United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued April 6, 2021 Decided July 9, 2021

No. 20-1212

DELAWARE DIVISION OF THE PUBLIC ADVOCATE, ET AL.,
PETITIONERS

v.

FEDERAL ENERGY REGULATORY COMMISSION,
RESPONDENT

PJM INTERCONNECTION, L.L.C.,
INTERVENOR

On Petition for Review of Orders of
the Federal Energy Regulatory Commission

Casey A. Roberts argued the cause for petitioners. With her on the briefs were *Kim Smaczniak*, *Regina A. Iorii*, *Paula M. Carmody*, *William F. Fields*, *Joseph G. Cleaver*, *Karen R. Sistrunk*, and *Anjali G. Patel.*

Carol J. Banta, Senior Attorney, Federal Energy Regulatory Commission, argued the cause for respondent. With her on the brief were *David L. Morenoff*, Acting General Counsel, and *Robert H. Solomon*, Solicitor.

Paul M. Flynn argued the cause for intervenor PJM Interconnection, LLC in support of respondent. With him on the brief was *Ryan J. Collins*.

Paul W. Hughes, *David G. Tewksbury*, and *Matthew A. Waring* were on the brief for *amicus curiae* PJM Power Providers Group in support of respondent.

Before: SRINIVASAN, *Chief Judge*, HENDERSON and PILLARD, *Circuit Judges*.

Opinion for the Court filed by *Circuit Judge* HENDERSON.

KAREN LECRAFT HENDERSON, *Circuit Judge*: The Federal Energy Regulatory Commission (Commission) approved PJM Interconnection, LLC's (PJM) proposed revisions to its capacity market auction mechanism, which is designed to determine the price and amount of electric capacity. The Delaware Division of the Public Advocate, Maryland Office of People's Counsel, the Office of the People's Counsel for the District of Columbia and Sierra Club (Petitioners) challenge the Commission's approval of two elements of that mechanism. We deny the petition in part, grant the petition in part and remand without vacatur.

I. BACKGROUND

The Federal Power Act (Act) gives the Commission jurisdiction of the transmission and wholesale of electric energy in interstate commerce. 16 U.S.C. § 824(b). The Act requires that "[a]ll rates and charges . . . for or in connection with" such transmission or sale be "just and reasonable." *Id.* § 824d(a). Under Section 205 of the Act, if a utility seeks to change any rate or charge, it must file notice of the proposed changes with the Commission. *Id.* § 824d(d).

PJM is a regional transmission organization (RTO) that manages an electric grid covering all or part of thirteen Mid-Atlantic and Midwestern states and the District of Columbia. As an RTO, PJM "promot[es] efficiency and reliability in the operation and planning of the electric transmission grid." 18 C.F.R. § 35.34(a). To promote reliability and prevent service interruptions, PJM must "ensur[e] that its system has sufficient generating capacity." *Md. Pub. Serv. Comm'n v. FERC*, 632 F.3d 1283, 1284 (D.C. Cir. 2011) (per curiam).

PJM ensures sufficient generating capacity through its "capacity market." Capacity is not "actual electricity" but instead "a commitment to produce electricity or forgo the consumption of electricity when required." *Advanced Energy Mgmt. All. v. FERC*, 860 F.3d 656, 659 (D.C. Cir. 2017) (per curiam). To establish the capacity market, PJM conducts a yearly auction in which electricity suppliers submit offers to be available to provide capacity during a one-year period, three years in the future. Suppliers offer a specific amount of capacity at a specific price and together the offers comprise the auction's "supply curve." The auction utilizes an administratively-set "demand curve"—the Variable Resource Requirement Curve (VRR Curve)—which represents the prices that consumers should pay for varying quantities of capacity. The intersection of the two curves dictates the amount of capacity committed and the price suppliers are paid.

The VRR Curve is set based on several inputs. The Reliability Requirement input is the amount of capacity that must be produced to meet peak demand, including a reserve margin, which together are intended to allow no more than one power outage every decade. The "net cost of new entry" input (net CONE) is how much revenue a hypothetical new generator—referred to as the "Reference Resource"—would

need to earn in the capacity market to justify construction. In other words, the net CONE is an estimate of the revenue the Reference Resource cannot recover from other markets[1] and thus needs to recover from the capacity market to recoup its construction costs. To set the net CONE, PJM selects a type of electric generation technology to serve as the Reference Resource and estimates two values, one of which is subtracted from the other: (1) an estimate of the cost to install and operate a Reference Resource (i.e., the gross cost of new entry), minus (2) an estimate of revenues from PJM's "energy and ancillary services" markets (EAS Revenue Estimate). The Reference Resource affects the net CONE estimate, which in turn positions the VRR Curve, whose intersection with the supply curve determines the price and amount of capacity.

PJM must review the VRR Curve every four years. For the 2018 review, PJM hired The Brattle Group (Brattle) to review the VRR Curve and Brattle eventually produced two reports. As relevant here, Brattle suggested PJM change its Reference Resource from a combustion turbine plant—the Reference Resource since the inception of the capacity market—to a combined cycle turbine plant. Despite making that

[1] PJM operates several "'markets' for the wholesale sale of electricity and other related products." *Advanced Energy*, 860 F.3d at 659. For example, the "electricity market" is the real-time supply of electricity "in which generators sell actual power to retailers." *TC Ravenswood, LLC v. FERC*, 741 F.3d 112, 114 (D.C. Cir. 2013). A "capacity market," on the other hand, is a market for the future supply of electricity. *Id.* The suppliers' offers are commitments to provide future electricity and are utilized if utilities "need more electricity in order to meet consumer demand." *Advanced Energy*, 860 F.3d at 660. When the utilities need more electricity to meet demand, "PJM calls on resources with a capacity commitment" and "[c]apacity resources must provide their committed share of the needed electricity." *Id.*

recommendation, Brattle acknowledged the rationale for choosing a "[combustion turbine]-based curve if PJM and stakeholders are highly risk-averse about ever procuring less than the target reserve margin." Joint Appendix (J.A.) 127 (Brattle Curve Report). On October 12, 2018, pursuant to Section 205 of the Federal Power Act, PJM filed several proposed revisions to the capacity market. Among the revisions, PJM proposed keeping a combustion turbine plant as its Reference Resource[2] and proposed an update to the EAS Revenue Estimate by increasing the value of the Reference Resource's estimated offer to supply energy in the energy market by 10% (10% adder). The Petitioners intervened to oppose these two proposals. On April 15, 2019, the Commission accepted PJM's proposed revisions as just and reasonable. *PJM Interconnection, LLC*, 167 FERC ¶ 61,029 (2019). The Petitioners requested rehearing but, on April 16, 2020, the Commission denied rehearing and affirmed its order in all relevant respects. *PJM Interconnection, LLC*, 171 FERC ¶ 61,040 (2020). The Petitioners timely sought judicial review pursuant to 16 U.S.C. § 825*l*(b).

II. DISCUSSION

A Commission order will be set aside if it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A); *Pac. Gas & Elec. Co. v. FERC*, 373 F.3d 1315, 1319 (D.C. Cir. 2004). The

[2] Combustion turbine plants can be greenfield (wholly new construction) or brownfield (modifications to existing generation facilities). PJM's Reference Resource does not specify whether it is a greenfield or brownfield combustion turbine plant. But the estimates for PJM's combustion turbine plant Reference Resource utilize costs associated with greenfield facilities. Accordingly, the parties often refer to PJM's Reference Resource as a greenfield combustion turbine plant.

Commission "must be able to demonstrate that it has made a reasoned decision based upon substantial evidence in the record," *N. States Power Co. v. FERC*, 30 F.3d 177, 180 (D.C. Cir. 1994) (internal quotations omitted), and must "articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made," *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (internal quotations omitted). The Commission is accorded substantial deference in rate-making decisions because "'just and reasonable' is obviously incapable of precise judicial definition," *Morgan Stanley Cap. Grp. Inc. v. Pub. Util. Dist. No. 1 of Snohomish Cty.*, 554 U.S. 527, 532 (2008), and rate-related matters "are either fairly technical or involve policy judgments that lie at the core of the regulatory mission," *S.C. Pub. Serv. Auth. v. FERC*, 762 F.3d 41, 55 (D.C. Cir. 2014) (per curiam) (internal quotations omitted). For the reasons set out below, we conclude that the Commission met this standard of review as to its approval of the Reference Resource as just and reasonable but not as to its approval of the 10% adder.

A. Reference Resource

Before addressing the validity of the Commission's decisionmaking, we must dispense with the Petitioners' argument that the Commission erred by not applying its "established framework" for evaluating an RTO's choice of Reference Resource. Pet'rs' Br. 30. In *ISO New England Inc.*, the Commission applied three factors to assess the appropriateness of an RTO's Reference Resource choice: (1) whether the unit is likely to be developed in the region, (2) whether cost and revenue estimates for that unit can be developed with confidence and (3) whether the VRR Curve produces prices high enough to meet the reliability standard while not adding unnecessary costs. 147 FERC ¶ 61,173,

¶¶ 32–33 (2014). Other than review of subsequent capacity market changes in the same region, however, we are unaware of any other case in which the Commission has applied the "framework." *See ISO New Eng. Inc.*, 161 FERC ¶ 61,035, ¶¶ 38–41 (2017). Moreover, *ISO New England*'s language does not suggest that it meant to dictate factors the Commission must use to assess a Reference Resource in every case. *See* 147 FERC ¶ 61,173 at ¶¶ 32–33. Accordingly, the *ISO New England* factors are far from an "established framework" and the Commission's decision not to apply them is not error.[3]

The Petitioners' remaining arguments suggest use of a combustion turbine plant as the Reference Resource is unjust and unreasonable because use of a combined cycle plant would be *more* just and *more* reasonable. But "our role is 'not to ask whether a regulatory decision is the best one possible or even whether it is better than the alternatives.'" *PJM Power Providers Grp. v. FERC*, 880 F.3d 559, 562 (D.C. Cir. 2018) (quoting *FERC v. Elec. Power Supply Ass'n*, 577 U.S. 260, 292 (2016)). Accordingly, "we must determine not whether record evidence supports [the Petitioners'] version of events, but whether it supports FERC's." *La. Pub. Serv. Comm'n v. FERC*, 522 F.3d 378, 395 (D.C. Cir. 2008) (per curiam) (internal quotations omitted). The Commission articulated a satisfactory explanation for its decision that the use of a combustion turbine plant as the Reference Resource is just and reasonable and substantial evidence supports that decision.

The Commission recognized that combustion turbine plants possess qualities which are valuable as a Reference Resource—they are relatively inexpensive to build and can be

[3] The Commission subsequently addressed *ISO New England*'s factors in its rehearing order, concluding that PJM's proposal was just and reasonable even applying the factors. *See PJM Interconnection*, 171 FERC ¶ 61,040 at ¶ 14.

built quickly due to those lower costs and thus, are more responsive to address increases in capacity demand. *PJM Interconnection*, 167 FERC ¶ 61,029 at ¶ 59. Combustion turbine plants are built at a significantly lower total cost than combined cycle plants.[4] Adam Keech, PJM's Executive Director for Market Operations, explained that combustion turbine plants "have the lowest project cost and are the quickest resources to bring to market." J.A. 67 (Keech Aff.). Keech further explained these qualities allow combustion turbine plants to respond quickly to reliability concerns and "long have operated well to meet rapid changes in demand." *Id.* at 67–68. The Commission's emphasis of these qualities is reasonable given "time to market" is an "important consideration[] in deciding on the Reference Resource configuration" because the Reference Resource configuration requires "quick and reliable provision of resource adequacy and reliability." J.A. 199 (Aff. Accompanying Cmts. of LS Power Assocs., LP); *see also* J.A. 276 (PJM Answer); J.A. 67–68 (Keech Aff.).[5]

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[4] Combustion turbine plants cost approximately $300 million to construct; combined cycle plants cost approximately $1 billion. "A combined cycle power plant is, in essence, the configuration of one or more combustion turbines that incorporates additional technology to capture waste heat as steam. The same technology without the additional process to capture waste heat is the simple cycle combustion turbine." Pet'rs' Br. 10 n.4 (internal quotations omitted) (citing FERC, *Market Assessments – Glossary*, https://www.ferc.gov/industries-data/market-assessments/overview/glossary#C (last updated Aug. 31, 2020)).

[5] The Commission also noted that combustion turbine plants "represent the generation technology that is most dependent on capacity market revenue due to their high marginal operating costs and low capacity factors." *PJM Interconnection*, 167 FERC ¶ 61,029 at ¶ 59. In other words, combustion turbine plants operate more often in the capacity market when consumer demand is peaking and prices are high. Keech explained that there are good reasons to use a

The Commission found that combustion turbine plants continue to serve a role in PJM's region—over 1,600 megawatts of combustion turbine plant capacity was built in PJM's region since the capacity market was adopted, including two combustion turbine plants added after 2014. *PJM Interconnection*, 167 FERC ¶ 61,029 at ¶ 61. Granted, the two combustion turbine plants built since 2014 were brownfield, not greenfield (as in the Reference Resource) and those two plants represent a small portion of generating capacity constructed in PJM's region since 2014. Brattle found, however, that variability exists in resource construction type over time in PJM's region and the Petitioners contend only that a greenfield combustion turbine plant "has not been built in PJM in the past five years." Pet'rs' Br. 21 (emphasis omitted); *accord id.* at 28–29. Brattle, PJM *and* the Commission have emphasized the importance of stability in Reference Resource type. *See* J.A. 156 (Brattle Curve Report); J.A. 68 (Keech Aff.); *ISO New Eng. Inc.*, 147 FERC ¶ 61,173 at ¶ 34. The Commission recognized as much here, noting "negative impacts [from] shifting between a [combustion turbine] and [combined cycle] plant from year to year." *PJM Interconnection*, 171 FERC ¶ 61,040 at ¶ 15 n.32 (citing *PJM Interconnection, LLC*, 126 FERC ¶ 61,275, ¶ 39 (2009)). This variability, and related negative impacts from shifting the Reference Resource type, are partly why the selected Reference Resource need not be "the most frequent new entrant" into PJM's region. *PJM Interconnection*, 167 FERC ¶ 61,029 at ¶ 61. "[D]ifferent technologies can efficiently exist within the market and are needed to meet different types of demand." *PJM Interconnection*, 171 FERC ¶ 61,040 at ¶ 15.

"peaking" resource like combustion turbine plants as the Reference Resource and, provided that resource is viable in the region, doing so is "highly consistent with the purpose of capacity markets." J.A. 67 (Keech Aff.).

The Commission appropriately found that combustion turbine plants have an important role to play and continue to be deployed in PJM's region.

The Commission also found reliability benefits flow from the use of a combustion turbine plant as the Reference Resource. *PJM Interconnection*, 167 FERC ¶ 61,029 at ¶ 61. This finding is important given that ensuring the reliability of the electric grid is a primary function of RTOs and of PJM's capacity market. *See* 18 C.F.R. § 35.34(a); J.A. 174 (Brattle Curve Report). Combined cycle plants are more reliant on energy market revenues to justify construction. Those energy market revenues—included in the EAS Revenue Estimate—are often considered more difficult to estimate than the construction costs that also factor into the net CONE. Accordingly, any mis-estimation of energy market revenues has a larger impact on the accuracy of a combined cycle plant's net CONE than on a combustion turbine plant's. The Commission recognized that Brattle's estimates of its recommended combined cycle plant showed that if energy market revenues were mis-estimated, that "could result in the curve failing to meet the required reliability standards." *PJM Interconnection*, 167 FERC ¶ 61,029 at ¶ 61; *see also PJM Interconnection*, 171 FERC ¶ 61,040 at ¶ 15.

Brattle "disagree[d]" with "[t]he conventional wisdom . . . that [combined cycle plants] are subject to more estimation error in [energy and ancillary services] offsets, since their [energy and ancillary services] offsets are larger." J.A. 156 (Brattle Curve Report). In Brattle's view, estimation of a combined cycle plant's EAS revenue is more accurate than estimation of a combustion turbine plant's EAS revenue in PJM's region. Brattle nevertheless found PJM's approach to combustion turbine plant EAS Revenue Estimates "reasonable." *Id.* at 142. Regardless, even if it is easier to

estimate a combined cycle plant's EAS revenue than that of a combustion turbine plant, as noted above, Brattle's modeling showed that its recommended combined cycle plant would *fail* the Reliability Requirement if the net CONE estimate was understated due to "inaccurate [EAS] [R]evenue [E]stimates." J.A. 69 (Keech Aff.). In contrast, a VRR Curve based on a combustion turbine plant satisfied the Reliability Requirement under *all* tested scenarios.

As the Petitioners point out, Brattle's recommended combined cycle plant resulted in a VRR Curve which cost consumers approximately $140 million *less* each year than PJM's proposed combustion turbine plant. Further, PJM's proposed combustion turbine plant resulted in a VRR Curve over four times more protective than the Reliability Requirement envisions. Yet we do not find that the Commission's approval of a VRR Curve which costs consumers $140 million more each year and achieves more reliability than required is unreasonable. Brattle's recommended, cheaper combined cycle-based curve is the same one that would *fail* the Reliability Requirement if the EAS Revenue Estimate were mis-estimated. Moreover, the costs associated with the increased reliability of the combustion turbine plant are not as significant when put in context. Brattle acknowledged that it "see[s] an argument that a [combustion turbine]-based curve would more strongly guarantee resource adequacy under all conditions, *at a cost that is modest when put in context*." J.A. 192 (Brattle Curve Report) (emphasis added). The $140 million difference between PJM's proposed curve and Brattle's recommended curve represents only a 1.7% reduction in consumer costs. The Commission plainly understood the increased costs were modest, as it noted PJM's explanation that the cost difference among all of the different studied curves "rang[ed] only a few percent." *PJM Interconnection*, 167 FERC ¶ 61,029 at ¶ 17. Further, the

Commission has recognized that, even if a resource provides more reliability than the Reliability Requirement estimates, that additional reliability has value. *See PJM Interconnection, LLC*, 119 FERC ¶ 61,318, ¶ 106 (2007); *see also* J.A. 131 (Brattle Curve Report).

The Commission articulated several reasons, supported by substantial evidence in the record, that the use of a combustion turbine plant as the Reference Resource is just and reasonable. Accordingly, the Commission's determination is not arbitrary and capricious and we deny the petition in relevant part.[6]

B. 10% Adder

Under PJM's energy market rules, actual generation resources are permitted to increase their offers to supply energy

[6] The Petitioners' alternative attacks on the Commission's reasoning—based on the proposition that the Commission disregarded consumer interests by not considering consistent oversupply in PJM's market—are unavailing. Reliability is a consumer interest. Indeed, excess reliability—i.e., more capacity than is necessary to meet the Reliability Requirement—still has value in PJM's region. The Commission reasonably determined that an oversupplying combustion turbine plant-based VRR Curve, at a modest cost increase, was compatible with consumer interests because it ensured reliability more consistently than a combined cycle plant-based VRR Curve. Moreover, the Petitioners fail to establish why previous oversupply is a relevant consideration now, when the Commission was evaluating new inputs which will change the price and supply of capacity in PJM's market. Indeed, Brattle estimated PJM's proposed combustion turbine plant-based VRR Curve will reduce the price and supply of capacity in PJM's region overall compared to the VRR Curve approved in 2014. Accordingly, the Commission reasonably considered consumer interests by prioritizing reliability over avoiding future oversupply when it made its determination.

by 10% above their estimated costs (effectively their fuel costs). The 10% adder is intended to account for uncertainties in determining future costs because suppliers must estimate their costs before submitting an offer to supply electricity to PJM's energy market. Generation resources are not required to use the 10% adder in their offers. In 2015, the Commission approved the 10% adder as just and reasonable. *See PJM Interconnection, LLC*, 153 FERC ¶ 61,289, ¶ 30 (2015). In the 2018 review of its capacity market, PJM proposed including the 10% adder in the energy market offer assumed for the Reference Resource in its EAS Revenue Estimate and the Commission approved the proposal as just and reasonable. Nonetheless, the Commission did not provide a satisfactory explanation for its approval, which reasoned decisionmaking requires, and we grant the Petitioners' petition in relevant part.

The evidence before the Commission indicated that combustion turbine plants may not utilize the 10% adder in their energy market offers. Economist James Wilson found that if the Reference Resource incorporated the 10% adder, its net EAS revenues would *decline* by up to 32%. Wilson further explained that most combustion turbine plants would face the uncertainties that underlie the 10% adder "relatively rarely, if at all." J.A. 271 (Wilson Aff.). The Independent Market Monitor[7] noted that many gas-fired generation resources—like the Reference Resource—exclude the 10% adder from their offers. And Brattle's research gathered "mixed reactions" regarding whether combustion turbine plants would face costs requiring an offset from the 10% adder. J.A. 146 (Brattle Curve Report). Brattle recommended only that "PJM investigate this

[7] The Independent Market Monitor is a neutral entity that oversees compliance with PJM's market rules. *See N.J. Bd. of Pub. Utils. v. FERC*, 744 F.3d 74, 91 n.15 (3d Cir. 2014).

further and *consider* applying the 10% cost offer adder." *Id.* at 147 (emphasis added).

The Commission found that utilizing the 10% adder "improves [the] accuracy" of the EAS Revenue Estimate. *PJM Interconnection*, 171 FERC ¶ 61,040 at ¶ 31. The Commission did not, however, assess whether, or the extent to which, combustion turbine plants would utilize the 10% adder. Nor did the Commission explain why such an assessment would be unnecessary. Moreover, the Commission's response to the contrary evidence can be described as little more than a hand wave. It approved the use of the 10% adder because the adder's general use was already approved as just and reasonable and because including the adder would make the EAS Revenue Estimate "consistent with existing energy market rules." *PJM Interconnection*, 167 FERC ¶ 61,029 at ¶ 128.

The net CONE should estimate the costs and revenues of the Reference Resource based on accurate market signals and data. *See PJM Interconnection, LLC*, 129 FERC ¶ 61,090, ¶¶ 9, 40 (2009). Whether the *type* of supplier the Reference Resource is based on would utilize the 10% adder, then, is a relevant consideration. Simply because suppliers are permitted to utilize the 10% adder—and recognizing there are good reasons for them to be so permitted—we do not think it reasonable to assume the suppliers *will* utilize the 10% adder, especially when the evidence here indicates that the use of the adder would run counter to a combustion turbine plant's economic interest. If no or few actual combustion turbine plants ever use the 10% adder, or if those that do use less than the maximum 10%, it makes little sense to include the 10% adder for a hypothetical combustion turbine plant's EAS Revenue Estimate if the goal is to estimate accurately the Reference Resource's revenues. Accordingly, we believe the Commission's approval of the 10% adder as just and

reasonable on this record is arbitrary and capricious. *See State Farm*, 463 U.S. at 43 (action arbitrary and capricious if agency "failed to consider an important aspect of the problem" or "offered an explanation for its decision that runs counter to the evidence before the agency").

For the foregoing reasons, the petition for review is granted in part and denied in part. As the Petitioners expressly abjure vacatur, we remand for reassessment of the 10% adder without vacatur.

So ordered.