

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

PJM Interconnection, L.L.C.

)

Docket No. ER21-1802-000

**MOTION FOR LEAVE
TO ANSWER AND ANSWER OF
PJM INTERCONNECTION, L.L.C.**

Pursuant to Rules 212 and 213 of the Federal Energy Regulatory Commission’s (“Commission”) Rules of Practice and Procedure,¹ PJM Interconnection, L.L.C. (“PJM”) moves to answer and answers the Protest of the PJM Power Providers (“P3”)² regarding PJM’s market rule revisions to effectuate the single rate component of reforms designed to enhance PJM’s current operational processes for generation “stability limits.”³ As explained below, the April 30 Filing demonstrated PJM’s proposal of not providing lost opportunity cost (“LOC”) payments for adherence to stability limitations as just and reasonable, and not unduly discriminatory.

I. MOTION FOR LEAVE TO ANSWER

PJM respectfully requests that the Commission grant this motion for leave to answer because it will help clarify the record and contribute to an understanding of the issues. While the Commission’s procedural rules do not provide for such answers, the Commission allows answers that clarify the record, contribute to an understanding of the

¹ 18 C.F.R. §§ 385.212 and 385.213.

² *PJM Interconnection, L.L.C.*, Protest of the PJM Power Providers Group, Docket No. ER 21-1802-000 (May 21, 2021) (“P3 Protest”).

³ *PJM Interconnection, L.L.C.*, Rate Component of Enhancements to Stability Limits Process, Docket No. ER21-1802-000 (Apr. 30, 2021) (“April 30 Filing”). Specifically, the April 30 Filing proposed a single revision to the Open Access Transmission Tariff (“Tariff”), Attachment K-Appendix, section 3.2.3(f), and to the identical corresponding provision in the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. (“Operating Agreement”), Schedule 1, section 3.2.3(f).

issues, or assist the Commission in its decision-making process.⁴ This pleading is offered to assist the Commission in its resolution of these issues.

II. ANSWER

A. The April 30 Filing Is Consistent with the Concept of Lost Opportunity Cost Payments.

1. *LOC payments are not required for stability limitations because stability limitations address risks internal to the generation resource.*

Contrary to P3's assertions, PJM's proposal in the April 30 Filing to not provide LOC payments for generators reducing output in accordance with assigned stability limitations is entirely consistent with the economic logic of LOC payments. The purpose of LOC payments is to incentivize resources to follow PJM's dispatch instructions when PJM needs specific resources to reduce their energy output to accommodate a transmission reliability issue (e.g., a transmission outage) or other reliability issue (e.g., to provide Synchronized Reserve). According to the Commission, "[l]ost opportunity cost payments are a reasonable approach to maintaining proper incentives for lower cost flexible resources to follow PJM's dispatch instructions. These payments are meant to influence the behavior of a specific generator to avoid over-generation."⁵ In particular, LOC payments are

⁴ See, e.g., *PJM Interconnection, L.L.C.*, 139 FERC ¶ 61,165, at P 24 (2012) (accepting answers to a protest because "they have provided information that assisted [the Commission] in [its] decision-making process"); *PJM Interconnection, L.L.C.*, 104 FERC ¶ 61,031, at P 10 (2003) (accepting answer because "it will not delay the proceeding, will assist the Commission in understanding the issues raised, and will [e]nsure a complete record upon which the Commission may act").

⁵ *PJM Interconnection, L.L.C.*, 167 FERC ¶ 61,058, at P 139 (2019); see also *PJM Interconnection, L.L.C.*, 170 FERC ¶ 61,018, at P 31 (2020) ("[I]mplementing fast-start pricing could cause lost opportunity cost payments to be ineffective because they may not provide correct incentives to follow dispatch."); *PJM Interconnection, L.L.C.*, 167 FERC ¶ 61,058, at P 41 (2019) ("PJM proposes to use lost opportunity cost payments to ensure that market participants have the incentive to follow dispatch instructions.").

provided to incentivize a generator to avoid posing or exacerbating a harm *external* to the generation resource, i.e., to the transmission system.

In contrast, providing LOC payments for stability limitations is not appropriate because the harm that the resource must avoid is *internal* to the resource. Stability limits ensure generation resources remain synchronous with the transmission system, i.e., to ensure the resource does not lose “stability.” The Commission has recognized that “[s]tability is the ability of a generator to operate in phase with the transmission system . . . before losing synchronism” and “is a function of generator output, generator loading, generator inertia, and the strength of the transmission system from the generator to the grid.”⁶ A generator is said to be stable if it remains connected to the transmission system following an event or disturbance on the system.

Thus, stability limitations address a reliability issue that is wholly distinct from the thermal issues most commonly associated with a transmission reliability issue. Stability limits aim to protect the resource itself, not the transmission system, and are thus a concern that is internal to the resource rather than one that is external. To this end, the Commission has found that “stability is analytically unique compared to voltage or thermal overload problems.”⁷

As such, P3 improperly conflates the internal reliability risks that stability limitations aim to prevent with external transmission outages and other reliability issues by claiming that a request by PJM to reduce a generator’s output for stability limitations is “no different than PJM backing down a generator to provide Synchronized Reserves, or to

⁶ *Del. Pub. Serv. Comm’n v. PJM Interconnection, L.L.C.*, 164 FERC ¶ 61,035, at P 6 n.14 (2018).

⁷ *Del. Pub. Serv. Comm’n*, 164 FERC ¶ 61,035, at P 38.

change output away from its otherwise economic output to provide Regulation and Frequency Response.”⁸ This is a false analogy because stability limitations aim to prevent reliability issues that present a risk *to the generator*, unlike those reliability risks that are external to the resource.

2. *Because stability limitations present a different behavioral incentive, LOC payment rules should reflect this distinction.*

P3 is mistaken in its claim that without LOC compensation, the generator would try to maximize its profit by ignoring dispatch instructions and, and thus also jeopardize reliability of the transmission system.⁹ Because stability limitations address risks internal to the resource, paying LOC for output limitations associated with generation stability limits is unnecessary. That is, generators already have a strong incentive to operate within those limits and do not require an extra monetary incentive to avoid behaving in a manner that may physically harm their resource.¹⁰

P3’s response to PJM’s explanation that there is no need for a monetary incentive to follow PJM’s dispatch instruction ignores that the reliability issues presented by stability constraints are fundamentally internal. P3 argues that PJM should offer LOC payments to incentivize generators subject to stability limitations because PJM could not know with certainty that “any damage caused by not honoring a stability limit would be limited to just the single generator.”¹¹ But, this claim entirely misses the point. The risk of incurring damage to itself should provide a generator with sufficient incentive to abide by PJM-

⁸ P3 Protest at 3-4.

⁹ P3 Protest at 4.

¹⁰ April 30 Filing at 7-8.

¹¹ P3 Protest at 6.

specified stability limits. A rational resource operator would not make a decision to take that risk, regardless of other possible impacts to the transmission system (or energy market revenues). In other words, a resource operator would not act in an economically irrational manner. Because the resource is in physical danger if it generates energy above an assigned stability limit, the overall profit maximizing behavior, in the face of stability constraints, is to operate within the limits set by PJM and protect the resource.

3. *The April 30 Filing preserves the incentive structure that LOC payments are intended to promote.*

It is important to have the right incentive structure in place for generators to take corrective action with respect to stability constraints. There are multiple measures that generators can take to protect against the risk of temporary output limitations as a result of generator stability limits.¹² In the face of stability limitations, the resource's incentive is to not cause harm to itself, and to make efforts to improve the unit through equipment that can be installed to mitigate stability-related issues, such as Power System Stabilizers, or by siting units in more stable areas.¹³

However, generators would have no incentive to take such measures if they received LOC payments for temporary output limitations associated with generator stability limits. Crediting resources that do not take steps to address stability constraints would provide no incentive for them to upgrade; rather, they would be compensated for *not* investing to mitigate the problem. Paying LOC may incentivize non-optimal behaviors

¹² See April 30 Filing at 10.

¹³ PJM or Transmission Owner analysis has identified stability-limited areas of the system. These areas are explicitly identified and documented in PJM Manual 3B. See *PJM Manual 3B: Transmission Operating Procedures (CEII)*, Rev. 58.2, PJM Interconnection, L.L.C. (May 20, 2021), <https://www.pjm.com/-/media/documents/manuals/m3b.ashx> (“PJM Manual 3B”).

and ultimately lead to more units prone to stability issues. The proper incentive is for resources to install appropriate equipment or site their facilities nearer to load, where stability limitations are less likely to occur. As sophisticated entities able to take steps to proactively mitigate the risk associated with output reductions from stability limitations, generators, and not customers, should bear responsibility for mitigating this risk. Awarding LOC payments for abiding by stability limitations would inappropriately redirect costs associated with these avoidable risks to customers who, unlike generators, have no ability to mitigate them.

B. PJM’s Proposal to Not Offer LOC Payments for Stability Limits Is Just and Reasonable, and Not Unduly Discriminatory.

1. PJM’s proposal in the April 30 Filing is not unduly discriminatory.

P3 asserts that PJM’s proposal is discriminatory because “[i]t discriminates by the type of reliability issue by which it is willing to pay lost opportunity costs.”¹⁴ P3’s claim is misplaced. First, there is no discrimination because all resources receive the same treatment. All generators will receive LOC payments when PJM makes a request to limit output because of transmission constraints or other reliability issues, and all resources that are requested to limit output to conform to stability limitations will not receive such payments. Because every Market Seller receives the same treatment in each circumstance, there can be no discrimination.

Second, to the extent that P3 is attempting to allege discrimination via an unjust distinction among the treatment of resources, under Federal Power Act (“FPA”), discrimination is only unlawful if it is “undue;”¹⁵ that is, “undue discrimination can *only*

¹⁴ P3 Protest at 11.

¹⁵ See 16 U.S.C. § 824e(a) (“[T]he Commission . . . shall find that any rate, charge, or classification, . . . by any public utility for any transmission or sale subject to the jurisdiction of the Commission, or that any rule,

occur when two similarly situated customers are treated differently, and there is no justification for the differing treatment.”¹⁶ In other words, “to show undue discrimination, the [a party] must demonstrate that the two classes of customers are similarly situated for purposes of the [provision at issue].”¹⁷ As discussed above, output reductions for stability limitations are fundamentally different from transmission constraints and other reliability issues, because they are directed at protecting the generator, while the other reliability-based directives aim to protect the transmission system. Given the corresponding dichotomy between risk that is internal and external to the generator, as described above, the distinction proposed by PJM in the April 30 Filing is entirely warranted.

2. *PJM’s proposal in the April 30 Filing is just and reasonable and complies with Commission regulations and market behavior rules.*

P3 claims that PJM asks the generator to reduce its Economic Maximum value to something below its capability, absent any constraints, thus providing inaccurate information in violation of section 35.41(b) of the Commission’s regulations.¹⁸ This issue is entirely beyond the scope of this proceeding, but even if it were in scope, P3’s claim is

regulation, practice, or contract affecting such rate, charge, or classification is unjust, unreasonable, unduly discriminatory or preferential . . .”).

¹⁶ *PacifiCorp Elec. Operations*, 54 FERC ¶ 61,296, at 61,855 (1991) (emphasis added); see also *Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities*, Order No. 697, 119 FERC ¶ 61,295, at P 963 (2007) (“The standard for judging undue discrimination or preference remains what it has always been: disparate rates or service for similarly situated customers.”). The Commission has held “that a finding of undue discrimination requires a showing that ‘(1) two classes of customers are treated differently; and (2) the two classes of customers are similarly situated.’” *Puget Sound Energy, Inc. v. All Jurisdictional Sellers of Energy*, 151 FERC ¶ 61,173, at P 43 (2015) (quoting *Energy Transfer Partners, L.P.*, 120 FERC ¶ 61,086, at P 169 (2007)).

¹⁷ “*Complex*” *Consol. Edison Co. v. FERC*, 165 F.3d 992, 1012 (D.C. Cir 1999); see *DC Energy, LLC v. PJM Interconnection, L.L.C.*, 144 FERC ¶ 61,024, at P 89 (2013) (denying complaint because “Complainants fail to provide details of these other market participants’ transactions that show that they are similarly situated and therefore have been unduly discriminated against”).

¹⁸ Protest at 7-8 (citing 18 C.F.R. § 35.41).

meritless.¹⁹ The April 30 Filing does not require Market Sellers to in any way alter their Economic Maximum offer parameters in the face of stability limitations. Rather, under the reforms adopted by PJM stakeholders, Market Sellers would be free to offer the resource's full capacity, and *PJM* would in day-ahead and real-time limit the resource based on the stability constraints.

Nonetheless, as explained in the April 30 Filing, PJM's pre-April 30 Filing process allows Market Sellers to reduce a resource's Economic Maximum to conform with communicated stability limits.²⁰ When a generator reports output levels that are within stability limitations, it is providing accurate information, because the report reflects the levels the unit can achieve while following economic dispatch. P3's complaint about the *existing* process is incorrect, as a seller's compliance with PJM's offer instructions in fact is consistent with section 35.41(a). That regulation provides, in relevant part, that a Market Seller "must operate and schedule generating facilities, undertake maintenance, declare outages, and commit or otherwise bid supply in a manner that complies with the Commission-approved rules and regulations of the applicable market." PJM's stability-related instructions are consistent with the rules and regulations set forth in the Tariff and Operating Agreement. Further, section 35.41(b) is designed to address instances in which the generator has information that the RTO or the IMM does not.²¹ That is simply not the case here. In the case of stability limitations, *PJM* holds the data and has the wide-area

¹⁹ Likewise, P3's claim that "[i]f generator declines to provide such inaccurate information . . . then PJM avers in its filing that it will impose a 'thermal surrogate'" is also misplaced. P3 Protest at 8. Imposing a thermal surrogate is not part of PJM's proposal in the April 30 Filing.

²⁰ See April 30 Filing at 3-4.

²¹ Cf. *Alliance NYGT LLC*, 174 FERC ¶ 61,086 (2021) (order approving stipulation and consent agreement regarding an Office of Enforcement determination that a generation operator violated section 35.41 by communicating inaccurate information about the type of fuel used to operate the resource).

view that allows it to actually calculate the resource's stability limit. The generator is unable to perform this calculation by itself.

3. *The April 30 Filing is complete and it is appropriate to include detail regarding the "generator output constraint" method in the PJM Manuals.*

P3 asserts that the Commission should reject the April 30 Filing because it does not provide language explaining the generator output constraint methodology PJM will employ to manage stability issues.²² The Commission should reject this argument. As an initial matter, PJM and stakeholders have preliminarily worked on manual revisions to implement the April 30 Filing, including the details for how PJM will employ generator output constraints.²³ PJM educated stakeholders on how a generator output constraint is a means to be used by PJM operators to manage the transmission system;²⁴ just like thermal constraints PJM employs in the event of a thermal violation on the transmission system.

²² P3 Protest at 14-16. P3's complaint regarding the "thermal surrogate" approach, *see id.* at 11-12, is beyond the scope of this proceeding. The solutions package approved by PJM stakeholders did not include this operator action—because it will be replaced by the Generator Output Constraint approach.

²³ *See* Market Implementation Committee, *Meeting Materials*, PJM Interconnection, L.L.C., Item 11B (Nov. 5, 2020), <https://www.pjm.com/-/media/committees-groups/committees/mic/2020/20201105/20201105-item-11b-m3-m28-revisions-redline.ashx>. Upon Commission approval of the April 30 Filing, the manual revisions will be evaluated and approved through the appropriate PJM standing committees for endorsement.

²⁴ *See, e.g.*, Market Implementation Committee, *Meeting Materials*, PJM Interconnection, L.L.C., Item 5A (Apr. 15, 2020), <https://www.pjm.com/-/media/committees-groups/committees/mic/2020/20200415/20200415-item-05a-stability-limits-in-operations-and-markets-pjm-package.ashx>; Market Implementation Committee, *Meeting Materials*, PJM Interconnection, L.L.C., Item 5A (Aug. 5, 2020), <https://www.pjm.com/-/media/committees-groups/committees/mic/2020/20200805/20200805-item-05a-stability-limits-in-markets-and-operations.ashx>; Market Implementation Committee, *Meeting Materials*, PJM Interconnection, L.L.C., Item 2B (Mar. 11, 2020), <https://www.pjm.com/-/media/committees-groups/committees/mic/2020/20200311/20200311-item-02b-capacity-constraint-approach-to-address-stability-limits.ashx>.

PJM also discussed draft manual language describing PJM’s implementation of generator output constraints.²⁵

The Commission grants PJM operators discretion in dispatch decisions; the generator output constraint is but one tool in their toolbox used to keep the grid in balance and running economically and efficiently. The Commission provides PJM with “discretion to dispatch resources as necessary to meet load and ensure reliability depending on the circumstances.”²⁶ The Commission has found that PJM’s discretion when making dispatch decisions for reliability reasons “does not require prior stakeholder approval or a demonstration that its dispatch strategy is better than other strategies.”²⁷

Additionally, longstanding Commission precedent holds that technical implementation details and operational protocols need not be part of the filed rate.²⁸ Because “[t]here are many areas where a tariff can deal with general matters and leave the specifics for the application process, the service agreement, or the operating procedures,”²⁹ it is “appropriate for [the PJM] Manuals to contain implementation details, such as instructions, guidelines, examples and charts, which guide internal operations and inform market participants” of how PJM conducts its operations.³⁰ The generator output constraint is an implementation detail that is appropriately set forth in the PJM Manuals.

²⁵ See Market Implementation Committee, *Meeting Materials*, PJM Interconnection, L.L.C., Item 11B (Nov. 5, 2020), <https://www.pjm.com/-/media/committees-groups/committees/mic/2020/20201105/20201105-item-11b-m3-m28-revisions-redline.ashx>.

²⁶ *PPL EnergyPlus, LLC v. PJM Interconnection, L.L.C.*, 117 FERC ¶ 61,338, at P 33 (2006).

²⁷ *Dominion Res. Servs. v. PJM Interconnection, L.L.C.*, 142 FERC ¶ 61,068, at P 32 (2013).

²⁸ See, e.g., *Energy Storage Ass'n v. PJM Interconnection, L.L.C.*, 162 FERC ¶ 61,296, at P 103 (2018) (citing *Cal. Indep. Sys. Operator Corp.*, 122 FERC ¶ 61,271, at P 16 (2008)).

²⁹ *Pennsylvania-New Jersey-Maryland Interconnection*, 81 FERC ¶ 61,257, at 62,242 & n.50 (1997).

³⁰ *Cal. Indep. Sys. Operator Corp.*, 122 FERC ¶ 61,271, at P 16 (2008); see also *Monterey MA, LLC v. PJM Interconnection, L.L.C.*, 165 FERC ¶ 61,201, at P 52 (2018).

III. CONCLUSION

For the reasons set forth in this answer and in the April 30 Filing, the Commission should accept the changes proposed in the April 30 Filing.

Respectfully submitted,

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June 10, 2021

CERTIFICATE OF SERVICE

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

Dated at Washington, D.C., this 10th day of June 2021.

/s/ Uju Okasi
Uju Okasi

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