

143 FERC ¶ 61,045  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Jon Wellinghoff, Chairman;  
Philip D. Moeller, John R. Norris,  
Cheryl A. LaFleur, and Tony Clark.

North American Electric Reliability Corporation

Docket No. RD13-2-000

ORDER APPROVING RELIABILITY STANDARD

(Issued April 16, 2013)

1. On November 21, 2012, the North American Electric Reliability Corporation (NERC) submitted a petition requesting approval of a revision to the Voltage and Reactive (VAR) Reliability Standard VAR-002-2b – Generator Operation for Maintaining Network Voltage Schedules, the associated Violation Severity Levels (VSL) and Violation Risk Factors (VRF), and an implementation plan for VAR-002-2b. The revised Reliability Standard VAR-002-2b ensures that generators provide reactive and voltage control necessary to ensure voltage levels, reactive flows, and reactive resources are maintained within applicable facility ratings to protect equipment and the reliable operation of the interconnection. As discussed in this order, we approve the revised Reliability Standard, VRFs and VSLs, and the implementation plan.

**I. Background**

**A. EPAct 2005 and Mandatory Reliability Standards**

2. Section 215 of the Federal Power Act (FPA) requires a Commission-certified Electric Reliability Organization (ERO) to develop mandatory and enforceable Reliability Standards, which provide for the reliable operation of the Bulk-Power System, subject to Commission review and approval.<sup>1</sup> Section 215(d)(2) of the FPA states that the Commission may approve, by rule or order, a proposed Reliability Standard or modification to a Reliability Standard if it determines that the Reliability Standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest. Once

---

<sup>1</sup> 16 U.S.C. § 824o(d)(2) (2006).

approved, the Reliability Standards may be enforced by the ERO, subject to Commission oversight, or by the Commission independently.<sup>2</sup>

3. On February 3, 2006, the Commission issued Order No. 672 to implement the requirements of section 215 of the FPA governing electric reliability.<sup>3</sup> In July 2006, the Commission certified NERC as the ERO.<sup>4</sup>

4. On March 16, 2007, the Commission issued Order No. 693,<sup>5</sup> approving 83 of the 107 Reliability Standards and associated definitions filed by NERC, including Reliability Standard VAR-002-1.<sup>6</sup> On May 13, 2009, VAR-002-1.1a was accepted pursuant to an unpublished letter, and on September 16, 2010, the Commission accepted VAR-002-1.1b.<sup>7</sup>

5. The stated purpose of Reliability Standard VAR-002-1 is to ensure that “generators provide reactive and voltage control necessary to ensure voltage levels, reactive flows, and reactive resources are maintained within applicable Facility Ratings to protect equipment and the reliable operation of the Interconnection.”

#### **B. NERC Petition**

6. On November 21, 2012, NERC submitted a petition requesting approval of Revised Voltage and Reactive (VAR) Reliability Standard VAR-002-2b – Generator Operation for Maintaining Network Voltage Schedules, the associated VSLs and VRFs,

---

<sup>2</sup> *Id.* § 824o(e)(3).

<sup>3</sup> *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, FERC Stats. & Regs. ¶ 31,204 (2006), *order on reh’g*, Order No. 672-A, FERC Stats. & Regs. ¶ 31,212 (2006).

<sup>4</sup> *N.Am.Elec. Reliability Corp.*, 116 FERC ¶ 61,062, *order on reh’g and compliance*, 117 FERC ¶ 61,126 (2006), *order on compliance*, 118 FERC ¶ 61,030, *order on clarification and reh’g*, 119 FERC ¶ 61,046 (2007), *aff’d sub nom. Alcoa Inc. v. FERC*, 564 F.3d 1342 (D.C. Cir. 2009).

<sup>5</sup> *Mandatory Reliability Standards for the Bulk-Power System*, Order No. 693, FERC Stats. & Regs. ¶ 31,242, *order on reh’g*, Order No. 693-A, 120 FERC ¶ 61,053 (2007).

<sup>6</sup> Order No. 693, FERC Stats. & Regs. ¶ 31,242 at PP 1881-1884.

<sup>7</sup> *N.Am.Elec. Reliability Corp.*, 132 FERC ¶ 61,220 (2010).

and an implementation plan for VAR-002-2b. NERC also requests the retirement of Reliability Standard VAR-002-1.1b prior to the effective date of VAR-002-2b. NERC states that the proposed revision to the Reliability Standard represents an improvement over the currently effective standard because it clarifies in Requirement R1 that a communication between a generator operator and a transmission operator is not necessary during start-up and or shutdown of a generator.

7. According to NERC, the revision to the Reliability Standard set forth in VAR-002-2.2b was prompted by a request for interpretation as to whether a generator operator and a transmission operator are required to maintain communication regarding the status of the automatic voltage regulator (automatic versus manual) during start-up and/or shutdown of a generator, when the unit is not stable and is not counted on for real reactive power by the balancing authority and transmission operator. NERC states that it determined that its rapid revision process, rather than its interpretation process, was the best way to resolve the issue presented in the interpretation request.

8. NERC states that it revised Requirement R1 to clarify that communication between a generator operator and a transmission operator is not necessary during start-up and/or shutdown of generator. NERC notes that, during start-up and shutdown of a generator, the generator operator already communicates with the transmission operator that the generator operator is starting up or shutting down the unit. NERC explains that requiring a generator operator to communicate that the automatic voltage regulator is in manual rather than automatic operation during start-up/shutdown is a redundant task and a distraction at a time when the unit is unstable. NERC also explains that, due to instabilities associated with the changes in the generator field during these times, it is more reliable to have a generator operator control the generator than to utilize the automatic voltage regulator. NERC states that it added two footnotes to define what is considered a start-up and a shutdown. NERC also explains that the proposed revisions to Reliability Standard VAR-002-2, Requirement R1 will ensure that the VAR-002-2b is interpreted and applied in the same manner across regions.<sup>8</sup>

9. NERC further states that, based on stakeholder comments received during the standard development process, it revised Requirement R2 to change the word “output” to “schedule” to reflect the existing link between VAR-001-2, Requirement R4 and VAR-002-2b, Requirement R2. NERC states that it also revised the VSLs for Requirement R2. NERC proposes to revise the VSL for Requirement R2 “to utilize a time-based methodology in lieu of the current percentage-based methodology which evaluates how

---

<sup>8</sup> NERC Petition at 11.

far off from the directed voltage or reactive power output that the generator was operated.”<sup>9</sup>

10. As modified, Requirements R1 and R2 provide (footnotes omitted):

**R1.** The Generator Operator shall operate each generator connected to the interconnected transmission system in the automatic voltage control mode (automatic voltage regulator in service and controlling voltage) unless the Generator Operator has notified the Transmission Operator of one of the following: ...

- That the generator is being operated in start-up or shutdown mode pursuant to a Real-time communication or a procedure that was previously provided to the Transmission Operator; or
- That the generator is not being operated in the automatic voltage control mode for a reason other than start-up or shutdown.

**R2.** Unless exempted by the Transmission Operator, each Generator Operator shall maintain the generator voltage or Reactive Power schedule (within applicable Facility Ratings) as directed by the Transmission Operator....

11. The revised VSL for Requirement R2 provides that:

When directed by the Transmission Operator to maintain the generator voltage or reactive power schedule the Generator Operator failed to meet the directed values for up to and including 45 minutes.

12. NERC states that, since generator terminal voltage often fluctuates, even in automatic voltage control mode, a time methodology for the VSLs was incorporated based on how long a generator is operated outside the voltage or reactive power schedule.<sup>10</sup> NERC notes that it also made ministerial changes to Requirements R3 through R5 but those Requirements are otherwise unaltered since the previous Commission approval.

13. The NERC Board of Trustees adopted the revised Reliability Standard on August 16, 2012. NERC requests that Reliability Standard VAR-002-2b be effective on the first day of the first calendar quarter following Commission approval.

---

<sup>9</sup> NERC Petition at 3.

<sup>10</sup> See NERC Petition at 12.

## II. Notices of Filings and Responsive Pleadings

14. Notice of the NERC petition was published in the *Federal Register*, 77 Fed. Reg. 74655 (2012), with comments, protests and motions to intervene due on or before January 8, 2013. American Municipal Power, Inc. filed a motion to intervene and the PPL Companies filed a motion to intervene and comments requesting that the Commission reject the VAR-002-2b Requirement R2 VSLs and direct NERC to modify the VSL language.<sup>11</sup> NERC filed reply comments to PPL Companies' comments.

15. PPL Companies state that the VSL corresponding to Requirement R2 of VAR-002-2b indicates that any deviation by a generator operator from its voltage schedule violates Requirement R2, no matter how brief the deviation. PPL Companies argue that the VSL assignment is an unrealistic compliance expectation and exposes the generator operator to penalties for non-compliance that bear little relation to the intent of the Reliability Standard's requirements. PPL Companies further argue that the text in the lower VSL of VAR-002-2b Requirement R2 would create a potential compliance condition if a generator operator is unable to maintain its voltage schedule, no matter how brief the interval and that generator operators should not face a potential violation situation based on a brief excursion.<sup>12</sup>

16. PPL Companies note that a plant and personnel need some time to respond to any deviation in system voltage. They further state that, time is needed for plant equipment to provide feedback to the operator and the operator to respond and correct the voltage, considering the narrow voltage bands that transmission operators have imposed on many generator operators, and recognizing that system fluctuations/disturbances do occur. PPL Companies argue that failing to meet the directed values for any period of time up to 45 minutes will trigger the application of a VSL and that a voltage schedule excursion is likely to make a violation possible despite how diligently and quickly it is remedied. Finally, PPL Companies maintain that an appropriate criteria would allow a registered entity a reasonable period of time of up to 30 minutes to correct an excursion and urge the Commission to direct NERC to revise the text of the VSL for Requirement R2 and to confirm that voltage excursions addressed promptly should not be considered as triggering a VSL violation.

---

<sup>11</sup> The PPL Companies are Louisville Gas and Electric Company and Kentucky Utilities Company; Lower Mount Bethel Energy, LLC; PPL Brunner Island, LLC; PPL Electric Utilities Corporation; PPL EnergyPlus, LLC; PPL Holtwood, LLC; PPL Ironwood, LLC; PPL Martins Creek, LLC; PPL Montana, LLC; PPL Montour, LLC; and PPL Susquehanna, LLC.

<sup>12</sup> PPL Comments at 3.

17. In reply comments, NERC argues that the Commission should reject PPL Companies' proposed modifications. NERC explains that PPL Companies' suggestion was considered and rejected during the standard development process and is inconsistent with Commission guidelines for developing VSLs.<sup>13</sup> NERC states that, in responding to PPL Companies' comments, the standards drafting team concluded that the VSLs must apply after a violation has been identified and therefore the "floor" must be at zero and not 30 minutes as suggested by the commenters.<sup>14</sup> NERC further states that the language proposed by PPL Companies is inconsistent with the language of the corresponding Requirement R2, which does not allow for any deviation from the voltage or reactive power schedule as directed by the transmission operator. NERC emphasizes that the Commission has noted that a VSL is a "post-violation measurement of the degree...to which a requirement was violated," and to effectuate a 30-minute window, as proposed by PPL Companies, the language of Requirement R2 would have to be modified.<sup>15</sup> Further, NERC argues that the proposed modification would allow for a deviation in system voltage for up to 30 minutes to allow for time to correct an excursion and that such deviations from a voltage and reactive schedule is inappropriate because a deviation even up to a few minutes can negatively impact reliability.

18. Finally, NERC maintains that significant voltage deviations for extended periods of time may lead to voltage collapse and can increase the potential for a wide-area impact to the reliability of the Bulk-Power System, and as such PPL Companies' proposed modification to the VSL language should be rejected.

---

<sup>13</sup> NERC Petition at 5. The Commission guidelines for evaluating the validity of VSL assignments were promulgated in *N.Am.Elec. Reliability Corp.*, 123 FERC ¶ 61,284, at P 17 (2008). The guidelines are: (1) Violation Severity Level assignments should not have the unintended consequence of lowering the current level of compliance; (2) Violation Severity Level assignments should ensure uniformity and consistency among all approved Reliability Standards in the determination of penalties; (3) Violation Severity Level assignments should be consistent with the corresponding requirement; and (4) Violation Severity Level assignments should be based on a single violation, not on a cumulative number of violations.

<sup>14</sup> NERC Reply Comments at 5.

<sup>15</sup> *Id.* (citing *N.Am.Elec. Reliability Corp.*, 123 FERC ¶ 61,284 at P 3).

### **III. Discussion**

#### **A. Procedural Matters**

19. Pursuant to Rule 214 of the Commissions' Rules of Practice and Procedure, 18 C.F.R. § 385.214, the motions to intervene filed by American Municipal Power, Inc. and PPL Companies serve to make them parties to this proceeding. Rule 213(a)(2) prohibits an answer to a protest or to answer unless otherwise ordered by the decisional authority.<sup>16</sup> We will treat NERC's reply comments as an answer and accept the answer filed by NERC because it has provided information that assisted us in our decision-making process.

#### **B. Commission Determination**

20. Pursuant to section 215(d) of the Federal Power Act, we approve Reliability Standard VAR-002-2b and the associated VSLs and VRFs. We find that the proposed Reliability Standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest. We also approve the proposed implementation plan for Reliability Standard VAR-002-2b, which would retire Reliability Standards VAR-002-1.1b when VAR-002-2b becomes effective.

21. We find that the revisions to Requirement R1 of the Reliability Standard represent an improvement by allowing the generator operator to focus on controlling a unit during start-up or shutdown. We also find that it is reasonable that, because a generator operator already notifies a transmission operator about a start-up or shutdown, additional communication would impose a redundant task when the generator operator needs to focus on controlling the unit and ensuring reliability. We agree with NERC's explanation that it is preferable for the generator operator to manually control the generating unit during startup and shutdown rather than utilize the automatic voltage regulator. In addition, we find that the inclusion of what constitutes a start-up and shutdown in the context of the Reliability Standard provides additional clarity in the requirement and consistency across the regions.

22. We accept the revised VSLs proposed by NERC. We conclude that the modifications to the VSLs suggested by PPL Companies are not supported by analysis. The PPL Companies have not demonstrated that generators would bear an undue compliance burden for little reliability benefit. Based on the record before us, we are not persuaded that the VSL assignment in VAR-002-2b Requirement R2 is an unrealistic compliance expectation because as NERC notes, a VSL is a "post-violation measurement of the degree ...to which a requirement was violated." The language of Requirement R2

---

<sup>16</sup> 18 C.F.R. § 385.213(a)(2) (2012).

provides that any deviation is a violation, and a VSL providing a 30-minute window would be inconsistent with the Commission guidelines that assignments should be consistent with the corresponding requirement. We are not persuaded by PPL Companies' assertion that the text in the VSL designated for VAR-002-2b, Requirement R2, is unreasonable because the language would create a potential compliance violation if a generator operator is unable to maintain its voltage schedule even for brief intervals. Rather, we agree with NERC that PPL's suggested modification is inappropriate because the proposed revision is inconsistent with the language of the corresponding Requirement R2. Moreover, as explained by NERC, even a short deviation can negatively impact reliability.<sup>17</sup> As NERC indicates, significant voltage deviations for extended periods of time may lead to voltage collapse and can increase the potential for a wide-area impact to the reliability of the Bulk-Power System.<sup>18</sup> We also find that NERC's proposed VRFs and VSLs for Reliability Standard VAR-002-2b are consistent with the Commission's established guidelines for review of proposed VRFs and VSLs.<sup>19</sup> Accordingly, we accept NERC's proposed VRFs and VSLs.

23. We also accept NERC's proposed implementation date. Thus, Reliability Standard VAR-002-2b will be effective on the first day of the first calendar quarter following the date of this order.

#### **IV. Information Collection**

24. The Office of Management and Budget (OMB) regulations require approval of certain information collection requirements imposed by agency actions.<sup>20</sup> Upon approval of a collection of information, OMB will assign an OMB control number and expiration date. Respondents subject to the filing requirement of this order will not be penalized for failing to respond to these collections of information unless the collections of information display a valid OMB control number. The Paperwork Reduction Act<sup>21</sup> requires each federal agency to seek and obtain OMB approval before undertaking a collection of

---

<sup>17</sup> NERC Reply Comments at 5.

<sup>18</sup> *Id.*

<sup>19</sup> *See supra* n.13, Guideline No. 3, *N.Am.Elec. Reliability Corp.*, 123 FERC ¶ 61,284, at P 17 (2008).

<sup>20</sup> 5 C.F.R. § 1320.10 (2012).

<sup>21</sup> 44 U.S.C. § 3501-20.

information directed to ten or more persons, or continuing a collection for which OMB approval and validity of the control number are about to expire.<sup>22</sup>

25. The Commission approved the Reliability Standard VAR-002-1 in Order No. 693. The Regional Reliability Standard VAR-002-2b information collection requirements do not materially differ from those approved in Order No. 693 and successor Reliability Standards. It is current industry practice to have a generator's Automatic Voltage Regulator in the manual mode and this clarifies and reflects current NERC compliance obligations. This order approves the clarification of the previously approved Reliability Standard, which was developed by NERC as the ERO. The clarification relates to an existing Reliability Standard, and the Commission does not expect it to affect entities' current reporting burden.<sup>23</sup> Accordingly, we will submit this order to OMB for informational purposes only.

The Commission orders:

The Commission hereby grants NERC's petition and approves Reliability Standard VAR-002-2b, the assigned Violation Severity Levels and Violation Risk Factors, and NERC's implementation plan, as discussed in this order.

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.

---

<sup>22</sup> 44 U.S.C. § 3502(3)(A)(i), 44 U.S.C. § 3507(a)(3).

<sup>23</sup> See Order No. 693, FERC Stats. & Regs. ¶ 31,242 at P 1884.