UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Modifications to Commission Requirements for Review of Transactions under Section 203 of the Federal Power Act and Market-Based Rate Applications under Section 205 of the Federal Power Act	)))))))	Docket No. RM16-21-000

COMMENTS OF THE
INDEPENDENT MARKET MONITOR FOR PJM

Pursuant to a notice of inquiry issued in this docket on September 22, 2016 ("NOI"), Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM ("Market Monitor"), submits these comments on the whether and how the current approach to identifying and assessing market power in the context of transactions under section 203 of the Federal Power Act (FPA) and applications under section 205 of the FPA for market-based rate authority should be revised. Specifically, the Commission seeks comment on whether, and if so, how, the Commission should revise its approach for examining horizontal market power in transactions under sections 203 and 205 for wholesale sales of electric energy, capacity and ancillary services by public utilities in order to ensure that the Commission's analyses are effective at the identifying the potential for the exercise of market power. The Market Monitor appreciates that the Commission initiated this review and supports the proposed consideration of supply curve analysis, pivotal supplier analysis, and serial merger impacts in the market power analysis. Electricity markets and the sophistication of analyses of electricity markets have evolved substantially in the past twenty years. Updates to the required analysis of market power should reflect this evolution. It is logical for the Commission to also seek consistency and harmonization between sections 203 and 205 market power examinations. More precise analytical identification of the potential to exercise market power will support the future competitiveness of wholesale electricity markets.

The Market Monitor's comments are focused on the application of market power analyses in organized wholesale power markets operated by RTOs and ISOs and in PJM specifically.

I. COMMENTS

A. Section 203 and Section 205 Analyses

As the NOI states, the Commission's current approach to market power analysis differs depending on whether the issue is based on transactions under Section 203 or applications under Section 205. Section 203 provides the standards for review of mergers including the impact of a proposed merger on competition, rates and regulation. Section 205 provides the standards for granting market based rate authority.

The general approach to the definition and analysis of market power should be the same, regardless of whether it is a 203 or a 205 analysis. The merger analysis focuses on the level of existing market power and the level of market power that would result from the merger. The market based rate analysis focuses on the level of existing market power and whether there are adequate mitigation rules to address any market power. The analysis of the level of market power should be the same for both 203 and 205 analyses. Market power analysis for both 203 and 205 applications should include all markets in which the asset owner participates including energy markets, capacity markets and ancillary services markets (including operating reserves markets). A three pivotal supplier test based on the actual operation of the relevant market should be included in all analyses of market power and a three pivotal supplier analysis should be included for all affected markets.

The existence of generally competitive organized wholesale power markets in RTOs and ISOs has changed the nature of competition and therefore changed the relevant analysis of competition compared to the period prior to 1999 when the market consisted almost entirely of vertically integrated utilities. The analysis of market power in organized markets can no longer be done adequately without explicitly recognizing the network and nodal nature of markets and competition. This significantly changes the data requirements of the analysis and permits analysis that is not limited to peak hours and is not limited based on publicly available information which is inadequate for a detailed analysis of competition and market power. Any analysis of market power in organized wholesale power markets must account for the dynamic nature of competition.

B. Market Power Analysis in Organized Markets Should Be Based on the Market Information Available.

The current approach to market power analysis does not fully reflect the information available in organized wholesale power markets in determining the relevant market(s). While the Commission reserves the right to consider adequately supported alternative structural analyses based on actual operational data, the current, default approach for determining the relevant market uses approximations of seasonal geographic markets that assume the model of individual utility territories rather than the wholesale power markets that incorporate multiple generation owners with varying characteristics.[1] The current approach assumes broadly defined aggregate markets rather than relying on the data now available from organized wholesale power markets on locational markets created by the interaction of generator offers and transmission constraints and reflected in locational marginal prices. The detailed hourly information available in organized wholesale power markets means that many of the previously required assumptions can be replaced with actual, detailed market data covering actual unit operation, dispatch, prices, offers, imports, exports, and the transmission constraints that create local markets and the dynamic results as each element changes. The analysis of markets can now incorporate the massive increase in available data about actual markets in a way that was not possible and not relevant prior to organized markets.

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1 FERC Order No. 138¶ 61,109 (2012) at PP 43-44.

The method for defining the relevant market(s) should be refined, and the refined market definitions should be used as the basis of the Commission's analyses. Any analysis of market structure depends on an accurate definition of the relevant markets. The definition of relevant markets depends on the correct definition of substitutes. Within organized markets, data are available to define markets based on how the units are actually dispatched. This approach should be applied to all markets in the relevant RTO/ISO including energy markets, capacity markets and ancillary services markets.

The Market Monitor recommends that the Commission use actual market data to define markets and relevant competitors and pivotal supplier analysis to define market power for both 203 and 205 filings.

C. Market Power Analysis in Organized Markets Requires Confidential Data.

It is not possible to perform an accurate analysis of market power in organized markets without detailed, accurate data on the operation of the market. These data are highly confidential and market sensitive precisely because they are a detailed and accurate reflection of all elements of the market including unit offers, distribution factors to all nodes, and transmission constraints. In order to use such information to analyze market power in Commission proceedings without harming the markets by disclosing market sensitive information, it would be necessary to develop procedures and protocols for handling such information. Such protocols are very difficult to develop given the competing interests and given the very large risk to the competitiveness of the markets associated with the release of the data or even the knowledge of the data by those participating in the PJM markets. The experience of the Market Monitor is that it is not possible to design a set of enforceable rules that will ensure that the data is satisfactorily protected.[2]

Commission staff, RTOs and ISOs and their market monitoring units already have access to the necessary information.

As an alternative to making the detailed market data available to market participants, the Market Monitor proposes an alternative approach. Under this approach the market monitor for the relevant market would be responsible for the pivotal supplier analysis following specific and detailed protocols approved by the Commission. It is essential that all participants, including the applicants, competitors, customers and regulators have complete confidence in the analysis. All assumptions must be explicit. All results must be provided. All parties must have the ability to request sensitivity analyses. Commission staff could be included with the market monitor in the analysis team so that staff had access to all data and all analytical methods to ensure consistency with the Commission protocols.

This model worked successfully when the Market Monitor provided testimony and analysis in the proceedings before the New Jersey Board of Public Utilities in the matter of the proposed merger between Exelon and PSE&G.[3]

Confidentiality concerns are not a reason to refrain from including accurate data in proceedings that include market power analyses. But a new approach to market analysis is

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2 *See In the Matter of the Merger of Exelon Corp. and Constellation Energy Group*, Protective Agreement, PSC Maryland Case No. 9271 (October 1, 2011); *see also PPL energy Plus, LLC v. Solomon*, Memorandum and Order [re Motion to Quash] (U.S. Dist.Ct. N.J. Civ. Act. 11-745-PGS-DEA (January 18, 2013).

3 *See*, *e.g.*, *Exelon Corp., Public Service Enterprise Corp., Inc.*, 112 FERC ¶ 61,001 (2005); PJM Market Monitoring Unit, Exelon/PSEG Sensitivity Analyses (July 20, 2006), which can be accessed at: <*http://www.monitoringanalytics.com/reports/Reports/2006/20060720-exelon-pseg-merger-sensit-analyses.pdf*>.

needed to ensure both accurate analysis of markets and the confidentiality of confidential and market sensitive data on which the long term competitiveness of the markets depends.

D. Pivotal Supplier Analysis.

In the case of both 203 and 205 analyses, a pivotal supplier test that reflects relevant market conditions should be performed to detect market power issues. In organized markets, a supplier that is pivotal for relieving any market constraint has the ability to increase market prices. All RTO/ISO markets rely on some form of pivotal supplier analysis to assess market power.[4] Pivotal supplier analyses incorporate all the relevant information from the actual functioning of the markets, including offers from all generating units, transmission constraints, reactive power and other constraints, distribution factor impacts on constraints.

While pivotal supplier metrics can be calculated for any number of pivotal suppliers, the Market Monitor recommends the use of 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 structural market power and as a trigger for market power mitigation.[5]

A single pivotal supplier test is a test for monopoly power. A two or three pivotal supplier test is a test for oligopoly power. Oligopoly market structure provides no guarantee of competitive market outcomes, even when behavior among suppliers is uncoordinated. Oligopoly is also vulnerable to coordinated behavior, which may include

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4 *See* New York ISO OATT Attachment H Section 2.3.2, ISO New England Market Rule 1 Appendix A III.A.5.2. and III.A.23., Midcontinent Independent System Operator OATT Module D 63.4.1.34 and 34.2.4.31., Southwest Power Pool OATT Attachment AF 3.1.1.1., and California Independent System Operator OATT 39.7.2.2.

5 A three pivotal supplier test is also used for local market power mitigation in the CAISO energy market. *See* California Independent System Operator OATT 39.7.2.2.

implicit collusion through market signaling or explicit collusion. [6] [7] Use of a three pivotal supplier test rather than a two pivotal supplier test or a four pivotal supplier test is a reasonable compromise between detecting and mitigating structural market power and mitigating when there is a reduced ability to exercise market power.[8]

In making a decision about what type of pivotal supplier analysis to require, the Commission should also consider the relative costs of type 1 and type 2 error in defining market power. Type 1 error is identifying structural market power when there is none. Type 2 error is failing to identify structural market power when it exists. If the mitigation applied when structural market power is identified is a requirement to make competitive offers, the cost of type 1 error is almost nonexistent. Similarly, if market power is not identified and generation owners exercise market power and increase market prices above the competitive level, the cost of type 2 error is quite high. A test for 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 market power strikes a reasonable balance between type 1 and type 2 errors in applying market power mitigation.

The three pivotal supplier test differs from the Commission's pivotal supplier test in two ways. The three pivotal supplier test applied in PJM includes three suppliers rather

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6 The Commission notes that "[h]igh concentration is an indicator for how easy it would be for firms to behave strategically (e.g., collude, or if concentration is high enough, act unilaterally) to raise prices." Docket No. RM96-6-000 p. 77

7 The Commission's market screen focus on both "unilateral market power and the ability of a seller to effect coordinated interaction with other sellers." Order No. 697, FERC Stats. & Regs. ¶ 31,252 at P 65

8 *See* Bushnell, Harvey, Hobbs, and Oren. "Report on the Appropriateness of the Three Pivotal Supplier Test and Alternative Competitive Screens," (July 27, 2013). <https://www.caiso.com/Documents/Report-Appropriateness-ThreePivotalSupplierTest-AlternativeCompetitiveScreens.pdf>.

than one but also includes more competitors in its definition of the relevant market. While the Commission's test defines the relevant market to include all offers with costs less than, or equal to, 1.05 times the competitive market price, the three pivotal supplier test includes all offers with costs less than, or equal to, 1.50 times the competitive market price for the local market.

The three pivotal supplier test incorporates a definition of meaningful competitors that is at the high end of inclusive. It is questionable whether a unit with a competitive offer price of $300 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, as implemented in PJM markets, is consistent with the Commission's market power tests but is more detailed and accurate. The three pivotal supplier test is a way to address the issues addressed by the Commission's Competitive Analysis Screen. The three pivotal supplier test should be applied to the energy markets, capacity markets and ancillary services markets for both 203 and 205 analysis.

The results of the more accurate three pivotal supplier test can differ from the results of the HHI and market share tests. The three pivotal supplier test can correctly show the existence of structural market power when the HHI is less than 1800 and the maximum market share is less than 20 percent. The three pivotal supplier test can also correctly show the absence of market power when the HHI is greater than 1800 and the maximum market share is greater than 20 percent. The three pivotal supplier test is more accurate than the HHI and market share tests because it is based on the actual ability of a generation owner to affect market prices given the actual, detailed operation of the market. A market share in excess of 20 percent does not indicate market power if the holder of that market share is not jointly pivotal and therefore unlikely to be able to affect the market price. A market share less than 20 percent does not indicate the absence of market power if the holder of that market share is jointly pivotal and therefore likely to be able to affect the market price. Similarly, an HHI in excess of 1800 does not indicate market power if the relevant owners are not jointly pivotal and unlikely to be able to affect the market price. An HHI less than

1800 does not indicate the absence of market power if the relevant owners are jointly pivotal and likely to be able to affect the market price.[9]

The three pivotal supplier test is a reasonable application of the Commission's Competitive Analysis Screen to markets that are defined by actual conditions in a market design 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 offset other structural features of the market and result in an adequately competitive market structure.

The goal of defining the relevant market is to include those producers that actually compete to determine the market price. 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 consists of the incremental, effective MW required to relieve the constraint. The market supply consists of the incremental, effective MW of supply available to relieve the constraint.[10] For purposes of the test, incremental effective MW are attributed to specific suppliers on the basis of their control of the assets in question.

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9 For detailed examples, see Monitoring Analytics, LLC., "IMM Analysis of Combined Regulation Market," PJM Market Implementation Committee Meeting (December 20, 2006).

10 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.

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 three pivotal supplier test makes explicit and direct use of the incremental, effective MW of supply available to relieve the constraint at a distribution factor (DFAX) greater than, or equal to, the DFAX used by PJM in operations. Only the supply that is part of the market and provides relevant competition as defined by the characteristics of the transmission system, associated distribution factors and detailed unit offers is included in the three pivotal supplier test.

E. Simplified De Minimis Analysis

The Commission discusses (at PP 14–18) a possible de minimis analysis for mergers using market shares to determine whether the "2ab analysis" impact on HHI falls below a defined threshold. This simplified analysis of market share may indicate that a Competitive Analysis Screen is not needed. The simplified analysis will not provide a definitive indication regarding the extent of market power. The only de minimis analysis that provides a definitive indication that a merger will not harm competition is one that effectively demonstrates that the merging companies are not competitors in any relevant market.

F. Serial Mergers and Acquisitions.

The Commission notes (at P 19) that "a particular entity could…amass market power from a number of small incremental transactions." The current 203 approach does not take into account the impact on market power of serial mergers and acquisitions either by one or multiple companies. It might be the case that no one merger or acquisition in a series would raise market power concerns on a standalone basis, but the entire series of transactions taken as a whole would decrease the competitiveness of the market.

The Commission should consider defining an end state to increased concentration of asset ownership beyond which the Commission would not approve further mergers. The definition of this end state would require determining the smallest number of generation owners in the energy market or in specific submarkets which the Commission believes is consistent with maintaining competition. As part of this review, the Commission could consider maximum permitted levels of ownership concentration or pivotal supplier status rather than changes in such metrics. For example, if the HHI for the relevant market prior to a proposed merger were greater than or equal to 1800, the merger would be rejected regardless of how large or small the incremental impact on the HHI. For example, if an incremental merger resulted in the merged company failing the three pivotal supplier test for a market or markets, the merger would be rejected regardless of the associated increase in concentration metric.

There should be no presumption in favor of mergers. There should only be a presumption in favor of competition.

G. Supply Curve Analysis

The Commission should make use of supply curve analysis for its examination of horizontal market power under both sections 203 and 205 but only as a supplement to the assessment of structural market power using three pivotal supplier analysis and only to identify factors that may exacerbate the impact of the exercise of market power and not as a mitigating factor. Supply curve analysis focuses on the incentive to exercise market power given the ability to exercise market power based on the market structure. Pivotal marginal supply identifies the ability to withhold generation to raise prices. The ownership of inframarginal supply that would benefit from the higher prices provides an additional incentive to raise prices.

Supply curve analysis can reveal an entity's incentive to exercise market power. The withholding of pivotal supply to benefit inframarginal supply, particularly when the supply curve is steeply sloped, presents an important source of potential concern. But it is not the only strategic behavior of concern. Suppliers with structural market power may also benefit in other ways from the exercise of market power, including from the unit or units directly setting price, related financial positions that are not known to the analyst, and out of market uplift payments. Therefore, while supply curve analysis provides additional information about the benefit to a generation owner of exercising market power, it does not address all such incentives and it cannot eliminate concerns regarding the potential exercise of market power.

H. Market Share Analysis

The Commission employs a market share threshold of twenty percent in evaluating market based rate filings. Market share is a relevant but not a definitive metric for determining the existence of structural market power or the lack of structural market power for either 203 or 205 analysis. The Commission should require pivotal supplier analysis in addition to any consideration of market share in all situations. A small market share does not mean that a pivotal supplier will not have the ability to exercise market power.[11]

I. The Relevance of Long Term Power Purchase Agreements

Long term PPAs are not the same as ownership. Market power analysis must recognize the differences. If PPAs may be entered into without passing a market power screen and PPAs are treated as if they were existing owned assets in a merger proceeding, PPAs could be used to avoid appropriate merger scrutiny. If a company planning on a merger entered into a PPA with the target company for a significant part of its generation portfolio, there would be no market power test for that transaction. If the company then completed the merger and the PPAs were treated as owned by the company prior to the merger, the actual increase in structural market power would not be assessed correctly under the Commission's test. Any company that might otherwise fail the merger related market power test could ensure passing the test by entering into PPAs prior to the merger.

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[11] For example, see 2015 State of the Market Report for the ERCOT Wholesale Electricity Markets, Potomac Economics, Ltd., June 2016 at 110-111.

Clearly this result is not intended or appropriate. The market power analysis of a merger should, as the Commission suggests, be done both ways. The analysis would treat the PPA units' ownership change as resulting from the merger and the analysis would treat the PPAs as conferring ownership of the units prior to the merger. The fact that the PPAs may contribute to the structural market power prior to the merger should not be ignored. But the fact that the merger would change ownership of the assets is the key point and the analysis must address that.

Furthermore, the terms of the PPA may pass through the incentives of the owner to the purchaser. If the contract price for output exceeds the short run marginal cost of the generation, the purchasing entity has the incentive to price above the competitive level. By including a markup over short run marginal cost in the PPA contract price, the owner may exercise market power without explicitly controlling the output of the generation in the market.

J. Applicant Merger Related Documents

The Commission should have available for its consideration in reviewing a merger application all relevant analyses and documents, including but not limited to reports and analyses and responses to questions submitted by the applicants or other regulators to the DOJ and the FTC and any internal reports relevant to assessing the competitive impacts of the merger as well as DOJ or FTC reports to the extent that these agencies are willing and permitted to provide them.

K. Blanket Authorizations

The Commission has granted blanket authorizations for specific types of transactions which exempt these transactions from review for market power. The Market Monitor agrees that the blanket authorizations should be reviewed carefully to determine whether all should be retained given the substantial changes in market structure since the authorizations were granted.

L. Rebuttable Presumption of Adequate Market Power Mitigation in Organized Markets

When market power analyses indicate structural market power in Section 205 filings, significant reliance is placed on RTO market power mitigation rules to address market power concerns. Mitigation programs in the organized markets are routinely relied upon as a substitute for analyses of market power or as a reason to use relaxed standards for such analyses. It is essential that such reliance not be misplaced by allowing ineffective mitigation rules in the organized markets. The Market Monitor is concerned that the standards in the RTO tariffs for mitigation are sufficiently relaxed that they allow market power to be exercised either through high markup thresholds, lack of structural market power tests, or overstated short run marginal cost benchmarks. Moreover, enforcement policy lacks clear mechanisms to directly address exercises of market power that fall outside the mitigation rules in the RTO tariffs.

The potential exercise of market power is not limited to the intentional exercise of market power. In a market with structural market power, the potential exercise of market power also includes market behavior that is careless, ill-informed or mistaken. The problem of the unintentional exercise of market power is exacerbated by the intentional effort to exercise market power that can be disguised as market behavior that is careless, ill-informed or mistaken. In a structurally competitive market, attempts to exercise market power result in reduced profits. In a structurally noncompetitive market, the attempt to exercise market power results in higher profits. Effective market power rules must explicitly detect, deter and prevent the potential (market structure) and actual exercise of market power regardless of intent.

Structural market power tests used in LMP markets decrease the extent which market power can be exercised in constrained areas. The PJM rules do not address market power when it can be exercised in the aggregate market. The Commission has stated that, "In markets with very little demand elasticity, a pivotal supplier could extract significant monopoly rents during peak periods because customers have few, if any, alternatives."[12] There is very little demand elasticity in wholesale power markets. Rules are needed to address market power in the aggregate market, especially during peak periods, and the Commission cannot rely on PJM's market power mitigation to address aggregate market power identified in its 203 and 205 analyses.

The market power mitigation programs, as currently designed and implemented, in the RTO tariffs reduce, but do not minimize or eliminate the exercise of market power.

M. The Impact on RTO Governance Should Be Considered in Merger Analysis.

RTOs exist only as a result of voluntary decisions by transmission owners. In PJM, as in other RTOs, the governance rules require that most changes to the PJM Market Rules have stakeholder approval.[13] These governing documents contain the rules that mitigate market power, including generator market power mitigation, transmission interconnection, and transmission expansion, all of which impact the profitability of the utility. RTO members can and do use their votes in the stakeholder process to advance the interests of their companies. Whether horizontal mergers join generation or transmission companies, the affiliation of multiple operating companies enhances the voting weight and influence of the combined company in the RTO stakeholder process. The combined company's ability to influence the market power provisions of the market rules increases with a merger.

In Order No. 2000, the Commission emphasized that "the principle of independence is the bedrock upon which the ISO must be built" and that "[a]n RTO needs to be

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12 *AEP Power Marketing, Inc., et al.*, 107 FERC ¶ 61,018 at P 72 (2004).

13 *See* OA §§ 7–11; *see also* PJM Manual 34 (PJM Stakeholder Process).

independent in both reality and perception."[14] In the subsequent seventeen years, new RTOs have formed, RTOs have expanded, and members have moved from one RTO to another. These changes in RTO membership have significant impacts on RTOs and nature of RTO decision making. As a result, voluntary RTO membership creates a conflict of interest between RTO independence and RTO customer service.

Unlike structural market power, there is no quantifiable analysis lending itself to tolerance thresholds. In assessing the market power impact of mergers, the Commission should consider the impact of the merger on the ability of market participants to affect RTO decisions.

More broadly, the Commission should consider standards for the merger of companies that own only transmission assets and companies that own both generation and transmission assets. Both have potential market power impacts.

II. CONCLUSION

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

Respectfully submitted,

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14 *Regional Transmission Organizations*, Order No. 2000, FERC Stats. & Regs.¶ 31,089 at 31,061 (1999), *order on reh'g*, Order No. 2000-A, FERC Stats. & Regs. ¶ 31,092 (2000), aff'd sub nom. Pub. Util. Dist. No. 1 of Snohomish County, Washington v. FERC, 272 F.3d 607 (D.C. Cir. 2001).

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