

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Joseph T. Kelliher, Chairman;
Nora Mead Brownell, and Suedeen G. Kelly.

Virginia Electric and Power Company

ER06-554-000

ORDER ACCEPTING AND SUSPENDING RATE SCHEDULE AND
ESTABLISHING HEARING AND SETTLEMENT JUDGE PROCEDURES

(Issued March 28, 2006)

1. In this order we accept for filing Virginia Electric and Power Company's (Virginia Power) proposed rate schedule for Reactive Supply and Voltage Control from Generation Sources Service (reactive power), suspend it for five months, to become effective September 1, 2006, subject to refund, and establish hearing and settlement judge procedures.

Background

2. Schedule 2 of PJM Interconnection, L.L.C.'s (PJM) Open Access Transmission Tariff (OATT) allows generation owners to receive payment for providing reactive power based on "an amount equal to the Generation Owner's monthly revenue requirement as accepted or approved by the Commission."¹

3. Generators seeking recovery for reactive power that have actual cost data and support were instructed in *WSP Westwood Generation, L.L.C.*² to use the method employed in *American Electric Power Service Corp. (AEP)*³ to compute the portion of plant investment attributable to reactive power production. The Commission explained in *AEP* that the production of reactive power, which is measured in Volt-Amperes-reactive (VARs), is necessary to maintain appropriate voltages in order to effect the transmission

¹ FERC Electric Tariff Sixth Revised Volume No. 1.

² *WPS Westwood Generation, L.L.C. (WPS Westwood)*, 101 FERC ¶ 61,290, P 14 (2002).

³ *American Electric Power Services Corp.*, 88 FERC ¶ 61,141 (1999) (*AEP*).

of electric power throughout the transmission system.⁴ *AEP* identified three components of production plant that are directly related to the production of VARs: (1) the generator and its exciter; (2) accessory electric equipment that supports the operation of the generator-exciter; and (3) the remaining total production investment required to provide real power and operate the exciter. Because these production plants produce real and reactive power, *AEP* developed an allocation factor to segregate the reactive production function from the real power production function.⁵ The allocation factor is used to determine the amount of investment allocable to reactive power. Once the plant investment associated with reactive power production was determined, *AEP* applied an annual carrying charge to these costs to determine an annual revenue requirement.

Virginia Power's filing

4. On January 27, 2006, Virginia Power filed a proposed rate schedule for supplying reactive power from its generation resources under Schedule 2 of PJM's OATT. Virginia Power states that on May 1, 2005 it joined PJM as a transmission owner. As a result, Virginia Power's reactive power annual revenue requirement of \$22,222,702, which was accepted by the Commission as part of a settlement agreement in 1997,⁶ was incorporated into PJM's OATT.⁷ Virginia Power proposes to replace its existing revenue requirement with an updated revenue requirement of \$43,971,441, a 97.4 percent increase that is based on its current costs, and is calculated consistent with the *AEP* methodology.

5. Virginia Power states that it developed its cost-based reactive power revenue requirement using two components: (1) a fixed capability component of \$26,406,517, which recovers the portion of plant investment that can be attributable to the production of reactive power (Fixed Capability Component); and (2) an incremental component of \$17,510,924, which recovers the cost of increased generator heating losses (Heating Losses Component) associated with the production of reactive power.⁸

⁴ *Id.* at 61,457.

⁵ *AEP* used the formula $Mvar^2/MVA^2$ to determine that allocation factor.

⁶ The Commission accepted the settlement agreement by letter order dated June 11, 1997, in Docket No. OA96-52-000, *et al.* Thereafter, Virginia Power collected this revenue pursuant to Virginia Power's OATT until Virginia Power joined PJM.

⁷ PJM's filing to incorporate Virginia Power's revenue requirement in Schedule 2 of PJM's OATT was accepted by a June 22, 2005, letter order in Docket No. ER05-913-000.

⁸ Virginia Power has incorporated a 10 percent return on equity (ROE).

6. With regard to the Fixed Capability Component, Virginia Power states that it followed the *AEP* methodology and first identified costs directly related to the production of VArS by its generation units. These costs represent a portion of generator/exciter system, step-up transformers, accessory electrical equipment, and the balance of plant total production investment required to provide the real power needed to operate the exciter. The installed investment costs for each of these components were identified and multiplied by the applicable allocation factor, then summed and multiplied by the annual carrying charge to produce the annual Fixed Capability Component of the annual revenue requirement for the plant VAr production.

7. In addition, Virginia Power explains that \$6,345,542 of the Fixed Capability Component is related to the costs of non-utility generators (NUGs). Virginia Power states that it purchased the full output of several NUGs that produce reactive power on its system, and for this reason, Virginia Power has the right to reactive power output from the plants. Virginia Power explains that because the NUGs are not required to follow the Commission's Uniform System of Accounts, cost data is difficult or impossible to obtain and, therefore, it bases the NUGs reactive capability costs on the costs of comparable units.

8. Virginia Power states that generator heating losses are calculated to measure losses associated with the production of reactive power (kVA) that reduces the ability of a generator to produce real power (KWH). Virginia Power derived the Heating Losses Component of the revenue requirement by calculating the cost of real power losses attributable to reactive power production. Next, Virginia Power calculated the losses associated with production of reactive power in the fleet by multiplying the losses by the projected run hours for each unit to determine the losses in a typical year. The projected run hours for each unit are based on historical data in most instances, but are adjusted in certain instances to take into consideration significant changes in the operation of certain units since Virginia Power joined PJM. The average locational marginal pricing (LMP) price multiplied by historical run hours is multiplied by plant MW losses to determine annual expected losses.

9. Virginia Power requests that the Commission waive its notice requirements⁹ to allow the rate schedule to become effective the first day of the month in which the Commission issues an order accepting the filing or, in the alternative, Virginia Power requests that the Commission make the rate schedule effective on April 1, 2006.

Notices, Interventions, Protests, and Responsive Pleadings

10. Notice of Virginia Power's filing was published in the Federal Register, 71 Fed. Reg. 6,468 (2006) with interventions or protests due on or before February 17, 2006.

⁹ 18 C.F.R. § 35.3 (2005).

PJM and Allegheny Power and Allegheny Energy Supply Company, LLC filed timely motions to intervene. Old Dominion Electric Cooperative (ODEC) filed a timely motion to intervene and a conditional protest. North Carolina Electric Membership Corp. (NCEMC) filed a timely motion to intervene and protest. Virginia Power filed an answer to the protests. NCEMC filed an answer to Virginia Power's answer.

11. ODEC explains that it identified a discrepancy in Virginia Power's calculation of the heating losses component of the revenue requirement for the Clover units 1 and 2.¹⁰ Specifically, it appears that the revenue requirement for Clover units 1 and 2 contained in Virginia Power's filing was calculated using the wrong transformer test report. ODEC argues that revising the calculation to reflect use of the correct transformer test report results in a lower heating losses figure for Clover units 1 and 2, which results in a significantly lower revenue requirement. In fact, based on ODEC's understanding the correction would result in approximately a 65 percent reduction in the reactive power revenue requirement for Clover units 1 and 2. ODEC represents that Virginia Power has worked cooperatively with ODEC to resolve their concerns about Virginia Power's proposed reactive power revenue requirement, and that Virginia Power has acknowledged the problem with the calculation of the heating losses component for Clover units 1 and 2. Based on this cooperative communication, ODEC states that it believes Virginia Power intends to make a compliance filing to correct this error.

12. NCEMC argues that Virginia Power has made erroneous and/or unsupported assumptions that have led to a significantly overstated revenue requirement. For these reasons, NCEMC contends that Virginia Power's proposed rate schedules may be unjust, unreasonable, unduly discriminatory or preferential, substantially excessive or otherwise unlawful, and should be suspended for five months and set for hearing, subject to refund.

13. Moreover, NCEMC argues that Virginia Power's proposed increase is not the result of large additions of new generation on the system, with new reactive revenue requirements, but rather, the proposed increases results from Virginia Power including heating losses as a component of the revenue requirement. NCEMC acknowledges that the calculation of heating losses component is very complicated and is based on a number of assumptions that are not fully shown or supported by Virginia Power. NCEMC argues that these assumptions need to be more fully understood, verified and evaluated. Moreover, NCEMC argues that Virginia Power has grossly overstated the amount and value of annual heating losses in its generation fleet because Virginia Power has incorrectly assumed that each generating unit operates exclusively at full output for every hour in which the plant is operating. NCEMC contends that Virginia Power has not accounted for the possibility that a unit would operate at less than maximum output for

¹⁰ ODEC is a partial owner, along with Virginia Power, of the North Anna and Clover generating stations.

every hour. Also, NCEMC argues that Virginia Power incorrectly assumed that each generating unit operates exclusively at its designed power factor for all hours of the year.

14. In addition, NCEMC argues that based upon the limited data and explanation provided by Virginia Power, there appears to be a major error built into the calculations through the use of loss factors calculated under the assumption of operation of each unit at its maximum VAr output rating. Accordingly, NCEMC argues that in actuality, each unit is not at its rated power factor and more reasonably the unit would be expected to operate over a power factor range in response to the reactive needs of the system each hour, which includes both production and consumption of reactive power. Furthermore, NCEMC contends that it would be more accurate to examine the hourly VAr production for each unit over a test period, as opposed to using a single operating state to represent the reactive allocation of heating losses. NCEMC argues that the normal or actual hourly VAr generation level should be used because the actual hourly VAr generation would be substantially lower than the maximum capability and, thus, the losses would be significantly less.

15. NCEMC also argues that Virginia Power has incorrectly assumed that the historical dispatch of resources prior to PJM integration will accurately reflect post-integration dispatch in a LMP-based market. NCEMC contends that it is not reasonable to use pre-integration dispatch hours to evaluate the operating characteristics of the Virginia Power resources that are now integrated with PJM.¹¹ NCEMC argues that Virginia Power has assumed a market forecast for LMP values at each generator node based on market assumptions for hub prices, expected congestion, and natural gas prices without providing the basis for such data. Again, NCEMC claims that Virginia Power has not provided sufficient detail to properly analyze its proposal.

16. NCEMC argues that Virginia Power has failed to justify the inclusion of NUG related costs into its proposed reactive power revenue requirement. NCEMC points out that Virginia Power admits that it does not have the actual cost data required to determine the reactive revenue requirements associated with the NUG units. NCEMC argues that determining the reactive power cost associated with NUG units based on their similarities to certain owned units cannot be considered just and reasonable, and requests that the Commission refer this matter to the Commission's hearing process.

17. Finally, NCEMC argues that Virginia Power has failed to accurately follow the *AEP* methodology. NCEMC provides that Virginia Power has grossly overestimated the reactive power related component of its generator step-up transformers (GSU) in the

¹¹ Virginia Power joined PJM in May 2005. It used the average of the 2002-2005 run hours for each unit to approximate the dispatch of generation in PJM.

calculation of the fixed cost associated with its own units and then prorated the NUG units. NCEMC argues that the Commission required AEP to include its GSUs as part of other production facilities.

18. Virginia Power, in its answer, acknowledges the discrepancy identified by ODEC in ODEC's protest concerning Virginia Power's heating loss calculations for the Clover units 1 and 2. Accordingly, Virginia Power agrees in its answer to make a compliance filing to reflect the correction.

19. Virginia Power answers NCEMC's argument that Virginia Power failed to accurately follow the *AEP* methodology by allocating GSU cost to reactive production, instead of other production plant, by explaining that its proposed allocation of the costs of GSUs is based on the real/reactive allocator consistent, with long-standing precedent established in the *AEP* order. Also, Virginia Power argues that the allocation of GSU costs to reactive power production is consistent with the function the GSUs perform. Virginia Power insists that the GSU, the generator and exciter all contribute directly to both reactive and real power production.

20. Also in its answer, Virginia Power argues that there is no merit to NCEMC's assertion that the heating loss calculation assumes that Virginia Power's units will operate at full output for the entire year. Virginia Power states that it does not assume a 100 percent capacity factor. Instead, Virginia Power claims that it measures the losses using a unit's full output factor multiplied by the LMP prices when the units runs, which according to Virginia Power correctly factors in the hours when each unit was not operating.

21. In response to NCEMC's assertion that Virginia Power should have used projected LMP dispatch data instead of historic data to determine the LMP price, Virginia Power states that it relied on the most recent three years of historical data because the data is accurate and reliable for most of its units, and because the three year average produces smooth results that are not as influenced by anomalous conditions. The data includes eight months of operation of the units after integration into PJM.

22. NCEMC filed an answer to Virginia Power's answer in which NCEMC reiterated its contention that Virginia Power used erroneous and/or unsupported assumptions in its calculation of its proposed revenue requirement.

Discussion

Procedural Matters

23. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2005), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding. Rule 213(a) (2) of the Commission's

Rules of Practice and Procedure, 18 C.F.R. § 385.213(a) (2) (2005), prohibits an answer to a protest unless otherwise ordered by the decisional authority. We will accept Virginia Power's and NCEMC's answers because the answers provide information that assisted us in our decision-making process.

Commission Review

24. As discussed below, we are accepting Virginia Power proposed rate schedule for reactive power, suspending it for five months, to become effective September 1, 2006, subject to refund, and establishing hearing and settlement judge procedures.

25. Virginia Power proposes using cost data of similar units to determine the reactive revenue requirements associated with its purchases from NUG units. In *WPS Westwood*,¹² the Commission determined that if a merchant generator did not have actual cost data and support readily available, it was appropriate under these circumstances to rely upon the cost data of a similar proxy unit. In order for Virginia Power to substitute comparable proxy unit data for these NUG units, we will require Virginia Power in the hearing ordered below, to demonstrate that: 1) reliable cost data for the NUG units is unavailable; and 2) the units chosen by Virginia Power are a good proxy for the NUG units.

26. We cannot fully assess on the record before us NCEMC's assertion that Virginia Power failed to accurately follow the *AEP* methodology when it failed to include its GSU as part of other production facilities. Therefore, we find that under these circumstances it is appropriate to include this matter in the hearing procedure established by this order.

27. We set for hearing the issue raised by NCEMC as to whether Virginia Power has overstated the amount and value of heating losses. Virginia Power's methodology for calculating heating losses assumes that Virginia Power's units are operating at their maximum rated output. In fact, heating losses attributed to power production (reactive or otherwise) increase exponentially as the amount of generation increased. Therefore, a plant operating at full output will have roughly four times the heating losses as that same plant operating at half of its output. Thus, we have a question whether Virginia Power's calculation of heating losses based on the use of maximum possible generation significantly overstates its actual heating losses. The same problem may be contained in Virginia Power's calculation of generator related heating losses presented in its calculation of transformer related heating losses. Virginia Power also relies not on actual data or averages, but rather on the maximum possible heating losses. We, therefore, set the issue of heating losses for hearing.

¹² *WPS Westwood* at P 15.

28. Also, Virginia Power has not provided sufficient data to properly analyze use of a market forecasts for LMP values used in the calculation of heating losses. We direct Virginia Power to provide this data as part of the hearing process ordered below.

29. In addition, NCEMC has raised questions about the propriety of using historical unit dispatch to reflect dispatch in an LMP based system, and whether Virginia Power has provided sufficient data to justify its LMP market forecasts. These issues should be addressed at the hearing and Virginia Power is directed at the hearing to provide additional data to support its LMP market forecasts.

30. Virginia Power's acknowledgement and commitment to correct in a compliance filing its error in calculation of the heating losses component for the Clover units 1 and 2 resolves ODEC's concerns in its protest. Virginia Power is directed to make a compliance filing within thirty (30) days of the issuance of this order showing its calculation of the heating loss component of the revenue requirement for the Clover units 1 and 2.

31. Virginia Power's proposed rate schedule raises issues of material fact that cannot be resolved on the record before us, and are more appropriately addressed in the hearing and settlement judge procedures ordered below. Our preliminary analysis indicates that the proposed rate schedule has not been shown to be just and reasonable, and may be unjust, unreasonable, unduly discriminatory or preferential, or otherwise unlawful. We, therefore, accept Virginia Power's proposed rate schedule for filing and, following *West Texas Utilities Company*,¹³ we will suspend it for a five month period, make it effective September 1, 2006, subject to refund, and set it for hearing and settlement judge procedures. The issues to be addressed should include the issues discussed above, as well other issues relevant to the filing.

32. While we are setting the matters discussed herein for a trial-type evidentiary hearing, we encourage the parties to make every effort to settle their disputes before hearing procedures are commenced. To aid the parties in their settlement efforts, we will hold the hearing in abeyance and direct settlement judge procedures pursuant to Rule 603 of the Commission's Rules of Practice and Procedure.¹⁴ If the parties choose, they may, by mutual agreement, request a specific judge as the settlement judge in this proceeding;

¹³ 18 FERC ¶ 61,189 (1982). In *West Texas Utilities Company* the Commission explained that where a proposed rate schedule may be substantially excessive, we will impose a five month suspension.

¹⁴ 18 C.F.R. § 385.603 (2005).

otherwise, the Chief Judge will select a judge for this purpose.¹⁵ The settlement judge shall report to the Chief Judge concerning the status of settlement discussions. Based on this report, the Chief Judge shall provide the parties with additional time to continue their settlement discussions or he may initiate a hearing by assigning the case to a presiding judge.

The Commission orders:

(A) The proposed rate schedule is hereby accepted and suspended for a five month period, subject to refund, as discussed in the body of this order.

(B) Virginia Power is hereby directed to make a compliance filing within thirty (30) days of the issuance of this order showing its calculation of the heating loss component of the revenue requirement for the Clover units 1 and 2.

(C) Pursuant to the authority contained in and subject to the jurisdiction conferred upon the Federal Energy Regulatory Commission by section 402(a) of the Department of Energy Organization Act and the Federal Power Act, particularly sections 205 and 206 thereof, and pursuant to the Commission's Rules of Practice and Procedure and regulations under the Federal Power Act (18 C.F.R. Chapter I), a public hearing shall be held concerning the justness and reasonableness of proposed rates. As discussed in the body of this order, the hearing will be held in abeyance to give the parties time to conduct settlement judge negotiations.

(D) Pursuant to Rule 603 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.603 (2005), the Chief Administrative Law Judge is hereby authorized to appoint a settlement judge in this proceeding within seven (7) days of the date of this order. Such settlement judge shall have all powers and duties enumerated in Rule 603 and shall convene a settlement conference as soon as practicable after the Chief Judge designates the settlement judge. If the parties decide to request a specific judge, they must make their request to the Chief Judge by telephone within five (5) days of the date of this order.

(E) Within sixty (60) days of the date of this order, the settlement judge shall file a report with the Commission and the Chief Judge on the status of the settlement discussions. Based on this report, the Chief Judge shall provide the parties with

¹⁵ If the parties decide to request a specific judge, they must make their joint request to the chief Judge in writing or by telephone a (202) 502-8500 within five days of this order. FERC's website contains a listing of the Commission's judges and a summary of their background and experience (www.FERC.gov –click on Office of Administrative Law Judges).

additional time to continue their settlement discussions, if appropriate, or assign this case to a presiding judge for a trial-type evidentiary hearing, if appropriate. If settlement discussions continue, the settlement judge shall file a report at least every sixty (60) days thereafter, informing the Commission and the Chief Judge of the parties' progress toward settlement.

(F) If the settlement judge procedures fail and a trial-type evidentiary hearing is to be held, a presiding judge, to be designated by the Chief Judge, shall convene a conference in this proceeding to be held within approximately fifteen (15) days of the date the Chief Judge designates the presiding judge, in a hearing room of the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426. Such conference shall be held for the purpose of establishing a procedural schedule. The presiding judge is authorized to establish procedural dates and to rule on all motions (except motions to dismiss), as provided in the Commission's Rules of Practice and Procedure.

By the Commission.

(S E A L)

Magalie R. Salas,
Secretary.