

As a result of the proposed transaction (“Transaction”), funds controlled by ECP and Javelin Global Commodities US Holdings Inc. (“Javelin”) will indirectly acquire 100 percent of the voting equity interests in Gavin Power, LLC (“Gavin”), and funds controlled by ECP will indirectly acquire 100 percent of the voting equity interests in the remaining Lightstone Public Utilities, consisting of Darby Power, LLC, Lawrenceburg Power, LLC, and Waterford Power, LLC.

The protests raise several issues on which the Applicants have not provided sufficient transparency to ensure that the Transaction is in the public interest. Applicants should disclose in this proceeding any plans to retire any of the Lightstone plants so that the Market Monitor can evaluate the market power implications of any proposed deactivations. The Market Monitor does not agree that the acquisition should be conditioned on a commitment to retire the Gavin coal plant. Such a condition would raise market power concerns and reliability concerns given that the capacity market is currently extremely tight. Applicants should disclose in this proceeding any plans to co-locate load at any of the ECP or Lightstone resources. Applicants should provide complete information about the ownership share of ITOCHU in Javelin. Applicants should provide information regarding Javelin’s activity and market share of coal sales in the PJM region and in the U.S. market, and plans for coal supply activity. Applicants should provide clarification about Gavin’s proposed coal supply arrangements.

In order to assist the decision making process, the Market Monitor provides the attached Market Power Analysis. The Market Monitor does not oppose the proposed Transaction, provided that any order approving the Transaction requires four specific behavioral commitments by ECP, none of which creates a burden on applicants because all are designed to ensure competitive behavior. These behavioral commitments are defined and explained in the Market Power Analysis. The fourth behavioral commitment would specifically prohibit the creation of behind the meter co-located load at power plants until FERC policy on co-location is clearly established.

I. ANSWER

A. Javelin

Joint Protest states that the Application is deficient in reporting upstream ownership of Javelin Global Commodities (“Javelin”) and describing the role of Javelin in the operation of one of the applicant’s generating units. Javelin’s subsidiary will hold approximately 40 percent of the equity interest in Gavin Power, LLC (“Gavin”) after the proposed transaction. The remaining 60 percent of the equity interest will be held by a subsidiary of ECP, ECP ControlCo, LLC (“ECP”). Gavin owns a two-unit, coal-fired generating station located in Cheshire, Ohio, with a summer net capacity rating of 2,722 MW.

1. The Reporting of Ownership Needs Clarification.

The Application does not mention ITOCHU Corporation’s (“ITOCHU”) recent equity investment in Javelin.³ The amount of ITOCHU’s equity investment in Javelin has not been disclosed in the filing. The Market Monitor requests confirmation from the applicants that the transaction does not involve a transfer of controlling interest greater than 10 percent, appointment of a board member or any contractual arrangement that would enable ITOCHU to influence the daily operation of Javelin’s business. ITOCHU holds a majority interest in the Hickory Run Energy 1,034 MW natural gas-fired combined cycle power plant located in PJM in New Castle, Pennsylvania.⁴ As ITOCHU already controls a generator in PJM, ITOCHU’s controlling interest in Javelin is relevant information to this transaction.

³ Archie Hunter, *Japan’s Itochu Buys Stake in Trader Javelin Global Commodities*, Bloomberg, August 7, 2024, <<https://www.bloomberg.com/news/articles/2024-08-07/japan-s-itochu-buys-stake-in-trader-javelin-global-commodities>>.

⁴ Application for authorization under Section 203 of the Federal Power Act of Hickory Run Energy, LLC, under EC24-97.

2. The Transaction Raises Vertical Market Power Concerns.

Javelin has been supplying coal to power plants in PJM since 2015. Although Javelin's coal sales in PJM has been minimal in 2024, it has been greater in recent years.⁵ The Joint Protest also suggests (at 2-3) that the Application fails to report the necessary information that Javelin is one of the largest U.S. coal suppliers, accounting for about 20 percent of total coal exports from the biggest United States hubs in 2022. The Applicants claim (at 24) that Javelin constitutes only a *de minimis* supply of inputs to electric power production in the PJM region based on data for 2024. However, the United States export market for coal affects the price of coal to PJM generators. The Applicants do not indicate whether this level of activity in PJM is expected to continue.

Javelin's activity in the coal market raises potential vertical market power concerns. More information would allow the Commission to understand whether these issues exist and if so how to mitigate them. If Javelin has existing supply arrangements with any PJM generators or if Javelin has market power such that it can affect coal prices in the PJM region, it could use its position to raise input prices to its competitors in the PJM energy market. If Javelin serves as a coal supplier to Gavin, it would be in a position to set the price of coal for Gavin at a level that would allow it to exercise market power in the energy market. When Gavin has market power in the energy market, it is subject to market power mitigation, which caps its offers at a cost-based offer based on its fuel costs. The internal fuel cost transaction between Gavin and Javelin could be used to inflate the cost-based offer and thereby exercise market power in the energy market.

Applicants should provide information regarding Javelin's activity and market share in coal sales in the PJM region, plans for coal supply in PJM region, and the plans for future Gavin coal supply so that if there are issues, they can be identified and addressed.

⁵ Form EIA-923 detailed data with previous form data (EIA-906/920) - U.S. Energy Information Administration (EIA), (Oct. 20, 2024) <<https://www.eia.gov/electricity/data/eia923/>>.

B. Retirement of Gavin Should Not Be a Condition for Approval of the Transaction.

Joint Protestors' (at 4) position is that Gavin should be retired as a condition of the acquisition. The Market Monitor disagrees. The transaction should not include a commitment to retire Gavin. As demonstrated by the Brandon Shores bilateral agreement with the Sierra Club, such private bilateral retirement arrangements can have significant unintended consequences. The PJM tariff provides a process for PJM to evaluate all proposed deactivations for reliability issues and for the Market Monitor to evaluate all proposed deactivations for market power issues. Any planned retirement should use the processes defined in the PJM tariff.⁶

PJM requests additional time to permit the Market Monitor to perform a market power analysis of the retirement of the Gavin plant. Applicants should be required to disclose any retirement plans for Gavin so that the Market Monitor can determine whether the retirement analysis is necessary and how long it would take.

C. The Transaction Should Be Conditioned on an Agreement Not to Pursue Co-location Arrangements Until FERC Policy Is Clarified.

Joint Protestors cite an article about ECP's partnership with KKR on a \$50 billion investment in Artificial Intelligence ("AI") infrastructure.⁷ KKR's website also includes an announcement about the partnership.⁸ None of the public information specifies a plant, data center, location, or preferred regulatory structure for the partnership. Joint Protestors argue that Applicants need to report any relationship between the proposed transaction and the

⁶ See OATT Part V and Attachment M–Appendix § IV

⁷ Bloomberg, "KKR, Energy Capital Partners Form \$50 Billion AI Infrastructure Partnership," (October 30, 2024), <<https://www.bloomberg.com/news/articles/2024-10-30/kkr-and-energy-capital-partners-form-50-billion-ai-partnership?leadSource=uverify%20wall>>.

⁸ KKR Press Release, "KKR and Energy Capital Partners Announce \$50 Billion Strategic Partnership to Support AI Growth Through Investments in Data Centers and Power Generation," (October 30, 2024), <https://media.kkr.com/news-details?news_id=8f924dd6-41ea-480d-9a96-d854c7232bbc>.

\$50 billion infrastructure deal, and also report whether ECP plans to reduce any capability of the plants by co-locating behind the meter data centers.

Applicants should disclose in this proceeding any plans to co-locate load at any of the ECP or Lightstone resources. Bilateral co-location contracts have the same effect as a retirement on PJM markets, in addition to exacerbating effects associated with back up arrangements and the shifting of the costs of transmission and ancillary services. Any approval of the Transaction should be conditioned on an agreement not to pursue any co-location arrangements until FERC policy on co-location is clearly established.

D. The Market Power Analysis Shows That Adding the Lightstone Plants Increases ECP's Market Power.

The Market Monitor includes its market power analysis as an attachment to these comments. The Market Power Analysis provides an assessment of the impact of the proposed Transaction on the structure of the PJM energy and capacity markets and its implications for market power in both markets, using recent constraint defined markets. FERC's merger policy applies to acquisitions like this one. In conducting this analysis the Market Monitor used market data including market shares and the results from the PJM test for structural market power, the three pivotal supplier test (TPS). The Market Monitor used market data to define the relevant markets and to examine the effects of the proposed acquisitions on those markets using concentration ratios and pivotal supplier indices. The Commission has accepted and considered similar analyses when evaluating proposed mergers and acquisitions in PJM.⁹ The proposed Transaction increases structural market power in the

⁹ See, e.g., *PSEG New Haven LLC, et al.*, 178 FERC ¶ 61,091 (2022); *PPL Corporation, RJS Power Holdings LLC*, 149 FERC ¶ 61,260 (2014); *NRG Energy Holdings, Inc., Edison Mission Energy*, 146 FERC ¶ 61,196 (2014); *Exelon Corporation, Constellation Energy Group, Inc.*, 138 FERC ¶ 61,167 (2012); see also *Analysis of Horizontal Market Power under the Federal Power Act*, 138 FERC ¶ 61,109 (2012) ("We reiterate, however, that the Commission may consider arguments that a proposed transaction raises competitive concerns that have not been captured by the Competitive Analysis Screen. Likewise, while applicants must continue to provide a Competitive Analysis Screen, we will also consider any alternative methods or factors, if adequately supported.").

aggregate energy market and in local markets defined by transmission constraints. ECP currently has market power in the PJM energy and capacity markets, and adding the Lightstone plants to its fleet will increase its market power. The Market Monitor recommends behavioral remedies to address flaws in PJM's energy market power mitigation rules to ensure that ECP cannot exercise market power as a result of the Lightstone acquisition. Absent a reorganization of the entire market, structural remedies for individual transactions will not be as effective as behavioral remedies because the structural remedies are generally based on an unrealistic, static view of what is in fact a dynamic and changing market structure.

The Market Monitor does not oppose approval of the proposed transaction, provided that the requested information is provided with time to review and that any order approving the transaction requires four specific behavioral commitments by ECP to prevent the exercise of market power in the energy and capacity markets. The Market Monitor supports a timely response by Applicants to the clarification questions, timely responses by interveners, and a timely resolution of the Applicants' request. If the additional information provided by Applicants indicates the need for additional behavioral remedies, the Market Monitor will file such recommendation and supporting explanation in a timely manner.

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.¹⁰ In this answer, the Market Monitor provides the

¹⁰ 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-

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.

III. CONCLUSION

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

Respectfully submitted,



Jeffrey W. Mayes

Joseph E. Bowring
Independent Market Monitor for PJM
President
Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Eagleville, Pennsylvania 19403
(610) 271-8051
joseph.bowring@monitoringanalytics.com

General Counsel
Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Eagleville, Pennsylvania 19403
(610) 271-8053
jeffrey.mayes@monitoringanalytics.com

Catherine A. Tyler
Deputy Market Monitor
Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Eagleville, Pennsylvania 19403
(610) 271-8050
catherine.tyler@monitoringanalytics.com

Alexandra Salaneck
Senior Analyst
Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Eagleville, Pennsylvania 19403
(610) 271-8050
alexandra.salaneck@monitoringanalytics.com

Philip Barnet
Analyst

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).

Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Eagleville, Pennsylvania 19403
(610) 271-8050
Philip.Barnet@monitoringanalytics.com

Dated: December 11, 2024



Monitoring
Analytics

Public

Market Power Analysis: ECP Acquisition of Lightstone

The Independent Market Monitor for PJM
December 11, 2024

Public

This page intentionally left blank.

Table of Contents

Introduction.....	1
Sufficiency of PJM Market Power Mitigation.....	1
Summary	2
Behavioral Recommendations.....	4
No Crossing Curves (No Mark Up Switching)	4
Physical Operating Parameters	5
Market Seller Offer Cap.....	6
Co-located Load.....	6
Methods of Analysis	6
Merger Standards.....	8
Three Pivotal Supplier Test.....	10
TPS Test: Defining the Relevant Market	12
Constraints: Defining the Relevant Market	14
Energy Market Results.....	14
Aggregate Market Power	14
Local Market Power	16
Capacity Market Results.....	16
Market Design.....	16
Market Analysis.....	18
Aggregate Market: HHI.....	19
Locational Markets: TPS.....	20

Introduction

This report was prepared by PJM's Independent Market Monitor (IMM). The report provides an assessment of the impact of Energy Capital Partners' ("ECP") proposed purchase of ArcLight Capital and Blackstone Inc.'s Lightstone Generation power plants on the structure of the PJM energy and capacity markets and its implications for local and aggregate market power in both markets. FERC's approach to merger policy also applies to acquisitions like this one. In conducting this analysis the IMM used market data including market shares and the results from the PJM test for structural market power, the three pivotal supplier test (TPS). The IMM used market data to define the relevant markets and to examine the effects of the proposed acquisitions on those markets.

Lightstone Generation includes the Darby combustion turbine gas units, the Gavin power plant, the Lawrenceberg combined cycle gas plant, and the Waterford combined cycle gas plant. ECP's existing assets in PJM consist of the Calpine generating fleet. The ECP Lightstone acquisition increases structural market power in the aggregate energy market, as measured by pivotal supplier scores, but not as measured by HHI. The ECP Lightstone acquisition does not increase structural market power in the capacity market, as measured by the HHI. ECP's structural market power in the capacity market increases as measured by the pivotal supplier score. ECP currently has market power in the PJM energy and capacity markets, and adding the Lightstone plants increases that market power. The IMM recommends behavioral remedies to address flaws in PJM's energy local market power mitigation rules to ensure that ECP cannot exercise market power as a result of the Lightstone acquisition. The IMM's behavioral remedies also protect against potential exercises of market power in the capacity market and in the aggregate energy market.

Sufficiency of PJM Market Power Mitigation

In Section 203 applications and market based rate applications, the Commission relies on the sufficiency of the market monitoring and market power mitigation provisions in the RTO's tariff to mitigate local market power within the RTO region.¹ If the market monitoring and market power mitigation provisions in the RTO's tariff are insufficient, detailed analysis of submarkets created by constraints within the RTO is necessary and any market power created or enhanced by the merger or acquisition requires explicit mitigation to ensure market power is not exercised.²

¹ 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 241 (2007), *order on reh'g*, Order No. 697-A, 123 FERC ¶ 61,055 (2008).

² Order No. 697- A at P 111.

As the PJM markets have evolved, the IMM has identified significant flaws in the market power mitigation provisions of the PJM tariff. Some flaws permit market participants to evade the explicit intent of the PJM market power mitigation rules. Other flaws are gaps in the PJM market power mitigation rules. The overstated Market Seller Offer Cap (MSOC) in the capacity market permitted market power to be exercised.³ The Commission issued an order in Docket EL19-47 to remedy the market power mitigation issues in the capacity market.⁴ The capacity market MSOC has been corrected, so that ECP can appropriately rely on market power mitigation in the capacity market as long as the Commission's decision on MSOC, or its equivalent, remains in force. PJM has indicated that it will file to weaken the market power mitigation rules consistent with the PJM filing in *PJM Interconnection, L.L.C.*, Docket No. ER24-98. As a result, the IMM's recommended behavioral commitments includes a commitment to competitive offers in the capacity market.

On October 25, 2024, the Commission ordered changes to PJM's market power mitigation process in the energy market that would remedy the flaws identified by the IMM, but PJM has failed to set an implementation date and has no specific deadline for doing so. The IMM recommends immediate implementation of the new rules. The IMM's recommended behavioral remedies for local market power in the energy market in this report resolve the same issue as the rules approved by FERC without an implementation date. But even correction of the flaws in the application of local market power mitigation rules would not address aggregate market power in the energy market, which occurs when a limited number of suppliers are pivotal for meeting daily demand, and the incentives to exercise market power. PJM has no market power mitigation in place for aggregate market power in the energy market.

Summary

The IMM analyzed the effect of the ECP purchase of the Lightstone resources on market power in the PJM aggregate energy market and local energy markets using data from October 2023 through September 2024. The IMM analyzed the effects of the ECP purchase of the Lightstone resources on market power in the PJM Capacity Market using auction data for the 2024/2025 and 2025/2026 Base Residual Auctions. The transaction increases ECP's structural market power in all these markets. The IMM does not oppose the

³ See "Analysis of the 2022/2023 RPM Base Residual Auction," <http://www.monitoringanalytics.com/reports/Reports/2022/IMM_Analysis_of_the_20222023_RPM_BRA_20220222.pdf> (February 22, 2022). "Analysis of the 2022/2023 RPM Base Residual Auction - Revised," <http://www.monitoringanalytics.com/reports/Reports/2023/IMM_Analysis_of_the_20222023_RPM_BRA_Revised_20230113.pdf> (January 13, 2023).

⁴ See *Independent Market Monitor for PJM v. PJM*, 176 FERC ¶61,137 (2021), *reh'g denied*, 177 FERC ¶ 62,066 (2021), *further order on reh'g*, 178 FERC ¶61,121 (2022), *aff'd*, *Vistra Corp. et al. v. FERC*, Case No. 21-1214 et al. (D.C. Cir August 15, 2023), *cert. pending*.

transaction, subject to a requirement for defined behavioral commitments by ECP, all designed to help ensure competitive behavior.

Aggregate Energy Market

- {BEGIN CUI//PRIV}
- REDACTED
- {END CUI//PRIV}
- There are no rules in the PJM tariff to address aggregate market power in the energy market.

Local Energy Markets

- {BEGIN CUI//PRIV}
- REDACTED
- {END CUI//PRIV}
- There are identified issues with PJM's market power mitigation rules for local market power that allow suppliers to exercise market power. The IMM's behavioral recommendations address these issues.

Capacity Market

- {BEGIN CUI//PRIV}
- REDACTED
- {END CUI//PRIV}
- The current PJM market power mitigation rules for the capacity market are sufficient to prevent the exercise of market power within the capacity market auctions but PJM is proposing to weaken those rules. The IMM's behavioral recommendation addresses the issue of competitive offers in the capacity market.

Behavioral Recommendations

The IMM recommends that ECP commit to behavioral restrictions to prevent the exercise of market power.

1. A commitment to no crossing price and cost-based energy market offer curves (markup switching) will ensure that a price-based offer curve with a high markup will not be chosen by PJM's least cost offer determination when a resource has local market power as determined by the TPS test.
2. A commitment to submit only operating parameters based on physical limits, as defined in the PJM tariff, in the energy market will ensure that ECP cannot use market power to operate inflexibly during weather alerts, emergencies, and periods when its units fail the TPS test.
3. A commitment to capacity market offers that do not exceed the net avoidable cost rate, which is the current Market Seller Offer Cap, will help ensure that capacity market offers are competitive, even if the PJM market rules change.
4. A commitment not to remove energy or capacity from the PJM market to serve co-located load.

Behavioral Recommendations

Based on the results of the market power analysis and the insufficiency of PJM market power mitigation, the IMM recommends that behavioral restrictions apply to ECP's energy and capacity market offers to help ensure that market power mitigation is effective in preventing the exercise of market power.⁵ None of the commitments creates a burden on applicants because all are designed to ensure competitive behavior.

No Crossing Curves (No Mark Up Switching)

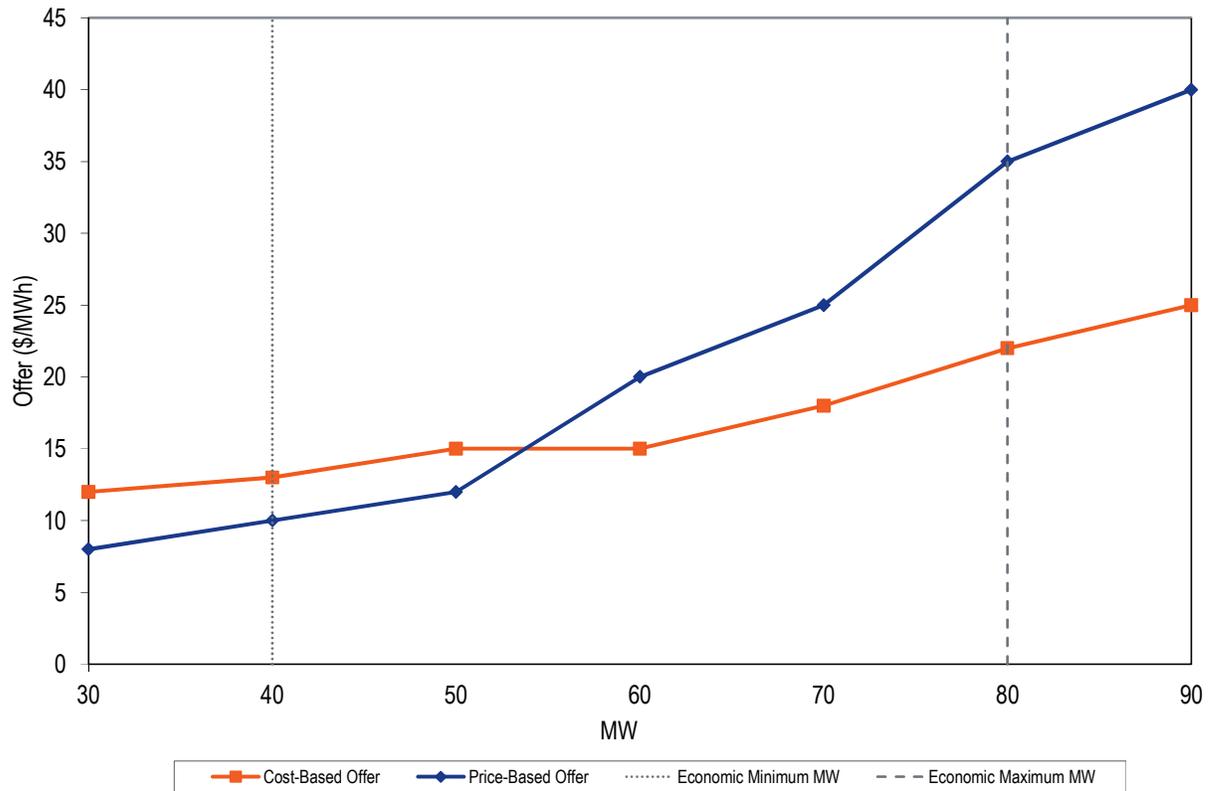
For energy market offers, ECP should be prohibited from submitting price-based offers that intersect (or cross) the cost-based offer for the resource.

Given the ability to submit offer curves with different markups at different output levels in the price-based offer, suppliers with market power can evade mitigation by using a low markup at low output levels and a high markup at higher output levels. Even when resources fail the TPS test, PJM frequently selects the price-based offer with the high markup based on its negative markup at low output levels. This occurs because PJM chooses between the price-based offer and the cost-based offer considering only the offers at the economic minimum output level in the real-time market and only the offers up to the projected dispatch point in the day-ahead market.⁶ Figure 1 shows an example of offers from a unit that has a negative markup at the economic minimum MW level and a positive markup at the economic maximum MW level. The result would be that a unit that failed the TPS test would be committed on its price-based offer, even though the price-based offer is higher than the cost-based offer at higher output levels and includes positive markups, inconsistent with the explicit goal of local market power mitigation. Frequently, resources with crossing curves committed on the price-based offer are dispatched into the high markup range of the offer curve, allowing the exercise of market power.

⁵ See *In the Matter of the Merger of Exelon Corporation and Constellation Energy Group, Inc.*, Order No. 84698, Case No. 9271 (February 17, 2012) at 104–105 (“Order No. 84698”). Exelon and Constellation agreed to behavioral commitments regarding energy offer curves and operating parameters to prevent the exercise of market power, along with other behavioral commitments.

⁶ On October 25, 2024, in Docket ER24-2905, the Commission approved a new method for selecting among price and cost schedule that would resolve this issue, but PJM has not set an implementation date. The behavioral commitment is needed until implementation.

Figure 1 Offers with varying markups at different MW output levels



Physical Operating Parameters

For energy market offers, ECP should be required to include operating parameters for its resources that are identical to their parameter limited schedules.

All resources in PJM are required to submit at least one cost-based offer. Cost-based offers, for a defined set of technologies, must include defined unit specific parameters, termed parameter limited schedules.

All resources that choose to make price-based offers are required to make available at least one price-based parameter limited offer with the same parameters as the cost-based offer (referred to as price-based PLS). For resources that are not capacity resources, the price-based parameter limited schedule is used by PJM for committing generation resources when a maximum emergency generation alert is declared. For capacity resources, the price-based parameter limited schedule is used by PJM for committing generation resources when hot weather alerts and cold weather alerts are declared.⁷

⁷ See PJM Operating Agreement, Schedule 1, Section 6.6.

The current implementation is not consistent with the goal of having parameter limited schedules, which is to prevent the use of inflexible operating parameters to exercise market power. Instead of ensuring that parameter limits apply, PJM chooses the lower of the price-based schedule and the price-based parameter limited schedule during hot and cold weather alerts.⁸ Instead of ensuring that parameter limits apply, PJM chooses the lower of the price-based schedule and the cost-based parameter limited schedule when a resource fails the TPS test. This occurs because PJM chooses between the price-based offer and the cost-based offer considering only the offers at the economic minimum output level in the real-time market and only the offers up to the projected dispatch point in the day-ahead market, and does not consider all of the physical operating parameters. The result is that PJM frequently selects price-based offer schedules with inflexible parameters for resources that have market power.

Market Seller Offer Cap

For capacity market offers, ECP should be required to use a market seller offer cap equal to its net Avoidable Cost Rate (ACR).

The net ACR is the marginal cost of capacity and is the competitive offer for a capacity resource. The currently applicable tariff includes this rule as a result of the Commission's ruling on an IMM complaint and the affirming of that order.⁹ The net ACR remains the competitive offer and ECP should be required to offer net ACR as a condition of this acquisition.

Co-located Load

Bilateral co-location contracts have the same effect as a retirement on PJM markets, in addition to exacerbating effects associated with back up arrangements and the shifting of the costs of transmission and ancillary services. Any approval of the Transaction should be conditioned on an agreement not to pursue any co-location arrangements until FERC policy on co-location is clearly established.

Methods of Analysis

In analyzing whether a proposed merger or acquisition is consistent with the public interest, the Commission considers the "effect of the transaction on competition, rates, and regulation of the applicant by the Commission and state commissions with jurisdiction

⁸ On October 25, 2024 in Docket ER24-2905, the Commission approved a new method for selecting among price and cost schedule that would resolve this issue, but PJM has not set an implementation date. The behavioral commitment is needed until implementation.

⁹ See *Independent Market Monitor for PJM v. PJM*, 176 FERC ¶61,137 (2021), *reh'g denied*, 177 FERC ¶ 62,066 (2021), *further order on reh'g*, 178 FERC ¶61,121 (2022), *aff'd*, *Vistra Corp. v. FERC*, Case No. 21-1214 et al. (D.C. Cir. August 15, 2023), *cert. pending*.

over any party to the transaction.”¹⁰ In this report, the IMM focuses on the first factor, the effect on competition, measured by the impact on the structure of relevant markets based on actual market data. The IMM evaluates the impact of the merger or acquisition using pivotal supplier analysis and concentration thresholds.

Any analysis of market structure depends on an accurate definition of the relevant markets. Market definitions depend on properly identifying and evaluating potential substitutes for a given product. Within organized markets data are available, and should be used, to define markets based on how the units are evaluated and dispatched to meet demand, based on network relationships between resources and load, relative costs, availability and operational parameters. Such an approach provides definitions of the relevant markets based on actual operational data related to the participants and the markets in which they operate.

In the IMM analysis, the definition of the relevant local markets for the time period of the analysis is based on the actual substitutability among available, relevant resources which in turn is based on the physical facts of the system and how the PJM markets defined the substitutability among available resources in the relevant markets over the analysis period. Rather than limit the analysis to a predefined range of load and price levels, the IMM has analyzed every actual relevant market defined by a constraint in the real-time look ahead tool used by PJM to identify structural market power, known as Intermediate Term Security Constrained Economic Dispatch (IT SCED). The relevant PJM submarkets defined in this analysis are those local energy markets created by transmission constraints within the broader PJM market that occurred for one hundred or more hours in October 2023 through September 2024. The relevant capacity markets in this analysis are those that resulted from the actual operation of the markets for the 2024/2025 and 2025/2026 Delivery Years, the last two Base Residual Auctions run by PJM.

The IMM analysis of the relevant markets reflects the information available based on the actual operation of the PJM wholesale power markets, rather than static market definitions that ignore dynamic changes in constraints. For different resources and different time periods, market conditions would change, and the relevant identified local markets would change. The information used to prepare the analysis included in this report is highly confidential and market sensitive as it relates to specific market participants.¹¹

¹⁰ 18 CFR § 33.2(g) (2022).

¹¹ See OATT Attachment M–Appendix § I.

Merger Standards

For the evaluation of the impact of a merger or acquisition on competition, FERC adopted the 1992 Horizontal Merger Guidelines (“1992 Guidelines”) as the analytical framework as described in the Competitive Analysis Screen relied on by the Commission.¹²

The Commission reserves the opportunity to consider alternative approaches for analyzing the impact of proposed mergers and acquisitions, including pivotal supplier analyses similar to the analysis included in this report, when evaluating proposed mergers and acquisitions in PJM.¹³

The 1992 Guidelines presented the enforcement policy of the Department of Justice and the Federal Trade Commission concerning horizontal mergers subject to section 7 of the Clayton Act, section 1 of the Sherman Act, and Section 5 of the Federal Trade Commission Act. As noted in the 1992 Guidelines, “[t]he unifying theme of the Guidelines is that mergers should not be permitted to create or enhance market power or facilitate its exercise.”¹⁴

The Commissions’ Competitive Analysis Screen, based on the 1992 Guidelines, uses market concentration, measured by the HHI, as a basic metric of the structural competitiveness of a market. The 1992 Guidelines define three basic levels of market concentration while recognizing that “[o]ther things being equal, cases falling just above and just below a threshold present comparable competitive issues.”¹⁵ A market with an HHI of less than 1000 is considered to be unconcentrated. Mergers and acquisitions resulting in HHI level less than a 1000 are not considered to have adverse competitive effects. A market with an HHI between 1000 and 1800 is considered to be moderately

¹² See Order No. 642 *mimeo* at 4–5; U.S. Dept. of Justice & Federal Trade Commission, “Horizontal Merger Guidelines” (1992), as revised (1997). DOJ and FTC modified their guidelines in 2010, increasing their HHI and market share thresholds and expanding the criteria used to define the relevant market. U.S. Dept. of Justice & Federal Trade Commission, “Horizontal Merger Guidelines” (August 19, 2010). FERC considered whether to revise its policies to follow the DOJ and FTC 2010 modifications, but decided, after notice and inquiry, to retain the 1992 Guidelines. 138 FERC ¶61,109.

¹³ See *Id.* at P 38 (“We reiterate, however, that the Commission may consider arguments that a proposed transaction raises competitive concerns that have not been captured by the Competitive Analysis Screen. Likewise, while applicants must continue to provide a Competitive Analysis Screen, we will also consider any alternative methods or factors, if adequately supported.”); *Exelon Corporation, Constellation Energy Group, Inc.*, 138 FERC ¶ 61,167 (2012).

¹⁴ 1992 Guidelines at 2.

¹⁵ 1992 Guidelines at 15.

concentrated. A merger or acquisition resulting in a moderately concentrated market is not considered to have an adverse effect on competition if it increases the market's HHI by less than 100 points. A merger or acquisition resulting in a moderately concentrated market is considered to "potentially raise significant competitive concerns" if it increases the market's HHI by 100 points or more.¹⁶ A market with an HHI of 1800 or above is considered to be highly concentrated. A merger or acquisition resulting in a highly concentrated market is not considered to have an adverse effect on competition if it increases the market's HHI by less than 50 points. A merger or acquisition producing an increase in the market HHI of 50 points or more in a highly concentrated market "potentially raises significant competitive concerns."¹⁷

In a market with an inelastic demand curve, the existence of two, or three, jointly pivotal suppliers, regardless of the amount of excess capacity available, does not provide a market structure that will result in a competitive outcome. An HHI in excess of 2500 does not demonstrate market power if the relevant owners are not jointly pivotal and are unlikely to be able to affect the market price. An HHI less than 2500 does not demonstrate the absence of market power if the relevant owners are jointly pivotal and are likely to be able to affect the market price.¹⁸

Higher concentration ratios indicate that comparatively small numbers of sellers dominate a market while lower concentration ratios mean larger numbers of sellers split market sales more equally. Lower aggregate market concentration ratios establish neither that a market is competitive nor that participants are unable to exercise market power. Higher concentration ratios do, however, indicate an increased potential for participants to exercise market power and an increased incentive to exercise market power. Despite their significant limitations, concentration ratios provide some useful information on market structure.

Notwithstanding the HHI level, a supplier may have the ability to raise market prices. If reliably meeting demand requires a single supplier, that supplier is pivotal and has monopoly power. If a small number of suppliers are jointly required to meet demand, those suppliers are jointly pivotal and have oligopoly power. The number of pivotal suppliers in the market is a more precise measure of structural market power than the HHI. The HHI is not a definitive measure of structural market power.

¹⁶ *Id.* at 16.

¹⁷ *Id.*

¹⁸ For detailed examples, see Joseph E. Bowring, PJM Market Monitor. "MMU Analysis of Combined Regulation Market," PJM Market Implementation Committee Meeting (December 20, 2006). <<http://www.monitoringanalytics.com/reports/Presentations/2006/20061220-combined-regulation-market-mic.pdf>>.

The residual supply index (RSI) is a measure of the extent to which one or more generation owners are pivotal suppliers in a market. A single generation owner is pivotal if the output of the owner's generation facilities is needed to meet demand. Multiple generation owners are jointly pivotal when the output of the owners' generation facilities, taken together, is needed to meet demand. When a generation owner is pivotal, it has the ability to affect market price. For a given level of market demand, the RSI compares the market supply, net of the supply controlled by one or more generation owners, to the market demand. The RSI value is calculated as a ratio, where total supply minus the supply of the tested suppliers is divided by the market demand. If the RSI is greater than 1.00, the supply of the specific generation owner(s) is not needed to meet market demand and that generation owner(s) has a reduced ability to influence market price. If the RSI is less than 1.00, the supply owned by the specific generation owner(s) is needed to meet market demand and the generation owner(s) is a pivotal supplier with an ability to influence price. When the RSI is reported for a market, the reported RSI is for the largest supplier or identified number of the largest suppliers.

FERC indicates that a single supplier RSI of less than 1.0 is an indicator of market power.¹⁹ In the PJM markets a three pivotal supplier RSI of less than 1.0 defines the existence of local market power. The three pivotal supplier test (TPS) defines market power even in the presence of market share and concentration levels that fall below 1992 Guidelines for a competitive market structure.²⁰ The TPS test uses a broader definition of competitors than FERC's single pivotal supplier approach.

Three Pivotal Supplier Test

In the IMM analysis, the basic metrics used for each market include market share, the Herfindahl-Hirschman Index (HHI), and the three pivotal supplier test (TPS), a residual supplier index used in the PJM markets to define locational market power. Market share measures the proportion of market output contributed by a supplier. Market share is calculated by dividing the output of a supplier by total market output. Concentration ratios are a summary measure of market share. The concentration ratio used here is the Herfindahl-Hirschman Index (HHI), calculated by summing the squares of the market shares of all firms in a market.

The IMM uses the three pivotal supplier test as the key measure of market structure and structural market power. The three pivotal supplier test is used in PJM markets to define the existence of local market power and as a trigger for market power mitigation. A test for local market power based on the number of pivotal suppliers has a solid basis in economics and is clear and unambiguous to apply in practice. There is no perfect test, but the three pivotal supplier test for local market power strikes a reasonable balance between

¹⁹ See *Midwest Independent Transmission System Operator, Inc.*, 121 FERC ¶ 61,190 at P 6 n.5 (2007).

²⁰ See *AEP Power Marketing, Inc., et al.*, 107 FERC ¶ 61,018 at P 111 (2004).

the requirement to limit extreme structural market power and the goal of limiting intervention in markets when competitive forces are adequate.

The three pivotal supplier test, as implemented in PJM markets, is consistent with the Commission's market power tests, encompassed in the Delivered Price Test, which is the central calculation of the Competitive Analysis Screen required by the Commission. The three pivotal supplier test is used in the real-time energy market, the day-ahead energy market, the regulation market, and the capacity market. Like the Delivered Price Test, the three pivotal supplier test considers the interaction between individual participant attributes and features of the relevant market structure. Unlike the Delivered Price Test, the three pivotal supplier test takes into account the incremental ability of resources to affect prices in a constrained area from both the loading and relief sides of the constraint. The three pivotal supplier test is an explicit test for the ability to exercise unilateral market power as well as market power via coordinated action which accounts for market shares and the supply-demand balance in the market.

The results of the three pivotal supplier test can differ from the results of the HHI and market share tests. The three pivotal supplier test can show the existence of structural market power when the HHI is less than 2500. The three pivotal supplier test can also show the absence of market power when the HHI is greater than 2500. The three pivotal supplier test is more accurate than the HHI and market share tests because it focuses on the relationship between demand and the most significant aspect of the ownership structure of supply available to meet it. An HHI in excess of 2500 does not indicate market power if the relevant owners are not jointly pivotal and are unlikely to be able to affect the market price. An HHI less than 2500 does not indicate the absence of market power if the relevant owners are jointly pivotal and are likely to be able to affect the market price.²¹

The three pivotal supplier test was designed in light of actual elasticity conditions in constrained areas in wholesale power markets in PJM. The price elasticity of demand is a critical variable in determining whether a particular market structure is likely to result in a competitive outcome. A market with a specific set of market structure features is likely to have a competitive outcome under one range of demand elasticity conditions and a noncompetitive outcome under another set of elasticity conditions. It is essential that market power tests account for actual elasticity conditions and that evaluation of market power tests neither ignore elasticity nor make counterfactual elasticity assumptions. As the Commission stated, "In markets with very little demand elasticity, a pivotal supplier

²¹ For detailed examples, see Joseph E. Bowring, PJM Market Monitor, "MMU Analysis of Combined Regulation Market," PJM Market Implementation Committee Meeting (December 20, 2006) <<http://www.monitoringanalytics.com/reports/Presentations/2006/20061220-combined-regulation-market-mic.pdf>> .

could extract significant monopoly rents during peak periods because customers have few, if any, alternatives.”²² The Commission also stated:

In both of these models, the lower the demand elasticity, the higher the mark-up over marginal costs. It must be recognized that demand elasticity is extremely small in electricity markets; in other words, because electricity is considered an essential service, the demand for it is not very responsive to price increases. These models illustrate the need for a conservative approach in order to ensure competitive outcomes for customers because many customers lack one of the key protections against market power: demand response.²³

The three pivotal supplier test is a reasonable application of the Delivered Price Test to the case of local markets that are defined by actual conditions in a market based on security-constrained, economic dispatch with locational market pricing and extremely inelastic demand. The three pivotal supplier test explicitly incorporates the relationship between supply and demand in the definition of pivotal, and it provides a clear test for whether excess supply is adequate to result in an adequately competitive market structure.

TPS Test: Defining the Relevant Market

The goal of defining the relevant market is to include those producers that actually compete to determine the market price. Conversely, the goal of defining the relevant market is to exclude those units that are not meaningful competitors and therefore do not have an impact on the clearing price. The existence of market power within that defined market depends on the ability of the producer to raise price while continuing to sell its output. A producer cannot successfully increase the market price above the competitive level if competitors would replace its output when it did so.

The Commission definition of the relevant market includes all suppliers with cost-based offers less than or equal to 1.05 times the clearing price. The Commission definition means that, if the marginal unit sets the clearing price based on an offer of \$200 per MWh, all units with cost-based offers less than, or equal to, \$210 per MWh are defined to have a competitive effect on the offer of the marginal unit. These units are all defined to be meaningful competitors in the sense that it is assumed that their behavior constrains the behavior of the marginal and inframarginal units. The TPS definition of the relevant market includes all suppliers with cost-based offers less than or equal to 1.50 times the clearing price. The three pivotal supplier definition means that, if the marginal unit sets

²² AEP Order at P 72.

²³ *Id.* at P 103.

the clearing price based on an offer of \$200 per MWh, all units with costs less than, or equal to, \$300 per MWh are defined to have a competitive effect on the offer of the marginal unit. These units are all defined to be meaningful competitors in the sense that it is assumed that their behavior constrains the behavior of the marginal and inframarginal units. The three pivotal supplier test incorporates a definition of meaningful competitors that is at the extreme high end of inclusive. It is questionable whether a unit with a competitive offer price of \$300 offer meaningfully constrains the offer of a \$200 unit. This broad market definition is combined with the recognition that multiple owners can be jointly pivotal. The three pivotal supplier test includes three pivotal suppliers while the Commission test includes only one pivotal supplier.

The three pivotal supplier test is designed to test the relevant market. For example, in the case of the market for out of merit generation needed to relieve a constraint in real time, the three pivotal supplier test examines the market specifically available to provide that relief. Under these conditions, the three pivotal supplier test measures the degree to which the supply from three generation suppliers is required in order to meet the demand to relieve a constraint, as defined by PJM's market solution software. The market demand is the amount of incremental, effective MW required to relieve the constraint.²⁴ The market demand is calculated as the difference between the defined MW limit on flow across the constraint and the flow in an economic dispatch solution if the limit did not exist (unconstrained flow). The market supply consists of the incremental, effective MW of supply available to relieve the constraint. This includes resources that can ramp up or start up to provide relief for the constraint as well as resources that can ramp down to provide relief for the constraint. The sign of the distribution factor (dfax) of a resource with respect to the defined constraint indicates whether a resource would relieve the constraint by increasing or decreasing output. A resource with a positive dfax with respect to a constraint provides relief by reducing the output, and a resources with a negative dfax with respect to the same constraint provides relief by increasing its output. For purposes of the test, incremental effective MW are attributed to specific suppliers on the basis of their control of the assets in question. Generation capacity controlled directly or indirectly through affiliates or through contracts with third parties are attributed to a single supplier.

Unlike structural tests that define markets by geographic proximity, the TPS test makes explicit and direct use of the incremental, effective MW of supply available to relieve the

²⁴ A unit's contribution toward effective, incrementally available supply is based on the dfax of the unit relative to the constraint and the unit's incrementally available capacity over current load levels, if the capacity in question is available within the period that the relief will be needed. Effective, incrementally available MW from an unloaded 100 MW 15-minute start combustion turbine (CT) with a dfax of -0.05 to a constraint would be 5 MW relative to the constraint in question. Effective, incrementally available MW from a 200 MW steam unit, with 100 MW loaded, a 50 MW ramp rate and a dfax of -0.5 to the constraint would be 25 MW.

constraint at a distribution factor greater than, or equal to, the dfax used by PJM in operations. Only the supply that is part of the market as defined by the reality of the electric network as measured by unit characteristics and distribution factors is included in the three pivotal supplier test, to the extent that it is incremental, effective MW of supply available at a price less than, or equal to, 1.5 times the clearing price that would result from the intersection of demand (constraint relief required) and the incremental supply available to resolve the constraint.

Constraints: Defining the Relevant Market

In its Order Reaffirming the 1992 Guidelines (at P 43), the Commission stated:

The Commission will remain flexible in its approach and will reevaluate whether a previously recognized submarket continues to exist if the evidence shows that the persistent transmission constraints that led to the recognition of that submarket are no longer present. We clarify that we will not require applicants to submit a DPT for an identified submarket if the applicants do not have overlapping generation within the submarket and lack firm transmission rights to import capacity into that market.

The applicants' Delivered Price Test considers the PJM RTO market and does not contemplate any submarkets other than those recognized in previous 203 and Market Based Rates proceedings. It is not reasonable to ignore real submarkets as they evolve in PJM. In addition, patterns of congestion and constraints will continue to be dynamic in PJM. It is important to analyze existing submarkets but also to address the fact that market power is persistent and may be actionable in submarkets that do not yet exist. The IMM analyzed all potential submarkets. The IMM analysis shows that ECP has local market power in PJM and that local market power will increase with the Lightstone acquisition.

The broader point about congestion is that it is dynamic and unpredictable. Submarkets in one period may not be submarkets in subsequent periods. The analysis of market power and of mergers should reflect these basic facts. Local market power may not exist in one period and may exist in the next. Local market power may exist in one period and not exist in the next. It is essential that merger reviews recognize that increased concentration of ownership creates the potential for market power beyond the specific facts of a specific period. It is essential for that reason to have clear, workable and enforceable rules for market power mitigation that can address the dynamic reality of PJM markets.

Energy Market Results

Aggregate Market Power

The IMM analyzed the impact of the proposed transaction on aggregate energy market concentration using actual generation data for October 2023 through September 2024.

The concentration metrics are the market share for energy and the HHI for energy in the aggregate PJM market. The IMM also uses a pivotal supplier screen for the day-ahead energy market.

{BEGIN CUI//PRIV}

REDACTED

{END CUI//PRIV}

Table 1 Decrease in ArcLight’s average hourly market share of PJM generation

{BEGIN CUI//PRIV}

REDACTED

{END CUI//PRIV}

Table 2 Increase in ECP’s average hourly market share of PJM generation

{BEGIN CUI//PRIV}

REDACTED

{END CUI//PRIV}

Table 3 Decrease in energy market HHI due to the ECP Lightstone transaction

{BEGIN CUI//PRIV}

REDACTED

{END CUI//PRIV}

To assess the number of aggregate pivotal suppliers in the day-ahead energy market, the IMM determines, for each supplier, the MW available for economic commitment that were already running or were available to start between the close of the day-ahead energy market and the peak load hour of the operating day. The available supply is defined as MW offered at a price less than 150 percent of the applicable locational marginal price because supply available at higher prices is not competing to meet the demand for energy. Generating units, import transactions, economic demand response, and virtual supply (“INCs”), are included for each supplier. Demand is the total MW required by PJM to meet physical load, cleared load bids, export transactions, and virtual demand (“DECs”). A supplier is pivotal if PJM would require some portion of the supplier’s available economic capacity in the peak hour of the operating day in order to meet demand. Suppliers are jointly pivotal if PJM would require some portion of the joint suppliers’ available economic capacity in the peak hour of the operating day in order to meet demand.

When ECP is a pivotal supplier in the energy market, it has the ability to raise prices on energy that is marginal in the supply curve to the benefit of the inframarginal energy that it owns. There are no market power mitigation rules to address aggregate market power

in the PJM energy market. Acquiring Lightstone would increase ECP's aggregate market power, increasing its incentive and ability to raise prices.

{BEGIN CUI//PRIV}

REDACTED

{END CUI//PRIV}

Table 4 PJM Day-ahead energy market pivotal supplier frequency: October 2023 through September 2024

{BEGIN CUI//PRIV}

REDACTED

{END CUI//PRIV}

Local Market Power

The IMM also analyzed the energy market results for the relevant submarkets defined by actual binding constraints for October 2023 through September 2024. The analysis identifies constraints for which ECP has market power, as shown by failures of the TPS test.

The TPS test considers incremental, effective MW available to provide relief to binding constraints in the energy market. ECP's fleet frequently has incremental, effective MW available to provide constraint relief in PJM's energy market that is measured by TPS test failures.

Table 5 identifies the constraints on the PJM system that were binding for more than 100 hours during October 2023 through September 2024. It provides the number of hours for which ECP failed the TPS Test and the number of hours for which ECP would have failed the TPS Test with the acquisition.

Table 5 Constraints where ECP had market power as determined by the real-time energy market TPS test: October 2023 through September 2024

{BEGIN CUI//PRIV}

REDACTED

{END CUI//PRIV}

Capacity Market Results

Market Design

The Reliability Pricing Model (RPM) Capacity Market design was implemented in the PJM region on June 1, 2007. The RPM Capacity Market is a forward-looking, annual, locational market, with a must offer requirement for Existing Generation Capacity Resources and mandatory participation by load, with performance incentives, that includes clear market power mitigation rules and that permits the direct participation of demand-side

resources. Intermittent and storage resources are categorically exempt from the RPM must offer requirement. Capacity storage resources include hydroelectric, flywheel and battery storage. Intermittent resources include wind, solar, landfill gas, run of river hydroelectric, and other renewable resources.

Under RPM, capacity obligations are annual. Base Residual Auctions (BRA) are held for delivery years that are three years in the future, although recent events have resulted in shorter lead times for BRAs. Effective with the 2012/2013 Delivery Year, First, Second and Third Incremental Auctions (IA) are held for each delivery year.²⁵

RPM prices are locational and may vary depending on transmission constraints and local supply and demand conditions.²⁶ Existing generation capable of qualifying as a capacity resource must be offered into RPM auctions, except for resources owned by entities that elect the fixed resource requirement (FRR) option. Participation by LSEs is mandatory, except for those entities that elect the FRR option. Load must buy all cleared capacity. There is an administratively determined demand curve that defines scarcity pricing levels and that, with the supply curve derived from capacity offers, determines market prices in each BRA. Under RPM there are explicit market power mitigation rules that define the must offer requirement, that define structural market power using the three pivotal supplier test, that define offer caps, that define the minimum offer price, and that have flexible criteria for competitive offers by new entrants. Market power mitigation is effective only when these definitions are up to date and accurate. Demand resources and energy efficiency MW may be offered directly into RPM auctions and receive the clearing price without mitigation, recognizing that demand resources are capacity resources and energy efficiency MW are not capacity resources.

The capacity market is, by design, always tight in the sense that total supply is generally only slightly larger than demand. Local markets may have different supply demand balances than the aggregate market. Demand is inelastic because the market rules require loads to purchase the system capacity requirement. The result is that any supplier that owns more capacity than the typically small difference between total supply and the defined demand is individually pivotal and therefore has structural market power. Any supplier that, jointly with two other suppliers, owns more capacity than the difference between supply and demand either in aggregate or for a local market is jointly pivotal and therefore has structural market power.

The market design for capacity leads, almost unavoidably, to structural market power in the capacity market. Given the basic features of the PJM Capacity Market, including significant market structure issues, inelastic demand, tight supply-demand conditions,

²⁵ See 126 FERC ¶ 61,275 at P 86 (2009).

²⁶ Transmission constraints are local capacity import capability limitations (low capacity emergency transfer limit (CETL) margin over capacity emergency transfer objective (CETO)) caused by transmission facility limitations, voltage limitations or stability limitations.

the relatively small number of nonaffiliated LSEs and supplier knowledge of aggregate market demand, the potential for the exercise of market power is high. Market power is and will remain endemic to the existing structure of the PJM Capacity Market.

Nonetheless, a competitive outcome can be ensured by appropriate market power mitigation rules. Attenuation of those rules would mean that market participants would not be able to rely on the competitiveness of the market outcomes. However, the market power rules are not perfect and, as a result, competitive outcomes require continued improvement of the rules and ongoing monitoring of market participant behavior and market performance.

RPM currently has explicit market power mitigation rules designed to permit competitive, locational capacity prices while limiting the exercise of market power. The RPM construct is consistent with the appropriate market design objectives of permitting competitive prices to reflect local scarcity conditions while explicitly limiting market power. The RPM capacity market design provides that competitive prices can reflect locational scarcity while not relying on the exercise of market power to achieve that design objective by limiting the exercise of market power via the application of the three pivotal supplier test and the resultant offer capping.

The Commission modified the market seller offer cap (MSOC) by setting it equal to each resource's net avoidable cost rate, ensuring that offer capping results in competitive RPM prices.²⁷ However, PJM filed to effectively eliminate market power mitigation in the capacity market.²⁸ That filing was rejected by the Commission.²⁹ The filing highlights the fact that market power mitigation rules are uncertain.

Market Analysis

The analysis of the impact of the ECP acquisition of Lightstone on the capacity market examines the locational markets defined by the underlying economics of the market including supply and demand curves and transmission constraints. Each transmission zone is a Locational Deliverability Area (LDA) which can be a separate submarket if PJM models the zone as an LDA and market conditions result in binding transmission constraints and associated price separation in an auction. There are, in addition, several defined subzonal LDAs, including PSEG North, DPL South, and ATSI Cleveland.

For the defined submarkets, market concentration and HHI levels were calculated on a preacquisition and a postacquisition basis for each market.

As in the energy market, to the extent that total RTO demand for capacity can be met without any constraints binding, the optimal solution is defined by the intersection of the

²⁷ 176 FERC ¶ 61,137 (2021).

²⁸ *PJM Interconnection, L.L.C.*, FERC Docket No. ER24-98-000 (October 13, 2023).

²⁹ 186 FERC ¶ 61,097 (2024).

aggregate supply and demand curves. However, if the next increment of demand for capacity in an LDA cannot be met by the next economic increment of total supply and must be met by higher cost supply within the LDA, then the transmission constraint is binding and there is a separate market created. That separate market is defined by the incremental demand that must be met by capacity within the LDA and the higher cost incremental supply within the LDA available to meet that demand.

The ability to exercise market power in the LDA is determined by the ownership structure of the incremental supply and the relationship between incremental supply and incremental demand. The incentive to exercise market power in the LDA is a function of the ownership structure of all capacity in the LDA. Regardless of offer price and regardless of whether the capacity was incremental, all capacity in a constrained LDA receives the higher constrained clearing price. The ability to exercise market power can be measured most accurately by the TPS test while the HHI provides a measure of the incentive to exercise market power.

When the capacity market clears as a single market, total RTO supply and demand determine the clearing price and all resources receive the clearing price. When an LDA within the RTO clears as a separate market, the incremental locational supply available to meet the locational demand determines the clearing price for the LDA. All capacity resources in the LDA receive the clearing price, regardless of whether the capacity resources are incremental.

When there are multiple LDAs that clear as separate markets and the LDAs are not overlapping, the logic is exactly the same for each LDA separately and its relationship to the rest of RTO.^{30 31} When the LDAs are nested, the analysis becomes more complex.

For this analysis, the actual sell offer prices and offered MW quantities in the 2024/2025 and 2025/2026 RPM BRAs were used.³²

Aggregate Market: HHI

Table 6 shows pre and post ECP Lightstone acquisition HHIs for the 2024/2025 and 2025/2026 RPM Base Residual Auctions, including all modeled LDAs for each BRA. The

³⁰ See “Analysis of the 2023/2024 RPM Base Residual Auction,” <https://www.monitoringanalytics.com/reports/Reports/2022/IMM_Analysis_of_the_20232024_RPM_Base_Residual_Auction_20221028.pdf> (October 28, 2022).

³¹ See the “Analysis of the 2024/2025 RPM Base Residual Auction,” (October 30, 2023) <https://www.monitoringanalytics.com/reports/Reports/2023/IMM_Analysis_of_the_20242025_RPM_Base_Residual_Auction_20231030.pdf>.

³² If the ownership of assets changed between the conduct of the BRA and the present, the current parent company ownership was used in both the preacquisition and postacquisition cases.

HHIs in Table 6 measure concentration of ownership for all cleared capacity in the identified LDAs. {BEGIN CUI//PRIV} REDACTED {END CUI//PRIV}

Table 6 Preacquisition and postacquisition HHI

{BEGIN CUI//PRIV}

REDACTED

{END CUI//PRIV}

Locational Markets: TPS

The pivotal supplier analysis uses the pre and postacquisition Three Pivotal Supplier test scores to measure the change in market power for the RTO and LDAs. {BEGIN CUI//PRIV} Redacted {END CUI//PRIV}

The market for a constrained LDA is defined by the incremental supply available to meet the incremental demand when locational incremental demand must be met by capacity resources within the LDA. The RTO market is defined to include all supply that is not incremental supply in a constrained LDA. The RTO market includes all MW that resulted in the clearing price for the rest of RTO.

The three pivotal supplier (TPS) test measures the degree to which the incremental supply from three suppliers of capacity is required in order to meet the incremental demand in an LDA. The demand consists of the incremental MW of capacity required to relieve a constraint or clear a market. The supply consists of the incremental MW of supply available to relieve the constraint or clear the market.

{BEGIN CUI//PRIV} REDACTED {END CUI//PRIV}

Table 7 Preacquisition and postacquisition TPS results for ECP and ArcLight

{BEGIN CUI//PRIV}

REDACTED

{END CUI//PRIV}

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 11th day of December, 2024.



Jeffrey W. Mayes

General Counsel

Monitoring Analytics, LLC

2621 Van Buren Avenue, Suite 160

Eagleville, Pennsylvania 19403

(610) 271-8053

jeffrey.mayes@monitoringanalytics.com