

131 FERC ¶ 61,254  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

18 C.F.R. Part 40

Docket No. RM09-25-000

System Personnel Training Reliability Standards

(Issued June 17, 2010)

AGENCY: Federal Energy Regulatory Commission.

ACTION: Notice of Proposed Rulemaking.

SUMMARY: Pursuant to section 215 of the Federal Power Act, the Federal Energy Regulatory Commission (Commission) proposes to approve Reliability Standards PER-005-1 (System Personnel Training) and PER-004-2 (Reliability Coordination – Staffing) submitted to the Commission for approval by the North American Electric Reliability Corporation, the Electric Reliability Organization (ERO) certified by the Commission. In addition, pursuant to section 215(d)(5) of the FPA, and section 39.5(f) of the Commission's regulations the Commission proposes to direct the ERO to develop modifications to proposed Reliability Standard PER-005-1 to address certain issues identified by the Commission. The proposed Reliability Standards require reliability coordinators, balancing authorities, and transmission operators to establish a training program for their system operators, verify each of their system operator's capability to perform tasks, and provide emergency operations training to every system operator.

DATES: Comments are due [insert date that is 60 days after publication in the

**FEDERAL REGISTER].**

ADDRESSES: Interested persons may submit comments, identified by Docket

No. RM09-25-000, by any of the following methods:

- Agency Web Site: <http://www.ferc.gov>. Documents created electronically using word processing software should be filed in native applications or print-to-PDF format and not in a scanned format.
- Mail/Hand Delivery. Commenters unable to file comments electronically must mail or hand deliver an original and 14 copies of their comments to: Federal Energy Regulatory Commission, Secretary of the Commission, 888 First Street, NE, Washington, D.C. 20426.

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SUPPLEMENTARY INFORMATION:

131 FERC ¶ 61,254  
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System Personnel Training Reliability Standards

Docket No. RM09-25-000

NOTICE OF PROPOSED RULEMAKING

(Issued June 17, 2010)

1. Pursuant to section 215 of the Federal Power Act (FPA),<sup>1</sup> the Commission proposes to approve Reliability Standards PER-005-1 (System Personnel Training) and PER-004-2 (Reliability Coordination – Staffing), developed by the North American Electric Reliability Corporation (NERC), the Commission-certified Electric Reliability Organization (ERO). The Commission proposes to direct the ERO to develop modifications to proposed Reliability Standard PER-005-1 to address certain issues identified by the Commission. The proposed Reliability Standards require reliability coordinators, balancing authorities, and transmission operators to establish a training program for their system operators, verify each of their system operator’s capability to perform tasks, and provide emergency operations training to each system operator. The Commission also proposes to approve the retirement of the currently effective Reliability Standards PER-002-0 (Operating Personnel Training) and PER-004-1 (Reliability Coordination), which are superseded by the proposed Reliability Standards PER-005-1 and PER-004-2.

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<sup>1</sup> 16 U.S.C. § 824o (2006).

## I. Background

### A. System Personnel Training and the August 14, 2003 Blackout

2. On August 14, 2003, a blackout that began in Ohio affected significant portions of the Midwest and Northeast United States, and Ontario, Canada (August 14 Blackout).

This blackout affected an area with an estimated 50 million people and 61,800 megawatts of electric load.<sup>2</sup> The subsequent investigation and report completed by the U.S.-Canada Power System Outage Task Force (Task Force) reviewed several previous major North American outages and concluded that “inadequate training of operating personnel” was among the factors that the August 14 Blackout had in common with previous outages.<sup>3</sup>

3. Specifically, the Task Force summarized that previous outage analyses recommended “enhanced procedures and training for operating personnel.”<sup>4</sup> This included:

- Thorough programs and schedules for operator training and retraining should be vigorously administered.
- A full-scale simulator should be made available to provide operating personnel with “hands-on” experience in dealing with possible emergency or other system conditions.

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<sup>2</sup> *U.S.-Canada Power System Outage Task Force, Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations*, (April 2004) (Blackout Report), available at <http://www.ferc.gov/industries/electric/indus-act/blackout.asp>.

<sup>3</sup> See Blackout Report at 107.

<sup>4</sup> *Id.* at 110.

- Procedures and training programs for system operators should include anticipation, recognition, and definition of emergency situations.
- Written procedures and training materials should include criteria that system operators can use to recognize signs of system stress and mitigating measures to be taken before conditions degrade into emergencies....<sup>5</sup>

4. The Blackout Report stated that some reliability coordinators and control area operators, i.e., balancing authorities, did not receive adequate training in recognizing and responding to system emergencies and this “training deficiency contributed to the lack of situational awareness and failure to declare an emergency on August 14 while operator intervention was still possible (before events began to occur at a speed beyond human control).”<sup>6</sup> The Blackout Report recommended “[i]mprov[ing] near-term and long-term training and certification requirements for operators, reliability coordinators, and operator support staff.”<sup>7</sup> The Task Force suggested that NERC require training for planning staff at control areas and reliability coordinators concerning power system characteristics and load, VAR, and voltage limits to enable them to develop rules for operating staff to follow.<sup>8</sup> In addition, the Task Force urged NERC to “require control areas and reliability

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<sup>5</sup> *Id.*

<sup>6</sup> *Id.* at 157.

<sup>7</sup> *Id.* at 156, Task Force Recommendation 19.

<sup>8</sup> *Id.* at 156-157, Task Force Recommendation 19.A.

coordinators to train grid operators, IT support personnel, and their supervisors to recognize and respond to abnormal automation system activity.”<sup>9</sup>

**B. Section 215 of the FPA and Mandatory Reliability Standards**

**1. Section 215 of the FPA**

5. Section 215 of the FPA requires a Commission-certified ERO to develop mandatory and enforceable Reliability Standards, which are subject to Commission review and approval. If approved, the Reliability Standards are enforced by the ERO, subject to Commission oversight, or by the Commission independently.

6. In July 2006, the Commission certified NERC as the ERO.<sup>10</sup> Concurrent with its 2006 ERO Application, NERC submitted to the Commission a petition seeking approval of 107 proposed Reliability Standards, including four Personnel Performance, Training and Qualifications (PER) Reliability Standards. The PER group of Reliability Standards is intended to ensure the safe and reliable operation of the interconnected grid through the retention of suitably trained and qualified personnel in positions that can impact the reliable operation of the Bulk-Power System.

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<sup>9</sup> *Id.* at 157, Task Force Recommendation 19.B.

<sup>10</sup> *North American Electric Reliability Corp.*, 116 FERC ¶ 61,062 (ERO Certification Order), *order on reh'g & compliance*, 117 FERC ¶ 61,126 (2006), *aff'd sub nom.*, *Alcoa, Inc. v. FERC*, 564 F.3d 1342 (D.C. Cir. 2009).

7. On March 16, 2007, the Commission issued Order No. 693, approving 83 of the 107 Reliability Standards filed by NERC,<sup>11</sup> including the four PER Reliability Standards: PER-001-0, PER-002-0, PER-003-0, and PER-004-1.<sup>12</sup> In addition, under section 215(d)(5) of the FPA, the Commission directed NERC to develop modifications to the PER Reliability Standards to address certain issues identified by the Commission. At issue in the immediate proceeding are two new PER standards that would replace the currently effective Reliability Standards PER-002-0 (Operating Personnel Training) and PER-004-1 (Reliability Coordination – Staffing).

**2. Reliability Standard PER-002-0**

8. Currently effective Reliability Standard PER-002-0 requires each transmission operator and balancing authority to be staffed with adequately trained operating personnel.<sup>13</sup> Specifically, PER-002-0: (1) directs each transmission operator and balancing authority to have a training program for all operating personnel who occupy positions that either have primary responsibility, directly or through communication with others, for the real-time operation of the Bulk-Power System or who are directly responsible for complying with the NERC Reliability Standards; (2) lists criteria that

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<sup>11</sup> *Mandatory Reliability Standards for the Bulk-Power System*, Order No. 693, *Federal Register* 72 Fed. Reg. 16,416 (Apr. 4, 2007), FERC Stats. & Regs. ¶ 31,242, *order on reh'g*, Order No. 693-A, 120 FERC ¶ 61,053 (2007).

<sup>12</sup> Order No. 693 at P 1330-1417.

<sup>13</sup> *Id.* P 1331.

must be met by the training program; and (3) requires that operating personnel receive at least five days of training in emergency operations each year using realistic simulations.<sup>14</sup>

9. In Order No. 693, the Commission directed NERC, pursuant to section 215(d)(5) of the FPA, to develop the following modifications to PER-002-0: (1) identify the expectations of the training for each job function; (2) develop training programs tailored to each job function with consideration of the individual training needs of the personnel; (3) expand the applicability of the training requirements to include: reliability coordinators, local transmission control center operator personnel, generator operators centrally-located at a generation control center with a direct impact on the reliable operation of the Bulk-Power System, and operations planning and operations support staff who carry out outage planning and assessments and those who develop system operating limits (SOLs), interconnection reliability operating limits (IROLs), or operating nomograms for real-time operations; (4) use a Systematic Approach to Training methodology for developing new training programs; and (5) include the use of simulators by reliability coordinators, transmission operators, and balancing authorities that have operational control over a significant portion of load and generation.<sup>15</sup>

10. In Order No. 693, the Commission also directed the ERO to determine whether it is feasible to develop meaningful performance metrics associated with the effectiveness

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<sup>14</sup> Reliability Standard PER-002-0.

<sup>15</sup> Order No. 693 at P 1393.

of a training program required by currently effective Reliability Standard PER-002-0 and to consider whether personnel that support Energy Management System (EMS) applications should be included in mandatory training pursuant to the Reliability Standard.<sup>16</sup>

### 3. **Reliability Standard PER-004-1**

11. In Order No. 693, the Commission also approved Reliability Standard PER-004-1.<sup>17</sup> This Reliability Standard requires each reliability coordinator to be staffed with adequately trained, NERC-certified operators, 24 hours a day, seven days a week. Further, PER-004-1 requires reliability coordinator operating personnel to have a comprehensive understanding of the area of the Bulk-Power System for which they are responsible.

12. Under section 215(d)(5) of the FPA, the Commission directed NERC to develop modifications to currently effective Reliability Standard PER-004-1 through the Reliability Standards development process to: (1) include formal training requirements for reliability coordinators similar to those addressed under the personnel training Reliability Standard PER-002-0 and (2) include requirements pertaining to personnel credentials for reliability coordinators similar to those in PER-003-0.<sup>18</sup>

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<sup>16</sup> *Id.* P 1394.

<sup>17</sup> *Id.* P 1417.

<sup>18</sup> *Id.* P 1415, 1417. Currently effective Reliability Standard PER-003-0 requires transmission operators, balancing authorities and reliability coordinators to have NERC-

**II. NERC Petition for Proposed Reliability Standards PER-005-1 and PER-004-2**

13. In a September 30, 2009 filing (NERC Petition),<sup>19</sup> NERC requests Commission approval of proposed Reliability Standards PER-005-1 (System Personnel Training) and PER-004-2 (Reliability Coordination – Staffing), which were developed in response to the Commission’s directives in Order No. 693 regarding currently effective Reliability Standard PER-002-0.<sup>20</sup> NERC seeks to concurrently retire currently effective Reliability Standards PER-002-0 and PER-004-1 upon the effective date PER-004-2 and PER-005-1.

14. NERC states that the proposed Reliability Standards “are a significant improvement over the existing Reliability Standards” and recommends Commission approval of the standards as a “significant step in strengthening the quality of operator training programs as necessary for the reliability of the [B]ulk-[P]ower [S]ystem.”<sup>21</sup>

**A. Reliability Standard PER-005-1**

15. Proposed Reliability Standard PER-005-1 has the stated purpose of ensuring that system operators performing real-time, reliability-related tasks on the North American

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certified staff for all operating positions that have a primary responsibility for real-time operations or are directly responsible for complying with the Reliability Standards. *Id.* at 1395.

<sup>19</sup> *North American Electric Reliability Corp.*, Sept. 30, 2009 Petition for Approval of Proposed Reliability Standards Regarding System Personnel Training (NERC Petition).

<sup>20</sup> NERC’s Petition addresses only the directives in Order No. 693 related to existing Reliability Standard PER-002-0, not the directives related to PER-004-1. *See* NERC Petition at 27.

<sup>21</sup> NERC Petition at 5.

bulk electric system are competent to perform those reliability-related tasks.<sup>22</sup> The proposed Reliability Standard applies to reliability coordinators, balancing authorities and transmission operators. Reliability Standard PER-005-1 contains three requirements, which NERC describes as follows:

- Requirement R1 mandates the use of a systematic approach to training for both new and existing training programs. The requirement further requires applicable entities to create a company-specific, reliability-related task list relevant to Bulk-Power System operation and to design and develop learning objectives and training materials based on the task list performed by its System Operators each calendar year. Finally, the requirement mandates the training be delivered and the training program be evaluated on at least an annual basis to assess its effectiveness.
- Requirement R2 requires the verification of a System Operator's ability to perform the tasks identified in Requirement R1. The requirement also mandates re-verification of a System Operator's ability to perform the tasks within a specified time period when program content is modified.
- Requirement R3 identifies the number of hours of emergency operations training (at least 32 hours) that a System Operator is required to obtain every twelve months. The requirement further identifies those entities required to use simulation technology such as a simulator, virtual technology, or other technology in their emergency operations training programs.<sup>23</sup>

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<sup>22</sup> Reliability Standard PER-005-1, Section A.3 (Purpose).

<sup>23</sup> NERC Petition at 8-9.

NERC states that PER-005-1 is a new Reliability Standard that supersedes all of currently effective Reliability Standard PER-002-0 and supersedes Requirements R2, R3, and R4 of currently effective Reliability Standard PER-004-1.

16. According to NERC, proposed Reliability Standard PER-005-1 “marks a significant milestone toward achieving FERC priorities as articulated in Order No. 693,” but acknowledges that it does not satisfy all of the directives set forth in Order No. 693.<sup>24</sup> Specifically, NERC recognizes that proposed Reliability Standard PER-005-1 does not establish training obligations for generator operators and various operations support personnel as required by Order No. 693, stating that “these will be addressed in a subsequent development effort as described in the Reliability Standards Development Plan: 2009-2011.”<sup>25</sup>

**B. Reliability Standard PER-004-2**

17. Proposed Reliability Standard PER-004-2 modifies PER-004-1 by deleting Requirements R2, R3, and R4. According to NERC, more detailed and less ambiguous requirements addressing the same issues set forth in currently effective Reliability Standard PER-004-1 Requirements R2, R3, and R4 are now included in proposed PER-005-1. Proposed Reliability Standard PER-004-2 simply carries forward, unchanged, the remaining requirements from currently effective PER-004-1, including the associated

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<sup>24</sup> *Id.* at 7.

<sup>25</sup> *Id.*

violation risk factor and violation severity level assignments. NERC states that Requirement R2 of currently effective PER-004-1, which requires reliability coordinator operating personnel to complete a minimum of five days per year of training and drills using realistic simulations of system emergencies, is now addressed in proposed Reliability Standards PER-005-1, Requirement R3. According to NERC, Requirements R3 and R4 of currently effective PER-004-1, which mandate reliability coordinator operating personnel to have an extensive understanding of its reliability coordinator area and other operators within that area, are now addressed in proposed Reliability Standard PER-005-1, Requirements R1 and R2.

### **III. Discussion**

18. We agree with NERC that the proposed Reliability Standards PER-005-1 and PER-004-2 comply with many of the requirements in Order No. 693 and represent an improvement in training requirements. Accordingly, pursuant to section 215(d)(2) of the FPA, the Commission proposes to approve Reliability Standards PER-005-1 and PER-004-2, as just, reasonable, not unduly discriminatory or preferential, and in the public interest. In addition, pursuant to section 215(d)(5) of the FPA, the Commission proposes to direct the ERO to develop modifications to proposed Reliability Standard PER-005-1 to address certain issues identified by the Commission.

19. It appears that the proposed Reliability Standards adequately address a number of the directed modifications set forth in Order No. 693 regarding the PER Reliability Standards. For example, it appears that proposed Reliability Standard PER-005-1 adequately addresses the following Order No. 693 directives: (1) identify the

expectations of the training for each job function; (2) develop training programs tailored to each job function with consideration of the individual training needs of the personnel; (3) expand the applicability section to include reliability coordinators; (4) incorporate a Systematic Approach to Training methodology in the development of training programs; and (5) incorporate simulator training into the standard.

20. Personnel training is important to ensuring the reliability of the Bulk-Power System, as recognized in Order No. 693 and the Blackout Report.<sup>26</sup> The ERO has proposed changes to the training standard on many issues, including: (1) the Systematic Approach to Training, (2) tailoring training for each job function, and (3) simulation training. In several of these areas, the Commission is seeking clarification from the ERO or industry comment on specific matters and proposes improvements that can be made to further enhance operator training. Further, we propose to direct the ERO to modify PER-005-1 to explicitly address training for local control center personnel, as required by Order No. 693. Each of these matters is discussed below.

21. The Commission also seeks comment on the feasibility of the proposed effective dates and retirement dates proposed by NERC. Additionally, the Commission proposes to defer review of the violation risk factor and violation severity level assignments for proposed Reliability Standards PER-005-1 and PER-004-2.

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<sup>26</sup> Blackout Report at 156.

22. Finally, as acknowledged by NERC, certain of the directives from Order No. 693 related to the currently effective Reliability Standard PER-002-0 are not addressed in proposed Reliability Standard PER-005-1. Thus, the Commission seeks comment on the timeframe for the ERO to modify PER-005-1 to fully respond to the Commission's directives in Order No. 693 regarding expanding the applicability of the training requirements.

**A. Systematic Approach to Training**

23. In Order No. 693, the Commission directed NERC to develop modifications to currently effective Reliability Standard PER-002-0 to use a Systematic Approach to Training methodology for developing new training programs.<sup>27</sup> A Systematic Approach to Training is a widely-accepted methodology that ensures training is efficiently and effectively conducted and is directly related to the needs of the position in question. To achieve training results, Systematic Approach to Training objectives include: management and administration of training and qualification programs; development and qualification of training staff; trainee entry-level requirements; determination of training program content; design and development of training programs; conduct of training; trainee examinations and evaluations; and training program evaluation.

24. NERC states that proposed Reliability Standard PER-005-1, Requirement R1 satisfies this directive as it requires each reliability coordinator, balancing authority, and

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<sup>27</sup> Order No. 693 at P 1382.

transmission operator to use a Systematic Approach to Training to establish company-specific, reliability-related tasks performed by its system operators. Specifically, Requirement R1 provides that “each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program. . . .”<sup>28</sup>

### **Commission Proposal**

25. Based on the Commission’s understanding of Systematic Approach to Training, we agree with NERC that proposed Reliability Standard PER-005-1, Requirement R1 meets the Commission’s directive to “develop a modification to PER-002-2 (or a new Reliability Standard) that uses the SAT methodology.”<sup>29</sup> Requirement R1 and the corresponding sub-requirements mandate that each reliability coordinator, balancing authority, and transmission operator use a Systematic Approach to Training to establish its training program. Thus, NERC appears to have complied with the Order No. 693 directive to adopt a Systematic Approach to Training.

26. However, the generic reference to Systematic Approach to Training contained in proposed PER-005-1, Requirement R1 raises the question whether certain Order No. 693 directives and whether certain specific training requirements that are explicitly set forth in the currently effective Reliability Standards PER-002-0 and PER-004-1, which are to

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<sup>28</sup> See NERC Petition at Exhibit A, PER-005-1, R1.

<sup>29</sup> See Order No. 693 at P 1380.

be retired, are fully and adequately captured under the Systematic Approach to Training umbrella. The Commission questions whether the following three, currently effective training requirements are incorporated in proposed Reliability Standard PER-005-1: (i) understanding of reliability coordinator area, (ii) continual training, and (iii) training staff identity and competency. As discussed in detail below, we seek comment on our understanding of the carryover of these three currently enforceable compliance obligations.

**1. Understanding of Reliability Coordinator Area**

27. Requirements R3 and R4 of currently effective PER-004-1 provide that reliability coordinator operating personnel “shall have a comprehensive understanding of the Reliability Coordinator Area and interactions with neighboring Reliability Coordinator areas” and “shall have an extensive understanding of the Balancing Authorities, Transmission Operators, and Generation Operators within the Reliability Coordinator Area, including the operating staff, operating practices and procedures . . . .”<sup>30</sup> NERC states that these two requirements are supplanted by and are addressed more fully in proposed Reliability Standard PER-005-1, Requirements R1 and R2.<sup>31</sup> Requirements R1 and R2 of proposed Reliability Standard PER-005-1 state:

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<sup>30</sup> Currently effective Reliability Standard PER-004-1, available at <http://www.nerc.com/files/PER-004-1.pdf>.

<sup>31</sup> NERC Petition at 26 (stating that PER-004-001, Requirements R3 and R4 are removed because they are more fully addressed by Requirements R1 and R2 of PER-005-1).

R1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall implement the program.

R1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall create a list of BES company-specific reliability-related tasks performed by its System Operators.

R1.1.1. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related tasks performed by its System Operators each calendar year to identify new or modified tasks for inclusion in training.

R1.2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.

R1.3 Each Reliability Coordinator, Balancing Authority and Transmission Operator shall deliver the training established in R1.2.

R1.4. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1, to identify any needed changes to the training program and shall implement the changes identified.

R2. Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time.

28. The text from currently effective Reliability Standard PER-004-1, Requirements R3 and R4 requiring reliability coordinator operating personnel to have a comprehensive understanding of the reliability coordinator area, is not explicitly restated in proposed PER-005-1, Requirements R1 and R2. NERC states that Requirements R3 and R4 of

currently effective Reliability Standard PER-004-1 are removed “because they are more fully addressed by Requirements R1 and R2 of PER-005-1.”<sup>32</sup> NERC’s statement implies that Requirements R1 and R2 of proposed Reliability Standard PER-005-1 retain an obligation for reliability coordinator operating personnel to have a comprehensive understanding of the reliability coordinator area and interactions with neighboring reliability coordinator areas, and entities that fail to do so could be subject to an enforcement action. However, this is not clear from either the proposed Reliability Standard or from NERC’s petition. Thus, the Commission seeks an explanation from NERC, and comment from the general public, whether “a comprehensive understanding of the reliability coordinator area” is an enforceable requirement under proposed Reliability Standard PER-005-1 and whether this requirement is clear or should be more explicit.

## **2. Continual Training**

29. The currently effective Reliability Standard PER-002-0, Requirement R3.2 explicitly mandates that “the training program must include a plan for the initial and *continuing* training of Transmission Operators and Balancing Authorities operating personnel.” NERC states that the requirements of PER-002-0 “have been completely replaced and supplanted by the specific provision of proposed new Reliability Standard

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<sup>32</sup> *Id.*

PER-005-1.”<sup>33</sup> NERC’s statement implies that the Systematic Approach to Training requirements set forth in proposed PER-005-1 retains an obligation of continuing training, and entities that fail to do so could be subject to an enforcement action. The Commission seeks an explanation from NERC, and comment from the general public, whether continuing training is an enforceable requirement under proposed Reliability Standard PER-005-1 and whether this requirement is clear or should be more explicit.

### **3. Training Staff Identity and Competency**

30. Similarly, currently effective Reliability Standard PER-002-0, Requirement R3.4 requires a training program in which “[t]raining staff must be identified, and the staff must be competent in both knowledge of system operations and instructional capabilities.” Since this requirement is not explicitly provided in PER-005-1, we seek clarification as to how and whether the Systematic Approach to Training requires training staff to be identified, and, if not, the mechanism by which training staff will be identified and its competency ensured. The Commission also seeks comment whether this should be made explicit so that entities clearly understand their compliance obligations.

#### **B. Training Expectations for Each Job Function/ Tailored Training**

31. In Order No. 693, the Commission directed NERC to develop a modification to currently effective Reliability Standard PER-002-0 that identifies the expectations of the training for each job function and develops training programs tailored to each job

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<sup>33</sup> *Id.* at 27.

function with consideration of the individual training needs of the personnel. Proposed Reliability Standard PER-005-1, Requirement R1.2 mandates applicable entities to “design and develop learning objectives and training materials based on the task list created in R1.1.”<sup>34</sup>

### **Commission Proposal**

32. The Commission believes that NERC has complied with our directive to require entities to identify the expectations of the training for each job function and develop training programs tailored to each job function with consideration of the individual training needs of the personnel. Based on our review of the Systematic Approach to Training methodology used by the Department of Energy, we understand that a Systematic Approach to Training would assess factors such as educational, technical, experience, and medical requirements that candidates must possess before entering a given training program.<sup>35</sup> With the above understanding, we believe that the Systematic Approach to Training methodology, as proposed in Reliability Standard PER-005-1, satisfies the Commission directive to develop a modification that identifies the expectations of the training for each job function and develops training programs tailored to each job function with consideration of the individual training needs of the personnel.

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<sup>34</sup> *Id.* at 27 (quoting proposed Reliability Standard PER-005-1, Requirement R1.2).

<sup>35</sup> U.S. Department of Energy’s Standard, DOE-STD-1070, *Guidelines for Evaluation of Nuclear Facility Training Programs* at Appendix – Objectives and Criteria, Objective 3 (June 1994), available at <http://www.hss.energy.gov/nuclearsafety/ns/techstds/standard/std1070/std1070.html>.

We also understand that Requirement R1.2 of proposed Reliability Standard PER-005-1 requires that the learning objectives and training materials be developed with consideration of the individual needs of each operator. We seek comment on this understanding.

**C. Simulation Training**

33. In Order No. 693, the Commission directed NERC to develop a requirement mandating simulator training for reliability coordinators, transmission operators and balancing authorities that have operational control over a significant portion of load and generation.<sup>36</sup> The Commission acknowledged concerns regarding the high cost to develop and maintain full-scale simulators, and took them into consideration. We stated that we did not require that entities must develop and maintain full-scale simulators, but rather they should have access to training on simulators. Further, because the cost is likely to outweigh the reliability benefits for small entities, the Commission stated that small entities should continue to use training aids such as generic operator training simulators and realistic table-top exercises. Therefore, the Commission directed the ERO to develop a requirement for the use of simulators dependent on an entity's role and size.

34. NERC explains that because “the implementation cost of a full-fledged system-specific simulator can be significant . . . the use of a simulator is only required for entities managing facilities having a significant impact on the bulk power system (Requirement

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<sup>36</sup> Order No. 693 at P 1390-91.

R3.1). . . .”<sup>37</sup> Thus, NERC states that proposed PER-005-1, Requirement R3.1 satisfies this directive as it requires:

Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROLs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.<sup>38</sup>

### **Commission Proposal**

35. As required in Order No. 693, proposed Reliability Standard PER-005-1 requires the use of simulator training. It appears that proposed PER-005-1, Requirement R3.1 would enhance the existing requirements governing simulation training by providing operating personnel with hands-on simulation training experience in dealing with possible emergencies or other system conditions. In addition, the proposed Reliability Standard appears to take into account the size of the entity, as allowed by Order No. 693, by requiring such training only for entities which have operational authority or control over facilities with established IROLs or have established operating guides or protection systems to mitigate IROL violations.

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<sup>37</sup> NERC Petition at 17.

<sup>38</sup> *Id.* at 32.

36. However, we ask for clarification from NERC concerning the simulation requirement. The Blackout Report found that some reliability coordinators and control area operators had not received adequate system emergency training, that “[m]ost notable was the lack of realistic simulations and drills to train and verify the capabilities of operating personnel,” and that this training deficiency contributed to the lack of situational awareness and failure to declare an emergency while operator intervention was still possible.<sup>39</sup> Requirement R3.1 requires the simulation technology to “replicate[] the operational behavior of the [bulk electric system] during normal and emergency conditions.” By requiring the technology to replicate the operational behavior of the Bulk-Power System, it appears that this provision requires the use of simulators specific to an operator’s own system. We ask NERC for clarification on this issue. We also ask for comments on this provision from other interested persons.

37. The Commission believes that system-customized simulator training would further the Blackout Report goal of providing “realistic simulations.” Because each system is topologically unique,<sup>40</sup> training on a simulator specific to one’s own system (“custom simulation”) would necessarily better prepare an operator on that system than generic

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<sup>39</sup> Blackout Report at 157 (emphasis added).

<sup>40</sup> The properties of each system are unique, properties such as the location and capabilities of generator units and capacitor banks, typical transmission line loadings, location and function of special protection systems, if any, normal substation configuration, and other elements. The interaction of these elements impact an operator’s options in an emergency.

simulation training. Custom simulation is considered to be highly effective because it provides trainees with realistic and relevant contexts in which to test and develop their understanding, knowledge and competence. An advantage of custom simulation is that it trains operators on specific control strategies for their own system. In other words, it would allow the system operator to better understand how his actions and reactions will affect the particular assets and environment in which the operator works. In short, simulation training that utilizes an environment that resembles the expected system conditions during emergency, results in more effective troubleshooting during emergencies as it better prepares the operators to identify changes and symptoms, correctly locate the problem, and take necessary action to fix the problem. While a more generic simulator can teach the skills needed for operating a power system and responding to emergency conditions, it does not familiarize the operator with the specifics of his system and how that system responds to specific events that give rise to emergencies. Greater knowledge of and experience in dealing with the specific system give the operator a more solid grasp of the behavior of that system and a feel for its response to various conditions and, therefore, better prepare the operator to deal with emergencies on that system.

38. Some entities may currently use vendor-provided emergency system simulator training to provide operating personnel with “hands-on” training experience. In some instances the emergency conditions embedded in the vendor training programs may not be specific to the entity’s own system and operations. In Order No. 693, the Commission, citing commenters’ concerns regarding the high cost to develop and

maintain full-scale simulators, concluded that the directive does not mean that entities subject to the simulation training requirement must develop and maintain full-scale simulators but rather they should have access to training on simulators.<sup>41</sup> As such, we would not expect an entity to necessarily use a simulator that replicates its own hardware, but we believe that there may be other tools that would allow an entity to input its own system files to a vendor simulator so the vendor simulator would run that entity's system's power flows over a range of operating conditions and test operator response.

39. Therefore, we seek comment on whether the Reliability Standard should require the simulation technology to realistically replicate an entity's own topology and operating conditions. If the proposed language, "replicates the operational behavior of the [bulk electric system]," contemplates use of simulators not specific to one's own system, we ask whether operators trained on simulators that replicate systems other than their own will be adequately trained to respond to emergency conditions on their own system. For example, we seek comment on whether training on simulators that replicate a different system provide operating personnel emergency system training with sufficiently realistic simulations to enable them to act in an actual emergency. We seek comment on the feasibility and practicality (including cost considerations) of requiring use of simulation technology that realistically replicates the entity's own topology and operating conditions.

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<sup>41</sup> Order No. 693 at P 1390-91.

**D. Local Transmission Control Center Operator Personnel**

40. In Order No. 693, the Commission directed NERC to modify currently effective Reliability Standard PER-002-0 to include formal training for local transmission control center operating personnel.<sup>42</sup> Specifically, the Commission concluded that “[w]hile PER-002-0 applies to transmission operators, it is important for reliability that personnel involved in decision making and implementation receive proper training.”<sup>43</sup> Because local transmission control center personnel are responsible for implementing instructions that affect the reliability of the Bulk-Power System, we directed the ERO to modify PER-002-0 to include training for such personnel tailored to the needs of the positions.

41. Proposed Reliability Standard PER-005-1 does not explicitly include a requirement that covers formal training for local transmission control center operator personnel. NERC’s Petition states that the NERC Reliability Functional Model accurately captures the list of functions that a Transmission Operator performs, and therefore includes those performed by local control center personnel. NERC concludes that, if all entities are properly registered in the NERC Compliance Registry, the Commission’s directive to include formal training for local transmission control center operator personnel “will be appropriately addressed because the Transmission Operator

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<sup>42</sup> *Id.* P 1343.

<sup>43</sup> *Id.* P 1342.

has the ultimate responsibility to ensure that its functional responsibilities are met, even if through other entities.”<sup>44</sup>

### **Commission Proposal**

42. The Commission is concerned with NERC’s conclusion that local transmission control center personnel will receive training because this conclusion relies on the transmission operator requiring training for another entity’s personnel. Moreover, NERC’s response to this directive reasserts the same arguments we rejected in Order No. 693:

The Commission disagrees with those commenters who contend that, because operators at local control centers take direction from NERC-certified operators at the ISO or RTO, they do not need to be addressed by the training requirements of PER-002-0. Rather, as discussed above, these operators maintain authority to act independently to carry out tasks that require real-time operation of the Bulk-Power System including protecting assets, protecting personnel safety, adhering to regulatory requirements and establishing stable islands during system restoration.<sup>45</sup>

Thus the Commission concluded:

Whether the RTO or the local control center is ultimately responsible for compliance is a separate issue . . ., regardless of which entity registers for that responsibility, these local control center employees must receive formal training consistent with their roles, responsibilities and tasks.<sup>46</sup>

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<sup>44</sup> NERC Petition at 30.

<sup>45</sup> Order No. 693 at P 1347.

<sup>46</sup> *Id.* P 1343 (emphasis added).

Simply put, the Commission already rejected the concept of relying on the transmission operator's obligation to train its personnel to ensure that local transmission control center operator personnel receive training. The Commission's objective, as stated in Order No. 693, is to ensure that there are no gaps in responsibility for providing formal training to local transmission control center employees. Sub-requirement R1.1 of the proposed Reliability Standard PER-005-1 states that each "Transmission Operator shall ... establish a training program for the BES company-specific ... tasks performed by its System Operators and shall implement the program."<sup>47</sup> The language of this sub-requirement provides that the Transmission Operator is only required to implement a training program for operators within its company. It is unclear to the Commission how the Transmission Operator could then require a local control center operator to receive training, particularly if that operator is within another entity, as suggested by NERC. A clear statement in the proposed Reliability Standard that incorporates local transmission control center operator personnel would satisfy the Commission's directive. We propose to direct NERC to modify proposed Reliability Standard PER-005-1 to include a provision that explicitly addresses training for local transmission control center personnel, consistent with the Commission's directive in Order No. 693.

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<sup>47</sup> Proposed Reliability Standard PER-005-1, Requirement R1.1 (emphasis added).

**E. Performance Metrics**

43. In Order No. 693, the Commission directed NERC to determine “whether it is feasible to develop meaningful performance metrics associated with the effectiveness of a training program..., and if so, develop such performance metrics.”<sup>48</sup> In response, NERC states that the Systematic Approach to Training methodology, as set forth in proposed Reliability Standard PER-005-1, sub-requirement R1.4, requires each reliability coordinator, balancing authority and transmission operator to conduct an annual evaluation of the training program and assess whether system operators are receiving effective training. NERC concludes that this “provides a meaningful assessment of the training program” while “[a]n evaluation of how System Operators perform during infrequent, actual events on the system would not provide useful metrics on an ongoing basis.”<sup>49</sup> NERC also states that proposed Reliability Standard PER-005-1 is a training standard, and is not intended to address individual system operator performance apart from the requirements associated with the company-specific reliability-related tasks identified in Requirement R1.

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<sup>48</sup> Order No. 693 at P 1394. Generally, performance metrics are a system of parameters or means of quantitative and periodic assessment of a process that is to be measured. *See e.g.*, NERC Staff White Paper, *Toward Ensuring Reliability: Reliability Performance Metrics* (December 2007).

<sup>49</sup> NERC Petition at 33-34.

### **Commission Proposal**

44. Order No. 693 did not specifically require NERC to provide metrics for the training standard, but required NERC to explore the feasibility of developing meaningful metrics for assessing the effectiveness of training programs. As a part of this directive, we stated that metrics could be used to “continually improve an applicable entity’s performance and the Reliability Standard itself.”<sup>50</sup> The Commission is encouraged that the proposed Reliability Standard includes a requirement for each applicable entity to annually evaluate its training program to identify and implement needed changes. This is an important part of keeping each individual training programs current, and an improvement over the currently effective reliability standard. We agree with NERC that this provides a meaningful assessment of the training program.

45. However, the Commission also stated that “if quantifiable performance metrics can be developed to gauge the effectiveness of a Reliability Standard, these performance metrics should be developed.”<sup>51</sup> While NERC evaluated whether metrics were needed to assess each individual program, we are not satisfied that NERC evaluated whether performance metrics could be devised to evaluate the Reliability Standard. While NERC states that “[a]n evaluation of how System Operators perform during infrequent, actual

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<sup>50</sup> Order No. 693 at P 1379.

<sup>51</sup> *Id.* (emphasis added).

events on the system would not provide useful metrics on an ongoing basis,”<sup>52</sup> it provides no explanation of this statement. The Commission questions whether metrics could be developed to establish specific parameters and measurements that would allow, among other things, the monitoring of trends and the comparison of performance across entities. Further, the Commission believes that meaningful performance metrics could include a global metric that could be used to compare the competency of system operators to perform reliability-related tasks from one entity to another in order to assess whether a particular entity’s training program is producing adequately trained personnel. In addition, the results from such a metric could be used to identify areas in which a particular reliability requirement may need to be improved. These objectives go beyond the annual evaluation set forth in proposed Reliability Standard PER-005-1, sub-requirement R1.4, and NERC has not provided an explanation of whether it has evaluated whether such metrics are feasible.

46. NERC suggests that an evaluation of how system operators perform during infrequent, actual events on the system would not provide a useful metric. While actual system disturbances that result in significant operating events such as IROL violations or loss of load may not be frequent, contingencies, frequency decline, overloaded transmission lines and voltage excursions, among other operating events, occur regularly and actions to mitigate these circumstances are what prevent more significant

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<sup>52</sup> NERC Petition at 33-34.

disturbances. Operator actions with regard to these more regular events seem noteworthy and may provide indicators of the effectiveness of training programs.

47. We seek comment from NERC on whether it considered metrics to evaluate the effectiveness of the Reliability Standard, in addition to its consideration of metrics to evaluate the effectiveness of an individual entity's training program. In addition, we seek comment on possible performance metrics that could be used to assess whether proposed Reliability Standard PER-005-1 achieves its stated purpose "[t]o ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System ... are competent to perform those reliability-related tasks."

Accordingly, we propose to direct that the ERO evaluate the feasibility of developing meaningful performance metrics to evaluate the effectiveness of the Reliability Standard related to operator training.

**F. Effective and Retirement Dates**

48. With respect to proposed Reliability Standard PER-005-1, NERC proposes staggered effective dates, i.e., the mandatory compliance date after an allotted implementation period, for each of the standard's requirements and sub-requirements. Specifically, NERC proposes: compliance with PER-005-1, Requirements R1 and R2 would be mandatory on the first day of the first calendar quarter, 24 months after regulatory approval; compliance with Requirement R3 would be mandatory on the first day of the first calendar quarter after regulatory approval; and compliance with sub-requirement R3.1 would be mandatory on the first day of the first calendar quarter 36 months after regulatory approval. NERC proposes to retire currently effective

PER-002-0 because the PER-002-0 requirements will be superseded by proposed PER-005-1. Thus NERC states that retirement of PER-002-0 is necessary to avoid redundancy, conflict, and confusion regarding the mandatory training standards. Notwithstanding the proposed staggered effective dates of the requirements in PER-005-1, NERC proposes to retire PER-002-0 upon the “effective date of PER-005-1.”<sup>53</sup>

49. With respect to proposed Reliability Standard PER-004-2, the proposed effective date section set forth in proposed Reliability Standard PER-004-2 states:

Effective Date:

- Retire Requirement 2 when PER-005-1 Requirement 3 becomes effective.
- Retire Requirements 3 and 4 when PER-005-1 Requirements 1 and 2 become effective.

NERC’s Petition states that it seeks Commission approval to retire existing Reliability Standard PER-004-1 upon the effective date of proposed Reliability Standard PER-004-2 and PER-005-1.<sup>54</sup>

### **Commission Proposal**

50. The Commission is concerned that the proposed effective and retirement dates may not be appropriate. The Commission previously has approved the use of staggered effective dates in conjunction with new Reliability Standards. However, in this case,

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<sup>53</sup> *Id.* at 27 and 42.

<sup>54</sup> *Id.* at 1 and 42.

where the proposed Reliability Standards modify currently effective standards, we are concerned that a staggered effective date may create a gap in compliance and enforceability.

51. NERC states that proposed Reliability Standard PER-005-1 is intended to supersede existing Reliability Standard PER-002-0 “upon the effective date of PER-005-1.” First, it is not clear whether NERC intended that PER-002-0 be retired when the first requirement in PER-005-1 becomes effective, or when all requirements in PER-005-1 become effective. If PER-002-0 is retired when only certain requirements are effective in PER-005-1, the Commission is concerned that this may create a gap in training requirements as NERC proposes to make the various requirements in PER-005-1 mandatory and enforceable in three stages over a three year period. We seek an explanation from NERC on whether its proposed effective date for PER-005-1 and retirement date for PER-002-0 will create a gap in compliance and further seek comment on alternative approaches to avoid any such gap. If NERC intends for PER-002-0 to be retired after all of PER-005-1’s requirements are in effect, the Commission is concerned that this may result in overlapping and potentially conflicting requirements that could unintentionally introduce confusion in compliance expectations during certain timeframes. We also request industry comment on the length of the lead-time before the various requirements in PER-005-1 become mandatory and enforceable, which, as currently proposed, is as long as three years and, more specifically, comment on the need for the proposed two- and three- year lead-times.

52. With respect to proposed Reliability Standard PER-004-2 and the retirement of currently effective PER-004-1, as the Commission understands the text in proposed Reliability Standard PER-004-2, NERC proposes to retire Requirements R2, R3, and R4 of currently effective Reliability Standard PER-004-1 concurrent with the dates the related requirements in proposed PER-005-1 become effective.<sup>55</sup> In other words, NERC proposes to stagger the retirement of currently effective PER-004-1. The Commission seeks comment on the feasibility of using a staggered retirement date as well as possible alternative approaches.

**G. Violation Risk Factors/Violation Severity Levels**

53. To determine a base penalty amount for a violation of a requirement within a Reliability Standard, NERC must first determine an initial range for the base penalty amount. To do so, NERC assigns a violation risk factor to each requirement and sub-requirement of a Reliability Standard that relates to the expected or potential impact of a violation of the requirement on the reliability of the Bulk-Power System. NERC may propose either a lower, medium or high violation risk factor for each mandatory

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<sup>55</sup> The effective date language in proposed PER-004-2 is not clear. The Commission read the language with the assumption that the reference to “Requirement 2” in the text “Retire Requirement 2 upon the effective date of PER-005-1 Requirement 3” refers to Requirement 2 of PER-004-1.

Reliability Standard requirement.<sup>56</sup> The Commission has established guidelines for evaluating the validity of each violation risk factor assignment.<sup>57</sup>

54. NERC also will assign each requirement and sub-requirement one of four violation severity levels – low, moderate, high, and severe – as measurements for the degree to which the requirement was violated in a specific circumstance. On June 19, 2008, the Commission issued an order establishing four guidelines for the development of violation severity levels.<sup>58</sup>

55. With respect to proposed Reliability Standard PER-005-1, NERC proposes to assign violation risk factors only to the main requirements and did not propose violation risk factors for any of the sub-requirements.<sup>59</sup> NERC assigns Requirement R1 a

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<sup>56</sup> The specific definitions of high, medium and lower are provided in *North American Electric Reliability Corp.*, 119 FERC ¶ 61,145, at P 9 (2007), *order on reh'g*, 120 FERC ¶ 61,145 (2007) (Violation Risk Factor Rehearing Order).

<sup>57</sup> See Violation Risk Factor Rehearing Order, 120 FERC ¶ 61,145 at P 8-13. The guidelines are: (1) consistency with the conclusions of the Blackout Report; (2) consistency within a Reliability Standard; (3) consistency among Reliability Standards; (4) consistency with NERC's definition of the violation risk factor level; and (5) treatment of requirements that co-mingle more than one obligation.

<sup>58</sup> *North American Electric Reliability Corp.*, 123 FERC ¶ 61,284, at P 20-35 (2008) (Violation Severity Level Order), *order on reh'g & compliance*, 125 FERC ¶ 61,212 (2008). The guidelines provide that violation severity level assignments should: (1) not lower the current level of compliance; (2) ensure uniformity and consistency in the determination of penalties; (3) be consistent with the corresponding requirement; and (4) be based on a single violation.

<sup>59</sup> We note that in *Version Two Facilities Design, Connections and Maintenance Reliability Standards*, Order No. 722, 126 FERC ¶ 61,255, at P 45 (2009), the ERO proposed to develop violation risk factors and violation severity levels for Requirements

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“medium” violation risk factor, Requirement R2 a “high” violation risk factor, and Requirement R3 a “medium” violation risk factor. The NERC Petition proposes violation severity levels for Requirements R1, R2, and R3 of proposed Reliability Standard PER-005-1. NERC did not propose violation severity levels for any of the sub-requirements. With respect to proposed Reliability Standard PER-004-2, NERC proposes to carry forward the violation risk factors and violation severity levels currently assigned to the existing Reliability Standard PER-004-1. NERC requests approval for the proposed violation risk factors and violation severity levels subject to the outcome of the proceedings in Docket Nos. RR08-4-000 and related sub-dockets.<sup>60</sup>

### **Commission Proposal**

56. In its March 5, 2010 filing in Docket No. RR08-4-005, NERC incorporated by reference its informational filing submitted in response to *Version Two Facilities Design, Connections and Maintenance Reliability Standards*, Order No. 722, 126 FERC ¶ 61,255, at P 45 (2009), in which NERC proposed the novel approach of assigning violation risk factors and violation severity levels only to a Reliability Standard’s Requirements, but not the sub-requirements. Because the violation risk factors and violation severity levels

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but not sub-requirements. The Commission denied the proposal as “premature” and, instead, encouraged the ERO to “develop a new and comprehensive approach that would better facilitate the assignment of violation severity levels and violation risk factors.” As directed, on March 5, 2010, NERC submitted a comprehensive approach that is currently pending with the Commission in Docket No. RR08-4-005.

<sup>60</sup> NERC Petition at 42.

for both proposed Reliability Standard PER-005-1 and PER-004-2 are impacted by the NERC's pending petition, we propose to defer discussion on the proposed violation risk factors and violation severity levels assigned to PER-005-1 and PER-004-2 until after we act on the ERO's petition in Docket No. RR08-4-005.

#### **H. Unaddressed Directives**

57. In Order No. 693, the Commission directed NERC to expand the applicability of currently effective Reliability Standard PER-002-0 to include (i) generator operators centrally-located at a generation control center with a direct impact on the reliable operation of the Bulk-Power System, and (ii) operations planning and operations support staff who carry out outage planning and assessments and those who develop SOLs, IROLs or operating nomograms for real-time operations.<sup>61</sup> The Commission also directed the ERO, in part, to consider “whether personnel that support [Energy Management System] applications ... should be included in mandatory training”<sup>62</sup> requirements set forth in Reliability Standard PER-002-0.

58. In Order No. 693, with regard to the directive to expand the applicability of the training requirements in currently effective PER-002-0 to include generator operators, the Commission stated, “it is essential that generator operator personnel have appropriate

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<sup>61</sup> Order No. 693 at P 1393.

<sup>62</sup> *Id.* P 1394.

training.”<sup>63</sup> The Commission further noted that in the event communication is lost, the generator operator personnel must have had sufficient training to take appropriate action to ensure reliability of the Bulk-Power System. Thus, we directed the ERO to modify currently effective Reliability Standard PER-002-0 to apply to generator operators.<sup>64</sup>

59. With regard to the directive to expand the applicability of the training requirements in currently effective PER-002-0 to include operations planning and operations support staff, the Commission directed the ERO to modify currently effective Reliability Standard PER-002-0 to apply to operations planning and support staff personnel who carry out outage coordination and assessments in accordance with Reliability Standards IRO-004-1 and TOP-002-2, and those who determine SOLs and IROLs or operating nomograms in accordance with Reliability Standards IRO-005-1 and TOP-004-0.<sup>65</sup>

60. With regard to the directive to consider Energy Management System (EMS) support personnel, the Commission noted that EMS support personnel can also have an impact on the reliable operation of the Bulk-Power System. These are the personnel responsible for ensuring that critical EMS reliability applications, such as state estimation, contingency analysis and alarm processing packages, are available, contain

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<sup>63</sup> *Id.* P 1359.

<sup>64</sup> *Id.*

<sup>65</sup> *Id.* P 1372 (citations omitted).

up-to-date system data and produce useable results. Because the impact of these employees upon Reliable Operation is not as clear, we directed the ERO to consider, through the Reliability Standards development process, whether personnel that perform these additional functions should be included in mandatory training pursuant to PER-002-0.<sup>66</sup>

61. In response to these Order No. 693 directives, NERC acknowledges that proposed Reliability Standard PER-005-1 does not establish training obligations for generator operators and operations planning and operations support staff.<sup>67</sup> Also, NERC recognizes that it did not address the Order No. 693 directives related to EMS support personnel.<sup>68</sup>

62. NERC states that it omitted generator operators,<sup>69</sup> operations planning, and operations support staff from the scope of the development of proposed Reliability Standard PER-005-1 because the inclusion of those personnel would have required an expansion of the standard drafting team roster to ensure that those disciplines were fairly represented on the drafting team.<sup>70</sup> NERC states that it instead chose to complete the core activities it identified in the project scope rather than delay the completion with an

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<sup>66</sup> *Id.* P 1373.

<sup>67</sup> NERC Petition at 30.

<sup>68</sup> *Id.* at 34.

<sup>69</sup> NERC's Petition actually references generator "owners" which appears to be a typographical error.

<sup>70</sup> NERC Petition at 30.

enlarged scope. Accordingly, NERC states that it plans to address the expansion of the training standard (PER-005-1) in a subsequent drafting project, Project 2010-01 – Support Personnel Training.<sup>71</sup> Likewise, NERC also states that it has deferred compliance with the Commission’s directives to consider the inclusion of EMS support personnel into the training standard to Project 2010-01 – Support Personnel Training.

### **Commission Proposal**

63. NERC is continuing to work to expand applicability of proposed Reliability Standard PER-005-1 to include generator operators and operations planning and operations support staff, as required in Order No. 693. We appreciate that NERC felt that the inclusion of generator owners, operations planning, and operations support staff in the standards proposed here would have necessitated expansion of the Standard Drafting Team roster to ensure these disciplines were fairly represented and that this would have delayed the completion of this important set of standards.

64. With respect to operations planning and operations support staff, the Commission stated that PER-002-0 should apply to operations planning and operations support staff that have a direct impact on the reliable operation of the Bulk-Power System.<sup>72</sup>

Recommendation 19 of the Blackout Report identified training deficiencies as

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<sup>71</sup> *Id.* (identifying NERC Project 2010-01 – Support Personnel Training, which is part of NERC’s *Reliability Standards Development Plan: 2009-2011*, to address these directives).

<sup>72</sup> Order No. 693 at P 1372.

contributing to the August 14, 2003 blackout and states that NERC should require training for the planning staff at control areas and IT support personnel.<sup>73</sup>

65. Regarding generator operator personnel, in Order No. 693, the Commission stated that it is essential that generator operator personnel have appropriate training to understand instructions from a balancing authority, particularly in an emergency situation in which instructions may be succinct and require immediate action. Further, we noted that if communication is lost, the generator operator personnel should have had sufficient training to take appropriate action to ensure reliability of the Bulk-Power System.<sup>74</sup> Since the issuance of Order No. 693, System Disturbance reports from NERC's website indicate that there have been disturbances caused by human errors at generating stations.<sup>75</sup>

66. For the reasons enumerated in Order No. 693, we continue to believe that requiring a comprehensive training program is important, specifically one that includes training for generator operators and for operations planning and operations support staff. NERC must also consider applicability to support personnel for EMS applications as directed in Order No. 693.

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<sup>73</sup> Blackout Report at 157.

<sup>74</sup> Order No. 693 at P 1359.

<sup>75</sup> *See e.g.*, NERC System Disturbance Reports dated May 21, 2007 and August 13, 2007, available at <http://www.nerc.com/files/disturb07.pdf>.

67. NERC indicates that it intends to address the expansion of the training standard in Project 2010-01 – Support Personnel Training, which is slated to be initiated in 2010.<sup>76</sup>

In the Reliability Standards Development Plan: 2010-2012, NERC states that the Support Personnel Training standard “is a priority project as it was proposed in support of a 2003 blackout recommendation.”<sup>77</sup> NERC previously targeted a completion date of the fourth quarter of 2011 for the expansion of the training standard.<sup>78</sup> More recently, NERC has stated that the completion date for this standard is “to be determined.”<sup>79</sup> Given the continuing need to require training for generator operators and operations support and operations planning personnel the Commission believes the previously announced targeted date (i.e., fourth quarter of 2011) is a reasonable deadline for completion of this work. We seek comments from NERC and other interested persons on whether

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<sup>76</sup> NERC Petition at 30.. (identifying NERC Project 2010-01 – Support Personnel Training, to address these directives). *See also*, NERC Standards Under Development Anticipated Posting Schedule (updated 3/3/2010), available at [www.nerc.com/docs/standards/sar/Project\\_Summary\\_Calendar.xls-2010-04-07](http://www.nerc.com/docs/standards/sar/Project_Summary_Calendar.xls-2010-04-07).

<sup>77</sup> Reliability Standards Development Plan: 2010-2012, Volume I – Overview at 9 (filed with the Commission at North American Electric Reliability Corporation Informational Filing of 2010 Development Plan, Docket Nos. RM05-17-000, RM05-25-000, and RM06-16-000 (Dec. 2, 2009)).

<sup>78</sup> *Reliability Standards Development Plan: 2009-2011, Volume II, List of Projects at 202* (dated Sept. 22, 2008).

<sup>79</sup> *Reliability Standards Development Plan: 2010-2012, Volume II, List of Projects at 136* (dated Oct. 7, 2009).

completion of this work by the fourth quarter of 2011 is reasonable, or whether, for good cause, another timeline for completion of this work would be necessary.

68. In Order No. 693, the Commission also directed NERC to consider in the Reliability Standards Development Process certain issues regarding personnel that support EMS applications. NERC deferred consideration of this matter to Project 2010-1. In their comments regarding the timeline for completing the expansion of the personnel training standard, NERC and other interested persons should also discuss whether the issues identified in Order No. 693 regarding personnel that support EMS applications should be addressed on the same timeline (i.e., completed by the fourth quarter of 2011).

**I. Summary**

69. We propose to approve proposed Reliability Standards PER-005-1 and PER-004-2 as just, reasonable, not unduly discriminatory or preferential, and in the public interest. Under section 215(d)(5) of the FPA, the Commission proposes to direct the ERO to develop modifications to proposed Reliability Standard PER-005-1 to address certain issues identified by the Commission. We also seek comment from the ERO and other interested entities regarding the Commission's specific concerns discussed above. The Commission may determine after considering such comments that it is appropriate to direct the ERO to develop additional modifications to PER-005-1.

70. In addition, the Commission proposes to defer review of the violation risk factor and violation severity level assignments for proposed Reliability Standards PER-005-1

and PER-004-2 until the Commission acts on NERC's March 5, 2010 filing pending in Docket No. RR08-4-005.

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

71. The Office of Management and Budget (OMB) regulations require approval of certain information collection requirements imposed by agency rules.<sup>80</sup> Upon approval of a collection(s) of information, OMB will assign an OMB control number and an expiration date. Respondents subject to the filing requirements of this rule 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 (PRA)<sup>81</sup> requires each federal agency to seek and obtain OMB approval before undertaking a collection of 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>82</sup>

72. The Commission is submitting these reporting and recordkeeping requirements to OMB for its review and approval under section 3507(d) of the PRA. Comments are solicited on the Commission's need for this information, whether the information will have practical utility, the accuracy of provided burden estimates, ways to enhance the quality, utility, and clarity of the information to be collected, and any suggested methods

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<sup>80</sup> 5 CFR § 1320.11 (2009).

<sup>81</sup> 44 USC § 3501-20 (2006).

<sup>82</sup> 44 USC § 3502(3)(A)(i) (2006), 44 USC § 3507(a)(3) (2006).

for minimizing the respondent's burden, including the use of automated information techniques.

73. This Notice of Proposed Rulemaking (NOPR) proposes to approve two new Reliability Standards, PER-004-2 and PER-005-1 governing training, which standards will replace currently effective Reliability Standards PER-002-0 and PER-004-1 approved by the Commission in Order No. 693. Rather than creating entirely new training requirements, the proposed Reliability Standard PER-005-1 instead modifies and improves the existing Reliability Standards governing personnel training.<sup>83</sup> Thus this proposed rulemaking does not impose entirely new burdens on the effected entities. For example, the currently effective training Reliability Standard, PER-002-0, requires transmission operators and balancing authorities to create training program objectives, develop a plan for the initial and continued training, and maintain training records. Similarly, proposed training Reliability Standard, PER-005-1, which supersedes PER-002-0, requires transmission operators, balancing authorities and reliability coordinators to establish a training program (using a systematic approach to training), verify the trainee's capabilities to perform task for which they receive training, and maintain training records. Accordingly, the recordkeeping requirements imposed by proposed Reliability Standard PER-005-1, are more specific but not necessarily more expansive

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<sup>83</sup> Proposed Reliability Standard PER-004-2 does not add any new requirements, rather it restates and carries forward the two remaining requirements from PER-004-1 that are not superseded by proposed Reliability Standard PER-005-1.

than currently effective Reliability Standard PER-002-0's recordkeeping requirements. However, proposed Reliability Standard PER-005-1 does enlarge the scope of the affected entities to include reliability coordinators.

74. Like the currently effective training Reliability Standards, PER-002-0 and PER-004-1, proposed Reliability Standards PER-004-2 and PER-005-1 do not require responsible entities to file information with the Commission. However, these Reliability Standards do require applicable entities to develop and maintain certain information, subject to audit by a Regional Entity such as documentation to show a development and delivery of a training program for system operators, verification of system operator capabilities to perform tasks, and training records to show compliance with requirements.

75. Public Reporting Burden: Our estimate below regarding the number of respondents is based on the NERC compliance registry as of May 12, 2010. Because under the proposed Reliability Standards the scope of applicability is enlarged to include reliability coordinators, but otherwise continue to impose training requirements on transmission operators and balancing authorities, the Commission considers the reporting burden only with respect to reliability coordinators. According to the NERC compliance registry, there are sixteen entities registered as reliability coordinators. However, under NERC's compliance registration program, entities may be registered for multiple functions. Thus, of the sixteen entities registered as reliability coordinators, nine are also registered as balancing authorities and, as such, must comply with currently effective Reliability Standards governing system operator training. Given these additional

parameters, the Commission estimates that the Public Reporting burden for the requirements contained in the NOPR is as follows:

Data Collection	No. of New Respondents	No. of Responses	Record-keeping <sup>84</sup> Hours Per Respondent	Total Annual Record-keeping Hours
PER-005-1, R1.1: RCs, TOs, and BAs must create a list of bulk electric system reliability-related tasks performed by system operators.	7 <sup>85</sup>	7	40	280
PER-005-1, R1.2: RCs, TOs, and BAs shall design and develop learning objectives and training materials based on its task list.	7	7	60	420
PER-005-1, R2: RCs, TOs, and BAs shall verify system operators' ability to perform each assigned task from applicable task list.	7	7	80	560
PER-005-1, M1: RCs, TOs, and BAs must have available for inspection evidence of using a systematic approach to training to establish and implement a training program.	7	7	50	350
PER-005-1, M1.1: RCs, TOs, and BAs must have available for inspection its	7	7	10	70

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<sup>84</sup> The proposed Reliability Standards do not impose any reporting requirements.

<sup>85</sup> Only seven of the 16 registered reliability coordinators are not currently subject to training requirements as balancing authorities.

company-specific, reliability-related task list.				
PER-005-1, M1.2: RCs, TOs, and BAs must have available for inspection its learning objectives and training materials.	7	7	10	70
PER-005-1, M1.3: RCs, TOs, and BAs must have available for inspection system operator training records.	7	7	10	70
PER-005-1, M1.4: RCs, TOs, and BAs must have available for inspection evidence that it performed an annual training program evaluation.	7	7	25	175
PER-005-1, M2: RCs, TOs, and BAs must have available for inspection evidence that it verified that its system operators can perform each assigned task from the training task list.	7	7	20	140
PER-005-1, M3: RCs, TOs, and BAs must have available for inspection their training records evidencing that each system operator received 32 hours of emergency operations training.	7	7	20	140
PER-005-1, M3.1: RCs, TOs, and BAs must have available for inspection training records evidencing that each system operator received emergency training using simulation technology.	7	7	20	140
Total				2415 Hours

- Total Annual hours for Collection: (Reporting + recordkeeping ) = hours.  
Information Collection Costs: The Commission seeks comments on the costs to comply with the reporting and recordkeeping burden associated with the proposed Reliability Standards. It has projected the average annualized cost to be the total annual hours

Recordkeeping = 2415 hours @ \$120/hour = \$289,800.

- Total costs = \$289,800.
- Title: Mandatory Reliability Standards for the Bulk-Power System
- Action: Proposed Collection of Information
- OMB Control No: 1902-0244
- Respondents: Business or other for profit, and/or not for profit institutions.
- Frequency of Responses: On occasion.
- Necessity of the Information: This proposed rule would approve revised Reliability Standards that modify the existing requirement for entities to develop training programs and train certain personnel. The proposed Reliability Standards require entities to maintain their training materials and training records subject to review by the Commission and NERC to ensure compliance with the Reliability Standards.
- Internal review: The Commission has reviewed the requirements pertaining to the proposed Reliability Standards for the Bulk-Power System and determined that the proposed requirements are necessary to meet the statutory provisions of the Energy Policy Act of 2005. These requirements conform to the Commission's plan for efficient information collection, communication and management within the energy industry. The

Commission has assured itself, by means of internal review, that there is specific, objective support for the burden estimates associated with the information requirements.

76. Interested persons may obtain information on the reporting requirements by contacting: Federal Energy Regulatory Commission, 888 First Street, NE, Washington, DC 20426 [Attention: Michael Miller, Office of the Executive Director, Phone: (202) 502-8415, fax: (202) 273-0873, e-mail: DataClearance@ferc.gov]. Comments on the requirements of the proposed rule may also be sent to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503 [Attention: Desk Officer for the Federal Energy Regulatory Commission], e-mail: oira\_submission@omb.eop.gov. Please reference OMB Control No. 1902-0244 and the docket number of this proposed rulemaking in your submission.

## **V. Environmental Analysis**

77. The Commission is required to prepare an Environmental Assessment or an Environmental Impact Statement for any action that may have a significant adverse effect on the human environment.<sup>86</sup> The actions proposed here fall within the categorical exclusion in the Commission's regulations for rules that are clarifying, corrective or procedural, for information gathering, analysis, and dissemination.<sup>87</sup> Accordingly, neither an environmental impact statement nor environmental assessment is required.

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<sup>86</sup> Order No. 486, *Regulations Implementing the National Environmental Policy Act*, 52 FR 47897 (Dec. 17, 1987), FERC Stats. & Regs. ¶ 30,783 (1987).

<sup>87</sup> 18 CFR § 380.4(a)(5) (2009).

**VI. Regulatory Flexibility Act Analysis**

78. The Regulatory Flexibility Act of 1980 (RFA)<sup>88</sup> generally requires a description and analysis of final rules that will have significant economic impact on a substantial number of small entities. Most of the entities, i.e., reliability coordinators, transmission operators, and balancing authorities, to which the requirements of this rule would apply do not fall within the definition of small entities.<sup>89</sup> Moreover, the proposed Reliability Standards reflect a continuation of existing training requirements for transmission operators and balancing authorities and are “new” only with respect to reliability coordinators.

79. As indicated above, based on available information regarding NERC’s compliance registry, approximately seven entities will be responsible for compliance with proposed Reliability Standards PER-004-2 and PER-005-1 that were not already subject to the existing Reliability Standards comprising the same base training requirements as contained in the new Reliability Standards. The Commission does not consider this a substantial number. Further, few if any of the seven reliability coordinators are small entities. Based on the foregoing, the Commission certifies that this Rule will not have a

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<sup>88</sup> 5 USC § 601-12 (2006).

<sup>89</sup> The RFA definition of “small entity” refers to the definition provided in the Small Business Act (SBA), which defines a “small business concern” as a business that is independently owned and operated and that is not dominant in its field of operation. *See* 15 USC § 632. According to the SBA, a small electric utility is defined as one that has a total electric output of less than four million MWh in the preceding year.

significant impact on a substantial number of small entities. Accordingly, no regulatory flexibility analysis is required.

## **VII. Comment Procedures**

80. The Commission invites interested persons to submit comments on the matters and issues proposed in this notice to be adopted, including any related matters or alternative proposals that commenters may wish to discuss. Comments are due [Insert 60 days from publication in the **FEDERAL REGISTER**]. Comments must refer to Docket No. RM09-25-000, and must include the commenter's name, the organization they represent, if applicable, and their address in their comments.

81. The Commission encourages comments to be filed electronically via the eFiling link on the Commission's web site at <http://www.ferc.gov>. The Commission accepts most standard word processing formats. Documents created electronically using word processing software should be filed in native applications or print-to-PDF format and not in a scanned format. Commenters filing electronically do not need to make a paper filing.

82. Commenters that are not able to file comments electronically must send an original and 14 copies of their comments to: Federal Energy Regulatory Commission, Secretary of the Commission, 888 First Street NE, Washington, DC 20426.

83. All comments will be placed in the Commission's public files and may be viewed, printed, or downloaded remotely as described in the Document Availability section below. Commenters on this proposal are not required to serve copies of their comments on other commenters.

**VIII. Document Availability**

84. In addition to publishing the full text of this document in the Federal Register, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the Internet through FERC's Home Page (<http://www.ferc.gov>) and in FERC's Public Reference Room during normal business hours (8:30 a.m. to 5:00 p.m. Eastern time) at 888 First Street, NE, Room 2A, Washington, D.C. 20426.

85. From FERC's Home Page on the Internet, this information is available on eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number excluding the last three digits of this document in the docket number field.

86. User assistance is available for eLibrary and the FERC's website during normal business hours from FERC Online Support at 202-502-6652 (toll free at 1-866-208-3676) or email at [ferconlinesupport@ferc.gov](mailto:ferconlinesupport@ferc.gov), or the Public Reference Room at (202) 502-8371, TTY (202)502-8659. E-mail the Public Reference Room at [public.referenceroom@ferc.gov](mailto:public.referenceroom@ferc.gov).

By direction of the Commission.

( S E A L )

Kimberly D. Bose,  
Secretary.

