*
[20] *Id.* In the Resource Model 2024/25, the average MW for DPL-South's 56 units is 30.15 MW, while there was one unit above 400 MW and another unit of approximately 300 MW.
[21] *Id.*
[22] *Id.*
[23] *See* https://pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2024-2025/2024-2025-planning-period-parameters-for-base-residual-auction-pdf.ashx.

units) is a direct result of the nature of the convolution calculation in the planning model and associated size of units, and reasonably could be anticipated (and in any event was actually acknowledged by PJM months prior to the auction). So PJM was clearly aware of the 12% increase in the Reliability Requirement and as discussed more below, its implications beyond just the convolution calculation,

Figure 2

2024/2025 RPM Base Residual Auction Planning Period Parameters

Table 2 – LDA Reliability Requirements and Capacity Import Limits for 2023/2024 and 2024/2025 BRAs

	2023/2024 BRA		2024/2025 BRA		Delta			
LDA	Reliability Requirement (UCAP MW)	CETL (MW)	Reliability Requirement (UCAP MW)	CETL (MW)	Reliability Requirement (UCAP MW)	CETL (MW)	Reliability Requirement (Percent)	CETL (Percent)
MAAC	63,819.0	6,381.0	64,850.0	5,408.0	1,031.0	-973.0	2%	-15%
EMAAC	35,590.0	8,704.0	36,715.0	7,961.0	1,125.0	-743.0	3%	-9%
SWMAAC	14,329.0	8,389.0	14,299.0	7,947.0	-30.0	-442.0	0%	-5%
PS	11,217.0	9,022.0	12,356.0	8,709.0	1,139.0	-313.0	10%	-3%
PS NORTH	5,768.0	4,349.0	6,234.0	4,255.0	466.0	-94.0	8%	-2%
DPL SOUTH	3,141.0	2,008.0	3,514.0	2,009.0	373.0	1.0	12%	0%
PEPCO	7,163.0	7,160.0	7,151.0	7,033.0	-12.0	-127.0	0%	-2%
ATSI	14,649.0	10,213.0	14,434.0	10,465.0	-215.0	252.0	-1%	2%
ATSI-Cleveland	5,363.0	4,728.0	5,374.0	4,941.0	11.0	213.0	0%	5%
COMED	24,077.0	5,781.0	23,859.0	4,640.0	-218.0	-1,141.0	-1%	-20%
BGE	7,522.0	5,615.0	7,514.0	5,397.0	-8.0	-218.0	0%	-4%
PL	10,251.0	4,916.0	10,214.0	4,337.0	-37.0	-579.0	0%	-12%
DAYTON	3,924.0	4,022.0	3,922.0	3,918.0	-2.0	-104.0	0%	-3%
DEOK	6,847.0	5,632.0	6,881.0	4,999.0	34.0	-633.0	0%	-11%

Figure 3

2024/2025 RPM Base Residual Auction Alternative Planning Period Parameters

Table 2 – LDA Reliability Requirements and Capacity Import Limits for 2023/2024 and 2024/2025 BRAs

	2023/2024 BRA		2024/2025 BRA		Delta			
LDA	Reliability Requirement (UCAP MW)	CETL (MW)	Reliability Requirement (UCAP MW)	CETL (MW)	Reliability Requirement (UCAP MW)	CETL (MW)	Reliability Requirement (Percent)	CETL (Percent)
MAAC	63,819.0	6,381.0	63,518.0	5,965.0	-301.0	-416.0	0%	-7%
EMAAC	35,590.0	8,704.0	35,415.0	8,594.0	-175.0	-110.0	0%	-1%
SWMAAC	14,329.0	8,389.0	14,299.0	7,947.0	-30.0	-442.0	0%	-5%
PS	11,217.0	9,022.0	11,166.0	8,287.0	-51.0	-735.0	0%	-8%
PS NORTH	5,768.0	4,349.0	5,715.0	4,253.0	-53.0	-96.0	-1%	-2%
DPL SOUTH	3,141.0	2,008.0	3,514.0	2,009.0	373.0	1.0	12%	0%
PEPCO	7,163.0	7,160.0	7,151.0	7,033.0	-12.0	-127.0	0%	-2%
ATSI	14,649.0	10,213.0	14,434.0	10,465.0	-215.0	252.0	-1%	2%
ATSI-Cleveland	5,363.0	4,728.0	5,374.0	4,941.0	11.0	213.0	0%	5%
COMED	24,077.0	5,781.0	23,859.0	4,640.4	-218.0	-1,140.6	-1%	-20%
BGE	7,522.0	5,615.0	7,514.0	5,397.0	-8.0	-218.0	0%	-4%
PL	10,251.0	4,916.0	10,214.0	4,337.0	-37.0	-579.0	0%	-12%
DAYTON	3,924.0	4,022.0	3,922.0	3,918.0	-2.0	-104.0	0%	-3%
DEOK	6,847.0	5,632.0	6,881.0	4,999.0	34.0	-633.0	0%	-11%

Figure 4[24]

DPL-South	2024/25	2023/24	delta
Reliability Requirement	3514	3141	373
CETO	1120	1360	-240
Forecast Internal (1)	2394	1781	613
CETL	2009	2008	1

(1) Reliability Requirement Minus CETO

[24] All data from posted PJM late August, 2022 Planning Parameters.

36. Thus, at the beginning of September it was clear that because of a large increase in internal resources being forecast (613 MW), and the "lumpy" nature of the underlying additions and the associated mechanics of the convolution calculation as described above, there was a smaller decrease in the CETO of 240 MW. *These factors lead to a net increase in the overall Reliability Requirement of 373 MW that PJM itself posted with the Planning Parameters over three months prior to the auction.*

37. The observations and conclusions here are straightforward. For three months ahead of the BRA, PJM made all market participants aware that there would a material increase in the LDA Reliability Requirement for DPL-South. Anyone with a calculator could duplicate Figure 3 from publicly posted information and also conclude that the net increase forecast of 613 MW would have to be met from an increase in Planned Resources, *all of which have the option to not actually offer absent some third-party agreement.* Further, though less understood, certain internal resources also did not have an obligation to offer as described above.[25]

38. A further demonstration that this type of result is known and knowable is provided by PJM's own sensitivity studies of the 2023/2024 Auction.[26] After each auction PJM typically provides alternative results that might occur with certain broad modifications to the Planning Parameters. For the last auction several scenarios plus the actual results are of interest and show the very high price sensitivity of DPL-South to changes in internal supply. It is hard to get a better indicator of the risk faced from the large increase in internal supplies PJM posted for DPL-South when the very outcome that PJM is wringing its hands about was detailed in PJM's post-auction sensitivity analysis for the 2023/2024 Auction.

39. In the base case (the actual auction results for 2023/2024) DPL-South in pricing from its neighbors in MAAC. (*E.g*. a clearing price of $69.95 versus $49.95 for MAAC, EMAAC, SWMAAC, PSEG and PS-North). Cleared internal Capacity was 1220 MW plus approximately

[25] In the Resource Model, PJM identified about 108 MW of Solar ICAP or about 43 MW of UCAP. Whether this capacity was offered is unknown.
[26] *See* 2023/2024 Auction Information, BRA Scenario Analysis, Scenario 8, available at https://pjm.com/markets-and-operations/rpm (Excel spread sheet created July 1, 2022 by Josh Bruno).

103 MW of Demand Response (DR) and Energy Efficiency (EE). The IMM values are slightly different showing that 1,272.8 MWs internally cleared with only 1,385.7 offered. Thus, there was an internal surplus (based on offers where some parties may have used the option not to offer) of only 156.6 MW.[27] The fact that the price separated tells us that all the CETL was utilized (2008 MW), for the 2024/25 BRA this value only changed to 2009. As discussed above PJM itself identified a need for 373 MW of additional internal Capacity Resources. The writing was on the wall, PJM needed net additions of Capacity Resources going forward of about 216 MW (373-156.6) to meet the reliability requirement. And the PJM Sensitivity studies confirm all this and how sensitive the results were. Adding just 130.1 MW to DPL-South removed this separation and DPL-South cleared in Scenario 7 at the same price as the rest of MAAC. However, when just 130.1 MW was removed from DPL-South internal supply in Scenario 6 the separation returns with DPL-South pricing $14.44 above the rest of EMAAC. **But of greatest interest, when the system was really strained by the removal a large amount of Capacity Resources in MAAC, and the removal of just 260.3 MW of internal Capacity Resources in DPL-South, the DPL- South price separated from MAAC by $294.27, rising to the highest allowed price of $431.26.** There were no unforeseen circumstances here. Anyone could look at the net need of 373 MW and the previous surplus to see that additional resources were needed, and anyone could have compared the magnitude of the needed resources to what was uncleared in the last auction (216 MW) and what the new net requirement was (373 MW) and concluded there was a high probability of shortage and pricing at the cap if Planned Resources did not show up.

40. While these are just sensitivity studies, they demonstrate that in an auction just 6 months earlier, an increase in internal LDA generation to meet the higher Reliability Requirement would very likely have material impacts, potentially driving the LDA price to the allowed upper limit if any of the forecast Planned Resources failed to appear or internal Capacity Resources with an option to not offer, did not offer. This is a fairly robust conclusion because the CETL binds and

[27] Monitoring Analytics, Analysis of the 2023/2024 RPM Base Residual Auction, at 87, 115, available at http://www.monitoringanalytics.com/reports/Reports/2022/IMM_Analysis_of_the_20232024_RPM_Base_Residual_Auction_20221028.pdf.

the CETL value only changes by 1 MW (from 2008 to 2009 MW UCAP). This means the MWs imported remained basically the same in both the 2023/24 sensitivity study and the 24/25 actual auctions. So, the balance would have to be internal and as we can easily see, the overall LDA increase was greater than the 260 MW that drove prices to the cap in the sensitivity study.

41. The bottom line is that the LDA was potentially short internal generation if PJM's forecast were too high, and as a result it would be known by stakeholders and PJM that prices would be high if this occurred. Similarly, again, that forecast could have been too low, and resulting pricing too would have been lower. *Each party to the auction could or should have known these risks, and made their own independent assessment of PJM's 613 MW forecast of Planned Generation (and the resulting net increase) and how it would impact their behavior, either in terms of exercising their option (if they had one) not to participate or modifying their offer price within the allowed limits. Similarly, it would be expected that some stakeholders would have acted upon this information to hedge their cost for capacity requirements or revenues from sales.* Importantly, the result here (high prices) is exactly aligned with the capacity needs in this region. The purpose of RPM is to provide price signals for where generation is needed and it is needed in DPL-South. This is the RPM auction working as designed and post-auction manipulation will not fix the underlying issue or capacity position and will only serve to undermine confidence in the market.

42. The above is not speculative musing. It is a direct explanation of information that was in the market, available to market participants, and readily interpretable as indicating potential shortage. And certainly, and importantly, well known and visible to PJM months before the auctions.

43. Various parties who sell commercial forecasts of PJM markets and related intelligence specifically forecasted that DPL-South would be materially short and prices would reach the cap.[28] Though PJM changed its mind and did not publish the results of the auction, public

[28] A proprietary forecast of potential auction results that I was allowed to review showed sensitivities for the DPL-South LDA reaching the price cap of $426.17. This analysis was

comments by PJM, and indeed their 205 and 206 filings suggest this is exactly the result that occurred.

44. While all of this is interesting, this potential was inherent in the market design, and the results that PJM now considers unacceptable (and tries to excise as unjust and reasonable) were compliant with the Tariff and as shown above, well within the anticipated risks and understanding of most market participants who bothered to do their homework. Third parties apparently all using data posted months ahead of the auction, were able to approximate such high prices in DPL-South using only the public data, and potentially a little elbow grease on making inquiries into the status of the individual Planned Resources, to determine whether or not they might actually offer. *PJM itself conducted studies of the 2023/2024 BRA and reached exactly the same conclusion based on the actual running of the model itself.*

45. PJM has not identified a market flaw or a Tariff violation. They have only identified a feature of the known risks assignments and associated forecast error that are included in the market design and that they wish to "undo." This may make for a reasonable set of changes to the risk assignment prospectively, but not retroactively.

F. PJM Routinely Deals With the Need For Forecasts and Estimates and the Associated Types of Risk Trade-offs In the RPM/BRA Structure.

46. The PJM filings give the impression that this type of event is atypical or a unique happening. When seen for what it was, an extreme but well defined and potential and knowable result of the risk assignment of forecast errors in the market design, that perspective seems to be quite an over-reach. And thus, my comments regarding "it appears all that happened was PJM did not like" the results.

47. Another indicator that is important for the Commission to understand is that the BRA has a number of these type of estimates or forecasts, the potential for forecast error, and associated

performed in September, 2022. The analyst would have had access to the original Planning Parameters at that time.

risk allocations. It would be incredibly naïve to assume otherwise for a process that is using a complex auction process to predict future conditions to set a price for delivery of sophisticated equipment, fuel and operations three years into the future.

48. The best way to see this is simply to identify a few examples of all the types of forecasts and estimates that PJM must perform or accept in the RPM process. A more complete list of all the types of forecast items or calculations/analyses to be conducted just within the Planning Parameters is posted in Manual 18, Section 5.3. Consideration of each of these items, raises risks and risk allocation issues in the BRA that participants routinely deal with.[29] I discuss only a few below to show how common and pervasive this type of task is, but these issues permeate every

[29] Manual 18 at 104, § 5.3, available at https://www.pjm.com/-/media/documents/manuals/m18.ashx.

5.3 RPM Auction Parameters
The following information shall be posted by PJM for each Base Residual Auction by February 1st prior to the commencement of the Base Residual Auction offer period:
• Preliminary RTO and Zonal Peak Load Forecasts
• LDAs modeled in the Base Residual Auction
• Installed Reserve Margin (IRM)
• Pool-wide Average EFORd
• Forecast Pool Requirement (FPR)
• Reliability Requirements of the PJM Region and each modeled LDA
• Variable Resource Requirement (VRR) Curves of the PJM Region and each modeled LDA without FRR Entity adjustments. Adjusted VRR Curves with FRR Entity adjustments will be posted after FRR Capacity Plans are approved.
• CETO and CETL values for each modeled LDA
• Transmission Upgrades projected to be in service for the Delivery Year
• Bidding window schedule for the Base Residual Auction
• Cost of New Entry (CONE) for the PJM Region and each modeled LDA
• Net Energy and Ancillary Services Revenue Offset of the PJM Region and each modeled LDA
• Net Cost of New Entry (Net CONE) for the PJM Region and each modeled LDA
• Auction Credit Rate
• The amount(s) of unforced capacity to be procured by PJM and the buy bid price(s) due to increase in Reliability Requirement or the amount(s) to be released from the commitment and the sell offer price(s) due to a reduction in Reliability Requirement will be posted one month prior to the First, Second, or Third Incremental Auctions. The changes in the CETL values and the amount of unforced capacity to be procured for each LDA will be posted one month prior to an Incremental Auction.

aspect of the auction by both design and necessity. This list is intended to be representative, not exhaustive by any measure.

- **Load Forecast Error.** Perhaps the most obvious source of forecast error and risk is the load forecast. PJM is required to forecast peak requirements and create the IRM/FPR in order to "place" the demand curve (Variable Resource Requirement curve) that will be used in the auction. If the forecast is too high, the curve will be shifted too far to the right and prices set in the BRA will be higher than with a "perfect" forecast. This risk of error is borne by load interests who are unhedged. Conversely, a lower than "perfect" forecast will shift the demand curve to the left and lead to reduced prices. In general, this risk is borne by unhedged suppliers of all types.

- **Actual Equipment Costs of New Entry**. A key element of the VRR (demand curve) is the "anchor point" of the value of Net Cost of New Entry (net CONE). In turn this obviously first requires an estimate of the gross CONE, prior to reducing the amount by anticipated earnings from the energy market (Energy and Ancillary Service offsets or E&AS offset). PJM engages external consultants to forecast this future value. By its very nature this means a host of items from labor costs, capital costs, wage inflation, supply chain impacts on prices and much more are all rolled into this estimate. No matter what the effort, this type of effort is going to wrong in one direction or the other, with corresponding risk and impacts to market participants.[30]

[30] See, for example, the most recent 94-page report prepared by Brattle for PJM. The following quote makes clear the magnitude of necessary forecast elements that will impact this anchor point three years in the future:

> For CC and CTs in each CONE Area, we conducted a comprehensive, bottom-up analysis of the capital costs to build the plant: the engineering, procurement, and construction (EPC) costs, including equipment, materials, labor, and EPC contracting; and non-EPC owner's costs, including project development, financing fees, gas and electric interconnection costs, and inventories. We

- **Energy Prices and Energy and Ancillary Service Offset.** The Net CONE in terms of the VRR curve development is determined by subtracting the E&AS offsets estimated for the reference unit by CONE area. The E&AS reflects operating margins based on market prices, fuel costs and the operations of the reference unit and individual units. PJM originally calculated these values based on historic information, then switched to a forward-looking forecast basis and based on a 2021 FERC decision, switched back to the historic approach. Even with the current backward-looking methodology, there is inherent risk here in terms of both the VRR Curve impact and also with respect to the need for an E&AS offset in establishing each seller's net Avoided Cost Rate as part of its offer cap. Historic information is not used in a book keeping sense, but rather a back cast with assumptions about prices and dispatch. Further, as we have seen over the last few years, there has been a material disconnect between price expectations at the time the E&AS is set and the delivery year. Natural gas pricing, often setting the marginal unit and associated LMP is the best example of this with huge price swings over just the last year from $2.71 to $8.81 to $5.53 (Henry Hub) from January 2022 to December 2022.[31] No matter what was forecast, no one could have foreseen this in any E&AS calculations. And again, the risk is two sided in terms of capacity prices with higher forecast offsets (more supplier earnings from the energy market) reducing final capacity prices and lowest than actual forecasts increasing final capacity prices.

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separately estimate annual fixed operation and maintenance (O&M) costs, including labor, materials, property taxes, and insurance. For BESS, we performed a top-down cost analysis based on a less detailed plant design and recent experience estimating costs for developers.

Brattle, PJM CONE 2026/2027 Report at vi, available at https://pjm.com/-/media/library/reports-notices/special-reports/2022/20220422-brattle-final-cone-report.ashx.

[31] https://www.eia.gov/dnav/ng/hist/rngwhhdm.htm. From $2.71 per MMBTU in 12/2021 to a 2022 year high of $8.81 per MMBTU in August, 2022 to the current $5.53 in December, 2022 (All Henry Hub).

- **EFORd Risk**. Suppliers also take risks in terms of the amount of Capacity they can offer during auction and the amount they actually will have during the delivery year. PJM rules place limits on values that can be offered, and actual quantities will be adjusted based on the most recent Delivery Year. This is a risk fully born by the suppliers.

- **ELCC Forecast Values based on Anticpated Entry**. PJM's adoption of ELCC has brought whole new aspects of risk to the BRA/RPM process. PJM uses the assumption that the ELCC values for the overall ELCC Portfolio values and ELCC class allocations will be the same based on 100% of the quantities they forecast regardless of the quantity of each type of ELCC resource that actually clears in the auction. Many factors can make PJM's forecast of the total quantities incorrect, and explained above, all of these resources have an option not even to offer. So, the value of these resource, even under ELCC accounting will always be off due to the disconnect in the ELCC forecast quantity, and the actual cleared amounts and the decisions on the option to participate or not. This could actually cause errors in both directions at the same time based on technology, e.g. overstating the amount of wind and solar would decrease their ELCC value while the same type of error would like increase the value of storage/batteries. Coupled with the fact that these estimates are not locational, despite the clustering of wind and solar development leads to complex and unknown risks to both suppliers (different for different technologies) and load in terms of auction prices in general and locational auction prices, e.g. DPL-South in particularly.

- **Level of Existing Capacity Resources Without a "Must Offer" Requirement That Do Not Offer**: As discussed above several times, PJM provides the option, not requirement, to offer into the BRA/RPM process to wind, solar, EE, DR and hybrids. These resources constitute virtually all of the interconnection queue and will soon represent tens of thousands of MWs in PJM. And each one of them may or may not offer into the auction. This is an enormous risk element, and the

current events are just the tip of the iceberg.[32] The implications and allocation of this risk was discussed above, along with a description of how this risk manifests itself in terms of price incentives to respond to both high and low prices. However, it appears that as the magnitude of this risk grows, PJM would like to somehow adjust this risk. That certainly is a fair issue for future consideration, but this risk is a fixed property of the current Tariff as identified above.

G. Harm to Market Participants

49. PJM's proposed "fix" to change the Planning Parameters after the parties have relied for months on the posted Planning Parameters, entered or failed to enter into business arrangements to manage their risks (e.g. hedges of some sort) and then submitted their bids that are potentially held open for months is at odd with sound market design and must be rejected. Compounding the problem, based on these changes to the Planning Parameters, despite the fact the auction was carried out in all aspects respecting the existing Tariff, and based on PJM's subjective and non-disclosed judgement, PJM then proposes to redetermine prices. To say that this is ridiculous is an understatement. Aside from the legal elements well discussed by counsel and Chairman Kelliher in the P3 filing, there are very real and material harms caused by this market confidence-crushing exercise in retroactive rate-making.

50. Probably the biggest harm presented by PJM's unconscionable proposal relates to those parties who entered or failed to enter into swaps or hedges with third parties (financial or physical) to "cover" their capacity requirements or get a known fixed price for their Capacity prior to exposure to the risks of the auction. For example, a buyer (LSE) might have seen ESAI's forecast, done their own analyses, and concluded that the likely price was at or very near to the market cap, let's say $425 per MW-day (MWD). That party would very likely to enter into a

[32] *See, e.g.*, S&P Power Battery and Solar PJM forecast, at 18, available at https://www.pjm.com/-/media/committees-groups/subcommittees/las/2022/20221129/item-03a---ihs-markit---pjm-solar-and-battery-forecasts.ashx; *see also* PJM, Energy Transition in PJM: Emerging Characteristics of a Decarbonizing Grid, available at https://www.pjm.com/-/media/library/reports-notices/special-reports/2022/20220517-energy-transition-in-pjm-emerging-characteristics-of-a-decarbonizing-grid-white-paper-final.ashx.

bilateral agreement or swap to purchase DPL-South UCAP at say $375 MWD if they could find a willing supplier. Assume that buyer approached two sellers with that offer to buy a portion of their exposure (100MW UCAP), and one seller accepted and the other rejected the offer. For the buyer who now owns 100 MW at $375 MWD, there would be understandably large regrets and damages when they find out the Planning parameters have been changed without notice or precedent. If that party had known PJM's as yet to be disclosed changes, they would have valued such Capacity at say a hypothetical $75 MWD. They would likely perceive that they just lost $300 MWD on 100 MW purchase or $10.95 million.[33] The seller who made the deal feels pretty happy, and the seller who refused the deal (expecting to make $50 MWD more) feels defrauded by PJM for effectively injecting false information into the market and not just with respect to the original Planning Parameters but also with respect to a false reliance on that information and no reasonable expectation that PJM could do such a thing.

51. All three parties would likely to approach their actions in PJM's future auctions quite differently due to this type of behavior which fundamentally undermines trust and reliance on the integrity of the existing Tariff. This in turn is bad for all three parties. The buyer may be more reluctant to hedge, effectively being forced unwillingly into a situation that is now much riskier than they had ever expected in terms of participating in any Commission-regulated market. The seller who sold might be happy today, but you can bet tomorrow as the next auction approaches every seller will demand a higher risk premium knowing that things could just as easily go the other way depending on PJM's out of market determinations or whims. And the seller who lost the high sale price opportunity will now likely just be reluctant to participate in transactions at all. Collectively this loss of confidence translates into a thinner/less liquid market and higher buy/sell spreads. For end use customers the ultimate effect will be to see this risk and the resulting impacts lead to higher prices whenever they wish to enter into a hedge, or simply higher prices regardless of whether they hedge or not. Any way this goes, market efficiency takes a beating to the detriment of the market as a whole.

[33] $300 times 100 MW times 365 days=$10,950,000

52. Additionally, this type of action has other less transparent long-term effects by undermining the credibility of PJM as the RTO and market operator and fiduciary. It is not obvious as to the ways such loss of confidence and respect will play out, but in one form or another it undermines market confidence in the party expected to be most knowledgeable and totally neutral between customers, suppliers and technologies. It is sort of a variation of Gresham's Law that "bad money forces good money out". Here, we are likely to see participants, new potential suppliers and potential new businesses that might locate in the PJM footprint, reconsidering their decisions as to where to build and locate and even how they deal with PJM on a day-to-day basis. It likely will not become visible in any large single event, but collectively it is certain happen. These types of actions degrade the overall value of the market and ultimately threaten to RTO's value proposition.

H. PJM Proposed Solution is Incomplete, Discriminatory and Thus Unjust and Unreasonable (205 and 206 Filing Proposed Changes)

53. PJM's proposed "fix" to their subjective determination that the prices produced by the Tariff following process are unjust and unreasonable is to intervene in the middle of the auction process and modify the auction Planning Parameters after participants bids are submitted. Their intervention is intended to correct their "forecast error" with respect to their expectation regarding the amount of Planned Capacity Resources within an LDA that actually offer versus their forecast of that amount.

> Notwithstanding the foregoing, effective with the 2024/2025 Delivery Year, during the auction process, the Office of Interconnection shall exclude from the Locational Deliverability Area Reliability Requirement any **Planned Generation Capacity Resource** in an LDA that does not participate in the relevant RPM Auction as projected internal capacity and in the Capacity Emergency Transfer Objective model where the Locational Deliverability Area Reliability Requirement for the Base Residual Auction increases by more than one percent over reliability requirement used from the prior Delivery Year's Base Residual Auction (for Incremental Auctions the Locational Deliverability Area Reliability Requirement would be compared with the reliability requirement used in the prior relevant RPM Auction associated with the same Delivery Year) for that LDA due to the cumulative addition of such Planned Generation Capacity Resources.[34]

[34] PJM 206 Filings, at 20-21.

(emphasis added)

54. This is a very unique solution. It calls for intervention into the middle of a Tariff approved process for the 2024/25 auction, and leaves an open door for future interventions. The proposal is clearly unjust and unreasonable for several reasons.

55. First, the clear intent of the provision and the entire filing is to prevent a reoccurrence of the results of the recent completed auction. However, the PJM proposed change to the Tariff clearly does not accomplish this (unless in this specific instance PJM "peeked" at the results and did not notice any existing Capacity Resources with the option to not offer in, all actually did not offer in).[35] As I discussed above, PJM simply rushed to a quick fix and did not analyze the real source of the problem: an ever-growing number of Capacity Resources with an option to offer or not offer their Capacity into the PJM RPM auctions. The issue is not just Planned Capacity, but all Capacity Resources with an option to offer or not. PJM totally misses this in their proposed solution and focuses, in a clearly discriminatory manner, on their concern with the specific offers (or lack of offers) in this single auction in one LDA, DPL-South.

56. The reality is that this is a much larger and growing problem that needs a different "fix," assuming the Commission prospectively agrees with PJM's intent to remove this type of risk (and associated positive market feedbacks) from the RPM design. A simple example should make this clear. Assume that the PJM "fix" were adopted. Further assume for the moment that DPL-South had 600 MWs of existing small wind and solar units. If PJM's forecast of Planned Generation Capacity Resources were forecast at 600 MW and that forecast was 100% accurate, but also, if this *existing* 600 MWs, with the option not to offer, decided not to offer their Capacity, regardless of previous behavior, the same problem would exist as if none of the Planned Capacity participated and we would have the exact same auction result. Certainly, reality can and will likely be a mix of variance in both Planned Resources and Existing Capacity Resources with an option not to offer making different decisions than PJM forecast. This in general appears to be what PJM is describing did occur in DPL-South. (PJM has not offered any unit specific data, and nor should they.) In DPL-South some combination of behavior and option

[35] *See* IMM Analysis of 2023/2024 BRA, *supra* note 16.

decisions obviously could not meet the forecasted 373 MW net increase in the Reliability Requirement. The correct analysis must always include both existing Capacity Resources with such options as well as Planned Resources with similar options. While DPL-South only appears to have approximately 100 MWs of such resources today (some of which may not have offered), the PJM "fix" is not limited to DPL-South and clearly an increase the level of such facilities is the future of PJM.[36]

57. The net result is PJM's proposed solution is just what it appears to be, an ad hoc, not well thought out proposal to modify the results of one specific BRA. But it has implications for future BRAs across PJM. In their knee-jerk reaction, PJM simply did not think through the true source of their concern, nor did it sufficiently articulate that concern to the Commission. PJM simply sought a quick fix that would lower the price for DPL-South, without fully considering the nature of the problem and the future consequences of this fix in the future. As discussed below, should the Commission find PJM's attempt to eliminate this risk to be problematic, I have a change that would actually eliminate the risk in a sound manner, unlike PJM's proposal.[37]

58. The specific elements of the PJM proposal are arbitrary and no justification is offered for the 1% "trigger." Even though the basic PJM proposed Tariff language and the associated objective cannot be assured to work, as explained above (particularly as more and more "not offer option" facilities are added), PJM did not even have a rationale for their selection of the 1% value. Why pick this number? Would or should the value be different for different LDA's (e.g. does concentration of the free option rights make a difference in deciding whether to "redo" the Planning Parameters?). Examination of Figures 2 and 3 above suggests that this is a material issue. If one reviews the net Reliability Requirement changes between PJM's September and October Resource Requirement calculations, while the values for DPL-South remain the same, in the September Planning Parameters three other LDA's had increases over 1% (MAAC, EMAAC and PS). Will this be a perpetual process of change in the future as more Capacity Resources

[36] *See* PJM Resource Plan.
[37] I notified PJM of this alternative. At the time I had reached these conclusions and was able to talk to senior PJM staff they had already committed to making the filings at issue in these proceedings.

have options to not offer and PJM issues Planning Parameters that will be changed after offer to sell are submitted?

59. PJM presents no study or evaluation of the 1% value, and more importantly, PJM presents no evaluation of changing the important price signals associated with the actual level of participation of **all types** of Capacity Resources with offer options. As I described there is a constructive feedback to the market as the level of exercising these options changes, raising and lowering prices and in turn providing incentives or disincentives for future participation. It is not clear how PJM's proposal will mesh with this as "bad" information will remain in the market under the PJM proposal right up to the submission of offers. This can trigger a whole set of risk adjustment driven changes to offer behavior, the net result of which obviously has not been consider. This must be the case as PJM acted as if the ever-growing offer options held by existing Capacity Resources did not even exist.

V. A Superior Alternative Should the Commission Wish to Prospectively Modify the Risk Allocations of the Current Tariff

60. I have described above the real underlying market design element and associated risks that underlie PJM's concerns. It is the fact that prior to issuing the Planning Parameters i) PJM currently must forecast the amount of Capacity Resources internal to an LDA, inclusive of Planned Capacity, three years forward in the BRA and do so in the uncertainty of the participation of those resources; ii) that these Planned Resources have no must offer obligations regardless of PJM's forecasts; and iii) *that PJM must also forecast the behavior of a number of existing Capacity Resources that have no must offer obligations* (Demand Response, Energy Efficiency, Wind, Solar, Storage, and certain hybrid resources). As explained, actual offers in quantities higher than PJM's forecast will lower prices and present a risk element for potential suppliers with must offer obligations, while actual offers in quantities less than PJM's forecast present a price risk element to load that meets its Capacity requirements from purchases made on their behalf within the BRA.

61. There is no specific "right" answer here. PJM adopted this design with an eye to creating a "correct" representation of the future and presumably a balancing of the risks described above and the related constructive price signals to market participants. However, intervening events have eroded that intent of neutrality. The creation of options to participate or not were either not considered at all, or considered as having minimal impact based on my personal discussions with PJM and stakeholders over the years. Those assumptions proved to be wrong. They failed to see the great value and flexibility that creating such offer options would create, and have thus apparently misjudged how much and how often the options would and would continue to be exercised. In turn the increase in forecast risk and potential volatility of the Reliability Requirement was likely not understood or considered.

62. At this stage PJM has either to live with the existing potential for forecast error and associated risk assignment, materially diminish it, or simply eliminate it by having a non-discriminatory must offer policy.[38] In its filings, as discussed above they have offered a way that they think fixes this issue with the intent of eliminating that need for forecast and risk assignment though adjustments in the middle of an auction. But as also explained, they have not even

[38] The IMM has clearly articulated its position on this subject, yet another reason that PJM should have been more vigilant regarding the options not to offer: "The MMU recommends that the must offer rule in the capacity market apply to all capacity resources. There is no reason to exempt intermittent and capacity storage resources, including hydro and demand resources and energy efficiency resources from the must offer requirement. The same rules should apply to all capacity resources. The purpose of the must offer rule, which has been in place since the beginning of the capacity market in 1999, is to ensure that the capacity market works based on the inclusion of all demand and all supply, and to prevent the exercise of market power via withholding of supply. The failure to apply the must offer requirement will create increasingly significant market design issues and market power issues in the capacity market as the level of capacity from intermittent and storage resources increases and the level of demand side resources remains high. The failure to apply the must offer requirement consistently could also create price volatility and uncertainty in the capacity market and put PJM's reliability margin at risk. The capacity market was designed on the basis of a must buy requirement for load and a corresponding must offer requirement for capacity resources. The capacity market can work only if both are enforced." Page 12 of IMM analysis of 2023/2024 BRA. https://www.monitoringanalytics.com/reports/Reports/2022/IMM_Analysis_of_the_20232024_RPM_Base_Residual_Auction_20221028.pdf

accomplished this, and their proposal actually leaves the problem in existence, and, as the participation of the favored holders of the options grows, highly likely to become much worse.

63. I propose a much simpler "fix" if the Commission wishes to pursue the PJM objective. This fix avoids all the problems discussed above, and eliminates this risk allocation in the status quo. *The proposal is simply to require that any seller/supplier of capacity with an option not to participate in the upcoming BRA formally execute their option with a binding declaration to either offer or not offer in the upcoming BRA. If they declare they will offer, such offers would be subject to all of the limitations that now exist for offers from Planned and existing resources. This declaration of a binding "will offer/will not offer" will be made thirty days prior to PJM's posting of the Planning Parameters for the upcoming auction.*

64. ***This is very simple, it retains the existing right to hold the option, but modifies its execution date from the beginning of the auction period to approximately 120 days prior to the auction, and 30 days prior to the posting of the Planning Parameters, inclusive of the CETO calculations and LDA Reliability Requirements aligning Planned Generation and Existing Generation.***

65. In this fashion PJM can eliminate the risks associated with the need to take on this specific forecast risk and the associated allocation of that risk between generators and load. PJM will know with certainty whether any seller with this type of option will offer in the BRA or not. The declaration at 30 days in advance of the posting of the Planning Parameters would be binding. If the determination of any individual existing or planned units is to offer, they would be required to offer a quantity, consistent with both their CIRs and offer rights at this time, and must make such a sell offer in the BRA consistent with the current requirements for such offers in terms of Tariff limitations (*e.g.,* Net Avoidable Cost Rate offers for existing Capacity Resources as the Market Seller Offer Cap). If they cannot meet the requirements of such an offer when the actual BRA occurs, or more importantly at the actual time of recovery, they can cover their positions in the succeeding Incremental Auctions ("IAs"). If they declare they will not offer at such time, they would be barred from participating in the BRA and the IAs for the specific delivery year.

66. With this simple adjustment this risk and its allocation will go away. However, this is not a free ride. It limits the value of the very valuable options that PJM just gave away in the past to the benefit of preferred participants. This is a quintessential illustration of the reality that "there ain't no such thing as a free lunch".[39]

67. The granting of this option in a world where there is an ever-growing[40] amount of people holding the option makes the PJM forecasts of the amount of resources that will be available and offer in an LDA less and less accurate, and the associated risk and price variance ever higher. However, as I have shown, it can be mitigated by limiting the offer timing associated with these options to offer.

68. But with such a limitation, PJM can properly, and in a non-discriminatory manner, maintain the existence of the offer and remove this uncertainty and risk. The price is the limitation of the offer and the requirement for execution prior to the posting of the Planning Parameters so that the Planning Parameters can include this information.

69. In examining the conditions and timing of events leading up to the BRA I have concluded that this is a relatively small price, and actually is a more consistent and equitable constraint on these rights than exists now. It puts this option right on a similar schedule as other requirements that PJM has for declarations of intent to offer prior to the posting of the Planning Parameters.

70. For example, PJM's current auction schedule calls for the Planning Parameters to be posted on February 1 of the year of the auction is conducted in the following May: approximately 90 days.[41] The same provisions call for a seller to make a declaration of its intent to seek exemption from its must offer requirements per the Tariff or any other reason 120 days prior to the auction, and the IMM to make a decision on such offers by 90 days prior to the

[39] Typically credited to the author Issac Asimov. Sometimes referred to as "TANSTAAFL" by older science fiction fans like myself.
[40] *See* footnote 38.
[41] *See* Manual 18, § 5.2, available at https://www.pjm.com/-/media/documents/manuals/m18.ashx; *see also* Tariff, Attachment DD § 5.6.

BRA.[42] Deactivation notifications also are made in front of the determination of the Planning Parameters. This means that PJM is in a position to still post the Planning Parameters, including the CETO and LDA Reliability Requirement at least 120 days prior to the auction, and potentially right up to the posting of the Planning Parameters (although this does seem illogical). In any event, providing for a general rule of forcing the declaration of the offer/no offer option 30 days prior to the posting of the Planning Parameters should eliminate this risk as it stands today.

71. Further, it should be recognized that this type of "fix" doesn't fully eliminate the forecast error issue and associated risk. It reasonably reassigns it to the parties that are best suited to handle this type of scheduling or speculative auction participation risk: *those who offer*. PJM's proposed Tariff amendments do not accomplish this. By exempting existing facilities from consideration they maintain an ever-growing forecast error potential and risk factor exactly as it exists today and maintain the potential for this problem to exist and grow into the future.

72. This concludes my affidavit.

[42] *See* Manual 18, § 5.2.

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C.	)	**Docket Nos. ER23-729-000**
	)	**EL23-19-000**
	)	
	)	**(Not Consolidated)**

AFFIDAVIT

I, Roy J. Shanker, do hereby swear and affirm under penalty of law that the statements in the foregoing Affidavit of Roy J. Shanker, Ph.D. on behalf of The PJM Power Providers Group are true to the best of my knowledge, information, and belief.

Executed this 19th day of January, 2023.

Roy J. Shanker

See Attached Certificate

CALIFORNIA JURAT WITH AFFIANT STATEMENT GOVERNMENT CODE § 8202

☒ See Attached Document (Notary to cross out lines 1–6 below)
☐ See Statement Below (Lines 1–6 to be completed only by document signer[s], not Notary)

1 _____
2 _____
3 _____
4 _____
5 _____
6 _____

Signature of Document Signer No. 1 *Signature of Document Signer No. 2 (if any)*

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Monterey

Subscribed and sworn to (or affirmed) before me
on this 19 day of January, 20 23,
by *Date* *Month* *Year*
(1) Roy I Shanker
(and (2) _____),
Name(s) of Signer(s)

proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

FIONA VONDRACEK
Notary Public - California
Monterey County
Commission # 2396666
My Comm. Expires Apr 7, 2026

Signature Fiona Vondracek

Place Notary Seal and/or Stamp Above *Signature of Notary Public*

OPTIONAL

Completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: Affidavit of Roy I Shanker

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Attachment RJS-1

QUALIFICATIONS
AND
EXPERIENCE OF

DR. ROY J. SHANKER

EDUCATION:

Swarthmore College, Swarthmore, PA
A.B., Physics, 1970

Carnegie-Mellon University, Pittsburgh, PA
Graduate School of Industrial Administration
MSIA Industrial Administration, 1972
Ph.D., Industrial Administration, 1975

Doctoral research in the development of new non-parametric multivariate techniques for data analysis, with applications in business, marketing and finance.

EXPERIENCE:

1981 - Present — Independent Consultant
P.O. Box 1480
Pebble Beach, CA 93953

Providing management and economic consulting services in natural resource-related industries, primarily electric and natural gas utilities.

1979-81 — Hagler, Bailly & Company
2301 M Street, N.W.
Washington, D.C.

Principal and a founding partner of the firm; director of electric utility practice area. The firm conducted economic, financial, and technical management consulting analyses in the natural resource area.

1976-79 — Resource Planning Associates, Inc.
1901 L Street, N.W.
Washington, D.C.

Principal of the firm; management consultant on resource problems, director of the Washington, D.C. utility practice. Direct supervisor of approximately 20 people.

1973-76 Institute for Defense Analysis
Professional Staff
400 Army-Navy Drive
Arlington, VA

Member of 25 person doctoral level research staff
conducting economic and operations research analyses of military and resource problems.

RELEVANT EXPERIENCE:

2022

263—On Dr. Shanker's own behalf. Before the Federal Energy Regulatory Commission, Docket RM22-14. Comments and reply comments regarding the Notice of Proposed Rulemaking Improvements to Generator Interconnection Procedures and Agreements.

262—On behalf of the Energy Trading Institute. Before the Federal Energy Regulatory Commission, Docket No. ER22-797. Affidavit in support of PJM LLC proposals for modifications to the Auction Revenue Rights/Financial Transmission Rights Market. Preparation of extensive general regulatory and PJM history regarding the formation of such rights over time.

2021

261—On behalf of the PJM Power Producers Group (P3) before the Federal Energy Regulatory Commission Docket No. ER21-2582-000. Affidavit addressing PJM's proposed modification of the Minimum Offer Price Rule and problems related to the economic justification of the proposed narrowing of the applicability of the rule.

260—On behalf of LS Power Associates L.P. before the Federal Energy Regulatory Commission Docket No. ER21-2043. Affidavit discussing PJM's revised Effective Load Carrying Capability proposal, its limitations and associated PJM responses to previous comments regarding its initial proposal.

259—On behalf of Indicated Suppliers before the Federal Energy Regulatory Commission in Dockets No. EL19-47-000 and EL19-63-000 comments regarding the PJM proposed modification to its Market Seller Offer Cap in the Reliability Planning Model Base Residual Auction for Capacity Resources.

258—Written post conference comments in Federal Energy Commission Docket No. AD21-10. Discussion of the appropriate scope and range of actions for the Commission with respect to the PJM Minimun Offer Price Rate. Similar considerations of the legal scope of the Commission under the Federal Power Act.

257—Invited Speaker before the Federal Energy Energy Regulatory Commission Docket No. AD21-10. Comments before the Commissioners related to the role of subsidies and their impact in terms of the determination of satisfaction of just and reasonable rates under the Federal Power Act.

256—On behalf of LS Power Associates L.P. before the Federal Enegy Regulatory Commission Docket No. ER21-278-001. Affidavit discussing PJM's Effective Load Carrying Capability proposal, its limitations and associated PJM responses to the Commission's deficiency notice.

2020

256—On behalf of Cricket Valley Energy Center and Empire Generating Company before the Federal Energy Commission Docket EL21-7. Affidavit addressing the appropriate design of offer price floors in the NYISO Capacity market and associated mitigation and extension of the related rules to the entire state.

255—Invited speaker and written submission before the Federal Energy Regulatory Commission Docket AD20-14. Comments about the legal issues under the Federal Power Act relevant to the implementation of carbon pricing within the wholesale regional transmission organizations.

254—On behalf of Shell Energy North America before the Federal Energy Regulatory Commission, Docket EL20-49. Affidavit addressing bilateral trading of FTRs, associated agreements and the interaction with PJM's FTR Center reporting and Tariff.

2019

253—On behalf of White Oak Power Constructors before the United States District Court for the Eastern District of Virginia (Richmond Division). Expert report on proper calculation of damages and costs

associated with the delay in commercial operations of a new electric power generation facility.

252—On behalf of the Public Service Companies before the Federal Energy Regulatory Commission, Docket ER19-1486. Affidavit regarding the PJM proposed operating reserve demand curve and other modifications to the reserve products market. Comments on missing elements within the proposal.

251—On behalf of Indicated Parties, (Calpine, Vestra, and Electric Power Supply Association) before the Federal Energy Regulatory Commission. Docket EL19-63. Affidavit regarding the complaint of the Joint Consumer Advocates regarding PJM's market seller offer cap, the potential exercise of market power in the capacity market and appropriate market design adjustments under the Capacity Performance paradigm.

250—On behalf of Indicated Parties, (Calpine, Vestra, and Electric Power Supply Association) before the Federal Energy Regulatory Commission. Docket EL19-47. Affidavit regarding the appropriate adjustment of penalties and the Market Seller Offer Cap within the PJM Capacity Performance paradigm.

249—Supreme Court of the United States. Brief of Energy Economists as Amici Curiae in Support Of Petitioners, Nos. 18-868 & 18-879. Discussion of the impact of subsidies in electric energy market structures and the relationship of the instant cases where a Writ of Certiorari is being sought to previous Supreme Court precedent regarding state actions that effect Federal Energy Regulatory Commission jurisdictional rates.

2018

248—On behalf of PJM Power Providers (P3). Federal Energy Regulatory Commission. Docket EL18-178. Affidavit addressing the appropriate mechanisms to address state/public policy subsidies in the PJM Reliability Planning Model capacity construct. Related comments with respect to a "Clean" Minimum Price Offer Rule.

247—On behalf of Calpine Corporation, Eastern Generating and CPV Power Holdings. Federal Energy Regulatory Commission. Docket No. EL18-169. Affidavit addressing the the establishment of a "clean" Minimum Offer Price Rule for capacity offers in the PJM markets.

246—On behalf of DC Energy LLC and Vitol Inc. Federal Energy Regulatory Commission. Docket No. ER18-1334. Affidavit on the CAISO proposals to limit source and sink pairs in its annual and monthly CRR

auctions, as well as comments addressing appropriate coordination of transmission outage and constraint information.

245—On behalf of the PJM Power Providers. Federal Energy Regulatory Commission Docket No. ER18-1314-000. Affidavit on the PJM proposed mitigation alternatives for addressing out of market subsidies either by Repricing or a modified Minimum Offer Price Rule.

244—On behalf of Joint Commentors. Federal Energy Regulatory Commission Docket EL18-34. Participation in the preparation of comments addressing PJM's proposed fast start pricing modifications and related price formation issues.

243—On behalf of the PJM Power Providers Group. Federal Energy Regulatory Commission Dockets EL17-32 and EL17-36. Pre-Technical Conference Comments and participant technical conference regarding seasonal capacity products and specific related reliability and forecasting questions from Commission Staff.

2017

242—On behalf of the PSEG Companies. Federal Energy Regulatory Commission Docket No. ER13-535-000. Affidavit regarding implementation of Court of Appeals remand to FERC of the PJM capacity market Minimum Offer Price Rule.

241-- In the United States Court of Appeals for the Second Circuit. Case No. 17-2654.Co-writer/sponsor of the Brief of Energy Economists as Amici Curiae in Support of Plaintiffs-Appealants-Reversal. Comments regarding the impacts of subsidies on the operation of organized electric markets.

240—In the United States Court of Appeals for the Seventh Circuit. No. 17-2433.Co-writer/sponsor of the Brief of Energy Economists as Amici Curiae in Support of Plaintiffs-Appealants. Comments regarding the impacts of subsidies on the operation of organized electric markets.

239—Invited speaker Federal Energy Regulatory Commission technical session, Docket AD17-11. Comments on the appropriate incorporation of state policies in wholesale electric markets. Submission of post technical session comments.

238—On behalf of PJM Power Providers. Federal Energy Regulatory Commission Dockets EL17-36 and EL17-32 addressing the current Capacity Performance design and criticisms related to the exclusion of an inferior seasonal capacity product. Explanation of how PJM establishes its adequacy targets and whether or not the asserted criticisms were valid.

2016

237- On behalf of DC Energy, Vitol, Intertia Power, Saracen Energy East. Federal Energy Regulatory Commission Dockets EL16-6, ER16-121. Submission of post technical session statement regarding PJM FTR market "netting" proposal.

236-On behalf of DC Energy, Vitol, Intertia Power, Saracen Energy East. Federal Energy Regulatory Commission Dockets EL16-6, ER16-121. Participant in two Technical Session Panels addressing PJM FTR market design and deficiency in the pending proposal to remove netting in the market settlement.

2015

235- On behalf of the Electric Power Supply Associaton. Federal Energy Regulatory Commission Dockets EL15-70, 71, 72, 82. Affidavit regarding MISO capacity market design and also addressing use of opportunity costs in offers.

234-On behalf of the Electric Power Supply Associaton. Federal Energy Regulatory Commission Dockets EL15-70, 71, 72, 82. Discussant in technical session addressing the establishment of opportunity costs as the basis for capacity reference pricing in the MISO Planning Resource Auctions.

233-On behalf of Dominion Virginia Power. Federal Energy Regulatory Commission Docket ER15-1966. Affidavit regarding changing economic incentives for suppliers associated with the modification of PJM's calculation of Lost Opportunity Costs.

232-On behalf of "Indicated Suppliers" Federal Energy Regulatory Commission Docket No. EL15-64-000. Testimony addressing the appropriateness of proposed changes to the NYISO buyer side mitigation exemptions.

231-On behalf of Hydro Quebec, Energy Services U.S. Federal Energy Regulatory Commission Docket No. ER15-623. Affidavit addressing the consistent treatment of energy imports under PJM's Capacity Performance proposal.

230-Before the Supreme Court of the United States, No. 14-995, On Petition for a Writ of Certiorari to the United States Court of Appeals for the Third Circuit. Brief of electrical engineers, scientists and economists as amici curiae in support of petitioners. Metropolitan Edison et al. versus

Pennsylvania Public Utility Commission et al., http://www.americanbar.org/content/dam/aba/publications/supreme_court_preview/briefs_2015_2016/14-840_Borlick_et_al.pdf.

2014

229-On behalf of Benton County Wind Farm. United States District Court Southern District of Indiana, Indianapolis Division, Civil Action No. 1:13-cv-1984-SEB-TAB. Expert Reports addressing custom and practice in electric power purchase agreements.

228-On behalf of FirstEnergy Services. FERC Docket EL14-55. Affidavit related to the appropriate characterization of Demand Response in Capacity Markets reflecting performance as the reduction of retail energy consumption.

227-Federal Energy Regulatory Commission. Docket RM10-17. On my own behalf, a statement regarding the ability of the PJM capacity and energy markets to clear in the transition from any determination that demand response would be excluded jurisdictionally from wholesale markets. This could in turn result in a more appropriate representation of retail demand response.

226-Illinois Commerce Commission. Matter: No. 13-0657. On behalf of Commonwealth Edison Company. Testimony regarding the operation of the PJM regional transmission expansion planning process in general and particularly with regards to the preservation of long-term transmission rights (Stage 1A Auction Revenue Rights), and the consequences that occur when such mandated rights are infeasible.

225-Federal Energy Regulatory Commission. Docket ER14-1579. On behalf of H-P Energy. Affidavit explaining importance of property rights and associated contracts within the PJM transmission planning process, particularly as they pertain to Upgrade Construction Service Agreements.

2013

224-Federal Energy Regulatory Commission. Docket No. ER14-456. On behalf of NextEra Energy to analyze a proposed modification to the PJM Tariff allowing for “easily resolved constraints” to be address by transmission upgrades without any analyses of benefits.

223-Federal Energy Regulatory Commission. Docket No. ER14-504. Affidavit on behalf of PJM Power Producers addressing the interaction between the PJM adequacy planning processes and the formulation of

saturation constraints on Limited and Extended Summer Demand Response products.

222-Federal Energy Regulatory Commission. Docket AD13-7. Invited speaker on the Commission's technical session regarding capacity markets in RTO's. Comments addressed basic principles of market design, market features, and consequences of market failures and deviations from design principles.

221-Federal Energy Regulatory Commission. Docket No. EL13-62 on behalf of TC Ravenswood LLC. Two affidavits addressing the treatment of reliability support services agreements and associated capacity in the NYISO capacity market design.

2012

220-Federal Energy Regulatory Commission. Docket No. ER12-715-003. On behalf of First Energy Services Company. An affidavit and testimony addressing the appropriateness of the application of a proposed new MISO tariff provision after the fact to a withdrawing MISO member.

219-Federal Energy Regulatory Commission. Docket ER13-335. On behalf of Hydro Quebec U.S. Affidavit addressing appropriate application of ISO-NE Market Rule 1/ Tariff with respect to the qualification of new external capacity to participate in the Forward Capacity Market.

218-Federal Energy Regulatory Commission. Docket IN12-4. On behalf of Deutsche Bank Energy Trading. Affidavit regarding a review of specific transactions, related congestion revenue rights, and deficiencies in CAISO tariff implementation during periods when market software produces multiple feasible pricing solutions.

217-Federal Energy Regulatory Commission. Docket No. ER12-715-003. On behalf of FirstEnergy Services Company. Affidavit regarding implementation of the MISO Tariff with respect to the determination of appropriate exit fees and charges related to certain transmission facilities.

216-Federal Energy Regulatory Commission. Docket No. IN12-11. On behalf of Rumford Paper Company. Affidavit regarding free riding behavior in the design of demand response programs, and its relationship to accusations of market manipulation.

215-Federal Energy Regulatory Commission. Docket No. IN12-10. On behalf of Lincoln Paper and Tissue LLC. Affidavit regarding relationship of demand response behavior and value established in Order 745 to

claimed market impacts associated with accusations of market manipulation.

214-Federal Energy Regulatory Commission. Docket No. AD12-16-000. On behalf of PJM Power Providers, testimony regarding deliverability of capacity between the MISO and PJM RTO's and associated basic adequacy planning concepts.

213-United States Court Of Appeals, District of Columbia Circuit. Electric Power Supply Asociation, et al (Petitioners) v. Federal Energy Regulatory Commission et al (Respondents) Nos. 11-1486. Amici Curiae brief regarding the appropriate pricing of demand reduction services in wholesale markets vis a vis the FERC determinations in Order 745.

212-United States Supreme Court. Metropolitan Edison Company and Pennsyvalnia electric Company (Petitioners), Pennsylvania Public Utility Commission (Respondent) (No. 12-4) Amici Curiae brief regarding the nature of physical losses in electric transmission and relationship to proper marginal cost pricing of electric power and the marginal cost of transmission service.

2011

211-Federal Energy Regulatory Commission Docket No. ER12-513-000. On behalf of PJM Power Providers, testimony regarding the establishment of system wide values for the net cost of new entry related to modifications of the Reliability Planning Model.

210-Federal Energy Regulatory Commission Docket No. EL11-56-000, on behalf of First Energy Services. Affidavit regarding the appropriateness of proposed transmission cost allocation of Multi-Value Projects to an exiting member of the Midwest Independent System Operator.

209-Federal Energy Regulatory Commission Docket No. ER11-4081-000, on behalf of "Capacity Suppliers". Affidavit addressing correct market design elements for Midwest Independent System Operator proposed resource adequacy market.

208-Public Utility Commission of Ohio, Case Nos. 11-346-EL-SSO,11-348-EL-SSO,Nos. 11-349-EL-AAM, 11-350-EL-AAM, on behalf of First Energy Services. Testimony regarding the interaction between the capacity default rates for retail access under the PJM Fixed Resource Requirement and the PJM Reliability Planning Model valuations.

207-Federal Energy Regulatory Commission Dockets No. ER11-2875, EL11-20, Staff Technical Conference on behalf of PJM Power Providers,

addressing self supply and the Fixed Resource Requirement elements of PJM's capacity market design.

206-New Jersey Board of Public Utilities, Docket Number EO11050309 on behalf of PSEG Companies. Affidavit addressing the implications of markets and market design elements, and regulatory actions on the relative risk and trade-offs between capital versus energy intensive generation investments.

205-Federal Energy Regulatory Commission Docket No. ER11-2875. Affidavit and supplemental statement on behalf of PJM Power Providers addressing flaws in the PJM tariff's Minimum Offer Price Rule regarding new capacity entry and recommendations for tariff revisions.

204-Federal Energy Regulatory Commission Docket No. EL11-20. Affidavit on behalf of PJM Power Providers addressing flaws in the PJM tariff's Minimum Offer Price Rule regarding new capacity entry.

203-Federal Energy Regulatory Commission Docket Nos. ER04-449. Affidavit and supplemental statement on behalf of New York Suppliers addressing the appropriate criteria for the establishment of a new capacity zone in the NYISO markets.

2010

202-New Jersey State Assembly and Senate. Statements on behalf of the Competitive Supplier Coalition addressing market power and reliability impacts of proposed legislation, Assembly Bill 3442 and Senate Bill 2381.

201-Federal Energy Reglatory Commission. Docket ER11-2183. Affidavit on behalf of First Energy Services Company addressing default capacity charges for Fixed Resource Requirement participants in the PJM Reliability Pricing Model capacity market design.

200-Federal Energy Regulatory Commission. Docket ER11-2059 Affidavit on behalf of First Energy Services Company addressing deficiencies and computational problems in the proposed "exit charges" for transmission owners leaving the MISO RTO related to long term transmission rights.

199-Federal Energy Regulatory Commission Docket RM10-17. Invited panelist addressing metrics for cost effectiveness of demand response and associated cost allocations and implications for monopsony power.

198-Federal Energy Regualtory Commission Consolidated Dockets ER10-787-000, EL10-50-000, and EL10-57-000. Two affidavits on behalf of the

New England Power Generators Association regarding ISO-NE modified proposals for alternative price rule mitigation and zonal definitions/functions of locational capacity markets.

197-Federal Energy Regulatory Commission Docket No. ER10-2220-000. Affidavit on behalf of the Independent Energy Producers of New York. Addressing rest of state mitigation thresholds and procedures for adjusting thresholds for frequently mitigated units and reliability must run units.

196-Federal Energy Regulatory Commission Docket PA10-1. Affidavit on behalf of Entergy Services related to development of security constrained unit commitment software and its performance.

195-Federal Energy Regulatory Commission Docket No. ER09-1063-004. Testimony on behalf of the PJM Power Providers Group (P3) regarding the proposed shortage pricing mechanism to be implemented in the PJM energy market. Reply comments related to a similar proposal by the independent market monitor.

194-PJM RTO. Statement regarding the impact of the exercise of buyer market power in the PJM RPM/Capacity market. Panel discussant on the issue at the associated Long Term Capacity Market Issues Sympossium.

193-Federal Energy Regulatory Commission Docket No. ER10-787-000. Affidavit on behalf of New England Power Generators Association addressing proper design of the alternative price rules (APR) for the ISO-NE Forward Capacity Auctions. Second affidavit offered in reply. Supplemental affidavit also submitted

192-Federal Energy Regulatory Commission Docket No. RM10-17-000. Affidavit on behalf of New England Power Generators Association addressing proper pricing for demand response compensation in organized wholesale regional transmissiom organizations.

191-Federal Energy Regulatory Commission Docket No. RM10-17-000, Affidavit on my on behalf regarding inconsistent representations made between filings in this docket and contemporaneous materials presented in the PJM stakeholder process.

2009

190-Federal Energy Regulatory Commission Docket No. ER09-1682. Two affidavits on behalf of an un-named party regarding confidential treatment of market data coupled with specific market participant bidding, and associated issues.

189-American Arbitration Assoication, Case No. 75-198-Y-00042-09 JMLE, on behalf of Rathdrum Power LLC. Report on the operation of specific pricing provision of a tolling power purchase agreement.

188-Federal Energy Regulatory Commission. Docket No. IN06-3-003. Analyses on behalf of Energy Transfer Partners L.P. regarding trading activity in physical and financial natural gas markets.

187-Federal Energy Regulatory Commission. Docket No. ER08-1281-000. Analyses on behalf of Fortis Energy Trading related to the impacts of loop flow on trading activities and pricing.

186-American Arbitration Association. Report on behalf of PEPCO Energy Services regarding several trading transactions related to the purchase and sale of Installed Capacity under the PJM Reliability Pricing Model.

185-Federal Energy Regulatory Commission Docket No. EL-0-47. Analyses on behalf of HQ Energy services (U.S.) regarding pricing and sale of energy associated with capacity imports into ISO-NE.

184-Federal Energy Regulatory Commission Docket No. ER04-449 019, Affidavit on behalf of HQ Energy Services (U.S.) regarding the implementation of the consensus deliverability plan for the NYISO, and associated reliability impacts of imports.

183-Federal Energy Regulatory Commission Docket ER09-412-000, ER05-1410-010, EL05-148-010. Affidavit and Reply Affidavit on behalf of PSEG Companies addressing proposed changes to the PJM Reliability Pricing Model and rebuttal related to other parties' filings.

2008

182-Pennsylvania Public Service Commission. *En Banc* Public Hearing on "Current and Future Wholesale Electricity Markets", comments regarding the design of PJM wholesale market pricing and state restructuring.

181-Maine Public Utility Commission. Docket No. 2008-156. Testimony on behalf of a consortion of energy producers and suppliers addressing the potential withdrawal of Maine from ISO New England and associated market and supplier response.

180-Federal Energy Regulatory Commission. Docket No. EL08-67-000. Affidavit on behalf of Duke Energy Ohio and Reliant Energy regarding criticisms of the PJM reliability pricing model (RPM) transitional auctions.

179-Federal Energy Regulatory Commission. Docket AD08-4, on behalf of the PJM Power Providers. Statement and participation in technical session regarding the design and operation of capacity markets, the status of the PJM RPM market and comments regarding additional market design proposals.

178-Federal Energy Regulatory Commission. Docket ER06-456-006, Testimony on behalf of East Coast Power and Long Island Power Authority regarding appropriate cost allocation procedures for merchant transmission facilities within PJM.

2007

177-FERC Docket No. EL07-39-000. Testimony on behalf of Mirant Companies and Entergy Nuclear Power Marketing regarding the operation of the NYISO In-City Capacity market and the associated rules and proposed rule modifications.

176-FERC Dockets: RM07-19-000 and AD07-7-000, filing on behalf of the PJM Power Providers addressing conservation and scarcity pricing issues identified in the Commission's ANOPR on Competition.

175-FERC Docket No. EL07-67-000. Testimony and reply comments on behalf of Hydro Quebec U.S. regarding the operation of the NYISO TCC market and appropriate bidding and competitive practices in the TCC and Energy markets.

174-FERC Docket Nos. EL06-45-003. Testimony on behalf of El Paso Electric regarding the appropriate interpretation of a bilateral transmission and exchange agreement.

2006

173-United States Bankruptcy Court for the Southern District of New York. Case No. 01-16034 (AJG). Report on Behalf of EPMI regarding the properties and operation of a power purchase agreement.

172-FERC Docket No. EL05-148-000. Testimony regarding the proposed Reliability Pricing Model settlement submitted for the PJM RTO.

171-FERC Docket No. ER06-1474-000, FERC. Testimony on behalf othe PSEG Companies regarding the PJM proposed new policy for including "market efficiency" transmission upgrades in the regional transmission expansion plan.

170-FERC Docket No. EL05-148-000, FERC. Participation in Commission technical sessions regarding the PJM proposed Reliability Pricing Model.

169-FERC Docket No. EL05-148-000, FERC. Comments filed on behalf of six PJM market participants concerning the proposed rules for participation in the PJM Reliability Pricing Model Installed Capacity market, and related rules for opting out of the RPM market.

168-FERC Docket No. ER06-407-000. Testimony on behalf of GSG, regarding interconnection issues for new wind generation facilities within PJM.

2005

167-FERC Docket No. EL05-121-000, Testimony on behalf of several PJM Transmission Owners (Responsible Pricing Alliance) regarding alternative regional rate designs for transmission service and associated market design issues.

166-FERC Technical Conference of June 16, 2005. (Docket Nos. PL05-7-000, EL03-236-000, ER04-539-000). Invited participant. Statement regarding the operation of the PJM Capacity market and the proposed new Reliability Pricing Model Market design.

165-American Arbitration Association Nos. 16-198-00206-03 16-198-002070.On behalf of PG&E Energy Trading. Analyses related to the operation and interpretation of power purchase and sale/tolling agreements and electrical interconnection requirements.

164-Arbitration on behalf of Black Hills Power, Inc. Expert testimony related to a power purchase and sale and energy exchange agreement, as well as FERC criteria related to the applicable code and standards of conduct.

2004

163-Federal Energy Regulatory Commission Docket No. EL03-236-003. Testimony on behalf of Mirant companies relating to PJM proposal for compensation of frequently mitigated generation facilities.

162-Federal Energy Regulatory Commission. Docket No. ER03-563-030. Testimony on behalf of Calpine Energy Services regarding the development of a locational Installed Capacity market and associated generator service obligations for ISO-NE. Supplemental testimony filed 2005.

161-Federal Energy Regulatory Commission. Docket No. EL04-135-000. Testimony on behalf on the Unified Plan Supporters regarding implications of using a flow based rate design to allocate embedded costs.

160-Federal Energy Regulatory Commission. Docket No. ER04-1229-000. Testimony on behalf of EME Companies regarding the allocation and recovery of administrative charges in the NYISO markets.

159-Federal Energy Regulatory Commission. Dockets No. EL01-19-000, No. EL01-19-001, No. EL02-16-000, EL02-16-000. Testimony on behalf of PSE&G Energy Resources and Trade regarding pricing in the New York Independent System Operator energy markets.

158-Federal Energy Regulatory Commission. Invited panelist regarding performance based regulation (PBR) and wholesale market design. Comments related to the potential role of PBR in transmission expansion, and its interaction with market mechanisms for new transmission.

157-Federal Energy Regulatory Commission. Docket No. ER04-539-000 Testimony on behalf of EME Companies regarding proposed market mitigation in the energy and capacity markets of the Northern Illinois Control Area.

156-Federal Energy Regulatory Commission. Standardization of Generator Interconnection Agreements and Procedures Docket No. RM02-1-001, Order 2003-A, Affidavit on Behalf of PSEG Companies regarding the modifications on rehearing to interconnection crediting procedures.

155-Federal Energy Regulatory Commission. Dockets ER03-236-000,ER04-364-000,ER04-367-000,ER04-375-000. Testimony on behalf of the EME Companies regarding proposed market mitigation measures in the Northern Illinois Control Area of PJM.

154-Federal Energy Regulatory Commission. Dockets PL04-2-000, EL03-236-000. Invited panelist, testimony related to local market power and the appropriate levels of compensation for reliability must run resources.

2003

153-American Arbitration Association. 16 Y 198 00204 03. Report on behalf of Trigen-Cineregy Solutions regarding an energy services agreement related to a cogeneration facility.

152-Federal Energy Regulatory Commission. Docket No. EL03-236-000. Testimony on behalf of EME Companies regarding the PJM proposed

tariff changes addressing mitigation of local market power and the implementation of a related auction process.

151-Federal Energy Regulatory Commission. Docket No. PA03-12-000. Testimony on behalf of Pepco Holdings Incorporated regarding transmission congestion and related issues in market design in general, and specifically addressing congestion on the Delmarva Peninsula.

150-Federal Energy Regulatory Commission. Docket Nos. ER03-262-007, Affidavit on behalf of EME Companies regarding the cost benefit analysis of the operation of an expanded PJM including Commonwealth Edison.

149-Supreme Court of the State of New York, Index No. 601505/01. Report on behalf of Trigen-Syracuse Energy Corporation regarding energy trading and sales agreements and the operation of the New York Independent System Operator.

148-Federal Energy Regulatory Commission. Docket No. ER03-262-000. Affidavit on behalf of the EME Companies regarding the issues associated with the integration of the Commonwealth Edison Company into PJM.

147-Federal Energy Regulatory Commission. Docket No. ER03-690-000. Affidavit on behalf of Hydro Quebec US regarding New York ISO market rules at external generator proxy buses when such buses are deemed non-competitive.

146-Federal Energy Regulatory Commission. Docket RT01-2-006,007. Affidavit on behalf of the PSEG Companies regarding the PJM Regional Transmission Expansion Planning Protocol, and proper incentives and structure for merchant transmission expansion.

145-Federal Energy Regulatory Commission. Docket No. ER03-406-000. Affidavit on behalf of seven PJM Stakeholders addressing the appropriateness of the proposed new Auction Revenue Rights/Financial Transmission Rights process to be implemented by the PJM ISO.

144-Federal Energy Regulatory Commission. Docket No. ER01-2998-002. Testimony on behalf of Pacific Gas and Electric Company related to the cause and allocation of transmission congestion charges.

143-Federal Energy Regulatory Commission. Docket No. RM01-12-000. On behalf of six different companies including both independent generators, integrated utilities and distribution companies comments on the proposed resource adequacy requirements of the Standard Market Design.

142-United States Bankruptcy Court, Northern District of California, San Francisco Division, Case No. 01-30923 DM. On behalf of Pacific Gas and Electric Dr. Shanker presented testimony addressing issues related to transmission congestion, and the proposed FERC SMD and California MD02 market design proposals.

2002

141-Arbitration. Testimony on behalf of AES Ironwood regarding the operation of a tolling agreement and its interaction with PJM market rules.

140-Federal Energy Regulatory Commission. Docket No. RM01-12-000. Dr. Shanker was asked by the three Northeast ISO's to present a summary of his resource adequacy proposal developed in the Joint Capacity Adequacy Group. This was part of the Standard Market Design NOPR process.

139-Federal Energy Regulatory Commission. Docket No. ER02-456-000. Testimony on behalf of Electric Gen LLC addressing comparability of a contract among affiliates with respect to non-price terms and conditions.

138-Circuit Court for Baltimore City. Case 24-C-01-000234. Testimony on behalf of Baltimore Refuse Energy Systems Company regarding the appropriate implementation and pricing of a power purchase agreement and related Installed Capacity credits.

137-Federal Energy Regulatory Commission. Docket No. RM01-12-000. Comments on the characteristics of capacity adequacy markets and alternative market design systems for implementing capacity adequacy markets.

2001

136-Federal Energy Regulatory Commission. Docket ER02-456-000. Testimony on behalf of Electric Gen LLC regarding the terms and conditions of a power sales agreement between PG&E and Electric Generating Company LLC.

135-Delaware Public Service Commission. Docket 01-194. On behalf of Conectiv et al. Testimony relating to the proper calculation of Locational Marginal Prices in the PJM market design, and the function of Fixed Transmission Rights.

134-Federal Energy Regulatory Commission. Docket No. IN01-7-000 On behalf of Exelon Corporation . Testimony relating to the function of Fixed

Transmission Rights, and associated business strategies in the PJM market system.

133-Federal Energy Regulatory Commission. Docket No. RM01-12-000. Comments on the basic elements of RTO market design and the required market elements.

132-Federal Energy Regulatory Commission. Docket No. RT01-99-000. On behalf of the One RTO Coalition. Affadavit on the computational feasibility of large scale regional transmission organizations and related issues in the PJM and NYISO market design.

131-Arbitration. On behalf of Hydro Quebec. Testimony related to the eligibility of power sales to qualify as Installed Capacitywithin the New York Independent system operator.

130-Virginia State Corporation Commission. Case No. PUE000584. On behalf of the Virginia Independent Power Producers. Testimony related to the proposed restructuring of Dominion Power and its impact on private power contracts.

129-United States District Court, Northern District of Ohio, Eastern Division, Case: 1:00CV1729. On behalf of Federal Energy Sales, Inc. Testimony related to damages in disputed electric energy trading transactions.

128-Federal Energy Regulatory Commission. Docket Number ER01-2076-000. Testimony on behalf of Aquila Energy Marketing Corp and Edison Mission Marketing and Trading, Inc. relating to the implementation of an Automated Mitigation Procedure by the New York ISO.

2000

127-New York Independent System Operator Board. Statement on behalf of Hydro Quebec, U.S. regarding the implications and impacts of the imposition of a price cap on an operating market system.

126-Federal Energy Regulatory Administration. Docket No. EL00-24-000. Testimony on behalf of Dayton Power and Light Company regarding the proper characterization and computation of regulation and imbalance charges.

125-American Arbitration Association File 71-198-00309-99. Report on behalf of Orange and Rockland Utilities, Inc. regarding the estimation of damages associated with the termination of a power marketing agreement.

124-Circuit Court, 15th Judicial Circuit, Palm Beach County, Florida. On behalf of Okeelanta and Osceola Power Limted Partnerships et. al. Analyses related to commercial operation provisions of a power purchase agreement.

1999

123-Federal Energy Regulatory Commission. Docket No. ER00-1-000. Testimony on behalf of TransEnergie U.S. related to market power associated with merchant transmission facilities. Also related analyses regarding market based tariff design for merchant transmission facilities.

122-Federal Energy Regulatory Commission. Docket RM99-2-000. Analyses on behalf of Edison Mission Energy relating to the Regional Transmission Organization Notice of Proposed Rulemaking.

121-Federal Energy Regulatory Commission. Docket No. ER99-3508-000. On behalf of PG&E Energy Trading, analyses associated with the proposed implementation and cutover plan for the New York Independent System Operator.

120-Federal Energy Regulatory Commission. Docket No. EL99-46-000. Comments on behalf of the Electric Power Supply Association relating to the Capacity Benefit Margin.

119-New York Public Service Commission, Case 97-F-1563. Testimony on behalf of Athens Generating Company describing the impacts on pricing and transmission of a new generation facility within the New York Power Pool under the new proposed ISO tariff.

118-JAMS Arbitration Case No. 1220019318 On behalf of Fellows Generation Company. Testimony related to the development of the independent power and qualifying facility industry and related industry practices with respect to transactions between cogeneration facilities and thermal hosts.

117-Court of Common Pleas, Philadelphia County, Pennsylvania. Analyses on behalf of Chase Manhattan Bank and Grays Ferry Cogeneration Partnership related to power purchase agreements and electric utility restructuring.

1998

116-Virginia State Corporation Commission. Case No. PUE 980463. Testimony on behalf of Appomattax Cogeneration related to the proper implementation of avoided cost methodology.

115-Virginia State Corporation Commission. Case No. PUE980462 Testimony on behalf of Virginia Independent Power Producers related to an applicaton for a certificate for new generation facilities.

114-Federal Energy Regulatory Commission. Analyses related to a number of dockets reflecting amendments to the PJM ISO tariff and Reliability Assurance Agreement.

113-U.S. District Court, Western Oklahoma. CIV96-1595-L. Testimony related to anti-competitive elements of utility rate design and promotional actions.

112-Federal Energy Regulatory Commission Dockets No. EL94-45-001 and QF88-84-006. Analyses related to historic measurement of spot prices for as available energy.

111-Circuit Court, Fourth Judicial Circuit, Duval County, Florida. Analyses related to the proper implementation of a a power purchase agreement and associated calculations of capacity payments. (Testimony 1999)

1997

110-United States District Court for the Eastern District of Virginia, CA No. 3:97CV 231. Analyses of the business and market behavior of Virginia Power with respect to the implementation of wholesale electric power purchase agreements.

109-United States District Court, Southern District of Florida, Case No. 96-594-CIV, Analyses related to anti-competitive practices by an electric utility and related contract matters regarding the appropriate calculation of energy payments.

108-Virginia State Corporation Commission. Case No. PUE960296. Testimony related to the restructuring proposal of Virginia Power and associated stranded cost issues.

107-Federal Energy Regulatory Commission. Dockets No. ER97-1523-000 and OA97-470-000, Analyses related to the restructuring of the New

York Power Pool and the implementation of locational marginal cost pricing.

106-Federal Energy Regulatory Commission Dockets No. OA97-261-000 and ER97-1082-000 Analyses and testimony related to the restructuring of the PJM Power Pool and the implementation of locational marginal cost pricing.

105-Missouri Public Service Commission. Case No. ET-97-113. Testimony related to the proper definition and rate design for standby, supplemental and maintenance service for Qualifying facilities.

104-American Arbitration Association. Case 79 Y 199 00070 95. Testimony and analyses related to the proper conditions necessary for the curtailment of Qualifying Facilities and the associated calculations of negative avoided costs.

103-Virginia State Corporation Commission. Case Number PUE960117 Testimony related to proper implementation of the differential revenue requirements methodology for the calculation of avoided costs.

102-New York Public Service Commission. Case 96-E-0897, Analyses related to the restructuring of Consolidated Edison Company of New York and New York Power Pool proposed Independent System Operator and related transmission tariffs.

1996

101-Florida Public Service Commission. Docket No. 950110-EI. Testimony related to the correct calculation of avoided costs using the Value of Deferral methodology and its implementation.

100-Federal Energy Regulatory Commission Dockets No. EL94-45-001 and QF88-84-006. Testimony and Analyses related to the estimation of historic market rates for electricity in the Virginia Power service territory.

99-Circuit Court of the City of Richmond Case No. LA-2266-4. Analyses related to the incurrence of actual and estimated damages associated with the outages of an electric generation facility.

98-New Hampshire Public Utility Commission, Docket No. DR96-149. Analyses related to the requirements of light loading for the curtailment of Qualifying Facilities, and the compliance of a utility with such requirements.

97-State of New York Supreme Court, Index No. 94-1125. Testimony related to system planning criteria and their relationship to contract performance specifications for a purchased power facility.

96-United States District Court for the Western District of Pennsylvania, Civil Action No. 95-0658. Analyses related to anti-competitive actions of an electric utility with respect to a power purchase agreement.

95-United States District Court for the Northern District of Alabama, Southern Division. Civil Action Number CV-96-PT 0097-S. Affadavit on behalf of TVA and LG&E Power regarding displacement in wholesale power transactions.

1995

94-American Arbitration Association. Arbitration No. 14 198 012795 H/K. Report concerning the correct measurement of savings resulting from a commercial building cogeneration system and associated contract compensation issues.

93-Circuit Court City of Richmond. Law No. LX-2859-1. Analyses related to IPP contract structure and interpretation regarding plant compensation under different operating conditions.

92-Federal Energy Regulatory Commission. Case EL95-28-000. Affidavit concerning the provisions of the FERC regulations related to the Public Utility Regulatory Policies Act of 1978, and relationship of estimated avoided cost to traditional rate based recovery of utility investment.

91-New York Public Service Commission, Case 95-E-0172, Testimony on the correct design of standby, maintenance and supplemental service rates for qualifying facilities.

90-Florida Public Service Commission, Docket No. 941101-EQ. Testimony related to the proper analyses and procedures related to the curtailment of purchases from Qualifying Facilities under Florida and FERC regulations.

89-Federal Energy Regulatory Commission, Dockets ER95-267-000 and EL95-25-000. Testimony related to the proper evaluation of generation expansion alternatives.

1994

88-American Arbitration Association, Case Number 11 Y198 00352 94 Analyses related to contract provisions for milestones and commercial

operation date and associated termination and damages related to the construction of a NUG facility.

87-United States District Court, Middle District Florida, Case No. 94-303 Civ-Orl-18. Analyses related to contract pricing interpretation other contract matters in a power purchase agreement between a qualifying facility and Florida Power Corporation.

86-Florida Public Service Commission Docket 94037-EQ. Analyses related to a contract dispute between Orlando Power Generation and Florida Power Corporation.

85-Florida Public Service Commission Docket 941101-EQ. Testimony and analyses of the proper procedures for the determination and measurement for the need to curtail purchases from qualifying facilities.

84-New York Public Service Commission Case 93-E-0272, Testimony regarding PURPA policy considerations and the status of services provided to the generation and consuming elements of a qualifying facility.

83-Circuit Court for the City of Richmond. Case Number LW 730-4. Analyses of the historic avoided costs of Virginia Power, related procedures and fixed fuel transportation rate design.

82-New York Public Service Commission, Case 93-E-0958 Analyses of Stand-by, Supplementary and Maintenance Rates of Niagara Mohawk Power Corporation for Qualifying Facilities .

81-New York Public Service Commission, Case 94-E-0098. Analyses of cost of service and rate design of Niagara Mohawk Power Corporation.

80-American Arbitration Association, Case 55-198-0198-93, Arbitrator in contract dispute regarding the commercial operation date of a qualifying small power generation facility.

1993

79-U.S. District Court, Southern District of New York Case 92 Civ 5755. Analyses of contract provisions and associated commercial terms and conditions of power purchase agreements between an independent power producer and Orange and Rockland Utilities.

78-State Corporation Commission, Virginia. Case No. PUE920041. Testimony related to the appropriate evaluation of historic avoided costs in Virginia and the inclusion of gross receipt taxes.

77-Federal Energy Regulatory Commission. Docket ER93-323-000. Evaluations and analyses related to the financial and regulatory status of a cogeneration facility.

76-Federal Energy Regulatory Commission. Docket EL93-45-000; Docket QF83-248-002. Analyses related to the qualifying status of cogeneration facility.

75-Circuit Court of the Eleventh Judicial Circuit, Dade County, Florida. Case No. 92-08605-CA-06. Analyses related to compliance with electric and thermal energy purchase agreements. Damage analyses and testimony.

74-Board of Regulatory Commissioners, State of New Jersey. Docket EM 91010067. Testimony regarding the revised GPU/Duquesne 500 MW power sales agreement and associated transmission line.

73-State of North Carolina Utilities Commission. Docket No. E-100 Sub 67. Testimony in the consideration of rate making standards pursuant to Section 712 of the Energy Policy Act of 1992.

72-State of New York Public Service Commission. Cases 88-E-081 and 92-E-0814. Testimony regarding appropriate procedures for the determination of the need for curtailment of qualifying facilities and associated proper production cost modeling and measurement.

71-Pennsylvania Public Utility Commission. Docket No. A-110300f051. Testimony regarding the prudence of the revised GPU/Duquesne 500 MW power sales agreement and associated transmission line.

1992

70-Pennsylvania Public Service Commission. Dockets No. P-870235,C-913318,P-910515,C-913764. Testimony regarding the calculation of avoided costs for GPU/Penelec.

69-Public Service Commission of Maryland. Case No. 8413,8346. Testimony on the appropriate avoided costs for Pepco, and appropriate procedures for contract negotiation.

1991

68-Board of Regulatory Commissioners, State of New Jersey. Docket EM-91010067. Testimony regarding the planned purchase of 500 MW by GPU from Duquesne Light Company.

67-Public Service Commission of Wisconsin. Docket 05-EP-6. State Advance Plan. Testimony on the calculation of avoided costs and the structuring of payments to qualifying facilities.

66-State Corporation Commission, Virginia. Case No. PUE910033. Testimony on class rate of return and rate design for delivery point service. Northern Virginia Electric Cooperative.

65-State Corporation Commission, Virginia. Case No. PUE910048 Testimony on proper data and modeling procedures to be used in the evaluation of the annual Virginia Power fuel factor.

64-State Corporation Commission, Virginia. Case No. PUE910035. Evaluation of the differential revenue requirements method for the calculation of avoided costs.

63-Public Service Commission of Maryland. Case Number 8241 Phase II. Testimony related to the proper determination of avoided costs for Baltimore Gas and Electric.

62-Public Service Commission of Maryland. Case Number 8315. Evaluation of the system expansion planning methodology and the associated impacts on marginal costs and rate design, PEPCO.

1990

61-Public Utility Commission, State of California, Application 90-12-064. Analyses related to the contractual obligations between San Diego Gas and Electric and a proposed QF.

60-Montana Public Service Commission. Docket 90.1.1 Testimony and analyses related to natural gas transportation, services and rates.

59-State Corporation Commission, Virginia. Case No. PUE890075. Testimony on the calculation of full avoided costs via the differential revenue requirements methodology.

58-District of Columbia Public Service Commission. Formal Case 834 Phase II. Analyses and development of demand side management programs and least cost planning for Washington Gas Light.

57-State Corporation Commission, Virginia. Case No. PUE890076. Analyses related to administratively set avoided costs. Determination of optimal expansion plans for Virginia Power.

56-State Corporation Commission, Virginia. Case No. PUE900052. Analyses supporting arbitration of a power purchase agreement with Virginia Power. Determination of expansion plan and avoided costs.

55-Public Service Commission of Maryland. Case Number 8251. Analyses of system expansion planning models and marginal cost rate design for PEPCO.

54-State Corporation Commission, Virginia. Case No. PUE900054. Evaluation of fuel factor application and short term avoided costs.

53-Federal Energy Regulatory Commission. Northeast Utilities Service Company Docket Nos. EC90-10-000, ER90-143-000, ER90-144-000,ER90-145-000 and El90-9-000. Analyses of the implications of Northeast Utilities and Public Service Company of New Hampshire merger on electric supply and pricing.

52-Public Service Commission of Maryland. Re: Southern Maryland Electric Cooperative Inc. Contract with Advanced Power Systems, Inc. and PEPCO.

51-Puerto Rico Electric Power Authority, Office of the Governor of Puerto Rico. Independent evaluation for PREPA of avoided costs and the evaluation of competing QF's.

50-State Corporation Commission, Virginia. Case No. PUE890041. Testimony on the proper determination of avoided costs with respect to Old Dominion Electric Cooperative.

1989

49-Oklahoma Corporation Commission. Case Number PUD-000586. Analyses related to system planning and calculation of avoided costs for Public Service of Oklahoma.

48-Virginia State Corporation Commission. Case Number PUE890007. Testimony relating to the proper determination of avoided costs to the certification evaluation of new generation facilities.

47-Federal Energy Regulatory Commission. Docket RP85-50. Analyses of the gas transportation rates, terms and conditions filed by Florida Gas Transmission.

46-Circuit Court of the Fifth Judicial Circuit, Dade County, Florida. Case No. 88-48187. Analyses related to compliance with electric and thermal energy purchase agreements.

45-Florida Public Service Commission. Docket 880004-EU. Analysis of state wide expansion planning procedures and associated avoided unit.

1988

44-Virginia State Corporation Commission. Case No. PUE870081. Testimony on the implementation of the differential revenue requirements avoided costmethodology recommended by the SCC Task Force.

43-Virginia State Corporation Commission. Case No. PUE880014. Testimony on the design and level of standby, maintenance and supplemental power rates for qualifying facilities.

42-Virginia State Corporation Commission. Case No. PUE99038. Testimony on the natural gas transportation rate design and service provisions.

41-Montana Public Service Commission. Docket 87.8.38. Testimony on Natural Gas Transmission Rate Design and Service Provisions.

40-Oklahoma Corporation Commission. Cause Pud No. 00345. Testimony on estimation and level of avoided cost payments for qualifying facilities.

39-Florida Public Service Commission. Docket No.8700197-EI. Testimony on the methodology for establishing non-firm load service levels.

38-Arizona Corporation Commission. Docket No. U-1551-86-300. Analysis of cost-of-service studies and related terms and conditions for material gas transportation rates.

1987

37-Virginia State Corporation Commission. Case No. PUE870028. Analysis of Virginia Power fuel factorapplication and relationship to avoided costs.

36-District of Columbia Public Service Commission. Formal Case No. 834 Phase II. Analysis of the theory and empirical basis for establishing cost effectiveness of natural gas conservation programs.

35-Virginia State Corporation Commission. Case No. PUE860058. Testimony on the relationship of small power producers and cogenerators to the need for power and new generation facilities.

34-Virginia State Corporation Commission. Case No. PUE870025. Testimony addressing the proper design of rates for standby, maintenance and supplement power sales to cogenerators.

33-Florida Public Service Commission. Docket No. 860004 EU. Testimony in the 1986 annual planning hearing on proper system expansion planning procedures.

1986

32-Florida Public Service Commission. Docket No. 860001 EI-E. Testimony on the proper methodology for the estimation of avoided O&M costs.

31-Florida Public Service Commission. Docket No. 860786-EI. Testimony on the proper economic analysis for the evaluation of self-service wheeling.

30-U.S. Bankruptcy Court, District of Ohio. Testimony on capabilities to develop and operate wood-fired qualifying facility.

29-Public Utility Commission, New Hampshire Docket No. DR-86-41. Testimony on pricing and contract terms for power purchase agreement between utility and QFs. (Settlement Negotiations)

28-Florida Public Service Commission, Docket No. 850673-EU. Testimony on generic issues related to the design of standby rates for qualifying facilities.

27-Virginia State Corporation Commission. Case No. 860024. Generic hearing on natural gas transportation rate design and tariff terms and conditions.

26-Virginia State Corporation Commission. Commonwealth Gas Pipeline Corporation. Case No. 850052. Testimony on natural gas transportation rate design and tariff terms and conditions.

25-Bonneville Power Administration. Case No. VI86. Testimony on the proposed Variable Industrial Power Rate for Aluminum Smelters.

24-Virginia Power. Case No. PUE860011. Testimony on the proper ex post facto valuation of avoided power costs for qualifying facilities.

23-Florida Public Service Commission. Docket No. 850004 EU. Testimony on proper analytic procedures for developing a statewide generation expansion plan and associated avoided unit.

1985

22-Virginia Natural Gas. Docket No. 85-0036. Testimony and cost of service procedures and rate design for natural gas transportation service.

21-Arkansas Louisiana Gas. Louisiana Docket No. U-16534. Testimony on proper cost of service procedures and rate design for natural gas service.

20-Connecticut Light and Power. Docket No. 85-08-08.
Assist in the development of testimony for industrial natural gas transportation rates.

19-Oklahoma Gas and Electric. Cause 29727. Testimony and system operations and the development of avoided cost measurements as the basis for rates to qualifying facilities.

18-Florida Public Service Commission. Docket No. 840399EU. Testimony on self-service wheeling and business arrangements for qualifying facilities.

17-Virginia Electric and Power Company. General Rate application No. PUE840071. Testimony on proper rate design procedures and computations for development of supplemental, maintenance and standby service for cogenerators.

16-Virginia Electric and Power Company. Fuel Factor
Proceeding No. PUE850001. Testimony on the proper use of the PROMOD model and associated procedures in setting avoided cost energy rates for cogenerators.

15-New York State Public Service Commission. Case No. 28962. Development of the use of multi-area PROMOD models to estimate avoided energy costs for six private utilities in New York State.

14-Vermont Rate Hearings on Payments to Small Power Producers. Case No. 4933. Testimony on proper assumptions, procedures and analysis for the development of avoided cost rates.

1984

13-Northern Virginia Electric Cooperative. Case No. PUE840041. Testimony on class cost-of-serviceprocedures, class rate of return and rate design.

12-BPA 1985 Wholesale Rate Proceedings. Analysis of Power 1985 Rate Directives. Testimony on theory and implementation of marginal cost rate design.

11-Virginia Electric Power Company. Application to Revise Rate Schedule 19 -- Power Purchases from Cogeneration and Small Power Production Qualifying Facilities. Case No. PUE830067. Testimony on proper PROMOD modeling procedures for power purchases and properties of PROMOD model.

10-Northern Virginia Electric Cooperative. Case No. PUE840041. Testimony on class cost-of-service procedures, class rate of return and rate design.

9-BPA 1985 Wholesale Rate Proceedings. Analysis of Power 1985 Rate Directives. Testimony on the theory and implementation of marginal cost rate design, financial performance of BPA; interactions between rate design, demand, system expansion and operation.

1983

8-Northern Virginia Electric Cooperative. Case No. PUE830040. Testimony on class cost-of-service procedures, class rate of return and rate design.

7-Vermont Rate Hearings to Small Power Producers. No.4804. Testimony on proper use and application of production costing analyses to the estimation of avoided costs.

6-BPA Wholesale Rate Proceedings. Testimony on the theory and implementation of marginal cost rate design; financial performance of BPA; interactions between rate design, demand, system expansion and operation.

5-Idaho Power Company, PUC-U-1006-185. Analysis of system planning/production costing model play of hydro regulation and associated energy costs.

1982

4-Generic Conservation Proceedings, New York State. Case No. 18223. Testimony on the economic criteria for the evaluation of conservation activities; impacts on utility financial performance and rate design.

3-PEPCO, Washington Gas Light. DCPSC-743. Financial evaluation of conservation activities; procedures for cost classification, allocation; rate design.

2-PEPCO, Maryland PSC Case Nos. 7597-I, 7597-II, and 7652. Testimony on class rates of return, cost classification and allocation, power pool operations and sales.

1981

1-Pacific Gas and Electric. California PSC Case No. 60153. Testimony on rate design; class cost-of-service and rate of return.

Previous testimony before the District of Columbia
Public Service Commission, Maryland PSC, New York Public Service Commission, FERC; Economic Regulatory Administration

Attachment C

Scenario #	Scenario Description	Auction Results	RTO	MAAC	EMAAC	SWMAAC	PSEG	PS-NORTH	DPL-SOUTH	PEPCO	ATSI	ATSI-CLEVELAND	COMED	BGE	PPL	DAY	DEOK
BASE	Actual 2023/2024 results	RCP	$34.13	$49.49	$49.49	$49.49	$49.49	$49.49	$69.95	$49.49	$34.13	$34.13	$34.13	$69.95	$49.49	$34.13	$34.13
		Cleared CP Generation MW	131,256.3	58,350.2	27,963.6	7,518.7	5,188.2	3,043.2	1,220.6	3,076.4	8,264.1	1,694.2	23,143.9	1,992.1	9,251.2	960.0	1,635.6
		Cleared CP DR MW	7,919.1	2,396.4	975.9	328.6	272.7	126.1	52.2	160.2	851.5	162.8	1,105.5	168.4	583.4	209.3	175.4
		Cleared CP EE MW	5,221.1	2,153.5	1,158.0	527.6	378.6	175.3	51.2	272.1	415.8	42.9	815.6	255.5	279.1	92.3	153.5
		Total Cleared CP MW	144,396.5	62,900.1	30,097.5	8,374.9	5,839.5	3,344.6	1,324.0	3,508.7	9,531.4	1,899.9	25,065.0	2,416.0	10,113.7	1,261.6	1,964.5
		Cleared Matched Seasonal CP MW	474.1	29.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	293.3	0.0	0.0	0.0	0.0
		Total Cleared MW	144,870.6	62,929.4	30,097.5	8,374.9	5,839.5	3,344.6	1,324.0	3,508.7	9,531.4	1,899.9	25,358.3	2,416.0	10,113.7	1,261.6	1,964.5
1	Unconstrained Simulation - Remove LDA import limits	RCP	$46.89	$46.89	$46.89	$46.89	$46.89	$46.89	$46.89	$46.89	$46.89	$46.89	$46.89	$46.89	$46.89	$46.89	$46.89
		Cleared Annual Generation MW	130,378.6	54,820.9	27,189.2	6,086.7	5,188.2	3,043.2	1,157.3	3,076.4	8,482.8	1,694.2	24,291.2	560.1	8,990.2	960.0	1,661.4
		Cleared Annual DR MW	8,377.8	2,354.8	963.2	310.4	263.8	122.4	49.3	160.2	932.4	178.2	1,255.5	150.2	573.6	232.0	211.5
		Cleared Annual EE MW	5,221.1	2,153.5	1,158.0	527.6	378.6	175.3	51.2	272.1	415.8	42.9	815.6	255.5	279.1	92.3	153.5
		Total Cleared Annual MW	143,977.5	59,329.2	29,310.4	6,924.7	5,830.6	3,340.9	1,257.8	3,508.7	9,831.0	1,915.3	26,362.3	965.8	9,842.9	1,284.3	2,026.4
		Cleared Matched Seasonal CP MW	474.1	29.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	293.3	0.0	0.0	0.0	0.0
		Total Cleared MW	144,451.6	59,358.5	29,310.4	6,924.7	5,830.6	3,340.9	1,257.8	3,508.7	9,831.0	1,915.3	26,655.6	965.8	9,842.9	1,284.3	2,026.4
2	Remove 3000 MW of CP supply from bottom of supply curve in region outside of MAAC (1,235.6 MW in rest of RTO, 896.1 MW in ComEd, 350.3 MW in rest of ATSI, 185.3 MW in ATSI-Cleveland, 141.0 MW in DAY, 191.8 MW in DEOK)	RCP	$43.26	$49.49	$49.49	$49.49	$49.49	$49.49	$69.95	$49.49	$43.26	$43.26	$43.26	$69.95	$49.49	$43.26	$43.26
		Cleared Annual Generation MW	130,467.0	58,350.3	27,963.6	7,518.7	5,188.2	3,043.2	1,220.6	3,076.4	7,948.5	1,510.2	23,031.2	1,992.1	9,251.3	819.0	1,449.7
		Cleared Annual DR MW	8,408.9	2,396.4	975.9	328.6	272.7	126.1	52.2	160.2	930.0	178.2	1,255.5	168.4	583.4	231.0	211.5
		Cleared Annual EE MW	5,221.1	2,153.5	1,158.0	527.6	378.6	175.3	51.2	272.1	415.8	42.9	815.6	255.5	279.1	92.3	153.5
		Total Cleared Annual MW	144,097.0	62,900.2	30,097.5	8,374.9	5,839.5	3,344.6	1,324.0	3,508.7	9,294.3	1,731.3	25,102.3	2,416.0	10,113.8	1,142.3	1,814.7
		Cleared Matched Seasonal CP MW	474.1	29.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	293.3	0.0	0.0	0.0	0.0
		Total Cleared MW	144,571.1	62,929.5	30,097.5	8,374.9	5,839.5	3,344.6	1,324.0	3,508.7	9,294.3	1,731.3	25,395.6	2,416.0	10,113.8	1,142.3	1,814.7
3	Add 3000 MW of CP supply to bottom of supply curve in region outside of MAAC (1,235.6 MW in rest of RTO, 896.1 MW in ComEd, 350.3 MW in rest of ATSI, 185.3 MW in ATSI-Cleveland, 141.0 MW in DAY, 191.8 MW in DEOK)	RCP	$22.86	$49.49	$49.49	$49.49	$49.49	$49.49	$69.95	$49.49	$22.86	$22.86	$22.86	$69.95	$49.49	$22.86	$22.86
		Cleared Annual Generation MW	132,639.9	58,350.3	27,963.6	7,518.7	5,188.2	3,043.2	1,220.6	3,076.4	8,658.0	1,879.5	23,116.1	1,992.1	9,251.3	1,100.9	1,815.6
		Cleared Annual DR MW	6,905.9	2,396.4	975.9	328.6	272.7	126.1	52.2	160.2	648.6	116.5	1,049.6	168.4	583.4	181.0	169.4
		Cleared Annual EE MW	5,221.1	2,153.5	1,158.0	527.6	378.6	175.3	51.2	272.1	415.8	42.9	815.6	255.5	279.1	92.3	153.5
		Total Cleared Annual MW	144,766.9	62,900.2	30,097.5	8,374.9	5,839.5	3,344.6	1,324.0	3,508.7	9,722.4	2,038.9	24,981.3	2,416.0	10,113.8	1,374.2	2,138.5
		Cleared Matched Seasonal CP MW	474.1	29.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	293.3	0.0	0.0	0.0	0.0
		Total Cleared MW	145,241.0	62,929.5	30,097.5	8,374.9	5,839.5	3,344.6	1,324.0	3,508.7	9,722.4	2,038.9	25,274.6	2,416.0	10,113.8	1,374.2	2,138.5
4	Remove 6000 MW of CP supply from bottom of supply curve in region outside of MAAC (2,471.1 MW in rest of RTO, 1,792.1 MW in ComEd, 700.5 MW in rest of ATSI, 370.6 MW in ATSI-Cleveland, 282.0 MW in DAY,383.6 MW in DEOK)	RCP	$54.86	$54.86	$54.86	$54.86	$54.86	$54.86	$69.95	$54.86	$54.86	$54.86	$54.86	$69.95	$54.86	$54.86	$54.86
		Cleared Annual Generation MW	129,762.5	59,406.9	28,442.0	7,518.7	5,188.2	3,043.2	1,220.6	3,076.4	7,417.7	1,323.6	23,055.7	1,992.1	9,251.3	677.9	1,311.2
		Cleared Annual DR MW	8,732.2	2,434.2	979.9	328.6	274.7	126.1	52.2	160.2	1,011.1	200.0	1,267.3	168.4	586.9	243.0	211.5
		Cleared Annual EE MW	5,221.1	2,153.5	1,158.0	527.6	378.6	175.3	51.2	272.1	415.8	42.9	815.6	255.5	279.1	92.3	153.5
		Total Cleared Annual MW	143,715.8	63,994.6	30,579.9	8,374.9	5,841.5	3,344.6	1,324.0	3,508.7	8,844.6	1,566.5	25,138.6	2,416.0	10,117.3	1,013.2	1,676.2
		Cleared Matched Seasonal CP MW	474.1	29.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	293.3	0.0	0.0	0.0	0.0
		Total Cleared MW	144,189.9	64,023.9	30,579.9	8,374.9	5,841.5	3,344.6	1,324.0	3,508.7	8,844.6	1,566.5	25,431.9	2,416.0	10,117.3	1,013.2	1,676.2
5	Add 6000 MW of CP supply to bottom of supply curve in region outside of MAAC (2,471.1 MW in rest of RTO, 1,792.1 MW in ComEd, 700.5 MW in rest of ATSI, 370.6 MW in ATSI-Cleveland, 282.0 MW in DAY,383.6 MW in DEOK)	RCP	$19.00	$49.49	$49.49	$49.49	$49.49	$49.49	$69.95	$49.49	$19.00	$19.00	$19.00	$69.95	$49.49	$19.00	$19.00
		Cleared Annual Generation MW	133,897.7	58,350.3	27,963.6	7,518.7	5,188.2	3,043.2	1,220.6	3,076.4	8,835.0	1,995.5	23,302.3	1,992.1	9,251.3	1,241.9	2,001.5
		Cleared Annual DR MW	5,775.1	2,396.4	975.9	328.6	272.7	126.1	52.2	160.2	544.9	116.3	718.0	168.4	583.4	110.6	132.6
		Cleared Annual EE MW	5,221.1	2,153.5	1,158.0	527.6	378.6	175.3	51.2	272.1	415.8	42.9	815.6	255.5	279.1	92.3	153.5
		Total Cleared Annual MW	144,893.9	62,900.2	30,097.5	8,374.9	5,839.5	3,344.6	1,324.0	3,508.7	9,795.7	2,154.7	24,835.9	2,416.0	10,113.8	1,444.8	2,287.6
		Cleared Matched Seasonal CP MW	474.1	29.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	293.3	0.0	0.0	0.0	0.0
		Total Cleared MW	145,368.0	62,929.5	30,097.5	8,374.9	5,839.5	3,344.6	1,324.0	3,508.7	9,795.7	2,154.7	25,129.2	2,416.0	10,113.8	1,444.8	2,287.6
6	Remove 3000 MW of CP supply from bottom of supply curve in MAAC (308.1 MW in rest of MAAC, 997.4 MW in rest of EMAAC, 246.7 MW in rest of PS, 267.3 MW in PS-North, 130.1 MW in DPL-South, 317.4 MW in PEPCO, 343.9 MW in BGE, 388.9 MW in PL)	RCP	$35.68	$73.50	$141.03	$73.50	$141.03	$141.03	$155.47	$73.50	$35.68	$35.68	$35.68	$89.90	$73.50	$35.68	$35.68
		Cleared CP Generation MW	130,732.4	57,516.5	26,860.0	7,132.7	4,674.6	2,775.9	1,149.6	2,759.0	8,377.8	1,694.2	23,262.3	1,923.5	8,967.0	960.0	1,635.6
		Cleared CP DR MW	8,392.8	2,848.3	1,242.9	378.7	376.3	169.3	53.7	188.6	851.5	162.8	1,105.5	190.1	625.5	209.3	197.2
		Cleared CP EE MW	5,221.1	2,153.5	1,158.0	527.6	378.6	175.3	51.2	272.1	415.8	42.9	815.6	255.5	279.1	92.3	153.5
		Total Cleared CP MW	144,346.3	62,518.3	29,260.9	8,039.0	5,429.5	3,120.5	1,254.5	3,219.7	9,645.1	1,899.9	25,183.4	2,369.1	9,871.6	1,261.6	1,986.3
		Cleared Matched Seasonal CP MW	473.7	29.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	293.3	0.0	0.0	0.0	0.0
		Total Cleared MW	144,820.0	62,547.6	29,260.9	8,039.0	5,429.5	3,120.5	1,254.5	3,219.7	9,645.1	1,899.9	25,476.7	2,369.1	9,871.6	1,261.6	1,986.3
7	Add 3000 MW of CP supply to bottom of supply curve in MAAC (308.1 MW in rest of MAAC, 997.4 MW in rest of EMAAC, 246.7 MW in rest of PS, 267.3 MW in PS-North, 130.1 MW in DPL-South, 317.4 MW in PEPCO, 343.9 MW in BGE, 388.9 MW in PL)	RCP	$33.93	$47.15	$47.15	$47.15	$47.15	$47.15	$47.15	$47.15	$33.93	$33.93	$33.93	$89.90	$47.15	$33.93	$33.93
		Cleared CP Generation MW	131,264.5	58,389.0	28,815.6	7,767.5	5,702.2	3,310.5	1,287.4	3,393.8	8,264.1	1,694.2	23,113.3	1,923.5	8,963.6	960.0	1,635.6
		Cleared CP DR MW	7,917.4	2,394.7	963.2	350.3	263.8	122.4	49.3	160.2	851.5	162.8	1,105.5	190.1	573.6	209.3	175.4
		Cleared CP EE MW	5,221.1	2,153.5	1,158.0	527.6	378.6	175.3	51.2	272.1	415.8	42.9	815.6	255.5	279.1	92.3	153.5
		Total Cleared CP MW	144,403.0	62,937.2	30,936.8	8,645.4	6,344.6	3,608.2	1,387.9	3,826.1	9,531.4	1,899.9	25,034.4	2,369.1	9,816.3	1,261.6	1,964.5
		Cleared Matched Seasonal CP MW	474.1	29.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	293.3	0.0	0.0	0.0	0.0
		Total Cleared MW	144,877.1	62,966.5	30,936.8	8,645.4	6,344.6	3,608.2	1,387.9	3,826.1	9,531.4	1,899.9	25,327.7	2,369.1	9,816.3	1,261.6	1,964.5
8	Remove 6000 MW of CP supply from bottom of supply curve in MAAC (616.2 MW in rest of MAAC, 1,994.9 MW in rest of EMAAC, 493.5 MW in rest of PS, 534.6 MW in PS-North, 260.3 MW in DPL-South, 634.9 MW in PEPCO, 687.9 MW in BGE, 777.8 MW in PL)	RCP	$37.02	$136.99	$431.26	$136.99	$431.26	$431.26	$431.26	$136.99	$37.02	$37.02	$37.02	$163.98	$136.99	$37.02	$37.02
		Cleared CP Generation MW	130,539.4	56,370.2	25,230.3	6,627.2	4,160.5	2,508.6	1,019.4	2,441.5	8,377.8	1,694.2	23,361.5	1,735.5	8,736.6	960.0	1,635.6
		Cleared CP DR MW	8,541.8	2,985.3	1,288.4	406.7	398.0	172.3	53.8	202.6	855.1	162.8	1,105.5	204.1	661.5	210.6	197.2
		Cleared CP EE MW	5,221.1	2,153.5	1,158.0	527.6	378.6	175.3	51.2	272.1	415.8	42.9	815.6	255.5	279.1	92.3	153.5
		Total Cleared CP MW	144,302.3	61,509.0	27,676.7	7,561.5	4,937.1	2,856.2	1,124.4	2,916.2	9,648.7	1,899.9	25,282.6	2,195.1	9,677.2	1,262.9	1,986.3
		Cleared Matched Seasonal CP MW	473.7	29.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	293.3	0.0	0.0	0.0	0.0
		Total Cleared MW	144,776.0	61,538.3	27,676.7	7,561.5	4,937.1	2,856.2	1,124.4	2,916.2	9,648.7	1,899.9	25,575.9	2,195.1	9,677.2	1,262.9	1,986.3
9	Add 6000 MW of CP supply to bottom of supply curve in MAAC (616.2 MW in rest of MAAC, 1,994.9 MW in rest of EMAAC, 493.5 MW in rest of PS, 534.6 MW in PS-North, 260.3 MW in DPL-South, 634.9 MW in PEPCO, 687.9 MW in BGE, 777.8 MW in PL)	RCP	$33.50	$36.08	$36.08	$36.08	$36.08	$36.08	$36.08	$36.08	$33.50	$33.50	$33.50	$69.95	$36.08	$33.50	$33.50
		Cleared CP Generation MW	131,561.9	58,848.3	28,947.2	8,153.6	5,038.0	2,697.3	1,417.6	3,711.3	8,264.1	1,694.2	23,113.4	1,992.1	8,738.1	960.0	1,629.7
		Cleared CP DR MW	7,634.1	2,111.4	782.8	319.0	219.5	106.2	27.1	150.6	851.5	162.8	1,105.5	168.4	515.0	209.3	175.4
		Cleared CP EE MW	5,221.1	2,153.5	1,158.0	527.6	378.6	175.3	51.2	272.1	415.8	42.9	815.6	255.5	279.1	92.3	153.5
		Total Cleared CP MW	144,417.1	63,113.2	30,888.0	9,000.2	5,636.1	2,978.8	1,495.9	4,134.0	9,531.4	1,899.9	25,034.5	2,416.0	9,532.2	1,261.6	1,958.6
		Cleared Matched Seasonal CP MW	474.1	29.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	293.3	0.0	0.0	0.0	0.0
		Total Cleared MW	144,891.2	63,142.5	30,888.0	9,000.2	5,636.1	2,978.8	1,495.9	4,134.0	9,531.4	1,899.9	25,327.8	2,416.0	9,532.2	1,261.6	1,958.6

Notes:

(1) Incremental supply additions and removals have been allocated to LDAs based on LDA pro-rata share of the peak-load of the region to which supply is being added or removed.

(2) The Rest of RTO area includes the AEP, APS, DUQ, DOM and EKPC zones; and the Rest of ATSI area includes the ATSI zone outside of the ATSI-Cleveland LDA.

(3) The Rest of MAAC area includes the Penelec and MetEd zones; the Rest of EMAAC area includes the AECO, JCPL, PECO zones and the DPL zone outside of the DPL-South LDA; and the Rest of PS area includes the PS zone outside of the PS-North LDA.

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused the foregoing document to be served upon each person designated on the official service list compiled by the Secretary in this proceeding, in accordance with Rule 2010 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.2010 (2022).

Dated at Portland, Maine, this 20th day of January, 2023.

Nicholas Gladd