

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

PJM Interconnection, L.L.C.

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Docket No. ER21-278-000

**ANSWER AND MOTION FOR LEAVE TO ANSWER
OF THE INDEPENDENT MARKET MONITOR FOR PJM**

Pursuant to Rules 212 and 213 of the Commission's Rules and Regulations,¹ Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor ("Market Monitor") for PJM Interconnection, L.L.C. ("PJM"),² submits this answer to the answer filed by PJM on April 13, 2021 ("April 13th Answer"). The April 13th Answer responds to the comments filed on March 22, 2021, by the Market Monitor, LS Power Associates, L.P. ("LS Power"), and the PJM Power Providers Group ("P3") regarding the PJM response filed March 1, 2021, to the deficiency letter issued in this proceeding on December 22, 2020. PJM's proposed revisions to its market rules, filed on October 30th, 2020 ("October 30th Filing"), apply an Effective Load Carrying Capability ("ELCC") approach for determining the amount of capacity that variable (intermittent), limited duration (storage), and combination (hybrid) resources may provide. The Market Monitor has explained in its November 20, 2020, comments, and its answer filed December 10, 2020, that the October 30th Filing should be rejected because it would establish long lived ELCC values that are incorrect because they are based on what PJM admits is a rushed and incomplete analysis.

¹ 18 CFR §§ 385.212 & 385.213 (2020).

² Capitalized terms used herein and not otherwise defined have the meaning used in the PJM Open Access Transmission Tariff ("OATT"), the PJM Operating Agreement ("OA") or the PJM Reliability Assurance Agreement ("RAA").

The issues should be addressed in a substantial (i.e. 12 month or more) stakeholder process designed to resolve all the complex issues. PJM is in the middle of rethinking significant parts of its capacity market design. Both the MOPR and other fundamental capacity market design issues are currently under discussion in the stakeholder process. These design features need to be considered together in order to ensure that the capacity market can work coherently and consistently. This further confirms that it would be a mistake to establish rigid and long lasting ELCC rules based on the old capacity market design and based on incomplete analysis.

The April 13th Answer fails to refute identified flaws in the PJM ELCC proposal and provides no reason for the Commission to accept it. The Market Monitor's proposal to rely on the current rules for defining the capacity contribution of intermittent or limited resources while stakeholders take the time to develop a workable and comprehensive ELCC proposal that fits with the modified capacity market design remains the best path forward.

The April 13th Answer narrowly focuses on two issues included in the March 22, 2021, responses from the Market Monitor, LS Power and P3. The two issues discussed in the April 13th Answer are: the treatment of capacity injection rights (CIRs) in the calculation of capacity values for ELCC resources; and the need to update or redesign the Capacity Emergency Transfer Objective (CETO) and Capacity Emergency Transfer Limit (CETL) tests that define locational constraints in the capacity market. PJM does not address the other issues included in the March 22, 2021, responses. PJM does not address the comments by the Market Monitor and others regarding PJM's responses to question 2 and question 3 in the deficiency letter related to the ELCC floors and the redistribution of capacity that must take place in support of the floors.³ ⁴ ⁵ PJM does not respond to the Market Monitor's

³ Comments and Motions of the Independent Market Monitor for PJM, ER21-278-001 (March 22, 2021) at 7-11 ("IMM Comments").

⁴ Protest of LS Power Associates, L.P., ER21-278-001 (March 22, 2021) at 3, 12 ("LS Power").

comments on the use of the delta method to allocate the ELCC Portfolio UCAP to the ELCC Classes, the subject of question 1 in the deficiency letter.⁶

I. ANSWER

A. PJM Fails to Address Injection Rights and Transmission Constraints

In previous comments the Market Monitor and others have pointed out that the PJM ELCC capacity values are calculated without consideration of capacity injection rights (CIRs) and that this is a significant error.⁷ The PJM ELCC model assumes generation by ELCC resources in excess of their CIRs and this unsupportable assumption is central to the results of the ELCC model. PJM responds that this is “an issue that originated under the current approach for determining the capacity level of Variable Resources.”⁸ PJM fails to point out that the issue has little if any impact at present but that it will have an extremely large impact on the ELCC values. Rather than design an ELCC approach that addresses a known problem, PJM has proposed an approach that dramatically escalates the impact of the issue and PJM argues that the new design is just and reasonable because the current design has the same problem as at present. This argument is illogical, fundamentally incorrect, and unsupportable.

The origin of the issue is irrelevant. The ELCC model, on which PJM bases its proposed 13 year ELCC values, simply assumes, without support, that the transmission system will be able to absorb output from intermittent resources in excess of CIRs despite the fact that the deliverability tests for the resources are based on CIRs. The definition of

⁵ Comments of the PJM Power Providers Group, ER21-278-001 (March 22, 2021) at 8 (“Power Providers”).

⁶ IMM Comments) at 3.

⁷ IMM Comments and Motions at 12; LS Power at 12; Power Providers Group at 5–6.

⁸ April 13th Answer at 4.

ELCC values depends directly on that incorrect assumption. The issue cannot be ignored or addressed later. The ELCC model includes this assumption and therefore the ELCC results are not correct. The ELCC values create long term commitments and this issue cannot be addressed after the fact.

PJM fails to acknowledge the significance of the issue. In addition, PJM now claims that the PJM ELCC proposal somehow implicitly accounts for transmission limits. PJM states that “historic transmission limitations are implicitly accounted for in the ELCC modeling.”⁹ This vague and effectively meaningless assertion misses the point. Transmission limits must be explicitly accounted for. In the October 30th Filing, PJM recognized that “[t]ransmission limitations are not explicitly modeled in the ELCC simulations” and that the model assumes there are no “transmission-related reliability issues within the PJM footprint.”¹⁰ PJM’s accurate characterization of the model in that filing highlighted a significant issue that PJM now proposes to ignore.

PJM asserts that PJM’s proposed ELCC method is “based, in part, on each Variable Resource’s actual output for each historical calendar year.”¹¹ The assertion is incorrect. PJM does not have actual output data for each historical calendar year for each variable resource that are included in its ELCC calculations. In fact PJM combines what it terms “historical putative” generation data with actual historical generation data in the ELCC analysis.¹² As a reminder, PJM repeatedly uses the term putative to describe important parts of its data.¹³

⁹ April 13th Answer at 5.

¹⁰ October 30th Filing, Attachment C (Rocha Garrido Affidavit) ¶ 28.

¹¹ April 13th Answer at 5.

¹² October 30th Filing, Attachment C (Rocha Garrido Affidavit) ¶ 15b.

¹³ PJM describes putative output as “an estimate of the hourly output that resource would have produced in a historical hour if that resource had existed in that hour.” October 30th Filing, Attachment A, proposed revised RAA Schedule 9.1 Section G.

As the Market Monitor pointed out in an earlier filing,¹⁴ putative means, inter alia: imagined; postulated; hypothetical.¹⁵ Presumably PJM uses the more arcane term putative rather than directly stating that the data is not actual data because this approach, based on assumptions mischaracterized as data, is unsupportable as the basis for establishing long lived ELCC values. It is logically impossible that PJM's putative data implicitly accounts for transmission limits or any other feature of the network. The putative generation did not actually exist and did not have specific locational characteristics and therefore could have not been affected by transmission limits.

Significantly on the question of accounting for transmission limits, there is no information on the location or the deliverability of any of the limited resources which are all modeled at the PJM level and not by location. The generation from limited resources is the sum of actual generation and assumed generation (putative) for the entire PJM area. This sum was used to create an hourly output shape. That output shape is multiplied by an exogenously determined level of limited resource capability to define the total output from limited resources that is core to the ELCC analysis.¹⁶ Even the fact that the transmission system delivered the very small amount of actual limited generation that was produced in PJM is irrelevant. Even PJM's actual generation is not used directly as actual generation in the ELCC calculations. The locational information was ignored. The historical data was used only as one input for hourly output shapes. Given that the locational information was ignored and given that future levels of limited resource capability significantly exceed the historical levels of such capability on which the hourly output shapes are based, the assertion that the PJM ELCC method accounts for transmission limitations and

¹⁴ IMM Comments at 10.

¹⁵ Oxford English Dictionary <<https://www.oed.com/>> Accessed Nov. 19, 2020.

¹⁶ October 30th Filing, Attachment C (Rocha Garrido Affidavit) ¶ 15b.

deliverability, due to the use of hourly output shapes based in part on actual generation, is clearly incorrect and unsupported.

B. PJM Fails to Support Its Claim that the Proposed ELCC Method Is Superior to Status Quo.

The current method for determining capacity values for wind and solar resources is a straightforward and simple calculation. For each of the three most recent summer periods, a resource specific capacity factor is calculated and then the resource's capacity value is the simple average of the three capacity factors.¹⁷ ¹⁸ The same approach is used to develop the class average generic capacity factors.

PJM states that hours for which there is a transmission constraint limiting output are excluded from the current capacity value calculation for wind and solar resources.¹⁹ Based on this observation PJM concludes that “the ELCC construct takes account of actual transmission constraints in a way that the current approach does not by using the “*actual curtailed output* in the determination throughout the ELCC analysis” and is therefore an improvement to the current rules for determining solar and wind generator capacity values.²⁰ This is not an accurate statement. PJM’s historical generation data is used as only a small part of the output shapes which are part of the basis for the forecast generation from limited resources used in the ELCC model. Even with that small role, there is no reason to believe that the actual patterns of historical generation represents what will happen in the future as a large amount of limited resources are added. There is absolutely no basis for

¹⁷ See “PJM Manual 21 (Rules and Procedures for Determination of Generating Capability), Revision 14,” Appendix B (August 1, 2019).

¹⁸ The summer period for determining the capacity factor includes the 4 hour period beginning at 3:00 PM local time and ending at 7:00 PM local time for each day in June, July and August.

¹⁹ April 13th Answer at 5 & n.18.

²⁰ April 13th Answer at 5.

PJM's claim that the proposed ELCC method is an improvement over the current rules in regards to deliverability.²¹

C. CETO/CETL

The LS Power protest addresses the need for PJM to update or redesign the Capacity Emergency Transfer Objective (CETO) and Capacity Emergency Transfer Limit (CETL) tests.²² The CETO/CETL tests are used to define transmission limits between and among LDAs in the PJM Capacity Market and play a key role in determining whether LDAs price separate in the capacity market. LS Power Witness Shanker explains, PJM's reliability planning tool (PRISM) is not locational and assumes infinite transmission and therefore no transmission limits.²³ Witness Shanker explains further that PJM has historically addressed the limitations of the PRISM tool by performing separate analyses, the CETO and CETL tests, to test the transfer capability between LDAs. Witness Shanker points out that the CETO and CETL tests, as currently designed, assume that all capacity is unlimited and that the tests need to updated or redesigned to account for a capacity fleet which may include a significant amount of limited resources.²⁴ Additionally Witness Shanker points out that the CETO and CETL tests are based on load deliverability under peak conditions and that each LDA is analyzed separately.²⁵

The Market Monitor agrees that improvements to the CETO and CETL tests are needed to better represent the transmission capability during all hours of the day and to address the impacts of increased penetration of renewable and limited duration resources.

²¹ IMM Comments at 12–13.

²² Protest of LS Power Associates, L.P., ER21-278-001 (March 22, 2021).

²³ LS Power, Affidavit of Roy J. Shanker, Ph.D. on Behalf of LS Power Associates, L.P. at ¶ 12.

²⁴ *Id.* at ¶ 13.

²⁵ *Id.* at ¶¶ 12, 16.

PJM dismisses (at 6) the LS Power arguments by repeating that the PJM ELCC method implicitly accounts for transmission limitations for ELCC resources. PJM's response is incorrect. PJM does concede that the CETO/CETL tests "will likely need to be revisited in the future."

PJM misstates and refuses to respond to the deliverability issues raised by the Market Monitor and others. It is unacceptable that significant issues that affect the ELCC values proposed by PJM are ignored or postponed to a future date. PJM proposes to establish long lived ELCC values without a complete analysis. The entire ELCC analysis, including the deliverability issues, should be addressed comprehensively.

PJM incorrectly argues that their proposed model implicitly accounts for the deliverability issues while simply assuming 100 percent deliverability. The two positions are not compatible. PJM also dismisses the related issues as technical considerations that will be addressed at a future time. PJM states (at 3) that "many of PJM's current processes" will require review due to expected levels of limited capacity resources but PJM says "not everything can be done at once." While it is appropriate to recognize the breadth of the issues raised in the ELCC proceeding, PJM's comments further support the appropriateness of taking the time to work out the complex issues raised and the inappropriateness of attempting to lock in ELCC values based on what is admittedly a significantly incomplete analysis. This is a missed opportunity for PJM to formulate a coherent policy which aligns the capacity value and CIR determinations, and other deliverability issues that impact reliability planning. If the PJM ELCC proposal is approved, the future policy initiatives addressing CIR, CETO and CETL will be built around a rigid set of inefficient ELCC rules and values and the process will not be able to produce a coherent and internally consistent policy for valuing the reliability contributions of all resources, including intermittent resources.

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.²⁶ In this answer, the Market Monitor provides the Commission with information useful to the Commission's decision making process and which provides a more complete record. Accordingly, the Market Monitor respectfully requests that this answer be permitted.

²⁶ See, e.g., *PJM Interconnection, L.L.C.*, 119 FERC ¶61,318 at P 36 (2007) (accepted answer to answer that "provided information that assisted ... decision-making process"); *California Independent System Operator Corporation*, 110 FERC ¶ 61,007 (2005) (answer to answer permitted to assist Commission in decision-making process); *New Power Company v. PJM Interconnection, L.L.C.*, 98 FERC ¶ 61,208 (2002) (answer accepted to provide new factual and legal material to assist the Commission in decision-making process); *N.Y. Independent System Operator, Inc.*, 121 FERC ¶61,112 at P 4 (2007) (answer to protest accepted because it provided information that assisted the Commission in its decision-making process).

III. CONCLUSION

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

Respectfully submitted,

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Dated: April 29, 2021

CERTIFICATE OF SERVICE

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

Dated at Eagleville, Pennsylvania,
this 29th day of April, 2021.



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