

market power to avoid parameter mitigation and to implement tariff provisions that define the consequences for resources that cannot perform to their defined parameter limits.

No commenter in this proceeding has questioned the conclusion that generators with market power in PJM can construct their offers to ensure that parameter mitigation will not apply to their resources. PJM must adhere to its tariff criteria for selecting offers (e.g. lowest system production cost in day ahead, and lowest dispatch cost in real-time). Even if generators submit cost-based offers and parameter limited offers, PJM cannot use such offers if they are found to have a higher cost based on these criteria. PJM cannot apply market power mitigation to these resources without violating its tariff, even if the offers have positive markup or inflexible parameters. The existing tariff forces PJM to choose between applying market power mitigation and selecting an offer with lower cost, as defined in the tariff. This alone is evidence and reason to find PJM's current tariff unjust and unreasonable. A robust market power mitigation mechanism always results in competitive outcomes and therefore lowest cost outcomes. In addition, the tariff criteria do not correctly capture the relative costs of different offers, e.g in cases with crossing offer curves. The tariff rules should define the costs of each offer using the entire offer curve and the tariff should require flexible parameters to be used at all times, or at least whenever market power exists or there are extreme conditions.

The October 29th Answer confuses the issue by stating that PJM's requirements "to commit and dispatch resources based on the lowest total system cost are just and reasonable and not unduly discriminatory or preferential." The Commission did not state that such requirement is unjust and unreasonable. The June 17th Order stated (at 16) that PJM's rules appear "to be unjust and unreasonable based on the ability of sellers to avoid being subject to parameter-limited offers when it is appropriate for those sellers to be subject to mitigation." The October 29th Answer avoids answering the central question raised by the Commission.

I. ANSWER

A. Inflexible Combined Cycle Parameters

Power Providers and Vistra assert that generators construct offers to avoid parameter mitigation so that they can avoid possible wear and tear on generation equipment that may be caused by increased cycling (coming online and offline). The data do not support the assertion that combined cycle generators in general offer inflexibly or therefore that the cost structure of combined cycle units dictate that they must offer inflexibly. The data show that generators are capable of offering combined cycle plants competitively and flexibly and many generators do offer combined cycle plants competitively and flexibly.

Combined cycle plants have comparable operations and costs and significantly affect market outcomes in the PJM energy and capacity markets. About half of combined cycle plants in PJM offer with much longer minimum run times and minimum down times on their price-based offers than on the parameter limited offers. The average minimum run time plus minimum down time, which includes the hot start time, for a combined cycle price based offer is 16 hours, while the average parameter limited value is 8 hours.

Table 1 shows the length of operating cycles, minimum run time plus minimum down time, in price-based offers for PJM combined cycle plants on the winter peak and summer peak days of 2021. February 15, 2021, was a cold weather alert day for the western portion of the PJM region, and August 24, 2021, was a hot weather alert day for the entire PJM region. If PJM had needed the combined cycles to go offline after the morning peak and come back online for the afternoon peak, only 49.8 percent of combined cycles would have done so based on price-based offers on February 15, and only 58.0 percent would have done so on August 24.

Table 1 Cycle length for combined cycles on winter and summer peak days: price based offers

Cycle Length (Hours)	February 15, 2021		August 24, 2021		Available for Two Peaks
	Unit Hours	Percent	Unit Hours	Percent	
10 or less	632	31.9%	1,089	38.7%	yes
10 to 12	344	17.3%	544	19.3%	no
12 to 18	744	37.5%	776	27.5%	no
18 to 100	264	13.3%	408	14.5%	no

Based on parameter limited schedules, all combined cycle plants were capable of flexible operation on both days, despite their price-based offers, as shown in Table 2. Parameter limited schedules are defined by PJM based on OEM (original equipment manufacturer) documentation and actual operational data.

Table 2 Cycle length for combined cycles on winter and summer peak days: parameter limited

Cycle Length (Hours)	February 15, 2021		August 24, 2021		Available for Two Peaks
	Unit Hours	Percent	Unit Hours	Percent	
10 or less	1,984	100.0%	2,817	100.0%	yes
10 to 12	-	0.0%	-	0.0%	no
12 to 18	-	0.0%	-	0.0%	no
18 to 100	-	0.0%	-	0.0%	no

Combined cycle plants are highly flexible and adaptable. This flexibility is will continue to be essential for the effective and competitive operation of wholesale power markets, e.g. as more renewable resources enter. Inflexible parameters artificially limit the flexibility of combined cycle plants. Market signals, based on competitive offers, should determine how these resources operate, not the noncompetitive offers of resources with market power. The true flexibility of the plants and the associated costs should be provided to the market and the market should decide the optimal outcome. The choice should not be made by generation owners with market power or based on a tariff that creates an artificial tradeoff between market power and least cost.

To accept the argument that combined cycles and combustion turbines must operate inflexibly to avoid wear and tear, or to avoid maintenance expenses, is to accept anticompetitive behavior. As part of a competitive market design, it is essential that

competitive generators receive market signals that are designed to provide the opportunity to be compensated for all costs, including maintenance costs and the return on and of capital. The PJM energy and capacity markets are designed to meet that objective through cost-based offers. The Market Monitor agrees with Vistra's point (at 16) that maintenance costs are not accurately covered in the energy market under the current rules that use historic costs. Forward looking maintenance costs should be included, as they were until recently, in cost-based offers in the capacity market.

Competitive resources make investments to improve their technology to meet system needs and associated market signals and to stay in operation. Generation owners unwilling to incur the costs associated with flexible operation should be required to compete with flexible resources on a level playing field, which requires effective market power mitigation. Contrary to the October 29th Answer's assertion (at 8), generation owners with market power do not have an incentive to submit the most competitive offer. That is the meaning of market power. The only way to correct the market incentives for generators with market power and achieve competitive market outcomes is to ensure that market power cannot be exercised. That is the reason for market power mitigation rules.⁴ The October 29th Answer's assertion (at 4) that this docket is not relevant for consideration of flexibility is incorrect. PJM's proposed approach ignores the fact that a core issue of this docket is about incentives for flexibility and inflexibility.

B. Evidence of Exercise of Market Power

The June 17th Order defines (at P 16) the problem: "PJM's Tariff is not adequately mitigating against the potential exercise of market power." This is occurring because "sellers may be able to structure their market-based parameter-limited offer strategically to ensure

⁴ See *Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities*, Order No. 697, FERC Stats. & Regs. ¶ 31,252 at P 4 (2007) ("These [RTO market power mitigation] rules are designed to help ensure that market power cannot be exercised in those organized markets and include additional protections (e.g., mitigation measures) where appropriate to ensure that prices in those markets are just and reasonable.").

that PJM chooses the market-based offer, which is not subject to parameter limits.” This is the basis for finding PJM’s tariff unjust and unreasonable, and these facts are undeniable based on the undisputed evidence. PJM, Power Providers and Vistra repeatedly assert that the Commission and the Market Monitor provide no evidence of the exercise of market power. They ignore the point. The Market Monitor has provided ample evidence of the exercise of market power. The fact that it is market power exercised within the rules is the point. That does not constitute a rebuttal. Finding PJM’s tariff unjust and unreasonable does not require litigating market manipulation cases to prove anticompetitive behavior. The June 17th Order cites evidence of ineffective market power mitigation. In electric power markets, the market design elements that define and address market power mitigation must prevent the exercise of market power

The Commission has a record sufficient to find the PJM tariff unjust and unreasonable. The Market Monitor has demonstrated that PJM’s tariff allows the exercise of market power and the Commission has recognized that fact.

Market power mitigation, based on the current market rules for operating parameters, fails to prevent the exercise of market power because it is not applied to parameters when resources have structural market power. In the PJM energy market, the TPS test results provide evidence of structural market power in the local markets created by transmission constraints. In the aggregate PJM energy market, the days with hot weather and cold weather alerts have high load, and the aggregate demand in PJM reaches levels where the residual supply available is reduced and structural market power may exist.

The Market Monitor has provided evidence of the use of unmitigated offers (operating parameters, or offer prices, or both) by the entities that failed the market power test.⁵ The evidence demonstrates that the tariff does not prevent the exercise of market power.

⁵ See Monitoring Analytics, LLC, *2021 Quarterly State of the Market Report for PJM: January through September*, Vol. 2 (November 11, 2021) Section 3, at Table 3-14 and Table 3-15.

Market harm occurs when the use of unmitigated offers results in an inefficient and noncompetitive outcome. The inefficient outcomes can have multiple forms including higher levels of uplift than the competitive outcome, or prices (LMPs) greater than the competitive outcome, or the system production cost greater than the competitive outcome.

The Market Monitor also showed in the October 15th Response (at 10–11), using PJM’s two unit example, that PJM’s market power mitigation under the current design results in a higher system production cost than that would have occurred under a design where market power is appropriately mitigated. PJM’s and Vistra’s claims of lack of evidence are plainly incorrect.

C. The Speculative Assertions of Cost Increases Indicate that Market Power Mitigation is Not Working.

The assertion that appropriately implementing market power mitigation will result in higher offers, for example through higher markups, and increased cost to load implies broader issues with the definition of cost-based offers and the implementation of market power mitigation. If implementing market power mitigation for operating parameters would simply shift the exercise of market power directly to the offer price, as PJM asserts, it means there is market power, a corresponding lack of competitive forces in the energy market, and a lack of effective market power mitigation rules to protect against the exercise of market power. PJM’s assertion is tantamount to stating that it is impossible to mitigate market power. For a resource found to have market power, a just and reasonable tariff would allow PJM to mitigate the offers greater than the competitive level and to mitigate inflexible parameters.

Cost-based offers may include maintenance costs, based on rules proposed by PJM and approved by the Commission.⁶ As a result, all wear and tear described by Power Providers and Vistra is currently allowable in energy market cost-based offers. Such

⁶ See *PJM Interconnection, L.L.C.*, 168 FERC ¶ 61,134 (2019).

maintenance costs were previously and should again be included in capacity market offers and not energy market offers.

D. Generators Should Be Allowed to Reflect Their Actual Operational Capabilities but Face Consequences for Not Meeting the Approved Operating Parameter Limits.

PJM argues (at 10) that Market Sellers already face consequences when improperly submitting temporary exception requests under the existing rules. PJM argues that under the current rules, PJM can dispatch such resources based on the less flexible parameters but the resources will forgo any uplift payments. PJM also argues (at 11) that the threat of a referral is deterrent enough to ensure that generators always meet their approved operating parameter limits.

PJM's uplift argument is incorrect. When the use of inflexible parameters results in withholding, and the unit does not run, there is no possibility of an uplift payment, so there is no consequence. When the use of inflexible parameters results in a cost-based offer that is more expensive than the price-based offer, PJM will select the price-based offer and, according to PJM's interpretation, the resource remains eligible to receive uplift payments. For example, today, many resources are selected on their price-based offers with an inflexible turn down ratio of 1.0 (i.e. block loaded or fixed gen), despite the fact that the units are capable of operating with a dispatchable range, as reflected in their cost-based parameters. In these cases, PJM still pays uplift, despite PJM's assertion.

PJM's referral argument is incorrect, ineffective, and inefficient. The Market Monitor has provided a rule based approach to incent proper behavior. A good market design should reward competitive behavior and provide penalties for noncompetitive behavior. Simply threatening or sending referrals to the Office of Enforcement is ineffectual by design. The Office of Enforcement cannot act on referrals in the absence of clear rules. Even if an enforcement action were taken after an investigation, the enforcement action approach is inefficient compared to the rule based approach to market power mitigation. An enforcement

approach cannot undo the harm to the market that results from the exercise of market power, including noncompetitively high prices.

PJM fails to meet its own objectives. PJM's dispatch and commitment can only be as accurate as the inputs used by the tools and by PJM's dispatchers. If a market seller makes decisions that mean it cannot meet its approved operating parameter limits, the current rules provide two unacceptable alternatives. Either the market seller submits an incorrect operating parameter limit exception that will be denied by PJM or submits an operating parameter limit that cannot be met. Market sellers should be given the opportunity to reflect their actual operational capabilities but also face consequences for not meeting the parameters they are required to meet as capacity resources. The Market Monitor's recommendation that resources not be paid the daily capacity payment when unable to operate to the unit specific parameter limits is an appropriate incentive.

II. MOTION FOR LEAVE TO ANSWER

The Commission's Rules of Practice and Procedure, 18 CFR § 385.213(a)(2), do not permit answers to answers or protests unless otherwise ordered by the decisional authority. The Commission has made exceptions, however, where an answer clarifies the issues or assists in creating a complete record.⁷ In this answer, the Market Monitor provides the Commission with information useful to the Commission's decision making process and which provides a more complete record. Accordingly, the Market Monitor respectfully requests that this answer be permitted.

⁷ See, e.g., *PJM Interconnection, L.L.C.*, 119 FERC ¶61,318 at P 36 (2007) (accepted answer to answer that "provided information that assisted ... decision-making process"); *California Independent System Operator Corporation*, 110 FERC ¶ 61,007 (2005) (answer to answer permitted to assist Commission in decision-making process); *New Power Company v. PJM Interconnection, L.L.C.*, 98 FERC ¶ 61,208 (2002) (answer accepted to provide new factual and legal material to assist the Commission in decision-making process); *N.Y. Independent System Operator, Inc.*, 121 FERC ¶61,112 at P 4 (2007) (answer to protest accepted because it provided information that assisted the Commission in its decision-making process).

III. CONCLUSION

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

Respectfully submitted,



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Dated: November 16, 2021

CERTIFICATE OF SERVICE

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

Dated at Eagleville, Pennsylvania,
this 16th day of November, 2021.



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