183 FERC ¶ 61,009
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Willie L. Phillips, Acting Chairman;
James P. Danly, Allison Clements,
and Mark C. Christie.

PJM Interconnection, L.L.C. Docket No. ER23-1067-000

ORDER ACCEPTING TARIFF REVISIONS SUBJECT TO CONDITION

(Issued April 7, 2023)

1. On February 8, 2023, pursuant to section 205 of the Federal Power Act (FPA)[1] and Part 35 of the Commission's regulations,[2] PJM Interconnection, L.L.C. (PJM) submitted proposed revisions to its Open Access Transmission Tariff (OATT) and Reliability Assurance Agreement (RAA) related to its Effective Load Carrying Capability (ELCC) construct. As discussed below, we accept the proposed changes, effective April 10, 2023, as requested, subject to condition.

I. Background

A. Procedural History

2. On October 30, 2020, PJM submitted its initial ELCC proposal in Docket No. ER21-278-000, which the Commission rejected on April 30, 2021, finding that the proposed transition mechanism was unjust and unreasonable.[3] On June 1, 2021, in Docket No. ER21-2043-000, PJM submitted a revised ELCC proposal omitting the transition mechanism. The Commission accepted PJM's revised proposal on July 30, 2021.[4] In that proceeding, several commenters raised concerns that PJM's ELCC methodology may not adequately consider transmission constraints and resources'

[1] 16 U.S.C. § 824d.

[2] 18 C.F.R. pt. 35 (2022).

[3] *PJM Interconnection, L.L.C.*, 175 FERC ¶ 61,084, at PP 1, 104 (2021).

[4] *PJM Interconnection, L.L.C.*, 176 FERC ¶ 61,056, at ordering para. (A) (2021) (ELCC II Order).

Capacity Interconnection Rights (CIR),[5] but noted PJM's stated commitment to conducting an ELCC methodology review in the future to better consider these issues.[6] Given commenters' concerns, the Commission strongly encouraged PJM and stakeholders to continue refining the ELCC methodology as PJM gains experience with its new approach.[7]

3. On January 25, 2023, PJM Members approved a set of reforms to the ELCC construct to improve the accuracy of accounting for CIRs and deliverability. On February 8, 2023, PJM filed the instant FPA section 205 proposal with those reforms.

B. Generator Deliverability and Capacity Interconnection Rights

4. PJM requires that generation capacity resources be deliverable to PJM load, including to portions of the PJM system that may have a capacity deficiency, at any time.[8] PJM ensures that capacity resources are deliverable to load through two processes: (1) its interconnection process, which determines what transmission upgrades are necessary for a capacity resource to interconnect with the transmission system and be deliverable to load;[9] and (2) its Regional Transmission Expansion Planning (RTEP) process, through which PJM plans enhancements and expansions of its transmission system to meet demands for firm transmission service and to support competition in the PJM region.[10]

5. A resource seeking to participate as a capacity resource in PJM must proceed through the interconnection process and obtain CIRs. First, a resource submits an interconnection request to PJM specifying the quantity of CIRs, in MW, that it would like to request. PJM has historically limited the amount of CIRs that a resource may request

---

[5] CIRs are "the rights to input generation as a [capacity] resource in the Transmission System at the Point of Interconnection." PJM, Intra-PJM Tariffs, OATT, Definitions – C – D (32.2.0) (Capacity Interconnection Rights definition).

[6] ELCC II Order, 176 FERC ¶ 61,056 at P 45.

[7] *Id.* P 55.

[8] *See* PJM, Intra-PJM Tariffs, RAA, Schedule 10 (3.0.0).

[9] *See generally* PJM, Intra-PJM Tariffs, OATT, § IV (4.0.0) (providing an overview of the procedures for requesting interconnection and seeking necessary upgrades).

[10] *See generally* PJM, Operating Agreement, Schedule 6.1.1 (0.0.0) (describing the purposes and objectives of RTEP).

to the resource's net capability at the time of the expected summer peak or, for wind and solar resources, the average summer peak hour capacity factor over the last three summers.[11] Second, PJM applies power flow analyses collectively called deliverability tests to determine what network upgrades, if any, are required for the resources' requested CIRs MW to be deliverable to PJM load.[12] Finally, the resource owner executes an interconnection service agreement with PJM agreeing to fund the required network upgrades in exchange for an award of CIRs.

6. After an interconnection customer funds the construction of any required network upgrades associated with its CIRs and reaches commercial operation, PJM continues to apply deliverability tests as part of the baseline reliability analyses considered in the RTEP process.[13] Specifically, PJM's RTEP process identifies any transmission enhancements required to comply with North American Electric Reliability Corporation (NERC) standards and other applicable reliability criteria,[14] among other considerations.[15] This practice ensures that sufficient transmission is constructed to provide continued deliverability of PJM generation capacity to load.

C. Effective Load Carrying Capability Procedures

7. PJM's capacity market transacts in units of Unforced Capacity (UCAP) MW, where UCAP reflects the amount of capacity that a resource provides after accounting for its forced outage rate, intermittency, and/or limited output duration capability.[16] PJM uses an ELCC analysis to calculate the Accredited UCAP value for Variable Resources

---

[11] Transmittal at 3-4 (citing PJM Manual 21, app. B).

[12] *See* PJM Manual 14B, Attach. C, PJM Deliverability Testing Methods.

[13] PJM Manual 14B, § 1.4.1.1.

[14] PJM, Intra-PJM Tariffs, Operating Agreement, Schedule 6, § 1.2 (2.0.0).

[15] *Id*. § 1.4 ("The Regional Transmission Expansion Plan shall consolidate the transmission needs of the region into a single plan which is assessed on the bases of: (i) maintaining the reliability of the PJM Region in an economic and environmentally acceptable manner, (ii) supporting competition in the PJM Region, (iii) striving to maintain and enhance the market efficiency and operational performance of wholesale electric service markets and (iv) considering federal and state Public Policy Requirements.").

[16] PJM defines "Unforced Capacity" as "installed capacity rated at summer conditions that is not on average experiencing a forced outage or forced derating[.]" PJM, Intra-PJM Tariffs, RAA, art. 1 – Definitions (36.0.0).

(e.g., wind and solar), Limited-Duration Resources (e.g., storage), and Combination Resources (e.g., solar/storage hybrids) (collectively, ELCC Resources).[17]

8. PJM calculates the Accredited UCAP of ELCC Resources using a four-step process.[18] First, PJM uses an ELCC analysis to calculate the ELCC Portfolio UCAP, which reflects the installed capacity of a group of Unlimited Resources[19] with no outages that yield the same annual loss of load expectation as the group of ELCC Resources that are expected to offer into a given capacity auction. Second, PJM allocates the ELCC Portfolio UCAP among individual ELCC Resource Classes (e.g., 4-hour storage, 10-hour storage, wind, tracking solar, etc.) by conducting additional ELCC analyses that consider the reliability value of ELCC Classes in the presence and absence of other ELCC Classes. The result of this allocation process is an ELCC Class UCAP for each ELCC Resource Class. Third, PJM converts the ELCC Class UCAP for each class to an ELCC Class Rating, using procedures described in its RAA. Finally, PJM calculates an Accredited UCAP value for each individual ELCC Resource based on the resource's ELCC Class Rating, its nameplate capacity, and a resource-specific ELCC Resource Performance Adjustment factor.

9. PJM currently accounts for the deliverability of ELCC Resources in two ways. First, PJM's ELCC analysis implicitly accounts for historical transmission limitations by considering the actual operating transmission constraints that affected historical performance for ELCC Resources.[20] Second, PJM limits the amount of capacity an ELCC Resource may offer to the capacity market to the lesser of its Accredited UCAP or its CIRs, where CIRs reflect the MW that have been demonstrated as deliverable through PJM's interconnection process.[21]

---

[17] *See* PJM, Intra-PJM Tariffs, RAA, Schedule 9.1.

[18] PJM, Intra-PJM Tariffs, RAA, Schedule 9.1, §§ C-F.

[19] PJM's RAA defines an Unlimited Resource as a generating unit with "the ability to maintain output at a stated capability continuously on a daily basis without interruption." PJM, Intra-PJM Tariffs, art. 1 – Definitions (36.0.0).

[20] PJM, Intra-PJM Tariffs, RAA, Schedule 9.1, § H ("These expected quantities are based on . . . actual and putative values for Variable Resource output[.]"). *See also* PJM Answer, Docket No. ER21-2043-000, at 10 (filed July 9, 2021) ("While the ELCC analysis does not explicitly model transmission limitations, it does implicitly account for historic transmission limitations for ELCC resources by considering actual operating transmission constraints that impacted historical performance.").

[21] *See supra* section I.B.

II. PJM's Proposal

10. PJM states that on January 25, 2023, its stakeholders approved a suite of four changes to the ELCC construct. The first two changes, updating its "CIR Request Policy" and "CIR Verification, Testing, and Retention Policy," will be implemented through revisions to PJM Manual 21A consistent with how these detailed processes have been memorialized for purposes of the Commission's rule of reason.[22] The second two changes, "CIRs in the ELCC Methodology and Accredited UCAP Calculations" and a "Transition Mechanism" will be implemented through OATT and RAA revisions.[23]

11. PJM's proposed changes to its CIR request policy would allow ELCC resource owners and developers to request additional CIRs through its interconnection process. The manual changes detail the new limits on each class, for instance limiting Variable Resources up to the 95th percentile hourly summer net output between the hour ending 11AM and 10PM EPT The manual changes detail individual CIRs retention metrics for each ELCC resource class, and how a resource may lose its CIRs should it fail to meet that metric.[24]

A. CIRs in ELCC Calculations

12. PJM states that its currently effective ELCC construct considers the actual historical output of an ELCC Resource in its analysis, which allows for MW quantities higher than a given resource's assigned CIRs. This is because CIRs for wind and solar resources have historically been based on average hourly output during summer peak conditions in accordance with PJM Manual 21, Appendix B. As a result, wind and solar resources have historically been granted lower amounts of CIRs as a percentage of their maximum capacity compared to other kinds of resources.[25] PJM explains that it proposes to strengthen the link between an ELCC Resource's CIRs and the Accredited UCAP process by: (1) capping its output in the ELCC model; and (2) accounting for historical curtailments in the ELCC model.

---

[22] Transmittal at 8 n.21 (citing *City of Cleveland v. FERC*, 773 F.2d 1368, 1376 (D.C. Cir. 1985)).

[23] *Id.* at 8-9.

[24] Revised PJM Manual 21A, at 18-19 & 32-33 (2022), https://pjm.com/-/media/committees-groups/committees/mrc/2023/20230125/item-01---6-manual-21a-revisions---redline.ashx.

[25] Transmittal at 8-9.

13. PJM proposes to modify its Accredited UCAP analysis to cap the output of Variable and Combination Resources in any hour at: (1) the resource's CIRs for hours in the months of June through October and the following May of the Delivery Year, and (2) the resource's winter deliverability MW for hours in the months of November through April of the Delivery Year (collectively, Deliverable MW). PJM states that this approach will derive a more accurate assessment of what ELCC Resources are capable of physically delivering. Second, PJM proposes to modify its Accredited UCAP analysis in the ELCC model to adjust the actual output of Variable and Combination Resources to reflect historical curtailments by adding back MW that were historically curtailed without exceeding the level of Deliverable MW.[26]

14. PJM states that the ELCC model's objective is to estimate the reliability contribution of resources in a future year based on forecasted system conditions. PJM asserts that expected output of the resource is a key input into the ELCC model. PJM explains that at the time ELCC was implemented, it was reasonable to assume that the expected output of wind and solar resources in future years was going to be similar to historical output levels (which are reflective of historical curtailments). PJM states that this assumption rested on the expectation that system conditions (including the resource mix) will not be significantly different in the next few future Delivery Years from what they have been in recent Delivery Years.[27]

15. PJM states that system conditions are expected to undergo significant changes in the coming years due to decarbonization efforts.[28] PJM asserts that as a result, the assumption that individual Variable Resource historical outputs and curtailments are reflective of future aggregate outputs and curtailments is no longer certain. PJM explains that the changes in the aggregate resource mix, along with other factors, are expected to significantly alter the PJM transmission system in a manner that may change flows and constraints in future years from what they were historically.

16. PJM asserts that accounting for deliverability constraints in the ELCC accreditation construct will increase accuracy in modeling and forecasting and is just and reasonable under the FPA.[29] Also, PJM states that the Commission has found a closer

---

[26] *Id.* at 9-10.

[27] *Id.* at 10-11.

[28] *Id.* at 11.

[29] *Id.* at 12 (citing *Managing Transmission Line Ratings*, 177 FERC ¶ 61,179 (2021); *Midcontinent Indep. Sys. Operator, Inc.*, 145 FERC ¶ 61,278, at P 22 (2013)).

linkage between modeling assumptions in resource adequacy studies and resource deliverability to be a just and reasonable outcome.[30]

1. Combination Resources

17. A Combination Resource is an individual resource that has a Limited Duration Resource component and either a Variable Resource component or an Unlimited Resource component.[31] Under PJM's current ELCC rules, PJM models the ELCC of each component of the Combination Resource individually and then sums the Accredited UCAP of each component to determine the Accredited UCAP of the Combination Resource as a whole.[32]

18. To apply the instant proposal to Combination Resources, PJM proposes to subdivide the Combination Resource's Deliverable MW between its Variable Resource component and Limited Duration component. Specifically, PJM proposes to cap the modeled output of the Variable Resource portion of a Combination Resource's actual output in its ELCC calculation at the Combination Resource's Deliverable MW minus the Effective Nameplate Capacity of the Limited Duration component.[33] PJM explains that if it did not calculate this difference, PJM would risk over-counting the output of the Variable Resource component, and risk having the combined output of both Combination Resource components exceed the resource's relevant Deliverable MW.[34]

2. Other Relevant Changes

19. PJM states that it proposes additional tariff changes consistent with RAA, Schedule 9.1(F). Specifically, PJM proposes changes to RAA, Schedule 9.1(H) to add back curtailed MW in the actual output used in the ELCC calculation while still capping

---

[30] *Id.* at 13 (citing *Midcontinent Indep. Sys. Operator, Inc.*, 173 FERC ¶ 61,139 (2020)).

[31] PJM, Intra-PJM Tariffs, RAA, art. 1 – Definitions (36.0.0). PJM's pleadings use the term Combination Resources while intervenors discuss Hybrid Resources, which are a sub-type of Combination Resources. For the purposes of this order, we only use the term Combination Resources.

[32] PJM, Intra-PJM Tariffs, RAA, Schedule 9.1, §§ E-F.

[33] Filing, Proposed RAA, Schedule 9.1(F).

[34] PJM includes an exception for when the relevant deliverability measure equals the maximum facility output because the hourly output cannot exceed the maximum facility output. Transmittal at 15-16.

actual output at the relevant Deliverable MW. PJM proposes changes to RAA, Schedule 9.1(I) to cap the output of a Combination Resource at the Deliverable MW in the ELCC calculation.[35] PJM also proposes to update the definition of Effective Nameplate Capacity such that "the Effective Nameplate Capacity of each Limited Duration Resource shall not exceed the Capacity Interconnection Rights of such Limited Duration Resource." PJM states that this revision will ensure that the Limited Duration Resources' Effective Nameplate Capacity used in the Accredited UCAP calculation is capped at CIRs.[36]

20. PJM argues that its proposal is consistent with the Commission's prior statement in the *ELCC II Order* that "[g]iven the growing importance of accurately determining the capacity value of resources amidst the evolving resource mix, we strongly encourage PJM and stakeholders to continue refining the ELCC methodology as PJM gains experience with the ELCC approach."[37] PJM states that the proposed revisions to RAA, Schedule 9.1 described above are specifically designed to more "accurately determin[e] the capacity value of resources amidst the evolving resource mix," and are just and reasonable under FPA section 205.[38]

B. Transition Mechanism

21. PJM proposes to include a transition mechanism whereby any interconnection customer with an active New Service Request that has been submitted into the New Services Queue prior to March 3, 2023 to increase the CIRs of a resource would be eligible to be studied annually through a "transitional system capability" study.[39] PJM explains that the transition period would begin with the 2025/26 Delivery Year and is expected to last approximately four years, with the transitional system capability study running annually during the transition period. PJM states that the transition mechanism is intended to address stakeholder concerns regarding the impact of capping a resource's CIR level in the Accredited UCAP process while those resources go back into the PJM New Services Queue to request additional CIRs, which may take time.

22. PJM states that the purpose of the transitional system capability study is to identify the MW value of underutilized transmission system capability on the PJM system for

---

[35] *Id.* at 16.

[36] *Id.* at 16-17.

[37] *Id.* at 17 (citing ELCC II Order, 176 FERC ¶ 61,056 at P 54).

[38] *Id.*

[39] *Id.* at 18.

each Delivery Year during the transition period *beyond* the capability that is required to support all PJM CIRs.[40] PJM states it will allocate headroom to eligible resources prior to each Base Residual Auction (BRA) during the transition period and determine whether the transmission system can deliver outputs above the resource's eligible CIRs, assigning each eligible resource a distinct MW ceiling. PJM states that the transitional system capability ultimately assigned to a given resource will be the greater of the resource's eligible CIRs for the applicable Delivery Year or the transitional resource MW ceiling. PJM explains that it will then cap the hourly output of applicable resources in the summer portion of the ELCC study and Accredited UCAP process at the resource's transitional system capability, which will consider summer deliverability testing and other reliability tests for the Delivery Year.

III. Notice and Responsive Pleadings

23. Notice of PJM's filing was published in the *Federal Register*, 88 Fed. Reg. 9515 (Feb. 14, 2023), with interventions and protests due on or before February 28, 2023. Timely motions to intervene were filed by: Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor (IMM) for PJM; Delaware Division of Public Advocate; American Electric Power Service Corporation; Rockland Electric Company; Constellation Energy Generation, LLC; Enel North America, Inc.; American Electric Power Service Corporation; Solar Energy Industries Association (SEIA); PJM Power Providers Group (P3); Dominion Energy Services, Inc.; Natural Resources Defense Council (NRDC); Maryland Office of People's Counsel; LSP Development; NRG Power Marketing LLC; Electric Power Supply Association; North Carolina Electric Membership Corporation; Buckeye Power, Inc.; Advanced Energy United; American Municipal Power, Inc. (AMP); Old Dominion Electric Cooperative (ODEC); American Clean Power Association (ACP); J-POWER USA Development Co. Ltd.; Invenergy Wind Development North America LLC; Southern Maryland Electric Cooperative, Inc.; and Competitive Power Ventures, Inc. On March 31, 2023, National Grid Renewables Development, LLC (NG Renewables) filed a motion to intervene out-of-time.

24. On March 1, 2023, ODEC, AMP, and P3 filed comments in support of PJM's filing. Also on March 1, 2023, ACP, SEIA, and Advanced Energy United (collectively, Clean Energy Associations or CEA) and NRDC filed protests. On March 17, 2023, the IMM filed an answer to CEA and NRDC in support of PJM's filing. On March 20, 2023, PJM filed an answer to the protests. On March 31, 2023, NG Renewables filed a limited protest. On April 4, 2023, NRDC filed an answer to PJM's and the IMM's answers.

[40] *Id.* at 19.

IV. Protests and Discussion

A. Procedural Matters

25. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2022), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding. NG Renewables filed a late motion to intervene and protest. Pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214(d), we grant NG Renewables late-filed motion to intervene given their interest in the proceeding, the early stage of the proceeding, and the absence of undue prejudice or delay.

26. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2022), prohibits an answer to a protest unless otherwise ordered by the decisional authority. We accept the answers filed by PJM, the IMM, and NRDC because they have provided information that assisted us in our decision-making process.

B. Substantive Matters

1. Overall Proposal

a. Responsive Pleadings

27. NRDC opposes PJM's filing and requests that the Commission reject PJM's proposed revisions.[41] While stating that certain ELCC reforms proposed by PJM are just and reasonable, namely updates to ELCC deliverability studies, NRDC argues that PJM's proposal also contains unjust, unreasonable, or unduly discriminatory components discussed below.[42]

28. CEA filed a limited protest of the March 3, 2023 deadline for an interconnection customer to submit a New Service Request into the New Services Queue noted above, the treatment of wind and solar resources, and the treatment of Combination Resources. NG Renewables also filed a limited protest of the March 3, 2023 deadline.

b. Commission Determination

29. We find PJM's proposal to cap a resource's modeled output in the ELCC model at its Deliverable MW to be just and reasonable and not unduly discriminatory or preferential. PJM's current practice for determining the expected output of ELCC

[41] NRDC Protest at 1-2.

[42] *Id.* at 2.

resources assumes that the future transmission constraints faced by Variable Resources will be similar to historically observed transmission constraints; however, as PJM explains, the changing resource mix likely will significantly alter flows and constraints on the PJM transmission system compared to historical flows and constraints.[43] We agree with PJM that reflecting a resource's Deliverable MW in PJM's model of the resource's expected output guarantees that the modeled output will not exceed the resource's studied deliverability and aligns with the requirement that a capacity resource's sell offer cannot be greater than its CIR MW value.[44] Thus, we find that PJM's proposal to strengthen the ability of its ELCC model – the objective of which is to estimate the reliability contribution of resources in a future Delivery Year based on forecasted system conditions – to account for deliverability is just and reasonable.

30. In describing its proposal, PJM explains that historically, wind and solar resources have been administratively limited in the amount of CIRs that they can request and obtain.[45] We recognize that, as a result, the immediate effect of PJM's proposal will be to reduce the Accredited UCAP of certain Variable Resources and Combination Resources. While they are not subject to Commission review in this proceeding, we agree that PJM's manual changes will provide resource developers and owners the flexibility to request additional CIRs through the interconnection process. These changes will help resource owners offset any reductions in their Accredited UCAP that result from PJM's implementation of the proposed tariff revisions while guaranteeing that each MW of output considered in PJM's ELCC models will be deliverable to PJM load during stressed system conditions. While both CEA and NRDC filed protests in this proceeding, we note that neither of them argues that PJM's proposed treatment of Deliverable MW in its ELCC process is unjust and unreasonable. Further, we find that PJM's proposed transition mechanism will partially ameliorate any immediate reduction in these resources' Accredited UCAP.[46] We further address protesters' arguments in the sections below.

31. We also find just and reasonable PJM's proposed transition mechanism, which provides interconnection customers a process to secure temporary "transitional system capability" while they wait to secure additional CIRs. Essentially, PJM proposes to allocate spare transmission capacity for a given Delivery Year to interested parties in its

[43] Transmittal at 11.

[44] *Id.* at 12.

[45] *Id.* at 9.

[46] *See, e.g.*, NRDC Protest at 2 ("[T]he Proposal pairs a reasonable solution to an emerging technical challenge with an unjust, unreasonable, and unduly discriminatory transition.").

interconnection queue, which has the effect of awarding a one-year CIRs upgrade for resources in that queue at no cost to load and no additional cost to resources. We also find that the proposed transition mechanism is not unduly discriminatory or preferential because resources of any type – including non-ELCC resources – may apply for this headroom, PJM will award any headroom on a pro-rata basis, and headroom is not taken from any interconnection rights already allocated to existing resources.

32. While we accept PJM's proposed transition mechanism for the reasons discussed above, we also find that PJM's proposed revisions to the RAA are inconsistent with PJM's description of the transition mechanism in its transmittal. Specifically, PJM states in its transmittal that, during the transition period, for purposes of the ELCC study PJM will "cap the hourly output of applicable resources in the summer portion of the ELCC study and Accredited UCAP process at the resource's transitional system capability."[47] As such, "[t]he transitional system capability ultimately assigned to the resource will be the *greater* of the resources eligible CIRs for the applicable Delivery Year, or the transitional resource MW ceiling."[48] However, PJM's proposed revisions to RAA, Schedule 9.1, section F, H, and I state that PJM would cap resources' summer output strictly at their CIRs and not the greater of their CIRs or transitional resource MW ceiling. For example, PJM's proposed revisions to Schedule 9.1, section F(2)(a) state that:

> In determining the ELCC Resource Performance Adjustment for the 2025/2026 Delivery Year and subsequent Delivery Years, the actual output of a Variable Resource shall be adjusted to reflect historical curtailments, and *output in any hour shall be capped at: (i) the Variable Resource's Capacity Interconnection Rights for hours in the months of June through October and the following May of the Delivery Year*, and (ii) the Variable Resource's winter deliverability MW as defined in the PJM Manuals for hours in the months of November through April of the Delivery Year.[49]

33. We thus find that clarifying revisions are necessary to ensure that the RAA accurately reflects PJM's proposed rate as described in its transmittal. Therefore, we direct PJM to submit a compliance filing within 30 days of the issuance of this order revising RAA, Schedule 9.1, as appropriate, to clarify that, during the transition period, PJM will cap the hourly output of applicable resources in the summer portion of the

[47] Transmittal at 19.

[48] *Id.* at 19-20.

[49] Filing, Attach. A, Proposed RAA, Schedule 9.1, § F(2)(a) (emphasis added).

ELCC study and Accredited UCAP process at the resource's transitional system capability, i.e., at the greater of the resource's CIRs or transitional resource MW ceiling.[50]

2. Notice Requirement

a. Responsive Pleadings

34. CEA argues that PJM's proposed March 3, 2023 closing date for the transitional cluster associated with PJM's proposed transition mechanism violates FPA section 205(d), which requires FERC-jurisdictional utilities to give the Commission and the public 60-days' notice of any proposed changes.[51] CEA argues that PJM's requested closing date requires interconnection customers to transition before they even know they are required to transition. CEA continues that, no matter when the proposal were to take effect, it is unreasonable to provide interconnection customers with only 30 days to make complex decisions around how many more CIRs to request. CEA notes uncertainty about how the new process will affect resources' capacity values, what a complete interconnection filing for the increased injection rights may require, and additional aspects of the transition process. CEA states that PJM was still updating the relevant FAQ two weeks before the March 3 deadline and updating guidance in its stakeholder process five days before the deadline.

35. CEA proposes that PJM could provide resources the opportunity to submit an interconnection request and become eligible for the transitional headroom before each BRA auction, not simply one time as PJM proposes.[52] CEA argues that transmission upgrades will likely not begin construction before 2028, and it is unreasonable for PJM to create this new requirement in a compressed timeline and then impose a five-year delay in actual implementation.

36. In its answer, PJM claims that its filing complies with the Commission's eTariff rules for establishing statutory dates and that "until the tariff records become effective on

---

[50] The U.S. Court of Appeals for the District of Columbia Circuit has held that, in certain circumstances, the Commission has "authority to propose modifications to a utility's [FPA section 205] proposal *if the utility consents to the modifications*" as long as the Commission's proposed change does not impose the Commission's "own original notion of a new form of rate" or "an entirely new rate scheme[.]" *NRG Power Mktg., LLC v. FERC*, 862 F.3d 108, 114-15 (D.C. Cir. 2017) (emphasis in original) (citing *City of Winnfield v. FERC*, 744 F.2d 871, 875, 876 (D.C. Cir. 1984)).

[51] CEA Protest at 2-3.

[52] *Id.* at 4.

April 10, 2023, March 3, 2023 is *not* a legally enforceable date, and no entity is bound by it."[53] PJM argues that March 3, 2023 simply defines a class of entities that may be eligible for a transitional system capability study once the applicable tariff records become effective on April 10, 2023. PJM also asserts that the Commission approved a similar proposal in PJM's recent interconnection queue reform filing, in which PJM submitted tariff records with a proposed effective date of November 30, 2022, and the Commission noted in its order accepting the tariff records "*the New Rules will apply to New Service Requests submitted on or after October 1, 2021*, the date the AH2 queue window opened."[54] Finally, PJM argues that, as a practical (rather than legal) matter, it has provided resources more than ample notice of the timing, pointing to the advance notice it provided to all stakeholders and the over 400 requests for transitional system capability studies PJM has received.[55]

37. NG Renewables supports CEA's contention that PJM's March 3, 2023 deadline violates the 60-day prior notice requirement. NG Renewables disputes PJM's statement that the March 3, 2023 deadline is unenforceable and that no entity is bound by it. NG Renewables asserts that PJM denied its request to be considered in the transitional study because it submitted its request and associated documentation one business day after the March 3, 2023 deadline. NG Renewables argues that PJM unlawfully imposed a deadline that had not been approved by the Commission and was passed prior to the effective date of the tariff revisions.[56] NG Renewables emphasizes that the March 3, 2023 deadline is unnecessary given PJM's intention to delay the upcoming 2025/2026 BRA by up to a year.[57] NG Renewables also argues that PJM has failed to justify why it will not evaluate the eligibility of customers in future BRAs.[58] NG Renewables requests that PJM be required to: (1) extend the deadline for participation in the 2023 transitional study to a date that is no earlier than 90 days prior to the 2025/2026 BRA, and (2) create

[53] PJM Answer at 6-7.

[54] *Id.* at 7 (citing *PJM Interconnection, L.L.C.*, 181 FERC ¶ 61,162, at P 8 (2022)).

[55] *Id.* at 8.

[56] NG Renewables Protest at 3.

[57] *Id.* at 2 (citing *PJM to Propose Capacity Auction Delay Pending Resource Adequacy Reform*, (Mar. 27, 2023), https://insidelines.pjm.com/pjm-board-of-managers-delays-capacity-auction-schedule-pending-resource-adequacy-reform/).

[58] *Id.* at 3.

an annual window in advance of subsequent BRAs in which customers can apply to participate in the transitional study.[59]

b. Commission Determination

38. Because we are granting PJM's requested April 10, 2023 effective date, we need not address CEA's arguments regarding insufficient prior notice under FPA section 205(d). In response to NG Renewables' protest, we note that the entirety of the proposed tariff revisions, including the March 3, 2023 deadline, are not effective or enforceable before April 10, 2023. In other words, market participants have until April 10, 2023, to submit a request to increase their CIRs. As noted in NG Renewables' protest, PJM stated it plans to request a delay in the 2025/2026 BRA to allow PJM to propose capacity market design changes.[60] Should PJM determine to make a filing with the Commission to delay the 2025/2026 BRA, we encourage PJM to consider extending the deadline for submitting a request to increase a resource's CIRs, as well.

39. Moreover, PJM's assertions regarding the Commission's eTariff regulations are incorrect. The Commission's eTariff regulations establish the procedural requirements for making an FPA section 205 filing, establishing the date by which the Commission must act on the entirety of the filing;[61] these rules cannot eliminate the requirement under section 35.11 of the Commission's regulations[62] that parties must request waiver when they seek to make filings effective after the date of filing but prior to the 61st day after the date of filing. We also disagree with PJM's argument that PJM's proposed March 3, 2023 date is comparable to the date the Commission accepted in the order on PJM's interconnection reform filing. The interconnection queue reform filing indicated only the resources to which the revised tariff would apply on the effective date, based on the date on which those resources entered the queue.[63]

---

[59] *Id.*

[60] *Id.* at 2 (citing *PJM to Propose Capacity Auction Delay Pending Resource Adequacy Reform*, *supra* n.57).

[61] *Pioneer Transmission, LLC*, 169 FERC ¶ 61,265, at PP 22-23 (2019) (eTariff establishes the filing procedure for establishing the date by which the Commission must act on a statutory filing); 18 C.F.R. § 35.7(d) (2022) (failure to follow eTariff rules means only that the filing will not become effective if the Commission fails to act by the action date).

[62] 18 C.F.R. § 35.11 (2022).

[63] *See W. Deptford Energy, LLC v. FERC*, 766 F.3d 10 (D.C. Cir. 2014) (reversing a Commission decision that a revision to the interconnection process does not apply to

40. We disagree with CEA's and NG Renewables' argument that PJM should permit resources to request transitional system capability prior to each auction, given the complex decisions underlying such requests. Under FPA section 205, we need only determine whether the proposed filing is just and reasonable; the Commission need not consider the justness and reasonableness of alternative proposals.[64]

3. Treatment of Variable Resources

a. Responsive Pleadings

41. NRDC argues that PJM's historic method for assigning CIRs to Variable Resources makes it apparent that either: (1) the CIRs awarded to Variable Resources incorporate energy output well above the CIR level; or (2) CIR eligibility has been discriminatory against Variable Resources for nearly 20 years.[65] NRDC states that, under PJM's current rules, an existing 100 MW wind farm would have been told to request 13 MW of CIRs to represent the *entire* wind farm, and would be eligible to offer up to 13 MW of capacity into PJM's capacity market. NRDC asserts that, under PJM's proposal, the same wind farm would be only allowed to offer up to 6.5 MW because the proposal would "redefine CIRs that developers purchased through their interconnection application and any transmission upgrades they funded in a manner that, in the case of wind, causes the CIRs to lose half their value."[66] NRDC argues that none of the errors that led to this discrepancy could be the developer's fault, as they never had any option to do anything differently (other than to not become a capacity resource in the first place). NRDC argues that the problem the proposal seeks to remedy is not that Variable Resources need more CIRs, but rather that the tests PJM has used to evaluate the deliverability of those CIRs have proven inadequate as ELCC resources have grown

---

projects that entered the queue at an earlier date).

[64] *See, e.g.*, *Cities of Bethany v. FERC*, 727 F.2d 1131, 1136 (D.C. Cir. 1984) (when determining whether a rate was just and reasonable, the Commission properly did not consider "whether a proposed rate schedule is more or less reasonable than alternative rate designs"); *Petal Gas Storage, L.L.C. v. FERC*, 496 F.3d 695, 703 (D.C. Cir. 2007) ("FERC is not required to choose the best solution, only a reasonable one."); *Wis. Pub. Power, Inc. v. FERC*, 493 F.3d 239, 266 (D.C. Cir. 2007) ("Merely because petitioners can conceive of a refund allocation method that they believe would be superior to the one FERC approved does not mean that FERC erred in concluding the latter was just and reasonable. Again, reasonableness is a zone, not a pinpoint.").

[65] NRDC Protest at 10. CEA filed similar comments on the treatment of Variable Resources. *See* CEA Protest 4-7.

[66] NRDC Protest at 10-11.

beyond any expectations set at the time PJM began assigning CIRs to Variable Resources. NRDC contends that PJM's proposed solution to legacy deficiencies unreasonably slashes the value of existing resources' CIRs while also failing to provide these resources any timely measure to restore their ability to serve as capacity resources, especially because existing resources had no ability to request a greater amount of CIRs before PJM's new Manual changes came into effect.

42. NRDC, citing PJM's BRA Report, states that ELCC Resources currently provide 2.2% of PJM's capacity, rising to 2.9% in Delivery Year 2024/2025, the last year for which capacity auctions have completed.[67] NRDC argues that, from now through Delivery Year 2024/2025, PJM's lowest reserve margin is 5.4% higher than its reliability requirement, which means that, even in the extreme and counterfactual case where none of the capacity from ELCC resources is deliverable, PJM would exceed its reliability requirements.

43. NRDC asserts that, under PJM's proposal, wind units would lose roughly half of their capacity value, while solar units would lose 6%-14% of their capacity value.[68] NRDC claims that existing or in-queue resources that wish to regain their original capacity value would have to submit a new interconnection queue application requesting additional CIRs and would not receive Generator Interconnection Agreements until approximately late 2027 or early 2028.[69]

44. In its answer, the IMM argues that PJM's historical practice of assigning CIRs to Variable Resources consistent with their average expected output during summer peak hours ignored the fact that Variable Resources produce energy up to and including their Maximum Facility Output.[70] Therefore, the IMM contends that Variable Resources' current CIRs understate the level of CIRs actually required to support their Accredited UCAP. The IMM states that PJM's proposed tariff changes recognize this disparity and propose to remedy the problem. As the IMM indicates in its answer: "The objections of [CEA] and NRDC should be rejected. NRDC points (at 2–3, 15–16) to the fact that the PJM proposal will reduce the ELCC values of existing resources, based on the existing

---

[67] *Id.* at 3.

[68] *Id.* at 8 (citing PJM, *Impact On Wind & Solar Class UCAP Values By Capping Hourly Outputs In UCAP Calculation At CIR Level*, at 2 (May 2022), https://www.pjm.com/-/media/committees-groups/committees/pc/2022/20220519-special/item-04a---cir-impact-on-wind--solar-class-ucap-values.ashx).

[69] *Id.* at 8-9.

[70] IMM Answer at 1-2.

level of CIRs. Given PJM's proposed transition plan, this short-term concern is overstated."[71]

b. Commission Determination

45. We disagree with NRDC's concerns that PJM's proposal will unjustly and unreasonably revise what output is included in a Variable Resource's award of CIRs, and thereby reduce Variable Resources' Accredited UCAP. For the same reasons, we dismiss CEA's concerns that PJM's proposal unjustly and unreasonably discriminates against Variable Resources in later stages of the interconnection process. NRDC itself agrees that PJM's proposed treatment of CIRs in its ELCC methodology will improve PJM's ability to account for the demands that ELCC resources place on the transmission system.[72] The fact that wind and solar resources would see their Accredited UCAP values decline under PJM's proposal is a consequence of PJM's improved modeling of delivery constraints within its ELCC methodology, and neither NRDC nor CEA have presented evidence that PJM's underlying revisions to its ELCC methodology are unjust and unreasonable. A reduction of Accredited UCAP of Variable Resources alone does not demonstrate that PJM's proposal is unjust and unreasonable.[73] As noted above, we find PJM's proposal to strengthen the ability of its ELCC model to account for deliverability is just and reasonable.

46. By providing greater flexibility for affected resources to request additional CIRs on a going-forward basis, PJM provides ELCC resource owners a long-term solution to address any Accredited UCAP reductions they may experience in the near term. Furthermore, PJM's transitional system capability study process will allow resources to partially offset any Accredited UCAP reductions while their requests for additional CIRs are pending. NRDC also acknowledges that PJM's system has sufficient headroom to allow some ELCC resources to deliver additional capacity during this time.[74]

47. Although PJM previously limited the amount of CIRs that Variable Resources could request to their average expected output during summer peak periods and

---

[71] *Id.* at 3.

[72] NRDC Protest at 3 ("The problem the Proposal seeks to fix is real. Current procedures for evaluating the deliverability of ELCC resources do not adequately consider the demand those resources place on the transmission system.").

[73] ELCC II Order, 176 FERC ¶ 61,056 at P 33 ("We do not find persuasive AES' arguments that the filing is unjust and unreasonable because it could reduce a resource's Accredited UCAP below its interconnection rights.").

[74] NRDC Protest at 9.

accredited the UCAP that Variable Resources could offer into the PJM capacity market on the same basis prior to adopting its ELCC methodology,[75] this practice did not adequately account for how Variable Resources' output during all hours of the year contributes to resource adequacy. PJM's adoption of an ELCC methodology improved upon PJM's prior accreditation of Variable Resources' UCAP by, among other things, considering all hours of the year, and not just summer peak hours. PJM's current proposal improves upon PJM's ELCC methodology further by ensuring that the resource outputs modeled in the ELCC analysis are in fact deliverable to loads. Specifically, PJM will explicitly account for CIRs within the ELCC analysis, and each resource's CIRs reflects the output that has been demonstrated to be deliverable from the resource to loads during summer conditions. Moreover, PJM will incorporate winter deliverability MW in its ELCC analysis, which reflects the output that has been demonstrated to be deliverable from the resource to loads during winter conditions. As the IMM explains, PJM depends on Variable Resource output over and above the average output that was traditionally the basis for determining such resources' CIRs, and therefore it is reasonable to ensure this output is deliverable to PJM load before it is included in PJM's ELCC analysis.

4. Combination Resources

a. Responsive Pleadings

48. NRDC states that PJM's filing includes an approach that is very inflexible for interconnection and capacity accreditation of Combination Resources.[76] Specifically, NRDC states that there is no provision for the variable and storage components to 'share' CIRs, such as when the solar component of a Combination Resource's output during the day with the storage component taking over as the sun sets, or when the storage component firms up the variable component's output over short-term variability. NRDC argues that the rules for Combination Resources violate the Interconnection NOPR's statement that the failure to use realistic operating assumptions for Combination Resources "can result in excessive and unnecessary network upgrades and may hinder the timely development of new generation, thereby stifling competition in the wholesale markets, and resulting in rates, terms, and conditions that are unjust and unreasonable."[77] NRDC claims that PJM's filing would also preempt common combination use cases, such as increasing discharge from storage as solar output decreases. NRDC notes that the Commission has previously found it unjust and unreasonable for transmission providers to assume that resources will operate in a way they are physically incapable of operating,

[75] *See* Transmittal at 3-6.

[76] NRDC Protest at 5.

[77] *Id.* at 7 (citing *Improvements to Generator Interconnection Procs. & Agreements*, 179 FERC ¶ 61,194, at P 279 (2022) (Interconnection NOPR)).

such as solar production after sunset.[78] NRDC states that PJM does not explain why Combination Resource output overcounting concerns cannot be addressed through methods such as limiting the output of the entire facility rather than each component.

49. CEA argues that PJM's proposed treatment of Combination Resources is unjust and unreasonable because it fails to adequately recognize the net capacity-increasing attributes of Combination Resources as a whole.[79] CEA provides an example where PJM's proposed approach would accredit Combination Resources at less than the sum of their parts.[80] CEA further states that PJM's proposal ignores that Combination Resources are operated and co-optimized as a single resource. CEA states that PJM's proposal fails to recognize that highly controllable inverter-based resources can provide visibility on their output and state of charge to prevent overcounting due to the presence of a storage component, which CEA asserts creates a disincentive for Combination Resources' market entry.[81] Finally, CEA argues that the Commission should not accept PJM's filing without requiring adjustment of the treatment of Combination Resources and urges PJM to focus on the aggregate facility's CIRs and the ability of Combination Resources as a whole to provide reliable capacity to the region.[82]

50. CEA states that wind and solar interconnection customers have made business and facility design decisions based on capacity factor ratings (i.e., Accredited UCAP). CEA argues that PJM's proposal will impact the ability of these resources, including already operational projects, to compete in the market. CEA asserts that in order to offer the same capacity into the capacity market, parties must seek to be studied in the currently opaque transitional study process, which could identify network upgrades that may not start construction until 2028 and would increase the cost of construction.

51. In its answer, PJM explains that capping the Variable Resource's modeled output in this way is appropriate because PJM does not currently have a methodology to

---

[78] *Id.* at 6 (referencing Interconnection NOPR, 179 FERC ¶ 61,194 at P 265).

[79] CEA Protest at 8-9.

[80] *Id.* at 10. CEA provides an example where a Combination Resource whose components are modeled as separate resources would have an Accredited UCAP equal to the sum of its parts whereas under PJM's proposal, its Accredited UCAP would be less than that value.

[81] *Id.*

[82] *Id.* at 10-11.

precisely predict in what future hours the storage component would be producing energy.[83]

b. Commission Determination

52. We find PJM's proposal to cap the modeled output of the Variable Resource component of a Combination Resource at the resource's Deliverable MW minus the Effective Nameplate Capacity of the Limited Duration Resource component just and reasonable. We agree with PJM that it is reasonable to subtract the Effective Nameplate Capacity of the Limited Duration Resource from the Combination Resource's total Deliverable MW to avoid the risk of overcounting the output of the Variable Resource component of a Combination Resource. While CEA and NRDC argue that PJM's proposal would treat the capacity contributions of the Variable Resource and Limited Duration Resource components of a Combination Resource as fully severable, they fail to acknowledge that PJM's ELCC analysis models the components of the Combination Resource separately.[84] Therefore, PJM must determine what quantity of Deliverable MW to assign to the Variable Resource component and Limited Duration Resource component in order to apply the instant proposal to Combination Resources. Given this need, we find PJM's proposed approach reasonable because it recognizes that the Limited Duration Resource component will generate at its full Effective Nameplate Capacity during certain hours. We note that PJM only applies this adjustment when a Combination Resource holds a quantity of CIRs that is less than its Maximum Facility Output, i.e., when there is a need for PJM to allocate the resource's CIRs between its constituent components.

53. We disagree with CEA's and NRDC's claim that the proposal's treatment of Combination Resources is unjust and unreasonable. While PJM's ELCC analysis depends on a resource's modeled output over the entire year, the greatest limiter on a resource's ELCC rating is the resource's expected performance during periods when the system is stressed. PJM's proposed approach conservatively assumes that, for the hours most determinative of a Combination Resource's ELCC accreditation, the Limited Duration Resource component could be discharging at its full Effective Nameplate Capacity, and therefore this amount of Deliverable MW should be reserved for the Limited Duration Resource component. We acknowledge that there may be certain hours where PJM's ELCC simulation assumes that the Limited Duration Resource component will be charging or idle, yet the simulation nevertheless reserves Deliverable MW for that component. Nevertheless, we find PJM's approach just and reasonable because it conservatively assumes that the Limited Duration Resource component of a Combination

[83] PJM Answer at 16.

[84] PJM, Intra-PJM Tariffs, RAA, Schedule 9.1, § E ("For Combination Resources, there shall be an ELCC Class Rating for each component.").

Resource may ultimately be needed during the most stressed periods. PJM's proposal also ensures that the combined output of the Combination Resource's components will never exceed the Combination Resource's Deliverable MW in any hour of the ELCC analysis. Thus, PJM's simplifying assumption that the Limited Duration Resource component should first be "assigned" the Deliverable MW is just and reasonable.

54. While NRDC and CEA argue that there may be alternative methods to allocate CIRs between a Combination Resource's constituent components that better reflect the unique nature of these resources, we need not address those alternatives, as explained above.[85] The ELCC process is designed to develop a forward-looking, probabilistic estimate of how resources will perform in a given delivery year. Given the uncertainties affecting how a Combination Resource would operate in real time and PJM's relatively limited operational experience with these resources,[86] we find that PJM's proposed approach is reasonable. As PJM gains operational experience with Combination Resources on its system, however, we expect PJM to refine its ELCC methodology to reflect its updated knowledge. As the Commission has stated in the past, we encourage PJM and stakeholders to continue to assess whether its ELCC construct is achieving its purpose of valuing and compensating capacity resources as accurately as practicable, including whether its ELCC model is accurately capturing the unique physical and operational characteristics of Combination Resources.[87]

---

[85] *See Cities of Bethany v. FERC*, 727 F.2d at 1136; *Petal Gas Storage, L.L.C. v. FERC*, 496 F.3d at 703; *Wis. Pub. Power, Inc. v. FERC*, 493 F.3d at 266.

[86] PJM Answer at 16 ("Because PJM does not know the precise hours in which the Limited Duration Resource may produce energy *in advance,* PJM's proposal provides a reasonable means to ensure alignment between total CIRs and total hourly output in the specific case of Combination Resources.").

[87] ELCC II Order, 176 FERC ¶ 61,056 at P 39 ("PJM states that it intends to conduct an initial review of the ELCC construct in the summer of 2022 and perform a comprehensive assessment of whether the ELCC model proposed herein is achieving its purpose of valuing and compensating capacity resources as accurately as practicable. We encourage PJM and its stakeholders to further consider the tradeoffs between the two ELCC approaches, and potentially alternative approaches, as part of this planned review.").

5. Undue Discrimination

a. Responsive Pleadings

55. NRDC argues that the proposal's treatment of a change in deliverability requirements is unduly discriminatory against ELCC Resources.[88] Specifically, NRDC alleges that PJM discovered a generation deliverability risk for conventional thermal resources as part of implementing revised generation deliverability tests, and NRDC claims that PJM allocated the cost for necessary transmission improvements to load via its transmission planning process. Citing a PJM analysis, NRDC states that PJM's revised deliverability tests revealed transmission issues that leave a publicly undisclosed amount of capacity undeliverable and will cost $142 million to fix.[89] In light of this alleged prior treatment of conventional thermal resources, NRDC argues that PJM's proposal unduly discriminates against ELCC resources by requiring that they procure additional CIRs to maintain their current capacity accreditation.

56. NRDC contends that the same PJM analysis revealed a transmission deliverability shortfall of around 5 MW for ELCC resources that would cost $7 million to fix.[90] However, NRDC argues that the proposed solutions diverged wildly between conventional and ELCC resources: conventional resources were allowed to maintain their full capacity value, and transmission upgrades were funded through the planning process, while ELCC resources would be derated by the instant filing and be required to individually go through the interconnection queue to fund any required transmission upgrades. To remedy this undue discrimination, NRDC requests that the Commission reject PJM's proposal.

57. In its answer, PJM argues that requiring ELCC Resources, rather than load or non-ELCC Resources, to pay for the transmission upgrades necessary to support their accreditation is not unduly discriminatory.[91] First, PJM argues that ELCC Resources are not similarly situated to load or non-ELCC Resources in the context of upstream capacity accreditation, noting that the accreditation process for wind and solar resources has

---

[88] NRDC Protest at 11-15.

[89] *Id.* at 13 n.42 (citing PJM, *CIRs For ELCC Resources: PJM Package D Alternatives 1 & 2 (New)*, at 8 (Apr. 28, 2022), https://www.pjm.com/-/media/committees-groups/committees/pc/2022/20220428-special/20220428-cirs-for-elcc-resources-pjm-package-d-alternatives-1-and-2-new.ashx (April Deliverability Update)).

[90] *Id.* at 13-15.

[91] PJM Answer at 2.

always been separate and distinct from the accreditation method for non-ELCC Resources.[92] Second, PJM argues that, even if ELCC Resources were similarly situated to load or non-ELCC Resources, PJM's proposal to require ELCC Resources to pay for the transmission upgrades necessary to support their own accreditation is reasonable, because it directly aligns with the Commission's cost causation principle. Third, PJM contends that its proposal represents a reasonable attempt to treat ELCC Resources and non-ELCC Resources more comparably going forward, because any resource that wants to increase its CIRs in order to increase its corresponding accreditation must re-enter the interconnection queue, and may request transitional system capability in the interim.[93] Finally, PJM asserts that modifying the framework by which ELCC Resources previously received CIRs does not render its proposal unduly discriminatory.[94]

58. In its answer, NRDC disputes each of PJM's counterarguments. First, NRDC argues that the different treatment of ELCC and non-ELCC resources with regard to capacity accreditation is not at issue here. Rather, NRDC contends that ELCC and non-ELCC Resources are similarly situated when it comes to the interconnection process as they follow identical paths up to the point where they hold CIRs, and that both classes' CIRs might be affected by changes in transmission planning criteria and the issues underlying the need for this proposal. Specifically, NRDC asserts that PJM and its stakeholders could have avoided baseline transmission upgrades by reducing the amount of capacity a non-ELCC generator could deliver for a given quantity of CIRs, as it has proposed for ELCC resources.[95] Second, NRDC states that PJM offers no explanation why upgrades to maintain the deliverability of capacity from non-ELCC resources are somehow less attributable to those resources, yet proposes different treatment for ELCC and non-ELCC resources. NRDC argues that the fact that different treatments of two similarly situated customers might each, considered separately, be just and reasonable does not prevent the different treatments from being unduly discriminatory.[96] Third, NRDC argues that PJM has updated its deliverability analyses on at least six prior occasions, and PJM has always arrived at solutions for non-ELCC resources that did not

---

[92] *Id.* at 3-4.

[93] *Id.* at 4-5.

[94] *Id.* at 5-6 (citing *PJM Interconnection, L.L.C.*, 179 FERC ¶ 61,161, at P 23 (2022) ("[a]lthough the Commission generally seeks to maximize regulatory certainty, we may nonetheless require or approve changes in rates or market designs that may in some ways be counter to investor expectations in order to ensure that rates are just and reasonable.")).

[95] NRDC answer at 5-6.

[96] NRDC Answer at 3.

require them to obtain additional CIRs, but, nevertheless, PJM now proposes a separate solution for ELCC resources that requires them to obtain additional CIRs. NRDC protests the discriminatory outcome of only requiring one resource class to request additional CIRs in the face of similar needs. NRDC argues that PJM's proposal violates Commission precedent and that ELCC resources were told how many CIRs they needed to deliver the capacity value of their facilities, and now, years later, ELCC resources are being required to pay additional interconnection costs to retain the same interconnection service they have already obtained. NRDC states that such a ruling means projects never obtain certainty on the interconnection costs, an outcome FERC has deemed unjust and unreasonable.[97] And finally, NRDC argues that CIRs are a contractual obligation upon PJM and Transmission Owners to deliver a quantity of capacity memorialized in the Interconnection Service Agreements. NRDC maintains that, contra the IMM, "CIR requirements have not been incorrectly *set*, they have been incorrectly *studied.*"[98] NRDC maintains that the tariff definition of Capacity Interconnection rights clearly states that a resource holding 1 MW of CIRs has the right to input generation as a 1 MW capacity resource and that this reading is consistent with PJM practice, which has been that CIRs represent the ability to deliver capacity, including the fact that Variable Resources will often produce energy far above their CIR level.[99] NRDC concludes that a determination that changes in study criteria require "more CIRs" for ELCC resources but "maintenance of existing CIRs" for non-ELCC resources rests on a purely semantic difference and should be rejected as unduly discriminatory.[100]

---

[97] *Id.* at 6-8 (highlighting changes to deliverability analyses from 2009 to 2015) (citing *Neptune Reg'l Transmission Sys., LLC v. PJM Interconnection, L.L.C.*, 111 FERC ¶ 61,455 (*Neptune),* at PP 22-23 (2005) stating

> "Projects cannot be held responsible for costs that occur after their queue positions are established, because that could lead the interconnection provider, as was the case here, to fail to not determine a final level of interconnection costs within a reasonable period of time. As discussed further in the next section, upgrade costs occurring after the interconnection process can be allocated based on Schedule 12 of PJM's tariff. Only in this way is the interconnection cost allocation process just and reasonable…Project sponsors are entitled to a timely upfront determination of costs, based on reasonably foreseeable events….There is no certainty in a process that can be continued indefinitely based on potential retirements or other reconfigurations of the transmission owner's system.").

[98] *Id.* at 8 (emphasis in original).

[99] *Id.* at 9-10.

[100] *Id.* at 10-11.

b. Commission Determination

59. We disagree with NRDC's claim that PJM's proposal unduly discriminates between conventional resources and ELCC resources. We first note that NRDC does not protest PJM's proposed treatment of CIRs in the ELCC calculations, nor does NRDC argue that the current accreditation of conventional resources is unjust and unreasonable or unduly discriminatory. NRDC's concerns focus on different sets of transmission upgrades. As the PJM stakeholder materials that NRDC cites explain, there are two separate sets of transmission upgrades at issue: (1) upgrades required to maintain the deliverability of previously granted CIRs; and (2) upgrades required to increase individual resource's CIRs.[101] In the first category of transmission upgrades, when PJM's RTEP analysis finds that a resource is no longer deliverable up to its CIRs, the cost of upgrades to maintain the deliverability associated with the previously granted CIRs is recovered from ratepayers via their Network Integration Transmission Service rates – independent of the resource type.[102] In contrast, the second category of upgrades are only required if a resource owner requests additional CIRs, and therefore individual resource owners bear the cost of these network upgrades and receive CIRs in return.[103] The $142 million in transmission upgrades to which NRDC refers appear to fall squarely in the first category, while the $7 million in transmission upgrades fall squarely within the second category. Specifically, the PJM presentation that NRDC cites states that the $142 million in transmission upgrades are associated with "additional [Regional Transmission Expansion Plan] reliability violations under new deliverability test," while the $7 million in upgrades are associated with "award[ing] wind and solar resources having an [Interconnection Service Agreement] . . . with higher, default CIRs."[104] To be

[101] NRDC Protest at 13 n 42 (citing April Deliverability Update).

[102] *See* PJM Manual 14B, Attach. C, PJM Deliverability Testing Methods.

[103] *See, e.g.*, PJM, Intra-PJM Tariffs, OATT, § 217.3(a); *see also Standardization of Generator Interconnection Agreements & Procs.*, Order No. 2003, 104 FERC ¶ 61,103, at P 695 (2003), *order on reh'g*, Order No. 2003-A, 106 FERC ¶ 61,220, *order on reh'g*, Order No. 2003-B, 109 FERC ¶ 61,287 (2004), *order on reh'g*, Order No. 2003-C, 111 FERC ¶ 61,401 (2005), *aff'd sub nom. Nat'l Ass'n of Regul. Util. Comm'rs v. FERC*, 475 F.3d 1277 (D.C. Cir. 2007) ("The Commission notes that the transmission pricing policies that the Commission has permitted for an RTO or ISO with locational pricing, in which the Interconnection Customer bears the cost of all facilities and upgrades that would not be needed but for the interconnection of the new Generating Facility and receives valuable transmission rights in return, are acceptable forms of participant funding.").

[104] *CIR For ELCC Resources: PJM Package D Alternatives 1 & 2 (New)* April Deliverability Update at 2, 8 (Apr. 28, 2022), https://www.pjm.com/-/media/committees-

clear, under PJM's proposal, any ELCC resource seeking to raise its Accredited UCAP requires additional CIRs. In contrast, the process PJM is applying to non-ELCC resources through its RTEP analysis does not award additional CIRs, it only funds upgrades necessary to maintain reliability.[105] Because those upgrades are needed for reliability, PJM assigns the costs of those upgrades to load. PJM's proposal does not require any ELCC Resources to pay for upgrades to ensure reliability; PJM is offering ELCC Resources the opportunity to request additional CIRs to increase their Accredited UCAP. The interconnection queue is PJM's existing process by which all resources request and receive CIRs. Thus, PJM's proposal is not unduly discriminatory; it simply reflects existing processes that are designed to achieve different goals. Accordingly, we find no basis for and thus disagree with NRDC's claim of undue discrimination.

60. We also disagree with NRDC's claim in its answer that "a resource holding 1 MW of CIRs has the right to input generation as a 1 MW Capacity Resource," and that, therefore, the difference between increasing the CIRs for ELCC Resources and maintaining the previously granted CIRs of non-ELCC Resources is only a semantic difference.[106] As an initial matter, holding 1 MW of CIRs does not entitle a resource to sell 1 MW of capacity. For all resource types, the MW of CIRs caps the amount of capacity a resource is eligible to sell but does not set a floor on the resource's accredited capacity.[107] Because the quantity of CIRs a resource holds establishes this eligibility, there is a material difference between parties that voluntarily re-enter the interconnection queue to increase their CIRs and parties that do not re-enter the queue and simply maintain their existing quantity of CIRs. The first class of customers voluntarily requests to fund network upgrades to demonstrate additional incremental deliverability and increase the ceiling on the amount of capacity they are eligible to sell. In contrast, the second class of customers does not request any incremental deliverability and does not receive any increase to the ceiling on the amount of capacity they are eligible to sell. Accordingly, we find that resources requesting to increase their CIRs are not similarly situated to resources maintaining their existing level of CIRs, and, therefore, PJM's proposal is not unduly discriminatory.

---

groups/committees/pc/2022/20220428-special/20220428-cirs-for-elcc-resources-pjm-package-d-alternatives-1-and-2-new.ashx.

[105] *See supra* P 6 (discussing the difference between RTEP and the interconnection process).

[106] NRDC Answer at 9-11.

[107] *ELCC II Order*, 176 FERC ¶ 61,056, at P 33 (2021) ("We do not find persuasive AES' arguments that the filing is unjust and unreasonable because it could reduce a resource's Accredited UCAP below its interconnection rights.").

61. For the same reasons, we find that *Neptune* is inapposite. Here, no additional interconnection costs will be borne by resources unless they voluntarily request additional CIRs, and all transmission costs associated with maintaining previously granted CIRs will be allocated through PJM's RTEP process.

62. The different treatment of ELCC Resources compared to conventional resources that NRDC cites stems from the fact that the instant proposal would require that ELCC Resources procure additional CIRs to maintain their current level of capacity accreditation, while conventional resources' capacity accreditation would not change under PJM's proposal. This difference results from the fact that PJM accredits conventional resources on the basis of their maximum summer output capability and their expected forced outage rate, and conventional resources already generally hold CIRs consistent with this *maximum* summer output capability.[108] In contrast, ELCC Resources generally hold a quantity of CIRs equal to their *average* expected output during summer peak conditions, but the ELCC accreditation process considers output that may exceed this average. Therefore, conventional resources have already procured CIRs sufficient to deliver the full output considered in their accredited capacity and have paid for the network upgrades required to deliver this output to load during summer peak conditions, in contrast to ELCC Resources. Accordingly, we find that the different outcomes that NRDC identifies do not demonstrate that PJM's proposal is unduly discriminatory.

6. Miscellaneous

a. Responsive Pleadings

63. P3 urges the Commission to ensure that all accreditation issues related to PJM's new ELCC construct are rectified moving forward.[109] In this vein, P3 argues that the BRA for the 2025/2026 Delivery Year should not be held until the over-accreditation problem is resolved.

64. NRDC states that PJM "identifies new transmission requirements that apply to existing resources and directs affected resources to go through the interconnection queue to meet those requirements," an approach that NRDC argues PJM has not taken to any deliverability requirement or transition change in the past.[110] NRDC states that PJM does not appear to have considered the impact the delays imposed by PJM's proposal will have on reliability and that PJM's proposal results in substantial amounts of capacity being

[108] *See* Transmittal at 3-4.

[109] P3 Comments at 5.

[110] NRDC Protest at 16.

delayed until 2028 or later while PJM has, at the same time, identified challenges maintaining reserve margins in the later years of the decade.[111]

65. In its answer, PJM contests NRDC's cost estimates indicating that NRDC is comparing two completely different studies, that analyzed two completely different timeframes, and two completely different sets of assumptions. The first study looked at near-term conditions and found that under the proposed generator deliverability changes, a $7 million increase in transmission upgrades would be required to support full accreditation of existing ELCC Resources. The second study examined a speculative, long-term condition, and found that an approximate $2 billion increase would be required to support full future accreditation of future ELCC Resources.[112]

66. In its answer, NRDC elaborates, arguing that PJM's proposal will result in an unnecessary delay in developing required transmission upgrades, unreasonably increasing capacity costs. NRDC states that while PJM will likely have enough headroom to integrate most CIR requests in its transition process in the short-term, this headroom will be allocated to new resources creating a zero-sum process. NRDC claims that this will result in the next 1,300 MW or so of capacity bringing little to no added resource adequacy value and that this will not be resolved until the affected resources emerge from their second trip through the interconnection queue five years from now.[113] NRDC states that with "$7 million in *ratepayer funded* transmission, *plus the opportunity for planned generation to fund their own transmission upgrades in a timely manner,* [ratepayers] may avoid $700 million or more in capacity costs."[114]

b. Commission Determination

67. We find that acceptance of PJM's proposal moots P3's request to delay the 2025/2026 BRA until PJM's capacity accreditation issues have been rectified. In addition, we disagree with NRDC's argument that PJM's proposal will delay new entry in the face of projected resource shortfall. As discussed above, the reduction of Accredited UCAP for certain Variable Resources and Combination Resources under PJM's proposal while transmission upgrades are being built simply reflects the limits of the transmission system. PJM's proposal will strengthen the ability of its ELCC model to account for deliverability, helping to ensure that its capacity market accurately reflects

[111] *Id.* at 19.

[112] PJM Answer at 11-12.

[113] NRDC Answer at 14-15.

[114] *Id.* at 15 (emphasis in original).

the capability of resources during a given Delivery Year and supports the assurance of long-term resource adequacy.

68. We also dismiss NRDC's concerns that PJM's proposal will result in unjust and unreasonable costs for load. We agree with PJM that NRDC is conflating two separate studies and find that NRDC's framing is speculative. As noted above, PJM is using its existing processes to address two different situations, one where upgrades are made to maintain the same level of CIRs, and one where a resource requires additional CIRs.[115] Furthermore, NRDC's request would require PJM to revise its existing processes in a manner that is inconsistent with the proposal before us, and here we need only assess whether PJM's proposal is just and reasonable.[116]

The Commission orders:

(A) PJM's proposed ELCC construct revisions are hereby accepted, to become effective April 10, 2023, as requested, subject to condition, as discussed in the body of this order.

(B) PJM is hereby directed to submit, within 30 days of the date of this order, a compliance filing to update the language in Schedule 9.1 of its RAA, as discussed in the body of the order.

By the Commission. Commissioner Clements is dissenting with a separate statement attached.

(S E A L)

Debbie-Anne A. Reese,
Deputy Secretary.

[115] *See supra* P 6 (discussing the difference between RTEP and the interconnection process).

[116] *See Cities of Bethany*, 727 F.2d at 1136.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C. Docket No. ER23-1067-000

(Issued April 7, 2023)

CLEMENTS, Commissioner, *dissenting*:

1. I dissent for two reasons. First, PJM's proposed deadline of March 3, 2023, for an interconnection customer to be eligible for its transition mechanism is not just and reasonable, nor is the majority's approach to modify that deadline to April 10, 2023. Second, PJM's proposed accreditation method for Combination Resources, such as solar and storage hybrids, is based on an economically nonsensical assumption that will reduce the capacity ratings for such resources below their true system contributions, and PJM has not offered an adequate justification for that assumption. By crediting resources for a lower amount of capacity than they provide the system, PJM's proposed method will increase costs for consumers. Rather than accepting PJM's filing, I would have rejected it with guidance, making clear that modifications to these two features of its proposal could render the proposal just and reasonable.

A. PJM's proposed transition mechanism includes an unjust and unreasonable deadline

2. PJM's proposed eligibility deadline for its transition mechanism is not just and reasonable because it forces resource owners to immediately make a complex determination regarding whether to apply for increased Capacity Interconnection Rights (CIRs), without adequate time to make an informed decision. PJM has given no reasonable justification for giving resource owners only one opportunity to make this election on such a compressed timeline. The result has been an arbitrary and likely ill-informed mad dash into the interconnection queue: perpetuating just the sort of result that PJM has sought to prevent in its recent interconnection reform proposal,[1] and that the Commission is seeking to move away from in its Notice of Proposed Rulemaking regarding Improvements to Generator Interconnection Procedures and Agreements.[2]

[1] *See PJM Interconnection, L.L.C.*, 181 FERC ¶ 61,162, at PP 5, 30 (2022) (approving PJM's interconnection proposal that, among other challenges, sought to address the fact that "the volume of New Service Requests has more than tripled in the past three years," and included a "large number of speculative projects").

[2] 179 FERC ¶ 61,194 (2022).

1. Background on why PJM's transition mechanism was necessary

3. PJM's filing comes after the region's recent transition to an Effective Load Carrying Capability (ELCC). It aims to address assumptions about deliverability of ELCC resources that, if not modified, may compromise the accuracy of that new approach. As the Independent Market Monitor explains, prior to PJM's transition to an ELCC capacity accreditation methodology, solar and wind resources in PJM were subjected to derated capacity values "based on an actual or assumed pattern of output during peak summer hours."[3] PJM then used this derated value to determine the resource's CIRs as well, such that a 100 MW wind resource, for example, would be granted no more than 13 MW of CIRs.[4] But as the IMM points out, "the problem with that approach is that it ignored the fact that PJM was assuming that all levels of output up to and including the 100 MWh were deliverable and that PJM was counting on all levels of output up to 100 MWh for reliability."[5] In other words, PJM's approach to capacity accreditation assumed the resource to be capable of delivering its maximum output during at least some hours, but never called for analysis of the transmission system to back up that conclusion.[6]

4. Despite this inaccuracy, PJM's approach reasonably approximated the capacity value of resources because, to a large extent, system headroom facilitating deliverability of those resources in fact existed (and continues to exist).[7] But the parties agree that PJM's method of capacity accreditation and its approach to CIRs would likely become

---

[3] IMM Answer at 1.

[4] *See* PJM Transmittal at 4-5 nn. 10 and 12 ("Historically, new wind and solar resources' initial CIRs were set utilizing the class average capacity factors of 13% and 38% respectively, unless a higher capacity factor was requested and adequate analysis was provided to validate the higher factor.").

[5] IMM Answer at 2.

[6] The IMM argues that "[t]he CIR value" for such a resource "should have been and should be 100 MW." IMM Answer at 2. NRDC argues that PJM's definition of CIRs was linked to capacity and not energy (meaning that 13 MW of CIRs for a wind resource did not need to be adjusted up to 100 MW in PJM's prior framework to guarantee deliverability), but agrees that PJM's analysis did not properly study deliverability. *See* NRDC Protest at 9-11 (arguing that PJM's proposal "Redefines the Capacity Interconnection Rights Currently Held by ELCC Resources").

[7] *See* PJM Answer at 7 (discussing a recent study finding deliverability issues for only 5 MW of existing ELCC resources); NRDC Protest at 13 (same).

inaccurate as wind and solar penetration increases.[8] Not only does the ability of such resources to contribute to grid reliability change as their penetration increases, as will be better approximated by PJM's new ELCC framework,[9] but also the assumption of deliverability becomes less certain.[10]

5. To address this challenge, PJM proposes to modify its ELCC calculations to cap the output of resources in any given modeled hour at the amount of CIRs they hold, effectively requiring new wind, solar, and Combination Resources to apply for a greater amount of CIRs in the interconnection queue.[11] This approach renders the CIRs held by existing ELCC resources insufficient to deliver their full capacity value. PJM proposes to require these resources to submit new interconnection service requests for additional CIRs to the extent they seek to restore their capacity accreditation to that given under the previously assumed levels of deliverability.[12] Ultimately, PJM's approach intends to: (1) ensure that the deliverability of ELCC resources is backed up by credible analysis, and (2) facilitate the construction of any network upgrades required in order to provide for that level of deliverability. A significant drawback, however, is that it relies on existing ELCC resources re-entering PJM's extremely congested interconnection queue in order to be effectuated. Clean Energy Associations contend, and PJM does not rebut, that applications for additional CIRs "will result in any transmission upgrades likely not beginning construction before 2028," given PJM's currently congested queue which is not scheduled to even begin processing new applications until 2026.[13]

6. This means that in the interim, without a transition mechanism, ELCC resources would see their capacity accreditation cut significantly below the amount that reflects their true ability to contribute to system reliability. Wind resources would see a particularly large decrease, given that the prior rules set CIRs using a capacity factor of

---

[8] *See supra* n. 6.

[9] *See PJM Interconnection, L.L.C.*, 176 FERC ¶ 61,056 (2021) (approving PJM's ELCC methodology).

[10] PJM projects that the grid will become significantly more constrained over time, finding that "an approximate $2 billion" in transmission upgrades "would be required to support full *future* accreditation of *future* ELCC resources." PJM Answer at 12 (emphasis in original).

[11] *See* Order at PP 12-20 (describing PJM's new approach to CIRs in ELCC calculations).

[12] *See id.* at PP 21-22 (describing PJM's proposed transition mechanism)

[13] CEA Protest at 4.

13 percent.[14] Moreover, because these resources generally *are* currently deliverable to load, this accreditation haircut would be significantly below not only the resources' theoretical ability, but also their actual ability to contribute to system reliability.

7. PJM's proposed transition mechanism provides for an annual "transitional system capability study," which identifies headroom available on PJM's system for a given Delivery Year,[15] and then allocates that headroom to eligible resources during the transition period on a pro-rata basis.[16] It thereby aims to ensure that while eligible resources wait for their interconnection requests to be processed, the aggregate capacity accredited for such resources can be restored at least to the amount deliverable to load for the relevant Delivery Year. Accordingly, to the extent resources are studied in this manner, PJM avoids requiring customers to procure more capacity than necessary and sending inaccurate price signals, by avoiding capacity values lower than the true grid reliability contribution of eligible resources.[17] But PJM proposes that to be eligible for this allocation of headroom in *any* Delivery Year, a resource owner must submit a request for additional CIRs into the interconnection queue prior to March 3, 2023.[18]

8. Notably, while this approach affords owners of existing ELCC resources some relief to the extent they are eligible for the transition mechanism, PJM's overall proposal may still be significantly worse for them than if they had been able to request CIRs up to their maximum facility output at the time they originally interconnected to the system. To the extent the grid had adequate capacity to accommodate such resources at that point in time, requests for a greater amount of CIRs may have been effectuated without triggering significant network upgrades. But if the grid becomes significantly more constrained while their interconnection requests are pending, then the relevant studies may reveal that substantial network upgrades are required in order to facilitate the requested level of deliverability.[19] In other words, owners of existing ELCC resources

---

[14] Transmittal at 4 n. 10. In other words, under PJM's proposal, the ELCC analysis of such a resource would be based on a maximum deliverability of 13 MW, rather than 100 MW, as was previously assumed. To achieve the same level of deliverability as was assumed under the prior rules, and therefore achieve full ELCC credit, the resource would need to apply for an additional 87 MWs of CIRs.

[15] *See id.* at 18-19.

[16] Order at P 31.

[17] *See New York Independent System Operator*, 179 FERC ¶ 61,102, at P 39 (2022) (discussing the harms of under-counting available capacity).

[18] Transmittal at 18.

[19] The findings of the transmission studies discussed in the pleadings support a

whose requests for a higher amount of CIRs could have already been processed at low cost find themselves sent to the back of a slow-moving line that will take years, fighting to purchase at a potentially much higher price the same capacity deliverability they could've already gotten, or arguably have already purchased.[20] So ELCC owners who requested the full amount of CIRs they were originally eligible for have a reasonable argument that far from a handout, the transition mechanism is the minimum required in order to avoid an unjust and unreasonable result that would strip them of deserved capacity compensation while they wait for the interconnection process to play out.[21] Had these ELCC resources simply been permitted to request CIRs up to their full

---

conclusion that, even with the transition mechanism, ELCC resources are in a much worse position than if they could have submitted requests for CIRs up to maximum facility output when they first interconnected. *See* PJM Answer at 11-12 (discussing a study finding that "a $7 million increase in transmission upgrades would be required to support full accreditation of *existing* ELCC Resources," as well as a study finding "than an approximate $2 billion increase [in transmission infrastructure] would be required to support full *future* accreditation of *future* ELCC Resources").

[20] NRDC argues that under PJM's prior regime, "a resource holding 1 MW of CIRs ha[d] the right to input generation as a 1 MW Capacity Resource." NRDC Answer at 9. In other words, they argue that while CIRs were incorrectly studied, a 13 MW wind resource held a right to its full capacity deliverability, even though that required the resource to inject 100 MW at some points in time. *See id.* at 8 ("CIR requirements have not been incorrectly *set*, they have been incorrectly *studied*.") (emphasis in the original).

[21] Indeed, PJM might have alternatively accomplished a transition by grandfathering existing resources at assumed deliverability levels reflecting their full ELCC accreditation, and/or establishing a process to build any needed transmission outside of the interconnection queue. As the Commission recently articulated, "[t]he Commission will consider disruptions to parties' 'settled expectations' in determining whether a proposal is just and reasonable," and considers a "'balancing of interests' or 'balancing of equities' in determining the appropriate outcome." *PJM Interconnection, L.L.C.*, 182 FERC ¶ 61,109, at P 175 (2023). NRDC compellingly argues that PJM previously addressed inaccurate deliverability assumptions for thermal resources quite differently, by updating its assumptions and requiring load to pay for transmission upgrades needed to maintain deliverability under those new assumptions. *See* NRDC Protest at 11-15; NRDC Answer. Having determined PJM's proposed transition mechanism to be unjust and unreasonable on narrower grounds, I do not take a position in this separate statement on NRDC's claim that this differential treatment amounts to undue discrimination under the Federal Power Act.

deliverability at the time they interconnected, they could be eligible for their full capacity throughout this period, without any haircut.

2. PJM's proposed deadline for transition mechanism eligibility is unjust and unreasonable

9. PJM's proposed deadline, pursuant to which an existing ELCC resource must submit an interconnection request by March 3, 2023, to be eligible for the transition mechanism for *any* Delivery Year, is not just and reasonable. The order recognizes that "parties must request waiver when they seek to make filings effective . . . prior to the 61st day after the date of the filing," and accordingly modifies this deadline to April 10, 2023.[22] But neither PJM's approach nor the majority's modification of it affords resource owners a reasonable amount of time in order to make the complex decision of determining how many additional CIRs, if any, to request.

10. That decision requires a resource owner to "weigh the potential increase in capacity revenues" associated with holding additional CIRs against "potential network upgrades costs,"[23] which each depend on complex and uncertain predictions of future system conditions. Moreover, Clean Energy Associations allege that "[t]here is significant ambiguity around what a complete interconnection filing for the increased injection rights may require, and significant aspects of the transition process have yet to be detailed and defined."[24]

11. The Commission recently rejected an interconnection process deadline that similarly failed to afford market actors a reasonable amount of time to make complex commercial decisions. In *Tri State Generation and Transmission Ass'n, Inc.*, the Commission rejected a proposal by Tri State to condition eligibility for a transitional serial study process on a customer's demonstration of commercial readiness 10 days after the proposed Tariff's effective date.[25] The Commission rejected the proposal because "[a]n interconnection customer needs adequate time to meet these significant requirements, including such potentially complex issues as securing financing and negotiating Site Control with multiple landowners."[26] Here, PJM's proposed deadline was *before* the relevant effective date, and even the Commission's modified deadline

---

[22] *See* Order at P 38.

[23] CEA Protest at 3.

[24] *Id.*

[25] 173 FERC ¶ 61,015, at PP 68, 71 (2020).

[26] *Id.* at P 71.

falls on that effective date, leaving market participants only the weekend to determine a course of action after learning that PJM's Tariff proposal has been accepted as just and reasonable.[27]

12. Predictably, PJM's proposal has induced a mad rush of interconnection requests to be submitted prior to the deadline. PJM reports that it has "received over 400 requests for transitional system capability studies."[28] While PJM points to this as evidence that "PJM Members are well apprised of the significance of this deadline and are acting accordingly," we have no reason to believe that market actors have been able to process the information required to submit requests representing an accurate determination of the amount of additional CIRs needed to maximize their economic value. To the contrary, the business associations representing those resource owners tell us that they have neither the information nor the time required to make "thoughtful, informed investment decisions."[29] Nor do we have any data on the number of additional market participants who may have submitted requests for additional CIRs if they only had more time for analysis (i.e. how the number of requests might have been different had PJM set a reasonable eligibility deadline). By my estimation, the response may well have been exactly what the Commission is elsewhere seeking to prevent in the Notice of Proposed Rulemaking regarding Improvements to Generator Interconnection Procedures and Agreements:[30] a rush of speculative requests that may later be altered and in turn complicate PJM's analysis of its interconnection queue.[31]

13. The Order's acceptance of PJM's tariff proposal is particularly troubling because it establishes a precedent that undermines the Commission's authority. Because PJM's proposed deadline fell before its proposed effective date, market participants were forced to take significant commercial actions assuming that PJM's approach would govern, without the benefit of a Commission order finding it to be just and reasonable. Rewarding this approach allows regulated entities to strong-arm market participants into

---

[27] Indeed, because it would not be reasonable to expect a resource owner to predict the outcome dictated by the Commission's order (an April 10 deadline for interconnection requests), in practical terms this order affords resource owners little greater notice than PJM's original proposal. With this order issuing late on April 7, ELCC resource owners will have the rest of the (for some, holiday) weekend to prepare an interconnection request in advance of the April 10 deadline.

[28] PJM Answer at 8.

[29] CEA Protest at 3-4.

[30] 179 FERC ¶ 61,194 (2022).

[31] *See id.* at P 103 (seeking "to discourage speculative interconnection requests").

compliance actions prior to a Commission determination, meaning that proposed rules that are not just and reasonable or are unduly discriminatory will shape commercial decisions before the Commission can opine on them. While an order ultimately rejecting a proposal as not just and reasonable or unduly discriminatory would give market participants some relief from having to comply with a rule that does not past muster under the Federal Power Act, it would not return to them the time and money spent complying with the proposed unjust and unreasonable or unduly discriminatory rule in advance of the Commission's determination.[32]

14. While there may be circumstances where the Commission can accept a tariff that imposes deadlines on market participants as early as the effective date of the proposed tariff, such deadlines should be justified by some compelling rationale. Indeed, in evaluating the proposed implementation timelines for new capacity market rules, the Commission's task is often to balance competing concerns.[33] A need for more accurate prices or improvements to ensure reliability, for example, is to be weighed against participants' ability to understand new rules and make decisions based on them.[34] Here, however, there was no compelling reason for PJM to force ELCC resources to comply with such an immediate deadline in order to be eligible for the transition mechanism in *any* Delivery Year.

---

[32] I recognize that a similar dynamic may play out in circumstances where a compelling rationale supports a rule that requires compliance actions on its effective date. But there is no need to permit utilities this behavior in circumstances like this one where no such rationale exists.

[33] *See PJM Interconnection, L.L.C.*, 117 FERC ¶ 61,331, at P 73 (2006) ("The adoption of a transition period must strike a reasonable balance between the need to implement RPM to generate relevant prices, and the provision of some period to enable parties to understand and make adjustments to the new market."), *order on reh'g*, *PJM Interconnection, L.L.C.*, 119 FERC ¶ 61,318 (2007); *Midcontinent Independent System Operator*, 180 FERC ¶ 61,141, at PP 248-249 (2022) ("The transition period appropriately balances the need to implement the SAC methodology with the recognition that resource owners and LSEs may need to adjust their operations—including outage timing—and their contractual arrangements to maximize their potential SAC values."); *PJM Interconnection, L.L.C.*, 155 FERC ¶ 61,157, at PP 150-151 (2016) (accepting a phase-in of PJM's capacity performance requirements as just and reasonable because the benefits of providing relevant entities adequate time to adjust Fixed Resource Requirement plans based on the new rules were weighed in conjunction with the interest in applying the requirements in an even-handed manner).

[34] *Id.*

15. PJM's articulated rationale behind its proposed deadline is that March 3, 2023, "represents the absolute latest that PJM staff estimate they will be able to begin transitional system capability studies in anticipation of the June 2023 [Base Residual Auction (BRA)]."[35] But PJM's rationale is not valid as applied to the Commission-imposed deadline of April 10, as by PJM's logic the new deadline is not adequately far in advance of the auction in order to facilitate the required study. Moreover, PJM has proposed to delay its next auction, further undermining any rationale for such an immediate deadline.[36]

16. PJM's deadline also makes little sense because it determines eligibility for *all* future Delivery Years, not just the next auction. As National Grid Renewables explains, "[e]ven if the March 3 deadline was necessary to ensure completion of the initial transitional study in advance of the June 2023 BRA," (a rationale which no longer applies in light of the Commission's modification of that deadline), "PJM has failed to provide any justification for why this deadline is appropriate for evaluating the eligibility of customers to participate in studies conducted prior to BRAs in later years."[37] In other words, PJM has not articulated any reason why resources must be given only a one-time opportunity to submit such requests in order to be eligible for any future auction, especially when the deadline for such submissions occurred so soon after PJM submitted its proposal and even as modified, falls exactly on its effective date. Had PJM given resources additional opportunities to become eligible, they could make more reasoned and informed decisions given that failure to submit a request in advance of the June 2023 BRA would only cost a resource credit in one Delivery Year, as opposed to rendering them ineligible for every single year of the transition.

17. For example, as the Clean Energy Associations have suggested, because "PJM will be conducting studies before each BRA regardless," it could provide an option whereby in advance of each auction customers could "be given the opportunity to apply" for the transition mechanism "after they submit the queue position for the higher CIRs."[38] Or if PJM desired and could justify a specific date after which no more requests may be submitted, it could have chosen a date in advance of a subsequent auction, after which

---

[35] PJM Answer at 6. (PJM's June 2023 BRA, as referred to by PJM, corresponds to the 2025/2026 Delivery Year).

[36] *See* NG Renewables Protest at 2; PJM, *Potential revised RPM auction schedule*, presented at MC Special Session (April 4, 2023), available at item-01---1-potential-revised-rpm-auction-schedule---presentation.ashx (pjm.com).

[37] NG Renewables Protest at 3.

[38] CEA Protest at 4.

eligibility would no longer be granted for future years.[39] Because the transition mechanism allocates only available headroom regardless of the number of resources that are eligible, there is no reliability rationale for limiting eligibility in future Delivery Years to only those who have applied by April 10.

18. Given PJM's failure to offer any compelling reason why ELCC resource owners must be forced on such a tight timeline into a one-time election to submit an interconnection request in order to be eligible for the transition mechanism for all future auctions, the weighing of interests that the Commission engages in when determining whether to approve such a deadline has weight on only one side of the scale: in favor of allowing more time. PJM's 23-day window to act during the pendency of the filing forced significant investment decisions to be made without the benefit of the complex analysis that should better inform them, and affording a few short days after the acceptance of the filing is not enough to remedy that deficiency. As such, PJM's proposed deadline, whether modified by the Commission or not, is not just and reasonable.

B. PJM has not demonstrated that its proposed accreditation method for Combination Resources is just and reasonable

19. PJM's proposed method for accrediting Combination Resources, such as resources that combine both a solar and a storage component, is based on an irrational assumption unlikely to ever play out in practice. Specifically, PJM "proposes to cap the modeled output of the Variable Resource portion of a Combination Resource's actual output in its ELCC calculation at the Combination Resource's Deliverable MW minus the Effective Nameplate Capacity of the Limited Duration component."[40] In other words, PJM's approach essentially assumes that a resource owner will, in all instances, set aside CIRs equal to the full capacity of a combination resource's storage component, and then curtail the variable component of the resource to avoid ever impinging on that amount set aside.[41] In essence, the resource owner is assumed to inject from the storage component

[39] While PJM was not compelled to follow any particular just and reasonable approach, it did have an obligation to justify its own proposed deadline.

[40] Order at P 18.

[41] As explained further below, PJM does not strictly assume curtailment per se, as nothing in the operations time frame limits a resource to injecting no more than its allocated CIRs into the system if the grid is not congested. But PJM proposes to derate the capacity of the Combination Resource as though the variable component had been curtailed, since the resource cannot get any capacity credit beyond what is leftover after the storage capacity is subtracted from its CIRs. PJM notes that its proposal does not preclude charging of the storage resource if the owner is using a "closed loop" system, *see* PJM Answer at 16, but this does not change the fact that the resource's variable

in a manner that perfectly eliminates the ability of the variable component to inject, when in fact the resource owner likely invested in a storage component to do the opposite: "to help to firm up any variability of the renewable component."[42] PJM has failed to demonstrate its proposal to be just and reasonable because this patently inaccurate assumption arbitrarily lowers the capacity accreditation of Combination Resources, forcing customers to buy more capacity than is truly necessary to serve the system. PJM has failed to articulate any adequate justification for modeling resources in this fashion.

20. Assume, for instance, a resource with 125 MW of solar production capability and 50 MW of energy storage capacity, and which holds 80 MW of CIRs. Under PJM's proposal, as I understand it, the solar array's modeled output in each hour in the capacity accreditation calculation would be capped at 30 MW (the result of subtracting the 50 MW of storage from the 80 MW of CIRs), regardless of whether the storage component is modeled to be charging, discharging, or idle in that same hour (and thus not using the CIRs assigned to it). On a sunny afternoon, such a Combination Resource might be capable of generating 120 MW from the solar component, such that it could send a full 80 MW to the grid and still use 40 MW to charge the storage component. But in valuing the capacity of the solar component of the resource, PJM's assumptions nevertheless dictate it a maximum capacity credit of 30 MW in any given hour.

21. PJM's principal reason for applying this economically irrational assumption is that PJM's current modeling approach to ELCC accreditation otherwise looks at the components of a Combination Resource separately.[43] Because of this choice in modeling methodology, PJM states that if it did not cap the production of the variable component, its accreditation formula "would risk over-counting the output of the Variable Resource component, and risk having the combined output of both Combination Resource components . . . exceed the Combination Resource's CIRs and/or winter deliverability MW."[44]

22. To be clear, however, this claim by PJM *does not* suggest that a more optimized method would risk compromising grid reliability. So although the majority characterizes PJM's approach as conservative,[45] it is conservative only in the sense that it undercounts

---

component would never be modeled in a manner that allows that component to make full use of the resource's CIRs, as is expected to occur in practice.

[42] CEA Protest at 10.

[43] *See* Order at P 52 (Protesters "fail to acknowledge that PJM's ELCC analysis models the components of the Combination Resource separately").

[44] PJM Answer at 13-14.

[45] *See* Order at P 53 ("[W]e find PJM's approach just and reasonable because it

what Combination Resources are capable of delivering given PJM's choice not to more accurately model the sharing of CIRs across the two components of a Combination Resource, but not because such undercounting is necessary to reasonably ensure reliability.

23. Nor has PJM made out a coherent case that its approach is needed to account for uncertainty about the resource owner's actual behavior during the real-time operations time frame. The majority vaguely alludes to "uncertainties affecting how a Combination Resource would operate in real time and PJM's relatively limited operational experience with these resources" as justification for PJM's approach.[46] But neither PJM nor the Order explains why operational uncertainties render PJM's economically irrational assumption reasonable. PJM's contention that it "does not know the precise hours in which [a] Limited Duration Resource may produce energy *in advance*,"[47] if interpreted as referring to the potential real-time behavior of market participants, is not a reason why it cannot assign, for modeling purposes, logical rather than illogical hours of production to the storage component of a Combination Resource.

24. PJM gives not a single example where its assumption would be necessary or even beneficial. And a simple thought exercise suggests that PJM's approach is not warranted. Take an example where capacity demand nearly exceeds supply, but adequate grid capacity remains to render the resource deliverable. In that case, subject to resource specific (e.g., non-grid) constraints, a resource with 125 MW of solar and 50 MW of storage might inject 170 MW into the system, despite only holding 80 MW of CIRs. In such a case, the resource's true reliability value would *exceed* the modeled capacity value. While it would be true that the resource owner would have exceeded its CIRs, that would be beneficial for the system without harming any other market participants (whose own resources were also deliverable in that example). And take the alternative case where the system is similarly stressed, but grid constraints are also present such that each resource is limited to its CIRs. In that case, it would be illogical for the resource owner to curtail the solar portion of the facility and inject using the storage. Rather, the resource owner would be expected to use the solar portion of the facility up to the full CIR limit, and use the remainder of its production to charge the storage component. In other words, PJM's proposed assumptions will have borne out to be false, whereas an approach that optimizes a Combination Resource's production would have borne out to be accurate.

---

conservatively assumes that the Limited Duration Resource component of a Combination Resource may ultimately be needed during the most stressed periods.").

[46] Order at P 54.

[47] PJM Answer at 16 (emphasis in original).

25. Importantly, the risk of over-crediting is not a real-time operations concern, but rather is endogenous to PJM's model. Because the model doesn't contemplate the components of a Combination Resource together, such that it can track the assumed production of each component in a given hour, PJM simplifies by derating the variable component. But to employ a more accurate assumption, PJM would need only to know the *modeled* production of a given resource component in a given hour not the ultimate behavior of market participants that may occur in real time. PJM has not articulated any reason why it could not simply track that modeled production across the different components of a Combination Resource.

26. In other words, modeling resources separately is PJM's choice, and PJM has not presented any reasons why the components of a Combination Resource could not be modeled together, as a starting point. For example, as the protesters suggest, PJM could modify its ELCC model to include assumptions that account for the optimization of the combination of the renewable and storage components of a hybrid resource.[48] This is not to suggest that PJM's approach is unreasonable due to the presence of other reasonable methods. Rather, PJM had the burden to articulate why *its* approach is just and reasonable. Given that its assumption quite clearly does *not* align with anticipated resource behavior, PJM had an obligation to explain why it nevertheless applied that assumption.[49] Relying exclusively on the limits of the modeling method PJM currently employs is not an adequate justification when that modeling method can easily be changed. PJM is tying its own hands behind its back and then telling us it's impossible to take a shot. It may well be the case that, for purposes of this next auction, PJM's choice was an appropriate simplification, due to the difficulties of modifying its existing ELCC accreditation method on a short timeline. But PJM has failed to make any such claim or offer a concrete plan memorialized in the tariff by which its inaccurate assumption will be corrected after a transitional period using the incorrect values.[50]

---

[48] For example, PJM could assume that the Combination Resource owner would always maximize the output of its renewable component up to the CIR limit to the extent that the renewable component is producing, and re-assign the production of the storage component to the extent it is coincident with those hours to the highest value hours given that constraint.

[49] Thus, while the Order is correct that the Commission need not opine on whether alternative proposals are just and reasonable, *see* Order at P 54, the existence of alternatives is probative insofar as the presence of such alternatives call into question PJM's explanation for why its proposal is just and reasonable. In this circumstance, it is telling that PJM does not rebut the assertions that the inaccuracy in its model could be corrected.

[50] Likewise, PJM does not claim that software constraints or other modeling

27. Stepping out of the weeds of PJM's model, I believe the Commission had a duty to require a real explanation from PJM given that its proposal, on its face, will result in over-procurement of capacity and thereby increase costs to customers. By under-counting the capacity contribution of Combination Resources, PJM's proposal presents the same "three significant harms" that led the Commission to accept proposals reining in over-broad capacity market mitigation rules: "over-procurement of capacity, inflated capacity market prices, and inefficient price signals from the capacity market."[51] Without explanation of why these harms are truly necessary in PJM's ELCC capacity accreditation of Combination Resources, there is nothing to balance them against and the Commission cannot justifiably accept the proposal as just and reasonable.

For these reasons, I respectfully dissent.

_____

Allison Clements
Commissioner

barriers prevent it from tracking the modeled production of the variable component of a Combination Resource, then modeling the production of the storage component in a fashion that recognizes that production. To the contrary, PJM acknowledges that improvements to cure its inaccurate assumption "may be feasible." PJM Answer at 16.

[51] *New York Independent System Operator*, 179 FERC ¶ 61,102, at P 39 (2022).

Document Content(s)