

Individual or group. (43 Responses)

Name (21 Responses)

Organization (21 Responses)

Group Name (43 Responses)

Lead Contact (43 Responses)

IF YOU WISH TO EXPRESS SUPPORT FOR ANOTHER ENTITY'S COMMENTS WITHOUT ENTERING ANY ADDITIONAL COMMENTS, YOU MAY DO SO HERE. (9 Responses)

Comments (43 Responses)

Question 1 (38 Responses)

Question 1 Comments (43 Responses)

Group
Northeast Power Coordinating Council
Guy Zito
No
We disagree with the Drafting Team’s decision not to make the change suggested during an earlier posting (remove the following words from R1 “...while maintaining reliable fault protection.”) This phrase should be replaced and therefore suggest R1 be revised to read Each Generator Owner, Transmission Owner, and Distribution Provider shall apply settings that are in accordance with PRC-025-1 – Attachment 1: Relay Settings, on each load-responsive protective relay while achieving its desired protection goals.
Group
Duke Energy
Colby Bellville
No
The relays identified in this standard are shown at the high side winding of the UAT, there are many examples at Duke Energy where these relays are omitted from the design at that location. Duke Energy is concerned as to why the time overcurrent relays at the low side main breaker are not being included in this standard. These relays are set similarly and if a low side main “load responsive” relay operated unnecessarily, the outcome is similar. The generating unit would trip offline or at best run back to a reduced load. (if possible and only if multiple buses exist with diverse loads). The purpose of the standard is to improve the BES by setting “load responsive” protective relays at a level to prevent unnecessary tripping of generators. If the UAT high side “load responsive” relay is included within this standard, then the low side main “load responsive” relay must also be included. The low side main “load responsive” relays are typically set with similar criteria as the high side “load responsive” relays. The misoperation of either relay will result in lost generation. To omit the low side main “load responsive” relay from the standard means the owner can continue to set this relay at levels that would violate the intent of the standard. Lastly, the SDT should be aware that the low side main “load

responsive” relay is excluded from the protection maintenance standard.

Group

Pepco Holdings Inc & Affiliates

David Thorne

No

1) The wording in Table 1, Options 15, 16, 18, and 19 could be interpreted to imply that in addition to the supervisory phase overcurrent elements used in communication based schemes to prevent false operation during loss of communications, that any 51 or 67 element that is intentionally armed during loss of communications would also be subject to this loadability criterion. This concept was extensively debated in the development of PRC-023. However, in PRC-023 Attachment A, Section 2.1 it specifically excludes “those elements that are only enabled during a loss of communications except as noted on Section 1.6”. Section 1.6 applies only to “phase overcurrent supervisory elements (i.e. phase fault detectors) associated with current-based, communication-assisted schemes (i.e. pilot wire, phase comparison, and line current differential) where the scheme is capable of tripping for loss of communications.” Therefore to be consistent with PRC-023, and to not draw into scope other elements that are intentionally armed only during loss of communications, the following bullet should be added to the list of Exclusions in Attachment 1 of PRC-025-1: “Elements that are only enabled during a loss of communications except phase supervisory elements (i.e. phase fault detectors) associated with current-based, communication-assisted schemes (i.e. pilot wire, phase comparison, and line current differential) where the scheme is capable of tripping for loss of communications.” 2) In the Guidelines and Technical Basis document Equations 33, 47, 51, 87, 101, 113, and 117 all use the formula $I_{pri} = S / 1.73 V_{bus}$. However, Equations 68, 132, 155, 159, and 174 all use the formula $I_{pri} = S (\text{conjugate}) / 1.73 V_{bus}$. Also, in some of the examples the angle of the current is calculated as well, while in others only scalar quantities are used. To be technically correct, the equation for $I_{primary}$ is developed from the apparent power expression $S = V I (\text{conjugate})$. Solving for I results in $I_{pri} = S (\text{conjugate}) / 1.73 V (\text{conjugate})$. But since the angle of V_{bus} is assumed to be zero degrees $V_{bus} = V_{bus} (\text{conjugate})$. Therefore the correct expression reduces to $I_{pri} = S (\text{conjugate}) / 1.73 V_{bus}$. For consistency purposes, the same equation should be used in all examples.

Group

Tennessee Valley Authority

Brandy Spraker

Agree

North American Generator Forum (NAGF)

Group

Arizona Public Service Company

Janet Smith, Regulatory Affairs Supervisor

Yes
Negative vote for PRC-025-1: A high VRF is unjustified since a single unit relay setting error will have minimal impact on BES, particularly for smaller units.
Individual
NICOLE BUCKMAN
Atlantic City Electric Company
Pepco Holdings Inc and Affiliates
DAVID THORNE
Agree
Pepco Holdings Inc and Affiliates
Individual
Mark Yerger
Potomac Electric Power Company
Pepco Holdings, Inc. & Affiliates
David Thorne
Agree
Pepco Holdings, Inc. & Affiliates
Individual
Thomas Foltz
American Electric Power
N/A
N/A
Yes
Individual
Michael Falvo
Independent Electricity System Operator
NPCC
Barbara Constantinescu
Yes
Individual
Michael Mayer
Delmarva Power & Light Company

Pepco Holdings Inc. & Affiliates
David Thorne
Agree
Pepco Holdings Inc.& Affiliates
Individual
Rick Terrill
Luminant Generation Company LLC
Luminant
Rick Terrill
No
The additional work provided by the standard drafting team has clarified the bright line between PRC-025 and 023. However, Luminant disagrees with the loadability criteria (aggregate generation) used in PRC-025 for multiple lines used for exporting generation (Figure 2 in the Guidelines and Technical Basis document).The loadability criteria is too conservative when compared to PRC-023 Requirement R1 transmission line criteria. Luminant recommends that the loadability criteria used in PRC-023 for transmission lines be part of PRC-025 for use in cases where multiple lines are used to export energy.
Individual
Dale Fredrickson
Wisconsin Electric Power Company
na
na
No
1. We appreciate the time and effort of the SDT members to develop this important standard. 2. However, as presently written, this standard will apply to individual wind turbine generators and other small dispersed generators by virtue of the new BES definition. To apply the rigorous requirements of this standard to the vast numbers of wind generators (typically less than 2 MW each) will require huge resources for minimal reliability benefit . The industry’s resources need to be focused on higher priorities affecting overall system reliability. To avoid this problem, we request that the Applicability be revised to include only generators rated above 20 MVA; for stations with aggregate generation over 75 MVA, the requirements should apply only to the relaying from the high-voltage transmission interconnection through the main transformer (eg, 138-34.5 kv). 3. Since there is no evidence that improper relay settings on UAT’s or SAT’s which supply generator auxiliary loads has contributed to loss of generation during disturbances, it is highly recommended to remove these elements from the requirements. These are lower priority risks which do not rise to the level of systemic reliability concerns.

Individual
Nazra Gladu
Manitoba Hydro
Manitoba Hydro
Nazra Gladu
Yes
Although Manitoba Hydro is in general agreement with the revisions to the standard, we have the following comments (1) 3.2 - add the acronym [(BES)] following the words “Bulk Electric System” since this is the first instance of these words in the standard. (2) PRC-025-1, Attachment 1: Relay Settings, Introduction - for clarity, add a comma after the word “Facilities”. (3) PRC-025-1, Attachment 1: Relay Settings, Introduction - for clarity, re-write the sentence as follows: “shall use one of the following [19] Options listed in Table 1,”. (4) PRC-025-1, Attachment 1: Relay Settings - capitalize all instances of the word “element” found throughout the attachment. (5) PRC-025-1, Section 3.1.1 - only refers to Generator Owners, yet R1 also applies to Transmission Owners and Distribution Providers. This discrepancy should be rectified. (6) The revisions to Section 3.2.4 and Attachment 1 use the term “export” means the transmission of electricity from one jurisdiction to a foreign jurisdiction. It is not clear why such a term would be used. Unless this was the actual intention, the term “export” should be replaced with [transmit] or [deliver]. (7) Implementation Plan - the chart’s Applicability section for R1 does not describe applicable entities, but instead describes a requirement.
Individual
Tim Brown
Idaho Power Company
n/a
n/a
Yes
Group
Bonneville Power Administration
Jamison Dye
No
BPA supports the addition of TO’s and DP’s to PRC-025 and the transfer of applicability for “lines that are used exclusively to export energy directly from a BES generating unit or generating plant to the network” from PRC-023 to PRC-025. However, we are concerned that certain protective relays at the network terminal of these lines are not addressed in Table 1. We appreciate that certain relays at the network terminal, directional toward the generation (for example phase distance relays), are not challenged by the same loadability concerns as the

relays at the generation terminal directional toward the network; however, these relays at the network terminal are presently required to comply with PRC-023, and we are a little skeptical that they will no longer need to comply in some way with either PRC-023 or PRC-025. It appears that they will be covered by PRC-025, but there is no mention of any requirements for compliance in Table 1. If there are really no loadability requirements for these relays, please state that in Table 1. If there are loadability requirements, please state what those are in Table 1. We also have a minor comment on the standard. Since PRC-023 and PRC-025 are so closely related, it would be helpful if they used the same terminology. PRC-023 uses the term, “except lines that are used exclusively to export energy directly from a Bulk Electric System (BES) generating unit or generating plant to the network”, while PRC-025 uses the term, “elements that connect a GSU transformer to the Transmission system that are used exclusively to export energy directly from a BES generating unit or generating plant.” We would like to see the same term used in both standards.

Group

Dominion

Louis Slade

Agree

North American Generator Forum

No

While Dominion does not agree with the SDT’s decision not to make the change we suggested (to remove the following words from R1 “...while maintaining reliable fault protection.”) we appreciate that they responded. However, we remain convinced that this phrase should be replaced and therefore suggest R1 be revised to read “Each Generator Owner, Transmission Owner, and Distribution Provider shall apply settings that are in accordance with PRC-025-1 – Attachment 1: Relay Settings, on each load-responsive protective relay while maintaining reliable fault protection. achieving its desired protection goals. • Section 3.2 – remove the entire section (3.2, 3.2.1, 3.2.2, 3.2.3, and 3.2.4), the revised Section 3.1.1 now will cover this section. The current approach would expand on the existing definition of BES and is not acceptable.

Individual

Texas Reliability Entity

Texas Reliability Entity

NA

NA

Yes

We are voting FOR this standard, subject to the following comment: (1) Most references to “Regional Reliability Organization” were correctly removed from this draft, but one occurrence remains on page 1 of Attachment 1, third paragraph. That reference to RRO should also be removed.

Individual

Don Weaver
New Brunswick System Operator
NBSO
Don Weaver
Yes
One omission which should be clarified is that the applicability section does not reference Distribution Provider and Transmission Owner, but they are referenced in the requirements. This could lead to some confusion so to clarify further, Distribution Provider and Transmission Owner should be added to the applicability section.
Group
PPL NERC Registered Affiliates
Brent Ingebrigtsen
No
<p>1.) The PPL NERC Registered Affiliates reiterate their concern in regards to the following comments. The Application Guidelines state that the reliability objective of PRC-025 is to cover, “all load-responsive protective relays that are affected by increased generator output in response to system disturbances.” Unit Auxiliary Transformers (UAT’s) are not in this category and should therefore be excluded from the Applicability of the Standard in Section 3.2.3. The point was made in the 5/15/13 webinar that a decrease in HV system voltage would affect the plant MV voltage as well, causing a proportional increase in current (at constant power draw by plant auxiliary loads) and thereby potentially tripping UAT loadability relays. Reduction in frequency during disturbances will strongly reduce the power draw of pumps and fans, however, so MV current may actually drop despite the HV voltage reduction being experienced. This point of view is supported by the statement in the 12/13/2012 webinar that UAT relay trips are not known to have caused the loss of any generation units during the northeast blackout of ’03, so extending PRC-025 applicability to UATs provides only a hypothetical benefit that has not been observed (or has in fact been disproved) in practice. The PPL NERC Registered Affiliates again state that Facilities’ UATs in Section 3.2.3 do not belong in this standard, as no technical justification has been provided. An investigation and evaluation of the protection systems for unit auxiliary transformers and the UAT’s lack of impact on generator loadability should be considered by the SDT. A cost-benefit analysis for generator UATs should be performed to demonstrate that net benefits will result from any such standard before it is proposed. Without such an analysis, the standard may result in costs without a sufficient reliability benefit and may in some cases actually lessen reliability (see item 5 below).</p> <p>2.) The term “full-load current” needs clarification in the exclusion for generator overload protection with extremely inverse characteristics.” The PPL NERC Registered Affiliates suggest that the SDT state in the Guidelines and Technical Basis that “full-load current” is understood to be the generator nameplate MVA at rated voltage</p> <p>3.) The overload protection exception for “extremely inverse characteristics” should be applied for UAT’s as well if eliminating UAT’s in</p>

its entirety (per comment #1 above) does not prove feasible. 4.) The PPL NERC Registered Affiliates reiterate their concern in regards to the following comments. PRC-025 should be revised to grandfather existing major equipment, similar to the approach recently used for PRC-024. It may not always be possible to develop PRC-025-conforming means of protection without replacing GSUs or UATs; and, in the absence of any compensation to the owner, it would be inappropriate to outlaw equipment that was acceptable under the rules in effect at the time it was installed. 5.) The applicability of PRC-025 should exclude small gensets that are NERC-registered solely due to being black start-capable, the tripping of which would not meaningfully affect the ability of the system to ride through Disturbances. It would be best to allow such units to maintain their present loadability relay settings, if they are consistent with a reasonable coordination study, rather than mandate upgrades that augment the degree to which NERC requirements have already eliminated any economic rationale for having black-start facilities. Given the numerous CIP standards in effect to afford protection to the critical BS restoration facilities, it would be contradictory to impose a standard that could potentially increase risk of damage to a BlackStart Generator by forcing the BS facility to ride through the disturbance. If that disturbance is a precursor to a blackout, then having BS Resource unavailable to facilitate system restoration would defeat the purpose of designating it as a Blackstart Resource. 6.) The PPL NERC Registered Affiliates reiterate their concern in regards to the following comments. Regarding in particular voltage-restrained overcurrent relays, this type of device is known for not having a predictable operation time under fault conditions. If they did mis-operate in the August 2003 blackout they should be changed-out rather than requiring that the settings be set as high as specified in the draft standard. 7.) Deeming any and all violations of this standard to have a high violation risk factor and a severe violation severity level seems overly harsh, given the compliance feasibility uncertainties expressed above. The compliance uncertainties expressed above also promote the use of risk based compliance approach rather than a zero tolerance policy. Other standards in development (CIP V5 standards) no longer dictate a zero tolerance policy. This concept should be applied to the PRC-025 standard to align with the direction NERC standard development is progressing.

Individual

Michelle D'Antuono

Occidental Energy Ventures Corp.

n/a

n/a

No

In the course of developing PRC-025-1, the project team has abandoned its initial efforts to address cost/benefit effectiveness. Although we understand that FERC has directed a generator-related load relay standard, we do not believe that this justifies a zero-tolerance approach that may lead to an expensive relay reconfiguration or replacement. For example, a number of industry commenters have indicated that they may be required to spend capital and expense dollars on UAT protection systems – even if there is no data indicating a correlation between UAT relay actions and BES Disturbances. Along the same lines, there is no assurance

that even if the settings in PRC-025-1 are perfectly applied, that a CEA will not assess a violation should a Fault-sensing relay trip. The only level of consideration that an auditor must apply is that the relay owner must maintain “reliable fault Protection”, a highly arbitrary assessment. It is easy to see that an after-the-fact review of the triggering event would expose the owner to penalties – even if the Fault relay tripped because of some highly unusual conditions. As an example, it is well known that the proliferation of high-efficiency air conditioners has led to undervoltage waveform distortions in recent years. It is not appropriate that a Generator Owner be held accountable to rapid changes in load technologies – particularly if they make good faith efforts to accommodate the NERC standards. NERC has begun to capture the concept of risk-based compliance, and has made a commitment to proceed in this direction. This separates the treatment of entities who maintain strong internal compliance controls from those who do not. In addition, this advanced methodology relentlessly collects and assesses disturbance data to detect risk trends – identifying those which deserve the highest priority regulatory attention. Even if we hold the minority opinion, a very fundamental opportunity to advance the risk-based concept is being lost in the rush to accommodate FERC’s directives. This is a mistake in our view – and may lead to low-priority items taking precedence over more pressing issues.

Individual

David Jendras

Ameren

Ameren Compliance

Eric Scott

No

(1) We support the SERC Protection & Control Subcommittee comments and hereby include them by reference rather than repeating them all. (2) We are voting negative because this present draft expands the Option 13a and 13b language from that of draft 3 (for which we voted affirmative). This language includes ‘consequential trips’, which we believe is ambiguous, and is inconsistent with the NERC BOT, approved PRC-005-2. We request the SDT for Option 13a and 13b to only include direct trips for which there is certainty that the generator will be tripped; we believe this provides a bright line for both auditors and entities. (3) Furthermore, we neither have experience or awareness of UAT relay loadability being a cause of incorrect generator trips so there’s little justification for including the UAT in a generator loadability standard.

Individual

Thomas Breene

Wisconsin Public Service Corporation

None

Thomas Breene

No

The proposed Phase I and Phase II BES definition inappropriately applies to individual wind turbines. The standard drafting team should consider revising the applicability criteria to clearly state that PRC-025 is not meant to apply to individual wind turbines but to aggregated generation greater than 75MVA connected at a common point at 100kV or above. Changing the BES definition to exclude individual wind turbines would also address this comment.

Individual

Brett Holland

Kansas City Power & Light

Kansas City Power & Light

Brett Holland

Agree

North American Generator Forum

No

Group

City of Tacoma, Tacoma Public Utilities, Tacoma Power

Chang Choi

Yes

Are excitation transformers considered UATs? It is recommended that they not be considered UATs. In Draft 4 of PRC-025-1, under Exclusions, Tacoma Power suggests that “the following protection systems are excluded from the requirements of this standard:” be changed to something like “Protection Systems that are excluded from the requirements of this standard include, but are not limited to, the following:” On page 9 of 25 of the redlined Draft 4 of PRC-025-1, change “...shading groups those relays...” to “...shading groups of those relays...” Referring to Option 13 of Draft 4 of PRC-025-1, change “...operation of the relays...” to “...operation of the relay...” On p. 78 of 83 in redlined Guidelines and Technical Basis, consider changing “...a synchronous generation Elements...” to “...synchronous generation Elements...”

Group

Southern Company: Southern Company Services, Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Company; Southern Company Generation; Southern Company Generation and Energy Marketing

Pamela Hunter

No

1. UATs should be dropped from the standard. The Application Guidelines state that the reliability objective of PRC-025 is to cover, “all load-responsive protective relays that are affected by increased generator output in response to system disturbances,” but the relays of UATs are not in this category. A disturbance on the HV system would not affect the real or reactive power draws of auxiliary loads, and it was stated in the 12/13/2012 webinar that UAT

relay trips are not known to have caused the loss of any generation units during the northeast blackout of '03. UATs are stated later in the Application Guidelines to have been included to satisfy a FERC directive (Order No. 733, paragraph 104), but such a move nonetheless appears to be incorrect, particularly in light of NERC's recent emphasis on the cost justification of reliability standards. 2. The term "full-load current" needs clarification in Exclusion #6 (generator overload protection with extremely inverse characteristics). Is this the current at normal full-load turbine output and typical PF, or the value determined from the generator nameplate MVA at rated voltage, or the base (no fans, no oil circulation) rating of the GSU? The methods to determine the generator current rating described in PRC-025 are unnecessarily complicated. It should use the lower of the generator maximum MVA rating or the GSU's maximum rating. 3. PRC-025 should be revised to grandfather existing major equipment, similar to the approach recently used for PRC-024. It may not always be possible to develop PRC-025-conforming means of protection without replacing GSUs or UATs; and, in the absence of any compensation to the owner, it would be inappropriate to outlaw equipment that was acceptable under the rules in effect at the time it was installed. This grandfathering should also be done for generation/transmission/excitation protection coordination on units that are in service as of the adoption date of the standard. 4. The applicability of PRC-025 should exclude small gensets that are NERC-registered solely due to being black start-capable, the tripping of which would not meaningfully affect the ability of the system to ride through Disturbances. It would be best to allow such units to maintain their present loadability relay settings, if they are consistent with a reasonable coordination study, rather than mandate upgrades that augment the degree to which the costs incurred due to NERC requirements have already eliminated any economic rationale for having black-start facilities. 5. Regarding in particular voltage-restrained overcurrent relays, this type of device is notorious for not having a predictable operation time under fault conditions. If they did mis-operate in the August 2003 blackout they should be changed-out rather than requiring that the settings be set as high as specified in the draft standard. PRC-025 has all kinds of methods described on how to set these relays. It would be much easier just to "outlaw" their use on all system connected units. 6. Deeming any and all violations of this standard to have a high violation risk factor and a severe violation severity level seems overly harsh, given the compliance feasibility uncertainties expressed above. 7. PRC-025 as written does not mention the generator and generator protection ANSI standards (ANSI/IEEE C37.102 and ANSI/IEEE C50.13) that give maximum limits of overload protection. Under a sub-heading it is alluded to but they should be referred to as a major section. 8. A requirement that the protection of the unit overrides any transmission need for the unit to remain on the line should also be a major section of PRC-025. 9. In PRC-025-1 please replace "secondary" with "voltage sensing device" from Exclusions #3 on page 8. We recommend that it read "(in order to prevent false operation in the event of a blown voltage sensing device fuse)..." 10. In PRC-025-1 please add an Exclusion of Relay Types that are directional (e.g., 21, 67) toward the generator. We recommend that it read "Load-responsive protective relay elements applied directional toward the generator."

Group

MRO NERC Standards Review Forum (NSRF)

Russel Mountjoy

No
The NSRF is not prepared to support this Standard since there is not an approved BES definition. The risk of this Standard being applicapable to individual wind turbines (i.e., time, effort, risk of non compliance) is greater than the suggested reliability benefit, concerning dispersed power producing resources.
Group
SERC Protection and Controls Subcommittee
David Greene
No
1) In PRC-025-1 please replace “secondary” with “voltage sensing device” from Exclusions #3 on page 8. We recommend that it read “(in order to prevent false operation in the event of a blown voltage sensing device fuse)...” 2) In PRC-025-1 please add an Exclusion of Relay Types that are directional (e.g., 21, 67) toward the generator. We recommend that it read “Load-responsive protective relay elements applied directional toward the generator.” 3) In PRC-025-1 your revised Table 1 Options 13a and 13b Relay Type wording is less clear than draft 3. Please restore the draft 3 tripping action wording. We recommend that it read “Phase time overcurrent relay (51) applied at the high-side terminals of the UAT that trips the generator either directly or via an interposing auxiliary/lockout relay .” 4) In the PRC-025-1 Guidelines and Technical Basis please remove “or consequential” from the Unit Auxiliary Transformers Phase Time Overcurrent Relay (51) (Options 13a and 13b) section on page 23. We recommend that it read “Phase time overcurrent relays applied at the high-side of the UAT that remove the transformer from service resulting in an immediate (e.g., via lockout or auxiliary tripping relay operation) trip of the associated generator are to be compliant with the relay setting criteria in this standard.” Such reference to ‘consequential’ trips are ambiguous and should be excluded as they were in draft 3. The comments expressed herein represent a consensus of the views of the above-named members of the SERC EC Protection and Control Subcommittee only and should not be construed as the position of SERC Reliability Corporation, its board, or its officers.
Individual
Ryan Walter
Tri-State Generation and Transmission Association, Inc.
Tri-State
Luis Zaragoza
No
The Facilities section addition “Elements that connect a GSU transformer to the Tranamission system that are used exclusively to export energy directly from a BES generator generating unit or generating plant” can be interpreted to exclude a tie to a GSU transformer if the station service to the generator is served through the same tie and GSU. This same phrase is used in a

few other locations in the standard, as well. In the third item in the Exclusion section, there is no need for the phrase after the parentheses that begins “provided that the distance...” and the sentence should be ended after the parenthetical phrase, though it also seems unnecessary. We believe the rationale for Exclusion six (clause 4.1.1.2 of the C37.102-2006 IEEE Guide for AC Generator Protection) should be included in the standard in a rationale box or a footnote. The first sentence in the last paragraph on page 9, beginning with “ The table is further formatted...” does not make sense to Tri-State. UATs should be dropped from the standard. The Application Guidelines state that the reliability objective of PRC-025 is to cover, “all load-responsive protective relays that are affected by increased generator output in response to system disturbances,” but the relays of UATs are not in this category. A disturbance on the HV system would not affect the real or reactive power draws of auxiliary loads, and it was stated in the 12/13/2012 webinar that UAT relay trips are not known to have caused the loss of any generation units during the northeast blackout of '03. UATs are stated later in the Application Guidelines to have been included to satisfy a FERC directive (Order No. 733, paragraph 104), but such a move nonetheless appears to be incorrect, particularly in light of NERC’s recent emphasis on the cost justification of reliability standards.

Individual

Daniel Duff

Liberty Electric Power

X

X

Agree

Essential Power

No

Group

Bureau of Reclamation

Erika Doot

Yes

The Bureau of Reclamation suggests that the drafting team define the term "load responsive protective relay," perhaps as a "relay that responds or operates for a load current during temporary over-loading." The Bureau of Reclamation would like to thank the drafting team for a job well done!

Group

FirstEnergy

Larry Raczkowski

Yes

FirstEnergy (FE) agrees the revisions made provide clarity in the applicability between the

reliability standards of PRC-023 and PRC-025. FE agrees with the replacement of the term [generator interconnection Facility] with a more prescriptive definition, but we take exception to the use of the wording [exclusively to export] in Part 3.2.4. By using the word [exclusively], Part 3.2.4 does not take into account the operation of a pump hydro facility and other small units that use the GSU as an auxiliary power source when the unit is off-line. Also, with the word exclusively used, it could inadvertently cause a “loop hole” related to facilities intended to be in scope. To address our concern FE proposes that Part 3.2.4 be revised to read as follow: [“Elements that connect a GSU transformer to the Transmission system that are used to export energy directly from a BES generating unit or generating plant.”] Recognizing that the wording will also be used in PRC-023 applicability statement 4.2.1.1 the team should carefully consider a similar “loop hole” that may be caused by the word “export” in PRC-023. The question that needs to be considered is do the facilities need to be reviewed from a load serving perspective in PRC-023? FE’s view is that, the subject facilities when used to serve a plant auxiliary load, or pumping load would be radial to load facilities and not considered “network” facilities that is the focus of PRC-023. It’s FE’s view that from a load serving mode perspective the radial facilities do not warrant consideration and do not present a reliability risk to the BES. To better clarify that the facilities reviewed under PRC-025 can be excluded in PRC-023 the team may wish to consider the following alternative language for Part 3.2.4.: [“Elements that connect a GSU transformer to the Transmission system that are used for the sole-purpose of a BES generating unit or generating plant.”] This alternate language removes both the “exclusive” and “export” wording and may better meet the team’s intentions for how the standards supplement each other in regards to relay loadability reviews. FE views our proposed changes as clarifying changes which do not substantively alter the team’s intentions and scope of the PRC-025 and PRC-023 standards. FE appreciates the team’s careful consideration of industry comments and the revisions made in its current draft standards. We have revised our ballot position to Affirmative for the current draft of PRC-025.

Individual
Alice Ireland
Xcel Energy
NA
NA
No

1.For Table 1 description on page 8, we recommend the following wording to match the 3.2 Facilities section: The first column identifies the application (e.g., synchronous or asynchronous generators, generator step-up transformers, unit auxiliary transformers, Elements utilized in the aggregation of dispersed power producing resources, and Elements that connect a GSU transformer to the Transmission system that are used exclusively to export energy directly from a BES generating unit or generating plant). Dark blue horizontal bars, excluding the header which repeats at the top of each page, demarcate the various applications. 2.For Table 1 applications – recommend update to match the 3.2 Facilities Section (e.g. Add ‘Elements utilized in the aggregation of dispersed power producing resources’). 3.For Table 1 applications

– Recommend addition of Aggregating equipment for Asynchronous and Synchronous equipment (e.g. bus in a hydro plant). 4.The Phase time over current relay (51) function is missing in the Synchronous Generator application section. 5.In attachment 1 of PRC-025-1 there are some very specific guidelines on how to handle transformer taps. No such direction was ever given for PRC-023. Please clarify if the terminology used in PRC-025 also applies to PRC-023, since they are both loadability standards.

Group

North American Generator Forum Standards Review Tram

Patrick Brown

No

1. UATs should be dropped from the standard. The Application Guidelines state that the reliability objective of PRC-025 is to cover, “all load-responsive protective relays that are affected by increased generator output in response to system disturbances,” but the relays of UATs are not in this category. A disturbance on the HV system would not significantly affect the real or reactive power draws of auxiliary loads, and it was stated in the 12/13/2012 webinar that UAT relay trips are not known to have caused the loss of any generation units during the northeast blackout of '03. UATs are stated later in the Application Guidelines to have been included to satisfy a FERC directive (Order No. 733, paragraph 104), but such a move nonetheless appears to be incorrect, particularly in light of NERC’s recent emphasis on the cost justification of reliability standards. 2. The term “full-load current” needs clarification in Exclusion #6 (generator overload protection with extremely inverse characteristics). Is this the current at normal full-load turbine output and typical PF, or the value determined from the generator nameplate MVA at rated voltage, or the base (no fans, no oil circulation) rating of the GSU? 3. PRC-025 should be revised to grandfather existing major equipment, similar to the approach recently used for PRC-024. It may not always be possible to develop PRC-025-conforming means of protection without replacing GSUs or UATs; and, in the absence of any compensation to the owner, it would be inappropriate to outlaw equipment that was acceptable under the rules in effect at the time it was installed. 4. The applicability of PRC-025 should exclude small gensets that are NERC-registered solely due to being black start-capable, the tripping of which would not meaningfully affect the ability of the system to ride through Disturbances. It would be best to allow such units to maintain their present loadability relay settings, if they are consistent with a reasonable coordination study, rather than mandate upgrades that augment the degree to which the costs incurred due to NERC requirements have already eliminated any economic rationale for having black-start facilities. 5. Regarding in particular voltage-restrained overcurrent relays, this type of device is notorious for not having a predictable operation time under fault conditions. If they did mis-operate in the August 2003 blackout they should be changed-out rather than requiring that the settings be set as high as specified in the draft standard. 6. Deeming any and all violations of this standard to have a high violation risk factor and a severe violation severity level seems overly harsh, given the compliance feasibility uncertainties expressed above.

Group

DTE Electric
Kathleen Black
Agree
No
(1) Please define the term [consequential trip] as it applies to unit auxiliary transformers on page 23 of the Guidelines and Technical Basis document. Is there a timeframe where loss of the transformer must result in a trip of the generator. For example, the trip of a fuel supply transformer may take hours before it causes a loss of generation (2) It is suggested that if elements utilized in the aggregation of dispersed power producing resources are to be included in this standard, then Table 1 should be modified to include this application in order to be consistent with the other facilities listed in Section 3.2.
Individual
Scott Berry
Indiana Municipal Power Agency
NA- individual was checked and this kept coming up.
NA
No
For Exclusion number 6, IMPA would like to see clarification in the generator “full-load current” area, especially when it comes to gas turbines. Gas turbines loading changes with the air temperature and their loading can be very different from summer to winter with different loads reported to their Transmission Planner for each season. This would be a problem if the full-load current references the 100% of the gross MW capacity reported at the Transmission Planner because the statement does not account for the different seasonal capability reported values for gas turbines. If the exclusion is referencing the full-load current based on generator nameplate, then it just needs to be referenced in the exclusion. IMPA would also like to see additional clarification in table 1 when referencing "Real Power Output". For gas turbines, two seasonal values are reported to the Transmission Planner (Summer and Winter). These two seasonal values are very different and IMPA believes the SDT needs to specify which seasonal value should be used for the Real Power output when performing the calculation.
Group
ACES Standards Collaborators
Jason Marshall
No
(1) We disagree with the inclusion of a Distribution Provider in the standard. By definition in the NERC Glossary a Distribution Provider “provides and operates the ‘wires’ between the transmission system and the end-use customer”. They do not own facilities that interconnect generators to the Bulk Electric System. This is further supported by the registry criteria which

only identify ownership of a transmission Protection System, Special Protection System, UFLS, UVLS or peak load exceeding 25 MW as reasons to register a Distribution Provider. The response to our previous comments regarding applicability of the Distribution Provider to the previously proposed PRC-023-3 R7 and R8 indicated this was an unlikely situation but was intended to avoid gaps. While we appreciate the attempt avoid gaps, this is a very obscure situation and no standard can anticipate every possible nuance. NERC has the ability within its Rules of Procedure to register an entity if facts and circumstances warrant it. If there is a DP that should be registered for additional functions and be subject to additional compliance burdens, that determination should be made through pre-existing processes and procedures and not through the applicability of a reliability standard. Furthermore, if the anticipated gap was a conceptual gap and not an actual known gap, we believe no attempt should be made to address an obscure situation that will likely never exist. The regional entities can evaluate situations, configurations and systems to determine whether a gap exists and how to proceed. It is not the role of the drafting team to create standards for every possible scenario that could lead to an event on the Bulk Electric System. The drafting team should consider revising the standard to address the majority of the situations that may arise for improper relay settings and allow the other processes and procedures to address any gaps as they arise. Furthermore, as demonstrated by the early discussion regarding the definition and registry criteria, this would actually be a registration issue and not a gap in the standard. (2) We understand that the term “Elements that connect a GSU transformer to the Transmission system that are used exclusively to export energy directly from a BES generating unit or generating plant” was used in PRC-025 because the Guidelines and Technical Basis document indicated there was a concern that a Distribution Provider may own a “generation interconnection Facility” and that the term implies ownership by the GO. We disagree with this implication and have found numerous references including November 16, 2009 Final Report from the Ad Hoc Group for Generator Requirements at the Transmission Interface that indicate the facility may or may not be owned by the GO. Furthermore, the original proposed definition from the report did not indicate ownership. (3) We disagree with the applicability of 3.2.5. Because “Element” is not limited to the BES by the definition, the applicability could be interpreted to include the distribution collector system. We do not believe inclusion of the distribution collector system for dispersed generation benefits reliability. If a subset of generators in the dispersed generation site trip, it will be a small amount of MWs lost that would not impact the reliability of the Bulk Power System. We can understand inclusion of the main GSU for a large site but not the individual collector elements. We recommend the drafting team revise the standard to remove all references, such as the unqualified use of Element (i.e without a BES adjective) to the distribution system because it does not impact the Bulk Electric System. (4) The light blue bar under Option 2c with “The same application continues on the next page with a different relay type” text in Table 1 should be removed. (5) Since the “generator interconnection Facility” term has already been established in other standards and was deemed to be understood well enough by the Project 2010-07 Generator Requirements at the Transmission Interface drafting team that a glossary term was not necessary contrary to the ad hoc report, it should be used in PRC-025 to avoid confusion and inconsistency. Confusion could arise with enforcement and compliance personnel over the use of the term “Elements that connect a GSU

transformer to the Transmission system that are used exclusively to export energy directly from a BES generating unit or generating plant” and how to apply the standard to the GO. This will result in the GO, NERC and Regional Entities expending additional resources on an unnecessary compliance activity that does not support reliability of the Bulk Electric System. (6) We understand that the term “Elements that connect a GSU transformer to the Transmission system that are used exclusively to export energy directly from a BES generating unit or generating plant” was used in PRC-025 because the Guidelines and Technical Basis document indicated there was a concern that a Distribution Provider may own a “generation interconnection Facility” and that the term implies ownership by the GO. We disagree with this approach and have found numerous references including November 16, 2009 Final Report from the Ad Hoc Group for Generator Requirements at the Transmission Interface that indicate the facility may or may not be owned by the GO. Furthermore, the original proposed definition from the report did not indicate ownership. (7) There are inconsistent applications between the terms in PRC-023 and PRC-025 that are intended to apply to non-radial and radial generator interconnection Facilities. PRC-025 uses the term “Elements that connect a GSU transformer to the Transmission system that are used exclusively to export energy directly from a BES generating unit or generating plant” while PRC-023 uses slight variants of the term “except lines and transformers that are used exclusively to export energy directly from a BES generating unit or generating plant to the network.” Some differences that should be eliminated include the appended “to the network” in the PRC-023 term, use of “Elements” in PRC-025, and use of “lines and transformers.” Keeping the language of the two standards consistent will reduce the possibilities of inconsistent application of compliance personnel. (8) We do not understand how replacing “generation interconnection Facility” with a 26 word phrase is helpful or adds clarity to the standard. The Project 2010-07 drafting team already determined that “generator interconnection Facility” was a well understood term and did not imply ownership. We recommend persisting with the use of the term for clarity. We simply do not see how replacing “generator interconnection Facility” with a 26-word phrase provides additional clarity. Rather, it invites multiple interpretations, inconsistent application, and further confusion. (9) We continue to disagree with the approach of requiring a registered entity to replace all relays that cannot meet the settings of PRC-025-1 in order to comply with this standard. The standard should provide more flexibility to allow a registered entity to replace relays when they have reach the end of their useful life unless the circuit has been deemed a critical facility by another standard.

Group

Santee Cooper

S. Tom Abrams

No

The wording of Table 1 Options 13a and 13b should be changed back to the Draft 3 wording. The wording in the new draft is more ambiguous and could lead to more confusion. We agree with the SERC PCS’s recommendation for this section to read “Phase time overcurrent relay (51) applied at the high-side terminals of the UAT that trips the generator either directly or via

an interposing auxiliary/lockout relay.” We also feel there should be an additional item in the list of Exclusion of Relay Types to cover relay types that are directional toward the generator.

Group

Associated Electric Cooperative, Inc. - JRO00088

David Dockery

Agree

SERC PCS

Group

SPP Standards Review Group

Robert Rhodes

Yes

This is especially true regarding the treatment of UATs and the movement of focus to the high-side of the transformer.

Individual

Brenda Hampton

Luminant Energy Company LLC

Luminant

Brenda Hampton

No

The additional work provided by the standard drafting team has clarified the bright line between PRC-025 and 023. However, Luminant disagrees with the loadability criteria (aggregate generation) used in PRC-025 for multiple lines used for exporting generation (Figure 2 in the Guidelines and Technical Basis document).The loadability criteria is too conservative when compared to PRC-023 Requirement R1 transmission line criteria. Luminant recommends that the loadability criteria used in PRC-023 for transmission lines be part of PRC-025 for use in cases where multiple lines are used to export energy.

Group

Colorado Springs Utilities

Kaleb Brimhall

No

#1 - The term “full-load current” needs clarification in Exclusion #6 (generator overload protection with extremely inverse characteristics). Is this the current at normal full-load turbine output and typical PF, or the value determined from the generator nameplate MVA at rated voltage, or the base (no fans, no oil circulation) rating of the GSU or UAT? #2 - Deeming any and all violations of this standard to have a high violation risk factor and a severe violation

severity level seems overly harsh.
Individual
Modesto Irrigation District
Modesto Irrigation District
Modesto Irrigation District
Spencer Tacke
No
In section 3.2 "Facilities", I think it is critical that the following phrase be added at the end of the first paragraph: "..., and any generator, regardless of size or connected voltage, that has been shown to be material to the reliability of the BES". The "bright line" of 100 kV and 20 MVA is fine in general, but when it is known that a generator connected at less than 100 kV is material to the reliability of the BES, it should be included as an applicable facility for this standard. WECC requires dynamic model verification for all units 20 MVA or larger connected at voltages 60 kV and above. This is because WECC members have learned over the years to recognize the significant role that smaller size generators play in system response and stability. Also, past WECC studies of major outages have shown that generators connected at less than 100 kV, have played a major role in the impact of outages. In fact, the most accurate duplication of the 1996 outage and more recent outages that the WECC MVWG has simulated, have shown that the accuracy of the simulated results of actual system outages is highly affected by the accuracy of the modeled system below 100 kV I am voting NO because I think it is critical to revise the applicability statement in section 3.2 before approving the Standard. The technical section on the settings seems fine to me, but getting the applicability correct is very important. Thank you.
Group
National Grid
Michael Jones
No
RE: Draft Standard: Page 3 of 25 under applicability should read "owns" instead of "applies." Page 7 of 25, under Generators, the 1st paragraph needs clarification regarding how to derive MVAR. When reading Attachment 1, it is evident what is being proscribed but you can't deduce that from the subject paragraph. Page 9 of 25 the last paragraph text "thoseof" needs correction. Generator Owners own relays on the transmission system beyond what is listed in Attachment 1. Generator Owners should be responsible for the relays they own on the transmission system. The Generator Owner's responsibility for loading is not limited just to relays in PRC-025, Attachment 1. RE: Implementation Plan Pages 4 and 5: "relays applicable to this standard" should be changed to either "relays to which this standard is applicable" or "relays subject to this standard" Pages 4, 5, 6 and 7: The text references relays and circuit breakers that are not shown or labeled in the figures. The figures are mislabeled. For instance the text for Fig. 2 states "Generation exported through multiple radial lines" but the drawing

above the text depicts only a single radial line. A later unlabeled figure appears to meet that description but breakers are unlabeled and relays are not depicted.