NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name: Ameren Services	
Organization:	
Telephone: 314-554-2839	
E-mail: jhackman@ameren.com	

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes
   ☐ No
   Comments: Yes, although as proposed it is unclear how that objective will be determined.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: Remove from SR&B include only in Training

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes
   ☒ No
   Comments: Yes an assessment is important. No, the standard as written is not defined with time parameters and is unachievable.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
   ☐ Yes
   ☒ No
   Comments: While qualified trained operators are important and thus traiining might appear to imply a greater VRF, the mechanics of training should be considered LOWER.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.
   ☐ Yes

☒ No

Comments: The required documentation needed for these measures is not well defined. Is a journal sufficient?, or a certificate?

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Once again the time period is not well defined.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Training should not be Severe or HIgh, those should be reserved for direct links to reliability.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

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NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
☐ ERCOT	☒	1 — Transmission Owners
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Background Information

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to <u>sarcomm@nerc.net</u> with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: There are a number of concerns with assessing the training needs of each system operator position in this standard. First, the function of assessing the performance of system operators should be covered by a separate Standard. Combining Training Requirements with Performance Standards causes confusion and creates a very voluminous standard. The purpose of three of the four requirements is assessment rather than training. Second, although doing an annual assessment of each operators performance is a desirable goal, doing a measurement of each operators performance with each company specific BES reliablity-related task is over-burdensome if even possible.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The 32 hours of emergency operations and system restoratio training should be located in the System Personnel Training Standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: As stated in the comments provided to question 1, this is a desirable goal. However, there are several issues that make the described assessment problematic. Many of the company-specific reliability-related tasks are very difficult to measure and some are not measureable. The time and manpower required to conduct the measurement of all assigned tasks is overly burdensome and unreasonable.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
    ☐ Yes
    ☐ No
    Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.
    ☐ Yes
    ☐ No
    Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.
    ☐ Yes
    ☐ No
    Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.
    ☐ Yes
    ☐ No
    Comments:

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.
    ☐ Yes
    ☒ No
    Comments: The implementation schedule is too aggressive with regards to Requirement 2. Requirements 1 and 4 should be implemented completely before Requirement 2. A more reasonable implementation schedule is 18 months for Requirement 1 followed by 18 months for Requirement 4 and then an additional 18 months for Requirement 2.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.
    ☐ Yes
    ☒ No
    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

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☒ **ERCOT**	☒	1 — Transmission Owners
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes
   ☐ No
   Comments: R2.1 - Yes, as long as the interpretation and intent is truly "capability", but not for actual performance of every reliability task for which the position is responsible. Out of the possible 374 reliability tasks (Attachment A to the standard), some tasks may be rarely done, or may be done only during emergency or emergency training, such as annual restoration/black-start drills and simulation excersises. Some emergency tasks can be actually performed to gage performance, whereas other emergency tasks are more of a table-top simulation without actually performing the task. Operator performance may be based on satisfactorily completing the annual training to gain knowledge to know how, where and when to perform the task(s), foster acceptable "capability", but, not actually require performing the task(s) to achieve actual results. Based on this criteria, the standard's measurment and audit for R2.1 must allow for the "training and knowledge base for task performance", to be the measure or assessment of the "performance capability" of such emergency tasks.

   R2.1 could possibly be reworded as follows or in some other fashion to help ensure auditing procedures follow the intent (intent explained in the "Background Information" preceding these comment questions):
   ---- The assessment shall include identification of mismatches between acceptable and actual performance capability, and/or the identification of mismatches between the acceptable and actual knowledge base for performance capability, that need to be addressed for future training. -----

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: This requirement definitely should only be in one standard. It is presently in the PER-002 standard as a 5-day training requirement, and therefore should be in the PER-005, since PER-002 is being retired. It would also help in audits of the standard, to have the training record auditing done with the PER training standard records rather than the EOP standards.

   The new EOP-005-2 standard draft 1 does not directly refer to the 32 hours or 5 days of emergency training. R9 of this EOP-005-2 draft does refer to the emergency operating topics, but does not specify annual training or the 5 day (32 hour) requirement, as does the present PER-002-0 standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

☒ Yes

☒ No

Comments: Yes, with the requirement focus on "capabilities" to perform, and with the objective being to qualify the operator for the journey operating level of their operating position during their initial/progression training. (See the comments in Question 1 above)

Yes, but the revision to existing training curriculums/resourses, development of new resourses, development of performance evaluation methods/tools, and on-going training assessment of new operators, will be essential for most transmission operating entities to comply with this requirement. This standard will therefore require a significant increase in training & development staff to comply, thus placing greater financial burdon on the entities.

However, we feel that how the assessment of each individual operator is conducted should be left up to the operating entity. As a part of an annual review system operators are felt to be qualified then and that should be sufficient to determine capabilities of an operator. If a new job task is implemented during that year then it is felt that the necessary training for that task should be given based on whatever method the specific entity feels meets that requirement.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: R1. - No. This should be a "low" risk factor". An entity could do very good training without using the SAT, still identify reliability tasks, and not be at risk. Not providing a training program or avenue of training could be a "medium" risk factor, but not using SAT (ADDIE) is a "low" risk factor. SAT (ADDIE) is a great guide, but it doesn't warrant being a part of the standard requirement.

The true requirement of R1 should be the requirement of entities to have a training program with training objectives to support the identified reliability tasks.

If the only requirement of R1 was the requirement to identify Reliability Tasks (R1.1), a "Medium" risk factor might be appropriate.

Renumbering of R1.1 and making it R2, thus separating this requirement from the SAT requirement, would be an improvement, and would allow two different risk factors. (Also see comments of Question 6 and Question 11 for R1)

R2. - Yes. "Medium" risk is OK.

R3. - Yes. "Medium" risk factor is OK.

R4. - Yes. "Medium" risk is OK.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: M1 - This measurement should require evidence of a training program that supports training and identification of reliability tasks, but the approach to training should be the choice of the operating entity. (R1 - SAT should be a guide given as a reference document, but should not be a requirement and measurement of the standard; see additional comment in Question 11).

   M2 - OK

   M3 - OK

   M4 - OK.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: D1.3. - We do not see the benefit of increasing the data retention from 3 years to 4 years. NERC Readiness evaluations and Regional Compliance audits are based on 3 years. PER-002-0 present data retention compliance is 3 years. Holding data since last audit (3 years) should be adequate.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: 2.2.1 - Renumbering of R1.1 and making it R2, thus separating the reliability task identification requirement from the SAT requirement, would be an improvement, and would allow two different violation security levels.

   2.3.1 & 2.4.1 - Violation of SAT should be "lower", not "high" or "severe". An entity may produce adequate training with proper performance results without using SAT. Many entities produce qualified operators today without SAT. SAT (ADDIE) should be a guide attached to the standard or as a reference document, but should not be the standard. The violation should be on "not performing training for identified tasks", rather than how you created the training. If training produces the desired results, how you did it should not be the measure, but rather, the measure should be satisfactory operator performance capability to perform.

   2.3.1.1 - the "Note" refers to R1.2, but there is no R1.2.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

☒ No

Comments: R2 – We agree with the 36 months but recommend the implementation time for R2 be changed from 18 to 36 months as R2.2 is conflicting with R1 implementation time.

R2.2 - This part of the standard requires the assessment to include analysis of new or revised tasks for the specific company/entity and job position, which is specified for task identification in requirement R1.1. This is conflicting since the implementation plan time for R2 is 18 months, and the implementation time for R1, to have the task list identified with comparison to the reliability tasks of Attachment A, is 36 months.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: R1 - We believe R1 should not mandate the approach to training, but should only mandate identification of reliability tasks and a training program that has objectives that support the reliability tasks. R1 attempts to eliminate informal and impromptu type training for initial and continuing training. Good, informal training should still be allowed in any training program, as the approach can still be proper and reap proper results, without having extensive documentation of a systematic process. Over the years, there have been many hours of informal training that has reaped satisfactory and above satisfactory results in performance and progression of system operators. Though SAT can be an improvement in some cases, it is not an improvement in all cases.

SAT requirements should be a guide given as a reference document, but should not be a requirement and measurement of the standard.

R1.1. - Typographical error. Transmission "Owner" should be Transmission "Operator".

R3 – We believe requirement R3 should be for "NERC Certified System Operators" and offer those operators hired mid-year or who have hardships causing extended absences that prevent accumulating the required 32 hours, relief from the requirement. We suggest re-wording as follows or in some other fashion to offer relief for special circumstances as mentioned above:
----"Each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each NERC Certified System Operator with at least 32 hours annually of emergency operations and system restoration training. NERC Certified System Operators with only 6-9 months of on-shift operating time due to mid-year hiring or hardships shall be required 16 hours annually of emergency operations and system restoration training. NERC Certified System Operators who have less than 6 months operating time due to mid-year hiring or hardships shall be exempt from the annual emergency operations training requirement."----
2.3.3 - Violation Severity Levels – Reword in accordance with the suggested rewording of R3 requirement above to reflect NERC Certified System Operators and reduced hour requirements for special circumstances such as mid-year hiring or hardships.

R3.1. – The wording of requirement R3.3 in parenthesis "(provided in Attachment B)" infers all topics of the attachment must be included in the 32 hours annual emergency training, and does not take into account the requirement of R3.1.1. We believe the intent should be "selected topics" from Attachment B. We believe R3.1 should be re-worded as follows:

----"The emergency operations and system restoration training shall include the principles and procedures needed for recognizing and responding to emergencies, using drills, exercises or simulations of system conditions in subject areas selected from the responsible entity's applicable Emergency Operations Topics listing developed from Attachment B and according to the requirement of R3.1.1."-------

2.2.3 – Violation Severity Levels – Re-word to correspond to R3.1 rewording as follows:

-----"The responsible entity provided the minimum 32 hours of training on emergency operations or system restoration, annually for all system operators, but some hours provided included topics not listed in the responsible entity's list required by R3.1.1.-----

2.3.4. – Violation Severity Levels – Reword as follows for clarity of intent:

----"The responsible entity has performed an assessment of its System Operator's Capabilities to perform each identified task that is on its company-specific reliability-related task list, for some but not all of its System Operators.

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(Complete this page for comments from one organization or individual.)

Name:	Jason Shaver
Organization:	American Transmission Co.
Telephone:	262 506 6885
E-mail:	jshaver@atcllc.com

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☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Comment Form — Standard PER-005 – System Personnel Training

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: ATC believes that the annual analysis should be on the position of system operators not for each system operator.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: It's our position that all training related requirements should be in PER standards.   The SDT should review all NERC standards and move other training specific requirements into this standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes
   ☐ No
   Comments:

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes
   ☐ No
   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes
   ☐ No
   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

☐ No

Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: ATC does not agree with the assignment of High (Violation Severity Level) for a failure to use one of the five phases of a SAT. In practice if an entity does not use one of the five phases of a SAT in one training program then it will be assessed a high violation severity level. ATC believe that this designation is too great for the violation. NERC needs to look at the number of training programs and to the extent of the failure. Did every training program fail to include one of the five phases or was this only in a small minority of the programs.

We would ask that the SDT develop more reasonable violations severity levels for this standard.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: The Standard requires applicable entities to develop a task list using Appendix A as a starting point. The standard allows entities to add and delete from the task list (Appendix A) as they determined necessary. So, would Applicability section (4.2) only apply if a TOP, BA or RC identifies a task and then delegates that task to a System Operator not covered under the Applicability 4.1? In other words, if a RC identifies a task in their list and then states that the task is performed by a non-RC System Operator, that delegate would then have to follow this standard.

If this is the case, who will be audited by the Regional Entities to confirm that the delegated System Operator is complying with the standard? Would the delegated System Operator have to be registered with NERC as a user, owner or operator of the BPS?

The topic of delegation of requirements has come up in other standards and it's our position that NERC should develop a solution to the issue instead of looking to the individual SDT to come up with individual solutions. In this case the Applicable Entities are allowed to develop their own list using Appendix A because of this ATC believes that no entities will fall under 4.2 of the Applicability section.

ATC request that 4.2 of the Applicability section be deleted from this standard.

August 15, 2007

Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Mike Scott
Organization:	Arizona Public Service Company
Telephone:	602-250-1384
E-mail:	michael.scott@aps.com

NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
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Comment Form — Standard PER-005 – System Personnel Training

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Lead Contact:

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Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

    ☐ Yes
    ☒ No
    Comments: The task list for each position should be reviewed annually for updates, and suggestions for training must be solicited from Leads and Supervisors in order to improve operator performance and keep the program current. But that's not what you said in this statement.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

    Comments: The System Personnel Training Standard only.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

    ☐ Yes
    ☒ No
    Comments: Experienced NERC-certified personnel may be hired as operators, and some NERC-certified incumbents have 25-30 years experience. It would certainly be a waste of resources to assess these personnel's knowledge, skill, and attitude and then send these personnel through weeks of Initial Training and the myriad of exams involved. There should be a "grand-fathering" provision for experienced personnel, such as a exemption based on observation of job performance.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
    ☐ Yes
    ☒ No
    Comments: Since an approved training program based on SAT may not be ready for 36 months per 5.3, the assessment of training mismatch cannot be done until then. So, Requirement 2 should also become effective 36 months after the standard's approval.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
    ☐ Yes

☐ No

Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: M1.4. The "E" in ADDIE means evaluations and assessments of training effectiveness. It does not directly refer to student evaluation, of whether "learning objectives are met" (i.e. exams, which are administered during Implementation). "E"valuation more often refers to Feedback, Exam Performance, Post-Training Evaluation, and Return on Investment studies.

M4. (See Item 3 above) This "Measure" can never be consistently applied. Regarding this requirement, the Background Information on Page 3 of this document says "the standard does not specify how entities will measure this capability", leaving nothing but a future of debates during Audit Week.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Based on your definitions, the problem descriptions written for each of the four severity levels will ALL constitute "Severe" violations.

For example, Item 2.1.3 lists topics from the EO list that were not added/removed when applicable, which constitutes a failure of the Analysis process and a failure of the Evaluation process too, because you didn't detect the problem and fix it. Since two phases of SAT were not done, this condition automatically meets the definition of 2.4 as "Severe". The same with item 2.2.1 and 2.3.1.

This area needs work.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: See Item 4 above.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:
    We question the Applicability of this standard to "delegates" referenced in 4.2. Depending on how this requirement is interpreted, the scope of the training project we're undertaking could grow exponentially.

    The R.1.1 requirement seems to demand that entities use the Generic Task List during their analysis phase. If another commercially available list is currently being used, is it invalidated by this standard?

    The details provided in R2.1 and R2.2 could be easily included in the verbiage of R2 for simplicity.

    The details provided in R3.1 and R3.1.1 could be easily included in the verbiage of R3 for simplicity.

    Draft 2 of PER-005-1 is a big improvement over Draft 1.

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Warren Maxvill
Organization:	Avista Utilities
Telephone:	509-495-2019
E-mail:	warren.maxvill@avistacorp.com

NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
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Comment Form — Standard PER-005 – System Personnel Training

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Contact Organization:

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The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

    ☐ Yes
    ☒ No
    Comments: A yearly evaluation for each system operator is a very large burden for any organization. Initial training for system operators should address the required job skill knowledge and tasks required for acceptable performance capability. New job tasks are trained for and implimented as new systems, tools and job functions become necessary. The routine functions of the system operator position are not the issue and EOPS training and evaluation should take care of the rest.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

    Comments: The trend seems to be to place some kind of training requirement in everything (FERC NOPRS, NERC Standards and Regional Standards.) My opinion is that training requirements should all be in one place and I would prefer that to be PER-005.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

    ☐ Yes
    ☒ No
    Comments: Again, a huge burden on every organization. It is not the routine operating tasks that cause system outages. System Operators need to be evaluated on their knowledge of tasks that are required when the BES is operating with little or no margins, either voltage, reactive or thermal. System operators also need to be tested to determine if they can recognize when their system is at it's operating limits, not the periods when adaquate reserves more than compensate for sloppy operating!

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Foor instance R2.3.1 is a Violation Risk Factor of High. SAT is not necessary; adaquate training programs exist currently without the benefit of SAT; therefore, a Violation Risk Factor of Low is more reasonable.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: M1- Removal of the term "job task analysis" but still requiring one is not much of a change from the previous draft. Again requiring every entity to have a SAT based training program is unnecessary.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Disagree based on SAT requirement.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)
Name: Thomas Fung
Organization: BCTC
Telephone: (604) 699-7430
E-mail: thomas.fung@bctc.com

NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
☐ ERCOT	☐	1 — Transmission Owners
☐ FRCC	☒	2 — RTOs and ISOs
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August 15, 2007

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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: Requirement 1 in this draft of the standard requires a full blown job task analysis be completed for each company and to maintain the JTA. We cannot support this requirement at this time. The requirement also requires all training outside of NERC CE training to follow the SAT. We cannot support this beyond the NERC CE requirements at this time or to develop it over the next 36 months. We do not have the staff to complete this beyond NERC CE requirements at this time and believe we should be focussing on NERC CE requirements until we can comfortably follow the SAT for CE first.

   Requirement 2: We cannot support R2 if the assessment of the System Operator position goes beyond the NERC CE program requirements to meet and maintain NERC Certification.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: All Reliability related training required in a standard should be listed in the PER Standards. There should only be one place to see where Reliability required training to meet standards are listed.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: We cannot support R4 if the System Operator performance evaluation goes beyond the NERC CE program requirements to meet and maintain NERC Certification.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes
   ☐ No

   Comments: The requirement time horizon as Long Term Planning is okay.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: These requirements changes are generally administrative issues and should be risk factor Low.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: From the comments we have provided we are suggesting the changes to the requirements are overall not acceptable, therefore the measures would have to be changed to reflect the changes to the requirements that are acceptable.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: 1.2. We are not clear what a performance reset period is but we are okay with it; 1.3 and 1.4 okay

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The way the Violation Severity Levels are written are too complicated to follow and many are open to interpretation. As an example the words for the High level say in part "…..is missing one or more significant elements". what does the word significant mean to the person who is reading this……significant to whom, the audit team; too vague?
    We do not agree with any of the words written for the severity levels; the standard and requirements are short on words and severity levels have explicit severity levels that are not detailed in the requirements. We again want to say that this will be a huge onerous task to place on any entity based on the implementation plan and we cannot support it.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: While we appreciate the time frames for implementation of some requirements at 18 months and 36 months would be helpful to allow implementation of these requirements we do not support the requirements as they are written as they are too onerous and not achievable in the time frames without hiring many more staff and applying lots of money to the make it happen. So if we do not agree with the Requirements, we cannot agree to the time phases.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: NERC CE and Certification of System Operators as a requirement was a huge step in dealing with issues that came from the Blackout recommendations. Meeting that requirement was also a good step in requiring training for SO's that meets a SAT process. And the continued training for SO's that support Certification went a long way to meet the Blackout recommendations regarding restoration, simulation and situational awareness. NERC would be better served by working with companies and training providers to make NERC Continuing Education fit the SAT and make sure all are comfortable with using it all the time when dealing with CE to maintain Certification. When that is accomplished moving forward on all training requirements starting with a proper JTA and all other training using the complete SAT could be looked at. We believe we are many years away from that.

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Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information		
(Complete this page for comments from one organization or individual.)		
Name: Brent Kingsford		
Organization: CAISO		
Telephone: 916-608-1100		
E-mail: bkingsford@caiso.com		

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☒	2 — RTOs and ISOs
☐ **MRO**	☐	3 — Load-serving Entities
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Group Comments (Complete this page if comments are from a group.)

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Contact Organization:

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Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

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Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: The CAISO agrees that an operator needs-assessment be done at least annually, the IRC supports continuous assessment of operator training needs. That said, the CAISO does not agree that a prescriptive standardized process is desirable or feasible. Performance evaluation is a corporate responsibility not a NERC standard. The CAISO would propose that this standard be refocused from a standard that requires a set annual needs-assessment, to a standard mandating a given number of hours of continuous training through NERC-accredited Training programs.

   Please refer to our comments in response to Question 11.

   Discussion:
   An operator training needs-assessment is not a requirement that can be developed easily. Having an industry-wide competency level lends itself to debates, possibly without an agreement, particularly given there is already an operator certification examination. A standard that leaves definition of competency to be developed by the individual responsible entities would subject to requirement to a "fill-in-the-blank" category, which FERC has stated must be eliminated.

   A fixed annual needs-assessment may devalue a continuous needs-assessment program. A fixed annual program by definition focuses on a one-time evaluation. With such fixed programs, organizations and operators may be more focused on performing and passing a given evaluation, then focusing on a comprehensive evaluation of individual needs - an evaluation that involves subjective analysis such as interpersonal skills under stress evaluation.

   A fixed annual needs-assessment may be useful from an auditor perspective, but it does not reflect the varied undefined times that training occurs.

   To identify a 'need" an auditable test evaluation would require a standardized scoring system. Does a score of X% indicate a need for training? Indeed, how would a test identify in which area the training need exists? Requirement 2 imposes a subjective obligation of "acceptable" capability. R2.1 mandates that "mismatches" be identified. However, the draft standard does not identify a mismatch.

   Today, training is provided for all changes that a corporate entity believes needs training. Similarly, corporate entities may not even provide training on new tasks that are self-explanatory. R2.2 mandates the compliance entity identify which tasks fall in which category. That subjectivity is reasonable but it is not what one would consider an industry standard.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication

of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

Comments: The CAISO would prefer that all training comments are contained within the training standards.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

☐ Yes

☒ No

Comments: If there were a possibility of developing and quantifying a viable level of competency, then the CAISO would support such a requirement. However, the CAISO believes that the determination of this competency level and assessment of the mismatch would be troublesome and likely not measurable.

The idea of entity-identified task lists is the antithesis of the word standard. The question of training is paramount to everyone. The issue raised here is whether or not it is sensible to write an Industry Training standard. Assessing the capabilities of a given System Operator is an art not a science. To mandate such a art can (and likely will) result in entities being tied up in labor hearings for a long period of time debating whether or not the operator's 'capability level' is effectively measured by the NERC standard. Requirement 4 does not provide any quantifiable measure for identifying an operator's capabilities. Picking and choosing from a list makes this requirement even more subjective then a NERC-wide standard should be.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to. The CCC will have final say on these elements in any case; therefore the SDT would save itself some effort by focusing on the primary elements before weighing in on the compliance elements.

However, given the question being posed:

The CAISO believes that assigning long-term planning to all the requirements is inappropriate, if not over-simplistic. For example, the annual assessment of the training need and the subsequent development-of/revision-to a training program, as the requirement implies, occurs once every 12 months. This is normally regarded as an operations planning time frame if violation of this requirement is to be mitigated.

Training in each of the requirements can cross over time horizons.
Requirement 1 (which has not been vetted) states the entity must use the SAT 5 phases for all reliability-related tasks. If a new task that requires training is created for implementation tomorrow, how would that training program fall under long-term planning?

Requirement 4 - when a new task arises, (assuming one accepts the premise of the requirement itself) then shouldn't the assessment take place as soon as possible?

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to. The CCC and FERC will have final say on these VRFs, therefore the SDT would save itself some effort by focusing on the primary elements before weighing in on the compliance elements.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: Measure 1 is not quantifiable. What evidence will demonstrate 'desired performance', if the desired performance is not defined in the standard itself?

    Because Requirement 2 is subjective, Measurement 2 is meaningless in the context of a NERC reliability standard.

    Measurement 3 is proof of attendance and not a true indicator of reliability impacts.

    Measurement 4 requires that the subjective verification of the "capabilities" be documented. Even if such a measurement could be standardized, as written, this measurement requires nothing more that documentation of ineptness.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to.

    We note the following:
    1. The entity "Compliance Enforcement Authority" is a new term. It is not found in the Functional Model.

    2. The compliance elements should not impose requirements that are not in the standard itself. To require a responsible entity to maintain records on whether it is following or followed any mitigation plan associated with the standard is outside the standard itself. The standard does not address mitigation plans anywhere. This also applies to the requirement on the Compliance Monitor to retain any data used in mitigation plans associated with this standard, particularly since the Compliance Monitor does not appear on the Applicability List at the beginning of the standard.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to.

We note that a SEVERE VSL is applied for missing evidence of using two phases of the SAT; as well as applying a SEVERE VSL for not having a program at all. This would result in an organization that inadvertently is missing evidence being held to the same VSL level as an organization that consciously has no program at all.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to.

We do not support this standard as written, and therefore do not agree with the implementation schedule at this time.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☒ Yes

☐ No

Comments: The lack of objectivity in these requirements will conflict with labor union contracts. In addition the draft standard does not meet NERC or FERC requirements regarding clarity and measurability; nor does the draft meet the FERC objection to fill-in-the-blank standards.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:
It appears that the intent of this Standard is to standardize and clarify what is and is not appropriate training materials for acceptance into the NERC Continuing Education Program. This is not well understood by the industry. If this is indeed the case, the CAISO supports such an effort. The way the existing draft is being interpreted by the industry, however, is that this will be an additional requirement, over and above (and possibly in conflict with) the NERC Certification maintenance requirements currently contained in the NERC Continuing Education Program.

The CAISO agrees that:
 - Training is a critical function for our industry.

 - NERC should mandate training time (i.e. minimum number of Continuing Education hours - limited to predefined critical functions) be required to ensure operators are provided experience with critical tools and procedures necessary to meet NERC's reliability standards. This could be coupled to maintaining NERC Operator certification. That would innocent operators to take the training or risk losing their personal certification, and would incent the organizations to ensure the training or risk not complying with the standard to use only-NERC certified operators.

 - General in-house training programs must be permitted to be structured to the varied ad hoc needs of the given organizations, their tools and their environment, and not subject to NERC standards.

 - Critical training be provided by accredited programs, and that NERC may desire to accredit programs used to provide CEH on those critical topics (e.g. Emergency Operations; Blackstart).

 - the result of a Training standard should be an operator that is prepared to handle that operators system; the result should NOT be the production and storage of paperwork.

TheCAISO does not agree that:
 - It is necessary that every organization has its own accredited program. As written, R1 requires that responsible entities complete the five phases of a systematic approach to training (SAT), which includes analysis, design, development, implementation, and evaluation) to establish a new or modify an existing training program. We do not agree that this should be a requirement.

The requirement should be for the responsible entity receive training to help system operation personnel to acquire the competency to perform the applicable tasks pertaining to the RC, TOP and BA functions that the entity is responsible for or assigned. The IRC neither endorses nor disapproves the SAT process as a good approach>

However, how any training program is arrived at (i.e. what approach it takes) is not important and should not be a standard. If so inclined, NERC itself could offer an SAT-based Training program. How could one make an argument that using other approaches to arrive at a training program that (a) list the tasks and competency level required to perform the task, (b) include the minimum requirements stipulated in this standard such as the 32 hours emergency training, (c) has provision for a training schedule, review process, etc. is not an acceptable approach?

Performance and capability are subjective ideas. Given all of the tests and training, no one can predict how a human will act. To state that the person is 'incapable' is a very strong statement and can only be made on a case-by-case basis - which by definition precludes a NERC standard.

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information		
(Complete this page for comments from one organization or individual.)		
Name: Brad Calhoun		
Organization: CenterPoint Energy		
Telephone: 713-207-2744		
E-mail: brad.calhoun@centerpointenergy.com		
NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☒ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: R2 is confusing. Assessing the training requirements of a system operator position is different than assessing the training needs of an individual system operator. This requirement should be reworded to clarify what asssement is being required. A definition of the term "system operator position" should be added to the Glossary of Terms.

   Identification of company-specific system operator position tasks may be reasonable on an annual basis or whenever tasks are added or deleted; however, assessment of individual system operator training needs should be over a three year period to align with existing NERC System Operator Certification and Continuing Education Programs.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The requirement should be in the System Personnel Training Standard. Further, any training requirements should be grouped into training standards. When necessary, other standards should reference the appropriate training standard for any specific requirements.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments:
   R4 is duplicative because the NERC System Operator Certification Program already certifies the competency of system operators. A revised generic task list (Attachment A) could be used to develop specific courses to form the curriculum for emergency operations and reliability related topics within existing NERC training programs. The Continuing Education Program already assesses the courses before it grants Continuing Education Hours used for recertification. Likewise, a revised generic task list could could be used for the Continuing Education Program's curriculum.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes

☐ No

Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: CenterPoint Energy agrees with the implementation plan for R3; however, we disagree with the implementation plan for R1, R2, and R4. If PER-005 is modified to align itself with the other NERC training programs that certify system operator competency, we would agree with a three year implementation period.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

   Comments:
   Instead of establishing a new collection of competency measurements that are already defined by the NERC System Operator Certification Program and the NERC Continuing Education Program, PER-005 should align itself with these existing programs. The standard would have a greater benefit to the industry if it established the curriculum for these existing programs. PER-005 could provide the training topics necessary for advanced learning of reliability-related tasks.

   The NERC Continuing Education Program uses Individual Learning Activity applications to determine if the course meets its criteria. Such review of applications presently includes whether the SAT process was utlilized. This is another reason why PER-005 should form the curriculum to be used in the NERC Continuing Education Program. Then, the Continuing Education Program would review each course application for compliance through the use of the NERC Continuing Education Review Panel.

   Per R1.1, specific tasks must be selected from the proposed generic task list (Attachment A) if the task is performed by the entity's system operator positions. The generic task list includes tasks that are NOT reliability-related. For example Item 22 states "monitor real-time market proces for accuracy." The generic task list should be reviewed and edited to include ONLY reliability-related tasks.

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Alan Gale
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NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No
   Comments:
   R2.1 does not appear "clear and unambiguous". How can a position have a mis-match between acceptable and actual performance?
   Is the intent to identify each operators deficiencies for each task every year?
   Or to identify new tasks (covered in R2.2)?

   If the answer is "to annually identify the mis-match between acceptable and actual performance a specific assesment must be done on every task that remains on the Attachment A (after modification per R1.1.)", then it is overly burdensome and is not required in the verbiage to R4, which only requires a one-time verification.

   However, it is reasonable to verify that the modified (per R1.1) Generic Task List remains current at least annually.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: Not only should this requirement should be in the System personnel Training Standard, a checklist should be made so that ALL training requirements are included in this standard. One example is the annual training on Cyber Security (CIP).

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☒ No
   Comments: The verification of satisfactory performance of "each assigned task" is overly burdensome. Although, since this is a one-time verification only per R4, I can live with it. If I have to verify each task for each operator every year, it is way overboard.

   Who determines if my verification is adequate? Is this my call, the RA team or the Compliance Audit? If I only have to satisfy myself, it is okay.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes

☐ No

Comments: Each requirement has a "Long-term Planning" horizon.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: These are not real time requirements. Any potential impact to the BES will be adequately captured in other approved standards and violation severities. These should all be Lower!

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:
M1. This measure has no allowance for the use of outside vendors in a training plan. If a NERC Certified Provider is utilized, the entity should not be required to retain the providers documentation as required in M1.2 and M1.4. the retention of "evaluations and assessments" may include the use of end-of-course examinations which would violate exam security for the vendor if the entity has to retain them. The fact that CEH's were awarded should be sufficient for M1.2 and M1.4 in the case where a CEH provider (even if it was the parent entity) is utilized.

The industry has spent a lot of time, money and effort into getting the CEH program up and running. It has become the only way to maintain NERC Certification. Lets use it to it's fullest potential. If it is good enough for Credential maintenance, it should be good enough for the training program compliance. Violators of the CEH provider rules already have a method to be scrutinized.

M2. This relates to Question 1. Is the intent to retain documentation for the Operator position or the Operator that mans the position and sits at the desk?

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:
D1.2 - What is the compliance Monitoring Period? Should the Reset period be one month when these are apparently annual requirements?

D1.3 - Why is data retention four years? What is the benefit of an additional year of records past the last compliance audit which is required every 3 years per D1.4?
  - Is the retention of "any data used in mitigation plans associarted with this standard" intended to be an indefenite retention? This is not clear. Is the "mitigation plan" intended to be mitigation for the entity to get in compliance with the standard, or for the individual operator to achieve the desired performance level per the entity's training plan?

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: No VSL should be high or severe for a requirement that is not a real time requirement.

D2.4.1.1 - What if the entity reviewed Attachemnt A and did not identify anything else that was performed? What if they did identify several other items, but missed only one. These should not be violations. If the entity made a good faith effort, it should be compliant. The selection of a task from the list, or adding it to the list, is subjective for the entity. As such, how can a compliance team come in and apply another subjective criteria to the list?

D2.4.3 - Grammatically incorect. Second paragraph should end " training has not BEEN provided annually."

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:
A4.2 - "producing a real-time response from the Bulk Electric System" is not clear and unambiguous. Turning on a light switch (to power the runway landing lights for the highly trained pilots) produces "a real-time response".

R3 - How is a "new" employee handled? If I hire an operator and he gets NERC Certified in November (or later) I feel I should not have to complete all 32 hours of emergency training.

Attachment A - The removal or addition of any item(s) is subjective. While I understand it is only a starting point, whose subjectivity will be used when determining compliance to this standard. Many of these items are poorly worded if they are intended to be a measurable task. I will be paring the list down substantially to remove redundant requirements, and clarify the remaining.

Attachment B - Intro paragraph is not entirely true. This list must be modified per R3.1.1 and will then contain the "company specific" topics for Emergency operations.

Although training, or the lack of, played a part in the August 14, 2003 blackout, it was not the only thing found to need improvement. This standard places the burden of improvement of operations of the BES on the training system for the system operator. This is unfair to the majority of entities and operators who have adequate training in place and are not afraid to shed load when needed. This has placed the emphasis on proper documentation instead of performance. It will be expensive and turn into a paperwork nightmare to implement and to audit.

A Systematic Approach to Training is not required to have a good training program. It IS required to be a CEH provider for NERC Credential Maintenance. But NERC has maintained a very pointed separation of the Training Standard and the CEH program and Credential Maintenance. This standard is trying to apply the CEH provider requirements to ALL entity training programs. It should not be the default system for every entity.

Implementation of this standard as written will be a nightmare to implement and audit. It will result in lots of money spent for very little return on investment. It will dilute the effectiveness of many good programs out there and I doubt will force any of the mediocre ones into being good ones.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Ed Davis
Organization:	Entergy Services
Telephone:	504-576-3029
E-mail:	edavis@entergy.com

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☒ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and
  segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

    ☒ Yes
    ☒ No
    Comments:

    Our response depends on who, what, where, when, and how the authors mean with the statement - "assess the training needs for each system operator position".

    We agree that each employer should evaluate the performance and training needs of each employee, probably on an annual basis. If that is what the authors meant then we agree and we request the authors make that intent more clear in the standard itself.

    In addition, we are concerned about who evaluates and determines "acceptable performance" and "actual performance". We suggest the authors make it clear the employer makes that evaluation and determination, not some third party.

    Throughout this draft standard the authors use the term "System Operator position" to mean a job category and a physical person with no distinction between the two applications. Please make it obvious in each application whether the requirement applies to a job category or a physical person.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

    Comments:

    We suggest the training requirement R3 be in the training standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

    ☒ Yes
    ☒ No
    Comments:

    Our response depend on who, what, where, when, and how the authors mean with the statement - "assess the training needs for each system operator position".

We agree that each employer should evaluate the performance and training needs of each employee, probably on an annual basis. If that is what the authors meant then we agree and we request the authors make that intent more clear in the standard itself.

In addition, we are concerned about who evaluates and determines "acceptable performance" and "actual performance". We suggest the authors make it clear the employer makes that evaluation and determination, not some third party.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

   Please add Time Horizon values to R1.1, R2.1, R2.2 and R3.1 and R3.1.1. It is not obvious the Time Horizon assigned to the Requirement also applies to the sub-requirement.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

   Please add VRFs to R1.1, R2.1, R2.2 and R3.1 and R3.1.1. It is not obvious the VRFs assigned to the Requirement also applies to the sub-requirement.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.
   ☐ Yes
   ☒ No
   Comments:

   As written, M1 is intended to measure the "process" used to derive the result of each step of the SAT. We disagree with that measure. We suggest the Measure for R1 be a review of the "results" of each step of the SAT, not measure the process for development of those results.

   Given the specific wording of these requirements and measures, we are not sure what is being measured in M2. What is being measured in M2? Please be more specific in the words. For instance, is the "latest assessment for each position" and assessment of the job category, or an assessment of the individual employees performing in that position? Please make this measure significantly more clear and specific.

   M3 should be deleted and moved to EOP-005.

   We have similar issues with M4 as for M2, and a similar interpretation of the issues identified above for M2. What constitutes verification of the capabilities? Is this verification of a person's performance appraisal? Is this a verification of the basic

training requirements of a person to fill a position, like having a BSEE from an accredited university? Please make this measure significantly more clear and specific.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

VSL 2.2.1 contains the statement that if the entity violates R1.1, the entity is also in violation of R1. We believe this is being penalized twice for the same infraction and should be deleted.

Item 2.2.3 states "but did not include training in the subject areas listed in Attachment B". The Requirement R3.1 is that Attachment B is modified by the BA, TOP or RC. Therefore, this VSL should be changed to "… listed in R3.1.1".

Due to the formating of the VSL documentation it is difficult to be sure what are the intended VSLs of section 2.3.1, 2.3.2, 2.3.3, and 2.4.1.1. For instance, VSL is High in 2.3.2 for not performing an assessment. Is the VSL also High for section 2.3.2.1 which states the "entity has not identified training required"? Or, is 2.3.2.1 instead of 2.3.2?

Again, the Severe VSL identified for 2.4.1 has three parts identified as "OR". However, there is an additional reference 2.4.1.1 which is part of 2.4.1. Should there be an "AND", or an "OR" infront of 2.4.1.1?

 We suggest VSLs for the 32 hour training in R3, and the VSLs for R4 are OK.

We also suggest the VSL criteria be redistributed for each of the Requirements R1 and R2. We think 2.4.2, R2, an entity who has "not performed an assessment which includes … to each task …" should have a much lower VSL applied to it than an entity that does " not have a SAT program" at all. Both of these criteria are considered Severe in the draft standard.

Starting with Severe, we agree Severe should be assigned to having NO SAT program, 2.4.1 for R1, and the criteria that the entity has not performed an assessment of operator capabilities, 2.4.4 for R4. These are the only two actions that rise to the level of Severe.

We suggest all the criteria for R1 and R2 be moved down one level, from Severe to High, from High to Moderate, and Moderate to Lower, except the criteria as noted above.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

    R3, 32 hours of training, may be effective the first day of the first quarter but compliance with that requirement will take up 10 weeks to train all the system operators due to shift rotations and training schedules. Please make this change for compliance.

    The timing for implementation of the other requirements seems out of order. First the SAT needs to be performed, R1. Then, the capabilities of the operators need to be verified R4 before a mis-match can be performed R2, from which training needs are identified and implemented. We suggest it will take 18 months to complete R1, followed by 18 months to complete R4, and finally a third 18 months to complete R2.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:

    The draft standard extends the requirements to an undefined phrase: "delegates who can directly, or through communications, impact reliability by producing a real-time response from the Bulk Electric System". We do not understand the meaning, scope or extent of who or what constitutes "delegates" that might fall under this standard. We request this phrase be deleted from this and all similar standards. We also request the authors not include any other phrases like "delegates" or any other similar attempts to extend job functions of other RC, BA or TOP positions into the definition of System Operator.

    R1.1 requires the creation of a company specific list of BES reliability-related tasks, the creation of which could be considered part of R1 itself and does not need to be a separate requirement. In addition, an entity will be penalized twice for not developing this list, once for R1.1 and penalized again for violating R1. Therefore, R1.1 should be deleted and considered part of R1, performing the Analysis phase of the SAT process. SHOULD WE SUGGEST R1.1 BE DELETED, OR SHOULD IT BE A SEPARATE REQUIREMENT? LEAVING R1.1 AS IT IS COULD BE CONFUSING.

    The intent and meaning of the wording "acceptable" and "actual" performance capability used in R2 as they are applied to a System Operator Position is not clear . Please clarify the intent and meaning of R2. A position can have tasks assigned to it with acceptable or defined, performance criteria. A position can not have "actual" performance capability; a person performing that task can have "actual" performance capability. If the intent of R2 is to determine the mis-match between a persons actual performance capability of a task and the acceptable performance criteria for that task then please so state that one

part applies to a person and one part to the position. If it is not the intent, then please clarify the meaning of this section.

PER-004-2, as revised, contains two requirements: one to maintain staffing 24/7, and the other to place attention on SOLs, IROLs and inter-tie facility limits, and to ensure protocols are in place. There are no measures for these three requirements. Please add measures for these three requirements.

Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information
(Complete this page for comments from one organization or individual.)
Name:
Organization:
Telephone:
E-mail:

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☒ **SERC**	☒	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Comment Form — Standard PER-005 – System Personnel Training

Group Comments (Complete this page if comments are from a group.)			
Group Name:	Entergy Services, Inc. System Planning & Operation (Energy)		
Lead Contact:	Will Franklin		
Contact Organization:	Entergy Services, Inc		
Contact Segment:	6		
Contact Telephone:	281-297-3594		
Contact E-mail:	wfrankl@entergy.com		
Additional Member Name	**Additional Member Organization**	**Region***	**Segment***
Steve Bowlin	Entergy Services, Inc. System Planning & Operation (Energy)	SERC	6
David Plant	Entergy Services, Inc. System Planning & Operation (Energy)	SERC	6
Margaret Hebert	Entergy Services, Inc. System Planning & Operation (Energy)	SERC	6
Gary Kirkley	Entergy Services, Inc. System Planning & Operation (Energy)	SERC	6
Jerry Stout	Entergy Services, Inc. System Planning & Operation (Energy)	SERC	6

Comment Form — Standard PER-005 – System Personnel Training

*If more than one Region or Segment applies, check all that apply. Regional acronyms and
segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes
   ☐ No

   Comments: It is unclear as to whether this is referring to the job category or each individual. This needs to be clarified. One can only infer that this is meant to design the training program for the job category and evaluate it annually for necessary changes. Consider adding a sub-requirement or within this requirement to indicate that measurable and observable criteria must also be developed along with each task identified (since "measureable and observable criteria" is a Measure of this Requirement).

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: We recommend that the requirement remain in the training standard and be removed from the Blackstart Standard project. The training standard is the appropriate place for consolidating and delineating any training requirements.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes
   ☐ No

   Comments: Is this meant to be a one time assessment? If so, then we agree since attempting to do this every year would be unreasonable. If it is mean to be recurring, then consider adding the requirement of a periodic assessment of a sample of tasks on an ongoing basis within the entity's own training program.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
   ☐ Yes

☒ No

Comments: We believe these items to be in the LOWER risk factor category.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: M1, as currently written, is a review of an entity's entire training program from inception. This may be too broad of a Measure.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: In general, the VSLs are extremely complex and take up more of the standard than the actual requirements, measures and compliance sections. Condense and simplify.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: PER-005-1 Proposed effective dates: R1 & R2 should be implemented simultaneously, since R2.2 cannot be performed until R1.1 is completed. However, 36 months to have a training program implemented is reasonable.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:
PER-005-1 Applicability 4.2 : is this meaning that an operator performing a function per an approved procedure or under orders from an RC/BA/TO have training and be under a training program as outlined? This may be excessive application of the training

standard. One could speculate that each power plant operator could fall under this because they operate a unit with MW and MVAR output, which creates a real time response from the BES.

PER-005-1 R3, 3.1, 3.1.1 : the words "and system restoration" should be removed unless the system restoration topics in Attachment B are required. As written, R3 and sub requirements imply that some of the 32 hours must come from system restoration training. If that is correct then state the number of hours. Note that the title of Attachment B contains the term "Emergency Operations Topics" only, even though system restoration topics are covered under Section C.

PER-005-1 Attachment A
General Control Center Operations Tasks, Item 22: Monitoring of real-time prices for accuracy should not be listed as a reliability-related task. Reliability and pricing are distinctly different. Is the intent to monitor the impact to reliability that real-time pricing is having?
Generation Tasks Item 14: Publishing next-day market results should not be a reliability-related task.

PER-004-2 Proposed Effective Dates: the bullets are extremely confusing and refer to requirements that aren't even listed. If approval of these standards deletes a pre-existing requirement immediately, there is no need to even mention it in this section (assuming that these standards are balloted together). Otherwise, list ALL of the requirements in the Requirements section and then the list of when they would no longer be in effect in the effective date section.

PER-004-2 Compliance Monitoring Responsibility : Should this be the Compliance Enforcement Authority (as stated in PER-005-1)?

PER-004-2 Compliance Monitoring: There is only a need to list the self certification. All requirements in the standards can be subject to monitoring under the other methods (spot check, periodic audit, triggered) and there is no need to list them here.

Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Kent Grammer
Organization:	ERCOT
Telephone:	512-248-6338
E-mail:	kgrammer@ercot.com

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☒ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☒	2 — RTOs and ISOs
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
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	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

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Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes
   ☒ No

   Comments: Should read "mismatch between the previoulsy developed task list and current and/or new task". "Performance capabilities" relates more to personnel that it does to positions.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: 1) Should go in PER-005. 2) However, it is recommend that the 32 hour requirement be remove completely because the CEH program captures the intent of this requirement. Furthermore, the 32 hours of emergency training is tracked on a different schedule than CEH requirments and creates an additional and confusing set of record keeping processes. Record keeping can be simplified without reducing the level and quality of training with the additional benefit of removing the audit liablitiy created by the need to track each operator's records on a different schedule.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes
   ☒ No

   Comments: It should be more specific in that there should be a task list for each position and not one list that covers multiple positions. Example: Companies with specialize positions should have a task list for each position. Auditors will apply a broad based task list to specialized positions and create findings stating that each position should be able to perform all task on the general list.

   Also, the Standard should clearly state that this is a one-time assessment for each system operator and their respective position. It should take into account prior work history, training, qualifications and certifications from previous employers when assessments are made.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

Comments: See comments on #9.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This has not been properly vetted through the industry. Furthermore, this is an administrative standard and medium to high risk should not apply unless the training program is grossly inadequate.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Should state "applicable SAT-related outcomes" rather than "SAT related outcomes". The current wording will create unnecessary work. For example, an Analysis may show that the simplicity and frequency of a task does not need to move beyond the Analysis phase. This can be an audit liability when taken literally.

   M.4 Should state "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection verification of the qualifications for each real-time System Operator and their assigned positions, as specified in R4.".

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The requirments for self-certification should be identified. Without reasonable guidelines, a Regional Entity will have free reign to set whatever self-reporting standards it deems fit. With the current wording, annual self-certification has the potential to become very stringent.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: This part of the standard is not clean and simple. Plus, it's an administrative standard and should not carry moderate to high violation levels. Also, lack of documentation should be a low violation. High and Severe violations should be reserved for entities who do not have training programs, or their programs are not maintained with adequate staff.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

Comments: R1, R2 & R4's timeline should have an additional time, at least another year, added to allow for budget cycles, hiring & traininig trainers. Additional personel will be required in many cases and these positions will need to be budgeted before they can be filled. Once filled, then the work to develop a training program begins. Depending on the approval date, a company's budget cycle may be well underway and beyond the point of change and thus delay their ability to succeed within the current timelines.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: ***VERY IMPORTANT***Implementation of this Standard without a guiding document for a training program similar to what is provided by the Department of Energy or the U.S. Military who routinely apply SAT or Instructional System Design (ISD) processes leave too much open to the inerpretation of auditors.

VERY IMPORTANT: 4.2 needs to be re-worded so it is clear that the RC/BA/TO is not responsible for training personnel in other organizations to which it has delegated tasks. After 4.2, "delegates" is not mentioned in conjunction with RC/BA/TO as being responisble to implement this standard.

Comment Form — Standard PER-005 — System Personnel Training

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<table>
<tr><td colspan="3">Individual Commenter Information
(Complete this page for comments from one organization or individual.)</td></tr>
<tr><td colspan="3">Name: Dave Folk</td></tr>
<tr><td colspan="3">Organization: FirstEnergy Corp.</td></tr>
<tr><td colspan="3">Telephone: 330-384-4668</td></tr>
<tr><td colspan="3">E-mail: folkd@firstenergycorp.com</td></tr>
<tr><td>NERC Region
(check all Regions in which your company operates)</td><td colspan="2">Registered Ballot Body Segment (Check all industry segments in which your company is registered.)</td></tr>
<tr><td>☐ ERCOT</td><td>☒</td><td>1 — Transmission Owners</td></tr>
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</table>

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*
Doug Hohlbaugh	FirstEnergy	**RFC**	
Sam Ciccone	FirstEnergy	**RFC**	
Dan Dipasquale	FirstEnrgy	**RFC**	
John Reed	FirstEnergy	**RFC**	
John Martinez	FirstEnergy	**RFC**	
Jerry Sanicky	FirstEnergy	**RFC**	

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

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The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: FE believes it is appropriate to have this requirement reside within the PER-005 standard and that the requirement be removed from the proposed standards that are being developed within the Project 2006-03 work effort. It is our position that all requirements related to personnel training should reside within the PER suite of standards.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments: We agree that there should be some assessment of the effectiveness related to knowledge and skills learned during training being transferred to work place performance. However, upon reviewing R4, the measures associated with R4, and the VSL aimed at R4, it is unclear what the standard's expectations are related to this requirement.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: Many of the measures provide no additional information beyond the information contained in the requirement except to say "provide the evidence". In addition, where they do provide additional information, the measurement value is not contained in the requirement. As an example, measure M1.1. states that, "Analysis that results in a list of company-specific BES reliability-related tasks and measurable or observable criteria for desired performance for each task." However, there is nothing in R1 or the sub-requirements that states measurable or observable criteria for desired performance must be developed. All requirements should be clearly stated in the requirements section of the standard and the measures section should not impose new or additional requirements.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The compliance monitoring and reset period is a vague concept that may be of little or no value in the mandatory compliance regime. Under the mandatory compliance regime, non-compliance is followed by a mitigation plan that contains the date by which compliance will be achieved and thus reset the compliance clock. This reduces or eliminates the value of the monitoring and reset period.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The process for establishing VSLs is presently being vetted through the industry for the 83 FERC approved standards. We believe it is prudent to let that process take its course so that SDTs presently working on revised or new standards can reference the new format in establishing VSLs.

    The violation severity levels as written are interlaced making it difficult to determine the violation severity level that pertains to each requirement. The violation severity levels should be listed by requirement. In addition the following revisions to the wording are suggested:

    Item 2.2.2 should be revised to state, "The responsible entity has determined training required based on the mis-match between acceptable and actual performance capability but has not included this training in its current schedule."

    Item 2.2.3 should be revised to state, "The responsible entity annually provided at least 32 hours of training on emergency operations or system restoration but the training did not include the subject areas listed in Attachment B."

    Item 2.3.3 should be revised to state, "The responsible entity provided to its system operators at least, 32 hours of emergency operations or system restoration training,

annually, but not all its System Operators have completed or evidence shows all of its System Operators will not have completed the required annual training."

Item 2.4.1 should be revised from, "The responsible entity does not have a SAT program for its system operators" to "The responsible entity has not used the SAT process to develop its training program."

Item 2.4.2 states, "The responsible entity has not performed an assessment which includes identification of measurable or observable criteria for desired performance to each task for the determination of the training needs for two of its system operating position." Looking past the fact that there is no requirement to identify measurable and observable criteria for desired performance, the severity level as written appears to state that I cannot get a severe violation severity raking if I only have one operator position. This should be revised to state, "… training needs for all of its system operating positions."

Item 2.4.3 paragraph 2 should be revised to state, "The responsible entity has provided 32 hours of emergency operations and system restoration training but the training has not been provided annually."

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: FERC 693 (par. 1359) directive to include the Generator Operator has not been addressed by this standard.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: FE has the following additional comments:

    1. This standard requires the use of the SAT process, yet it contains no requirement for trainers to be trained in this process. This train-the-trainer requirement is necessary to ensure an effective implementation process throughout the industry. This should be remedied prior to this standard becoming effective.

    2. In R3, the phrase "…at least 32 hours annually of emergency operations and system restoration training" is written incorrectly and does not coordinate with its measure, M3. We suggest changes to the phrase in both R3 and M3 to read "…at least 32 hours annually of emergency operations training which includes system restoration training".

    3. In R1, the last part of the statement should say "…System Operator positions." and not "…System Operators." This would then be consistent with the rest of the standard.

4. In Attachment A, Items #2 and #4 are duplicative. This should be corrected.

5. It is not clear how R4 would be acceptable from a compliance standpoint. The SDT should add verbiage to clarify this requirement. The measure for this requirement (M4) doesn't add any value.

6. Measures should not add requirements. We believe that M1.2 is dictating more requirements than R1 intends when it states "Design and development of training materials that result in learning objectives and content that is derived from results of training analysis". The SDT should remove this from the measures and re-evaluate the need for this statement in the standard.

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name: Jeff Gooding	
Organization: Florida Power and Light	
Telephone: 305-442-5804	
E-mail: jeff_gooding@fpl.com	

NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
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Comment Form — Standard PER-005 – System Personnel Training

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Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

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Additional Member Name	Additional Member Organization	Region*	Segment*

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The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: I agree that it is reasonable to annually assess the training needs for each operator position (R-2) in relationship to the defined company-specific reliability-related tasks (R-1.1).

   However, the assessment requirement (R-2.1) based on a mis-match between acceptable and actual performance capability seems ambigious and leaves the measurement (M-2) of this requirement subjective and open to interpretation. What is an acceptable means of preforming this assessment? What can we expect from a compliance audit on how they will assess each entity? An acceptable criteria (i.e., Auditors Guide) for evaluating this mis-match needs to be provided.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: I would like to see this requirement be removed from the System Restoration and Blackstart standards and to be placed only in the Personnel training standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: The standard as written, does not define a time frame for the assessment (R-4). I feel that this assessment is not achievable and is unrealistic due to the time burden involved. Clarification needs to be given as to the time frame when this evaluation is to be given.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes
   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: The risk factors associated with the training standards should be "Lower" risk factors. These training activities will be occurring outside of the "real-time" operating arena and therefore violations of these requirements cannot in and of themselves cause impacts as defined by "Medium" risk factors. An entity would be required to violate several core operating requirements prior to the violation of a training requirement having any material impact on a system. At that, the linkage of an event to a training activity would be extremely subjective.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: M 1.4 - What would be required documentation for training delivered by an outside vendor? Would certificates be sufficient? M-2 - see comment on number 1 above. M-4 - see comment on number 3 above.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: D1.2 - What is the compliance Monitoring Period? Should the Reset period be one month when these are apparently annual requirements?

   D1.3 - Why is data retention four years? What is the benefit of an additional year of records past the last compliance audit which is required every 3 years per D1.4?
     - Is the retention of "any data used in mitigation plans associated with this standard" intended to be an indefenite retention? This is not clear. Is the "mitigation plan" intended to be mitigation for the entity to get in compliance with the standard, or for the individual operator to achieve the desired performance level per the entity's training plan?

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: I do not feel that any VSL should be severe or high in relation to a training program.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: Overall,I am in support of the development of a training standard to ensure personnel responsible for the real time operation of the BES to meet minimum knowledge and competency levels. However, I would recommend that any training requirements noted in NERC Standards should be identified only in the System Personnel Training Standard.

    This standard should apply to System Operating Positions only - not by individual system operators.

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:
Organization:
Telephone:
E-mail:

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☐	1 — Transmission Owners
☒ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☐	3 — Load-serving Entities
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	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Florida Reliability Coordinating Council

Lead Contact: Donna Howard

Contact Organization: FRCC

Contact Segment: 10

Contact Telephone: 813-207-7966

Contact E-mail: dhoward@frcc.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Steve Joseph	Tampa Electric Company	FRCC	1
Ed Seddon	Orlando Utilitites Commission	FRCC	1
Jeff Gooding	Florida Power & Light Company	FRCC	1
Charles Wubbena	Seminole Electric Cooperative	FRCC	4
Alan Gale	City of Tallahassee	FRCC	5
Mike Locke	JEA	FRCC	3
Ed Devarona	Florida Power & Light Company	FRCC	1

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

   – When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.

   – End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

    ☒ Yes
    ☒ No

    Comments: FRCC agrees that it is reasonable to annually assess the training needs for each operator position (R-2) in relationship to the defined company-specific reliability-related tasks (R-1.1).

    However, the assessment requirement (R-2.1) based on a mis-match between acceptable and actual performance capability seems ambigious and leaves the measurement (M-2) of this requirement subjective and open to interpretation. What is an acceptable means of preforming this assessment? What can we expect from a compliance audit on how they will assess each entity? An acceptable criteria (i.e., Auditors Guide) for evaluating this mis-match needs to be provided. FRCC agrees it is reasonable for this assessment to include identification of training to preform new or revised tasks from the company-specific reliability related task list. (R-2.2)

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

    Comments: FRCC recommends this requirement be removed from the System Restoration and Blackstart standard and be placed only in the Personnel training standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

    ☐ Yes
    ☒ No

    Comments: The standard as written, does not define a time frame for the assessment (R-4). The FRCC feels that this assessment is not achievable and is unrealistic due to the time burden involved. Clarification needs to be given as to the time frame when this evaluation is to be given.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

    ☒ Yes
    ☐ No

    Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The risk factors associated with the training standards should be "Lower" risk factors. These training activities will be occurring outside of the "real-time" operating arena and therefore violations of these requirements cannot in and of themselves cause impacts as defined by "Medium" risk factors. An entity would be required to violate several core operating requirements prior to the violation of a training requirement having any material impact on a system. At that, the linkage of an event to a training activity would be extremely subjective.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

    ☒ Yes

    ☒ No

    Comments: M 1.4 - What would be required documentation for training delivered by an outside vendor? Would certificates be sufficient? M-2 - see comment on number 1 above. M-4 - see comment on number 3 above.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:
    D1.2 - What is the compliance Monitoring Period? Should the Reset period be one month when these are apparently annual requirements?

    D1.3 - Why is data retention four years? What is the benefit of an additional year of records past the last compliance audit which is required every 3 years per D1.4?
      - Is the retention of "any data used in mitigation plans associated with this standard" intended to be an indefenite retention? This is not clear. Is the "mitigation plan" intended to be mitigation for the entity to get in compliance with the standard, or for the individual operator to achieve the desired performance level per the entity's training plan?

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: FRCC does not feel that any VSL should be severe or high in relation to a training program.
    D2.4.3 - Grammatically incorect. Second paragraph should end " training has not BEEN provided annually."

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: Overall, FRCC is supportive of the development of a training standard to ensure personnel responsible for the real time operation of the BES to meet minimum knowledge and competency levels. However, the FRCC recommends that any training requirements noted in NERC Standards should be identified only in the System Personnel Training Standard.

    How is a "new" employee handled? If I hire an operator and he gets NERC Certified in November (or later) I feel I should not have to complete all 32 hours of emergency training.

    This standard should be by position only - not by system operators.

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Billy Lee
Organization:	Garland Power and Light
Telephone:	972-205-3086
E-mail:	billyl@gplops.org

NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
☒ **ERCOT**	☒	1 — Transmission Owners
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Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: I believe that the training of system operators needs to be assessed, but Garland Power & Light is a small utility that has a training staff of one personnel that has many other duties as well to perform. The requirement is completely out of scope for resaonability. This would place a huge budget burden on small utilities that are managed by City Councils.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: It should be contained in the System Restoration and Blackstart standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: See #1 above. It is too large of a burden on small utilities. The requirements should be modified for practicality and still accomplish the goal.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: Do not agree with the annual time line in R2. Long Term planning should be defined.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: I think the Violation risk factor for training requirements should be lower than a medium.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Again, small utilities can not manage a large training program with unreal expectations for training requirements. This would be great if you had unlimited resources or was only in the training business and not having to manage real time operations at the same time on a daily basis.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: I do not agree with the requirements in the standard, so the Compliance Process can not be addressed until the requirements are agreed upon.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Same answer #7.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: It is an unreal expectation that a small utility will have the resources to comply with the requirements stated in R2 and R4.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: As stated in question #9 above, small utilities do not have unlimited resources to budget only to training. This standard would place an undue burden on training departments to meet compliance criteria that would result in additional staff needed that small entities can not meet.
R4 -How are we supposed verify the capabilities of the each real time operator?
How will someone with a NERC certification that is not working a real time desk position, (i.e. training, other administrative rolls, switching coordinator) be assessed?

How will operators be assessed annually under R2?

Why would any entity want to add to the task list when you can not meet the requirements already stated?

There are many items in the task list that are not currently done in ERCOT by Transmission and Generation Operators on a utility level, but rather done on the ERCOT regional level so how can one be assessed on that requirement.

I wouls see that entities will be excluding task from the list rather than adding them.

A systematic approach to training is the way to approach training needs, but this approach seems to be a bit to aggressive without consideration for the small utilities.

NERC should take the lead in developing training programs that can be administered be regional entities that are appropriate for the region.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Roger Champagne
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

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Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

    ☐ Yes
    ☒ No
    Comments: Please define how to constitute acceptable and actual performance cabability and clarify the requirement. How will industry identify "mismatch". Is this requalification of system operators. The requirement doesn't seem measurable and crisp to audit for compliance. This requirement has a "fill in the blank" characteristic.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

    Comments: The 32 hour emergency training requirement belongs in the Personnel Training Standard. Please provide the basis fot the 32 hour requirement.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

    ☒ Yes
    ☒ No
    Comments: We agree with the principle. However, please specify how you propose to to execute and measure this requirement.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: It must be clear that no personal information or assessments that may be confidential are part of M2. The information should strictly be related to the System Operator's skills. Also see Q8 below regarding R1 and M1.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: D1.2, the reset period seems unrealistic and short. The assessment is due annually.

    D1.3 delete onsite. Also who is the Compliance Monitor intended to be.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: Requiring a training program subject to following 5 Systematic Approach to Training (SAT) principles seems overly perscriptive and why would it be a severe violation severity level not to follow these or subset thereof. NPCC Participating members can accept 5 training principles but the entire SAT seems unnecessary. If NERC intends to adopt the SAT, in its entirety, it needs to clarify and educate the industry before incorporating it into a standard.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: The lack of objectivity in these requirements may conflict with labor union contracts i.e. confidentiality issues of review.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: R1.1 should refer to Transmission Operator instead of Transmission Owner. The proposed standard is not applicable to the Transmission Owner.

Attachment B should have the same preamble as Attachment A.

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
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Comment Form — Standard PER-005 – System Personnel Training

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The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

   – When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.

   – End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

    ☒ Yes
    ☒ No
    Comments: We agree with the annual assessment of the training need. However, we feel the standard needs to have a requirement on the competency level (defined industry-wide or by individual responsible entities) in order to identify the mismatch between acceptable and actual performance capability.

    That said, this is not a requirement that can be developed easily. Having an industry-wide competency level lends itself to debates, possibly without an agreement, and given there is already a certification examination. Leaving it to be developed by the individual responsible entities would subject the requirement to a "fill-in-the-blank" category, which is to be eliminated.

    A simpler approach would be to require responsible entities to assess training needs on an annual basis, without specifying how, and develop an effective training program with an aim to enable operating personnel achieve the required skillset. In this case, the requirement will focus on the process (annually assessment) and the what (the training program), not the how (measuring the mismatch).

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

    Comments: Training requirements should always be covered by one standard. This avoids duplication of requirements and lends clarity to the scope of the standard under consideration. On this basis, we feel that the 32 hours emergency training requirement should be covered in this standard since this standard deals with all aspects of training. Further, the standard on System Restoration and Blackstart has a narrower scope as compared to PER-005 - Restoration and Blackstart scenarios only - and may not cover all the emergency scenarios.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

    ☒ Yes
    ☒ No
    Comments: The key attribute here is "assessment of the capabilities". As noted in our comments to Q1, above, while we do not disagree with developing a requirement for establishing the competency level for system personnel to perform the assigned tasks,

the determination of this competency level and assessment of the mismatch would be troublesome and likely not measurable.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

☒ Yes

☒ No

Comments: We do not agree with some of the requirements in the standard (see our comments under Q11) hence we have difficulties commenting on the time horizons. Given what's written, however, our general comment is that assigning long-term planning to all the requirements is inappropriate, if not over-simplistic. For example, the annual assessment of the training need and development of/revision to a training program, as the requirement implies, occurs once every 12 months. This is normally regarded as an operations planning time frame if violation of this requirement is to be mitigated.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments: Given what's written, but we do not agree with some of the requirements (see Q11, below).

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☒ Yes

☒ No

Comments: Yes, given what's written, but we do not agree with some of the requirements (see Q11, below). In addition, we think M3 should be expanded to cover the sub-requirements in R3. One item of particular concern is an entity is assigned a Low violation if it is found that it did not add or remove topics from the Emergency Operations Topics. This is not covered in M3, which only covers the 32 hour training duration requirement.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: We have difficulties with the following elements:

1. The entity "Compliance Enforcement Authority" is a new term and should be replaced with the equivalent Functional Model entity.

2. The compliance elements should deal with assessing whether or not, or the extent to which, responsible entities meet the requirements according to the measures. To require a responsible entity to maintain records on whether it is following or followed any mitigation plan associated with the standard appears to be a follow-up process after the entity has been assessed non-compliant. This seems to be outside the scope of a standard. Similar comment on the requirement for the Compliance Monitor to retain any

data used in mitigation plans associated with this standard, and the Compliance Monitor is not on the applicability list.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

(1) 2.1.3 See our comment under Q6 that is related to this violation severity level.

(2) We are unable to offer comments on the VSLs associated with not following or missing any steps in the SAT program. We not do see adopting and following a SAT approach to develop a training program should be a requirement. Please see our comments under Q11.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: We have a major difficulty with the standard as written. We are therefore unable to agree on the implementation plan.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: The IESO appreciates the opportunity to comment, and commends the drafting team for responding positively to our comments on the previous draft standard and SAR.

However, we have a major difficulty with this standard:

1. R1 require that responsible entities complete the five phases of a systematic approach to training (SAT), which includes analysis, design, development, implementation, and evaluation - ADDIE) to establish a new or modify an existing training program. We do not agree that this should be a requirement.

The requirement should be for the responsible entity to develop an effective training program to help system operation personnel to acquire the competency to perform the applicable tasks pertaining to the RC, TOP and BA functions that the entity is responsible for or assigned. We neither endorse nor disagree that the SAT process is a good approach, but how the training program is arrived at (i.e. what approach it takes) is not important and should not be a standard.

The 2003 Blackout report emphasized a need to train system operators to perform all tasks assigned to their positions. This can be met by requiring responsible entities to develop programs that cover training on all the tasks assigned to the operators, within the scope of the RC, TOP and BA functions, provide the resource for delivering the training. To achieve this, let us reiterate our previous suggestions:

a. Developing a training program which lists the tasks (specifically for the RC, BA and TOP as listed in the Functional Model) to be performed and the competency level required to perform the tasks;
b. Delivering the training program;
c. Recording, tracking and assessing progress of the persons receiving training;
d. Planning, providing resource, reviewing and adjusting (as necessary) the training program annually.

(2) We realize that system operators may perform other tasks over and above those identified for the RC, BA and TOP functions. However, these other tasks are outside of the scope of the envisaged certification requirements and hence outside of the scope of this standard. The term "company-specific reliability related task" lends itself to interpretation that other reliability tasks (such as those performed by GOP, DP, etc.) must also be included in the training program. We suggest this term be revised, or more words be used to clearly stipulate that only the tasks assigned to the above 3 functions need to be included, depending on the structure and the registered function(s) of the organization.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)
Name: Kathleen Goodman
Organization: ISO New England
Telephone: (413) 535-4111
E-mail: kgoodman@iso-ne.com

NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☒	2 — RTOs and ISOs
☐ **MRO**	☐	3 — Load-serving Entities
☒ **NPCC**	☐	4 — Transmission-dependent Utilities
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	☐	10 — Regional Reliability Organizations and Regional Entities

Comment Form — Standard PER-005 – System Personnel Training

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Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

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Additional Member Name	Additional Member Organization	Region*	Segment*

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Background Information

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

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- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: Please define how to constitute acceptable and actual performance cabability and clarify the requirement. How will industry identify "mismatch". Is this requalification of system operators? The requirement doesn't seem measurable and crisp to audit for compliance.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The 32 hour emergency training requirement belongs in the personnel training standard. Please provide the basis for the 32 hour requirement. Is this in addition to the NERC Certification requirements? How does this Standard fit into the existing NERC Certification requirements?

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes
   ☒ No

   Comments: We agree with this principle however please clarify how you propose to execute and measure this requirement.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: It must be clear that no personal information or assessments that may be confidential are part of M2. The information should strictly be related to the System Operator's skills. Also see number 8 below regarding R1 and M1.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: D1.2, the reset period seems unrealistic and short. The assessment is due annually.

   D1.3 delete "onsite." Also who is the Compliance Monitor intended to be.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Requiring a training program subject to following 5 Systematic Approach to Training (SAT) principles seems overly perscriptive and why would it be a severe violation severity level not to follow these or subset thereof. ISO-NE can accept 5 training principles but to require only SAT seems unnecessary. This goes against the principle pf telling the industry WHAT to do, not HOW to do it.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: The lack of objectivity in these requirements may conflict with labor union contracts (i.e. confidentiality issues of performance reviews).

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: R1.1 should refer to Transmission Operator instead of Transmission Owner. The proposed standard is not applicable to the Transmission Owner.

Attachment B should have the same preamble as Attachment A.

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Steve Rainwater
Organization:	Lower Colorado River Authority
Telephone:	512-482-6295
E-mail:	steve.rainwater@lcra.org

NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
☒ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
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The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: You are simply asking too much of a large segment of this industry-those utilities that have a small, or nonexistent, training staff. Your goals are lofty, but NERC is completely out of touch with reality if it believes that the huge requirements of this standard can be effectively managed by utlities such as mine that employ a training staff of one.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: It should be contained in the Continuing Education Program.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: See #1 above. It is simply too much for smaller entities to handle. Has anyone in the group that developed this standard polled the industry to see what kind of resources are available to support it? If not, then you have no idea of whether or not it is feasible.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
   ☐ Yes
   ☒ No

   Comments: If I do not agree with the requirments in the first place, then I can hardly agree with any time line.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
   ☐ Yes
   ☒ No

   Comments: See #4.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Again, it is an unreal expectation to believe that smaller utlities can manage what amounts to an entirley new massive program.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: see #4.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: see #4

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: If I started on this today, it would take me longer than that to create all these new requirements. In order to meet this requirements, I would have to drop all other responsibilities.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: To recap, the creaters of this standard have done a good job. My problem is not so much with the standard itself, as it is with the completely unreal expectation that the resources, money, and time exist to do all of this.
    Some further points:
    R.2- How are we supposed to accomplish this? Test each operator on each task anually? I spent 9 years in nuclear power operations and I did not get tested on each critical task the entire nine years. I was responsible for all critical tasks, but annually I was tested on a few randomly selected ones. That is a much better way to manage such a program.

From the generic task list for Transmission:

#5: Not performed by Transmisison System Operators, this is done by support staff
#18: Not performed by Transmisison System Operators in ERCOT
#27: Not performed by Transmisison System Operators
#45: Not performed by Transmisison System Operators in ERCOT, this is done by support staff
#61: What if your utility has no HVDC?
#67: In ERCOT, Transmission System Operators do not redispatch generation. This function is performed solely by the QSE. The only case where this would not hold true would be a blackstart.
#70, #71, #72, #73, #79, #81: Since ERCOT is a deregulated market none of these functions are performed by Transmisison System Operators at LCRA.

The standard mentions that a given organization is responsible for these generic tasks as well as any other self-identified ones. Use your common sense, if you give people the option of adding to their work load by adding elements to the list, basic human nature will lead people to not do so. Why would they want to create work for themsleves when this standard would already be making their jobs incredibley burdensome? Conversekly, if entities are allowed to drop some of the genric items off the list what you will see is individual utilities paring this last down to something manageable.

What we have here is a proposal to implement a standard without, in my opinion anyways, a thorough assesment of its impact. The basic idea is sound-a mandate for a systematic approach to training. The devil is in the details. I believe there is no concept of the time and resources that exist in this industry on the part of those who created this standard. You can mandate it, but it does not meant that those of us in the positions of responsibility will get the money/resources it would take to implement such a massive undertaking. The smaller utilities would need real help in making this happen. If NERC is bent on pushing this standard through then it should step up to the plate with regional training, templates, standardized forms, etc-all the things that will be needed to make this happen. This new standard would amount to an unfunded mandate making compliance a very difficult proposition for those of us at the end of the pointy stick. In fact, I would personally consider moving into some other area out of training in order to not be liable.

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

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Organization:	Madison Gas and Electric Company
Telephone:	608-252-1581
E-mail:	jdepoorter@mge.com

NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
☐ ERCOT	☐	1 — Transmission Owners
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- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No
   Comments: It is unclear what "acceptable" is and what measurements can apply to it when it has not been defined. It is unclear whether this means for each job title or for each person that holds the system operator certificate. If it is for each job title (position), this is reasonable, however if it is each person, then it becomes overly cumbersome. If for each person, this is the responsibility of the registered entity to council and supervise its' operators.   Or does it simpley mean that the System Operator position (tasks) in question has been reviewed and they meet the currect position responsibilities? How can this be measureable if there is no change in job tasks from year to year? Perhaps it should read "System Operator job task for each position shall be reviewed upon addition or removal of system operator job tasks".

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments:
   a) This requirement needs to be in "Personnel Performance, Training, and Qualifications" standard. In NERC's Reliability Standards Development Plan dated Nov 30, 2006, the Work Plan objective to support its Goal is to "Reorganize the standards more logically based on topic and remove redundancies". All NERC Training Requirements need to be within the Personnel Performance, Training, and Qualifications Standard's section.

   b) All required training that a NERC Standard directs any entity to do should be placed in its own NERC (training) Standard. The NERC Standard category "Personnel Performance, Training, and Qualifications" is established for this purpose. As stated in FERC Order 693, para. 1335, training requirements would not be in one "all inclusive standard". A better fit is to have many individual standards (that specify training requirements listed in Personnel Performance, Training, and Qualifications section of the NERC Standards) under the heading of "Personnel Performance, Training, and Qualifications". If a training requirement is imbedded in a non-"Personnel Performance, Training, and Qualifications" standard, it will lead to possible shortfalls from an entity.

   c) This requirement should be in the Personnel Performance, Training, and Qualifications Standard, because it applies to training not specifically related to System Restoration or Blackstart (e.g. loss of primary control center, energy emergencies, etc.).

   d) In R3, it is stated "… 32 hours annually of emergency AND system restoration training." Does this mean 32 hours of both or a total of 32 hours? Since system restoration is a subset of Emergency Opertions Topics (attachment B), then the SDT should delete system restoration from R3. Either way the SDT needs to state what the proposed requirement will be.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:
    a) It is unclear whether this means for each job title or for each person that holds the system operator certificate. If it is for each job title (position), this is reasonable, however if it is each person, then it becomes overly cumbersome. Routine tasks are currently monitored by the System Operator's Supervisor as part of the Supervisor's on-going evaluation of the System Operator's job performance.   Job performance evaluation is a normal part of supervision and is utilized to determine compensation levels, retain quality personnel and administer the promotion process. Requiring a formal test or evaluation of tasks performed on a routine basis will trivialize the assessment process and encourage rubber-stamp approval to sign off on each task. System Operators should only be required to formally demonstate competance in performing non-routine tasks which are performed on an infrequent basis.   Or does it simply mean that the System Operator position (tasks) in question has been reviewed and they meet the currect position responsibilities?

    b) As a measurable requirement, this becomes too cumbersome (if for each system operator). As a business practice, it is good, but some of the tasks (i.e. communication with the RC) are performed regularly and to have to document each task for each operator would be overly burdensome.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:
    a) Entities have established training programs per Regulatory Approved Standards. Proposed Effective Date, 5.1 is the only parlell, carry over requirement from a Regulatory Approved Standard (PER-002-0, R4) to this proposed standard. This time frame is workable.

    b) Proposed Effective Date, 5.2 is unclear (see comments of 2.a, above), so an effective date can not be proposed yet.

    c) Proposed Effective Date, 5.3 for the proposed SAR contains over 370 tasks for operators and the time line is too aggressive. Registered Entities will need to be trained in the Systematic Approach to Training process, set up their own processes, convert established training to the SAT process, create new training and start to give training to System Operators. Budgets will need to be forecasted, personnel will need to be tasked with the training process (most companies have a small training department), this will take an extream amount of time and cost are unknown at this time.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

☒ No

Comments: Since Violation Severity Levels have not been vetted through the electrical industry, levels of severity can not be applied to the proposed standard.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: M1.2, Unclear what the difference is between "design" and "development", and these are in fact lumped into one measure even though they are considered 2 separate steps for the SAT process.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:
a) It is unclear what the one month period is meant to be in Compliance 1.2. If it is meant to mean that the requirements need to be met monthly, then the requirements are too in-depth to be met on a monthly basis. A full evaluation of each operator on a monthly basis in particular would be impractical. R3 already mentions it is an annual requirement, and this time period seems reasonable for all of the requirements.

b) Data Retention, 1.3, Do not understand the 4 year retention period, since Registered Entities (RC, TO, BA) will be audited every three years..

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:
a) In 2.1.3, under VSL, it is possible that the list of Emergency Operations Topics exactly fits an entity, and such entity should not be penalized for that. In 2.2.3, this implies that ALL of the subject areas must be met annually. If this is not the intent, it should be clarified. If this is the intent, this appears to be too demanding for each operator to meet all 42 subject areas in 32 hours.

b) VSL's need to be vetted through the electric industry or drop them all together. Since a training violation does happen during realtime, the VSL should be low.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: a) Entities have established training programs per Regulatory Approved Standards. Proposed Effective Date, 5.1 is the only parlell, carry over requirement from a Regulatory Approved Standard (PER-002-0, R4) to this proposed standard. This time frame is workable.

b) Proposed Effective Date, 5.2 is unclear (see comments of 2.a, above), so an effective date can not be proposed yet.

c) Proposed Effective Date, 5.3 for the proposed SAR contains over 370 tasks for operators and the time line is too aggressive. Registered Entities will need to be trained in the Systematic Approach to Training process, set up their own processes, convert established training to the SAT process, create new training and start to give training to System Operators. Budgets will need to be forecasted, personnel will need to be tasked with the training process (most companies have a small training department), this will take an extream amount of time and cost are unknown at this time.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:
a) In NERC's Reliability Standards Development Plan dated Nov 30, 2006 (pg 3 of 21), (pertaining to FERC Order 672) states "the Commission states that a proposed reliability standard must be designed to achieve a specific reliability goal and be clear and unambiguous regarding what is required and WHO is required to comply". The STD will need to rewrite Applicability 4.2, (use of the words "and their delegates") do to the ambiguous personnel requiring training other than certified system operators.

b) R4.2 states the standard applies to System Operator positions listed under R4.1 and "their delegates who can directly, or through communications, impact reliability by producing a real-time response from the Bulk Electric Systyem". In NERC's Personnel Certification and Governance Committee (PCGC) Charter (approved May 2, 2007), Section 2, 1.a. includes that the PCGC sets the "requirements for personnel certification, maintaining certification, and recertification". The PER-005-1 SDT does not have the authority to require non NERC Certified personnel to be trained under a NERC Standard. The PCGC establishes who must be NERC Certified.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: Attachment A:
Concerning General Control Center Operations Tasks,
#22 (Monitor real-time market prices) should be removed, reliability is not based on economics.
#58 (evaluate, test, and/or confirm the accuracy of reliability assessment tools) should be removed, this is not an operator task.

Concerning Generation Tasks,
#14 (publish next-day market results) it is redundant with #29.
#48 (suspend automatic generation control as required) should be removed, it is part of #47.
#58 (operate power facilities in compliance with environmental standards) should be removed, it is not a part of reliability.

Attachment B:

A.6, needs to be split into two topics, 1) Geomagnetic Disturbances on system operations and 2) Weather impacts on system conditions.

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Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Leo St. Hilaire
Organization:	Manitoba Hydro
Telephone:	204-487-5326
E-mail:	lasthilaire@hydro.mb.ca

NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☒ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☐ **SERC**	☒	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.

- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes
   ☒ No

   Comments: Not clear on what system operator position means. In theory I agree but from a practical purpose this is not an easy task, especially for non-routine or emergency tasks without the aid of a simulator. While reference is made to the 737 pilot, simulators for the aircraft industry are far more developed than those for electrical systems. Walking through restoration plans and emergency procedures is one thing but it is quite another thing to put into practice. Is it being suggested that a comparison of acceptable to actual perfomance be made from the task on the BES task list.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: Should be part of the system personnel training standard. Anything related to training should be found in these standards.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes
   ☒ No

   Comments: In theory I agree but from a practical purpose this is not easy. My real concern is who would be doing the evaluation. Besides being a burden on many utilities, as some utilities will maintain a a narrow list of BES tasks so that they could comply. I am unsure whether or not each utility would treat the evaluation consistently. In some companies, supervisors work along side the system operators and may just give the evaluation a cursory effort. This would do nothing to improve training.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
   ☐ Yes
   ☒ No
   Comments: Do not understand what this means.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☒ Yes

☒ No

Comments: It is hard to believe that we are still mixing risk with importance. Yes training is an important component but it is a stretch to say that missing some item or document is going to place the system at risk.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: On quick review it looks like additonal requirements are being placed in the measures. The measures are complex and may not be understood.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Violation Security Levels are too complex to follow.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Violation Security Levels are too complex to follow.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☒ No

Comments: I think the plan is okay but if it has a medium risk factor then is that being understated and should we not be starting immediately.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☒ Yes

☐ No

Comments: There may be issues with some unions and its agreements.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: I still have a concern with whether or not this would be fairly applied by all utilities. Most utilities will try and keep a minimum set of tasks and the assessment process will be treated inconsistently across the utilies.. This has been a better attempt

at providing the miniimum tasks for each type of system operator but again, there will be no way the NERC or an audit team will be able to determine if the task should be there or not. Some way of tying the metrics being developed by the TADS might be away for determining training needs.

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Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:
Organization:
Telephone:
E-mail:

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
☐ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Midwest ISO Stakeholders

Lead Contact: Jason L. Marshall

Contact Organization: Midwest ISO

Contact Segment: 2

Contact Telephone: 317-249-5494

Contact E-mail: jmarshall@midwestiso.org

Additional Member Name	Additional Member Organization	Region*	Segment*
Jim Cyrulewski	JDRJC Associates	RFC	8
Jim Eckels	FirstEnergy	RFC	1
Joseph DePoorter	MGE	MRO	3
Joe Knight	GRE	MRO	1

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: We agree that it should be a requirement to annually assess and update a training plan for each system operator position and design training around these assessments. However, the choice of words is poor and we can't support a requirement that implies it is acceptable for a System Operator to fill a position in which he does not meet an acceptable performance level.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: We don't think it matters which standard as long as it is in only one. It should be removed from the standard that is further behind in the process to minimize any schedule impacts. In relation to this annual training requirement, we recommend striking the second paragraph under section 2.4.3 of the Severe violation level. The first paragraph should cover all situations since 32 hours of training were provided or they weren't. If the 32 hours have not been met, the annual requirement has not been met.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: Each operator should have an annual plan that includes a combination of training based on job tasks, simulation, and classroom knowledge-based training. There may be hundreds of tasks in an entities JTA. It is unnecessary and administratively burdensome to require an assessment each year against each task.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: As a general rule, we do not agree to any assignments of time horizons because time horizons were never vetted through the industry. The definitions also are not posted on the NERC web site in a prominent location. There were no time horizons assigned for R1 and R2 in PER-004-2.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: As a general rule, we do not agree with the assignment of any Violation Risk Factors to any requirements since the Violation Risk Factor definitions have not been vetted through the industry. One could make a case that the lack of a training program could be a medium risk violation, however there should be no medium or high risk requirements in an administrative standard. We appear to be confusing importance with the probability of cascading.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: Measure 1 is confusing due to the sub-measures. Is this trying to say the training program shall have these four critieria? If so, it needs to be worded better. For example, we suggest simply replacing M1.1 with:

    A list of company specific BES reliability-related tasks with measurable criteria for each task.

    This is much simply and clearer.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: We have the following issues and concerns:

    1. Doesn't the Compliance Monitoring Period and Reset of one-month make the annual training requirement ineffective? Since it is reset every month, can you ever really measure if 32 hours have provided? It seems that it should not be reset each month.

    2. What is the justification for retaining documentation more than 3 years. Three years is generally the longest a standard requires for data retention unless there is a violation. There should be strong justification for this. We can't fathom what it is.

    3. Section 1.4 should be completely removed. It is written in a way that would require the regional entity to include this standard in their annual Compliance Monitoring and Enforcement Program every year and dictates to the region how compliance will be monitored. Isn't this up to the region? It also duplicates the requirement for a compliance audit every three years. It does not need to be repeated here.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

Comments: In general, we do not support the application of any violation severity levels because the VSL guideline has not been vetted through the industry.

We do have the following specific issues and concerns as well.

1. The VSLs try to cover so many scenarios that they are confusing. We had enough trouble understanding them that we are concerned we have not identified every specific issue with them.

2. In the Moderate Violation Severity Level, section 2.2.2 creates a de-facto requirement on the training schedule because the training based on the mis-match in performance is required to be in the current schedule. What if a responible entity's schedule is updated every quarter and only goes out 3-6 months? They could still train on this in months 7-12 but this compliance element would find them in violation because it was not in their "current schedule".

3. We do not agree that a lack of documentation should be considered a high violation as described in section 2.3.1 of the High VSL. Lack of documentation should be a lower violation.

4. Sections 2.3.1.1, 2.4.1.1 and 2.2.1 duplicate one another but are in different VSL.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.
☐ Yes
☒ No
Comments: If the standard were simplified, it could be phased in more quickly.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.
☐ Yes
☒ No
Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: The scope of the Certifying System Operators SAR indicates that they will determine who needs to be certified. Yet, this standard in section 4.2 of Applicability section specifies who should be certified. This should be coordinated with the CSO SDT.

Requirement R1 in PER-004-2 will be redundant with standards created by the CSO SDT. We recommend eliminating it. Requirement 2 is also poorly defined and not measurable. How does one place particular attention on SOLs and IROLs? This a relative statement that leaves the requirement open to significant future challenges during enforcement.

The standard appears to have only 4 requirements, yet is 27 pages long. It is too complex. All registered entities should have a training program. It does not have to be a SAT program.

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:
Organization:
Telephone:
E-mail:

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☐	1 — Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

Group Name: Midwest Reliability Organization

Lead Contact: Robert Coish

Contact Organization: Manitoba Hydro

Contact Segment: **10**

Contact Telephone: 204-487-5479

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Terry Bilke	MISO	**MRO**	10
Carol Gerou	MP	**MRO**	10
Jim Haigh	WAPA	**MRO**	10
Ken Goldsmith	ALTW	**MRO**	10
Tom Mielnik	MEC	**MRO**	10
Pam Oreschnick	XCEL	**MRO**	10
Dave Rudolph	BEPC	**MRO**	10
Eric Ruskamp	LES	**MRO**	10
Michael Brytowski	MRO	**MRO**	10
Joe Knight	GRE	**MRO**	10

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes
   ☒ No

   Comments: There is a potential ambiguity that "each system operator position" could be interpreted as meaning "each person who performs each operator position". This is because of the use of the words "actual performance capability" which seems to refer to a person not a position. The MRO assumes what is meant is each position not each person. Please confirm. Perhaps wording could be clarified by inserting "(not person)" after the word "position". Suggest replacing "acceptable and actual performance capability" in R2 with "required and existing performance capability". The MRO agrees with R2 in concept but in practice this is not an easy task, especially for non-routine or emergency tasks which may be very difficult to simulate in training. While reference is made to the 737 pilot, simulators for the aircraft industry are far more developed than those for electrical systems. Walking through restoration plans and emergency procedures is one thing but it is quite another thing to in practice.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: Should be part of the system personnel training standard. Anything related to training should be found in these standards. Might be helpful to have a reference in the blackstart standard like "see personnel training standard for specific training requirements".

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes
   ☒ No

   Comments: In R4 it isn't clear how often the Operator's capabilities must be assessed. There is a mismatch between Question 3 and R4. Question 3 uses the words "perform an assessment" whereas R4 uses the word "varify". An assessment is an estimate whereas to varify is to actually test. Perhaps R4 should use "assess" rather than "varify". In theory MRO agrees with R4 but from a practical point of view this is significant overkill. MRO Operators are already required obtain NERC certification. There is also the NERC Reliability Readiness Evaluation and Improvement Program. In addition, compliance to many other real time standards test the capabilities of the positions every day. How can the standard ensure that the assessment is being done consistently from company to company depending on who actually does the assessment and how complete or accurate each companie's specific BES task list is? For example, some utilities may maintain a

narrow list of BES tasks so that they could more easily comply. Would each utility treat the evaluation consistently? In some companies, supervisors work along side the system operators and may just give the evaluation a cursory effort. This would do nothing to improve training. Do all tasks have to be assessed annually? Wording seems to be flawed in that every operator has to be varified on every task before they can operate. This does not seem to recognize that operators require actual operating experience to aquire capability in all tasks. In general R4 adds an excessive and and burdensome level of bureaucracy.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☒ No

   Comments: There is varied opinion on this. Perhaps the majority opinion is: It is hard to believe that we are still mixing risk with importance. Yes training is an important component but it is a stretch to say that missing some item or document is going to place the system at immediate risk. MRO suggest these be assigned as LOW but does agree that training is important. Others agree with assigning Medium.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: On quick review it looks like additonal requirements are being placed in the measures. For example, M1.1, seems to add an additional requirement of having measurable or observable criteria for desired performance for each task which is not stated in R1. The measures are complex and may not be understood. For example, in M4, it is not clear how "varification of the capabilities for each real-time operator" can actually be achieved and then varified to an auditor. In may also be inpractical to varify capability to perform some tasks if the individual operator has never actually been in a situation to demonstrate capability - follow the correct procedures to initiate loadshed in an emergency, for example.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments: The term Compliance Enforcement Authority (CEA) needs to be defined as it seems this is a previously undefined entity. Why not just say Regional Entity?

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Too complex. Don't need to list five phases again and again

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☒ No

Comments: If there is really a MEDIUM risk to the system perhaps the implementation plan should be accelerated. On the other hand, the implementation schedule may be overly aggressive if significant modifications to the Job Tasks are required.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☐ No

Comments: (It seems the last sentence of this question is incorrectly phrased. Shouldn't "not" be replaced with "yes"?) There may be issues with existing union agreements.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: Please explain how the performance reset period of one month would work when the training program is being assessed annually per R2.

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

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(Complete this page for comments from one organization or individual.)

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E-mail:	jcastle@nycap.rr.com

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☐	1 — Transmission Owners
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Additional Member Name	Additional Member Organization	Region*	Segment*

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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No
   Comments: Monitoring the mismatch between acceptable and actual performance is a continual process. If there is a mismatch in the expectation and performance of reliability-based tasks, such mismatches are addressed immediately based on reliability requirements. Failure to do so is to risk non-compliance with reliability standards.

   To mandate an annual performance evaluations solely for the purposes of training, when continual reliability-based performance evaluations must be conducted to maintain compliance with operational standards, would be redundant.

   R2 should be deleted as unnecessary, given R1 and the compliance requirements with all other NERC standards. R1 addresses training for existing and "new or revised tasks"

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: This requirement that has no basis in a systematic approach to training, it should be removed from both locations. Thirty two hours is an indefensible, arbitrary, and capricious number.

   Please explain the justification for selecting 32 hours rather than 64, or 16?

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☒ No
   Comments: Orientation training is provided in a systematic approach to assume the task. Reinforcement training of the key reliability tasks is an ongoing aspect of a systematic approach to training.   Addressing gaps between expectations and actual performance is driven by reliability requirements, not training program structure.

   Annual testing of all staff, on all possible tasks, is a waste of training effort and operator time.

   R4 should be deleted as unnecessary, given R1 and the compliance requirements with all other NERC standards.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Medium is an excessively high risk factor.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: M4 is unmeasureable. Replace the wording "verification of the capabilities" with "training records".

   R4 is not measurable. Please replace the following:

   Each Reliability Coordinator, Balancing Authority and Transmission Operator shall maintain training records of each of its real-time System Operators.   Each Reliability Coordinator, Balancing Authority and Transmission Operator shall maintain records of training programs provided to address the tasks on its list of company-specific BES reliability-related tasks.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: There is no requirement that requires data retention.   There should be. See the proposed rewording of R4 above.

   Mitigation plans are addressed nowhere in the standard except in data retention. It is an undefined term.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments:
   The risk factor should be LOW for R2.   There is no risk to reliability if the mismatch does not result in reliability impacts in real-time operation. Real time reliability standards are

addressed in other documents.   If there are tasks that fall below expectations that do not effect system reliability as measured by NERC standards, then their impact on reliability is low.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: R3 is in effect now under PER-004. There is no need for a phase in.   On the other hand R3 has no place in a systematic approach to training and should be deleted.

If, and only if, R1, R2, R4, Appendix A and Appendix B are rewritten along the lines suggested in this comment form, the effective dates would be viable.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:

Requirement R1.2 should be deleted in its entirety. It mandates through "shall" that "all" the tasks in Attachment A be included in the company specific task list. Attachment A includes meaningless, redundant and poorly worded task definitions.   If NERC wishes to create a separate document to aid entities in developing a company-list, that would be OK.   But Attachment A, as written, is worthless and misleading definitions of tasks.

The Attachment A has no place in a standards document unless each and every item on those lists is mandatory.

Both Attachments A should be deleted or completely reworded.   As written, it will never stand up in court as valid task definitions.

Here are examples of poorly worded tasks from the

 NERC Generic Task Lists: Emergency Operations,

which I will be mandated to include in my company specific task list

Consider items 1-10 on that list.

1 Request emergency energy upon loss of a resource
2 Respond to capacity deficiency
3 Respond to loss of energy resources within allowable regional or pool timeframe

4 Prepare for a capacity emergency by bringing on all available generation
5 Prepare for a capacity emergency by postponing equipment maintenance
6 Prepare for a capacity emergency by scheduling emergency energy purchases
7 Prepare for a capacity emergency by reducing load
8 Prepare for a capacity emergency by initiating voltage reductions
9 Prepare for a capacity emergency by requesting emergency assistance from other systems
10 Schedule available emergency assistance with as much advance notice as possible given a capacity emergency

The true tasks in these items have nothing to do with the causal event. Cutting out the phrase about "capacity emergency" will clarify those task statements 3-10 exceedingly.

Cutting out the causal trigger for action, i.e. "Capacity deficiency", the measurable task #2 becomes "Respond to".   Please provide an example of how one measures competency for the task "Respond to".

In items 4-8, the competency task has nothing to do with the trigger to initiate the task. Dropping "Prepare for a capacity emergency by….", is not a task definition.   "Bringing on all generation", "postponing equipment maintenance", "scheduling emergency energy purchases", reducing load, initiating voltage reductions" (which is really a subtask of reducing load), "requesting emergency assistance from other systems", can be executed to resolve any number of issues besides capacity emergencies.   The same tasks can apply to (1) preparing for and (2) resolving - all the subsets of SOL and IROLs.

How is the task "request emergency energy" in item 1 different from "scheduling emergency energy" in item 6, or "schedule available emergency assistance" in item 10"? Please explain.

The same exercise can be applied to items 15-24 on that list.

15 - Manually shed load to alleviate system emergency conditions
16 - Following the activation of automatic load shedding schemes, restore system load as appropriate for current system conditions and in coordination with adjacent systems
17 - Following the activation of automatic load shedding schemes, shed additional load manually if there is insufficient generation to support the connected load
18 - Following the activation of automatic load shedding schemes, monitor system voltage levels to ensure high voltage conditions do not develop
19 - Following the activation of automatic load shedding schemes, monitor system frequency to ensure high frequency conditions do not develop
20 - Following the activation of automatic load shedding schemes, monitor the performance of any automatic load restoration relays
21 - Following the activation of automatic load shedding schemes, resynchronize transmission at preplanned locations if possible
22 - Following the activation of automatic load shedding schemes, disable automatic under frequency relays if system conditions warrant
23 - Direct distribution providers to shed load when required for system reliability
24 - Use manual load shedding to prevent imminent separation from the Interconnection due to transmission overloads or to prevent voltage collapse

"Following the activation of automatic load shedding schemes" has no place in an outcome oriented, measurable task definition. It makes no difference to the operators' task how the load was shed.

Is the manual load shed task in 15 any different from the manual load shed task in 24? Are transmission overloads and voltage collapse in task 24 not included in task 15 "emergency conditions"? Please explain.

Does restoring system load task in 16 have any connection to how the load was lost? Is restoring load lost by UFLS, different from restoring load for manual load shed, or load trip, or restoration? Please explain.

Do you only monitor voltage levels following a UFLS event?   Do I need different tasks to monitor voltage for load pick-up, load drop-off, line switching, line tripping, generation tripping, capacitor switching, reactor switching, phase shifter operations, HVDC operations, and interchange schedule changes? For each of these tasks, will I need a procedure for the auditors to verify? Please explain.

Do we only resynchronize transmission at pre-planned locations after UFLS events? Do I need to define different tasks for resynchronize transmission at pre-planned locations after a maintenance separation, during a system restoration, etc.? Please explain

Attachment B is severely flawed and redundant

The list in Attachment B has no place in a standards document unless each and every item on those lists is mandatory.

Attachment B should be deleted or seriously reworded.   It will never stand up in court.

A1) "Emergency Drills and Responses" will capture:
       All of section B "Operating Policies relative to Emergency Operations"
       D4) responding to imminent voltage collapse
       D5) SOL: and IROL
       D6) DC operations during system emergencies

All of section B, D4, D5 and D6 should be removed in this standard that addresses a systematic approach.

D8 & D9.   There is no distinction between "congestion management" and "line loading procedures"   Remove D8 as redundant in this standard that addresses a systematic approach.

What is the difference between "congestion management" and "line loading procedures"?   Please explain.

D11: Assuming that "tie line operations" means CPS control state that.   If you intend it to mean another form of line loading control, delete it.

If you mean these to be different items, please clarify.

A5 & D2; There is no distinction between A5 and D2.   Remove D2.
      A5: System protection
      D2: Special protections systems

What are "special protections systems" if not an instance of "system protection"? Please explain.

A4 & D3: There is no distinction between A4 and D3.   Remove D3

A4: operations during unstudied conditions
d3: special operating guides

What is if the function of "special operating guides" if not to address "operations during unstudied conditions"?   Please explain.

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<table>
<tr><td colspan="3" align="center">Individual Commenter Information
(Complete this page for comments from one organization or individual.)</td></tr>
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- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: The caveat here is that before the assessment takes place, the requirements of each specific operator need to be developed. This process commences with the job tasks for each position being identified and the standards being developed from the task lists. It is difficult to determine the mis-match between acceptable and actual performance when the standard does not exist. The only standards that we currently have are that the operators must complete their NERC certification, and each operator is required to obtain 32 EOP hours of annaul training and obtain up to 200 hours of CEH to maintain their certification. Once we have completed the initial qualification of all the system operators, it would make more sense to tie the assessment to NERC recertification so that the assessment is done every three years.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The 32 hour requirement is not currently included in Project 2006-03. This information should be included in the training document. The System Restoration and Blackstart standard should reference the training document when talking about frequency of training and content, that way the training document would contain all pertinent training data including frequency of testing and testing requirements.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes
   ☐ No

   Comments: This assessment should be part of the initial qualification effort, before the individual fills the position of system operator. The assessment should then take place every three years in conjunction with NERC re-certification. An annual assessment of each assigned task would be administratively arduous.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

Comments: The annual assessment is scheduled to begin before the baseline criteria for the evaluation is developed. It would be more beneficial to develop the standards upon which the evaluation will be based first so that the operators know what is expected from them.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.
    ☐ Yes
    ☒ No
    Comments: Compliance monitoring period and reset lists the performance reset period for all requirements at one month, which would make the annual training requirements ineffective.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.
    ☐ Yes
    ☒ No
    Comments: Since the training program with not be completed until the end of the three year period, assessments of personnel could not begin until after the completion of this development.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.
    ☐ Yes
    ☒ No
    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: We need clarification in A.4.2 as to whom this standard is applicable and who will be the initially qualified personnel to sign off operators.

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Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)
Name:
Organization:
Telephone:
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NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
☐ ERCOT	☐	1 — Transmission Owners
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☐ NA – Not Applicable	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☒	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:　　　　　NPCC Regional Standards Committee RSC

Lead Contact:　　　　　Guy V. Zito

Contact Organization:　　Northeast Power Coordinating Council

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*
Ralph Rufrano	New York Power Authority	**NPCC**	1
Murale Gopinathan	Northeast Utilities	**NPCC**	1
Edwin Thompson	Con Edison	**NPCC**	1
Randy MacDonald	New Brunswick System Operator	**NPCC**	2
Mike Ranalli	National GridUS	**NPCC**	1
Roger Champagne	HydroQuebec TransEnergie	**NPCC**	1
Ron Falsetti	The IESO, Ontario	**NPCC**	2
Brian Gooder	Ontario Power Generation	**NPCC**	3
David Kiguel	Hydro One Networks	**NPCC**	1
Kathleen Goodman	ISO-New England	**NPCC**	2
John Bonner	Entergy Nuclear	**NPCC**	3
Don Nelson	MA Dept. of Public Utilities	**NPCC**	9
Al Adamson	New York State Reliability Council	**NPCC**	10
Reza Rizvi	NPCC	**NPCC**	10
Guy Zito	NPCC	**NPCC**	10

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

    ☐ Yes
    ☒ No
    Comments: Please define how to constitute acceptable and actual performance cabability and clarify the requirement. How will industry identify "mismatch". Is this requalification of system operators. The requirement doesn't seem measurable and crisp to audit for compliance. This requirement has a "fill in the blank" characteristic.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

    Comments: The 32 hour emergency training requirement belongs in the personnel training standard. Please provide the basis for the 32 hour requirement.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

    ☒ Yes
    ☒ No
    Comments: We agree with this principle however please clarify how you propose to execute and measure this requirement.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: It must be clear that no personal information or assessments that may be confidential are part of M2. The information should strictly be related to the System Operator's skills. Also see number 8 below regarding R1 and M1.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: D1.2, the reset period seems unrealistic and short. The assessment is due annually.

   D1.3 delete onsite. Also who is the Compliance Monitor intended to be.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Requiring a training program subject to following 5 Systematic Approach to Training (SAT) principles seems overly perscriptive and why would it be a severe violation severity level not to follow these or subset thereof. NPCC Participating members can accept 5 training principles but the entire SAT seems unnecessary. If NERC intends to adopt the SAT, in its entirety, it needs to clarify and educate the industry before incorporating it into a standard.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: The lack of objectivity in these requirements may conflict with labor union contracts. ie confidentiality issues of performance reviews.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: R1.1 should refer to Transmission Operator instead of Transmission Owner. The proposed standard is not applicable to the Transmission Owner.

Attachment B should have the same preamble as Attachment A.

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:
Organization:
Telephone:
E-mail:

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☐	1 — Transmission Owners
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Comment Form — Standard PER-005 – System Personnel Training

Group Comments (Complete this page if comments are from a group.)

Group Name: Ohio Valley Electric Corporation

Lead Contact: George Brady

Contact Organization: Ohio Valley Electric Corporation

Contact Segment: 1

Contact Telephone: 740-289-7297

Contact E-mail: gbrady@ovec.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Scott Cunningham	Ohio Valley Electric Corporation	RFC	1
Robert Mattey	Ohio Valley Electric Corporation	RFC	1

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: How can the training needs of a position be determined based on performance capability of that position? A position has infinite capability while an individual does not have infinite capability. The requirement be revised to determine mis-match of acceptable and actual performance and leave the word capability out of the requirement.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The training requirements for system operators should all be in the same standard, namely the System Personnel Training Standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: This requirement is not necessary for several reasons. The ability to only perform individual tasks does not give a good indication of an operator's performance to manage and execute reliable operation of the Bulk Electric System during critical times when multiple tasks must be performed in rapid succession…working under pressure. The performance of an operator in a pressure situation would provide a better measure of an operator's performance rather than assessing capabilities to execute individual tasks. With only assessing individual tasks, the big picture of an operator's performance to reliably operate the Bulk Electric System is not adequately determined.

   Also, the performance of individual system operators is already evaluated through a performance review process and training evaluations are a part of that process. In order to demonstrate compliance with this requirement, would these performance reviews need to be made availabe to compliance auditors? Allowing auditors to view the performance reviews would seem to violate privacy and confidentiality laws and would necessitate the involvement of the human resources department in the compliance process. If the human resources department were not involved in the process then a separate process would need to be duplicated in a "sanitized" manner for inspection by the compliance auditors. This duplication would be redundant and inefficient.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The Risk Factor for each requirement should be low. Each of the requirements appear to be more administrative in nature and do not warrant a Medium risk factor as is currently assigned.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The M1 sub-measures are written more like requirements than measures. The submeasures should be deleted. Revise M1 to read, "Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evdience of a SAT developed BES System Operator training program as stated in R1." This wording clearly measures all that is stated in requirement R1.

    In M2 it is unclear why the word "position" was included.

    For M3, delete the words "or system restoration training." Sytem restoration is considered a part of emergency operations.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: In Section D, 1.4 the annual self-certification submittal should not be included in the standard but left to NERC's discretion to either include or exclude monitoring in the annual compliance and enforcement program. The impact on the system from this standard is minimal if it is not monitored for compliance on a yearly basis.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: Generally, the whole violation severity level section is far too cumbersome and verbose to understand and implement. Specifically, for Section 2.1.3 what if the entity did not find it necessary to add or remove any topics from the list? Why is that a violation? The section seems to indicate that the list has to have items constantly

removed or added to have no violation occur. For section 2.2.2 what is meant by the addition of the word "capability?" For section 2.2.3, if the 32 hours of training is not included in Attachment B then either Attachment B needs revised or deleted or the continuing education hours program also used to identify emergency operations courses needs revised. Suggest remove 2.2.3 entirely or remove the words, "or sytem restoration", and "but did not include training in subject areas listed in Attachment B." Section 2.3, the bulleted items seem to read as requirements rather than as measures. Section 2.3.2.1, again, what is meant by the addtion of the word "capability?" Section 2.3.3.1, this section reads as a requirement rather than as a measure.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The implementation plan should be simplified to allow for clearer understanding and easier tracking. Suggest that R3 become effective immediately upon regulatory approval since the 32 hours of annual emergency operations training is currently required in PER-002, R4. Suggest that R2 become effective January 1 in the first year following regulatory approval because an effective date that would allow for less than a full calendar year of implementation does not give an entity time to thoroughly assess annually the training needs of each System Operator position. Suggest that R1 and R4 become effective January 1 the second year following regulatory approval. The suggested times balance the timely implementation of the standard to maintain and enhance reliability, while allowing entities ample time to achieve compliance with the requirements, and is a simpler and more straight forward implementation plan that is easier to understand and track.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: The statement in Applicability Section 4.2 is too broad. It could be interpreted to include switchmen performing switching because switchmen can "impact reliability by producing a real-time response form the Bulk Electric System." This interpretation will not achieve industry consensus for the standard. The statement should be revised to repeat requirements R2 and R2.1 of PER-002 which states that "Each Transmission Operator and Balancing Authority shall have a training program for all operating personnel that are in: Positions that have the primary responsibility, either directly or through communications with others, for the real-time operation of the interconnected Bulk Electric System." This statement has the correct narrow focus, is easily understood, and is currently implemented by the entities.

It is confusing in R2 why the word "position" was used rather than the word "person" and why was the word "capability" used at the end of the sentence. As currently worded, it is not clear what R2 is trying to require. The requirement seems to be asking an entity to "determine mismatch between acceptable and actual performance capability

for a position." What does that mean? The implementation of that interpretation does not seem feasible for the "capability of a position." It would seem the intent should be to determine the mismatch between acceptable and actual performance for an individual operator which R4 of the standard basically states. Suggest deleting R2, R2.1 and R2.2 and adding specificity to R4 described below.

R4 does not indicate how often an entity should verify capabilites of its Sytem Operators. Do entities only need to verifty capability of an Operator one time for each task? What if the task is rarely performed, how often should verification take place? What if the task is performed daily, how often should verification take place? The lack of a specified frequency to verify capability creates a requirement that provides no improvement to the reliability of the Bulk Electric System.

In R3 delete "and system restoration training" because this type of training would be considered emergency operations already. Delete R3.1 and Attachment B because the added specificity will not improve the type or scope of emergency training. Delete R3.1.1 because by just having a list will not improve emergency training or improve the reliability of the Bulk Electric System.

This proposed standard and several other standards appear to be an overreaction to the August 14 blackout. It seems to fall back to the specious argument that is if something happens, someone must have been responsible for the problem . Why are we unable to place the blame on the system for the problem, even if the system was the problem?

There has been no assessment or evaluation of the effectiveness existing training programs required by PER-002, R3 that has been in affect for over two years. Why create a standard to mandate a new training program when no assessment has been made of the effectiveness of existing training programs? The work to create a new training standard is not a judicious use of resources in order to strengthen the reliability of the bulk electric system. The argument that FERC has mandated SAT-based training programs in its order does not preclude the possibility that the FERC conclusion is wrong and unneccesary.

This standard goes beyond requiring a new training program. The standard seems to dictate the material on which operators are to be trained and how they are to be trained. The NERC operator certification program already determines that operators possess the minimal requirements to reliably operate the bulk electric system. Why should a training program duplicate the certification process? Currently there is ample incentive to have operators trained on company-specific tasks. An operator who is not capable of performing company specific task will not remain an operator at that company.

Many of the tasks listed in Appendix A do not seem to be reliability related and some would seem to be beyond the scope of a system operator position. For example, Item 18, says "Ensure that transmission contract paths are not exceeded." This item is more of a regulatory or business requirement than a reliability concern. Item 42, "Prepare daily reports and logs generated to meet company and regulatory requirements." This item may be important, but it is not important for reliability. Item 65, "Implement specified procedural actions in the event of a FERC Standards of Conduct violation." How is this item reliability related? Item 9, "Interpret relay targets, during forced outages." This item would be the responsibility of a system protection engineer who would provide guidance to the system operator and would not be the sole responsibility of the system operator.

In rebuttal to the "Background Information" provided above, work on this proposed training standard should cease and the standard should not be implemented for the following reasons:

1. Training is currently being provided to NERC Certified System Operators as a part of the NERC conitinuing education requirements for system operators and as also required in PER-002, R3.

2. Emergency Operations training is currently required in PER-002, R4.

3. Entities are currently allowed to determine and develop training based on individual training needs to support operation of the Bulk Electric System.

4. The language of the standard is too prescriptive especially, but not limited to, the inclusion of Attachment A and Attachment B.

5. Entities do not need a common starting point for training because of the extreme operational differences between entities.

6. Entites currently implement successful training programs as required by PER-002, R3.

7. The conclusion and assumption from the August , 2003 blackout investigation that Sytem Operators were not prepared to react in a manner that preserves the reliability of the interconnection is not correct. The operators were indeed prepared and were reacting to the events before the August, 2003 blackout in a manner to preserve the reliability of the interconnection by using the best data and information available to them. System Operators today are trained to perform tasks assigned to their position.

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Kris Buchholz

Organization:	Pacific Gas and Electric Company

Telephone:	415-973-1218

E-mail:	kkb1@pge.com

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
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Comment Form — Standard PER-005 – System Personnel Training

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☐ No

   Comments: The intent of this section is acceptable, however, the wording assumes a level of performance that may not be present. An assessment is made to identify gaps between the knowledge or skill level of the worker and the requirements of the job. The requirements of the job are identified as the past requirements and new requirements.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: If the number of hours of training are going to be in either standard, it should be in PER-005 only; however, the training areas is what should be specified and the number of hours left to the responsible party.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☐ No

   Comments:

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☐ No
   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☐ No
   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: Paragraph 4.2 adds confusion to the standard. We recommend deleting this paragraph. The standard does not address requirements for delegates and it is therefore left to the reader to interpret what, if any, would be applicable. Delegates could be interpreted down to the crews, and we are sure that this interpretation is not intended.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

Please use this form to submit comments on the second draft Standard PER-005 — System Personnel Training. Comments must be submitted by **September 28, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "System Operator Training Standard" in the subject line. If you have questions please Linda Clarke at linclrke@msn.com or by telephone at 610-310-7210.

Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Lauri Jones
Organization:	Pacific Gas and Electric Company
Telephone:	415-973-0918
E-mail:	LLJ8@PGE.com

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☐	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☐	5 — Electric Generators
☐ **SERC**	☐	6 — Electricity Brokers, Aggregators, and Marketers
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	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

    ☐ Yes
    ☒ No

    Comments: It is unclear as to whether the assessment is for the position or each operator in the position. The Standard should reflect the training needs, in relation to the defined company specific reliability related tasks, for each position and would then be updated as needed. If there were no changes to that position in regards to the defined company specific reliability related tasks in the previous year, the position would be reviewed and updated every three years.
    It is also unclear in R.2.1 as to the identification of mis-matches between acceptable and actual performance capability. What is acceptable to one company may not be to another and therefore is left open to interpretation in the measurement, M.2. How would this be assessed in either the readiness evaluation or a compliance audit?

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

    Comments: The NERC System Personnel Training Standards as the repository for all training identified in the standards and therefore recommends this requirement not be duplicated in the System Restoration and Blackstart standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

    ☐ Yes
    ☒ No

    Comments: The standard in its current language does not define how each task is to be assessed and documented. For instance would a check off sheet with the identified company-specific reliability related tasks be adequate? If a checkoff sheet were utilized, would this assessment be considered an annual process or is a one time verification acceptable? What is the benefit to the operator in assessing each task? Do the tasks identify whether they will be performed as a team or individually and under normal or emergency conditions? Capabilities of an operator are a subjective interpretation by each company and measure (M.4) is left open to a wide interpretation by the evaluators and auditors. How would this be assessed in either the readiness evaluation or a compliance audit? If companies are following the standard to provide annual training, then the assessments for each task would at times be duplication of the annual and on going training and therefore create additional work for a trainer.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: However, we would like a definition for long term planning?

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The purpose of the Violation Risk Factors is for use when determining a penalty or sanction. In reviewing the measures all requirements are administrative in terms of providing documentation that the requirement has been met. Training generally occurs outside of the real-time operations which have little impact on the BES and therefore a "Lower" risk factor versus the "Medium/High" risk factors would be appropriate.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: If the requirements change, then the measures should be changed to reflect the revised requirement.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:
    D.1.2 What is the compliance monitoring period and when does the reset period begin if training is an annual requirement?
    D.1.3 is referencing data retention; a question arises over "mitigation plans". Who does it apply to, the entities program or the operator?
    We also question the four year data retention, what is the purpose since it is counter to D.1.4 requirement of a Compliance Audit every three years.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The violation severity levels are to complicated. The violation severity levels are extremely defined in comparison the requirements. To comply with the violation severity levels would be a huge onerous task on any entity based on the implementation plan.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☒ No

Comments: The implementation plan would be acceptable if
NERC can develop the Standard so that they are clear and specific.

10. Are you aware of any conflicts between the proposed standard and any regulatory
function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not,
please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to
the questions above) that you have on the draft standard PER-005.

Comments: This standard, along with the approved NERC Continuing Education training,
records would be duplicated by the continuing education provider, now that operators
must maintain their certification through continuing education.
The standard should be job task specific and not operator specific.
Specific training requirements should be found in one standard, not throughout eighty or
more.

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:
Organization:
Telephone:
E-mail:

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
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	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: **Pepco Holdings, Inc. Affiliates**

Lead Contact: Richard Kafka

Contact Organization: Pepco Holdings, Inc.

Contact Segment: 1

Contact Telephone: 301-469-5274

Contact E-mail: rjkafka@pepcoholdings.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Valerie Hildebrand	Potomac Electric Power Company	RFC	1
John Keller	Atlantic City Electric	RFC	1
Vic Davis	Delmarva Power	RFC	1

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: Comment 1. PHI is not sure what is meant by this requirement. The language is confusing. We understand assessing the training needs of individuals and setting or identifying training requirements for positions but not training needs for positions. Could the drafting team clarify what it meant by this statement? Our concern extends to sub requirement 2.1 as well, because it uses the same confusing language. R2.2 which refers to new tasks or changes to existing tasks for each position is easier to understand. When the tasks for the position change, we should be aware of this and provide a mechanism for ensuring this new content is incorporated into the tasks or responsibilities of the position. Isn't this all that is really needed? Comment 2. Because we are not quite sure what the assessment involves we do not agree that an annual assessment is reasonable.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The requirement to provide 32 hours of EOP training annually belongs in the Personnel Training Standard because as listed in Attachment B, it encompasses a slightly broader set of topics than Restoration and Blackstart. Other standards, in addition to the Blackstart standard (i.e. Cyber Security and BUCC) have also identified training requirements. PHI believes any required or mandated training deriving from another standard should be specifically identified in the Personnel Training Standard with a cross reference to the applicable standard for the details of the requirement. (i.e. personnel, topics, length, frequency of the training etc.) and whether it may be included in an individual's required 32 hours of EOP or would be in addition to that.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes
   ☐ No

   Comments: The requirement does not specify a time period. As stated, this would be a one-time check to determine that each operator can perform the assigned tasks and PHI would expect that we could complete that assessment over a period of time. If that is the case PHI agrees.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: Except where we would like some clarification of Requirement 2 so that we would be clear about what is being assessed. See our comment to Q1

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: PHI feels the wording of the Violation Severity Levels is confusing. Lower does not seem reasonable - If an entity has reviewed the list, agrees with it completely and has nothing to add, they would appear to be in violation. Similarly Moderate seems to be saying that if an entity has started creating a list of all reliability related tasks but hasn't finished it, has identified training but hasn't scheduled it or has given so called EOP training but not from topics on Attachment B and done nothing else--they warrant a Moderate violation. But, if they have done almost everything but not quite met the requirement, they warrant a High violation. We are sure this is not the way these are meant to be understood. Perhaps starting with the Severe Violations and working down to moderate would be a better way to delineate what a moderate and lower violation would look like.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:

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Group Comments (Complete this page if comments are from a group.)

Group Name: PJM

Lead Contact: Albert DiCaprio

Contact Organization: PJM

Contact Segment: 2

Contact Telephone: 610-666-8854

Contact E-mail: dicapram@pjm.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Alicia Daugherty	PJM	RFC	2
Glen Boyle	PJM	RFC	2
Ray Gross	PJM	RFC	2
Mark Kuras	PJM	RFC	2
Stephanie Monzon	PJM	RFC	2
Tom Bowe	PJM	RFC	2

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

    ☐ Yes
    ☒ No

    Comments: PJM not only agrees that an operator needs-assessment be done at least annually, PJM supports continuous assessment of operator training needs. That said, PJM does not agree that a prescriptive standardized process is desirable or feasible. Performance evaluation is a corporate responsibility not a NERC standard. PJM proposes that this standard be refocused from a standard that requires a set annual needs-assessment, to a standard mandating a given number of hours of continuous training through NERC-accredited Training programs.

    Please refer to our comments in response to Question 11.

    Discussion:
    An operator training needs-assessment is not a requirement that can be developed easily. Having an industry-wide competency level lends itself to debates, possibly without an agreement, particularly given there is already an operator certification examination. A standard that leaves definition of competency to be developed by the individual responsible entities would subject to requirement to a "fill-in-the-blank" category, which FERC has stated must be eliminated.

    A fixed annual needs-assessment may devalue a continuous needs-assessment program. A fixed annual program by definition focuses on a one-time evaluation. With such fixed programs, organizations and operators may be more focused on performing and passing a given evaluation, then focusing on a comprehensive evaluation of individual needs - an evaluation that involves subjective analysis such as interpersonal skills under stress evaluation.

    A fixed annual needs-assessment may be useful from an auditor perspective, but it does not reflect the varied undefined times that training occurs.

    To identify a 'need" an auditable test evaluation would require a standardized scoring system. Does a score of X% indicate a need for training? Indeed how would a test identify in which area is the training need exists? Requirement 2 imposes a subjective obligation of "acceptable" capability. R2.1 mandates that "mismatches" be identified. However, the draft standard does not identify a mismatch.

    Today, training is provided for all changes that a corporate entity believes needs training. Similarly, corporate entities may not even provide training on new tasks that are self-explanatory. R2.2 mandates the compliance entity identify which tasks fall in which category. That subjectivity is reasonable but it is not what one would consider an industry standard.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication

of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

Comments: It is not important which standard includes the subject requirement. Either way, the same entities will be mandated to comply. What is important is that one or the other be removed. If required to choose, PJM would suggest including all requirements in the Training standards.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

☐ Yes

☒ No

Comments: If there were a possibility of developing and quantifying a viable level of competency, then PJM would support such a requirement. However, PJM believes that the determination of this competency level and assessment of the mismatch would be troublesome and likely not measurable.

The idea of entity-identified task lists is the antithesis of the word standard. The question of training is paramount to everyone. The issue raised here is whether or not it is sensible to write an Industry Training standard. Assessing the capabilities of a given System Operator is an art not a science. To mandate such a art can (and likely will) result in entities being tied up in labor hearings for a long period of time debating whether or not the operator's 'capability level' is effectively measured by the NERC standard. Requirement 4 does not provide any quantifiable measure for identifying an operator's capabilities. Picking and choosing from a list makes this requirement even more subjective then a NERC-wide standard should be.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to. The CCC will have final say on these elements in any case; therefore the SDT would save itself some effort by focusing on the primary elements before weighing in on the compliance elements.

However, given the question being posed:

PJM believes that assigning long-term planning to all the requirements is inappropriate, if not over-simplistic. For example, the annual assessment of the training need and the subsequent development-of/revision-to a training program, as the requirement implies, occurs once every 12 months. This is normally regarded as an operations planning time frame if violation of this requirement is to be mitigated.

Training in each of the requirements can cross over time horizons.
Requirement 1 (which has not been vetted) states the entity must use the SAT 5 phases for all reliability-related tasks. If a new task that requires training is created for implementation tomorrow, how would that training program fall under long-term planning?

Requirement 4 - when a new task arises, (assuming one accepts the premise of the requirement itself) then shouldn't the assessment take place as soon as possible?

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to. The CCC and FERC will have final say on these VRFs, therefore the SDT would save itself some effort by focusing on the primary elements before weighing in on the compliance elements.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Measure 1 is not quantifiable. What evidence will demonstrate 'desired performance', if the desired performance is not defined in the standard itself?

Because Requirement 2 is subjective, Measurement 2 is meaningless in the context of a NERC reliability standard.

Measurement 3 is proof of attendance and not a true indicator of reliability impacts.

Measurement 4 requires that the subjective verification of the "capabilities" be documented. Even if such a measurement could be standardized, as written this measurement requires nothing more that documentation of ineptness.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to.

PJM would note the following:
1. The entity "Compliance Enforcement Authority" is a new term. It is not found in the Functional Model.

2. The compliance elements should not impose requirements that are not in the standard itself. To require a responsible entity to maintain records on whether it is following or followed any mitigation plan associated with the standard is outside the standard itself. The standard does not address mitigation plans anywhere. This also applies to the requirement on the Compliance Monitor to retain any data used in mitigation plans associated with this standard, particularly since the Compliance Monitor does not appear on the Applicability List at the beginning of the standard.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to.

PJM would note that a SEVERE VSL is applied for missing evidence of using two phases of the SAT; as well as applying a SEVERE VSL for not having a program at all. This would result in an organization that inadvertently is missing evidence is held to the same VSL level as an organization that consciously has no program at all.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The Compliance elements of this standard should be postponed until the requirements are agreed to.

PJM does not support this standard as written, and therefore cannot agree to any implementation schedule at this time.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☒ Yes

☐ No

Comments: The lack of objectivity in these requirements will conflict with labor union contracts. In addition the draft standard does not meet NERC or FERC requirements regarding clarity and measurability; nor does the draft meet the FERC objection to fill-in-the-blank standards.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:
Several representatives of the ISO/RTO Council, in conjunction with discussions with Drafting Team members, have been informed that the intent of this Standard is to standardize and clarify what is and is not appropriate training materials for acceptance into the NERC Continuing Education Program. This is not well understood by the industry and, if this is indeed the case, PJM supports such an effort. The way the existing draft is being interpreted by the industry, however, is that this will be an additional requirement, over and above (and possibly in conflict with) the NERC Certification maintenance requirements currently contained in the NERC Continuing Education Program.

PJM agrees that:
 - Training is a critical function for our industry, and would note that NERC already ties Continuing Education Hours to the maintence of NERC Certification.

- General in-house training programs must be permitted to be structured to the varied ad hoc needs of the given organizations, their tools and their environment, and not subject to NERC standards.

- Critical training be provided by accredited programs, and that NERC may desire to accredit programs used to provide CEH on those critical topics (e.g. Emergency Operations; Blackstart).

- the result of a Training standard should be an operator that is prepared to handle that operators system; the result should NOT be the production and storage of paperwork.

PJM does not agree that:
- It is necessary that every organization has its own accredited program. As written, R1 requires that responsible entities complete the five phases of a systematic approach to training (SAT), which includes analysis, design, development, implementation, and evaluation) to establish a new or modify an existing training program. We do not agree that this should be a requirement.

The requirement should be for the responsible entity receive training to help system operation personnel to acquire the competency to perform the applicable tasks pertaining to the RC, TOP and BA functions that the entity is responsible for or assigned. PJM neither endorses nor disapproves the SAT process as a good approach>

However, how any training program is arrived at (i.e. what approach it takes) is not important and should not be a standard. If so inclined, NERC itself could offer an SAT-based Training program. How could one make an argument that using other approaches to arrive at a training program that (a) list the tasks and competency level required to perform the task, (b) include the minimum requirements stipulated in this standard such as the 32 hours emergency training, (c) has provision for a training schedule, review process, etc. is not an acceptable approach?

Performance and capability are subjective ideas. Given all of the tests and training, no one can predict how a human will act. To state that the person is 'incapable' is a very strong statement and can only be made on a case-by-case basis - which by definition precludes a NERC standard.

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Sarah Lutterodt
Organization:	Quality Training Systems
Telephone:	443 755 0790
E-mail:	s.lutterodt@att.net

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
☐ **MRO**	☐	3 — Load-serving Entities
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☐ No
   Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments:

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☐ No
   Comments:

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☐ No
   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☐ No
   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes
   ☐ No
   Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☐ No

   Comments: See detailed comments below relating to Violation Level 2.2.1 requiring use of the Generic Task List provided as an attchment to the Standard.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:
    This comment relates to Requirement R1.1 that each Reliability Coordinator, Balancing Authority and Transmission Owner should use the generic task list in the Attachment to the draft standard as the basis for their own JTA.

    The task list contains important information and would certainly be useful as a guide for entities starting out on the JTA process, but we do not believe that the list is sufficiently well developed to be a required starting point. Quality Training Systems has developed and refined its generic task list for system operators over several years, making extensive use of NERC source documents and with advisement by Industry Experts. We recognize the difficulty in developing a coherent, well-categorized task list at a consistent level of detail, but we are nonetheless concerned at offering an industry standard that still offers considerable room for improvement.

    1. Classification System
    The categorization scheme is difficult to follow in places as evidenced by the fact that closely similar tasks are listed in different Sections of the task list and - within a given

section - under different Types of Activity. Consider, for example, the following tasks relating to voltage control:
"Monitor and maintain defined voltage profiles to ensure system reliability." (Gen CC Ops 31 under Monitor)

"Utilize reactive resources from transmission and generator owners to maintain acceptable voltage profiles." (Gen CC Ops 60 under Operating)

"Monitor the voltages, and coordinate the reactive dispatch of transmission facilities, and the interconnections with neighboring systems." (Trans. Ops 34 under Operating)

"Deploy reactive resources to maintain acceptable voltage profiles." (Trans. Ops 51 under Voltage)

"Coordinate operation of voltage control equipment with interconnected utilities." (Trans. Ops 55 under Voltage)

2. Consistency
There is a lack of consistency in the level of detail of the task statements. Some tasks are extremely general, and would be difficult to train in the stated form. For example:

"Direct and/or regulate the operation of the transmission system" (Trans 15)

"Enforce operational reliability requirements" (Gen CC Ops 47)

Other tasks are very specific and might be considered as steps in a larger task. For example:

"Notify all affected areas that line loading relief has been requested, and that corrective actions are required" (Trans. 68)

"Manually calculate net interchange when needed" (Int. 17)

3. Repetition
Many tasks are repeated with closely similar wording or wording such that the more general statement includes the other more specific task(s). For example, compare :the following two tasks taken from different Sections of the Task list:

"Implement system restoration procedures" (Gen. CC Ops 68):

"Following a partial or total system shutdown, implement the appropriate provisions and procedures of the system's restoration plan in a coordinated manner with adjacent systems" (Emer. Ops 50)"

4. Clarity
A few of the task statements are unclear or poorly worded. Consider, for example; the following task, the intent of whiich seems to be captured in better-stated items elsewhere in the list:

"Direct to the appropriate entities those options necessary to relieve reliability threats and violations in a reliability authority area" (Gen. CC Ops 55)

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)
Name:
Organization:
Telephone:
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NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
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Group Comments (Complete this page if comments are from a group.)

Group Name: RCSDT Project 2006-06

Lead Contact: William M. Hardy

Contact Organization:

Contact Segment: RCSDT - Chair

Contact Telephone: 205-257-7073

Contact E-mail: wmhardy@southernco.com

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

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   ☐ Yes
   ☐ No
   Comments:

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   ☐ Yes
   ☐ No
   Comments:

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    ☐ Yes

    ☐ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: The RCSDT has a conflict between teams for ownership of the scope for PER-004 and feel that it belongs with Project 2006-1 which has PER-004 posted with PER-005 for comment. Project 2006-1 removed three of the PER-004 requirements and left in two. During the RCSDT review, we removed the same three requirements but also suggested removing the other two because they are redundant with other standards as follows:

    PER-004 R.1 is redundant with PER-003
    PER-004 R.5 is redundant with COM-001 and IRO-002

    The RCSDT request that ownership of PER-004 be scoped within Project 2006-1. The RCSDT is willing to assist Project 2006-1 in completing the review task.

    Respectfully,

    William M. Hardy
    RCSDT - Chair

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<table>
<tr><td colspan="3">Individual Commenter Information
(Complete this page for comments from one organization or individual.)</td></tr>
<tr><td colspan="3">Name: Scott Peterson</td></tr>
<tr><td colspan="3">Organization: San Diego Gas & Electric</td></tr>
<tr><td colspan="3">Telephone: (619) 990-4420</td></tr>
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<tr><td>NERC Region
(check all Regions in which your company operates)</td><td colspan="2">Registered Ballot Body Segment (Check all industry segments in which your company is registered.)</td></tr>
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</table>

116-390 Village Boulevard, Princeton, New Jersey 08540-5721

Phone: 609.452.8060 ▪ Fax: 609.452.9550 ▪ www.nerc.com

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

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Additional Member Name	Additional Member Organization	Region*	Segment*

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

    ☐ Yes
    ☐ No
    Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

    Comments: The 32 hour training requirement should be in the System Restoration plan. PER-005 is really focused on what should be in a training program.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

    ☐ Yes
    ☒ No
    Comments: It may be appropriate to perform an assessment, but the standard is getting over-prescriptive to require giving an assessment on a line by line basis. The assessment should be more global in nature regarding the general level of competency of the operator to perform the job functions.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes
    ☒ No
    Comments: It is unclear what is the meaing of the time horizons.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes
    ☐ No
    Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☐ No

Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The requirement for emergency training is in multiple standards (e.g. PER-002-0 R4. This then leads to the potential for multiple violations for the same deficiency. This training requirement should only be in one standard.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The implementation for R3 should allow an organization time to put any new training requirement into its regular training plan. Put that it needs to be included in the next years annual training program.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☐ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments:

    Applicability 4.2 is unclear. Who do you define as delegates? Are you looking to expand the applicability to personnel that are outside the control center real time operating postions? Also it refers to applying to those that "impact reliability"? This should be for something that has a signficant negative impact, not just any impact, no matter how diminimus. There needs to be more clarity as to whom the System Operator training standards apply.

    Attachment A: Are you implying that anyone that does any of these function is in a System Operator position? In some cases, this work is done by back office staff or

engineering. I do not believe all of these tasks need to be done by a System Operator with the level of training set up for them that you have designed. For example, Item 45, Perform next day reliability analysis of the electric system. This may be done by engineering staff, rather than a System Operator. Are you now saying they are System Operators? Or are you still limiting System Operators to the real-time operating positions that control the system?

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:
Organization:
Telephone:
E-mail:

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☐	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
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☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:　　　　　Santee Cooper

Lead Contact:　　　　　Terry Blackwell

Contact Organization:　Santee Cooper

Contact Segment:　　　Transmission

Contact Telephone:　　843-761-8000 ext. 5196

Contact E-mail:　　　　tlblackw@santeecooper.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Tom Abrams	Santee Cooper	**SERC**	1
Glenn Stephens	Santee Cooper	**SERC**	1
Rene' Free	Santee Cooper	**SERC**	1
Kristi Boland	Santee Cooper	**SERC**	1
Jim Peterson	Santee Cooper	**SERC**	1
Wayne Ahl	Santee Cooper	**SERC**	1

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.

- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to <u>sarcomm@nerc.net</u> with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes
   ☐ No
   Comments: However, it is not clear from the Requirement or Measure what is necessary to have an acceptable assessment.

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: All training requirements should be listed in this standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes
   ☐ No
   Comments: Yes, assuming this is a one-time verification until the reliability related tasks change.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.
   ☐ Yes

☒ No

Comments: M2, M3, and M4 appear to be appropriate measures. M1 and R1 should not be included in a Reliability Standard. The Standard should address training that is required and not dictate how a company should implement their training.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: Most NERC Standards require three years or less for documentation to be maintained.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: The standard should not dictate how a training program should be implemented as implied by 2.3.1.

Severe Level for the 32 hours of EOPs would be that no training was provided to any of the operators, High would be that some training was provided but not all 32 hours or several operators did not complete all 32 hours. Moderate would be that 32 hours were provided but one operator did not complete or the training did not include drills, exercises, or simulations. If one operator does not complete 32 hours of EOPs training as written in 2.3.3, it should be a Moderate Violation Severity Level rather than a High Violation Severity Level.

The violation severity levels associated with the other requirements aren't appropriately graduated either.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: The System Personnel Training Standard should address training that is required for reliable operation of the BES. It should not dictate how a company must implement its actual training program.

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Jim Fee
Organization:	Sacramento Municipal Utility District
Telephone:	(916) 732-6157
E-mail:	jfee@smud.org

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☐	2 — RTOs and ISOs
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Comment Form — Standard PER-005 – System Personnel Training

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

    ☐ Yes
    ☒ No
    Comments:
    Assessment should be every two years

    Need to clarify what is being assessed. Is this referring to the Job Task and Analysis or System Operator Training?

    What tasks should be reviewed? Every task associated with each operating position? BES company specific reliability issues?

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

    Comments:

    System Personnel Training Standard Only.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

    ☒ Yes
    ☐ No
    Comments: We assume this is a one time evaluation of operating personnel on each assigned task that is on its list of company-specific reliability-related tasks. Subsequent evaluations should be at the discretion of the system operator's management.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments: Please define Long Term Planning.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

☐ Yes

☒ No

Comments: All entities' risk factors should be assessed based on their possible impact to the BES.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments: Please define Compliance - 1.2 Monitoring Period Reset.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments: 2.2.2 What tasks should be reviewed? Every task associated with each operating position or BES company specific reliability issues?

2.2.3 Regarding attachment "B" – Does this require all tasks listed or only selected topics?

2.3.2 Should this be limited to BES company specific reliability tasks.

2.1.3 Should read "The responsible entity did not add or remove topics from the Emergency Operations Topics as provided in attachment "B" that apply to their organization."

Severity levels may be too excessive.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: All training requirements per standard should be cross referenced and included in a PER attachment or could even be excluded from the individual standards.

On the cover letter, SMUD disagrees that the verification of qualifications for people developing / delivering training should be eliminated. Also, SMUD disagrees on the elimination of the requirement addressing maintenance of the system operator training program. SMUD believes the methodology used to perform the analysis phase of a systematic approach to training (SAT)should be required in the standard not just the phases of the SAT process.

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:
Organization:
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NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact: Mike Pfeister

Contact Organization: Salt River Project

Contact Segment: Transmission Owner

Contact Telephone: 602-236-3970

Contact E-mail: Mike.Pfeister@srpnet.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Mike Gentry	Salt River Project	**WECC**	Transmission Owner

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

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You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

    Comments: This requirement should be in a PER standard. Ideally any requirement for training should be in a PER standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

    ☒ Yes
    ☐ No
    Comments: R4 is OK as written. It appears to allow for various methods of verfication of capabilities such as observed actual performance, observed performance using simulation tools, and testing. This should work given the various task frequency and various levels of criticality.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments:

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The severity levels are too extreme. Section 2.3.1 states a HIGH severity for missing one out of five phases of the SAT process. An entity that is using four of the five, which is an 80% use rate, should not be penalized with a HIGH severity violation. The severity for this ocurrence should be reduced to at least a MODERATE.
    Section Section 2.4.1 states a SEVERE severity for missing two out of five phases of the SAT process. An entity that is using three of the five which is an 60% use rate should not be penalized with a SEVERE severity violation. The severity for this ocurrence should be reduced to a HIGH severity.
    The SEVERE severity should be used for missing three of the five SAT phases.
    In summary:
    Moderate Severity: Missing one of the five SAT phases.
    High Severity: Missing two of the five SAT phases.
    Severe Severity: Missing three of the five SAT phases.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: The standard describes a specific "Systematic Approach to Training (SAT)". This includes specific "phases" that must be included with various violation severity levels associated with the use/non use of these phases. The Standard as written is exceedingly restrictive in not allowing other training options to be considered for RC's, BA's and TO's. An entity should have the option to select a training philosophy and program that meets their individual needs. This "one size fits all" for the entire industry is entirely too restrictive.

![NERC North American Electric Reliability Corporation logo]

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
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NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
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	☐	10 — Regional Reliability Organizations and Regional Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: Southern Company Transmission

Lead Contact: Roman Carter

Contact Organization: Southern Company Transmission

Contact Segment: 1

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Additional Member Name	Additional Member Organization	Region*	Segment*
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J.T. Wood	Southern Co. Transmission	SERC	1
Jim Busbin	Southern Co. Transmission	SERC	1
James Ford	Southern Co. Transmission	SERC	1
Fred Rains	Southern Co. Transmission	SERC	1

*If more than one Region or Segment applies, check all that apply. Regional acronyms and segment numbers are shown on prior page.

Background Information

The System Personnel Training standard is designed to help ensure that System Operators who work for Reliability Coordinators, Balancing Authorities, and Transmission Operators are provided with training to promote the reliability and adequacy of the North American interconnections and their Bulk Electric System.

The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

- When passengers board a 737 jet airplane they expect that someone has verified that the pilot has the capability of flying that plane.
- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

    Comments: From a organizational perspective, it would be best to include emergency and restoration training in the System Personnel Training standard. This way, all training is in a central location and would prevent system operator trainers from searching throughout the approximately 117 standards to find the particular standards related to training.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments:

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments: Long-term planning is the appropriate time horizon.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
    ☒ Yes
    ☐ No
    Comments: Medium risk factor is appropriate for all.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

☒ Yes

☐ No

Comments:

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Under D2.2 and D2.3.1.1 it states in the Note for each of the subsections that if R1.1 or R1.2 is violated, the entity is also in violation of R1. This is double jeopardy and does not seem correct, especially where the subsection only provides more detail about what is being required in the above section and does not represent a new requirement.

   R1 says you must complete the five phases of a SAT to establish a new or modify an existing company specific training program.

   R1.1 provides some specific details about what the analysis phase of the SAT training program should consist of. If you do not complete R1.1 adequately then there should be only one violation and not two violations.

   Under Data Retention, a minimum of four years of data retention is not appropriate. It should be restated to say a maximum of 3 years of data should be retained or since the last compliance audit has been performed. However, if the entity had been found to be non-compliant for a particular requirement in the most recent compliance audit, then additional data should be retained for longer than the previous compliance audit but no longer than 3 years.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: Under Violation Severity Levels, it is not obviously apparent that missing two of the five phases of a SAT should have the same severity as not having a SAT program at all. There should be some differences in violation severity between the two.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments:

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

   ☐ Yes

☒ No

Comments: The question should have stated: If yes, please explain in the comment area.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments:

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Operating Reliability Working Group
Organization:	Southwest Power Pool
Telephone:	501-614-3241
E-mail:	rrhodes@spp.org

NERC Region (check all Regions in which your company operates)		**Registered Ballot Body Segment** (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☒	1 — Transmission Owners
☐ **FRCC**	☒	2 — RTOs and ISOs
☐ **MRO**	☒	3 — Load-serving Entities
☐ **NPCC**	☐	4 — Transmission-dependent Utilities
☐ **RFC**	☒	5 — Electric Generators
☐ **SERC**	☒	6 — Electricity Brokers, Aggregators, and Marketers
☒ **SPP**	☐	7 — Large Electricity End Users
☐ **WECC**	☐	8 — Small Electricity End Users
☐ **NA – Not Applicable**	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 — Regional Reliability Organizations and Regional Entities

Comment Form — Standard PER-005 – System Personnel Training

Group Comments (Complete this page if comments are from a group.)			

Group Name: Operating Reliability Working Group

Lead Contact: Robert Rhodes

Contact Organization: Southwest Power Pool

Contact Segment: 2

Contact Telephone: 501-614-3241

Contact E-mail: rrhodes@spp.org

Additional Member Name	Additional Member Organization	Region*	Segment*
Brian Berkstresser	EDE	SPP	1,3,5
Will Franklin	EES	SERC	5,6
Mike Gammon	KCPL	SPP	1,3,5
Don Hargrove	OKGE	SPP	1,3,5
John Kerr	GRDA	SPP	1,3,5
Pete Kuebeck	OKGE	SPP	1,3,5
Mark MacDonald	CLECO	SPP	1,3,5
Danny McDaniel	CLECO	SPP	1,3,5
Kyle McMenamin	SPS	SPP	1,3,5
Robert Rhodes	SPP	SPP	2
Jim Useldinger	KCPL	SPP	1,3,5

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Background Information

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The proposed standard allows each Reliability Coordinator, Balancing Authority, and Transmission Operator to use a valid approach in determining its system operator's training needs and then in developing and delivering training that meets those individual training needs to support reliable bulk power system operations.

The drafting team made significant changes to the standard based on stakeholder comments. The drafting team removed the prescriptive language from the standard and produced a document that identifies references that can be used to assist entities in understanding and applying the "Systematic Approach to Training" (SAT).

The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

The drafting team also revised the standard to require that entities verify that its system operators are capable of performing assigned reliability-related tasks. This would be the end result of a successful training program. The standard does not specify 'how' entities will measure this capability — it can be measured by end of training exams, by on-the-job evaluations, by results of simulation exercises, or by other means. This is a critical requirement in the standard, as this is the verification that the System Operator is prepared to perform the tasks assigned to the position.

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- End users of electricity have a right to demand that a System Operator at the controls of the interconnection is qualified to meet the rigors of the tasks assigned to the position.

The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

Accordingly, we request that you include your comments and e-mail to sarcomm@nerc.net with the subject "System Operator Training Standard" by **September 28**, **2007**.

You do not have to answer all questions.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☒ Yes
   ☐ No

   Comments: There was much confusion within our group as to whether this requirement is directed toward the position of System Operator or to the individual operator. Although we struggled with finding words to clarify the point, could the SDT take this back to the drawing board and attempt to make the distinction clearer?

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: The 32-hour annual training requirement for emergency operations and system restoration belongs in PER-005-2. All training requirements should be consolidated within the System Personnel standards.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes
   ☐ No

   Comments: We can concur with this requirement providing the assessment process does not become burdensome on the entity providing the assessment. A one-time assessment, while not burdensome of itself, may be inadequate to ensure continued operator performance. On the other hand, annual assessments would require an excessive amount of administrative time. A possible solution could be to allow company-specific assessment criteria such as being proposed for performance criteria.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No

   Comments: It is our understanding that the Time Horizon of Long-term Planning allows a mitigation period of one year or more.

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: We can concur with maintaining the VSL of Medium on Requirement 1 but would recommend dropping the VSL to Low for R2, R3 and R4 since these requirements tend to be administrative.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: Although we can not offer any suggestions for making it more focused, Measurement 1 is very broad. We are concerned about how we would be able to demonstrate that we have satisfied the requirements the way it is currently written.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: There is an inconsistency between the data retention requirement in D1.3 and the on-site review requirement in D1.4. We would suggest deleting the phrases '…for four years, or…' and '…, whichever is greater.' in the first sentence of D1.3. Both time period requirements would then be based on the last on-site audit.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: The proposed severity levels are too complicated and need to be simplified.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: Requirement 1 should be effective 18 months after the first day of the first quarter following regulatory approval and Requirements 2 and 4 should be effective 36 months after the first day of the first quarter following regulatory approval.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

Comments: Has the SDT taken into consideration dealing with bargaining units when conducting the assessments on individual System Operators. In some bargaining units, individual performance assessments have been eliminated.

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: While we don't have an issue with requiring a training program, we do take exception to having to maintain all the documentation that will be required as the standard is currently proposed.

Comment Form — Standard PER-005 — System Personnel Training

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Individual Commenter Information
(Complete this page for comments from one organization or individual.)

Name:	Howard Rulf
Organization:	We Energies
Telephone:	262-574-6046
E-mail:	Howard.Rulf@we-energies.com

NERC Region (check all Regions in which your company operates)		Registered Ballot Body Segment (Check all industry segments in which your company is registered.)
☐ **ERCOT**	☐	1 — Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Additional Member Name	Additional Member Organization	Region*	Segment*

*If more than one Region or Segment applies, check all that apply. Regional acronyms and
   segment numbers are shown on prior page.

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The drafting team also revised the standard to require that entities review the reliability-related Bulk Electric System task list (posted with the standard) and identify the tasks that are assigned to its System Operators. The task list includes tasks to support reliability standards with requirements assigned to the Reliability Coordinator, Transmission Operator and Balancing Authority. By requiring the use of this task list, the standard will help ensure that every Reliability Coordinator, Transmission Operator and Balancing Authority has a common starting point for developing its System Operator training.

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The August, 2003 blackout investigation concluded that when System Operators are not trained to perform all tasks assigned to their positions, they aren't prepared to react in a manner that preserves the reliability of the interconnection.

Please review the second draft of the proposed standard, along with the task list and the list of references to assist in using the SAT process to develop training. Then answer the questions on the following pages.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: Training requirements should only be in training standards.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☒ Yes
   ☐ No
   Comments: Yes as long as this will not be an annual requirement. There will be tasks that need to be assessed very infrequently.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.
   ☒ Yes
   ☐ No
   Comments:

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.
   ☐ Yes
   ☒ No

Comments: Wording of M1 and sub measures should be simplified/clarified.
Wording of M1.2 should not preclude using training material from a vendor.

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

    ☒ Yes

    ☐ No

    Comments: 1.3 Data Retention - how long must evidence that a mitigation plan was followed be kept?

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:
    Many of the violation severity level statements need to be simplified/clarified (similar to M1).
    2.2.3 - R3.1 requires the training be from topics in Attachment B, so there would be no emergency training if the training was not from Attachment B topics.
    2.3.3.1 The current wording of R3.1 does not allow training in principles, only drills, exercises, or simulations. See question #11.
    2.4.3 The statement after OR is unnecessary. If 32 hours were not provided annually then the first statement applies.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments: Implementation of R2.2 at the 18 month point requires that R1.1 (implemented in 36 months) be completed first.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

    ☐ Yes

    ☒ No

    Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

    Comments: PER-002-0 R4 allows "five days per year of training and drills using realistic simulations of system emergencies". PER-005-1 R3.1 allows only "using drills, exercises, or simulations". Removal of the word "training" forces the 32 hours to be only drills, exercises, or simulations. Classroom type training could not be counted toward the 32 hours.

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(Complete this page for comments from one organization or individual.)

Name:
Organization:
Telephone:
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Group Comments (Complete this page if comments are from a group.)

Group Name: WECC Operations Training Subcommittee (OTS)

Lead Contact: Lauri Jones

Contact Organization: PG&E

Contact Segment: 10

Contact Telephone: 415-973-0918

Contact E-mail: LLJ8@pge.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Eric Hudson	CAISO	WECC	10
Brian Tuck	BPA	WECC	10
Ken Driggs	WECC	WECC	10
Rod Byrnell	BCTC	WECC	10
Brian Reich	IPCO	WECC	10
Richard Krajewski	PNM	WECC	10
Hank LuBean	DOPD	WECC	10
George Noller	SCE	WECC	10
Dick Schwarz	PNSC	WECC	10
Jon Crook	SMUD	WECC	10
Rick Brock	PSC	WECC	10
Warren Maxvill	AVA	WECC	10
Eric Langhorst	WECC	WECC	10
Robert Eubank	TSGT	WECC	10
Ron Verraneault	PAC	WECC	10

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1. Do you agree that it is reasonable to at least annually, assess the training needs for each system operator position by determining any mis-match between acceptable and actual performance capability? [R2]? If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: WECC OTS is unclear as to whether the assessment is for the position or each operator in the position. The Standard should reflect the training needs, in relation to the defined company specific reliability related tasks, for each position and would then be updated as needed. If there were no changes to that position in regards to the defined company specific reliability related tasks in the previous year, the position would be reviewed and updated every three years.
   It is also unclear in R.2.1 as to the identification of mis-matches between acceptable and actual performance capability. What is acceptable to one company may not be to another and therefore is left open to interpretation in the measurement, M.2. How would this be assessed in either the readiness evaluation or a compliance audit?

2. Requirement 3 requires entities to provide at least 32 hours annually of emergency operations and system restoration training. This requirement is also included in the System Restoration and Blackstart standard (Project 2006-03). To eliminate duplication of requirements, please comment on whether the requirement should be in the System Personnel Training Standard or in the System Restoration and Blackstart standard.

   Comments: WECC OTS views the NERC System Personnel Training Standards as the repository for all training identified in the standards and therefore recommends this requirement not be duplicated in the System Restoration and Blackstart standard.

3. As stated in the approved SAR for this standard, do you agree that there should be a requirement to perform an assessment of the capabilities of each real-time System Operator to perform each assigned task that is on its list of company-specific reliability-related tasks? [R4] If not, please explain in the comment area.

   ☐ Yes
   ☒ No

   Comments: WECC OTS feels the standard in its current language does not define how each task is to be assessed and documented. For instance would a check off sheet with the identified company-specific reliability related tasks be adequate? If a checkoff sheet were utilized, would this assessment be considered an annual process or is a one time verification acceptable? What is the benefit to the operator in assessing each task? Do the tasks identify whether they will be performed as a team or individually and under normal or emergency conditions? Capabilities of an operator are a subjective interpretation by each company and measure (M.4) is left open to a wide interpretation by the evaluators and auditors. How would this be assessed in either the readiness evaluation or a compliance audit? If companies are following the standard to provide annual training, then the assessments for each task would at times be duplication of the annual and on going training and therefore create additional work for a trainer. The OTS supports assessing the capabilities of the operators, however, we suggest it be more in line with the system operator certification, i.e. every three years.

4. Do you agree with the Time Horizon for each requirement in the revised standard? If not, please explain in the comment area.

   ☒ Yes

   ☐ No

   Comments: However, we would like a definition for long term planning?

5. Do you agree with the Violation Risk Factor for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: OTS recommends the violation risk factors be set to 'Lower'.
   The purpose of the Violation Risk Factors is for use when determining a penalty or sanction. In reviewing the measures all requirements are administrative in terms of providing documentation that the requirement has been met. Training generally occurs outside of the real-time operations which have little impact on the BES and therefore a "Lower" risk factor versus the "Medium/High" risk factors would be appropriate.

6. Do you agree with the Measures identified for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: OTS is suggesting in its comments changes to the requirements, therefore the measures would be changed to reflect the changes to these requirements. It also does not address training provided by third parties or vendors. What requirements would companies be under if this type of training were provided?

7. Do you agree with the Compliance Monitoring Process section (D1) in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: OTS does not agree with the Compliance Monitoring Process in the revised standard and has several questions.
   D.1.2 What is the compliance monitoring period and when does the reset period begin if training is an annual requirement?
   D.1.3 is referencing data retention; a question arises over "mitigation plans". Who does it apply to, the entities program or the operator?
   We also question the four year data retention, what is the purpose since it is counter to D.1.4 requirement of a Compliance Audit every three years.

8. Do you agree with the Violation Severity Levels for each requirement in the revised standard? If not, please explain in the comment area.

   ☐ Yes

   ☒ No

   Comments: WECC OTS feels the violation severity levels are to complicated. The violation severity levels are extremely defined in comparison the requirements. To

comply with the violation severity levels would be a huge onerous task on any entity based on the implementation plan.

9. Do you agree with the Implementation Plan that phases in compliance with the Requirements over a three year period? If not, please explain in the comment area.

☒ Yes

☒ No

Comments: The WECC OTS questions the implementation plan, when they do not agree with the current requirements. However, the implementation plan would be acceptable if NERC can develop the Standard so that they are clear and specific.

10. Are you aware of any conflicts between the proposed standard and any regulatory function, rule/order, tariff, rate schedule, legislative requirement, or agreement? If not, please explain in the comment area.

☐ Yes

☒ No

Comments:

11. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard PER-005.

Comments: The WECC OTS is the principle group in the Western Interconnection to support the WECC training program and providing support to the trainers in the West. It is the OTS belief that quality training can and should result in quality System Operators and improved system reliability and therefore, we are supportive of the effort by the drafting team for their efforts to ensure the system operator responsible for the BES meets a minimum competency and knowledge levels. Quality training requires analysis and process and the OTS supports a requirement for development, delivery, and evaluation of system operator training using a "systematic approach to training" as required in this Standard and endorsed by the FERC.
However, the OTS feels that this standard, along with the approved NERC Continuing Education training, records would be duplicated by the continuing education provider, now that operators must maintain their certification through continuing education. Therefore, the WECC OTS recommends this standard be job task specific and not operator specific.
The OTS has also identified several training specific needs in other NERC Standards and would like to recommend that all training requirements in the current NERC Standards and future Standards only be identified in the NERC System Personnel Training Standard. While it is necessary to mention in the various standards, training needs per that standard, specific training requirements should be found in one standard, not amongst eighty or more. This allows the training staff responsible for the training compliance measures to coordinate and provide training for all future and current training needs.
OTS suggests this Standard focus on Certified System Operators only at this time. The training for CE to support Certified System Operators using the SAT process should be covered at this time.