Comment Form — 2nd Draft of Relay Loadability Standard PRC-023

Please use this form to submit comments on the proposed Relay Loadability standard. Comments must be submitted by **February 7, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.com with "**Relay Loadability"** in the subject line. If you have questions, please contact Richard Schneider at richard.schneider@nerc.net or by telephone at 609-452-8060.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☐	2 — RTOs and ISOs
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 - Regional Reliability Organizations; Regional Entities

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

Group Name: Pepco Holdings, Inc. Affiliates

Lead Contact: Richard J. Kafka

Contact Organization: Pepco Holdings, Inc

Contact Segment: 1

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Contact E-mail: rjkafka@pepcoholdings.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Carl Kinsley	Delmarva Power & Light	RFC	1
Alvin Depew	Potomac Electric Power Company	RFC	1
Evan Sage	Potomac Electric Power Company	RFC	1

*If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information

The Relay Loadability standard was posted for a 45-day public comment period from August 16 through September 29, 2006. The standard and implementation plan were modified in response to the comments.

In addition, a new version of the Reliability Standards Development Procedure was approved by the NERC Board of Trustees on November 1, 2006. The drafting team made the following changes to the standard to bring it into conformance with the revised procedure or other changes needed to conform to the ERO Rules of Procedure:

- **Mitigation Time Horizons**
  The ERO Rules of Procedure include the use of "Mitigation Time Horizons" as one element used to determine the size of sanctions. The drafting team used the following guidelines in developing Mitigation Time Horizons for each requirement:

  - ***Long-term Planning:*** a planning horizon of one year or longer.
  - ***Operations Planning****:* operating and resource plans from day-ahead up to and including seasonal.
  - ***Same-day Operations****:* routine actions required within the time frame of a day, but not real-time.
  - ***Real-time Operations****:* actions required within one hour or less to preserve the reliability of the Bulk Electric System.
  - ***Operations Assessment***: follow-up evaluations and reporting of real-time operations.

- **RRO as Responsible Entity**
  The drafting team modified all requirements to eliminate the Regional Reliability Organization as the responsible entity, and replaced these references with the appropriate entity.

- **Levels of Non-compliance Versus Violation Severity Levels**
  The drafting team deleted "levels of non-compliance" and added "violation severity levels" to comply with the revised Reliability Standard Development Procedure. Compliance personnel assisted the drafting team in using the following criteria from the procedure to establish violation severity levels:

  - ***Lower:*** mostly compliant with minor exceptions — The responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more minor details. Equivalent score: 95% to 99% compliant.
  - ***Moderate:*** mostly compliant with significant exceptions — The responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more significant elements. Equivalent score: 85% to 94% compliant.
  - ***High:*** marginal performance or results — The responsible entity has only partially achieved the reliability objective of the requirement and is missing one or more significant elements. Equivalent score: 70% to 84% compliant.

- ***Severe:*** poor performance or results — The responsible entity has failed to meet the reliability objective of the requirement. Equivalent score: less than 70% compliant.

- **Associated Documents**
  The drafting team added a section "F" to the standard called, References.

You do not have to answer all questions.

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

1. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☒ Yes

   ☐ No

   Comments:

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☒ I agree with the proposed Mitigation Time Horizons.

   ☐ I do not agree with the following Mitigation Time Horizons.

   Comments:

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a requirement. (The reliability-related impact of violating a requirement is now identified in the "Violation Risk Factor" appended to each requirement.)

   Do you agree with the Violation Severity Levels for each of the proposed standards? If you disagree with any of the Violation Severity Levels for the proposed standards, please identify the standard and requirement you feel has an incorrect Violation Severity Level.

   ☒ I agree with the Violation Severity Levels.

   ☐ I do not agree with the following Violation Severity Levels.

   Comments:

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

   ☒ No unnecessary adverse impacts

   ☐ Unnecessary adverse impact on markets

5. One previous NERC activity and one ongoing activity, both outside the compliance process, have addressed relay loadability. The previous activity has essentially been completed. It was based on NERC Recommendation 8a (resulting from the investigation into the August 14, 2003 blackout) and addressed zone 3 relays on transmission lines, 200 kV and above. The ongoing activity, "Protection System Review Program — Beyond Zone 3" addresses all other load-responsive relays at 200 kV and above, and on "operationally significant circuits, 100 kV–200 kV", and should be essentially completed by 12/31/08. Both activities were approved in detail by the NERC Planning Committee and by the NERC Board of Trustees. The requirements of PRC-023, together with the added information in the PRC-023 Reference Document, were drafted from the specifications of these activities.

   Transmission Owners, applicable Generator Owners, and applicable Distribution Providers, collectively referred to in the activities cited above as "Transmission Protection System Owners," or "TPSOs," have certified, through their respective Regions, that they have reviewed all of their load responsive relays in accordance with the specifications in those activities, and, in the case of the previous activity, have cited that they have completed the changes necessary to conform to those specifications. These certifications have been reviewed both by the respective Regions and by the NERC System Protection and Control Task Force; summary reports of these reviews have been approved by the NERC Planning Committee and have been presented to the NERC Board of Trustees. These summary reports may be found at www.nerc.com, under Committees — Planning Committee — System Protection and Control Task Force — Related Files.

   The draft implementation plan for PRC-023 proposes that the standard will be implemented following applicable regulatory approvals and the conclusion of the ongoing activity cited above. Based on these observations, the standard drafting team does not feel that PRC-023 will require field testing. Do you think that a field test period for PRC-023 is necessary?

   ☒ No field testing is necessary

   ☐ Field testing is necessary

   Comments:

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☐ No additional comments

   Comments: PRC-023-1 Section F lists a reference document -PRC-023 Reference — Determination and Application of Practical Relaying Loadability Ratings-. There is no statement in the actual standard as to whether the information and requirements contained within the reference document are part of the standard. The introductory sentence in the Reference Document states -This document is intended to provide additional information and guidance for complying with the requirements of Reliability Standard PRC-023.- It says it provides information and guidance, not requirements. Yet there are specific requirements contained within the reference document (such as Switch-on-to-Fault Setting Requirements). Either all requirements should be listed in the actual standard itself, or the standard should indicate there are additional requirements contained within the Reference Document. In addition, Appendix D of the Reference Document states the following: -For existing SOTF schemes, the SOTF protection must not operate when a breaker is closed into an unfaulted line which is

alive at a voltage exceeding 85% of nominal from the remote terminal. For SOTF schemes commissioned after formal adoption of this report, the protection must not operate when a breaker is closed into an unfaulted line which is energized from the remote terminal at a voltage exceeding 75% of nominal.- The report is dated January 9, 2007, but the PRC-023-1 standard is not yet approved. The stated requirement mentioned above should not reference the date of formal adoption of the report, but the date of the formal adoption of the standard.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region		**Registered Ballot Body Segment**
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Additional Member Name	Additional Member Organization	Region*	Segment*

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

1. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☐ Yes

   ☐ No

   Comments:

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

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   Do you agree with the Violation Severity Levels for each of the proposed standards? If you disagree with any of the Violation Severity Levels for the proposed standards, please identify the standard and requirement you feel has an incorrect Violation Severity Level.

   ☐ I agree with the Violation Severity Levels.

   ☐ I do not agree with the following Violation Severity Levels.

   Comments:

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

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   The draft implementation plan for PRC-023 proposes that the standard will be implemented following applicable regulatory approvals and the conclusion of the ongoing activity cited above. Based on these observations, the standard drafting team does not feel that PRC-023 will require field testing. Do you think that a field test period for PRC-023 is necessary?

   ☐ No field testing is necessary

   ☒ Field testing is necessary

   Comments: I would think that at least some of the lines should be tested to see if any of the NERC proposed requirements are actually able to be used.

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☐ No additional comments

   Comments: This standard totally lacks fully worked out examples as to how to set the zone 3 relays. I would like to see complete detailed examples for each of the Relay Phase Settings sections. As the standard is presented now, it is essentially useless to the actual relay setter. Each example should have a complete ratings list of all of the equipment on the line (both summer and winter, short time, emergency, etc), the actual procedure of doing the relay setting (including comparing the apparent impedance versus the results based on loading), and final values for the sample lines. For each R1.xx, the first example should include a two terminal line. The second example for each R1.xx should include a three terminal line that has a very weak source. Each example should also show different relay shapes, i.e. mho, lens, trapezoidal, mho with a notched out section, trapezoidal with a notched out section, etc. There should also be fully worked out examples for current only based relays.

If the relay has the ability to notch out part of the characteristic around the line load angle, then questions as to how close to the angle should be addressed, i.e. if 30 degrees is the load angle, is plus/minus 5 degrees (thus the area from 25 to 35 degrees is notched out) OK? How close to the loadability point should the relay setting be should also be addressed. For all examples, a case that is deemed acceptable and one that is considered in violation should be presented.

I have had to set several 3 terminal lines that had a weak source that was actually an autotransformer tied to the line via a breaker. The resultant apparent impedance was so high that any setting would have been violation of the normal approach of using 1.15 times Irating. The result was that sequential tripping (which I consider to be not a good way to do things) was going to happen if the communications failed and that dual and perhaps triple layers of communication were needed. A fully worked out example of this type case should be included.

So the bottom line is that for each example, I would like to see the entire equipment rating list, the fault study results, and how the actual setting was determined. If it takes 20 pages to show the example, so be it. Examples that are only a two terminal lines will be considered by me to be insufficient.

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

   ☒ No

   Comments:

   We think the RC should not be the exclusive determinator of - critical to the reliability of the BES -, especially since the other entities are required to expend resources to comply with that determination. Therefore, we suggest the responsible entites under R3 be changed from - RELIABILITY COORDINATOR SHALL DETERMINE - to - RELIABILITY COORDINATOR, IN CONJUNCTION WITH TRANSMISSION OWNERS, GENERATION OWNERS, AND DISTRIBUTION PROVIDERS SHALL DETERMINE. This change should be made in R3, along with our suggested change to the Appicability comment in response to Question 6 below.

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

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Comments:

The VRF for R1 is HIGH which we suggest should be MEDIUM. The specification of a particular criteria will not cause cascading outages. The use of a VRF of HIGH for relays should be applied to relays not set to the criteria.

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Comments:

The industry has determined that NERC reliability standards need to be more definitive as to which entities the standards are Applicable. Therefore, Entergy strongly suggests that all Applicability assignments in ALL standards and requirements be changed to be very specific. Recognizing the greater Applicability specified in this draft of the standard we think greater specificity is required. Therefore, we suggest the Applicability of each standard be changed to - ALL REGISTERED xxx, NO ADDITIONAL CONDITIONS NOR LIMITATIONS WILL BE ADDED TO THE APPLICABILITY OF THIS STANDARD, where xxx is the functional entity to whom the standard applies. Therefore, the Applicability of PRC-023-1 should not be Transmission Owners but should be changed to - ALL REGISTERED TRANSMISSION OWNERS, NO ADDITIONAL CONDITIONS NOR LIMITATIONS WILL BE ADDED TO THE APPLICABILITY OF THIS STANDARD; Reliability Coordinators should be changed to - ALL REGISTERED RELAIBILITY COORDINATORS, NO ADDITIONAL CONDITIONS NOR LIMITATIONS WILL BE ADDED TO THE APPLICABILITY OF THIS STANDARD;Generation Owners but should be changed to - ALL REGISTERED GENERATION OWNERS, NO ADDITIONAL CONDITIONS NOR LIMITATIONS WILL BE ADDED TO THE APPLICABILITY OF THIS STANDARD; Distribution Providers but should be changed to - ALL REGISTERED DISTRIBUTION PROVIDERS, NO ADDITIONAL CONDITIONS NOR LIMITATIONS WILL BE ADDED TO THE APPLICABILITY OF THIS STANDARD.

The Applicability sections 4.1.2 and 4.1.4 should be changed from - AS DESIGNATED BY THE RELIABILITY COORDINATOR AS CRITICAL TO THE RELIABILITY OF THE BULK ELECTRIC SYSTEM - to - AS DESIGNATED BY THE RESULTS OF R3 OF THIS STANDARD.

In Applicability sections 4.2 and 4.3, please clarify the meaning, or applicability, of the term - applied according to 4.1.1 through 4.1.4. It is not clear what is meant by that phrase.

R3 contains the nebulous term - ARE CRITICAL TO THE RELIABILITY OF THE BULK ELECTRIC SYSTEM. This phrase is too vague and should be replaced by - ARE LIMITING FACILITIES DEFINED BY IROLs.

Measure M1 contains R1 and R4 in parentheses. We do not understand the meaning. Please re-write M1 so the relevance of R1 and R4 is clear.

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NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☒ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☒	1 — Transmission Owners
	☐	2 — RTOs and ISOs
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
	☐	6 — Electricity Brokers, Aggregators, and Marketers
	☐	7 — Large Electricity End Users
	☐	8 — Small Electricity End Users
	☐	9 — Federal, State, Provincial Regulatory or other Government Entities
	☐	10 - Regional Reliability Organizations; 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 Co. Transmission**

Contact Segment: **1**

Contact Telephone: **205-257-6027**

Contact E-mail: **jrcarter@southernco.com**

Additional Member Name	Additional Member Organization	Region*	Segment*
Marc Butts	**Southern Co Trans**	**SERC**	1
JT Wood	**Southern Co. Trans**	**SERC**	1
Phil Winston	**Georgia Power Co.**	**SERC**	1
Ben Pilleteri	**Alabama Power Co.**	**SERC**	1
Steve Carter	**Gulf Power Co.**	**SERC**	1
Joseph Stewart	**Mississippi Power Co.**	**SERC**	1
Jim Busbin	**Southern Co. Trans**	**SERC**	1

*If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information

The Relay Loadability standard was posted for a 45-day public comment period from August 16 through September 29, 2006. The standard and implementation plan were modified in response to the comments.

In addition, a new version of the Reliability Standards Development Procedure was approved by the NERC Board of Trustees on November 1, 2006. The drafting team made the following changes to the standard to bring it into conformance with the revised procedure or other changes needed to conform to the ERO Rules of Procedure:

- **Mitigation Time Horizons**
  The ERO Rules of Procedure include the use of "Mitigation Time Horizons" as one element used to determine the size of sanctions. The drafting team used the following guidelines in developing Mitigation Time Horizons for each requirement:

  - ***Long-term Planning:*** a planning horizon of one year or longer.
  - ***Operations Planning****:* operating and resource plans from day-ahead up to and including seasonal.
  - ***Same-day Operations****:* routine actions required within the time frame of a day, but not real-time.
  - ***Real-time Operations****:* actions required within one hour or less to preserve the reliability of the Bulk Electric System.
  - ***Operations Assessment***: follow-up evaluations and reporting of real-time operations.

- **RRO as Responsible Entity**
  The drafting team modified all requirements to eliminate the Regional Reliability Organization as the responsible entity, and replaced these references with the appropriate entity.

- **Levels of Non-compliance Versus Violation Severity Levels**
  The drafting team deleted "levels of non-compliance" and added "violation severity levels" to comply with the revised Reliability Standard Development Procedure. Compliance personnel assisted the drafting team in using the following criteria from the procedure to establish violation severity levels:

  - ***Lower:*** mostly compliant with minor exceptions — The responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more minor details. Equivalent score: 95% to 99% compliant.
  - ***Moderate:*** mostly compliant with significant exceptions — The responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more significant elements. Equivalent score: 85% to 94% compliant.
  - ***High:*** marginal performance or results — The responsible entity has only partially achieved the reliability objective of the requirement and is missing one or more significant elements. Equivalent score: 70% to 84% compliant.

- ***Severe:*** poor performance or results — The responsible entity has failed to meet the reliability objective of the requirement. Equivalent score: less than 70% compliant.

- **Associated Documents**
  The drafting team added a section "F" to the standard called, References.

You do not have to answer all questions.

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

1. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☒ Yes

   ☐ No

   Comments:

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☐ I agree with the proposed Mitigation Time Horizons.

   ☒ I do not agree with the following Mitigation Time Horizons.

   Comments: Mitigation Time Horizons should not be used as a means for determining non-compliance monetary penalties. The Violation Risk Factors already incorporate whether a requirement is real-time or in the future. Therefore, Southern Company recommends that the monetary penalties be based only on the violation risk factors and violation severity levels and NOT on the Mitigation Time Horizons.

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a requirement. (The reliability-related impact of violating a requirement is now identified in the "Violation Risk Factor" appended to each requirement.)

   Do you agree with the Violation Severity Levels for each of the proposed standards? If you disagree with any of the Violation Severity Levels for the proposed standards, please identify the standard and requirement you feel has an incorrect Violation Severity Level.

   ☒ I agree with the Violation Severity Levels.

   ☐ I do not agree with the following Violation Severity Levels.

   Comments:

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

☒ No unnecessary adverse impacts

☐ Unnecessary adverse impact on markets

5. One previous NERC activity and one ongoing activity, both outside the compliance process, have addressed relay loadability. The previous activity has essentially been completed. It was based on NERC Recommendation 8a (resulting from the investigation into the August 14, 2003 blackout) and addressed zone 3 relays on transmission lines, 200 kV and above. The ongoing activity, "Protection System Review Program — Beyond Zone 3" addresses all other load-responsive relays at 200 kV and above, and on "operationally significant circuits, 100 kV–200 kV", and should be essentially completed by 12/31/08. Both activities were approved in detail by the NERC Planning Committee and by the NERC Board of Trustees. The requirements of PRC-023, together with the added information in the PRC-023 Reference Document, were drafted from the specifications of these activities.

   Transmission Owners, applicable Generator Owners, and applicable Distribution Providers, collectively referred to in the activities cited above as "Transmission Protection System Owners," or "TPSOs," have certified, through their respective Regions, that they have reviewed all of their load responsive relays in accordance with the specifications in those activities, and, in the case of the previous activity, have cited that they have completed the changes necessary to conform to those specifications. These certifications have been reviewed both by the respective Regions and by the NERC System Protection and Control Task Force; summary reports of these reviews have been approved by the NERC Planning Committee and have been presented to the NERC Board of Trustees. These summary reports may be found at www.nerc.com, under Committees — Planning Committee — System Protection and Control Task Force — Related Files.

   The draft implementation plan for PRC-023 proposes that the standard will be implemented following applicable regulatory approvals and the conclusion of the ongoing activity cited above. Based on these observations, the standard drafting team does not feel that PRC-023 will require field testing. Do you think that a field test period for PRC-023 is necessary?

   ☒ No field testing is necessary

   ☐ Field testing is necessary

   Comments:

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☒ No additional comments

   Comments:

Please use this form to submit comments on the proposed Relay Loadability standard. Comments must be submitted by **February 7, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.com with "**Relay Loadability"** in the subject line. If you have questions, please contact Richard Schneider at richard.schneider@nerc.net or by telephone at 609-452-8060.

Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Anita Lee	
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NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☒ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
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	☐	10 - Regional Reliability Organizations; 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, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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- **Mitigation Time Horizons**
  The ERO Rules of Procedure include the use of "Mitigation Time Horizons" as one element used to determine the size of sanctions. The drafting team used the following guidelines in developing Mitigation Time Horizons for each requirement:

  - ***Long-term Planning:*** a planning horizon of one year or longer.
  - ***Operations Planning****:* operating and resource plans from day-ahead up to and including seasonal.
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- **RRO as Responsible Entity**
  The drafting team modified all requirements to eliminate the Regional Reliability Organization as the responsible entity, and replaced these references with the appropriate entity.

- **Levels of Non-compliance Versus Violation Severity Levels**
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  - ***High:*** marginal performance or results — The responsible entity has only partially achieved the reliability objective of the requirement and is missing one or more significant elements. Equivalent score: 70% to 84% compliant.

- ***Severe:*** poor performance or results — The responsible entity has failed to meet the reliability objective of the requirement. Equivalent score: less than 70% compliant.

- **Associated Documents**
  The drafting team added a section "F" to the standard called, References.

You do not have to answer all questions.

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

1. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☐ Yes

   ☒ No

   Comments: The WECC currently maintains the bulk transfer path catalog which provides a list of the critical facilities. It may be more appropriate for the RRO to be the entity responsible for making the determination on critical facilities.

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☐ I agree with the proposed Mitigation Time Horizons.

   ☐ I do not agree with the following Mitigation Time Horizons.

   Comments:

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a requirement. (The reliability-related impact of violating a requirement is now identified in the "Violation Risk Factor" appended to each requirement.)

   Do you agree with the Violation Severity Levels for each of the proposed standards? If you disagree with any of the Violation Severity Levels for the proposed standards, please identify the standard and requirement you feel has an incorrect Violation Severity Level.

   ☐ I agree with the Violation Severity Levels.

   ☒ I do not agree with the following Violation Severity Levels.

   Comments: 1. Section D 2.2.1 "Evidence that the relay settings comply with criteria in R1.1 through 1.13 exists but is incomplete or incorrect for one or more of the requirements" - we recommend adding the word "applicable" before the word "criteria" since the present wording could imply that compliance is required for all of the criteria.

   2.Section D 2.4.1 stipulates that it's a Severe violation level if "Relay settings do not comply with R1.1 thought R1.13 or evidence does not exist to support that relay settings comply with one of the criteria in R1.1 through R1.13". Firstly, "thought" should be changed to "through"; secondly, we think that it would be more appropriate

to have different violation severity levels corresponding with the number of non-compliance to the sub-requirements (R1.1 to R1.13), instead of assigning the highest severity level for non-compliance with any one of the sub-requirements.

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

   ☐ No unnecessary adverse impacts

   ☐ Unnecessary adverse impact on markets

5. One previous NERC activity and one ongoing activity, both outside the compliance process, have addressed relay loadability. The previous activity has essentially been completed. It was based on NERC Recommendation 8a (resulting from the investigation into the August 14, 2003 blackout) and addressed zone 3 relays on transmission lines, 200 kV and above. The ongoing activity, "Protection System Review Program — Beyond Zone 3" addresses all other load-responsive relays at 200 kV and above, and on "operationally significant circuits, 100 kV–200 kV", and should be essentially completed by 12/31/08. Both activities were approved in detail by the NERC Planning Committee and by the NERC Board of Trustees. The requirements of PRC-023, together with the added information in the PRC-023 Reference Document, were drafted from the specifications of these activities.

   Transmission Owners, applicable Generator Owners, and applicable Distribution Providers, collectively referred to in the activities cited above as "Transmission Protection System Owners," or "TPSOs," have certified, through their respective Regions, that they have reviewed all of their load responsive relays in accordance with the specifications in those activities, and, in the case of the previous activity, have cited that they have completed the changes necessary to conform to those specifications. These certifications have been reviewed both by the respective Regions and by the NERC System Protection and Control Task Force; summary reports of these reviews have been approved by the NERC Planning Committee and have been presented to the NERC Board of Trustees. These summary reports may be found at www.nerc.com, under Committees — Planning Committee — System Protection and Control Task Force — Related Files.

   The draft implementation plan for PRC-023 proposes that the standard will be implemented following applicable regulatory approvals and the conclusion of the ongoing activity cited above. Based on these observations, the standard drafting team does not feel that PRC-023 will require field testing. Do you think that a field test period for PRC-023 is necessary?

   ☒ No field testing is necessary

   ☐ Field testing is necessary

   Comments:

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☐ No additional comments

Comments:

1. Thermal Relays - Some direction should be provided regarding the use of themal emulation relays, either in the standard exclusions or in the reference document.

2. We have a concern about loading to 115% of the 15 minute rating for overhead lines. Specifically because ratings are often based on maximum allowable sag according to the National Electric Safety Code and intentionally loading above that level represents a safety code violation.

3. Determining and granting allowance for technical exceptions was previously done by the RRO. If this responsibility is assigned to the Reliability Coordinator there may not be consistency across the region.

4. R1.1 - We suggest changing the duration of the 150% loading requirement from the 4 hour facility rating to the continuous rating. Four hour ratings are not presently used within Alberta.

5.R1.3.2 - We believe that Exception 4 provided adequate loadability without the additional 15% current margin in PRC-023. The maximum power is calculated based on 1.05 p.u. voltages. For the bus voltage to dip to 0.85 p.u. the system impedance will have thavd to increase very significantly as a result of other system changes, thus significantly reducing the maximum power transfer and its equivalent current. Many of the technical exceptions that have presently been accepted in teh WECC based on Exception 4 would no longer be permitted. Changing the loadability requirement at this time may cause unreasonable hardship on entities to be in compliance by January 1, 2008.

Comment Form — 2nd Draft of Relay Loadability Standard PRC-023

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Organization:		
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E-mail:		
NERC Region		**Registered Ballot Body Segment**
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	☐	10 - Regional Reliability Organizations; Regional Entities

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

Group Name: WECC Relay Work Group

Lead Contact: Paul Rice

Contact Organization: WECC

Contact Segment: Transmission Owners

Contact Telephone: 801-582-0353

Contact E-mail: paul@wecc.biz

Additional Member Name	Additional Member Organization	Region*	Segment*
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Dick Curtner	Public Service of New Mexico	WECC	1
Malkiat Dhillon	Sacramento Municipal Utility District	WECC	1
Gene Henneberg	Sierra Pacific Power Co.	WECC	1
Mike Ibold	Xcel Energy	WECC	1
Bill Middaugh	Tri-State Gen. and Trans. Ass'n.	WECC	1
Dan Shield	Alberta Electric System Operator	WECC	1
Randy Spacek	Avista Corp.	WECC	1
Jonathan Sykes	Salt River Project	WECC	1
Ed Taylor	Pacific Gas & Electric	WECC	1

*If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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- **Associated Documents**
  The drafting team added a section "F" to the standard called, References.

You do not have to answer all questions.

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

1. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☐ Yes

   ☒ No

   Comments: The Regional Reliability Organization (RRO) previously had some responsibility for determining the "operationally significant" facilities. NERC may want to continue its inclusion since the bulk transfer path catalog, which contained many such facilities, is maintained by our RRO.

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☐ I agree with the proposed Mitigation Time Horizons.

   ☒ I do not agree with the following Mitigation Time Horizons.

   Comments: While we agree that the horizons are probably adequate we have two areas of concern. The first is the discrepancy between the 39 months in A.5.1.2 and the 24 months in B.R4. Secondly we suggest that horizons be implemented to accommodate correction of issues of Security Level violations that may be found in the future.

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a requirement. (The reliability-related impact of violating a requirement is now identified in the "Violation Risk Factor" appended to each requirement.)

   Do you agree with the Violation Severity Levels for each of the proposed standards? If you disagree with any of the Violation Severity Levels for the proposed standards, please identify the standard and requirement you feel has an incorrect Violation Severity Level.

   ☐ I agree with the Violation Severity Levels.

   ☒ I do not agree with the following Violation Severity Levels.

   Comments: We suggest the wordings for the specific sections in D.2. be changed to those shown below:

   D.2.1.1 The applicable criteria described in R1.6, R1.7. R1.8. R1.9, R1.12, or R.13 was used but evidence does not exist that agreement was obtained in accordance with R2.

D.2.2.1 Evidence that relay settings comply with the applicable criteria in R1.1 through R1.13 exists, but is incomplete or incorrect for one or more of the requirements.

D. 2.4.1 Relay settings do not comply with any requirement R1.1 through R1.13 or evidence does not exist to support that relay settings comply with any one of the criteria in R1.1 through R1.13.

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

   ☒ No unnecessary adverse impacts

   ☐ Unnecessary adverse impact on markets

5. One previous NERC activity and one ongoing activity, both outside the compliance process, have addressed relay loadability. The previous activity has essentially been completed. It was based on NERC Recommendation 8a (resulting from the investigation into the August 14, 2003 blackout) and addressed zone 3 relays on transmission lines, 200 kV and above. The ongoing activity, "Protection System Review Program — Beyond Zone 3" addresses all other load-responsive relays at 200 kV and above, and on "operationally significant circuits, 100 kV–200 kV", and should be essentially completed by 12/31/08. Both activities were approved in detail by the NERC Planning Committee and by the NERC Board of Trustees. The requirements of PRC-023, together with the added information in the PRC-023 Reference Document, were drafted from the specifications of these activities.

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   The draft implementation plan for PRC-023 proposes that the standard will be implemented following applicable regulatory approvals and the conclusion of the ongoing activity cited above. Based on these observations, the standard drafting team does not feel that PRC-023 will require field testing. Do you think that a field test period for PRC-023 is necessary?

   ☒ No field testing is necessary

   ☐ Field testing is necessary

   Comments: While we don't necessarily believe that additional field testing is necessary for the proposed standards, standard 1.3.2 is different from the original exception 4 and will not have been tested. This also changes the requirements for series-compensated lines.

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☐ No additional comments

   Comments: Some thermal emulation relays are used in SPS, but since they could operate independent of the SPS we wonder if there ought to be some discussion of them in the standard exclusions, or in the reference.

   We suggest that, for clarity, "Facility" and "Facility Rating" definitions be copied from the "Glossary of Terms Used in Reliability Standards" to be included in either the standard or the reference.

   We have concerns about loading to 115% of the 15 minute rating for overhead lines. Those ratings are often based on maximum allowable sag according to the National Electric Safety Code. Intentionally loading above that level may be in violation of the safety code.

   Previously the RRO had responsibility in determining allowance of technical exceptions, which provided consistency throughout the entire region. Moving those responsibilities to the Reliability Coordinators (RC) may change that consistency, thus treating entities differently depending on their RC.

   R1 - There is no longer a loadability rating based on breaker rating (Exception 3).

   R1.1 - We suggest changing the duration of the 150% loading requirement from the 4 hour facility rating to the continuous rating. We have found that entities typically have continuous and short term, i. e., 15 minute, ratings defined, but not 4 hour ratings.

   R1.3.2 - We believe that Exception 4 provided adequate loadability without the additional 15% current margin in PRC-023. The maximum power is calculated based on 1.05 per unit voltages. For the bus voltage to dip to 0.85 per unit the system impedance will have had to increase very significantly as a result of other system changes, thus significantly reducing the maximum power transfer and its equivalent current. Many of the technical exceptions that have presently been accepted in the WECC based on Exception 4 would no longer be permitted. Changing the loadability requirement at this time may cause unreasonable hardship on entities to be in compliance by January 1, 2008.

   R1.4 - The current calculation for Exception 5 could have been based on Exception 2, 3, or 4 but was frequently based on 4. Since 4 has been significantly changed it will also change the allowed loadability of R1.4. We believe that this is another reason to keep R1.3.2 to be determined in the same manner as Exception 4.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Brian Thumm	
Organization:	ITC Transmission	
Telephone:	248-374-7846	
E-mail:	bthumm@itctransco.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☒ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☒	1 — Transmission Owners
	☐	2 — RTOs and ISOs
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	☐	10 - Regional Reliability Organizations; 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

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In addition, a new version of the Reliability Standards Development Procedure was approved by the NERC Board of Trustees on November 1, 2006. The drafting team made the following changes to the standard to bring it into conformance with the revised procedure or other changes needed to conform to the ERO Rules of Procedure:

- **Mitigation Time Horizons**
  The ERO Rules of Procedure include the use of "Mitigation Time Horizons" as one element used to determine the size of sanctions. The drafting team used the following guidelines in developing Mitigation Time Horizons for each requirement:

  - ***Long-term Planning:*** a planning horizon of one year or longer.
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  The drafting team modified all requirements to eliminate the Regional Reliability Organization as the responsible entity, and replaced these references with the appropriate entity.

- **Levels of Non-compliance Versus Violation Severity Levels**
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- **Associated Documents**
  The drafting team added a section "F" to the standard called, References.

You do not have to answer all questions.

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

1. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☒ Yes

   ☐ No

   Comments:

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☐ I agree with the proposed Mitigation Time Horizons.

   ☒ I do not agree with the following Mitigation Time Horizons.

   Comments: There is insufficient material describing the development and use of mitigation time horizons for inclusion in the Reliability Standards. It is premature to include them in these version of the Standards. When the Reliability Standards Development Procedure is updated to include a detailed description of their meaning and usage, only then should they be included in a Reliability Standard.

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a requirement. (The reliability-related impact of violating a requirement is now identified in the "Violation Risk Factor" appended to each requirement.)

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   ☒ I agree with the Violation Severity Levels.

   ☐ I do not agree with the following Violation Severity Levels.

   Comments:

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

☒ No unnecessary adverse impacts

☐ Unnecessary adverse impact on markets

5. One previous NERC activity and one ongoing activity, both outside the compliance process, have addressed relay loadability. The previous activity has essentially been completed. It was based on NERC Recommendation 8a (resulting from the investigation into the August 14, 2003 blackout) and addressed zone 3 relays on transmission lines, 200 kV and above. The ongoing activity, "Protection System Review Program — Beyond Zone 3" addresses all other load-responsive relays at 200 kV and above, and on "operationally significant circuits, 100 kV–200 kV", and should be essentially completed by 12/31/08. Both activities were approved in detail by the NERC Planning Committee and by the NERC Board of Trustees. The requirements of PRC-023, together with the added information in the PRC-023 Reference Document, were drafted from the specifications of these activities.

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   ☒ No field testing is necessary

   ☐ Field testing is necessary

   Comments:

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☐ No additional comments

   Comments: Requirements R1.1 and R1.2 are written to allow transmission relays to be set as a percentage of "seasonal Facility Ratings" for a "defined loading duration." Not all transmission owners assign seasonal ratings to their transmission facilities (i.e., there is one rating for the full year). Also, not all transmission owners have time-of-use ratings (e.g., 4-hour emergency ratings, 15-minute emergency ratings). Perhaps there is a way to clarify the requirements to ensure an entity with one rating is not in jeopardy of being found non-compliant sinply for not having a seasonal rating. ITC Transmission recommends a footnote to that effect, indicating that if seasonal ratings do not apply for a particular facility, then the full-year rating is to be used. Similarly, a

footnote could also clarify that if a short-term or emergency rating has not been established for a particular facility, then the normal rating would apply (which, notably, would be more conservative than an emergency rating, since emergency ratings are generally higher than normal ratings).

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Herb Schrayshuen	
Organization:	National Grid	
Telephone:	(315) 428-3159	
E-mail:	herbert.schrayshuen@us.ngrid.com	
NERC Region		**Registered Ballot Body Segment**
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   Comments:

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   ☐ I agree with the Violation Severity Levels.

   ☒ I do not agree with the following Violation Severity Levels.

   Comments: Section D, 2.4.1 states a Severe level violation applies when "Relay settings do not comply with R1.1 through R1.13 or evidence does not exist to support that relay settings comply with one of the criteria in R1.1 through R1.13." National Grid agrees that non-compliance of relay settings should constitute a Severe level violation. However, we believe that in cases where "Relay settings comply with one of the criteria in R1.1 through R1.13, but evidence does not exist to support that the relay settings comply" that a High level violation should apply.

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

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   Comments:

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   Comments: The schedule for Switch-On-To-Fault (SOTF) protections applied on elements 200 kV and above is the same as the Beyond Zone 3 schedule for the phase protections referenced in section A.4.1.2 and A.4.1.4 applied on elements 100 kV to 200 kV. The Effective Date for the Standard should be modified to include all SOTF protections in the Effective Date in Section A.5.1.2.

In Section B, Requirement R1.10 additional specificity should be provided regarding the word applicable in the phrase "applicable maximum transformer nameplate rating.

In Section B, Requirement R1.11 additional specificity should be provided to clarify that the word supervision refers to blocking tripping of the transformer overload protection relays when the top oil or winding hot spot temperature is below the value specified in the Standard.

Investigation of protective relay misoperations sometimes identifies firmware problems that cause a relay to operate in an manner not intended by the manufacturuer. How would compliance be assessed in a case where a firmware problem is identified that prevents a relay from meeting the the relay loadability requirements? What process would exist for granting exemption from the Standard for such a problem that would affect all Entities that have applied the protective relay in question?

Comment Form — 2nd Draft of Relay Loadability Standard PRC-023

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization: First Energy Corp		
Telephone:		
E-mail:		
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   ☐ No

   Comments: The Reliability Coordinator has sufficient information available concerning these facilities to make this determination.

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Group Name:

Lead Contact: Ed Taylor

Contact Organization: Pacific Gas and Electric Co.

Contact Segment: 1

Contact Telephone: (510) 874-2211

Contact E-mail: eat3@pge.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Chifong Thomas	Pacific Gas and Electric Co	WECC	1
Glenn Rounds	Pacific Gas and Electric Co	WECC	1
Tom Siegel	Pacific Gas and Electric Co	WECC	1
Vahid Madani	Pacific Gas and Electric Co	WECC	1
Ben Morris	Pacific Gas and Electric Co	WECC	1

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   ☒ Yes

   ☐ No

   Comments: The Regional Reliability Organization (RRO) previously had some responsibility for determining the "operationally significant" facilities. NERC may want to continue its inclusion since the bulk transfer path catalog, which contained many such facilities, is maintained by our RRO.

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☒ I agree with the proposed Mitigation Time Horizons.

   ☐ I do not agree with the following Mitigation Time Horizons.

   Comments: While we agree that the horizons are probably adequate we have two areas of concern. The first is the discrepancy between the 39 months in A.5.1.2 and the 24 months in B.R4. Secondly we suggest that horizons be implemented to accommodate correction of issues of Security Level violations that may be found in the future.

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a requirement. (The reliability-related impact of violating a requirement is now identified in the "Violation Risk Factor" appended to each requirement.)

   Do you agree with the Violation Severity Levels for each of the proposed standards? If you disagree with any of the Violation Severity Levels for the proposed standards, please identify the standard and requirement you feel has an incorrect Violation Severity Level.

   ☐ I agree with the Violation Severity Levels.

   ☒ I do not agree with the following Violation Severity Levels.

   Comments: We suggest the wordings for the specific sections in D.2. be changed to those shown below:

   D.2.1.1 The applicable criteria described in R1.6, R1.7. R1.8. R1.9, R1.12, or R.13 was used but evidence does not exist that agreement was obtained in accordance with R2.

D.2.2.1 Evidence that relay settings comply with the applicable criteria in R1.1 through R1.13 exists, but is incomplete or incorrect for one or more of the requirements.

D. 2.4.1 Relay settings do not comply with any requirement R1.1 through R1.13 or evidence does not exist to support that relay settings comply with any one of the criteria in R1.1 through R1.13.

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

   ☒ No unnecessary adverse impacts

   ☐ Unnecessary adverse impact on markets

5. One previous NERC activity and one ongoing activity, both outside the compliance process, have addressed relay loadability. The previous activity has essentially been completed. It was based on NERC Recommendation 8a (resulting from the investigation into the August 14, 2003 blackout) and addressed zone 3 relays on transmission lines, 200 kV and above. The ongoing activity, "Protection System Review Program — Beyond Zone 3" addresses all other load-responsive relays at 200 kV and above, and on "operationally significant circuits, 100 kV–200 kV", and should be essentially completed by 12/31/08. Both activities were approved in detail by the NERC Planning Committee and by the NERC Board of Trustees. The requirements of PRC-023, together with the added information in the PRC-023 Reference Document, were drafted from the specifications of these activities.

   Transmission Owners, applicable Generator Owners, and applicable Distribution Providers, collectively referred to in the activities cited above as "Transmission Protection System Owners," or "TPSOs," have certified, through their respective Regions, that they have reviewed all of their load responsive relays in accordance with the specifications in those activities, and, in the case of the previous activity, have cited that they have completed the changes necessary to conform to those specifications. These certifications have been reviewed both by the respective Regions and by the NERC System Protection and Control Task Force; summary reports of these reviews have been approved by the NERC Planning Committee and have been presented to the NERC Board of Trustees. These summary reports may be found at www.nerc.com, under Committees — Planning Committee — System Protection and Control Task Force — Related Files.

   The draft implementation plan for PRC-023 proposes that the standard will be implemented following applicable regulatory approvals and the conclusion of the ongoing activity cited above. Based on these observations, the standard drafting team does not feel that PRC-023 will require field testing. Do you think that a field test period for PRC-023 is necessary?

   ☐ No field testing is necessary

   ☒ Field testing is necessary

   Comments: Yes. field testing is recommended. Successful implementation depends on close communication between the Planning Authority, Transmission Operator and Reliability Coordinator. Requirements for documentation of compliance need to be clearly defined and understood by all parties.

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☐ No additional comments

   Comments:

   (1)There are some technical differences between PRC-023 and NERC Recommendation 8a that need to be resolved. For example, NERC Recommendation 8a defined a term called the "Emergency Ampere Rating" of a transmission line, which includes an explanation of how this rating should be determined. NERC PRC-023 requires the use of a "Facility Rating" to determine the circuit loadability. The term "Facility Rating" should be similarly defined so as not to cause confusion later, especially if no field test is applied before implementation. Other specific comments on the technical differences between PRC-023 and NERC Recommendation 8a will be sent in by the WECC Relay Work Group.

   (2) Need more clarification on SPS Schemes. Are all SPS schemes exempt or only the ones that meet NERC Reliability Criteria? Some SPS schemes are local in nature, do not affect neighboring utilities and failure of one of these schemes would not result in cascading events. These local SPS schemes may not be designed with the same degree of redundancy as SPS schemes that are in the WECC catalog and have been reviewed by the WECC RAS Reliability Subcommittee.

   (3) Are line thermal overload schemes exempt? They are designed to take corrective action to prevent overloading a transmission line and by their nature may prevent loading the transmission line to levels required by R1.1 through R1.13.

   (4) If a relay setting is found to not comply, is there an implementation period to comply?

   (5) No sanctions have been associated with the different levels of non-compliance. When will these be defined?

Comment Form — 2nd Draft of Relay Loadability Standard PRC-023

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
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	☐	10 - Regional Reliability Organizations; Regional Entities

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

Group Name: FRCC

Lead Contact: Eric Senkowicz

Contact Organization: FRCC

Contact Segment: 2

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Additional Member Name	Additional Member Organization	Region*	Segment*
Mark Bennett	Gainesville Regional Utilities	FRCC	5
Linda Campbell	FRCC	FRCC	2
Alan Gale	City of Tallahassee	FRCC	5
Eric Grant	Progress Energy - Florida	FRCC	1

*If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information

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In addition, a new version of the Reliability Standards Development Procedure was approved by the NERC Board of Trustees on November 1, 2006. The drafting team made the following changes to the standard to bring it into conformance with the revised procedure or other changes needed to conform to the ERO Rules of Procedure:

- **Mitigation Time Horizons**
  The ERO Rules of Procedure include the use of "Mitigation Time Horizons" as one element used to determine the size of sanctions. The drafting team used the following guidelines in developing Mitigation Time Horizons for each requirement:

  - ***Long-term Planning:*** a planning horizon of one year or longer.
  - ***Operations Planning****:* operating and resource plans from day-ahead up to and including seasonal.
  - ***Same-day Operations****:* routine actions required within the time frame of a day, but not real-time.
  - ***Real-time Operations****:* actions required within one hour or less to preserve the reliability of the Bulk Electric System.
  - ***Operations Assessment***: follow-up evaluations and reporting of real-time operations.

- **RRO as Responsible Entity**
  The drafting team modified all requirements to eliminate the Regional Reliability Organization as the responsible entity, and replaced these references with the appropriate entity.

- **Levels of Non-compliance Versus Violation Severity Levels**
  The drafting team deleted "levels of non-compliance" and added "violation severity levels" to comply with the revised Reliability Standard Development Procedure. Compliance personnel assisted the drafting team in using the following criteria from the procedure to establish violation severity levels:

  - ***Lower:*** mostly compliant with minor exceptions — The responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more minor details. Equivalent score: 95% to 99% compliant.
  - ***Moderate:*** mostly compliant with significant exceptions — The responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more significant elements. Equivalent score: 85% to 94% compliant.
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- ***Severe:*** poor performance or results — The responsible entity has failed to meet the reliability objective of the requirement. Equivalent score: less than 70% compliant.

- **Associated Documents**
  The drafting team added a section "F" to the standard called, References.

You do not have to answer all questions.

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

1. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☐ Yes

   ☒ No

   Comments: The shift from RRO to RC accountability for determination of "circuits critical to the reliability of the Bulk Electric System" is a significant step change in current NERC Reliability philosophy. One concern we have is for consistency across the Regions and the change in this standard would shift that concern to consistency across RCs of the Interconnections.

   The second concern is that this will effectively shift some of the RC functions and accountabilities over to a role as a Compliance monitor. Some of the compliance elements associated with the new RC relationships may create inadvertent coordination and compliance measuring conflicts between the new Regional Entities, the RCs and the transmission owners that will ultimately have to comply with PRC-023.

   Based on the above we recommend removal of the RC related requirements and applicabilities until NERC (as the ERO) can better define the criteria or methodology for determining "circuits critical to the reliability of the Bulk Electric System" or establish a standardized Rliebility Impact Based methodology for RCs to use when creating the critical circuits list (circuits between 100 kV and 200 kV).

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☐ I agree with the proposed Mitigation Time Horizons.

   ☒ I do not agree with the following Mitigation Time Horizons.

   Comments: The "Mitigation Time Horizons" are not part of the Reliability Standards Development Procedure, version 6.0, adopted by NERC BOT, 11/1/2006. As such it is not clear why these were included in this standard.

   We understand the description of "Mitigation Time Horizons" is provided in the comment form and the concept of "Violation Time Horizons" is included in the Sanctions Guidelines, appendix 4B (NERC Compliance Filing to FERC dated October 18th, 2006), but we feel these horizons are part of a broader policy issue and since their use is not clearly stipulated in the NERC standards process, including them in the standards will cause unnecessary confusion to stakeholders and regulators.

The mitigation (or violation) time horizons should be clearly stipulated in the Reliability Standards Development Procedure prior to their use in any standard (from a policy perspective).

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a requirement. (The reliability-related impact of violating a requirement is now identified in the "Violation Risk Factor" appended to each requirement.)

   Do you agree with the Violation Severity Levels for each of the proposed standards? If you disagree with any of the Violation Severity Levels for the proposed standards, please identify the standard and requirement you feel has an incorrect Violation Severity Level.

   ☐ I agree with the Violation Severity Levels.

   ☒ I do not agree with the following Violation Severity Levels.

   Comments: Although the violation severity levels (Lower, Moderate, High and Severe) are defined in the comment form provided and described as the basis for the DT's determinations, the levels are NOT defined in the current Reliability Standards Development Procedure. The term 'violation severity levels' is referenced generally in the Reliability Standards Development Procedure, version 6.0, adopted by NERC BOT, 11/1/2006 in the 'Compliance Elements of a Standard' section, as follows:

   (Violation Severity Levels) - 'Defines the degree to which compliance with a requirement was not achieved. The violation severity levels, are part of the standard and are balloted with the standard, and developed by the NERC compliance program in coordination with the standard drafting team.'

   Since the standards procedure does NOT include the definitions for Lower, Moderate, High and Severe, our main concern, again, is from a policy perspective. Although the definitions are included in the comment form, we feel this track will lead to confusion among stakeholders and regulators in this and other standard development activities. The process is requesting the industry to ballot and comment on a concept (Lower, Moderate, High and Severe) that is defined outside the reliability standards process and as such is subject to revisions and interpretations outside the process as well. This appears inappropriate and at the extreme will lead to inconsistent understanding, measurement and enforcement of compliance actions.

   The levels should be defined in the Reliability Standards Development Procedure prior to inclusion in balloting any standards.

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

   ☐ No unnecessary adverse impacts

   ☐ Unnecessary adverse impact on markets

5. One previous NERC activity and one ongoing activity, both outside the compliance process, have addressed relay loadability. The previous activity has essentially been completed. It was based on NERC Recommendation 8a (resulting from the investigation into the August 14, 2003 blackout) and addressed zone 3 relays on transmission lines, 200 kV and above. The ongoing activity, "Protection System Review Program — Beyond Zone 3" addresses all other load-responsive relays at 200 kV and above, and on "operationally significant circuits, 100 kV–200 kV", and should be essentially completed by 12/31/08. Both activities were approved in detail by the NERC Planning Committee and by the NERC Board of Trustees. The requirements of PRC-023, together with the added information in the PRC-023 Reference Document, were drafted from the specifications of these activities.

   Transmission Owners, applicable Generator Owners, and applicable Distribution Providers, collectively referred to in the activities cited above as "Transmission Protection System Owners," or "TPSOs," have certified, through their respective Regions, that they have reviewed all of their load responsive relays in accordance with the specifications in those activities, and, in the case of the previous activity, have cited that they have completed the changes necessary to conform to those specifications. These certifications have been reviewed both by the respective Regions and by the NERC System Protection and Control Task Force; summary reports of these reviews have been approved by the NERC Planning Committee and have been presented to the NERC Board of Trustees. These summary reports may be found at www.nerc.com, under Committees — Planning Committee — System Protection and Control Task Force — Related Files.

   The draft implementation plan for PRC-023 proposes that the standard will be implemented following applicable regulatory approvals and the conclusion of the ongoing activity cited above. Based on these observations, the standard drafting team does not feel that PRC-023 will require field testing. Do you think that a field test period for PRC-023 is necessary?

   ☐ No field testing is necessary

   ☒ Field testing is necessary

   Comments: This standard is extremely technical in nature as evidenced by the development of PRC-023 Reference document. The new concepts being addressed in the standard will also result in the involvement of new industry participants that have not been historically, involved in the NERC Reliability Standards process and the accompanying compliance concepts.

   Based on the above, we recommend that a field test of the standard, to validate the measures and compliance elements, may highlight discrepancies and deficiencies in the measurability of the standard. We also feel that the field test may add additional insight and detail which could be added to the reference document or training material associated with the adoption of the standard.

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☐ No additional comments

   Comments: We have a concern with the associated "reference document", PRC-023 Reference. It is not clear how and where this document was developed. We understand that the document was created from previous references developed by the SPCTF. We would like to see a more formal vetting process of "reference documents".

The cover sheet indicates it was prepared by the SPCTF of the NERC Planning Committee and that it is version 1.0, dated January 9, 2007. In review of meeting histories, we were not able to find the "formal" approval or adoption process of this document by the SPCTF or the PC.

We recommend that reference documents of this type should include a revision history along with approval history indicating what quality checks were performed on the document and which body (SPCTF, PC) sponsored its development and approved its publication.

If a reference document is created outside of the standards process it should contain an appropriate disclaimer stating so, to ensure that it is clear that Reliability standard in effect during compliance activities take precedence over references. This would be important, especially if synchronization or interpretation conflicts existed between the reference document and the Reliability standard.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☐ **RFC** ☒ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☒	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, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

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  - ***Long-term Planning:*** a planning horizon of one year or longer.
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  The drafting team added a section "F" to the standard called, References.

You do not have to answer all questions.

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

1. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☐ Yes

   ☒ No

   Comments: Not as written. Requirement 3.1 requires that the RC have a process to determine critical 100-200kV lines that must meet relay loadability requirements. Req 3.1.1 requires that the RC coordinate with adjoining RCs.

   The standard should also include a provision, Req 3.1.2, that requires the RC process to also coordinate with the facility Transmission Owner(s) in addition to the adjoining RCs.

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   ☒ I agree with the proposed Mitigation Time Horizons.

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

Group Name: NPCC CP9 Reliability Standards Working Group

Lead Contact: Guy V. Zito

Contact Organization: NPCC

Contact Segment: 10

Contact Telephone: 212-840-1070

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David Kiguel	Ontario Hydro	NPCC	1
Roger Champagne	Hydro Quebec TransEnergie	NPCC	1
Ed Thompson	Con Edison	NPCC	1
Bill Shemley	ISO-New England	NPCC	2
Kathleen Goodman	ISO- New England	NPCC	2
Greg Campoli	New York ISO	NPCC	2
Ron Falsetti	The IESO, Ontario	NPCC	2
Jerad Barnhart	NSTAR	NPCC	1
Donald Nelson	MA. Dept of Tele. and Energy	NPCC	9
Guy V. Zito	NPCC	NPCC	10
Brian Hogue	NPCC	NPCC	10
Bill Shemley	ISO-New England	NPCC	2
Murale Gopinathan	Northeast Utilities	NPCC	1

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  - ***High:*** marginal performance or results — The responsible entity has only partially achieved the reliability objective of the requirement and is missing one or more significant elements. Equivalent score: 70% to 84% compliant.

- ***Severe:*** poor performance or results — The responsible entity has failed to meet the reliability objective of the requirement. Equivalent score: less than 70% compliant.

- **Associated Documents**
  The drafting team added a section "F" to the standard called, References.

You do not have to answer all questions.

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

1. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☒ Yes

   ☒ No

   Comments: NPCC participating members believe the Reliability Coordinator should determine which facilities in its area, are critical to the BPS irrespective of voltage level and an approved Regional performance based methodology should be used to consistently determine this on a wide area basis. However it is recognized that many Regions may not have an approved Bulk Power System methodology and in this instance they should utilize the Drafting Team's critera.

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☒ I agree with the proposed Mitigation Time Horizons.

   ☐ I do not agree with the following Mitigation Time Horizons.

   Comments:

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a requirement. (The reliability-related impact of violating a requirement is now identified in the "Violation Risk Factor" appended to each requirement.)

   Do you agree with the Violation Severity Levels for each of the proposed standards? If you disagree with any of the Violation Severity Levels for the proposed standards, please identify the standard and requirement you feel has an incorrect Violation Severity Level.

   ☐ I agree with the Violation Severity Levels.

   ☒ I do not agree with the following Violation Severity Levels.

   Comments: (1) Section D 2.4.1 should be changed to read as follows, to correspond with B R.1 and to correct an error: "Relay settings do not comply with at least one of R 1.1 though R 1.13, or evidence does not exist to support that relay settings comply with at least one of R 1.1 through R 1.13.

(2) Section D, 3.3.1 (Reliability Coordinator does not provide the list….) should be moved to the Severe level, 3.4.2 (Reliability Coordinator does not maintain a current list of facilities….) should be moved to the High level.

From our perspective there are 3 key elements in establishing the list of facilities critical to the reliability of the bulk electric system: 1) determining the facility list, 2) communicating the list to asset owners, and 3) maintaining the list.

The intent of R3 is to ensure that facility owners are informed of which of their facilities are critical to the reliability of the electric system in order that they design/set their relays to meet R1. Communicating the list of critical facilities is, in our view, one of the most important requirements, and there is no partial communicating so it's a case of either full compliant or flat out non-compliant. We therefore propose that 3.3.1 be moved to the Severe level.

If we accept the above argument, the requirement to maintain the list seems secondary. Note that maintaining the list does imply that the list has been communicated to the facility owners, and the requirement to maintain the list can be partially met. On the other hand, having communicated the list to the owners while not maintaining the list would still meet the intent of this standard. We therefore propose that 3.4.2 (Reliability Coordinator does not maintain a current list of facilities..) be moved to the High level.

Determining which facilities are critical to the reliability of the electric system is also an important first step. We agree that 3.4.1 should be retained at the Severe level, but propose to revise the sentence to read: "Reliability Coordinator does not have a process in place to determine, or evidence that it has determined, facilities that are critical to the reliability of the electric system."

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

   ☒ No unnecessary adverse impacts

   ☐ Unnecessary adverse impact on markets

5. One previous NERC activity and one ongoing activity, both outside the compliance process, have addressed relay loadability. The previous activity has essentially been completed. It was based on NERC Recommendation 8a (resulting from the investigation into the August 14, 2003 blackout) and addressed zone 3 relays on transmission lines, 200 kV and above. The ongoing activity, "Protection System Review Program — Beyond Zone 3" addresses all other load-responsive relays at 200 kV and above, and on "operationally significant circuits, 100 kV–200 kV", and should be essentially completed by 12/31/08. Both activities were approved in detail by the NERC Planning Committee and by the NERC Board of Trustees. The requirements of PRC-023, together with the added information in the PRC-023 Reference Document, were drafted from the specifications of these activities.

   Transmission Owners, applicable Generator Owners, and applicable Distribution Providers, collectively referred to in the activities cited above as "Transmission Protection System Owners," or "TPSOs," have certified, through their respective Regions, that they have reviewed all of their load responsive relays in accordance with

the specifications in those activities, and, in the case of the previous activity, have cited that they have completed the changes necessary to conform to those specifications. These certifications have been reviewed both by the respective Regions and by the NERC System Protection and Control Task Force; summary reports of these reviews have been approved by the NERC Planning Committee and have been presented to the NERC Board of Trustees. These summary reports may be found at www.nerc.com, under Committees — Planning Committee — System Protection and Control Task Force — Related Files.

The draft implementation plan for PRC-023 proposes that the standard will be implemented following applicable regulatory approvals and the conclusion of the ongoing activity cited above. Based on these observations, the standard drafting team does not feel that PRC-023 will require field testing. Do you think that a field test period for PRC-023 is necessary?

☐ No field testing is necessary

☒ Field testing is necessary

Comments: NPCC participating members believe the need for further field testing depends on the outcome of the final determination of what constitutes the BPS. Additional time or effort for field testing may be required to not only come into compliance if large additional portions of the lower voltage electric system are included, but to test the validity and coordination of the concepts contained in this standard. During NERC SPCTF's previous efforts pertaining to Beyond Zone 3 the application of the concepts were somewhat confined.

NPCC participating members believe the Standard as written should not be restricted to voltage classifications and should be applied to performance based BPS criteria elements.

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

☐ No additional comments

Comments: Violation Risk Factors are an integral part of Reliability Standards development process and the comment form should include a question on appropriateness of the assigned risk factors to seek industry consensus.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	James H. Sorrels, Jr.	
Organization:	American Electric Power	
Telephone:	(614) 716-2370	
E-mail:	jhsorrels@.com	
NERC Region		**Registered Ballot Body Segment**
☒ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☒ **RFC** ☐ **SERC** ☒ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☒	1 — Transmission Owners
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	☐	10 - Regional Reliability Organizations; 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, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Background Information

The Relay Loadability standard was posted for a 45-day public comment period from August 16 through September 29, 2006. The standard and implementation plan were modified in response to the comments.

In addition, a new version of the Reliability Standards Development Procedure was approved by the NERC Board of Trustees on November 1, 2006. The drafting team made the following changes to the standard to bring it into conformance with the revised procedure or other changes needed to conform to the ERO Rules of Procedure:

- **Mitigation Time Horizons**
  The ERO Rules of Procedure include the use of "Mitigation Time Horizons" as one element used to determine the size of sanctions. The drafting team used the following guidelines in developing Mitigation Time Horizons for each requirement:

  - ***Long-term Planning:*** a planning horizon of one year or longer.
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- **RRO as Responsible Entity**
  The drafting team modified all requirements to eliminate the Regional Reliability Organization as the responsible entity, and replaced these references with the appropriate entity.

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- **Associated Documents**
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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: We believe that the RC should work in conjunction with the Bulk Electric System owners and operators to help make the determination.

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☒ I agree with the proposed Mitigation Time Horizons.

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   ☐ I agree with the Violation Severity Levels.

   ☒ I do not agree with the following Violation Severity Levels.

   Comments:

   We believe that the appropriate violation severity level designation for the violation described in Section D-2.2.1 should be "Lower" rather than "Moderate". The language in D-2.2.1 and D-2.4.1 is ambiguous and should include references to the specific requirements that apply.

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

   ☐ No unnecessary adverse impacts

   ☐ Unnecessary adverse impact on markets

5. One previous NERC activity and one ongoing activity, both outside the compliance process, have addressed relay loadability. The previous activity has essentially been completed. It was based on NERC Recommendation 8a (resulting from the investigation into the August 14, 2003 blackout) and addressed zone 3 relays on transmission lines, 200 kV and above. The ongoing activity, "Protection System Review Program — Beyond Zone 3" addresses all other load-responsive relays at 200 kV and above, and on "operationally significant circuits, 100 kV–200 kV", and should be essentially completed by 12/31/08. Both activities were approved in detail by the NERC Planning Committee and by the NERC Board of Trustees. The requirements of PRC-023, together with the added information in the PRC-023 Reference Document, were drafted from the specifications of these activities.

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   The draft implementation plan for PRC-023 proposes that the standard will be implemented following applicable regulatory approvals and the conclusion of the ongoing activity cited above. Based on these observations, the standard drafting team does not feel that PRC-023 will require field testing. Do you think that a field test period for PRC-023 is necessary?

   ☐ No field testing is necessary

   ☒ Field testing is necessary

   Comments: While field testing may be difficult for PRC-023, it would be useful to provide a transition period wherein violations are reviewed, but not subject to sanction or fine.

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☐ No additional comments

   Comments: In response to question 4 above (there is no comment space provided), it is difficult to assess this impact on energy markets without having had the standard

deployed. The referenced field test (or transition period) would be beneficial to make such a determination.

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Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		**Registered Ballot Body Segment**
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Group Comments (Complete this page if comments are from a group.)

Group Name: SERC Protection and Control Subcommittee (PCS)

Lead Contact: Jay Farrington

Contact Organization: Alabama Electric Cooperative, Inc.

Contact Segment: 1

Contact Telephone: (334) 427-3225

Contact E-mail: jay.farrington@powersouth.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Robert Rauschenbach	Ameren	SERC	1
Sonia Walden	Dominion Virginia Power	SERC	1
Paul Smith	Duke Energy Carolinas	SERC	1
Charlie Fink	Entergy	SERC	1
Tom Seeley	E.ON-U.S.	SERC	1
Phil Winston	Georgia Power Company	SERC	1
Steve Waldrep	Georgia Power Company	SERC	1
Hong-Ming Shuh	Georgia Transmission Corporation	SERC	1
Eithar Nashawati	Progress Energy Carolinas	SERC	1
Jerry Blackley	Progress Energy Carolinas	SERC	1
Pat Huntley	SERC Reliability Corp.	SERC	10
Marion Frick	South Carolina Electric & Gas Company	SERC	1
Bridget Coffman	South Carolina Public Service Authority	SERC	1
George Pitts	Tennessee Valley Authority	SERC	1
Meyer Kao	Tennessee Valley Authority	SERC	1

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   ☐ Yes

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   Comments:

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   Comments:

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   ☐ No additional comments

   Comments: 1. R4 should have provisions for temporary and technical exceptions on newly identified critical circuits. 2. The implementation dates in 5.1.2 and 5.2 needs to be clarified. For the initial list, the 39 month clock should start after the RC designates a circuit as critical.

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

Group Name: Public Service Commission of South Carolina

Lead Contact: Phil Riley

Contact Organization: Public Service Commission of South Carolina

Contact Segment: 9

Contact Telephone: 803-896-5154

Contact E-mail: philip.riley@psc.sc.gov

Additional Member Name	Additional Member Organization	Region*	Segment*
Mignon L. Clyburn	Public Service Commission of SC	SERC	9
Elizabeth B. Fleming	Public Service Commission of SC	SERC	9
G. O'Neal Hamilton	Public Service Commission of SC	SERC	9
John E. Howard	Public Service Commission of SC	SERC	9
Randy Mitchell	Public Service Commission of SC	SERC	9
C. Robert Moseley	Public Service Commission of SC	SERC	9
David A. Wright	Public Service Commission of SC	SERC	9

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   ☐ No

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   Comments:

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a requirement. (The reliability-related impact of violating a requirement is now identified in the "Violation Risk Factor" appended to each requirement.)

   Do you agree with the Violation Severity Levels for each of the proposed standards? If you disagree with any of the Violation Severity Levels for the proposed standards, please identify the standard and requirement you feel has an incorrect Violation Severity Level.

   ☒ I agree with the Violation Severity Levels.

   ☐ I do not agree with the following Violation Severity Levels.

   Comments:

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

   ☒ No unnecessary adverse impacts

   ☐ Unnecessary adverse impact on markets

5. One previous NERC activity and one ongoing activity, both outside the compliance process, have addressed relay loadability. The previous activity has essentially been completed. It was based on NERC Recommendation 8a (resulting from the investigation into the August 14, 2003 blackout) and addressed zone 3 relays on transmission lines, 200 kV and above. The ongoing activity, "Protection System Review Program — Beyond Zone 3" addresses all other load-responsive relays at 200 kV and above, and on "operationally significant circuits, 100 kV–200 kV", and should be essentially completed by 12/31/08. Both activities were approved in detail by the NERC Planning Committee and by the NERC Board of Trustees. The requirements of PRC-023, together with the added information in the PRC-023 Reference Document, were drafted from the specifications of these activities.

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   ☐ No field testing is necessary

   ☒ Field testing is necessary

   Comments: The PSCSC believes field testing is necessary, since NERC is significantly expanding the scope of facilities to which this standard will apply.

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☒ No additional comments

   Comments:

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☒ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
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- **Mitigation Time Horizons**
  The ERO Rules of Procedure include the use of "Mitigation Time Horizons" as one element used to determine the size of sanctions. The drafting team used the following guidelines in developing Mitigation Time Horizons for each requirement:

  - ***Long-term Planning:*** a planning horizon of one year or longer.
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  The drafting team modified all requirements to eliminate the Regional Reliability Organization as the responsible entity, and replaced these references with the appropriate entity.

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- **Associated Documents**
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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. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☒ Yes

   ☐ No

   Comments:

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☒ I agree with the proposed Mitigation Time Horizons.

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   ☒ I agree with the Violation Severity Levels.

   ☐ I do not agree with the following Violation Severity Levels.

   Comments:

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   ☒ No unnecessary adverse impacts

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   ☒ No field testing is necessary

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   Comments:

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☐ No additional comments

   Comments: 1. Section 2.4.1, the word "thought" should be "through". 2. This standard is extremely difficult to understand and apply without the use of PRC-23 Reference Guide. This guide is very helpful in understanding what is being suggested and where the margins come from. However, it fails to give any guidance for criteria R1.13. Some examples or suggestions on how to use this criteria would be most helpful. Also, while the PRC-23 Reference Guide is listed as an "Associated Document" in Section F, it would seem helpful to mention this reference guide earlier in the standard (possibly as a note) as its use is important to correct application of these criteria.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Robert Coish	
Organization:	Manitoba Hydro	
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E-mail:	rgcoish@mb.ca	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☒ **MRO** ☐ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☒	1 — Transmission Owners
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  - ***Long-term Planning:*** a planning horizon of one year or longer.
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You do not have to answer all questions.

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1. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☒ Yes

   ☐ No

   Comments: However, the Reliability Coordinator should coordinate on the methodology to identify critical facilities with the Transmission Owners. Also, this procedure to identify critical facilities should be coordinated with the procedure to identify critical assets in the Critical Infrastructure Protection Standards (CIP-002-1) to avoid potential confusion or conflict (i.e. two similar lists developed by different procedure).

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☐ I agree with the proposed Mitigation Time Horizons.

   ☐ I do not agree with the following Mitigation Time Horizons.

   Comments: Before we can comment on the appropriate assignment of Mitigation Time Horizons we need a better explanation of the concept of Mitigation Time Horizons and how Mitigation Time Horizons will be used to determine sanctions. MH appreciates the consideration of comments response on the Mitigation Time Horizon issue from the Balance Resources and Demand SDT. However their response does not sufficiently address our concerns. It would be helpful for stakeholder consideration of assignment of Mitigation Time Horizons, MH suggests, if NERC could post a clear proposed definition of the term Mitigation Time Horizon and provide a fuller explanation of intended use to determine the size of sanctions. We gather that the concept is that violations involving more immediate or real-time activities will generally incur larger panalties than violations involving longer time frames. This is very vague. The suggested posting could serve as a draft addition to the Reliability Standards Development Procedure. Neither the comments in this form nor the ERO Rules of Procedure provide a definition or sufficient explanation. The term "Mitigation Time Horizon" does not appear in the Rules of Procedure or any other NERC document as far as we know. The term "Violation Time Horizon" on the Rules of Procedure is obviously related.

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a

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Do you agree with the Violation Severity Levels for each of the proposed standards? If you disagree with any of the Violation Severity Levels for the proposed standards, please identify the standard and requirement you feel has an incorrect Violation Severity Level.

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☐ I do not agree with the following Violation Severity Levels.

Comments:

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   ☒ No field testing is necessary

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Comments:

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

☐ No additional comments

Comments: See below:

A.3.

The word "Transmission loadability" need to be clearly defined/clarified.

Suggested wording:

1. Protective relay settings shall not limit transmission loadability which was determined by regional approved operating guidelines.

2. Protective relay settings shall not limit practical loading capability of a circuit

A. 4.2

Who is to ensure that the IPPs(generator owners) will comply with this standard?

B. R1.1.

“The highest seasonal Facility Rating of a circuit” is not clearly defined in this draft of the standard. It has been changed from the original term of “Emergency Ampere Rating” of a circuit

Does this imply that the highest possible loading limit (which could be lower than the thermal rating) of a circuit can be used as the highest seasonal Facility Rating?

B. R1.10 and R1.11

How to distinguish transformer fault protection relays from overload protection relays?

On R1.11, if overload protection is desired, can we add a phase overcurrent relay with a definite time delay of not less than 15 minutes, regardless of trip setting?

R1.11, the transformer overload relays must not trip at 150% of the maximum applicable nameplate rating. Does this mean the MVA rating of the transformer? Considering the need to evaluate loadability at 0.85 pu voltage, does this imply a requirement to set overcurrent relays at 165%?

B. R1.13

Manitoba Hydro appreciates the SDT adding this option which addresses our concern about being able to use stability limits as the maximum rating of a circuit.

We are curious to know, if we have a hard limit on the circuit, why is it nessesary to add another 15% on this limitation? For example, we have transformers which the manufacturer has subsequently advised us to restrict operation such that there is no loading above the continuous loading. In this case, being forced to add a margin would only subject the transformer to potential failure.

I believe that this could be written such that the aim would be to have a 15% margin unless there was evidence that equipment damage would occur.

B. In general Mantioba Hydro does not have major concerns with R2 but would like the SDT to consider two suggestions which we believe would add value to R2 specifically as it applies to R1.13.

Manitoba Hydro see the benefit in getting agreement between the Transmission Operator, the Planning Authority, and the Reliability Coordinator in developing limits. In some areas Mantioba Hydro would agree that this should be adequate. However areas that are close to a seam in any of these functions (TO, PA, or RC) should be seeking greater stakeholder approval.

Manitoba Hydro suggest that this could be accomplished by having the entitiy publish an operating guide for the facility in question. An operating guide would require the entity to seek further stakeholder input, and would still require, thorough other NERC standards, the approval of the appropriate functions under the NERC functional model.

The second concern is in the approval of ratings. In some jurisdictions, Mantioba is one, ratings which are different for the nameplate ratings would have to have the approval of a Professional Engineer with the right to practice within that jurisdiction. This is required because there is a safety issue regarding the operation of the equipment. This calls into question the legality of requiring various function under the NERC model to aprove (or agree with ratings) unless they have the legal right to set that rating.

Mantioba Hydro would suggest that name plate ratings should always be considered as appropriate limits. However when nameplate limits cannot be used for any reason, the entity owning the equipment will submit a notice, sealed by a Professional Engineer with the right to practice within the jurisdiction that the equipment resides, informing the TO, PA, and the RC why the nameplate ratings cannot be used and advising the variuos functions of the new ratings. The standard writing team should remember that a Professinal Engineer has a legal responsibility to stakeholders beyond the firm for which they practice, and that obligation should provide the independence sought for in this requirement. It also has the benefit of avoiding the potential situation where the TO, PA, and RC do not agree on a proposed rating.

C.

What would be considered as acceptable evidence?

Attachment A

2.

A word PERMANENTLY should be added before “block trip…”?

3.3

I am not quite sure what exactly this mean?

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

   ☒ No

   Comments: For the existing system, HQT believe the Reliability Coordinator should determine which facilities in its area, are critical to the BPS irrespective of voltage level. An approved Regional performance based methodology should be used to consistently determine this on a wide area basis. The same could apply for the Planning Authority/Coordinator for future equipment additions since the relay settings would be done during project development.
   However it is recognized that many Regions may not have an approved Bulk Power System methodology and in this instance they should utilize the Drafting Team's critera.

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   ☐ I agree with the Violation Severity Levels.

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   Comments: (1) Section D 2.4.1 should be changed to read as follows, to correspond with B R.1 and to correct an error: "Relay settings do not comply with at least one of R

1.1 though R 1.13, or evidence does not exist to support that relay settings comply with at least one of R 1.1 through R 1.13.

(2) Section D, 3.3.1 (Reliability Coordinator does not provide the list….) should be moved to the Severe level, 3.4.2 (Reliability Coordinator does not maintain a current list of facilities….) should be moved to the High level.

From our perspective there are 3 key elements in establishing the list of facilities critical to the reliability of the bulk electric system: 1) determining the facility list, 2) communicating the list to asset owners, and 3) maintaining the list.

The intent of R3 is to ensure that facility owners are informed of which of their facilities are critical to the reliability of the electric system in order that they design/set their relays to meet R1. Communicating the list of critical facilities is, in our view, one of the most important requirements, and there is no partial communicating so it's a case of either full compliant or flat out non-compliant. We therefore propose that 3.3.1 be moved to the Severe level.

If we accept the above argument, the requirement to maintain the list seems secondary. Note that maintaining the list does imply that the list has been communicated to the facility owners, and the requirement to maintain the list can be partially met. On the other hand, having communicated the list to the owners while not maintaining the list would still meet the intent of this standard. We therefore propose that 3.4.2 (Reliability Coordinator does not maintain a current list of facilities..) be moved to the High level.

Determining which facilities are critical to the reliability of the electric system is also an important first step. We agree that 3.4.1 should be retained at the Severe level, but propose to revise the sentence to read: "Reliability Coordinator does not have a process in place to determine, or evidence that it has determined, facilities that are critical to the reliability of the electric system."

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

   ☒ No unnecessary adverse impacts

   ☐ Unnecessary adverse impact on markets

5. One previous NERC activity and one ongoing activity, both outside the compliance process, have addressed relay loadability. The previous activity has essentially been completed. It was based on NERC Recommendation 8a (resulting from the investigation into the August 14, 2003 blackout) and addressed zone 3 relays on transmission lines, 200 kV and above. The ongoing activity, "Protection System Review Program — Beyond Zone 3" addresses all other load-responsive relays at 200 kV and above, and on "operationally significant circuits, 100 kV–200 kV", and should be essentially completed by 12/31/08. Both activities were approved in detail by the NERC Planning Committee and by the NERC Board of Trustees. The requirements of PRC-023, together with the added information in the PRC-023 Reference Document, were drafted from the specifications of these activities.

Transmission Owners, applicable Generator Owners, and applicable Distribution Providers, collectively referred to in the activities cited above as "Transmission Protection System Owners," or "TPSOs," have certified, through their respective Regions, that they have reviewed all of their load responsive relays in accordance with the specifications in those activities, and, in the case of the previous activity, have cited that they have completed the changes necessary to conform to those specifications. These certifications have been reviewed both by the respective Regions and by the NERC System Protection and Control Task Force; summary reports of these reviews have been approved by the NERC Planning Committee and have been presented to the NERC Board of Trustees. These summary reports may be found at www.nerc.com, under Committees — Planning Committee — System Protection and Control Task Force — Related Files.

The draft implementation plan for PRC-023 proposes that the standard will be implemented following applicable regulatory approvals and the conclusion of the ongoing activity cited above. Based on these observations, the standard drafting team does not feel that PRC-023 will require field testing. Do you think that a field test period for PRC-023 is necessary?

☐ No field testing is necessary

☒ Field testing is necessary

Comments: HQT believe the need for further field testing depends on the outcome of the final determination of what constitutes the BPS. Additional time or effort for field testing may be required to not only come into compliance if large additional portions of the lower voltage electric system are included, but to test the validity and coordination of the concepts contained in this standard. During NERC SPCTF's previous efforts pertaining to Beyond Zone 3 the application of the concepts were somewhat confined.

HQT believe the Standard as written should not be restricted to voltage classifications and should be applied to performance based BPS criteria elements.

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

☐ No additional comments

Comments: Violation Risk Factors are an integral part of Reliability Standards development process and the comment form should include a question on appropriateness of the assigned risk factors to seek industry consensus.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Ron Falsetti	
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NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☒ **NPCC** ☐ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	1 — Transmission Owners
	☒	2 — RTOs and ISOs
	☐	3 — Load-serving Entities
	☐	4 — Transmission-dependent Utilities
	☐	5 — Electric Generators
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	☐	10 - Regional Reliability Organizations; 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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- **Mitigation Time Horizons**
  The ERO Rules of Procedure include the use of "Mitigation Time Horizons" as one element used to determine the size of sanctions. The drafting team used the following guidelines in developing Mitigation Time Horizons for each requirement:

  - ***Long-term Planning:*** a planning horizon of one year or longer.
  - ***Operations Planning****:* operating and resource plans from day-ahead up to and including seasonal.
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- **RRO as Responsible Entity**
  The drafting team modified all requirements to eliminate the Regional Reliability Organization as the responsible entity, and replaced these references with the appropriate entity.

- **Levels of Non-compliance Versus Violation Severity Levels**
  The drafting team deleted "levels of non-compliance" and added "violation severity levels" to comply with the revised Reliability Standard Development Procedure. Compliance personnel assisted the drafting team in using the following criteria from the procedure to establish violation severity levels:

  - ***Lower:*** mostly compliant with minor exceptions — The responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more minor details. Equivalent score: 95% to 99% compliant.
  - ***Moderate:*** mostly compliant with significant exceptions — The responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more significant elements. Equivalent score: 85% to 94% compliant.
  - ***High:*** marginal performance or results — The responsible entity has only partially achieved the reliability objective of the requirement and is missing one or more significant elements. Equivalent score: 70% to 84% compliant.

- ***Severe:*** poor performance or results — The responsible entity has failed to meet the reliability objective of the requirement. Equivalent score: less than 70% compliant.

- **Associated Documents**
  The drafting team added a section "F" to the standard called, References.

You do not have to answer all questions.

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

1. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☒ Yes

   ☐ No

   Comments:

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☒ I agree with the proposed Mitigation Time Horizons.

   ☐ I do not agree with the following Mitigation Time Horizons.

   Comments:

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a requirement. (The reliability-related impact of violating a requirement is now identified in the "Violation Risk Factor" appended to each requirement.)

   Do you agree with the Violation Severity Levels for each of the proposed standards? If you disagree with any of the Violation Severity Levels for the proposed standards, please identify the standard and requirement you feel has an incorrect Violation Severity Level.

   ☐ I agree with the Violation Severity Levels.

   ☒ I do not agree with the following Violation Severity Levels.

   Comments:

   (1) Section D 2.4.1 stipulates that it's a Severe violation level if "Relay settings do not comply with R1.1 thought R1.13 or evidence does not exist to support that relay settings comply with one of the criteria in R1.1 through R1.13. We find this confusing, and does not correspond to R1, which says:

   "Each Transmission Owner, Generator Owner, and Distribution Provider shall use any one of the following criteria (R1.1 through R1.13) for any specific circuit terminal to prevent ..." We interpret this to mean that an entity is compliant if it meets at least one of the criteria listed in R1 through R1.13.

To add clarity to the text, we suggest rewording D 2.4.1 as follows:

"Relay settings do not comply with at least one of R1.1 thought R1.13 or evidence does not exist to support that relay settings comply with at least one of the criteria in R1.1 through R1.13."

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The intent of R3 is to ensure that facility owners are informed of which of their facilities are critical to the reliability of the electric system in order that they design/set their relays to meet R1. Communicating the list of critical facilities is, in our view, one of the most important requirements. There is no such thing as a partial communication and so it's a case of either full compliant (communication) or flat out non-compliant (no communication at all). We therefore propose that 3.3.1 be moved to the Severe level.

If we accept the above argument, the requirement to maintain the list seems secondary. Note that maintaining the list does imply that the list has been communicated to the facility owners, and the requirement to maintain the list can be partially met. On the other hand, having communicated the list to the owners while not maintaining the list would still meet the intent of this standard. We therefore propose that 3.4.2 (Reliability Coordinator does not maintain a current list of facilities..) be moved to the High level.

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4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

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☒ No field testing is necessary

☐ Field testing is necessary

Comments:

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☐ No additional comments

   Comments:

   VRFs are now an integral part of the standards, which as a whole, require industry consensus for development and approval. Yet, there is no question asked on the concurrence on the violation risk factor levels for this draft, despite the fact that there are now new requirements assigned to the Reliability Coordinators. Is it an oversight, or is it an assumption that the assigned VRFs are acceptable to the industry?

   In either case, we feel strongly that this question should be asked in order to provide the SDT an assessment of the acceptability of the assigned risk levels, although we do not disagree with any of the assigned risk levels.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	Mark Kuras	
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Telephone:	610-666-8924	
E-mail:	kuras@pjm.com	
NERC Region		**Registered Ballot Body Segment**
☐ **ERCOT** ☐ **FRCC** ☐ **MRO** ☐ **NPCC** ☒ **RFC** ☐ **SERC** ☐ **SPP** ☐ **WECC** ☐ **NA – Not Applicable**	☐	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*

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- **Associated Documents**
  The drafting team added a section "F" to the standard called, References.

You do not have to answer all questions.

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

1. The draft standard specifies that the Reliability Coordinator is to determine "which of the facilities in its Reliability Coordinator Area are critical to the reliability of the Bulk Electric System" for the purpose of application of this standard to 100 kV–200 kV circuits. Do you agree that the Reliability Coordinator is the proper functional entity for this requirement?

   ☐ Yes

   ☒ No

   Comments: Planning Coordinators would be better suited to determine critical facilities. I don't like the use of this concept without a defdinition or process put forth to extablish this critical circuits idea. Will a compliance review be performed on my determination of criticality of circuits? Will I be second guessed by a NERC auditor if I say I have no critical lines?

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☐ I agree with the proposed Mitigation Time Horizons.

   ☒ I do not agree with the following Mitigation Time Horizons.

   Comments: Not sure what they mean in relation to a determination of non-compliance and the associated penaties.

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a requirement. (The reliability-related impact of violating a requirement is now identified in the "Violation Risk Factor" appended to each requirement.)

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   ☒ I agree with the Violation Severity Levels.

   ☐ I do not agree with the following Violation Severity Levels.

   Comments:

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☒ No unnecessary adverse impacts

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   ☒ No field testing is necessary

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   Comments:

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

   ☐ No additional comments

   Comments: In R1.5, weak-source systems needs to be defined. In R1.6, remote to load needs to be defined. In R1.7 remote from generation stations and load center terminal needs to be defined. in R1.8 and R1.9, remote to the system needs to be defined. In R1.11, highest opertor established should be highest owner established. All instances of Reliability Coordinator in R3 and R4 should be changed to Planning Coordinator.

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NERC Region		**Registered Ballot Body Segment**
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Group Comments (Complete this page if comments are from a group.)

Group Name: Midwest Reliability Organization

Lead Contact: Tom Mielnik

Contact Organization: MRO for Group (MidAmerican for Contact)

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Additional Member Name	Additional Member Organization	Region*	Segment*
Neal Balu	WPSR	MRO	10
Terry Bilke	MISO	MRO	10
Al Boesch	NPPD	MRO	10
Robert Coish, Chair	MHEB	MRO	10
Carol Gerou	MP	MRO	10
Ken Goldsmith	ALT	MRO	10
Todd Gosnell	OPPD	MRO	10
Jim Haigh	WAPA	MRO	10
Pam Oreschnik	XEL	MRO	10
Dick Pursley	GRE	MRO	10
Dave Rudolph	BEPC	MRO	10
Eric Ruskamp	LES	MRO	10
Joe Knight, Secretary	MRO	MRO	10
27 Additional MRO Members	Not Named Above	MRO	10

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   ☒ Yes

   ☐ No

   Comments: The standard does not appear to require the Reliability Coordinator to do this in conjuncton with the other Applicable Entities. R3.1.1 states This process shall include coordination with adjoining Reliability Coordinator(s). The MRO recommends that this requirement be expanded to include the other Applicable Entities listed in this standard.

   The critical facilities list required by this standard, should be coordinated with the critical facilities lists required by other standards in as much as it it possible.

2. The Relay Loadability Drafting Team added a Mitigation Time Horizon for each requirement.

   Do you agree with the Mitigation Time Horizon for each requirement in the proposed standard? If not, please identify any requirement with a time horizon you feel is incorrect.

   ☐ I agree with the proposed Mitigation Time Horizons.

   ☒ I do not agree with the following Mitigation Time Horizons.

   Comments: Mitigation Time Horizons are described near the top of this comment form.

   The description of the Mitigation Time Horizons states The ERO Rules of Procedure include the use of mitigation time horizons as one element used to determine the size of sanctions.

   Can the drafting team inform the Registered Ballot Body where the ERO definition of Mitigation Time Horizons can be found along with documentation describing how the mitigation time horizons will be used in determining penalties. Mitigation Time Horizons are not listed as a Performance Element of a Reliability Standard in the Reliability Standards Development Procedure Version 6 adopted by the NERC BOT on November 1, 2006. As such, it does not seem appropriate to include them in any Reliability Standards.

   The comment form description of Mitigation Time Horizons further states The drafting team used the following guidelines in developing mitigation time horizons for each requirement, whereas the final statement in the description of the Violation Risk Factors states The following categories of violation risk factors were approved with the latest version of the Reliability Standards Development Procedure. Like the Violation Risk Factors, the categories of Mitigation Time Horizons should also be approved and incorporated into the Reliability Standards Development Procedure in order to ensure that the definitions are consistent for all NERC Reliability Standards.

The MRO cannot vote to approve a standard that includes Mitigation Time Horizons until the drafting team can produce ERO documented definitions and the documented manner in which the Mitigation Time Horizons will be used to determine penalties.

3. The latest version of the Reliability Standards Development Procedure requires that each standard include "Violation Severity Levels" rather than "levels of non-compliance." "Violation Severity Levels" identify how badly an entity violated each requirement, and are not linked to the reliability-related impact of violating a requirement. (The reliability-related impact of violating a requirement is now identified in the "Violation Risk Factor" appended to each requirement.)

   Do you agree with the Violation Severity Levels for each of the proposed standards? If you disagree with any of the Violation Severity Levels for the proposed standards, please identify the standard and requirement you feel has an incorrect Violation Severity Level.

   ☐ I agree with the Violation Severity Levels.

   ☒ I do not agree with the following Violation Severity Levels.

   Comments: The MRO does not agree with the proposed Violation Severity Levels due to the fact that they have not been fully vetted in the Standards Development Process. A process which includes being held up for public comment, scrutiny and balloting.

4. Are you aware any requirement in this standard that has an unnecessary adverse impact on energy markets? Please identify the requirement and its adverse impact here.

   ☒ No unnecessary adverse impacts

   ☐ Unnecessary adverse impact on markets

5. One previous NERC activity and one ongoing activity, both outside the compliance process, have addressed relay loadability. The previous activity has essentially been completed. It was based on NERC Recommendation 8a (resulting from the investigation into the August 14, 2003 blackout) and addressed zone 3 relays on transmission lines, 200 kV and above. The ongoing activity, "Protection System Review Program — Beyond Zone 3" addresses all other load-responsive relays at 200 kV and above, and on "operationally significant circuits, 100 kV–200 kV", and should be essentially completed by 12/31/08. Both activities were approved in detail by the NERC Planning Committee and by the NERC Board of Trustees. The requirements of PRC-023, together with the added information in the PRC-023 Reference Document, were drafted from the specifications of these activities.

   Transmission Owners, applicable Generator Owners, and applicable Distribution Providers, collectively referred to in the activities cited above as "Transmission Protection System Owners," or "TPSOs," have certified, through their respective Regions, that they have reviewed all of their load responsive relays in accordance with the specifications in those activities, and, in the case of the previous activity, have cited that they have completed the changes necessary to conform to those specifications. These certifications have been reviewed both by the respective Regions and by the NERC System Protection and Control Task Force; summary reports of these reviews have been approved by the NERC Planning Committee and have been presented to the

NERC Board of Trustees. These summary reports may be found at www.nerc.com, under Committees — Planning Committee — System Protection and Control Task Force — Related Files.

The draft implementation plan for PRC-023 proposes that the standard will be implemented following applicable regulatory approvals and the conclusion of the ongoing activity cited above. Based on these observations, the standard drafting team does not feel that PRC-023 will require field testing. Do you think that a field test period for PRC-023 is necessary?

☐ No field testing is necessary

☒ Field testing is necessary

Comments: The MRO believes that field testing is necessary so as to gauge if the time being allotted to the operators to respond is appropriate and to make sure the equipment is reasonably protected.

6. If you have any other comments on this set of standards or its implementation plan that you have not already submitted above, please provide them here.

☐ No additional comments

Comments: Several companies in the MRO use line ratings of other than 4 hours. The MRO recommends the addition of a conversion factor for those companies using emergency ratings not consistent with what is stated in the standard. In lieu of a conversion factor, a standard line rating issued by NERC would be acceptable.

The MRO is concerned about what appears to be the forced assumption of risk with respect to overload levels and time durations that said overloads must be held. The MRO believes that it should be up to the Transmission Owner to determine the amount of risk they are willing to assume based on their own risk analysis.

In the Measures section under M3, the applicable entities listed for which the list of critical facilities must be provided to is not consistent with the applicable enities listed in R3 which M3 refers.

In the Violation Severity section, under violations for TOs, GOs, and DPs the definition of a Severe Violation is not complete.

The MRO is concerned that this standard is removing some inherent thermal overload protection from the bulk electric system. In its response to comments the SAR drafting team stated - The emergency loadability of equipment should be reflected in the equipment ratings, and the fault protective relay should not be responsible for relieving emergency loading concerns. Controlling of emergency load should be left to system operators. - The fact is that fault protection also provides, admittedly crude, overload protection and MRO believes there is increased inherent risk to the bulk electric system in the sentiment of the SAR drafting team's second statement. In NERC Recommendation 8a it is stated - It is not practical to expect operators will always be able to analyze a massive, complex system failure and to take the appropriate corrective actions in a matter of a few minutes - and yet this is what this standard is expecting. Something like 400 transmission circuits tripped during August 14 blackout with no significant thermal overload damage. If the requirements of this standard had been met prior to August 14, 2003, would equipment damage have further delayed restoration? The MRO believes that a risk analysis should be conducted before implementing this standard.

The MRO believes this draft of the standard is too prescriptive. The equipment owner should be deciding the appropriate level of risk with regard to thermal overload and loss of life. The SDT should not decide the level of risk for the transmission owners. The standard is a good guide but too prescriptive.

If during the largest blackout is US history, the existing system, group of standards, and relay set points separated the system in time to prevent significant equipment damage so that the system could be restored virtually without incident; then implications of changing relay setting philosophy should be studied carefully. For example, what is the time overload characteristic of wave traps compared to line conductors? How will system operators know when equipment damage is imminent in order to take that equipment out of service on time?

The effective dates for lines operated at 100kV to 200 kV and transformers, as designated by the regional reliability organization as critical to the reliability of the electric system in the region should be one year after the regional reliability organization has made this designation. It would seem reasonable that owners should not be expected to even start review of the 100kV OS circuits until the Region has defined the specific circuits. A date that the RROs are required to make this designation should be recommended by the SDT and added to the implementation plan. 2. Regarding the implementation plan, one would have expected an implementation time frame of the stated durations strictly for identifying initial areas of non-compliance, and defining a plan to become compliant, with subsequent dates provided for becoming fully compliant. Eleven months after establishment of the standard is not a reasonable time frame for implementing all setting changes, and certainly not for design changes if required. It would appear that NERC is depending on all participants to have proceeded with reviews and actions as indicated in the initial zone 3 exercise. Perhaps regions/owners had every right to not proceed until the proposed standard is in force. Perhaps many of the efforts have proceeded, but should the proposed standard require that they all did?

The MRO feels that the more appropriate violation risk factor is medium because implementing this standard will not prevent the initiation of a blackout event.

The MRO has a concern with the 15 percent additional margin applied to the facility rating. This can be considered a negative margin with regard to protecting against thermal overload. The SAR indicates that protection should not unnecessarily limit the loadability of the system, it does not state that protection should be sacrificed or removed. This approach is outside the intention of the SAR. Again it should be up to the equipment owner to assess the appropriate overloading philosophy.

Does this standard expose the TO etc. to legal risk if there is damage to the public, violating vertical clearances for example?

If we are relying on the operator to prevent overloads, are the associated metering, communication, and human machine interface systems, (not to mention the human involvement, designed and maintained with equivalent reliability to the protection system? Also, the SCADA system may be down therefore the operator may not be able to assume the role of preventing equipment damage.

There should be a classification that allows the transmission owners with stability limited lines to perform studies which allow relay settings to identify the conditions the relay will actual see under extreme conditions. The .85 p.u. voltage and power factor angle of 30 degrees criteria may not be appropriate for all cases.

This standard removes the option of using zone three relays to provide more reliable system operation a. For internal lines – it may not be possible to set an out of step

relay to block tripping on a true out of step condition. Moving blinders in may make it impossible to detect fast moving swings. b. On interties: It may not be possible to set relays to detect the fastest swing to be able to trip the tie – as a consequence, undesired tripping of other lines may occur.

This standard seems to be precluding the concept of TOs etc. applying to use other settings than prescribed by this standard as was the case with zone 3 issue. A TO should be allowed to use relay settings other than based on the prescribed criteria if it can be demonstrated there is no benefit to applying the prescribed criteria in a given situation but there is, in fact, a negative impact on the TO's system.

In M1 and M2 it should be further clarified what is meant by evidence.

The draft standard states the "The relay loadability reliability standard has been specifically developed to not interfere with system operator actions, while allowing for short-term overloads, with sufficient margin to allow for inaccuracies in the relays and instrument transformers." But for what scenario or number of contingencies is this statement accurate? If a study is conducted to show that the 150% setting for zone 3 is not necessary, and the Transmission Owner wants to protect equipment with a more appropriate trip setting of say 125 percent, would the Transmission Owner have to prove that the setting is good for Category C for example; the Category C is listed in our question because the Transmission Owner typically is required only to plan for Category D only when the risk and consequences indicates there is a need to plan for such an event? The Transmission Owner can always come up with scenarios of contingencies that will trip a line or transformer, even at the 150 percent setting and not allow the operator time to react. Should the four hour rating be replaced with a one hour rating given that the four hour rating may be used to allow operator action rather than require relay or automatic control actions to remove a disturbance in a more timely fashion?