171 FERC ¶ 61,145
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Neil Chatterjee, Chairman;
Richard Glick, Bernard L. McNamee,
and James P. Danly.

PJM Interconnection, L.L.C. Docket Nos. ER19-1958-001
ER19-1958-002

ORDER ON COMPLIANCE AND REHEARING

(Issued May 21, 2020)

1. In a filing submitted on February 21, 2020 (February Compliance Filing), PJM Interconnection, L.L.C. (PJM) proposed revisions to its Open Access Transmission Tariff (Tariff) in compliance with the requirements of Order Nos. 845 and 845-A[1] and the order on compliance issued on December 19, 2019.[2] As discussed below, we find that the February Compliance Filing partially complies with the Commission's directives in the December 2019 Order. Accordingly, we accept PJM's filing with respect to the proposed revisions related to the contingent facilities, provisional service, and material modifications provisions, effective July 20, 2020, subject to further compliance, as discussed below. We also accept PJM's proposed revisions to its surplus interconnection service Tariff provisions, subject to further compliance, effective November 17, 2020, as requested.

2. Additionally, on January 21, 2020, Leeward Renewable Energy Development, LLC (Leeward) filed a request for rehearing, or in the alternative, clarification of the December 2019 Order (Rehearing Request). As discussed below, we dismiss the Rehearing Request.

---

[1] *Reform of Generator Interconnection Procedures and Agreements*, Order No. 845, 163 FERC ¶ 61,043 (2018), *errata notice*, 167 FERC ¶ 61,123, *order on reh'g*, Order No. 845-A, 166 FERC ¶ 61,137, *errata notice*, 167 FERC ¶ 61,124, *order on reh'g*, Order No. 845-B, 168 FERC ¶ 61,092 (2019).

[2] *PJM Interconnection, L.L.C.*, 169 FERC ¶ 61,226 (2019) (December 2019 Order).

I. Background

3. Order Nos. 845 and 845-A amended the Commission's *pro forma* Large Generator Interconnection Agreement (LGIA) and *pro forma* Large Generator Interconnection Procedures (LGIP) to improve certainty for interconnection customers, promote more informed interconnection decisions, and enhance the interconnection process. In Order Nos. 845 and 845-A, the Commission adopted 10 different reforms to improve the interconnection process and required transmission providers to submit compliance filings to incorporate those reforms into their tariffs.

4. In the December 2019 Order, the Commission found that PJM's May 22, 2019 compliance filing partially complied with the directives of Order Nos. 845 and 845-A. The December 2019 Order directed further revisions to the following Sections of PJM's Tariff and *pro forma* interconnection agreements:[3] Identification and Definition of Contingent Facilities;[4] Provisional Interconnection Service;[5] Surplus Interconnection Service;[6] and Material Modifications and Incorporation of Advanced Technologies.[7]

II. PJM's Compliance Filing

5. PJM proposes modifications to its Tariff relative to the following reforms: (1) contingent facilities; (2) provisional interconnection service; (3) surplus interconnection service; and (4) material modifications and incorporation of advanced technologies.[8] PJM requests that the proposed revisions for surplus interconnection service become effective 180 days following the issuance of a Commission order accepting PJM's proposed revisions. For all other proposed revisions, PJM requests an

[3] PJM's *pro forma* interconnection agreements are the Interconnection Service Agreement, in Tariff Attachment O, the Interconnection Construction Service Agreement (ICSA), in Tariff Attachment P, and the Upgrade Construction Service Agreement (Upgrade CSA), in Tariff Attachment GG.

[4] December 2019 Order, 169 FERC ¶ 61,226 at PP 46-48.

[5] *Id.* P 86.

[6] *Id.* PP 106-107.

[7] *Id.* PP 121-24.

[8] February Compliance Filing at 1-2.

effective date 60 days following the issuance of a Commission order accepting such revisions.[9]

III. Notice and Responsive Pleadings

6. Notice of PJM's Compliance Filing was published in the *Federal Register*, 85 Fed. Reg. 12,283 (Mar. 2, 2020), with interventions and protests due on or before March 13, 2020. On March 13, 2020, Clean Energy Entities[10] filed a protest and Leeward filed a protest. On April 29, 2020, PJM filed an answer. On May 13, 2020, Leeward filed an answer.

IV. Discussion

A. Procedural Matters

7. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2019), prohibits an answer to a protest. We accept PJM's and Leeward's answers because they provided information that assisted us in our decision-making process.

B. Substantive Matters

1. Identification and Definition of Contingent Facilities

8. In the December 2019 Order, the Commission found that PJM's proposed Tariff revisions lacked the requisite transparency required by Orders Nos. 845 and 845-A because they did not detail the specific technical screens or analyses and the specific thresholds or criteria that PJM will use as part of its method to identify contingent facilities.[11] The Commission found that the additional technical implementation details relating to the system impact study in Manual 14A provide the requisite transparency required by Order Nos. 845 and 845-A. Therefore, the Commission directed PJM to submit a further compliance filing to include the following Manual 14A language in Section 205.2.1 (Contingent Facilities) of its Tariff: "The System Impact Study includes AC powerflow analysis, short circuit analysis, and stability analysis. The powerflow and

[9] *Id.* at 2.

[10] Clean Energy Entities include the American Wind Energy Association, the Solar Energy Industries Association, and the Solar Council.

[11] December 2019 Order, 169 FERC ¶ 61,226 at P 45.

stability analysis can include different sets of analyses at various load levels such as summer peak, light load, and winter peak."[12]

9. Additionally, the Commission required PJM to include the specific thresholds or criteria it will use in its technical screens or analyses to achieve the level of transparency required by Order No. 845.[13] The Commission further required PJM to revise Section 205.2.1 of its Tariff to include the words "[T]he method shall be sufficiently transparent to determine" why a specific contingent facility was identified and how it relates to the interconnection request.[14]

a. PJM's Compliance Filing

10. Rather than incorporating the language from Manual 14A, described above, into its Tariff, PJM proposes to revise its Tariff to perform the stability analysis during the facilities study, not the system impact study.[15] PJM states that these revisions are needed to allow PJM to comply with the requirements of Order No. 845 to allow a customer to incorporate certain technological advancements into its interconnection request before returning the executed facilities study agreement without risking the loss of its queue position.[16] PJM explains that it performs its stability analysis on an individual project basis and such studies generally take four to six weeks to complete. PJM further explains that this proposal also impacts the separate reform related to material modifications and incorporation of advanced technologies because, by moving its stability analysis to the facilities study, it will be able to afford the interconnection customer greater flexibility to propose permissible technological advancements up until the return of the facilities study agreement and will still be able to determine whether or not a technological advancement is a material modification within 30 calendar days of receipt of the initial request.[17]

---

[12] *Id.* P 46 (citing PJM Interconnection, L.L.C., PJM Manual 14A, New Services Requests § 4.3 System Impact Studies https://www.pjm.com/-/media/documents/manuals/m14a.ashx.).

[13] *Id.* P 47.

[14] *Id.* P 48.

[15] PJM, Intra-PJM Tariffs, OATT, Scope of Studies, (2.0.0) § 205.2.1 (Contingent Facilities); Facilities Study Procedures (1.1.0) § 207; attachment N-1 (5.0.0) (System Impact Study Agreement); *and* attachment N-2 (4.0.0) (Facilities Study Agreement).

[16] February Compliance Filing at 3-4.

[17] *Id.* at 4.

11. PJM also proposes to include language from its system impact study agreement, which details the specific analyses PJM performs in a system impact study, into Tariff Section 205.2.[18] PJM argues that this modification to Section 205.2 will increase transparency, consistent with the directives of the December 2019 Order. PJM also proposes to revise Tariff Section 207 and Attachment N-2 to add the stability analysis, if necessary, to the scope of the facilities study.[19]

12. PJM proposes to include the specific thresholds or criteria that it will use as part of its method to identify contingent facilities by revising Tariff Section 205.2 to provide that each system impact study will identify system constraints "in accordance with the distribution factor effect, megawatt contribution or fault duty contribution."[20] PJM argues that this revision will provide interconnection customers with the specific thresholds PJM will use so they can understand which analysis test was used to identify the contingent facility.[21]

13. Finally, PJM proposes to revise Tariff Section 205.2.1 to state, "[t]he method for identifying Contingent Facilities shall be sufficiently transparent to determine why a specific Contingent Facility was identified and how it relates to the Interconnection Request."[22]

b. Clean Energy Entities' Protest

14. Clean Energy Entities argue that PJM fails to include the "specific thresholds," such as "the *specific* distribution factor, megawatt contribution, or fault duty thresholds" that PJM will use to determine what are contingent facilities.[23] Clean Energy Entities contend that these thresholds should either be listed in PJM's proposed compliance

---

[18] *Id.* at 5.

[19] *Id.*; PJM, Intra-PJM Tariffs, OATT, Scope of Studies, (2.0.0) § 205.2.1 (Contingent Facilities); Facilities Study Procedures (1.1.0) § 207; *and* attachment N-2 (4.0.0) (Facilities Study Agreement).

[20] February Compliance Filing at 5; PJM, Intra-PJM Tariffs, OATT, Scope of Studies, (2.0.0) § 205.2.

[21] February Compliance Filing at 5.

[22] February Compliance Filing at 5; PJM, Intra-PJM Tariffs, OATT, Scope of Studies, (2.0.0) § 205.2.1 (Contingent Facilities).

[23] Clean Energy Entities Protest at 2 (emphasis in original).

language, or, if provided elsewhere in a manual, the manual section should be referenced in the Tariff provision.

c. PJM's Answer

15. In response to Clean Energy Entities, PJM avers that the information they seek is captured in several provisions across several PJM Manuals.[24] PJM believes that, due to the extent of the information provided, this information is appropriately included in the manuals, not the Tariff. For example, PJM argues that because the first new service customer to cause the need for a network upgrades will have some cost allocation there are no minimum thresholds for contingent facilities with respect to identifying new short circuit violations on the PJM system.[25]

d. Commission Determination

16. We find that the revised Tariff provisions identifying and describing PJM's method for determining contingent facilities partially comply with the requirements of the December 2019 Order and Order Nos. 845 and 845-A. While the proposed revisions to Section 205.2 include a method for determining contingent facilities, they do not detail the specific thresholds or criteria that PJM will use as part of its method.

17. In the December 2019 Order, the Commission found that PJM's proposed Tariff revisions lacked the requisite transparency required by Order Nos. 845 and 845-A.[26] We find that PJM's proposal complies with the requirement in Order Nos. 845 and 845-A to publish a method for identifying contingent facilities.[27]

18. On compliance, PJM proposes revisions to Tariff Section 205.2, which describe the technical screens or analyses that PJM will use to identify contingent facilities.[28] We find that these revisions comply with the requirements of the December 2019 Order. We further find that PJM's proposal to incorporate existing Tariff language from its system impact study agreement into Section 205.2 provides more detail relating to the process PJM uses to identify contingent facilities than the Manual 14A language does and is sufficiently transparent to allow customers to understand how PJM identifies contingent

[24] PJM Answer at 7.

[25] *Id.* at 8.

[26] December 2019 Order, 169 FERC ¶ 61,226 at P 45.

[27] Order No. 845, 163 FERC ¶ 61,043 at P 199.

[28] *Id.*

facilities.[29] For example, the scope of the system impact study may include an assessment of the regional transmission upgrades that most effectively meet identified needs, and an analysis to determine cost allocation responsibility for required facilities and upgrades.

19. PJM's proposed revisions to its contingent facilities process also provide additional detail about how PJM will identify contingent facilities. For example, PJM proposes that each system impact study shall identify system constraints, identified with specificity by transmission element or flowgate, in accordance with the distribution factor effect, megawatt contribution, or fault duty contribution.[30] We find these proposed changes comply with Order Nos. 845 and 845-A's requirement for transmission providers to publish a method for identifying contingent facilities.

20. In the December 2019 Order, the Commission also directed PJM to revise its Tariff to include the specific thresholds or criteria that PJM will use as part of the technical screens and analyses.[31] We find that PJM's proposed method does not comply with this directive in the December 2019 Order. PJM's proposed Tariff revisions do not state the specific triggering thresholds or criteria that would result in the transmission system demonstrating unacceptable distribution factor effects, megawatt contributions, or fault duty contributions. As PJM admits, that information is located in its manuals.[32] Accordingly, we direct PJM to submit, within 120 days of the date of this order, a further compliance filing that includes the specific thresholds or criteria that PJM will use as part of its method to identify contingent facilities in the system impact study to achieve the level of transparency required by Order Nos. 845 and 845-A and the December 2019 Order.[33]

2. Provisional Interconnection Service

21. In the December 2019 Order, the Commission found that PJM's then-proposed section 1.4A.2 to Appendix 2 of Attachment O failed to comply with the requirement in

---

[29] *See pro forma* LGIP § 3.8 ("The method shall be sufficiently transparent to determine why a specific Contingent Facility was identified …").

[30] PJM, Intra-PJM Tariffs, OATT, Scope of Studies, (3.1.0) § 205.2.

[31] December 2019 Order, 169 FERC ¶ 61,226 at P 47.

[32] *See* PJM Answer at 7.

[33] For example, PJM could explicitly identify specific references, as found in its manuals, to information regarding thresholds or criteria that it will use to identify contingent facilities.

Order Nos. 845 and 845-A to replace the bracketed placeholder in article 5.9.2 of the *pro forma* LGIA with language specifying the frequency with which PJM will study and update the maximum output of a generating facility in an interconnection service agreement that includes provisional interconnection service. Accordingly, the Commission directed PJM to revise the provision to include a frequency or other specific trigger for updating provisional interconnection studies.[34]

a. PJM's Compliance Filing

22. In the February Compliance Filing, PJM proposes to clarify section 1.4A.2 to Appendix 2 of Attachment O to specify that PJM will study and update the maximum permissible output of a generating facility in an interconnection service agreement that includes provisional interconnection service annually. PJM also proposes language stating that results will be communicated to the interconnection customer in writing upon completion of the study.[35]

b. Commission Determination

23. We find that PJM's proposed revisions to section 1.4A.2 to Appendix 2 of Attachment O comply with the requirements of Order Nos. 845 and 845-A and the compliance directive in the December 2019 Order.

3. Surplus Interconnection Service

24. As part of its May 2019 Compliance Filing, PJM requested two independent entity variations from Order Nos. 845 and 845-A's surplus service requirements. First, PJM proposed to conduct an expedited process for surplus interconnection service requests within its existing interconnection queue.[36] Second, PJM proposed a variation to allow an interconnection customer that does not qualify for surplus interconnection service to retain its queue position and proceed through the interconnection study process as a zero MW generator request.[37]

25. In the December 2019 Order, the Commission found that PJM's May 2019 Compliance Filing surplus interconnection service proposal partially

---

[34] December 2019 Order, 169 FERC ¶ 61,226 at P 86.

[35] February Compliance Filing at 8; PJM, Intra-PJM Tariffs, OATT, Attachment O, app. 2, Provisional Interconnection Service (0.0.0), § 1.4A.2.

[36] December 2019 Order, 169 FERC ¶ 61,226 at P 90.

[37] *Id.*.

complied with the requirements of Order Nos. 845 and 845-A.[38] The Commission rejected PJM's two independent entity variations regarding surplus interconnection service.[39] Accordingly, the Commission directed PJM to revise its surplus interconnection service proposal to provide an expedited interconnection process, separate from its interconnection queue, to process surplus interconnection service requests.[40] The Commission also directed PJM to remove the proposed Tariff provisions that would allow an interconnection request that does not qualify for surplus interconnection service to proceed through the queue as a zero MW generator request.[41]

a. PJM's Compliance Filing

26. PJM proposes to add two new Tariff definitions specific to surplus interconnection service. The first term, "Surplus Interconnection Customer," clarifies that a surplus service customer may be either an existing interconnection customer whose facility is interconnected to the PJM transmission system or an entity unaffiliated with an already interconnected generating facility.[42] The second term, "Surplus Interconnection Request," provides that such requests are submitted by surplus interconnection customers pursuant to a surplus interconnection study agreement, which PJM now proposes as new Tariff Attachment RR. Both definitions exclude surplus interconnection service requests from PJM's existing queue.[43]

27. PJM proposes to add two new sub-sections to section 36.1.1B, Surplus Interconnection Service Request, to detail the requirements specific to a surplus interconnection request. Proposed subsection 36.1.1B(1) details the requirements for surplus interconnection service.[44] PJM states that these requirements are similar to those

[38] *Id.* at P 101.

[39] *Id.* PP 101-102.

[40] *Id.* P 106.

[41] *Id.* P 107.

[42] February Compliance Filing at 10; PJM, Intra-PJM Tariffs OATT, Definitions – R-S (19.0.0).

[43] PJM, Intra-PJM Tariffs OATT, Definitions – R-S (19.0.0).

[44] PJM, Intra-PJM Tariffs OATT, Surplus Interconnection Service Request (8.1.0) § 36.1.1B(1).

specified in section 36.1.01 for a generator interconnection request.[45] Proposed subsection 36.1.1B(1)(i) requires a surplus interconnection customer to provide a "deposit in the amount of $10,000 plus $100 for each MW requested provided that the maximum total deposit amount for a Surplus Interconnection Request shall not exceed $110,000."[46] Proposed subsection 36.1.1B(2) details the deficiency review process for surplus interconnection requests.[47] PJM states that this process is similar to the deficiency review process for a generator interconnection request.[48] Under subsection 36.1.1B(2), if the surplus interconnection customer fails to cure a deficiency in its request, the surplus interconnection request will be terminated and withdrawn.[49]

28. PJM proposes to add new section 36.4 to detail the process to be used for surplus interconnection requests. Proposed section 36.4(1) details PJM's method for studying a surplus interconnection request.[50] This section provides that such studies will consist of reactive power, short circuit/fault duty, stability analyses and any other relevant analyses. These analyses shall be performed to the required level necessary to demonstrate reliable operation of the surplus interconnection service requested.

29. Further, PJM proposes to use reasonable efforts to complete the surplus interconnection study within 180 days of receipt of a valid surplus interconnection request.[51] PJM states that this six-month study process is "significantly shorter" than the 11-month process for interconnection requests through the new services queue.[52] If PJM cannot complete the study within 180 days, section 36.4(1) requires PJM to notify the

[45] February Compliance Filing at 11.

[46] PJM, Intra-PJM Tariffs OATT, Surplus Interconnection Service Request (8.1.0) § 36.1.1B(1)(i).

[47] *Id.* § 36.1.1B(2).

[48] February Compliance Filing at 12.

[49] PJM, Intra-PJM Tariffs OATT, Surplus Interconnection Service Request (8.1.0) § 36.1.1B(2).

[50] PJM, Intra-PJM Tariffs OATT, Surplus Interconnection Study (0.0.0) § 36.4(1).

[51] *Id.*

[52] February Compliance Filing at 13.

surplus interconnection customer, and provide an estimated completion date as well as an explanation of the reasons why additional time is required.[53]

30. If PJM determines that network upgrades may be required or there may be impacts affecting the determination of what upgrades are necessary for new service customers in the new services queue, or there may be material impacts on short circuit capability limits, steady-state thermal and voltage limits or dynamic system stability and response, PJM will terminate and withdraw the surplus interconnection request upon issuance of the surplus interconnection study.[54]

31. PJM proposes a *pro forma* surplus interconnection service agreement in new Tariff Attachment RR.[55] The proposed agreement requires the surplus interconnection customer to provide additional details specific to the surplus generating unit and the generating facility interconnected to the PJM transmission system from which the surplus interconnection customer seeks surplus service.

b. Clean Energy Entities' Protest

32. Clean Energy Entities note that PJM explains that the surplus interconnection study will consist of "reactive power, short circuit/fault duty and stability analyses and any other appropriate analyses," as well as "off-peak steady-state analyses [to] be performed to the required level necessary to demonstrate reliable operation of the Surplus Interconnection Service requested."[56] However, Clean Energy Entities argue that PJM does not identify the metrics that will be used in these evaluations.[57] Clean Energy Entities further argue that PJM's filing does not clarify whether the thresholds would be consistent with those from new interconnection requests, or instead conducted solely to determine that there is no degradation of the bulk electric system.[58] Clean Energy Entities contend that PJM does not indicate what study model it will use in such determinations. Further, Clean Energy Entities also claim that PJM's proposed revisions

[53] PJM, Intra-PJM Tariffs OATT, Surplus Interconnection Study (0.0.0) § 36.4(1).

[54] *Id.* § 36.4(3).

[55] PJM, Intra-PJM Tariffs, OATT, Attachment RR, Form of Surplus Interconnection Study (0.0.0).

[56] Clean Energy Entities Protest at 2.

[57] *Id.*

[58] *Id.* at 3.

do not specify whether the surplus interconnection customer will receive a refund for the unused portion of its deposit.[59]

33. Clean Energy Entities also contend that PJM has not sufficiently justified its need for a 180-day study period. Clean Energy Entities point out that other ISO/RTOs have proposed shorter study periods.[60]

c. PJM's Answer

34. In response to Clean Energy Entities' argument that PJM's proposal does not clarify the thresholds to be used for surplus interconnection requests, PJM states that Tariff Section 36.4(2) provides that generation units requesting surplus interconnection service cannot use any available system headroom and therefore "*any* impact is the threshold to determine whether a surplus interconnection request is material and, consequently, terminated and withdrawn."[61] Further, PJM states, if the surplus interconnection request is terminated and withdrawn, PJM would refund to the surplus interconnection customer any unused portion of the deposit submitted pursuant to section "36.1.1Bi."[62]

35. PJM argues that it did provide justification for a six-month study period for surplus interconnection requests.[63] PJM explains that it would need to integrate the surplus interconnection service process into its current workload, and allowing a six-month study period would provide PJM with the resources to process surplus interconnection requests around the timing obligations for its new services queue. PJM argues that in light of the volume of work and the additional reporting requirements imposed on transmission providers in Order No. 845, a six-month study period for surplus interconnection requests accommodates both surplus interconnection customers, as well as customers in the new services queue.[64]

---

[59] *Id.*

[60] *Id.* (citing *Midcontinent Indep. Sys. Operator, Inc.*, 169 FERC ¶ 61,221, at PP 120, 128-30 (2019)).

[61] PJM Answer at 9 (emphasis in original).

[62] Although PJM states the refund is in section 36.1.1Bi, we note that there is no such section. However, it appears that PJM is referring to section "36.1.1B(1)(i)," which provides for deposits for surplus interconnection requests.

[63] PJM Answer at 10.

[64] *Id.* at 11.

d. Commission Determination

36. Except as discussed below, we find that PJM's proposed Tariff provisions regarding surplus interconnection service comply with the requirements of the December 2019 Order and Order Nos. 845 and 845-A.

37. We find that PJM's proposed revisions, which move the surplus interconnection procedures from the existing queue provisions to a separate process, satisfy the compliance directives of the December 2019 Order.[65] PJM's proposed revisions, which provide for an expedited surplus interconnection service study process separate from its new services interconnection queue, allow the original interconnection customer to stipulate the amount of surplus interconnection service that is available, and include a process for evaluating and transferring surplus interconnection service, as required by Order Nos. 845 and 845-A.[66]

38. We disagree with Clean Energy Entities that PJM's February Compliance Filing is deficient because it does not require PJM to identify the metrics it will use in its surplus interconnection study.[67] Order Nos. 845 and 845-A did not require transmission providers to provide such metrics in their tariffs.[68]

39. We agree with Clean Energy Entities that PJM's proposed revisions do not indicate whether PJM will provide refunds of the unused portion of the surplus interconnection study deposit. In its answer, PJM clarifies that it would refund to the surplus interconnection customer any unused portion of the deposit submitted pursuant to section 36.1.1B(1)(i).[69] However, as written, that provision only requires an interconnection customer to submit a deposit.[70] It does not provide for refunds. Accordingly, we direct PJM to submit, within 120 days of the date of this order, a further compliance filing that provides for refunds of any excess surplus interconnection service study deposits.

---

[65] December 2019 Order, 169 FERC ¶ 61,226 at P 106.

[66] *Id.* PP 467, 481, 483.

[67] Clean Energy Entities Protest at 2-3.

[68] *See* Order No. 845, 163 FERC ¶ 61,043 at P 467; *pro forma* LGIP § 4.4.2(c).

[69] PJM Answer at 9.

[70] PJM, Intra-PJM Tariffs OATT, Surplus Interconnection Service Request (8.1.0) § 36.1.1B(1)(i).

40. Finally, we disagree with Clean Energy Entities that PJM did not sufficiently justify its need for a 180-day study period. As PJM explains, this six-month study process is significantly shorter than the 11-month process for interconnection requests submitted through the new services queue. Further, having a six-month process that aligns with the existing six-month new services queue window will allow PJM to study surplus interconnection requests without delaying studies in its new services queue. We find that this is a reasonable timeframe for PJM to process the surplus interconnection study.

4. Material Modifications and Incorporation of Advanced Technologies

41. In the December 2019 Order, the Commission rejected PJM's proposed Tariff provisions related to material modification and the incorporation of advanced technologies. Because the description of PJM's proposed Tariff language in its May 2019 transmittal letter varied materially from the language contained in its proposed Tariff records, the Commission could not determine whether PJM's proposal complied with Order Nos. 845 and 845-A.[71] The Commission directed PJM to clarify upon further compliance its proposed technological change procedure.[72]

42. Additionally, in its May 2019 Compliance Filing, PJM stated that it did not propose additional changes to comply with Order Nos. 845 and 845-A's 30-day deadline to determine whether a change is a material modification.[73] PJM explained that existing Tariff Section 36.2A.4 provided that, if a study is necessary, PJM "shall commence such studies no later than 30 calendar days after receiving notice of the Interconnection Customer's request."[74] In the December 2019 Order, the Commission found that PJM's existing Tariff Section 36.2A.4 did not comply with Order Nos. 845 and 845-A. The Commission directed PJM to revise its proposed technological change procedure to provide that PJM will determine whether a technological advancement is a material modification within 30 days of receipt of the initial request.[75]

---

[71] December 2019 Order, 169 FERC ¶ 61,226 at PP 120-21.

[72] *Id.* P 121.

[73] *Id.* P 124.

[74] *Id.*

[75] *Id.*

a. The February Compliance Filing

i. PJM's Compliance Filing

43. PJM proposes to define a permissible technological advancement as:

> a proposed technological change such as an advancement to turbines, inverters, plant supervisory controls or other similar advancements to the technology proposed in the Interconnection Request that is submitted to the Transmission Provider no later than the return of an executed Facilities Study Agreement (or, if a Facilities Study is not required, prior to the return of an executed Interconnection Service Agreement). Provided such change may not: (i) increase the capability of the Generating Facility as specified in the original Interconnection Request; (ii) represent a different fuel type from the original Interconnection Request; or (iii) cause any material adverse impact(s) on the Transmission System with regard to short circuit capability limits, steady-state thermal and voltage limits, or dynamic system stability and response. If the proposed technological advancement is a Permissible Technological Advancement, no additional study will be necessary and the proposed technological advancement will not be considered a Material Modification.[76]

44. PJM notes that under this definition, a technology change may not qualify as a permissible technological advancement if the change: (1) increases the capability of the generating facility specified in the original interconnection request; (2) represents a different fuel type from the original interconnection request; or (3) causes any material adverse impacts on the transmission system. PJM clarifies that, if a change meets any of these three characteristics, it would not qualify as a permissible technological advancement.[77] PJM states that the proposed definition of permissible technological advancement complies with Order No. 845 because its three exclusions are consistent with the guidance of Order No. 845 and are necessary to ensure that a technological

[76] PJM, Intra-PJM Tariffs OATT, Definitions – O-P-Q (22.1.0).

[77] February Compliance Filing at 16.

advancement that qualifies as a permissible technological advancement does not adversely impact the transmission system and is generally not a material modification.[78]

45. PJM also proposes, in revised section 36.2A.2.1, that in a request to modify a project to include a technological advancement, the interconnection customer must submit, via the PJM website, the new machine modeling data associated with such permissible technological advancement, as specified in the PJM manuals, no later than by the return of an executed facilities study agreement (or, if a facilities study is not required, prior to the return of an executed interconnection service agreement).[79]

46. PJM also proposes to include new section 36.2A.2.1, which establishes a review procedure for all technological advancements.[80] This procedure requires that the interconnection customer must: (1) submit its request to modify its interconnection request to add a technological advancement to PJM in writing; and (2) submit complete and accurate machine modeling data, as specified in the PJM manuals.

47. In addition, PJM proposes, in new section 36.2A.2.2, that all technological advancement requests not qualifying as a permissible technological advancement will require a study, and that PJM will evaluate them to determine whether such a change would constitute a material modification. Such evaluation will include an analysis of the short circuit capability limits, steady-state thermal and voltage limits, or dynamic system stability and response on subsequent-queued interconnection requests. PJM proposes that, if it determines that the technological advancement is not a material modification, the interconnection customer may modify its interconnection request to include such technological advancement. If PJM determines the change is a material modification, the interconnection customer must withdraw its technological advancement change request to retain its queue position or proceed with a new interconnection request with such technological change. PJM also proposes that it shall determine whether a technological advancement is a material modification within 30 calendar days of receipt of the technological advancement request.[81] PJM proposes to add the following provision to section 36.2A.2.2: "[i]f PJM determines the data submitted with such request is incomplete or incorrect, PJM will reject such technological change request and the Interconnection Customer may resubmit its technological change request with the

---

[78] *Id.* at 17.

[79] *Id.*; PJM, Intra-PJM Tariffs, OATT, Modification of Interconnection Request (2.0.0) § 36.2A.2.1.

[80] *Id.*

[81] PJM, Intra-PJM Tariffs, OATT, Modification of Interconnection Request (2.0.0) § 36.2A.2.2.

complete and/or accurate data."[82] PJM states that, without this additional language, it cannot comply with the 30-day deadline to determine whether a proposed technological change is a material modification, because those evaluations cannot be performed without complete or accurate data.[83]

ii. Leeward's Protest

48. In its protest, Leeward argues that, by requiring interconnection customers to submit proposed technological changes *before* returning the executed facilities study agreement, PJM's proposed technological advancement provisions unduly restrict any interconnection customer facing changed circumstances *after* executing a facilities study agreement.[84] Leeward claims that it often takes several years after executing a facilities study agreement to begin construction of a project. Leeward argues that, by not providing for a material modification change later in the process, PJM's definition does not take into account the "rapid pace of innovation" contemplated by the Commission in Order No. 845.[85] Leeward contends that PJM's interconnection queue experiences frequent delays, which it claims results in deadlines occurring earlier in a project's life cycle than normal.[86]

49. Leeward contends that PJM's interconnection queue delays cause projects to miss out on technological developments.[87] As an example, Leeward explains that its Lone Tree Wind project faced numerous delays in attempting to submit changes to PJM. Leeward states that it submitted a consultant's report to PJM to show that the requested changes were "imperceptible," but PJM refused to consider the report. Leeward asks the Commission to issue a deficiency letter to PJM, requiring that both proposed and permissible technological advancements be permitted at any time during the interconnection process before the execution of the interconnection service agreement.

---

[82] *Id.*

[83] February Compliance Filing at 19.

[84] Leeward Protest at 3.

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

[86] *Id.* at 4.

[87] *Id.*

Alternatively, Leeward requests that the Commission grandfather the Lone Tree Wind project under the previously applicable Tariff language.[88]

50. Leeward argues that PJM's treatment of another project, in Ohio, is inconsistent with Order No. 845.[89] Leeward contends that Order No. 845 requires transmission providers to evaluate a proposed change in fuel type.[90] Leeward contends that it does not seek a determination that switching from wind to solar (or vice versa) should *ipso facto* signify a permissible technological advancement. Rather, it seeks the ability to demonstrate that such a change will not have an adverse material impact and that the project should retain its queue position.[91]

51. Leeward further contends that PJM's refusal to review a study conducted by the customer is inconsistent with PJM's Tariff. To this point, Leeward asserts that new Section 36.2A.2.2 of the PJM Tariff does not specify that a change in generation technology is a *de facto* material modification, and instead provides that all technological advancement requests that do not qualify as a "Permissible Technological Advancement" will require a study to determine whether it is a material modification.[92] Leeward argues that the PJM Tariff allows an interconnection customer to "identify changes to the planned interconnection that may improve the costs and benefits . . . of the interconnection" and that the transmission provider's acceptance of such a proposed change cannot be unreasonably withheld.[93] Leeward contends that PJM's refusal to consider Leeward's study explaining why its proposed change in fuel type for the Ohio project is a non-material modification is inconsistent with both the PJM Tariff and the intent of Order No. 845.[94] Accordingly, Leeward argues that the Commission should

[88] *Id.* at 5.

[89] *Id.* at 5-6.

[90] *Id.* at 6 (citing Order No. 845, 163 FERC ¶ 61,043 at P 530).

[91] *Id.*

[92] *Id.* at 6-7.

[93] *Id.* at 7 (citing PJM, Intra-PJM Tariffs, OATT, Modification of Interconnection Request (2.0.0) § 36.2A).

[94] *Id.* at 6-7.

clarify that, even though a change in fuel type is not automatically a permissible technological advancement, such a change is not necessarily a material modification.[95]

iii. PJM's Answer

52. In its answer, PJM argues that its proposed timeframe for processing permissible technological advancement requests is consistent with Order No. 845. It further argues that Leeward's request to change that timeframe amounts to an untimely request for rehearing of Order No. 845.[96] With respect to the Lone Tree Wind project, PJM argues that Leeward's proposed changes to the project were not "*de minimus*" because the proposed change would have increased capacity and required PJM to rerun the stability analysis.[97]

53. PJM also argues that Leeward's arguments with respect to the Ohio project should be rejected for two reasons.[98] First, neither the issue of fuel change requests, nor the Ohio project, were addressed in the December 2019 Order. As such, PJM argues, these issues are beyond the scope of this compliance filing. Second, PJM states that, contrary to Leeward's underlying assumption, a change in fuel type is not a technological advancement: It is a project change that requires an entirely new interconnection request.[99] PJM argues that Order No. 845 did not contemplate allowing the substitution of a completely different fuel type.[100]

iv. Leeward's Answer

54. In response to PJM's argument that Order No. 845 did not contemplate the substitution of an entirely different fuel type, Leeward argues that the Commission, in Order No. 845, stated that "the transmission provider would likely need to evaluate" such a change from wind to solar to assess the impact, pursuant to the material modification

---

[95] *Id.* at 7.

[96] PJM Answer at 2-3.

[97] *Id.* at 4.

[98] *Id.* at 5.

[99] *Id.* (citing PJM Interconnection, L.L.C., PJM Manual 14G, Generation Interconnection Requests, § 4.5.2 Fuel Changes https://www.pjm.com/-/media/documents/manuals/m14g.ashx.).

[100] *Id.*

and technological advancement reform.[101] Leeward reiterates that it seeks the ability to show PJM that changing its project's fuel type from wind to solar will not have an adverse material impact. Leeward also reiterates its request for PJM to evaluate the impact of that change to determine whether it constitutes a material modification.

55. Responding to PJM's reliance on Manual 14G to support its claim that a change in fuel type is a project change and not a technological advancement, Leeward states that PJM's Tariff is in direct conflict with its manual provision.[102] Leeward contends that PJM's Tariff does not specify that a change in generation technology is a *de facto* material modification. Leeward adds that if PJM believes it necessary to have a list of modifications that would automatically be considered material modifications, such a list should be in the Tariff, consistent with the Commission's rule of reason.[103]

v. Commission Determination

56. We find that PJM's proposed definition of "Permissible Technological Advancement" and its proposed revisions to Tariff Section 36.2A.2 comply with the requirements of Order Nos. 845 and 845-A and the December 2019 Order.[104] We also find that PJM's proposed definition of a permissible technological advancement complies with the requirement in Order Nos. 845 and 845-A that transmission providers establish a category of technological change that does not constitute a material modification.[105] We further find, consistent with Order Nos. 845 and 845-A, that PJM's proposed revisions to Tariff Section 36.2A.2 provides a technological change procedure to allow interconnection customers to submit requests to modify their interconnection requests to include permissible technological advancements before executing a facilities study agreement.[106]

57. Moreover, we find that proposed Tariff Section 36.2A.2.2 requires PJM to study and evaluate an interconnection customer's request to include a technological advancement that does not qualify as a "Permissible Technological Advancement,"

---

[101] *Id*. at 4.

[102] *Id*. at 5.

[103] *Id.* at 5.

[104] December 2019 Order, 169 FERC ¶ 61,226 at P 122 (citing Order No. 845, 163 FERC ¶ 61,043 at P 519).

[105] Order No. 845, 163 FERC ¶ 61,043 at P 518.

[106] *Id.* P 536.

consistent with the requirements of Order No. 845.[107] Pursuant to this new Tariff provision, PJM will study and evaluate all technological advancement requests that do not qualify as a "Permissible Technological Advancement" to determine whether such a change would constitute a material modification.[108] To the extent that Leeward seeks the opportunity to provide PJM with its own study to show that a requested change is not a material modification, we note that Order No. 845 did not impose an obligation on transmission providers to consider a study provided by interconnection customers.[109]

58. In response to Leeward's specific request to be able to demonstrate that a change in fuel-type will not have an adverse material impact on PJM's queue by proceeding through the technological change process, we find that Order Nos. 845 and 845-A did not mandate that such a change be eligible to proceed through the technological change procedure. Instead, Order No. 845 stated that, in order to enter the technological change procedure, the interconnection customer must demonstrate that the proposed change results in "equal to or better" electrical performance.[110] Should the interconnection customer fail to make such a demonstration, the proposed change should proceed through the material modification procedures. However, we disagree with PJM that neither the existing Tariff nor proposed Section 36.2A.2.2 specifically precludes changes in fuel-type from proceeding through the technological change procedures even if the interconnection customer demonstrates that the proposed change results in "equal to or better" electrical performance. Although PJM's manual currently provides that a change in fuel-type requires a new interconnection request, as the Commission has previously stated, if a manual provision conflicts with a filed tariff provision, the tariff provision governs.[111]

---

[107] *Id.* P 518.

[108] PJM, Intra-PJM Tariffs, OATT, Modification of an Interconnection (2.0.0) § 36.2A.2.2.

[109] *See* Order No. 845, 163 FERC ¶ 61,043 at P 519 ("For the transmission provider to determine that a proposed technological advancement is not a material modification, the procedure must specify the information that the interconnection customer must submit as part of a technological advancement request.").

[110] Order No. 845-A, 166 FERC ¶ 61,137 at P 155.

[111] *Cal. Indep. Sys. Operator Corp.*, 154 FERC ¶ 61,122, at P 16 (2016) ("Commission precedent has long held that when a conflict exists between a filed tariff and an unfiled business practice manual, the tariff governs") (citing *Midwest Indep. Transmission Sys. Operator, Inc.*, 117 FERC ¶ 61,113, at P 47 (2006) ("the filed

59. We disagree with Leeward's argument that PJM's proposed timeframe for processing permissible technological advancement requests is inconsistent with Order No. 845. In Order No. 845, the Commission revised section 4.4.2(c) of the *pro forma* LGIA to allow an interconnection customer to incorporate certain technological advancements into its interconnection request, prior to the execution of an interconnection facilities study agreement.[112] Consistent with Order No. 845, PJM's proposed revisions to Tariff Section 36.2A.2.1 specifically provide that an interconnection customer must submit a technological advancement request, "no later than the return of the executed Facilities Study Agreement (or, if a Facilities Study is not required, prior to return of an executed Interconnection Service Agreement)."[113]

60. Further, because PJM's proposal is silent on whether PJM will provide an explanation to the interconnection customer regarding why a proposed technological advancement is a material modification, we reiterate that Order No. 845 requires PJM to provide this explanation if it cannot accommodate a proposed technological advancement without triggering the material modification provisions in Section 36.2A.2.2 of PJM's Tariff.[114]

61. Finally, Order No. 845 requires an interconnection customer to tender a deposit if the transmission provider determines that additional studies are necessary to evaluate whether a technological change is a material modification. Order No. 845 also states that the transmission provider should specify the amount of the deposit in its technological change procedure.[115] While Order No. 845 sets the default deposit amount at $10,000, it allows the transmission provider to propose, with justification, a "reasonable alternative" amount.[116] However, the February 2020 Compliance Filing neither adopts the $10,000 deposit, nor proposes a reasonable alternative. We recognize that, in the May 2019 Compliance Filing material modification reform proposal (which the Commission rejected in the December 2019 Order), PJM stated that it would not require

---

and accepted tariff is the governing document and not the Business Practice Manuals - the former has precedence over the latter and not the other way around.")).

[112] *Pro forma* LGIP § 4.4.2(c).

[113] PJM, Intra-PJM Tariffs, OATT, Modification of an Interconnection Request (2.0.0) § 36.2A.2.1.

[114] Order No. 845, 163 FERC ¶ 61,043 at P 522.

[115] *Id.* P 534.

[116] *Id*.

an additional deposit for studies performed pursuant to a technological change request.[117] However, in proposing a new technological advancement procedure in the February 2020 Compliance Filing, PJM does not comment on this aspect of its proposal. Additionally, while PJM's initial approach in the May 2019 Compliance Filing may constitute a "reasonable alternative" to the $10,000 deposit amount specified in Order No. 845, without more explicit tariff language regarding technological change procedure studies, PJM's Tariff is not sufficiently clear on this point. Accordingly, we direct PJM to file, within 120 days of the date of this order, a further compliance filing explicitly proposing in its Tariff a reasonable alternative, e.g., that it will not require a further deposit for such studies.

b. Request for Rehearing

i. Leeward's Rehearing Request

62. In its Rehearing Request, Leeward argues that the December 2019 Order erred by failing to address whether PJM can deny an interconnection customer's technological advancement request based on an automatic determination that the request constitutes a material modification without any review, analysis, or consideration.[118] Alternatively, Leeward requests clarification that PJM must: (1) consider an interconnection customer's technological advancement request; (2) review the analysis from the interconnection customer regarding any potential impact of the requested change and/or perform its own related impact analysis; and (3) provide the interconnection customer with a written decision of whether the request constitutes a material modification.[119]

63. Leeward cites its proposed Ohio project as an example in which PJM automatically deemed a technological advancement request a material modification without reviewing any pertinent studies, contrary to the intent of Order No. 845 and PJM's existing Tariff language. Leeward states that, on August 31, 2017, it submitted a request to interconnect the facility to the PJM transmission system as a wind project.[120] Leeward avers that, after changes to Ohio law, Leeward determined that the project would be better suited as a solar facility.[121] Leeward explains that, on September 18, 2019, Leeward contacted PJM to propose this change and offered to demonstrate that the

---

[117] May 2019 Compliance Filing at 48-49.

[118] Leeward Rehearing Request at 5.

[119] *Id.* at 2.

[120] *Id.*

[121] *Id.* at 2-3.

proposed resource change would have an "immaterial" impact.[122] Leeward argues that PJM staff informed it that switching from a wind project to a solar project automatically constituted a "material modification" and Leeward would have to submit a new interconnection request—and lose the project's queue position—to proceed as a solar project.[123] Leeward states that, in denying the technology change request, PJM cited Order No. 845, where the "Commission noted that a change between wind and solar technologies involves a change in the electrical characteristics of an interconnection request."[124] Leeward contends that, although Order No. 845 found that a change between wind and solar technologies cannot be considered a permissible technological advancement per se, such a change should not be automatically considered a material modification.[125] Leeward argues that Order No. 845 requires a transmission provider to evaluate such changes.

64. Leeward further argues that PJM's position is inconsistent with existing Tariff Section 36.2A (Modification of Interconnection Request). Leeward argues that this provision allows an interconnection customer to identify changes to the planned interconnection that may improve the costs and benefits of the interconnection.[126] Further, Leeward argues that Tariff Section 36.2A.3 requires PJM to evaluate a proposed modification and inform the interconnection customer, in writing, of whether the modification is a "Material Modification." Leeward argues that if PJM's actions were allowed to continue, interconnection customers will not have the opportunity to demonstrate that their technological advancement requests do not constitute material modifications.[127]

ii. Commission Determination

65. We dismiss Leeward's Rehearing Request. Leeward states that the December 2019 Order "errs to the extent it . . . allows PJM to deny an Interconnection Customer's technological advancement request by automatically deeming the technological advancement request a material modification without relying on any

[122] *Id.* at 3.

[123] *Id.* at 4.

[124] *Id.* at 4-5 (citing Order No. 845, 163 FERC ¶ 61,043 at P 530).

[125] *Id.* at 6.

[126] *Id.* at 7.

[127] *Id.* at 9.

study or analysis, or reviewing any study or analysis from the Interconnection Customer on the impact of the request."[128]

66. As the December 2019 Order rejected PJM's proposed changes with respect to technological advancements, the Commission's December 2019 Order did not accept any Tariff provisions that allow, or otherwise require, PJM to deny an Interconnection Customer's technological advancement request based on an automatic determination that the request constitutes a material modification without any review, analysis, or consideration. As discussed above, in order to enter the technological change procedure, the interconnection customer must demonstrate that the proposed change results in "equal to or better" electrical performance.[129] Should it fail to do so, such a proposed change should proceed through the material modification procedures. Therefore, we dismiss Leeward's Rehearing Request.

67. We also reject Leeward's request for clarification. Leeward's request for clarification is essentially a request for the Commission to outline how the material modification and incorporation of advanced technologies reform in Order No. 845 applies to PJM. However, PJM's proposed compliance with that reform, and in particular PJM's technological change procedure, are outlined in PJM's February Compliance Filing and we address whether it complies with the requirements of Order No. 845 above. Therefore, clarification is unnecessary.

68. In the February Compliance Filing, PJM proposes new Tariff Section 36.2A.2.2, which sets forth a procedure for PJM to process "a request to modify an Interconnection Request to include a technological advancement that does not qualify as a Permissible Technological Advancement."[130] In light of our discussion above, accepting PJM's new Tariff Section 36.2A.2.2 and reminding PJM of its obligation to provide an explanation if it cannot accommodate a proposed technological advancement without triggering the material modification provisions, we find that Leeward's concerns regarding technological advancement requests raised on rehearing have been addressed, and, thus are moot.[131] With respect to the specific issues surrounding the Ohio project regarding a proposed change in fuel type, we reiterate that Order Nos. 845 and 845-A did not

[128] *Id.* at 5.

[129] *See infra* P 58 (citing Order No. 845-A, 166 FERC ¶ 61,137 at P 155).

[130] PJM, Intra-PJM Tariffs, OATT, Modification of an Interconnection Request (2.0.0) § 36.2A.2.2.

[131] *See infra* PP 57-59.

mandate that such a change proceed through the technological change procedure. Accordingly, we dismiss Leeward's Rehearing Request.

5. Effective Date

a. PJM's Compliance Filing

69. PJM requests that its proposed Tariff revisions for surplus interconnection service become effective 180 days following the issuance of a Commission order accepting the revisions.[132] PJM argues that it needs this additional time to develop and test software and workflow changes specific to a separate, expedited interconnection process. PJM explains that it must await the Commission's decision before starting the development and testing of such changes so that it understands what changes are necessary.

70. For all other proposed revisions in the February Compliance Filing, PJM requests an effective date 60 days following the issuance of a Commission order accepting the changes.

b. Clean Energy Entities' Protest

71. Clean Energy Entities contend that PJM does not provide sufficient justification for its request to implement its surplus interconnection service provisions 180 days following a Commission order accepting the provisions. They argue that PJM has effectively already received an extension of time for planning the implementation of this service through its previously proposed compliance efforts in this proceeding.[133]

c. PJM's Answer

72. In its answer, PJM argues that implementing surplus service outside of PJM's queue process will require extensive work to both PJM's internal and external systems.[134] PJM further argues that once the Commission approves a process, PJM will need time to define the specifics of how the process will work in coordination with the PJM new services queue, for which PJM anticipates needing at least 14 weeks to complete. Upon completion of that work, PJM states that it will need time to test the systems. PJM argues it would not be prudent to incur these costs and divert resources in anticipation of the

[132] February Compliance Filing at 21.

[133] Clean Energy Entities Protest at 3.

[134] PJM Answer at 12-13.

outcome of a regulatory process or anticipating, up front, that the regulatory process may be delayed.[135]

d. Commission Determination

73. We accept PJM's February Compliance Filing with respect to the proposed revisions related to contingent facilities, provisional service, and material modifications effective July 20, 2020, as requested.

74. We also accept PJM's request to make the surplus interconnection service effective November 17, 2020, as requested. We find PJM's proposed effective date reasonable, given the software and manual changes PJM needs to make before implementing these compliance requirements.

The Commission orders:

(A) PJM's February Compliance Filing modifying its Tariff provisions related to Identification and Definition of Contingent Facilities, Provisional Interconnection Service, and Material Modifications and Incorporation of Advanced Technologies is hereby accepted, to become effective July 20, 2020, as requested, subject to further compliance, as discussed in the body of this order.

(B) PJM's February Compliance Filing modifying its surplus interconnection service Tariff provisions is hereby accepted, to become effective November 17, 2020, subject to further compliance, as discussed in the body of this order.

(C) PJM is hereby directed to submit a further compliance filing within 120 days of the date of this order, as discussed in the body of this order.

[135] *Id.* at 13.

(D) Leeward's Rehearing Request is hereby dismissed, as discussed in the body of this order.

By the Commission.

(S E A L)

Kimberly D. Bose,
Secretary.