

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

**PJM Interconnection, L.L.C.**

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**Docket No. ER21-278-001**

**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,<sup>1</sup> PJM Interconnection, L.L.C. (“PJM”) respectfully submits this Motion for Leave to Answer and Answer to several comments and protests<sup>2</sup> filed in response to PJM’s March 1, 2021 response to the deficiency letter<sup>3</sup> issued in the above-referenced proceeding. This proceeding relates to revisions to the Reliability Assurance Agreement Among Load-Serving Entities in the PJM Region (“RAA”) and PJM’s Open Access Transmission Tariff (“Tariff”) to create and implement an Effective Load Carrying Capability (“ELCC”) construct for determining the relative amount of capacity that variable, limited duration, and combination resources may offer in PJM’s capacity market (known as the Reliability Pricing Model or RPM) or provide in a Fixed Resource Requirement capacity plan.

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<sup>1</sup> 18 C.F.R. §§ 385.212, 385.213.

<sup>2</sup> *PJM Interconnection, L.L.C.*, Comments and Motions of the Independent Market Monitor for PJM, Docket No. ER21-278-001 (Mar. 22, 2021) (“IMM Comments”); *PJM Interconnection, L.L.C.*, Protest of LS Power Associates, L.P., Docket No. ER21-278-001 (Mar. 22, 2021) (“LS Power Protest”); *PJM Interconnection, L.L.C.*, Comments of the PJM Power Providers Group, Docket No. ER21-278-001 (Mar. 22, 2021) (“P3 Comments”); *PJM Interconnection, L.L.C.*, Comments of the Public Interest Organizations, Docket No. ER21-278-001 (Mar. 22, 2021). The abbreviations associated with each of these defined pleadings will be used to indicate the corresponding filing party throughout this Answer.

<sup>3</sup> *PJM Interconnection, L.L.C.*, Response to Commission Deficiency Letter of PJM Interconnection, L.L.C., Docket No. ER21-278-001 (Mar. 1, 2021) (“March 1 Response”).

## **I. MOTION FOR LEAVE TO ANSWER**

While an answer to a protest is not a matter of right under the Commission's regulations,<sup>4</sup> the Commission routinely permits such answers when the answer provides useful and relevant information that will assist the Commission in its decision-making process,<sup>5</sup> corrects factual inaccuracies and clarifies the issues,<sup>6</sup> assures a complete record in the proceeding,<sup>7</sup> provides information helpful to the disposition of an issue,<sup>8</sup> or permits the issues to be narrowed.<sup>9</sup>

This answer satisfies each of these criteria, and accordingly PJM respectfully requests that the Commission grant leave and accept this answer.

## **II. ANSWER**

PJM's ELCC methodology is a just and reasonable improvement over the current approach for assigning the maximum capacity level an ELCC Resource (e.g., wind, solar, battery) may offer to provide in PJM. Yet, a handful of parties claim that PJM's proposal is "fundamentally flawed" or "premature" because the ELCC model does not "properly consider [Capacity Interconnection

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<sup>4</sup> 18 C.F.R. § 385.213(a)(2).

<sup>5</sup> See, e.g., *Pioneer Transmission, LLC v. N. Ind. Pub. Serv. Co.*, 140 FERC ¶ 61,057, at P 94 (2012) (accepting answers that "provided information that assisted us in our decision-making process"); *Midwest Indep. Transmission Sys. Operator, Inc.*, 131 FERC ¶ 61,285, at P 6 n.10 (2010) (same); *Sw. Power Pool, Inc.*, 131 FERC ¶ 61,252, at P 19 (2010) (same), *order on reh'g*, 137 FERC ¶ 61,075 (2011); *Tallgrass Transmission, LLC*, 125 FERC ¶ 61,248, at P 26 (2008) (accepting answer in proceeding that "provided information that assisted us in our decision-making process"); *Duke Energy Ky., Inc.*, 122 FERC ¶ 61,182, at P 25 (2008) (same); *Midwest Indep. Transmission Sys. Operator, Inc.*, 120 FERC ¶ 61,083, at P 23 (2007) (permitting answer to protests when it provided information that assisted the Commission in its decision-making process).

<sup>6</sup> See, e.g., *Entergy Servs., Inc.*, 126 FERC ¶ 61,227, at P 76, *order on clarification & reh'g*, 127 FERC ¶ 61,225 (2009).

<sup>7</sup> See, e.g., *Pac. Interstate Transmission Co.*, 85 FERC ¶ 61,378, at 62,443 (1998), *order on reh'g*, 89 FERC ¶ 61,246 (1999); see also *Morgan Stanley Cap. Grp., Inc. v. N.Y. Indep. Sys. Operator, Inc.*, 93 FERC ¶ 61,017, at 61,036 (2000) (accepting an answer that was "helpful in the development of the record").

<sup>8</sup> See, e.g., *CNG Transmission Corp.*, 89 FERC ¶ 61,100, at 61,287 n.11 (1999).

<sup>9</sup> See, e.g., *PJM Interconnection, L.L.C.*, 84 FERC ¶ 61,224, at 62,078 (1998); *New Energy Ventures, Inc. v. S. Cal. Edison Co.*, 82 FERC ¶ 61,335, at 62,323 n.1 (1998).

Rights (“CIRs”)]”<sup>10</sup> of each modeled resource, or because it does not consider transmission limitations. These technical complaints do not demonstrate that PJM’s ELCC construct is not a just and reasonable improvement over the current approach for measuring the reliability contribution of ELCC Resources.

The evolution of the resource mix from one predominantly composed of Unlimited Resources (e.g., a natural gas-fired combined cycle generator) to one that is composed of a much greater level of resources with varying hourly output capability means that PJM and its stakeholders will need to re-evaluate many aspects of PJM’s current practices. While the need is apparent to closely review many of PJM’s current processes (and their underlying assumptions) to ensure that they properly account for the increasing participation levels of ELCC Resources, not everything can be done at once. Neither PJM nor its stakeholders ever intended for all requisite reforms to be effectuated through a single Federal Power Act 205 filing.<sup>11</sup>

PJM has proposed in this proceeding to update its approach for determining the reliability contribution of ELCC Resources, and PJM has recently initiated a stakeholder process to examine how to update its approach for determining CIRs for ELCC Resources.<sup>12</sup> Other planning assumptions will also undergo review. Indeed, commenters have highlighted that PJM will also need to evaluate its approach for determining Capacity Emergency Transfer Objectives (“CETOs”) and Capacity Emergency Transfer Limits (“CETLs”). But, such future examinations of other

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<sup>10</sup> LS Power Protest at 12.

<sup>11</sup> 16 U.S.C. § 824d.

<sup>12</sup> See *Capacity Interconnection Rights for ELCC Resources*, PJM Interconnection, L.L.C., 1 (Mar. 30, 2021), <https://www.pjm.com/-/media/committees-groups/committees/pc/2021/20210406/20210406-item-06d-cir-issue-charge-clean.ashx> (“This effort will ensure the appropriate application of CIRs to Generation Capacity Resources, with an emphasis on ELCC Resources. More specifically, this effort will address the initial assignment of CIRs, the retention of CIRs through the implementation of appropriate testing procedures, the inclusion of CIRs in resource adequacy studies and the role of CIRs in determining a resource’s UCAP.”). The Issue Charge regarding CIRs passed the Planning Committee with 99% support.

changes needed to accommodate the growing presence of ELCC Resources do not mean that PJM's ELCC proposal is incomplete or premature. In fact, the ELCC proposal is a fully functional, standalone process that needs to be timely implemented, and provides a solid foundation upon which other future planning changes can be overlaid. Therefore, the Commission should not delay implementation of the ELCC approach while those other issues are examined.

***A. The ELCC Construct Does Not Need to Consider CIRs in Making Just and Reasonable Capacity Capability Determinations***

Commenters argue that the ELCC model is fatally flawed because it does not consider CIRs in determining an ELCC Resource's maximum reliability contribution.<sup>13</sup> Specifically, commenters state that the ELCC model "likely considers instances where resources produce at high levels of outputs that may not be supported by their CIRs and thus may not be deliverable to the system."<sup>14</sup> However, these concerns are overstated. That CIRs are not considered in determining an ELCC Resource's capacity level is a continuation of the status quo approach. This is not a "flaw" in PJM's present proposal in this proceeding, but rather an issue that originated under the current approach for determining the capacity level of Variable Resources (i.e., wind and solar resources).

The capacity level of wind and solar resources has long been measured as the amount of energy "that it can reliably contribute during summer peak hours," and PJM has long made such determinations "based on historical operating data" over 368 summer peak hours, without

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<sup>13</sup> P3 Comments at 3-8; IMM Comments at 12-13; LS Power Protest at 12-14.

<sup>14</sup> P3 Comments at 5; *see also* LS Power Protest at 13 ("[T]he ELCC model would initially allow and recognize as a contribution to the reliability of the entire PJM system the forecasted energy from that facility up to 100 MW at any hour, regardless of the much smaller CIR." (internal emphasis, citation, and quotation marks omitted)); IMM Comments at 12 ("PJM does not have a method for reconciling the differences between current CIR values and expected ELCC values.").

consideration of a resource's CIRs.<sup>15</sup> Under ELCC, PJM will estimate the reliability contribution of Variable Resources based, in part, on each Variable Resource's actual output for each hour of each historical calendar year considered in the ELCC analysis.<sup>16</sup> Dr. Rocha-Garrido explains that "[i]n this way, the historical relationship between the output of Variable Resources and load conditions in the system is not lost in the ELCC model."<sup>17</sup> By including historical performance in the determination of the capacity level and reliability contribution of an ELCC Resource, historic transmission limitations are implicitly accounted for in the ELCC modeling. In other words, the ELCC approach does not completely disregard transmission limitations, as some commenters allege.

Indeed, the ELCC construct improves upon the status quo rules for wind and solar by recognizing actual operating transmission constraints that impacted historical performance. The current approach for measuring the capacity value of wind and solar is based on actual hourly output values—except no outputs are used for hours in which a transmission constraint limited energy output.<sup>18</sup> By contrast, the proposed ELCC construct would use the *actual curtailed output* in the determination throughout the ELCC analysis. Thus, the ELCC construct takes account of actual transmission constraints in a way that the current approach does not.

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<sup>15</sup> System Planning Department, *PJM Manual 21: Rules and Procedures for Determination of Generating Capability*, PJM Interconnection, L.L.C., Appendix B (Calculating Capacity Values for Wind and Solar Capacity Resources) (Aug. 1, 2019), <https://www.pjm.com/-/media/documents/manuals/m21.ashx>.

<sup>16</sup> *PJM Interconnection, L.L.C.*, Effective Load Carrying Capability Construct Filing, Docket No. ER21-278-000, at Attachment C Affidavit of Dr. Patricio Rocha Garrido on Behalf of PJM Interconnection, L.L.C. ¶ 15(b) (Oct. 30, 2020) ("Rocha-Garrido Aff.").

<sup>17</sup> Rocha-Garrido Aff. ¶ 15(b).

<sup>18</sup> See Manual 21, Appendix B, sections B.3(2)(c) ("For solar resources, any hour in which the output of the solar resource has been reduced, wholly or in part, due to a constraint on the transmission or distribution system or by order of the PJM system operator, both the hourly output and the Net Maximum Capacity for the constrained hour will be omitted."), B.3(2)(d) (same but for wind resources).

Further, contrary to LS Power’s assertions, PJM’s proposal will help safeguard against “overstating the reliability contribution of ELCC Resources,” as an ELCC Resource cannot offer to provide capacity in excess of its CIR level.<sup>19</sup> Moreover, PJM’s preliminary ELCC Class Rating values indicate a *decrease* in rating factors for most ELCC Resources from status quo approaches,<sup>20</sup> meaning that the level of CIRs existing resources have obtained, and that Planned Resources are eligible to obtain, will exceed their ELCC-determined reliability contribution.

In short, with or without the ELCC construct, a Variable Resource’s Unforced Capacity level is determined based in part on past performance without regard to its CIRs. As a further measure to account for transmission considerations, and to be consistent with the rules for all resources, PJM sets the upper limit of an ELCC Resource’s capacity value to its CIR value. Nonetheless, further analysis regarding how CIRs are considered in the ELCC analysis likely would be beneficial. To that end, PJM has initiated a stakeholder process to examine this specific issue.<sup>21</sup>

***B. Contrary to LS Power, the ELCC Model Is Not Unjust and Unreasonable for Omitting Transmission Limitations.***

LS Power contends that the ELCC model “is flawed and that new planning procedures must be developed before ELCC may be properly implemented,” and that one flaw is the model’s “failure to consider transmission limitations,”<sup>22</sup> which would make it inconsistent with PJM’s analysis for determining CETOs and CETLs. While the ELCC analysis does not explicitly model transmission limitations, as explained in the preceding section, it does implicitly account for

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<sup>19</sup> LS Power Protest at 14.

<sup>20</sup> See March 1 Response at 29 (response 6.b).

<sup>21</sup> See *supra* note 12.

<sup>22</sup> LS Power Protest at 9.

historic transmission limitations for ELCC Resources. Moreover, as Dr. Rocha-Garrido explained, PJM purposefully omitted any explicitly modeled transmission limitations from the ELCC model so as “to be as consistent as possible in the assumptions input into the Reserve Requirement Study and the ELCC methodology.”<sup>23</sup> The Reserve Requirement Study is PJM’s main resource adequacy study and is central to determining the PJM Region’s Reliability Requirement.<sup>24</sup> Both the ELCC model and the Reserve Requirement Study omit explicitly modeled transmission limitations because they assume that, through PJM’s Regional Transmission Expansion Process, “specific areas of the PJM footprint have the necessary transmission infrastructure to receive the required level of energy imports.”<sup>25</sup> Such commonality between the models makes sense as “[b]oth studies model load and resource performance uncertainty at the PJM Region level and use the [Loss of Load Expectation] criterion of 1-day-in-10 years as the reliability standard.”<sup>26</sup> While the CETO/CETL methodology (which is part of PJM’s Regional Transmission Expansion Process)

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<sup>23</sup> Rocha-Garrido Aff. ¶ 32.

<sup>24</sup> See Rocha-Garrido Aff. ¶¶ 28, 31.

<sup>25</sup> Rocha-Garrido Aff. ¶ 28. Other methodological approaches shared by the Reserve Requirement Study and the ELCC model include:

the performance of energy-only resources is not modeled in either study (because such resources are not obligated to perform during system reliability events or at any other time for that matter), load uncertainty is modeled in both studies using the PJM load forecast as a key source and resource performance uncertainty for Unlimited Resources is modeled in both studies using PJM’s Generator Availability Data System data from the most recent five-year period as a key source.

*Id.* ¶ 32.

<sup>26</sup> Rocha-Garrido Aff. ¶ 32. Dr. Rocha-Garrido also explained why it is not unreasonable for the ELCC model to ignore locational requirements:

Also anchored in the above assumption is the fact that PJM is proposing to derive ELCC results based on a simulation for the entire PJM footprint, without making additional ELCC simulations targeted for specific areas of the footprint. It can be argued that if each specific area of the footprint has the transmission infrastructure necessary to support the required energy import levels, each area’s expected loss of load patterns should be consistent with the loss of load patterns of the entire PJM Region. It follows then that there is no need for ELCC simulations targeted for specific areas of the footprint and that ELCC values based on region-wide runs should suffice.

*Id.* ¶ 29.

likely will need to be revisited *in the future* as the level of ELCC Resources increases, that does not mean that the *current* approach is unjust and unreasonable. Moreover, any potential future changes to the CETO/CETL methodology are beyond the scope of the instant Federal Power Act section 205 ELCC proposal. While PJM cannot state at this time which aspects of the CETO/CETL methodology may need to be updated in the future, it is likely that PJM will explore whether the CETO/CETL approach will need to switch from focusing only on deliverability in peak conditions to an hourly approach like the ELCC model.

***C. PJM Respectfully Requests a Commission Order by May 1, 2021, to Allow Implementation of ELCC for the 2023/2024 Delivery Year***

The ELCC construct represents a significant improvement over the current approach for measuring the reliability contribution of ELCC Resource, as it advances PJM's ability to maintain reliability while facilitating participation of non-traditional resources in meeting PJM's capacity needs. Accordingly, PJM has requested that the Commission issue an order by May 1, 2021, with an effective date of July 1, 2021. Fulfillment of these requests will ensure that ELCC can be implemented in time for the Base Residual Auction for the 2023/2024 Delivery Year.<sup>27</sup>

To the extent that the Commission finds any aspect of the filed ELCC proposal unjust and unreasonable, necessitating rejection of the entire filing,<sup>28</sup> PJM respectfully requests that the Commission provide specific findings and guidance so that PJM may quickly update its approach and submit a revised ELCC construct on a timeline that will allow ELCC to be implemented for

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<sup>27</sup> While the BRA is scheduled to be held in December 2021, to appropriately participate and meet several pre-auction deadlines, Capacity Market Sellers need to know their resource's Accredited UCAP determinations in July 2021. See March 1 Response, transmittal letter at 2 (citing *RPM Auction Schedule*, PJM Interconnection, L.L.C. (Feb. 1, 2021), <https://www.pjm.com/-/media/markets-ops/rpm/rpm-auction-info/rpm-auction-schedule.ashx>).

<sup>28</sup> Of course, PJM does not presume that Commission non-acceptance of any particular aspect of the filing requires rejection of the entire filing.



the 2023/2024 Delivery Year. To this end, PJM respectfully requests that the Commission issue an order on PJM's proposal by May 1, 2021.

### III. CONCLUSION

PJM respectfully requests that the Commission accept this answer, the October 30 Filing, and the RAA changes proposed in the March 1 Filing, effective July 1, 2021.

Respectfully submitted,

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April 13, 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 13th day of April 2021.

/s/ Ryan J. Collins

Ryan J. Collins