180 FERC ¶ 63,009
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Whitetail Solar 3, LLC	Docket Nos. ER20-1851-004 EL21-27-001
Whitetail Solar 2, LLC	ER21-936-001
Elk Hill Solar 2, LLC	ER21-1633-001
Whitetail Solar 1, LLC	ER20-714-003 EL20-23-001 (Consolidated)

INITIAL DECISION

PUBLIC VERSION

(Issued July 15, 2022)

APPEARANCES

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Jeffrey Mayes, on behalf of Monitoring Analytics, LLC

Jeffrey Janicke, Linda Patterson, Kenneth Ende, Melinda Warner, Keino Young, and Matthew Phillips, on behalf of Commission Trial Staff

Matthew J. Vlissides Jr., Presiding Administrative Law Judge

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I. Introduction and Summary of Decision

1. Four solar generating facilities—Whitetail Solar 1, LLC (Whitetail 1), Whitetail Solar 2, LLC (Whitetail 2), Whitetail Solar 3, LLC (Whitetail 3), and Elk Hill Solar 2, LLC (Elk Hill) (collectively, the Facilities or Applicants)—seek compensation under Schedule 2 of the PJM Interconnection, L.L.C. (PJM) Open Access Transmission Tariff (PJM Tariff). Two of the Facilities, Whitetail 2 and Elk Hill, filed proposed revenue requirements pursuant to section 205 of the Federal Power Act (FPA).[1] The other two Facilities, Whitetail 1 and Whitetail 3, have revenue requirements that are subject to a Commission investigation under section 206 of the FPA.[2]

2. This consolidated proceeding considers a single issue that has been severed from all others in the underlying cases: whether the Facilities are eligible to receive compensation under Schedule 2 of the PJM Tariff.[3] Applicants contend that they have satisfied the requirements of Schedule 2 and are therefore eligible.

3. Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM (the IMM), intervened in this proceeding. The IMM and Commission Trial Staff (Trial Staff) both contest Applicants' interpretation of Schedule 2 and argue that the Facilities are not eligible.

4. All Participants[4] in this proceeding agree that reactive power is critical to maintain the stability of the grid.[5] But whether these Facilities, or other generation facilities like them, may generally provide value to the grid is not at issue in this proceeding. Instead,

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[1] 16 U.S.C. § 824d.

[2] 16 U.S.C. § 824e.

[3] *Whitetail Solar 2, LLC, et al.*, 176 FERC ¶ 63,023 (2021).

[4] "Participants" refers to Applicants, the IMM, and Trial Staff, collectively.

[5] *See* Applicants Initial Br. at 6 ("The low voltage event that occurred in Northwest Ohio area (i.e., PJM) on June 10-11, 1999, illustrates the need for reactive power resources at all voltage levels on the integrated transmission grid."); IMM Initial Br. at 2 ("Reactive Supply and Voltage Control Service is necessary to ensure a Transmission Provider's reliable operation of the grid."); Ex. S-0001 at 9-10 (direct and answering testimony of Trial Staff witness Brian Fejka explaining role of reactive power in electrical systems).

as the Participants all recognize,[6] the purpose of this hearing is to determine the eligibility of these four Facilities for compensation under Schedule 2.

5. In this Initial Decision, I conclude that the Facilities do not satisfy the eligibility requirements for Schedule 2 compensation. I first find that Schedule 2 contains two eligibility criteria for generation facilities: (1) that the facility must be under the control of PJM, and (2) that the facility must be operationally capable of providing voltage support to PJM's transmission facilities such that PJM can rely on that generation facility to maintain transmission voltages. I then find that a preponderance of the evidence in all four cases supports a finding that the Facilities do not satisfy the second criterion.

II. Procedural History

6. Whitetail 1 filed a proposed rate schedule setting forth a revenue requirement for Reactive Supply and Voltage Control service under Schedule 2 on December 31, 2019. On February 27, 2020, the Commission accepted the proposed rate schedule while simultaneously instituting a hearing proceeding under section 206 of the FPA.[7]

7. Whitetail 2 submitted a proposed rate schedule for Schedule 2 compensation pursuant to section 205 of the FPA on January 25, 2021. On March 26, 2021, the Commission accepted the proposed rate, suspended it for a nominal period, to become effective January 26, 2021, subject to refund, and established hearing procedures.[8]

8. Whitetail 3 submitted a proposed rate schedule for Schedule 2 compensation on May 19, 2020, as amended on August 12, 2020 and November 3, 2020. On December 31, 2020, the Commission accepted the proposed rate schedule while simultaneously instituting a hearing proceeding under section 206 of the FPA.[9]

9. Elk Hill submitted a proposed rate schedule for Schedule 2 compensation pursuant to section 205 of the FPA on April 7, 2021. On June 4, 2021, the Commission accepted

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[6] *See Whitetail Solar 2, LLC, et al.*, Joint Stipulation of Issues, at 2-6 (filed Apr. 7, 2022) (stating that the four issues in this proceeding are whether each Facility is eligible to collect reactive power compensation under Schedule 2).

[7] *Whitetail Solar 1, LLC*, 170 FERC ¶ 61,165 (2020).

[8] *Whitetail Solar 2, LLC*, 174 FERC ¶ 61,238 (2021).

[9] *Whitetail Solar 3, LLC*, 173 FERC ¶ 61,288 (2020).

the proposed rate, suspended it for a nominal period, to become effective April 8, 2021, subject to refund, and established hearing procedures.[10]

10. The IMM and PJM intervened in all four cases. FirstEnergy Service Company, Oxbow Creek Energy LLC, and Old Dominion Electric Cooperative each intervened in at least one of the cases. Oxbow Creek Energy, LLC, later withdrew from the proceeding. Of the intervenors, only the IMM was an active participant at the hearing.

11. In a series of orders, the Chief Administrative Law Judge (Chief Judge) designated settlement judges in each of the four cases. The discussions with respect to Whitetail 1 initially produced a settlement agreement, which the settlement judge certified to the Commission on May 6, 2021.[11] Settlement procedures in the other three cases eventually reached impasse, however. Following the impasse in the other cases, Whitetail 1 withdrew the settlement agreement in that proceeding.

12. On September 9, 2021, the Chief Judge issued an order that (1) consolidated *Whitetail Solar 2, LLC*, *Whitetail Solar 3, LLC*, and *Elk Hill Solar 2, LLC*; (2) designated Judge David H. Coffman as the Presiding Judge in the consolidated proceeding; (3) severed the "threshold eligibility issue" of whether the Facilities are eligible to collect rates under Schedule 2; and (4) set that issue for hearing under Track I procedural time standards.[12] On October 1, 2021, the Chief Judge further consolidated the *Whitetail Solar 1, LLC* proceeding with the other consolidated proceedings, and extended the procedural schedule.[13] Pursuant to the extended schedule, the hearing was set to commence by April 7, 2022 and the initial decision would be issued by June 30, 2022.[14]

13. On October 8, 2021, Judge Coffman issued an Order Establishing Procedural Schedule that set forth the deadlines for filing direct, answering, and rebuttal testimony in the four consolidated cases. The procedural schedule established by that order recognized, as discussed in further detail below, that Applicants bear the evidentiary burden in two of the cases while the Commission bears the burden in the other two cases. Accordingly, under the procedural schedule Participants were to operate on two parallel

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[10] *Elk Hill Solar 2, LLC*, 175 FERC ¶ 61,188 (2021).

[11] *Whitetail Solar 1, LLC*, 175 FERC ¶ 63,016 (2021).

[12] *Whitetail Solar 2, LLC, et al.*, 176 FERC ¶ 63,023 (2021).

[13] *Whitetail Solar 3, LLC, et al.*, 177 FERC ¶ 63,001 (2021).

[14] *Id.* P 5.

tracks, with Applicants filing direct testimony in two of the cases and Trial Staff filing direct testimony in the other two cases.

14. On February 14, 2022, the Chief Judge again extended the procedural schedule at the request of Trial Staff.[15] That order required that the hearing commence by April 21, 2022, and the initial decision be issued by July 15, 2022.[16]

15. On March 14, 2022, the Chief Judge issued an order replacing Judge Coffman with the undersigned as the Presiding Judge in the consolidated proceeding.

16. On March 24, 2022, Trial Staff moved to strike portions of rebuttal testimony that Applicants filed in *Whitetail Solar 2, LLC* and *Elk Hill Solar 2, LLC*. Trial Staff argued that the testimony constituted an "impermissible 'continuation of a case-in-chief.'"[17] In an answer opposing the motion, Applicants disagreed, arguing that the contested testimony "rebut[ted] a novel argument presented by Trial Staff in its Answering Testimony."[18] On April 7, 2022, I denied the motion to strike while allowing Trial Staff to introduce oral surrebuttal testimony at the hearing.[19] In that order, I noted that although the challenged testimony constituted improper rebuttal, striking it from the record would deprive the Commission of potentially material evidence.[20] Accordingly, I allowed Trial Staff to introduce additional oral surrebuttal testimony at the hearing in response to Applicants' improper rebuttal testimony.[21]

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[15] *Order of Chief Judge Extending Hearing Commencement and Initial Decision Deadlines and Adopting Procedural Schedule* (Feb. 14, 2022).

[16] *Id.* P 2.

[17] *Order Denying Motion to Strike and Allowing Oral Surrebuttal*, at P 10 (Apr. 7, 2022) (quoting *ANR Storage Co.*, Op. No. 538, 153 FERC ¶ 61,052, at P 54 (2015)).

[18] *Id.* P 12.

[19] *Id.* P 20.

[20] *Id.* PP 14-19.

[21] *Id.* P 20.

17. On April 5, 2022, the IMM submitted a motion for summary disposition. On April 14, 2022, I issued an order deferring decision on that motion.[22] As discussed below, I resolve that motion with this Initial Decision.

18. The hearing commenced on April 21, 2022. Five witnesses testified: three on behalf of Applicants, one on behalf of the IMM, and one on behalf of Trial Staff.

19. The Participants filed initial briefs on May 19, 2022, and reply briefs on June 9, 2022. The Participants did not request oral argument, and none was held.

III. Factual Background

20. In this section I first provide an overview of reactive power and Schedule 2 of the PJM Tariff. I then set forth facts relevant to each of the four Facilities.

A. Reactive Power

21. Reactive power, which is measured in volt-ampere reactive (VAR), is an essential component of an alternating current electrical system. Reactive power complements real power, which is measured in watts (W). As Trial Staff witness Brian Fejka explained:

> Reactive power . . . is used to set up and maintain electric and magnetic fields in the system and loads, such as motors, that allows them to do actual work. But unlike real power, reactive power is not used or consumed but instead stored in one half of a cycle and released during the second half of the cycle, repeating each cycle.[23]

22. Reactive power support is necessary to maintain voltages across the electrical system. When voltages are too low, reactive power must be supplied to the system, and when voltages are too high, reactive power must be absorbed or consumed from the system.[24] At times of high load—for instance, a hot day in July—reactive power support

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[22] *Order Deferring Decision on Motion for Summary Disposition* (Apr. 14, 2022).

[23] Ex. S-0001 at 9:21-10:3 (Fejka).

[24] As Judge Glazer explained in *PSEG Energy Resources & Trade, LLC*, it is somewhat inaccurate from a technical standpoint to say that reactive power is produced or "injected" into the system. 154 FERC ¶ 63,008, at PP 28-30 (2016). Nonetheless, that is the shorthand that Schedule 2 itself relies on to describe reactive power support. For clarity, this Initial Decision will follow the same convention.

counteracts the reactive power draw of system loads like air conditioning units and prevents voltages from falling below system limits.[25]

23. Reactive power support may come from dynamic sources such as generators, which adjust their reactive power output to either increase or decrease system voltages.[26] Reactive power support may also come from static sources, such as capacitors and reactors, which provide a fixed amount of reactive power.[27]

24. Unlike real power, which is often generated a long distance from the load that it serves, reactive power does not travel well.[28] For that reason, it is more efficient to place reactive power resources near to the part of the system they support.[29]

B. Schedule 2

25. Schedule 2 of the PJM Tariff, titled "Reactive Supply and Voltage Control from Generation or Other Sources Service," governs the provision of reactive power to the PJM transmission system.[30] The central provision of Schedule 2 as it pertains to this proceeding is the first paragraph, which reads as follows:

> In order to maintain transmission voltages on the Transmission Provider's transmission facilities within acceptable limits, generation facilities and non-generation resources capable of providing this service that are under the control of the control area operator are operated to produce (or absorb) reactive power. Thus, Reactive Supply and Voltage Control from Generation or Other Sources Service must be provided for each transaction on the Transmission Provider's transmission facilities. The amount of Reactive

[25] Ex. S-0001 at 10:4-16 (Fejka).

[26] *Id.*

[27] *Id.*

[28] *See, e.g.,* Ex. WT1-0027 at 21:2-4 (Ferrell) ("VARs do not travel well; thus it is more efficient for VARs to be produced near to the point where they are consumed.").

[29] Ex. WT1-0028 at 5 (Joint Affidavit of Thomas M. Piascik and Harry E. Hackman Jr.).

[30] Ex. S-0002 (Schedule 2).

> Supply and Voltage Control from Generation or Other Sources Service that must be supplied with respect to the Transmission Customer's transaction will be determined based on the reactive power support necessary to maintain transmission voltages within limits that are generally accepted in the region and consistently adhered to by the Transmission Provider.[31]

26. "Transmission Provider" as it is used in Schedule 2 is defined elsewhere in the PJM Tariff to be PJM "for all purposes, provided that the Transmission Owners will have the responsibility for" certain specified activities.[32] A Transmission Owner is "a Member that owns or leases with rights equivalent to ownership Transmission Facilities and is a signatory to the PJM Transmission Owners Agreement."[33]

27. Subsequent provisions of Schedule 2 explain that PJM shall pay generation resources providing Reactive Supply and Voltage Control Service an amount equal to the resource's monthly revenue requirement. Although not at issue in this proceeding, Schedule 2 also states that "[i]n addition to the charges and payments set forth in . . . Schedule 2 . . . Market Sellers providing reactive services . . . shall be credited for such services . . . as set forth in Tariff, Schedule K-Appendix, section 3.2.3B."[34] All four of the Facilities are Market Sellers in the PJM region.[35]

C. The Facilities

1. Whitetail 1

28. Whitetail 1 is a 13.5 megawatt (MW) solar generating facility located in Franklin County, Pennsylvania.[36] The Facility consists of solar panels that connect to five Sungrow SG3150U-MV 3150 kilovolt-ampere (kVA) inverters that are rated at a power

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[31] *Id.* at 1.

[32] PJM, Intra-PJM Tariffs, OATT, § I.1 T-V, OATT Definitions (30.0.0).

[33] *Id.*

[34] Schedule 2 at 1.

[35] *See* Ex. WT1-0022; Ex. WT2-0022; WT3-0022; EH2-0020 (testimony of Applicants' witness Supria Ranade explaining that each Facility is a Market Seller).

[36] Ex. S-0001 at 7:17-21 (Fejka).

factor of 0.80.[37] Collectively, the five inverters are capable of producing 9,450 kilovolt-amperes reactive (kVAR) at the inverter terminals.[38] Whitetail 1 interconnects with the 23 kilovolt (kV) Roxbury and Blain line owned by Mid-Atlantic Interstate Transmission (MAIT), a subsidiary of FirstEnergy.[39] That line is located within the PJM region and connects with the PJM 115 kV transmission system.[40] Whitetail 1 began commercial operation in December 2019.[41]

2. Whitetail 2

29. Whitetail 2 is a 20 MW solar generating facility located in Franklin County, Pennsylvania.[42] The Facility consists of solar panels that connect to seven Sungrow SG3150U-MV 3150 kVA inverters that are rated at a power factor of 0.80.[43] Collectively, the seven inverters are capable of producing about 13,000 kVARs at the inverter terminals.[44] Whitetail 2 interconnects with the 34.5 kV McConnellsburg-

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[37] Ex. WT1-0001 at 22:18-25 (answering testimony of Whitetail 1 witness Jason Ausmus). A power factor is a ratio of real power to reactive power. Ex. S-0001 at 9:8-13. A facility operating at a power factor of 0.8 would be producing 80% real power and 20% reactive power.

[38] Ex. WT1-0001 at 22:18-25 (Ausmus). *See also* Ex. WT1-0007 (manufacturer specifications reflecting reactive power capability for inverters used by Whitetail 1 facility).

[39] Ex. S-0001 at 11:19-20 (Fejka).

[40] *Id.* at 16:8-13.

[41] *Id.* at 7:20-21.

[42] *Id.* at 8:2-5.

[43] Ex. WT2-0001 at 23:4-11 (supplemental direct testimony of Whitetail 2 witness Jason Ausmus). *See also* Ex. WT2-0008 (manufacturer specifications reflecting reactive power capability for inverters used by Whitetail 2 facility).

[44] Ex. WT2-0001 at 23:4-11.

Mercersburg to Guilford line owned by a FirstEnergy subsidiary.[45] That line is located within the PJM region and connects with the PJM 138 kV transmission system.[46]

3. Whitetail 3

30. Whitetail 3 is a 20 MW solar generating facility located in Franklin County, Pennsylvania.[47] The Facility consists of solar panels that connect to seven Sungrow SG3150U-MV 3150 kVA inverters that are rated at a power factor of 0.80.[48] Collectively, the seven inverters are capable of producing about 13,000 kVARs at the inverter terminals.[49] Whitetail 3 interconnects with the 34.5 kV McConnellsburg-Mercersburg to Guilford line owned by a FirstEnergy subsidiary.[50] That line is located within the PJM region and connects with the PJM 138 kV transmission system.[51]

4. Elk Hill

31. Elk Hill is a 15 MW solar generating facility located in Franklin County, Pennsylvania.[52] The Facility consists of solar panels that connect to six Sungrow SG3150U-MV 3150 kVA inverters that are rated at a power factor of 0.80.[53] Collectively, the six inverters are capable of producing about 11,000 kVARs at the

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[45] Ex. S-0001 at 17:2-9 (Fejka).

[46] *Id.* at 19:11-20:10.

[47] *Id.* at 8:7-10.

[48] Ex. WT3-0001 at 22:18-25 (answering testimony of Whitetail 3 witness Jason Ausmus). *See also* Ex. WT3-0007 (manufacturer specifications reflecting reactive power capability for inverters used by Whitetail 3 facility).

[49] Ex. WT3-0001 at 22:18-25 (Ausmus).

[50] Ex. S-0001 at 18:2-19:2 (Fejka).

[51] *Id.* at 19:11-20:10.

[52] *Id.* at 8:12-15.

[53] Ex. EH2-0001 at 23:1-8 (supplemental direct testimony of Elk Hill witness Jason Ausmus). *See also* Ex. EH2-0007 (manufacturer specifications reflecting reactive power capability for inverters used by Elk Hill facility).

inverter terminals.[54] Elk Hill interconnects with the 34.5 kV Mercersburg to Milnor line owned by West Penn Power, LLC (West Penn), a subsidiary of FirstEnergy.[55] That line is located within the PJM region and connects with the PJM 138 kV transmission system.[56]

IV. Discussion

32. The sole issue set for hearing in this proceeding is the Facilities' eligibility for compensation under Schedule 2 of the PJM Tariff. Reaching a determination on that issue requires resolving two interrelated questions. First what does the PJM Tariff require of generators to receive compensation under Schedule 2? And second, do the Facilities satisfy those requirements?

33. In section IV.A, below I address the PJM Tariff interpretation question. I conclude that Schedule 2 requires a generation facility to be (1) under the control of PJM and (2) operationally capable of providing voltage support to PJM's transmission facilities such that PJM can rely on the generation facility to maintain transmission voltages.

34. In section IV.B, I turn to the eligibility of the four Facilities under the correct interpretation of the PJM Tariff. I conclude that a preponderance of the evidence on the record supports a finding that the four Facilities do not satisfy the requirements for Schedule 2 compensation as properly interpreted.

A. Schedule 2 Eligibility Requirements

35. Schedule 2 of the PJM Tariff provides that PJM will compensate owners of generation and non-generation resources that provide Reactive Supply and Voltage

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[54] Ex. EH2-0001 at 23:1-8 (Ausmus).

[55] Ex. S-0001 at 21:3-23:11 (Fejka). *See also* Ex. EH2-0001 at 4:10-15 (explaining that West Penn Power, LLC is a subsidiary of FirstEnergy).

[56] Ex. S-0001 at 21:3-23:11 (Fejka).

Control Service.[57] Schedule 2 requires PJM to pay eligible generators an amount equal to their monthly revenue requirement, as accepted or approved by the Commission.[58]

36. The language of Schedule 2 sets forth certain parameters for the generation facilities that may receive compensation for providing Reactive Supply and Voltage Control Service. The Participants provide competing interpretations of that language and thus propose different criteria for Schedule 2 eligibility.

37. The first criteria that Participants propose, which this Initial Decision shall refer to as the "Control Requirement," is not in dispute. Under the Control Requirement, a generation facility is only eligible for Schedule 2 compensation if it is "under the control of" PJM.

38. The terms of the second criterion, which this Initial Decision shall refer to as the "Capability Requirement," are contested. The Participants generally agree that a facility must have some level of reactive power capability to receive Schedule 2 compensation. Trial Staff and the IMM contend that generating facilities must have the capability to support transmission voltages to receive compensation, while Applicants argue that a facility that meets the technical requirements of an Interconnection Service Agreement (ISA) with PJM and satisfies PJM's reactive power testing requirements is eligible.

39. The IMM additionally argues for a third criterion, which this Initial Decision shall refer to as the "Reliance Requirement." Under the IMM's proposed Reliance Requirement, facilities may only receive compensation under Schedule 2 if PJM directly relies on them for voltage support.

1. Legal Standard

40. When interpretating a disputed tariff provision, the Commission first asks whether the plain meaning of the provision is "clear on its face" or if the provision is ambiguous.[59] "[A] tariff is not ambiguous simply because the parties disagree as to its

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[57] Schedule 2. *See also Order Accepting Proposed Rate Schedule, Instituting Section 206 Proceeding, and Establishing Hearing and Settlement Judge Procedures*, 170 FERC ¶ 61,165, at P 2 (2020) ("Schedule 2 to the PJM Tariff provides that PJM will compensate owners of generation and non-generation resources for the capability to provide reactive power to PJM to maintain transmission voltages.").

[58] Schedule 2 at 2.

[59] *Seminole Elec. Coop., Inc. v. Fla. Power & Light Co.*, 139 FERC ¶ 61,254, at P 31 (2012).

interpretation."[60] Rather, ambiguity arises where a tariff is "*reasonably* susceptible of different constructions or interpretations."[61]

41. If the tariff is ambiguous, "the ambiguity must be resolved by reference to the contract or tariff as a whole."[62] In that scenario, extrinsic evidence "is admissible to ascertain the intent of the parties."[63] If the tariff is not ambiguous, however, "extrinsic evidence cannot be used as an aid to interpretation."[64] And extrinsic evidence may never be used to "contradict or alter express terms."[65]

2. The Participants' Positions

a. Applicants

42. Applicants argue that Schedule 2 contains two eligibility criteria: first, the generator must be "'under the control' of PJM," and second, the generator must be "capable of providing . . . reactive power service."[66]

43. Applicants' proposed interpretations of the Control Requirement and the Capability Requirement rely on the first sentence of Schedule 2:

> In order to maintain transmission voltages on the Transmission Provider's transmission facilities within acceptable limits, generation facilities and non-generation resources ***capable of providing this service*** that are ***under the***

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[60] *Id.* (citing *Appalachian Power Co. v. FPC*, 529 F.2d 342, 347-48, (D.C. Cir.), *cert. denied*, 429 U.S. 816 (1976)).

[61] *Miss. River Transmission Corp.*, 96 FERC ¶ 61,185, 61,819 (2001) (citing *Lee v. Flintkote Co.*, 593 F.2d 1275, 1282 (D.C. Cir. 1979)). (emphasis added).

[62] *Seminole*, 139 FERC ¶ 61,254, at P 31 (citing *Ark. Elec. Coop. Corp. v. Entergy Ark., Inc.*, 119 FERC ¶ 61,314, at P 19 (2007)).

[63] *Mid-Continent Area Power Pool*, 92 FERC ¶ 61,229 at 61,755 (2000).

[64] *Miss. River*, 96 FERC at 61,819 (citing *Lee*, 593 F.2d at 1282).

[65] *Sw. Power Pool, Inc.*, 160 FERC ¶ 61,115, at P 45 (2017) (citing *N.Y. Indep. Sys. Operator, Inc.*, 131 FERC ¶ 61,032, at P 30 (2010)).

[66] Applicants Initial Br. at 2 (quoting Schedule 2).

> ***control of the control area operator*** are operated to produce (or absorb) reactive power.[67]

44. With respect to the Control Requirement, Applicants argue that a facility is "under the control of" PJM if the facility is legally obligated to respond to PJM's reactive power directives.[68]

45. Applicants proposed Capability Requirement relies on the phrase "capable of providing this service" as it appears in the first sentence of Schedule 2. Applicants interpret that phrase to mean that a generation facility must be capable of providing "reactive service" to receive compensation under Schedule 2.[69] Applicants further explain that to satisfy the Capability Requirement, a generator must have "the capability to provide reactive support to PJM" as confirmed by capability testing conducted in accordance with PJM guidelines.[70] In effect, Applicants argue that any generation facility that "can produce or consume reactive power to the level required" pursuant to an ISA with PJM satisfies the Capability Requirement.[71]

46. Applicants also note that Schedule 2 specifically excludes "Behind the Meter Generation" from eligibility by prohibiting payment to generation units that "deliver[] energy to load without using the Transmission System or any distribution facilities."[72] Applicants argue that "[a]ll other resources in the PJM region . . . can provide this service [i.e., reactive service], regardless of the voltage level at which such resource is interconnected."[73]

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[67] Schedule 2 (emphasis added).

[68] *See* Applicants Initial Br. at 32-38 (explaining legal obligations that require Whitetail 1 to comply with PJM reactive power directives and therefore place Whitetail 1 under the control of PJM).

[69] *Id.* at 18.

[70] *Id.* at 31.

[71] *Id.* at 18. *See also id.* at 4 (arguing that "[i]t was (and is) understood that each Applicant would be compensated for its investment in the reactive support pursuant to" their ISAs, PJM Manual 14D, and various Commission Orders.)

[72] *Id.* at 14 (quoting Schedule 2).

[73] *Id*.

47. Moreover, Applicants contend that Schedule 2 does *not* require that a "generator interconnect at a particular voltage"[74] or that a facility demonstrate that its reactive power impacts or reaches the PJM transmission system.[75] In addition to Schedule 2 itself, Applicants highlight a number of documents to support that position.

48. First, Applicants discuss reports that the North American Electric Reliability Corporation (NERC) issued following a series of blackouts in the late 1990s and early 2000s.[76] Applicants state that these reports "made clear that the location of reactive resources on the electric grid, rather than the voltage level at which it interconnects, is the main consideration in siting reactive power to avoid significant interruptions on the high voltage transmission system."[77]

49. Applicants argue that a series of Commission orders arising from the NERC reports similarly precludes basing Schedule 2 eligibility on a distinction between transmission and distribution voltages.[78] Applicants emphasize Order No. 888, in which the Commission "adopted NERC's recommendation to define reactive power/voltage control service as a required ancillary service."[79] Applicants explain that PJM filed Schedule 2 as part of its compliance tariff following Order No. 888. Applicants describe

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[74] *Id.* at 18

[75] *Id.* at 20-21.

[76] NERC was known as the North American Electric Reliability Council until January 1, 2007. *See* North American Electric Reliability Corporation, History of NERC (August 2020), *available at* https://www.nerc.com/news/Documents/HistoryofNERC_20AUG20.pdf.

[77] Applicants Initial Br. at 8-9.

[78] *Id.* at 21.

[79] *Id.* at 9 (discussing *Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, Order No. 888, FERC Stats. & Regs. ¶ 31,036 (1996) (cross-referenced at 75 FERC ¶ 61,080), *order on reh'g*, Order No. 888-A, FERC Stats. & Regs. ¶ 31,048 (cross-referenced at 78 FERC ¶ 61,220), *order on reh'g*, Order No. 888-B, 81 FERC ¶ 61,248 (1997), *order on reh'g*, Order No. 888-C, 82 FERC ¶ 61,046 (1998), *aff'd in relevant part sub nom. Transmission Access Policy Study Group v. FERC*, 225 F.3d 667 (D.C. Cir. 2000), *aff'd sub nom. New York v. FERC*, 535 U.S. 1 (2002)).

Schedule 2 as "more expansive" than the *pro forma* Schedule 2 that the Commission set forth in Order No. 888.[80] Applicants contend that the broader PJM Schedule 2 "comports with NERC's historical findings of the need to have vast resources to safeguard the reliable operation of the electric grid."[81]

50. Applicants also discuss Order Nos. 2003[82] and 827.[83] The former set forth power factor requirements for generation facilities entering into an interconnection service agreement with transmission providers and the latter removed an exemption from those requirements for non-synchronous generation.[84] Applicants emphasize that Order Nos. 2003 and 827 "made no distinction related to the voltage level at which the generator interconnects."[85]

51. Applicants argue that having reactive power resources connected at lower voltage levels provides value to the electrical system. Applicants state that "[i]t is extremely cost effective for the transmission customer to have a reactive resource connected at lower voltages that is under the control of PJM."[86]

52. In their Reply Brief, Applicants additionally argue that certain defined terms within the PJM Tariff support their interpretation of Schedule 2. Applicants argue that the defined term "Transmission Provider" may mean "either PJM or the Transmission Owner, whichever is applicable to facilities in question."[87] In the context of Schedule 2

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[80] Applicants Initial Br. at 12.

[81] *Id*.

[82] *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, 104 FERC ¶ 61,103 (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).

[83] *Reactive Power Requirements for Non-Synchronous Generation*, Order No. 827, 155 FERC ¶ 61,277 (2016).

[84] Applicants Initial Br. at 10-11.

[85] *Id.*

[86] *Id.* at 15.

[87] Applicants Reply Br. at 6-7.

as it applies to the Facilities, Applicants' argue that "Transmission Provider" therefore refers to FirstEnergy, which owns the lines to which the Facilities interconnect.[88] Applicants further state that Schedule 2's use of the undefined term "transmission facilities" rather than the defined "Transmission System" is "intended more generally to capture transmission in the sense of circuits that transmit energy across the PJM region."[89]

b. Trial Staff

53. Trial Staff advances a different interpretation of the Capability Requirement, arguing that Schedule 2 compensation is available only to generators that are "capable of maintaining transmission voltages on PJM's transmission facilities within acceptable limits."[90]

54. Trial Staff provides three arguments in favor of this interpretation of the Capability Requirement. First, Trial Staff relies on the same language in Schedule 2 as Applicants, explaining that "Schedule 2 applies only to generating facilities that are 'capable of providing this service.'"[91] But Trial Staff interprets the phrase "this service" by returning to the first half of that sentence, arguing that "this service" refers to "the service of 'maintain[ing] transmission voltages on the Transmission Provider's transmission facilities within acceptable limits.'"[92]

55. Second, Trial Staff argues that this proposed interpretation supports the "express purpose" of Schedule 2: "to maintain transmission voltages 'on the Transmission Provider's transmission facilities.'"[93] Trial Staff contends that interpreting Schedule 2 such that generation facilities may be eligible even if they are not capable of supporting transmission voltages would "nullify this language in contravention of the judicially

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[88] *Id.*

[89] *Id.*

[90] Trial Staff Initial Br. at 3. Trial Staff does not contest Applicants' interpretation of the Control Requirement.

[91] *Id.* at 4 (quoting Schedule 2).

[92] *Id.*

[93] *Id.* at 5 (quoting Schedule 2).

recognized principle that '[a] tariff should not be interpreted in a manner that renders one of its terms meaningless.'"[94]

56. Third, Trial Staff argues that its understanding of the Capability Requirement conforms with Commission precedent. Citing *Ameren Energy Marketing Company*, Trial Staff contends that a generating facility must be "operationally capable of supporting the transmission system as a condition to providing" reactive power service.[95]

57. Trial Staff does not argue that distribution-connected generators are categorically precluded from Schedule 2 compensation, however. Instead, Trial Staff explains that generators connected directly to the PJM transmission system can satisfy the Capability Requirement through reactive testing because such testing can measure the reactive power output at the generator's point of interconnection.[96] In contrast, Trial Staff argues that performing the same reactive tests on a facility that connects to the distribution system "does not show that it can inject vars into the PJM transmission system or that it otherwise can maintain transmission voltages on the PJM transmission system."[97]

c. The IMM

58. While agreeing with Trial Staff's interpretation of the Capability Requirement, [98] the IMM additionally advances the Reliance Requirement.[99] Under this criterion, the Facilities may receive compensation pursuant to Schedule 2 only if they "enable PJM to 'directly' provide Reactive Supply and Voltage Control Service 'for each transaction on

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[94] *Id.* (quoting *Idaho Power Co. v. FERC*, 312 F.3d 454, 462 (D.C. Cir. 2002)).

[95] Trial Staff Initial Br. at 5-6 (citing *Ameren Energy Mktg. Co.*, 103 FERC ¶ 61,156, at P 8 (2003)). Trial staff also highlights the following language from the Commission's decision in *PJM Interconnection, L.L.C.*: "PJM determines the amount of reactive power necessary to *maintain transmission voltages on its transmission system within acceptable limits*. Schedule 2 of its Tariff refers to this service as Reactive Supply and Voltage Control from Generation Sources Service (Reactive Service)." *Id.* at 6 n.15 (quoting in *PJM Interconnection, L.L.C.*, 149 FERC ¶ 61,132, at P 8 (2014)).

[96] Trial Staff Initial Br. at 6-7.

[97] *Id.* at 7.

[98] IMM Initial Br. at 4. In its Initial Brief, the IMM also states that "[t]he [Control Requirement] is uncontested, for the purposes of this motion." IMM Initial Br. at 10.

[99] *Id.* at 11.

the Transmission Provider's transmission facilities.'"[100] The IMM explains that "this criterion requires determination as a matter of law whether PJM relies on the resources' reactive supply capability to provide Reactive Supply and Voltage Control Service."[101]

59. In support of this interpretation, the IMM emphasizes the word "directly" as it appears in Schedule 2. The IMM explains that "PJM cannot rely on resources on an adjacent unmonitored system to directly provide reactive capability because the adjacent unmonitored system is under the control of another entity."[102] In that circumstance, PJM must include "a third party in the dispatch decision," which means that PJM does not *directly* rely on the generation facility.[103] In other words, the IMM argues that Facilities that interconnect with sub-transmission lines that are not under PJM's control are not eligible for Schedule 2 compensation.

3. Determination

60. For the reasons discussed below, I find that Schedule 2 of the PJM Tariff contains two criteria for determining the eligibility of a generation facility to receive reactive power compensation.[104] First, I find that the facility must be under the control of PJM. And second, I find that the generation facility must be operationally capable of providing voltage support to PJM's transmission facilities such that PJM can rely on that generation facility to maintain transmission voltages.

a. The Control Requirement

61. I concur with the Participants' that generation resources must be "under the control of" PJM to receive Schedule 2 compensation. That undisputed interpretation is consistent with the plain language of Schedule 2 in that Schedule 2 applies to "generation facilities and non-generation resources … that are under the control of the control area

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[100] *Id.*

[101] *Id.*

[102] *Id.* at 12.

[103] *Id.* at 12-13.

[104] The Participants have not identified any Commission decision in which the Commission interprets Schedule 2 in order to assess the eligibility question presented here. Accordingly, this is an issue of first impression.

operator."[105] Accordingly, I find that to satisfy the Control Requirement, the resources in question must be "under the control of" PJM to receive Schedule 2 compensation.[106]

b. The Capability Requirement

62. For the reasons discussed below, I find that to satisfy the Capability Requirement, a generation facility must be operationally capable of providing voltage support to PJM's transmission facilities such that PJM can rely on that generation facility to maintain transmission voltages. I reject Applicants' proposed interpretation of the Capability Requirement because it conflicts with the unambiguous stated purpose of Schedule 2. Applicants' proposed interpretation could allow any generator capable of producing reactive power to qualify for compensation under Schedule 2 even if the generator cannot support transmission voltages. Such an interpretation would render meaningless Schedule 2's clear requirement that generation facilities support transmission voltages.[107] While the adopted interpretation of the Capability Requirement is largely consistent with Trial Staff's proposed interpretation, I disagree that a generation facility must be capable of "maintaining transmission voltages *within acceptable limits*"—a task that Schedule 2 assigns to PJM.

63. I begin with the text of Schedule 2, provided here in relevant part:

> In order to maintain transmission voltages on the Transmission Provider's transmission facilities within acceptable limits, generation facilities and non-generation resources ***capable of providing this service*** that are under the control of the control area operator are operated to produce (or absorb) reactive power. Thus, ***Reactive Supply and Voltage Control from Generation or Other Sources Service*** must be provided for each transaction on the Transmission Provider's transmission facilities. The amount of ***Reactive Supply and Voltage Control from Generation or Other***

[105] Schedule 2 at 2.

[106] Because there was no dispute as to the correct interpretation of the Control Requirement or the issue of whether the Facilities satisfied the Control Requirement, this Initial Decision does not address the precise boundaries of what it means to be "under the control of" PJM.

[107] *See Idaho Power Co. v. FERC*, 312 F.3d 454, 462 (D.C. Cir. 2002) ("A tariff should not be interpreted in a manner that renders one of its terms meaningless.").

> ***Sources Service*** that must be supplied with respect to the Transmission Customer's transaction will be determined based on the ***reactive power support necessary to maintain transmission voltages within limits that are generally accepted in the region*** and consistently adhered to by the Transmission Provider.[108]

64. While Applicants emphasize the first sentence of Schedule 2, the second and third sentences are equally important. The phrase "this service" in the first sentence is expanded in the second and third sentences to mean "Reactive Supply and Voltage Control from Generation or Other Sources Service." The conjunctive "and" in that phrase means that Schedule 2 requires *both* reactive supply *and* voltage control service. Accordingly, Applicants' proposed interpretation, which limits "this service" to "reactive supply service" and excludes any form of "voltage control," conflicts with the plain text of Schedule 2.[109]

65. The next question is what Reactive Supply and Voltage Control Service requires from a generation facility. Schedule 2 provides some guidance as to what Reactive Supply and Voltage Control Service entails. The first sentence states that the purpose of "this service" is "to maintain transmission voltages on the Transmission Provider's transmission facilities within acceptable limits." That sentence also explains that to provide "this service," generation facilities "are operated to produce (or absorb) reactive power." And the third sentence states that the amount of "this service" that must be supplied "will be determined based on the reactive power support necessary to maintain transmission voltages within limits that are generally accepted in the region and consistently adhered to by the Transmission Provider."

66. From this language I draw two conclusions. First, a generation facility must be capable of producing or absorbing reactive power to provide Reactive Supply and Voltage Control Service. And second, the reactive power supplied by a generation facility must enable PJM to maintain transmission voltages within acceptable limits.

67. The first point is self-evident: a generation facility that cannot produce and absorb reactive power is not eligible to receive compensation pursuant to Schedule 2. On the second point, while Schedule 2 clearly requires that a facility provide voltage support to PJM's transmission facilities, that requirement is not quantified. As discussed above, I

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[108] Schedule 2 at 2 (emphasis added).

[109] *See, e.g.,* Applicants' Answer to Motion to Strike at 3 (Providing the language of Schedule as follows: "capable of providing this [reactive] service").

must reject Applicants' interpretation because it does not require voltage regulation from generation facilities. Trial Staff proposes that a generation facility must be "capable of maintaining voltages on PJM's transmission facilities within acceptable limits" to receive Schedule 2 compensation. But that goes beyond what the language of Schedule 2 appears to require. Instead, the better reading is that Schedule 2 states that *PJM* must be able to maintain transmission voltages within acceptable limits by *relying* on reactive power supplied by the generation facility.[110] In other words, even if a generation facility cannot, on its own, maintain transmission voltages within acceptable limits in all scenarios, it may still be eligible if PJM can rely on that facility, in combination with other resources, to maintain transmission voltages.

68. This distinction informs what is required of a generation facility to establish Schedule 2 eligibility. Trial Staff's proposed interpretation could require a showing that a single facility can supply or absorb enough reactive power to prevent transmission voltages from falling outside of the acceptable limits. Under the interpretation I adopt here, however, a generation facility satisfies the Capability Requirement if the facility is operationally capable of providing voltage support to PJM's transmission facilities such that PJM can rely on that generation facility to maintain transmission voltages.

69. The Commission's decision in *Ameren Energy Marketing Company* lends support for this interpretation.[111] In *Ameren*, the Commission considered an application from a power marketer (AEM) to use its own generation facilities to provide Reactive Supply and Voltage Control from Generation Sources Service on transmission facilities operated by an affiliated transmission provider.[112] The Commission initially rejected the application, commenting that "AEM has not demonstrated that its generation is appropriately situated to supply this service."[113] In subsequently approving AEM's compliance filing, the Commission noted that "AEM commits that it will limit its provision of Reactive Supply to instances when the point of need is close enough to the

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[110] *C.f. PJM Interconnection, L.L.C.*, 149 FERC ¶ 61,132, at P 2 (2014) ("*PJM determines the amount of reactive power necessary* to maintain transmission voltages on its transmission system within acceptable limits. Schedule 2 of its Tariff refers to this service as Reactive Supply and Voltage Control from Generation Sources Service (Reactive Service).") (emphasis added).

[111] *Ameren Energy Mktg. Co.*, 103 FERC ¶ 61,156 (2003).

[112] *Ameren Energy Mktg. Co.*, 95 FERC ¶ 61,448, 62,624 (2001).

[113] *Id.* at 62,625.

generation resource so that AEM is operationally capable of providing this service."[114] While *Ameren* did not involve application of Schedule 2, the principle established in *Ameren* logically applies under Schedule 2: a generation facility that is designed to absorb and produce reactive power will nonetheless be ineligible for compensation if it is not operationally capable of providing the service outlined in Schedule 2 at the point of need, i.e. somewhere on PJM's transmission facilities.

70. Applicants argue against an interpretation of Schedule 2 that distinguishes between facilities connected at transmission voltages and distribution voltages.[115] This Initial Decision's interpretation of the Capability Requirement makes no such distinction. As Trial Staff explains, facilities that are directly connected to the PJM transmission system may be able to demonstrate that they satisfy the Capability Requirement more easily.[116] That does not mean, however, that facilities that do not connect directly to PJM's transmission facilities categorically fail the Capability Requirement. Similarly, this Initial Decision does not address whether indirect effects on transmission facilities may in some circumstances satisfy the Capability Requirement as a matter of law.[117]

71. Applicants' contention that the Commission "has never rejected a reactive power rate schedule for a distribution-connected generating facility in PJM" relies on a series of cases that resulted in uncontested settlements that have no precedential effect.[118] In each of the Commission decisions Applicants cite, the Commission set the proposed reactive power rate schedule for hearing without making a decision on the merits.[119] Subsequent

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[114] *Ameren*, 103 FERC ¶ 61,156, at P 8.

[115] Applicants Initial Br. at 56.

[116] *See supra* note 96 and accompanying text.

[117] *See* Applicants Initial Br. at 57 ("[T]here is at least an indirect benefit to PJM's transmission system from reactive capability provided from generation located on the distribution level, such as the Facilities at issue in this proceeding."); Trial Staff Reply Br. at 4 ("Under the right circumstances, a showing of indirect support of the transmission system by way of support of the distribution system might be sufficient.").

[118] Applicants Initial Br. at 17 nn.47-48.

[119] *See, e.g., Wolf Run Energy LLC*, 166 FERC ¶ 61,151, at P 12 (2019) ("[Applicant's] filing raises issues of material fact that cannot be resolved based on the record before us and are more appropriately addressed in the hearing and settlement judge procedures ordered below."). Applicants also cite a delegated letter order that accepted an initial rate filing while noting that "[t]his action does not constitute approval

settlement agreements in those cases were uncontested; and in accepting them, the Commission specifically commented that "approval of the Settlement does not constitute approval of, or precedent regarding, any principle or issue in this proceeding."[120] Accordingly, these cases do not inform this Initial Decision's analysis of Schedule 2.

72. Applicants further provide extrinsic evidence in support of their position that Schedule 2 does not require "'engineering evidence' that a generation facility's reactive power capability must impact or reach PJM's transmission facilities."[121] That position contradicts the plain language of Schedule 2, which requires a facility to provide voltage support *to PJM's transmission facilities*.[122] Because the PJM Tariff unambiguously

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of any service, rate, charge, classification, or any rule, regulation, contract, or practice affecting such rate." *PJM Interconnection LLC,* Docket Nos. ER02-212-000 and ER02-212-001, delegated letter order issued Jan. 7, 2002. *See also* Applicants Initial Br. at 17, n.47 (citing same).

[120] *Wolf Run Energy LLC*, 169 FERC ¶ 61,064, at P 4 (2019); *GSG 6, LLC*, 170 FERC ¶ 61,005, at P 3 (2020); *Roundtop Energy, LLC*, 156 FERC ¶ 61,179, at P 4 (2016); *Beaver Dam Energy LLC*, 156 FERC ¶ 61,178, at P 4 (2016); *Milan Energy LLC*, 161 FERC ¶ 61,083, at P 4 (2017); *Frenchtown I Solar, LLC*, 165 FERC ¶ 61,039, at P 3 (2018).

[121] Applicants Initial Br. at 20-21. In questioning whether Schedule 2 specifically requires "engineering evidence," Applicants appear to conflate the evidentiary requirements of a hearing under the FPA with the requirements of the tariff itself. A tariff need not specifically require that a utility produce evidence supporting a proposed rate change because the FPA itself requires such evidence. *See infra* paragraphs 83-85 (discussing burdens of proof).

[122] This conclusion arises from the phrase "on the Transmission Provider's transmission facilities" as it appears in the first and second sentences of Schedule 2, and the phrase "reactive power support necessary to maintain *transmission* voltages" as it appears in the third sentence. Schedule 2 at 1 (emphasis added). Moreover, Applicants' argument that "Transmission Provider" may refer to "PJM or the Transmission Owner" contradicts the plain language of the PJM Tariff, which defines Transmission Provider to be PJM "for all purposes" while assigning certain related responsibilities to Transmission Owners. PJM Tariff at 5-6. The ISAs likewise define "Transmission Provider" to mean PJM. *See, e.g.,* Ex. WT2-0003 at 11 (stating that ISA will use "PJM" and "Transmission Provider" interchangeably). Defining Transmission Provider to include Transmission Owners such as FirstEnergy would appear to require Transmission Owners like FirstEnergy to make payments to generation facilities pursuant to Schedule 2. *See*

requires generation facilities to provide voltage support to PJM's transmission facilities, it is improper to rely on extrinsic evidence to support a contradictory interpretation.[123] Nonetheless, a review of the evidence Applicants provide reveals nothing that would require PJM to compensate the Facilities under Schedule 2, even if they cannot provide voltage support to PJM's transmission facilities.

73. Applicants emphasize the three-party ISAs between the Facilities, PJM, and a FirstEnergy subsidiary. Applicants argue that because the Facilities meet the reactive power design requirements of these ISAs, it would not be just and reasonable to deprive them of compensation under Schedule 2 for their reactive power investments.[124] But nothing in the ISAs suggests that generation facilities must receive compensation under Schedule 2 even if they are not operationally capable of providing voltage support to PJM's transmission facilities.

74. The ISAs specifically reference Schedule 2 in three places. Two of these references appear in the definitions section of the ISA and were not addressed by any Participant in this case.[125] The third reference to Schedule 2 appears in Appendix 2 to the ISAs, which states that "[a]ny payments to the Interconnection Customer for reactive power shall be in accordance with Schedule 2."[126] I agree with Trial Staff's position that the words "any" and "in accordance with" in this provision make clear that it is Schedule 2, not the ISA, that will determine a generation facility's eligibility for compensation.[127]

Schedule 2 at 2 (requiring Transmission Provider to pay generation owner's monthly revenue requirement).

[123] *Sw. Power Pool, Inc.*, 160 FERC ¶ 61,115, at P 45 (2017).

[124] Applicants Initial Br. at 22-23. To the extent that Applicants believe they are automatically entitled to compensation for the investments they made as a precondition to interconnection, I agree with Trial Staff's argument that such a position is foreclosed by the Commission's decision in *Public Service Company of New Mexico*. Trial Staff Reply Br. at 5-6 (discussing *Pub. Serv. Co. of N.M.*, 178 FERC ¶ 61,088, at P 33 (2022)).

[125] *See, e.g.,* Ex. WT2-0003 at 49, 75 (Whitetail 2 ISA). These two definitions both concern types of "opportunity costs" that are not mentioned elsewhere in the ISA. Both provisions state that such costs "shall be limited to those resources which are specifically delineated in Operating Agreement, Schedule 2." *Id.*

[126] Applicants Initial Br. at 4 (quoting Ex. EH2-0001 at 20:4-7 (Ausmus)).

[127] Trial Staff Initial Br. at 4-5.

To read this provision as a guarantee that a generation facility will receive compensation under Schedule 2 would be patently unreasonable.[128]

75. As further evidence in support of their position that the ISAs confirm the Facilities' eligibility for Schedule 2 compensation, Applicants point to PJM's statement in response to a discovery request that "it can be reasonably inferred that the reactive power capability required under the ISA is the same contemplated by Tariff, Schedule 2."[129] At most, this statement implies that the ISAs, like Schedule 2, require the Facilities to be capable of producing and absorbing reactive power. But as explained in paragraphs 66-68, *supra*, Schedule 2 *also* requires that a facility have the operational capability to provide voltage support to PJM's transmission facilities. That the ISA *only* requires reactive power capability does not mean that Schedule 2 may not require more.

76. The other extrinsic evidence Applicants provide similarly falls short. Applicants discuss system impact studies for each of the Facilities,[130] several PJM technical manuals,[131] and FirstEnergy's "Requirements for Transmission Connected Facilities."[132] While each of these documents imposes certain reactive power obligations on generation facilities, only one makes any kind of reference to compensation: PJM Manual 14D states that "new generators have the option of filing with FERC to receive a revenue stream for

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[128] *See Stanley v. George Wash. Univ.*, 394 F.Supp.3d 97, 106 (D.D.C. 2019) ("The first step in interpreting a contract is to determine what a reasonable person in the position of the parties would have thought the disputed language meant.") (quoting *Debnam v. Crane Co.*, 976 A.2d 193, 197 (D.C. 2009)). Applicants' proposed interpretation would also directly conflict with a separate provision of the ISAs, not discussed by any Participant, that states that execution of an ISA does not "obligate [PJM] to procure . . . any energy, capacity, Ancillary Services, or Station Power." Ex. WT2-0003 at 112 (Whitetail 2 ISA); Ex. EH2-0003 at 109 (Elk Hill ISA); Ex. WT1-0003 at 52 (Whitetail 1 ISA); Ex. WT3-0003 at 54 (Whitetail 3 ISA). *See also Deutsche Bank Nat'l Tr. Co. v. Fed. Deposit Ins. Corp.*, 109 F.Supp 3d 179, 198 (2015) ("It is a cardinal principal of contract construction that 'a document should be read to give effect to all of its provisions and render them consistent with each other.'") (quoting *Mastrobuono v. Shearson Lehman Hutton, Inc.*, 514 U.S. 52, 63 (1995)).

[129] Ex. WT2-0019 at 3 (PJM response to Discovery Request No. S-PJM-1.12).

[130] Applicants Initial Br. at 2.

[131] *Id.* at 4 (Manual 14D), 19 (Manual 14G).

[132] *Id.* at 19.

their reactive output."[133] As with the ISAs, this statement makes no indication as to whether a particular facility will qualify for compensation.

77. In addition to the extrinsic evidence they provide, Applicants also emphasize the significance of reactive power connected at lower voltages to the reliability of the electric grid.[134] Applicants argue that the value of reactive power resources connected at lower voltages supports a reading of Schedule 2 that would provide compensation to such resources.[135] But such general considerations go beyond the narrow single issue set for hearing in this proceeding.[136] This Initial Decision considers only whether Whitetail 1, Whitetail 2, Whitetail 3, and Elk Hill meet the requirements of Schedule 2 as written.

c. The Reliance Requirement

78. I find that the text of Schedule 2 does not support the IMM's proposed third criterion that PJM must directly rely on a resource's reactive power capability for that resource to be eligible for Schedule 2 compensation. While I agree with the IMM's observation that Schedule 2 requires that a facility "*enable* PJM to 'directly' provide Reactive Supply and Voltage Control Service 'for each transaction on the Transmission Provider's transmission facilities," it does not necessarily follow that each facility must itself provide the Service for each transaction.[137] Rather, the language of Schedule 2 leaves open the possibility that an eligible facility will only provide the service in some circumstances.

79. The IMM's Motion for Summary Disposition argues that undisputed facts establish that the Facilities do not satisfy the Reliance Requirement.[138] Because I find that Schedule 2 does not limit eligibility to generation facilities on which PJM directly relies, the IMM's Motion for Summary Disposition is denied.

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[133] *Id.* at 4 (quoting Ex. WT2-0015 (PJM Manual 14D)).

[134] *See id.* at 8-11 (discussing history of reactive power rulemakings at the Commission).

[135] *Id.* at 15-18.

[136] *See supra* paragraphs 4 & 12.

[137] IMM Initial Br. at 4 (quoting Schedule 2) (emphasis added).

[138] Motion for Summary Disposition at 18.

B. The Facilities' Eligibility

80. I next turn to the question of whether the Facilities have satisfied the two requirements for Schedule 2 compensation set forth above. Because no Participant disputes that the Facilities have satisfied the Control Requirement, only the Capability Requirement stands contested.

81. Applicants contend that they have satisfied the Capability Requirement by completing PJM's reactive power testing procedures. Applicants further provide power flow modeling evidence to allege that the Facilities can provide voltage support to the PJM transmission system. Trial Staff and the IMM dispute the validity of this evidence. Trial Staff provides discovery responses from PJM to support their contention that the Facilities cannot maintain transmission voltages within acceptable limits and therefore do not satisfy the Capability Requirement.

82. A preponderance of the record evidence supports a finding that none of the Facilities are operationally capable of providing voltage support to PJM's transmission facilities such that PJM can rely on the Facilities to maintain transmission voltages. Accordingly, as explained in detail below, I conclude that none of the four Facilities is eligible for compensation under Schedule 2 of the PJM Tariff.

1. The Burden of Proof

83. Sections 205 and 206 of the Federal Power Act impose different burdens of proof on the participants in an evidentiary hearing.[139] While "[a] utility filing a rate adjustment under section 205 must show that the adjustment is *lawful*," under section 206, it is the "proponent of a rate change [that] bears 'the burden of proving the existing rate is *unlawful*.'"[140] Although these provisions impose burdens on different participants, "the scope and purpose of the Commission's review remains the same — to determine whether the rate fixed by the utility is lawful."[141]

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[139] *Compare* 16 U.S.C. § 824d (section 205) *with* 16 U.S.C. § 824e (section 206). *See also Emera Me. v. FERC,* 854 F.3d 9, 24 (D.C. Cir. 2017) ("One 'important difference' between section 205 and section 206 is the burden of proof.") (quoting *Ala. Power Co. v. FERC*, 993 F.2d 1557, 1571 (D.C. Cir. 1993)).

[140] *Emera Me.*, 854 F.3d at 24 (quoting *Ala. Power*, 993 F.2d at 1571) (emphasis in original).

[141] *Ark. Elec. Coop. Corp. v. Allete, Inc.*, 156 FERC ¶ 61,061, at P 18 (2016) (quoting *United Gas Pipe Line Co. v. Mobile Gas Serv. Corp.*, 350 U.S. 332, 341 (1956)).

84. In this consolidated proceeding, the section 205 burden of proof applies to two of the cases set for hearing, *Whitetail Solar 2, LLC*[142] and *Elk Hill Solar 2, LLC*, [143] while the section 206 burden of proof applies in the other two, *Whitetail Solar 1, LLC*[144] and *Whitetail Solar 3, LLC*.[145] Accordingly, Applicants bear the burden of proof in *Whitetail Solar 2, LLC* and *Elk Hill Solar 2, LLC*, while Trial Staff and Intervenors bear the burden of proof in *Whitetail Solar 1, LLC* and *Whitetail Solar 3, LLC*.

85. The Commission has explained that "[t]he party bearing the burden of proof will prevail only if, when the record is closed, the preponderance of evidence supports its position."[146] In this consolidated case, Trial Staff and Intervenors must therefore demonstrate, by a preponderance of the evidence, that Whitetail 1 and Whitetail 3 do *not* satisfy the requirements of Schedule 2, while Applicants must demonstrate, by a preponderance of the evidence, that Whitetail 2 and Elk Hill *do* satisfy the requirements of Schedule 2.

2. Participants' Positions

a. Applicants

86. Applicants contend that there is sufficient evidence on the record to find that all four Facilities have satisfied the Capability Requirement. With respect to each Facility, Applicants provide two types of evidence. First, they submit the testimony of Dr. Jason Ausmus.[147] Dr. Ausmus testified that the Facilities satisfied certain reactive power design specifications appearing in their ISAs, completed PJM's reactive capability testing

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[142] *Whitetail Solar 2, LLC*, 174 FERC ¶ 61,238, at P 1 n.5 (2021).

[143] *Elk Hill Solar 2, LLC*, 175 FERC ¶ 61,188, at P 1 n.5 (2021).

[144] *Whitetail Solar 1, LLC*, 170 FERC ¶ 61,165, at ordering para. B (2020).

[145] *Whitetail Solar 3, LLC*, 173 FERC ¶ 61,288, at ordering para. B (2020).

[146] *Puget Sound Energy, Inc. v. All Jurisd. Sellers*, Opinion No. 537, 151 FERC ¶ 61,173, at P 98 (2015) (internal footnotes omitted), *aff'd in relevant part on reh'g*, 153 FERC ¶ 61,386 (2015), *rev'd on other grounds,* 157 FERC ¶ 61,026 (2016).

[147] Ex. WT1-0001, WT2-0001, WT3-0001, EH2-0001. Applicants also provide testimony of Supria Ranade, as adopted at the hearing by Dr. Ausmus, in support of their position that the Facilities are under the control of PJM. Ex. WT1-0022, WT2-0022, WT3-0022, EH2-0020. Because that issue is not contested, this Initial Decision does not further address Ms. Ranade's testimony.

procedures, and therefore meet the requirements of Schedule 2. And second, Applicants submit the testimony of Christopher Ferrell[148] and Charles Askey,[149] who provided and discussed the results of power flow modeling purporting to show that the Facilities can support transmission voltages.

i. Reactive Supply Capability Evidence

87. Dr. Ausmus testified that each Facility "is a solar generation facility and has the capability to provide reactive support to PJM."[150] He based that conclusion largely on the reactive power testing that the Facilities completed in coordination with PJM. He explained that PJM is carrying the Facilities' test results in "its eDART and Energy Management System and [PJM] could direct [each Facility] to provide the required reactive and voltage support."[151] Dr. Ausmus pointed to PJM Manual 14D, which states that reactive testing is required "[t]o help maintain a reliable transmission system."[152]

88. Dr. Ausmus also surveyed documentation that imposes certain reactive power design requirements on the Facilities. That documentation includes the three-party ISAs between each Facility, PJM, and West Penn or MAIT. Dr. Ausmus explained that these ISAs require the Facilities to meet certain power factor requirements to receive interconnection service. [153] Dr. Ausmus testified that each Facility met those

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[148] Ex. WT1-0027; Ex. WT2-0030; Ex. WT3-0027; Ex. EH2-0028 (Ferrell).

[149] Ex. WT1-0029; Ex. WT2-0029; Ex. WT3-0029; Ex. EH2-0027 (Askey).

[150] Ex. WT1-0001 at 22:18-19; Ex. WT2-0001 at 23:4-5; Ex. WT3-0001 at 22:18-19; Ex. EH2-0001 at 23:1-2 (Ausmus).

[151] Ex. WT1-0001 at 36:11-16; Ex. WT2-0001 at 35:1-6; Ex. WT3-0001 at 44:19-45:2; Ex. EH2-0001 at 35:1-6 (Ausmus). *See also* Ex. S-0006 (PJM Manual 14D) ("The Dispatcher Application and Reporting Tool (eDART) provides communication with PJM for Generation Owners regarding unit outage and reduction requests, updates to reactive capability curves (D-curves), Automatic Voltage Regulator status, Power System Stabilizer status, Governor status, MVAR tests, Supplementary Status Reports (SSRs), Instantaneous Reserve Checks (IRCs), Minimum Generation Reports, and Gen Checkout.").

[152] Ex. WT2-0001 at 23:15-24:3 (Ausmus) (quoting Ex. WT2-0015 at 72 (PJM Manual 14D)).

[153] *See, e.g.,* Ex. WT2-0001 at 12:6-16 (Ausmus) (discussing Whitetail 2 ISA power factor and voltage requirements).

requirements.[154] Applicants, in turn, argue that it would not be just and reasonable to require "each Applicant under its ISA to design, procure, install, operate, and maintain equipment to provide reactive power support at its point of interconnection" without compensating Applicants for their investments, as similarly-situated generators are compensated.[155]

ii. Power Flow Modeling Evidence

89. In addition to the testimony of Dr. Ausmus, Applicants submitted testimony that presented power flow modeling results purporting to show that the Facilities are capable of supporting transmission voltages. Applicant witness Charles Askey conducted the power flow modeling. In his testimony, he explained that he used one of "four industry accepted power tools to evaluate power flows on the transmission system."[156] He described the model as follows:

> The power flow model, when solved, captures the flows on the system at a single instant in time and provides the voltage magnitude and angle at every bus on the system. By changing the generation values in the power flow model, the software can iterate to a solution that accurately redistributes the flows of real and reactive power on the system.[157]

90. For each of the Facilities, Mr. Askey modeled a scenario [redacted]

[154] Ex. WT1-0001 at 11:10-19; Ex. WT2-0001 at 12:6-16; Ex. WT3-0001 at 11:27-12:9; Ex. EH2-0001 at 11:10-21 (Ausmus).

[155] Applicants Initial Br. at 23.

[156] Ex. WT1-0029 at 3:19-4:3; Ex. WT2-0029 at 3:19-4:3; Ex. WT3-0029 at 3:17-4:1; Ex. EH2-0027 at 3:18-4:2 (Askey).

[157] Ex. WT1-0029 at 4:7-11; Ex. WT2-0029 at 4:6-10; Ex. WT3-0029 at 4:5-9; Ex. EH2-0027 at 4:6-10 (Askey).

[158] *See, e.g.,* Ex. WT1-0027 at 9:14-16 (Ferrell) [redacted]

92. Applicant witness Christopher Ferrell explained the significance of the results that the power flow model produced. After summarizing and explaining the modeling results with respect to each Facility, Mr. Ferrell concluded that the results

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[159] *See, e.g., id.* at 10:8-18 (Ferrell)

[160] As explained in paragraph 100, *infra*, Trial Staff contends that Mr. Askey in some instances erroneously reported reactive power flows

[161] *See, e.g.,* Ex. WT1-0027 (Ferrell) at 12:16-17

[162] *See, e.g., id.* at 15:5-9

[163] Ex. WT2-0029REV at 17-19, 22, 26; Ex. WT3-0029REV at 16-18 (Askey).

[164] Ex. WT1-0027 at 11:15-20 (Ferrell).

demonstrate that each Facility can "can produce or consume reactive power . . . to a level that can help support system voltages on the PJM . . . transmission system."[165]

b. Trial Staff

93. Trial Staff contends that the Facilities do not satisfy the Capability Requirement. Trial Staff provides the testimony of Brian Fejka, who reviewed discovery responses from PJM to conclude that "there is no engineering evidence that the Facilities are capable of maintaining transmission voltages on the PJM transmission system within acceptable limits."[166] Mr. Fejka also offered additional rebuttal and surrebuttal testimony to contest the power flow modeling evidence Applicants submitted.

i. Direct and Answering Testimony

94. In his direct and answering testimony, Mr. Fejka reviewed two key discovery responses from PJM. In the first, PJM stated that "[a]s a result of the lack of a direct connection [to the PJM transmission system], these units . . . would only be able to provide voltage support to the local distribution bus, which may provide indirect impacts to the transmission system."[167]

95. In the second, PJM stated that

> [g]enerators that are connected at a high electrical distance from the closest [bulk electric system (BES)] bus have greatly reduced utility for direct voltage support of the BES as compared to an identical asset directly connected to the BES. Long lines, higher impedance lines, lower voltage lines, distribution capacitor banks or other distribution devices, nearby distribution loads or assets, can all act to dissipate,

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[165] Ex. WT1-0027 at 18:11-13; Ex. WT2-0030 at 46:1-3; Ex. WT3-0027 at 31:18-20; Ex. EH2-0028 at 22:5-7 (Ferrell).

[166] Ex. S-0001 at 35:14-16 (Fejka).

[167] *Id.* at 31:5-10 (quoting Ex. S-0005 at 10 (PJM response to S-PJM-1.9)). *See also* Ex. S-0003 at 8 (explaining that Discovery Response No. S-PJM-1.9 applies to Whitetail 1).

> consume, and otherwise obfuscate the MVAR output of those generators as seen by the nearest BES bus.[168]

96. Mr. Fejka explained that electrical distance is a "per unit reactance between two buses in an electrical system."[169] According to Mr. Fejka, electrical distance is significantly higher on sub-transmission lines like those to which the Facilities interconnect.[170] Mr. Fejka further testified that equipment that can "consume and dissipate" reactive power are located near the Facilities on the sub-transmission system, including nearby loads, lower voltage lines, and distribution capacitor banks.[171] Mr. Fejka concluded that "there will always be some electrical distance between each facility and the PJM transmission system."[172]

ii. Response to Power Flow Modeling

97. Mr. Fejka provided additional rebuttal and surrebuttal testimony to contest the power flow modeling evidence Applicants submitted. Mr. Fejka identified purported errors in the modeling and provided several reasons the modeling cannot support the conclusions that Applicants draw from it.[173]

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[168] Ex. S-0001 at 33:3-9 (Fejka) (quoting Ex. S-0005 at 22 (PJM response to S-PJM-1.19)).

[169] Ex. S-0001 at 33:15-16 (Fejka).

[170] *See id.* at 11:19-20, 16:15-16, 18:2-3, 20:12-13 (discussing lines to which the Facilities interconnect); *see also id.* at 34:9-15 (explaining that electrical distance is higher on lower voltage lines); Ex. S-0012 at 11 (table showing impedance per mile at various voltage levels).

[171] Ex. S-0001 at 34:18-35:4 (Fejka). *See also id.* at 35:6-10 ("[L]ower voltage lines, distribution capacitor banks, and distribution loads are all near the Facilities. For example, for Whitetail 1, there is nearby load. For Whitetail 2 and Whitetail 3 there are nearby load, capacitor banks, and generation."); *id* at 13, Fig. 2 (diagram reflecting load located adjacent to Whitetail 1 on MAIT system); *id.* at 19, Fig. 6. (diagram reflecting load, capacitors, and generation located near Whitetail 2 and Whitetail 3 on MAIT system).

[172] *Id.* at 34:6-8.

[173] *See, e.g.* Ex. S-0017 at 28:19-21 (Fejka) ("The reported results in the various tables in Mr. Askey's testimony are incorrect . . . ."); Tr. 82:23-83:9 (Fejka) (describing "unexplained discrepancies between the results for the modeling that Mr. Askey

98. Mr. Fejka testified that certain voltage control devices on the FirstEnergy distribution system are not accurately represented in the models that Mr. Askey and Mr. Ferrell used. [174] For instance, Mr. Fejka explained that distribution system capacitors that would ordinarily turn "on" when voltage reached a certain level do not do so within the model.[175] Mr. Fejka also reviewed a PJM discovery response addressing these voltage control devices. In that response, PJM stated that "distribution control systems decouple the relationship between the transmission voltage and the distribution voltage" and that "[d]irect voltage control is a necessary requirement to providing voltage support."[176]

99. With respect to Whitetail 1 and Whitetail 3, Mr. Fejka concluded, based on the PJM discovery response cited above, that the Facilities "are incapable of providing voltage support to the PJM transmission system."[177] Trial Staff similarly argues that because of these voltage regulation devices, "the increase in var output of an individual generating Facility would likely result in no net impact on the voltage of the PJM transmission system and therefore no reactive support to that system."[178]

100. Mr. Fejka further testified that the power flow modeling evidence contains numerous errors. For instance, Mr. Fejka explained that Mr. Askey's testimony with respect to Whitetail 1 and Whitetail 3 incorrectly describes [redacted]

performed for Whitetail 2 and the modeling he performed for Whitetail 3").

[174] Ex. S-0017 at 26:3-18 (Fejka); *see also* Tr. 80:20-81:7 (Fejka) (testifying that same problem applies to Whitetail 2 and Elk Hill).

[175] Ex. S-0017 at 26:7-15 (Fejka).

[176] Ex. S-0018 at 2 (PJM response to S-PJM-3.1).

[177] Ex. S-0017 at 8:23-24 (Fejka).

[178] Trial Staff Initial Br. at 10-11 (Whitetail 1); *Id.* at 21 (Whitetail 3). *See also id.* at 15, 24-25 (arguing with respect to Whitetail 2 and Elk Hill that the presence of voltage regulation devices on the distribution system "refutes any argument that [the Facilities] can provide reactive support to the transmission system indirectly by way of its support of the distribution system").

[179] *See* Ex. S-0017 at 30:9-31:12 (Fejka) (discussing error with respect to Whitetail 1); *id.* at 32:8-16 (same with respect to Whitetail 3). *See also* Ex. S-0032 (annotated

[redacted] Mr. Fejka likewise identified errors in the testimony and modeling results relating to Whitetail 2 and Elk Hill.[180] According to Mr. Fejka, several of the power flow modeling scenarios that involve both Whitetail 2 and Whitetail 3 contain identical inputs, yet Mr. Askey provided divergent results without accounting for the differences.[181]

c. The IMM

101. The IMM agrees with Trial Staff's position that the Facilities do not satisfy the Capability Requirement.[182] In its Initial Brief, the IMM discusses the evidence put forth by Trial Staff in support of this position but does not otherwise offer additional evidence of its own.[183]

3. Determination

102. The preponderance of the evidence in all four consolidated cases demonstrates that the Facilities do not satisfy the Capability Requirement. Four considerations support that conclusion.

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model results reflecting error with respect to Whitetail 1).

[180] *See* Tr. 82:23-83:19 (Fejka) (discussing errors in modeling for Whitetail 2 and Elk Hill).

[181] *Compare* Ex. WT2-0029REV at 18-19 [redacted] *with* Ex No. WT2-0029REV at 16-17 [redacted] *See also* Tr. 83:1-9 (Fejka) (discussing those results).

[182] IMM Initial Br. at 4.

[183] IMM Initial Brief at 4-11. The IMM provides additional evidence purporting to support a finding that the Facilities do not satisfy the Reliance Requirement. Because this Initial Decision does not adopt the IMM's proposed Reliance Requirement, *see supra* paragraphs 78-79, I make no findings on that issue.

a. PJM believes the Facilities cannot provide voltage support.

103. PJM credibly explained that it cannot rely upon the Facilities for voltage support because they are not directly connected to the transmission system.[184] PJM's view on this matter warrants substantial weight because PJM operates the transmission system and is responsible for maintaining transmission voltages pursuant to Schedule 2. Moreover, PJM's position is grounded in reasonable concerns about voltage conflicts and electrical distance, as discussed below. PJM's statements also stand uncontested: no Participant called on PJM to testify at the hearing, and Applicants did not otherwise directly challenge PJM's view on voltage support.[185]

b. Distribution-level voltage conflicts may interfere with any voltage support the Facilities provide.

104. Record evidence establishes that (1) PJM does not control the distribution buses to which the Facilities interconnect[186] and (2) systems on those distribution buses may

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[184] *See* Ex. S-0005 at 10 (PJM response to S-PJM-1.9) ("[The Facilities] would only be able to provide voltage support to the local distribution bus . . . ."); S-0018 at 2 (PJM response to S-PJM-3.1) ("Direct voltage control is a necessary requirement to providing voltage support. The [Facilities] are not directly connected to a [transmission] bus in the area . . . ."). *See also* Ex. S-0003 at 8 (stating that discovery response reflected in Ex. S-0005 also apply to Whitetail 1); S-0036 (stating that discovery response reflected in Ex. S-0018 also applies to Whitetail 2 and Elk Hill).

[185] In their reply brief, Applicants criticize "Trial Staff's heavy reliance on PJM's data responses." Applicants Reply Br. at 25. Applicants argue that the data responses "were not subject to examination at the hearing and are being twisted and taken out of context." *Id.* But Applicants do not challenge or criticize PJM's response to S-PJM-1.9, in which PJM states that the Facilities cannot provide voltage support to the PJM transmission system. Ex. S-0005 at 10 (PJM response to S-PJM-1.9). Indeed, Applicants rely on that response to support their position that the Facilities may provide indirect benefits to the transmission system. Applicants Reply Br. at 12. Nor do Applicants directly challenge PJM's assertion that "[d]irect voltage control is a necessary requirement to providing voltage support." Ex. S-0018 at 3 (PJM response to S-PJM-3.1).

[186] *See* Ex. S-0001 at 16:8-13 (Fejka) (discussing interconnection of Whitetail 1); *id.* at 17:3-8 (discussing interconnection of Whitetail 2); *id.* at 20:2-3 (discussing interconnection of Whitetail 3); *id.* at 21:5-9, 23:5-7 (discussing interconnection of Elk

counteract any voltage support the Facilities provide.[187] PJM explained that "[i]t is industry practice to avoid voltage regulation conflicts by directing voltage regulation to the nearest electrical interconnection."[188] The nearest electrical interconnection to each of the Facilities are with distribution buses owned by FirstEnergy subsidiaries—not the PJM transmission system. There is therefore adequate reason to conclude that voltage regulation conflicts would arise were PJM to call upon the Facilities for voltage support.

105. In their reply brief, Applicants admit that "[d]uring normal system operation, voltage regulation devices could partially offset a facility's VAR output."[189] But during a voltage emergency, Applicants argue, such voltage regulation devices "would not be allowed to impede" the Facilities' response to the emergency.[190] Applicants provide two sources of evidence for this contention. The first is PJM Manual 14D, which states that "[d]uring an emergency (as determined/declared by the Transmission Owner (TO) or by PJM) the Generator shall respond as promptly as possible to all directives [which may relate to] actual or contingency high/low voltage conditions."[191] And the second is a PJM discovery response in which PJM stated that it is "unlikely that PJM has ever directed these units to increase or decrease their MVAR output before coordinating with the relevant transmission/distribution owner."[192]

106. Neither of these pieces of evidence addresses the behavior of voltage regulation devices or PJM's concern with voltage conflicts. At most, PJM Manual 14D and PJM's

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Hill).

[187] *See* Ex. S-0018 at 1-2 (PJM response to S-PJM-3.1 stating that "individual distribution assets may contradict or counterbalance" reactive support provided by distribution connected generator, and identifying "[t]ransformer tap controls, capacitors, reactors, static VAR compensators, sectionalizing schemes, and other distribution control systems" as the types of assets that might do so).

[188] *Id.* at 2. *See also id.* at 1-2 (explaining that attempting to regulate transmission voltage remotely—i.e. through generation units that are not directly connected to the transmission system—"could expose the distribution system to conflicts, incorrect automation, and unnecessary switching/load shed").

[189] Applicants Reply Br. at 21.

[190] *Id.* at 22.

[191] *Id.* (quoting Ex. WT2-0015 (PJM Manual 14D)).

[192] *Id.* at 22-23 (quoting Ex. S-0005 at 20 (PJM response to S-PJM-1.16)).

discovery response support the contention that PJM may declare emergencies and that in such emergency scenarios PJM would coordinate with the transmission/distribution owner, i.e. FirstEnergy, before directing the Facilities to change their reactive power output.

c. Electrical distance between the Facilities and the transmission system may dissipate any voltage support the Facilities provide.

107. According to PJM, "[g]enerators that are connected at a high electrical distance from the closest BES bus have greatly reduced utility for direct voltage support of the BES as compared to an identical asset directly connected to the BES."[193] Mr. Fejka testified "there will always be some electrical distance between each facility and the PJM transmission system."[194] While "some electrical distance" may not be enough, on its own, to prevent PJM from relying on these facilities, there is sufficient evidence to conclude that the electrical distance may impair the Facilities' capability to provide voltage support to PJM.[195]

d. The power flow modeling evidence is flawed.

108. The power flow modeling conducted by Applicants' witnesses does not outweigh the contrary evidence on the record. While that evidence suggests that the Facilities may impact transmission voltages in some circumstances, it does not establish that the Facilities are operationally capable of providing voltage support to PJM's transmission facilities such that PJM can rely on the Facilities to maintain transmission voltages. Moreover, the modeling evidence must be discounted because it does not address PJM's concerns with voltage conflicts and because of the apparent errors that Mr. Fejka identified.

109. Mr. Ferrell's key conclusion is that the Facilities "can impact the nearby transmission voltages within an appreciable range."[196] He based that conclusion on the

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[193] Ex. S-0005 at 22 (PJM response to S-PJM-1.19).

[194] Ex. S-0001 at 34:6-8 (Fejka).

[195] *See supra* note 171 and accompanying text.

[196] Ex. WT1-0027 at 18:5-6 (Ferrell); Ex. WT2-0030 at 45:13-14 (Ferrell); Ex. WT3-0027 at 31:11-12 (Ferrell); Ex. EH2-0028 at 21:15-17 (Ferrell).

maximum voltage-change values from the scenarios that Mr. Askey modeled. Those maximum changes ranged from 0.63 kV to 1.36 kV.[197]

110. Those maximum values are not representative of the typical results of the power flow modeling, however. [redacted]

[197] With respect to Whitetail 1, Mr. Ferrell bases his conclusion on the results for a contingency scenario wherein the modeling results show that Whitetail 1 contributes to a change of 0.71 kV. Ex. WT1-0027 at 17:18-18:3 (Ferrell). His conclusion with respect to Whitetail 2 relies on modeling results for the "Light Load No MW" scenario, which reflect a voltage shift of 0.65 kV. Ex. WT2-0030 at 44:19-45:4 (Ferrell). With respect to Whitetail 3, he bases the conclusion on the "Light Load" case, wherein the modeling results show that the Facility contributes to a voltage change of 0.65 kV. Ex. WT3-0027 at 31:1-5 (Ferrell). With respect to Whitetail 2 and Whitetail 3 together, the results show a maximum voltage change of 1.36 kV in the "Light Load" scenario. *Id.* at 31:7-9. And with respect to Elk Hill, Mr. Ferrell bases his conclusion off a maximum value of 0.63 kV in the "Light Load" non-contingency scenario and 1.32 kV in a contingency scenario. Ex. EH2-0028 at 21:1-13 (Ferrell).

[198] [redacted]

[199] *See, e.g.,* Ex. WT3-0027REV at 14:5-9 (Ferrell) [redacted] Ex. WT2-0030 at 16:4-11 (Ferrell) [redacted]

111. Neither Mr. Askey nor Mr. Ferrell addressed the divergence between modeling results reflecting only slight changes in voltage and the maximum results on which Mr. Ferrell's conclusions rely. And this divergence reflects a key flaw in the power flow modeling evidence: it provides no information as to whether PJM can rely on any voltage support the Facilities might provide in order to maintain transmission voltages. Indeed, if anything, the variance within the power flow modeling results suggests that any voltage support from the Facilities would be highly inconsistent.

112. The power flow modeling evidence must be discounted for three additional reasons. *First*, PJM itself stated that Applicants' "analysis is based on unreasonable assumptions" and their use of the model is "beyond its intended design."[200] As Applicants recognize, PJM is the creator of the model.[201] Its view on the proper application of the model therefore warrants substantial weight.

113. *Second*, the power flow model may not accurately reflect the behavior of certain distribution-level voltage control systems.[202] The behavior of these systems is particularly relevant because, as discussed in paragraph 104, above, such voltage control systems are one reason that PJM cannot rely on the Facilities for voltage support. That the models lack accurate representation of these voltage control systems limits their evidentiary value.

114. *Third*, Mr. Fejka provided credible testimony that Mr. Askey's testimony, Mr. Ferrell's testimony, and the modeling results discussed therein contain material errors.[203] For instance, as noted above, Mr. Askey appeared to erroneously report reactive power flows as occurring on the [redacted] This error is significant because it affected the data on which Mr. Ferrell based his conclusions.[205]

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[200] Ex. S-0018 at 1 (PJM response to S-PJM-3.1).

[201] *See, e.g.,* Ex. WT2-0029 at 5:15-17 (Askey) (stating that PJM produced the power flow model).

[202] Ex. S-0017 at 24:20-27:3 (Fejka). *See also* Ex. S-0018 at 1-2 (PJM response to S-PJM-3.1 explaining that the power flow model "does not include enough detail of the voltage control systems on the distribution system").

[203] Ex. S-0017 at 28:19-31:16, 33:5-34:10 (Fejka).

[204] *See supra* note 179 and accompanying text.

[205] [redacted]

115. Applicants provide no explanation for these apparent errors.[206] Instead, Applicants question Mr. Fejka's qualifications and argue that "given his lack of experience and expertise, Mr. Fejka's testimony regarding the Applicants' power flow analysis should be ignored."[207]

116. A witness's experience and qualifications are certainly relevant in determining the weight to afford that witness's testimony.[208] But Mr. Fejka's qualifications are sufficient to allow him to test the validity of Applicants' power flow modeling evidence.[209] Mr. Fejka possesses a Bachelor of Science and a Master of Science in electrical engineering.[210] Before assuming his current role as an electrical engineer with Trial Staff, he worked as an engineer at Bechtel Plant Machinery Incorporated. While his experience with power flow modeling was limited prior to this hearing,[211] I find that he has adequate education and experience in the area of electrical engineering to allow him

[redacted]

[206] *See* Applicants Reply Br. at 24-25 (briefly discussing the "minor discrepancies or inconsistencies" that Trial Staff identified).

[207] Applicants Initial Br. at 62.

[208] *See Entergy Servs., Inc. & EWO Mktg.,* 111 FERC ¶ 63,077, at P 118 (2005) (concluding that a witness "lacks the knowledge and expertise as applied to this case to give expert testimony, and her testimony is entitled to virtually no weight"), *aff'd in part, rev'd in part,* 116 FERC ¶ 61,296, at P 152 (2006).

[209] *See* Ex. S-0001 at 1:8-3:2 (Fejka) (discussing qualifications).

[210] *Id.*

[211] *See* Tr. 124:20-23 (Fejka) (stating that he has never worked with a power flow model that was used to evaluate transmission voltages before this hearing).

to review Applicants' power flow modeling results and associated testimony.[212] Moreover, I find his testimony regarding the power flow models to be credible. I see no reason to ignore that testimony, as Applicants request.

e. The Facilities do not satisfy the Capability Requirement.

117. For the foregoing reasons, I conclude that Trial Staff has demonstrated by a preponderance of the evidence that the Facilities do not satisfy the Capability Requirement. I find that Applicants' power flow modeling is outweighed by Trial Staff's evidence that (1) PJM does not believe the Facilities can support transmission voltages, (2) automatic voltage controls on the distribution may impair the Facilities' capability to support transmission voltages, and (3) the Facilities are separated from the transmission system by some electrical distance that may further erode the Facilities' ability to support transmission voltages.

V. Ultimate Findings and Conclusions

118. Based on the record of this proceeding, and in accordance with applicable precedent and sections 205 and 206 of the FPA, 16 U.S.C. § 824d-e, I reach the following key findings of fact and conclusions of law:

a. To be eligible for compensation under Schedule 2 of the PJM Tariff, a generation facility must (1) be under the control of PJM and (2) be operationally capable of providing voltage support to PJM's transmission facilities such that PJM can rely on that generation facility to maintain transmission voltages.

b. Whitetail 1, Whitetail 2, Whitetail 3, and Elk Hill are not operationally capable of providing voltage support to PJM's transmission facilities such that PJM can rely on them to maintain transmission voltages.

c. Whitetail 1, Whitetail 2, Whitetail 3, and Elk Hill are not eligible for compensation under Schedule 2. Accordingly, payment of an annual revenue requirement to the Facilities pursuant to Schedule 2 would not be just and reasonable.

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[212] *See Panda Stonewall LLC*, 167 FERC ¶ 63,010, at P 177 n.360 (2019) (concluding that a witness's "background and experience provided him with sufficient expertise to generally opine" on an issue with which he was not specifically familiar prior to the hearing).

119. The omission from this Initial Decision of any argument or portion of the record that may have been raised by the Participants in their briefs does not mean that it has not been considered. All such arguments have been evaluated and found to either lack merit or significance to the extent that their inclusion would only tend to lengthen this Initial Decision without altering its substance or effect.

VI. Order

120. IT IS ORDERED that, unless exceptions are timely filed under Rule 711[213] or the Commission issues an order staying the effectiveness of this Initial Decision pending review under Rule 712,[214] this Initial Decision becomes a final Commission decision ten (10) days after exceptions are due under Rule 711.[215]

MATTHEW VLISSIDES Digitally signed by MATTHEW VLISSIDES

Matthew J. Vlissides Jr.
Presiding Administrative Law Judge

[213] 18 C.F.R. § 385.711 (2021).

[214] *Id.* § 385.712.

[215] *Id.* § 385.708(d).

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