Individual or group. (56 Responses)
Name (35 Responses)
Organization (35 Responses)
Group Name (21 Responses)
Lead Contact (21 Responses)
Question 1 (48 Responses)
Question 1 Comments (48 Responses)
Question 2 (45 Responses)
Question 2 Comments (48 Responses)
Question 3 (44 Responses)
Question 3 Comments (48 Responses)
Question 4 (40 Responses)
Question 4 Comments (48 Responses)
Question 5 (43 Responses)
Question 5 Comments (48 Responses)

Group
Northeast Power Coordinating Council
Guy Zito
Yes
The definition of sudden pressure relaying is clear and limits the scope of the standard to relays that trip interrupting devices. However, Section 4.2 Facilities, 4.2.1 reads: “Protection Systems and Sudden Pressure Relaying that are installed for the purpose of detecting Faults on BES Elements (lines, buses, transformers, etc.)” This is confusing in that it refers to relays that detect faults regardless of whether they trip interrupting devices or not. Because Sudden Pressure Relays can be used just to alarm, suggest creating a new 4.2.x that says “Sudden Pressure Relaying installed for the purpose of detecting Faults and initiating the automatic operation of interrupting device(s) to isolate the equipment it is monitoring.” In the Applicability Section, Items 4.2 and following should be removed and incorporated as definitions because the NERC Standard Processes Manual (Version 3.0, June 26, 2013, page 7) defines Applicability: “Applicability: Identifies which entities are assigned reliability requirements. The specific Functional Entities and Facilities to which the Reliability Standard applies.” From the NERC Glossary: “Facility--A set of electrical equipment that operates as a single Bulk Electric System Element (e.g., a line, a generator, a shunt compensator, transformer, etc.)”
Yes
We support the addition of the Balancing Authority to PRC-005-X. Transmission Owners, Generation Owners, and Distribution Providers should receive notification directly from the Balancing Authorities to accurately apply Section 4.2.6 Applicability. The Balancing Authority is the entity that maintains the information and should have the responsibility to provide this information to the applicable entities. (Please see the Rationale box for R6 in the draft standard.) Transmission Owners, Generator Owners, and Distribution Providers should not be expected to monitor a database such as GADS or some other proposed list of all Balancing Authorities that identifies the largest BES generating unit within each Balancing Authority Area. The information should be provided directly to the Transmission Owners, Generator Owners, and Distribution Providers by their Balancing Authority. Applicability Section 4.2.6.1 calls for “Automatic Reclosing applied on the terminals of Elements connected to the BES bus…”. Is the intention to have automatic reclosing on all Elements? In Applicability Section 4.2.6.2, what is the basis for the 10 circuit-mile parameter? The Standard Drafting Team should take advantage of the fact that even thought the content of Rationale Boxes is not auditable, Rationale Boxes stay with the standard and can be used to convey information about a requirement, or section of a standard. For example, regarding the Rationale for R3 Part 3.1 and sub-Part 3.1.1, in addition to explaining whether the PSMP should be in the Standard or the Implementation Plan, it should also explain why newly identified Sudden Pressure Relaying is not included in the Parts and sub-Parts of R3.
No

No
Yes
Because Automatic Reclosing and Sudden Pressure Relaying are terms likely to be used in other standards, their inclusion in the NERC Glossary should be considered to prevent confusion and ensure consistency. The wording in the Rationale Box for R6 should reference Section 4.2.6, not Section 4.2.7. The footnote on page 4 also incorrectly references Section 4.2.7. Sub-Parts 3.1.1, 3.1.2, 4.1.1, and 4.1.2 address time and documentation requirements. The Rationale Boxes for R3 and R4 explain the consideration of putting these sub-Parts in an implementation plan or within the standard. The requirements should address a standard of performance, not a time period to implement, not a statement to address the provision of documentation. The language should be moved to the Measures. Requirements R3 and R4 are written specifically for Automatic Reclosing components. The rationale is because the BA may notify the TO of a new BES element subject to the Automatic Reclosing requirements. However, this process of notification is not unique to Automatic Reclosing. The RC may identify new BES elements a TO was not aware of due to a reconfiguration in another area. In these instances there should be some allowance to incorporate the new protection systems. The solution the SDT has developed for Automatic Reclosing could easily be expanded to include all Protection Systems, Automatic Reclosing and Sudden Pressure Relaying.
Group
FirstEnergy
Cindy Stewart
No
Yes
FirstEnergy supports the addition of Balancing Authority to the Applicability and notification of the largest BES generating unit.
Yes
FirstEnergy supports the change in data retention to one performance cycle instead of two.
No
No
Individual
Michelle R. D'Antuono
Ingleside Cogeneration LP
Yes
Ingleside Cogeneration LP (ICLP) believes that the drafting team has done an excellent job of precisely identifying the applicable relay types and control circuitry subject to PRC-005-X. In addition, we have no argument with the maintenance activities and intervals associated with Sudden Pressure Relaying that have been established in this initial draft. However, we do not understand the need to update the definition of “Protection System Maintenance Program (PSMP)” in the NERC Glossary. If the intent is to clarify that reclosers and sudden pressure relays are also a form of Protection System, then it follows that the definition of “Protection System” will need to be updated as well. That will not be an easy task – as those of us who participated in the last modification to that Glossary term can relate. In addition, the inferred reference in PSMP to standard-specific definitions of “Automatic Reclosing”, “Sudden Pressure Relaying”, and “Component” is not obvious. A term in the NERC Glossary should not require an examination of a completely different document in order to decipher its full meaning. Nor does it seem that there is a pressing need to clarify that the PSMP applies to those systems – the requirements in PRC-005-X make it clear that it does. Similarly, ICLP does not understand the urgency to replace the standard-specific definition of “Component”. We recall exhaustive back-and-forth during the development of PRC-005-2 that the maintenance of Control Circuitry was an item of direct concern to the industry (and to us). Historically, CEAs did not

always understand the complexities involved with Control Circuitry maintenance and had to be convinced that several separate tests are often needed to fully validate end-to-end functional performance. By moving the language to the guidance documents, ICLP believes that the issue will recur. In our view, the changes to the definitions of “PSMP” and “Component” should be deferred at this point. They do not resolve a reliability gap, nor do they eliminate ambiguities in the standard. If the drafting team feels strongly otherwise, the issues can be captured and revisited during the 5 year review of the PRC standards.
Yes
As a Generator Owner, ICLP strongly supports the requirement for Balancing Authorities to provide the gross capacity of the largest BES generating unit within their operating footprint. We will rely upon this information to determine whether or not the recloser maintenance requirements apply to our Facilities. However, we would not want to see a notification whenever the unit in question is taken offline for routine maintenance or other short-term action. Perhaps the time horizon indicator of “Operations Planning” suffices, but ICLP would prefer direct language in the requirement itself.
No
No
No
Group
PacifiCorp
Sandra Shaffer
No
No
No
No
Yes
: Page 9/39, R6 currently states, “Each Balancing Authority shall, at least once every calendar year with not more than 15 calendar months between notifications, notify each Transmission Owner, Generator Owner, and Distribution Provider within its Balancing Authority Area of the gross capacity, in MW or MVA, of the largest BES generating unit within the Balancing Authority Area.” 1. Does the term “gross capacity” refer to nameplate capacity or something else? 2. Does the term “unit” refer to an individual generating unit or overall plant?
Individual
Mark Wilson
Independent Electricity System Operator
No
Yes
We do not support adding BA to the standard. As proposed, the BA is only required (in Requirement R6) to notify others of the largest BES generating unit in its Area. This information is used by owners of the automatic reclosing (A/R) facilities to determine whether or not their A/R facilities meet the Applicability criteria for inclusion in their maintenance program. The status of the largest generating unit in a BA Area does not change often, and can easily be provided in a database such as GADS. Alternatively, NERC may want to establish a list of all BAs along with their respective total installed generating capacities and largest generating units. This will serve the purpose that Requirement R6 is intended to accomplish. In our view, Reliability Standards are developed with an objective to

achieve consistent behavior or targeted performance outcome. Requiring a BA to provide data (that can be obtained from other easier means) does not align with the intended purpose of developing Reliability Standards. We suggest BA and R6 be removed, and the information related to the largest generating unit in a BA area be provided via other means such as RoP 1600 or GADS.
Yes
We generally agree with the proposed changes except the addition of the retention requirement for R6.
Individual
Venona Greaff
Occidental Chemical Corporation
Individual
Jack Stamper
Clark Public Utilities
No
No
No
Yes
The proposed Table 5 states testing requirements for the control circuitry as "Control circuitry associated with Sudden Pressure Relaying from the fault pressure relay to the interrupting device trip coil(s)." This language seems to imply breaker trip coils. The Supplementary Reference and FAQ contains an FAQ for this testing that reads "Sudden Pressure Relaying control circuitry is now specifically mentioned in the maintenance tables, do we have to trip our circuit breaker specifically from the trip output of the sudden pressure relay? No. Verification may be by breaker tripping, but may be verified in overlapping segments with the Protection System control circuitry." I would recommend that you indicate somewhere that where a Sudden Pressure Relay control circuitry operates a lockout relay (which I believe is common) that testing need only occur between the Sudden Pressure Relay and the lockout relay and that testing of the lockout relay and any control circuitry from the lockout relay to breakers or other protection devices is provided for in Table 1-5.
No
Individual
Patti Metro
National Rural Electric Cooperative Association
No
Yes
NRECA does not agree with the inclusion of the Balancing Authority as an applicable entity in this version of the draft standard and the associated addition of R6 requiring that “Each Balancing Authority shall, at least once every calendar year with not more than 15 calendar months between notifications, notify each Transmission Owner, Generator Owner, and Distribution Provider within its Balancing Authority Area of the gross capacity, in MW or MVA, of the largest BES generating unit within the Balancing Authority Area. The drafting team has not provided sufficient technical justification to warrant the inclusion of Balancing Authorities as an applicable entity in a Protection System Maintenance standard and the inclusion of the associated R6 is onerous and meets the criteria to be classified as an “administrative” requirement. In addition, the SDT improperly cited 4.2.7 within R6 Rationale since 4.2.7 is not a section in the applicability of this standard. The applicable entities in this standard should only be those entities that own and maintain the

Protection Systems described in the draft standard not an entity responsible " that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time".
No
No
No
Group
Colorado Springs Utilities
Kaleb Brimhall
Yes
Sudden pressure relays, which do trip some transformers, are not important in preventing "instability, cascading, or separation." CSU believes that the inclusion of sudden pressure relays in the NERC Standards will not improve the reliability of the BES, and are outside the FPA Section 215 jurisdiction. The following are some additional notes on this topic: • Many transformers are not protected using sudden pressure relays. In fact, due to the sensitivity of sudden pressure relays to vibration, some areas of the country purposefully do not use sudden pressure relays for transformer protection. • Many transformers that are protected using sudden pressure relays use a guarded trip scheme. For example, in order for the sudden pressure relay to trip the transformer there must also be another condition present such as an over current or differential trip. • There is not a consistent application of sudden pressure relays in the industry, many transformers do not utilize these relays for protection, and no requirements exist to have sudden pressure relays. CSU believes that including them in a standard will discourage their use and/or encourage those that currently use them to remove them from their protection scheme. Sudden pressure relays when applied correctly can be an asset in transformer protection, but are not important in preventing "instability, cascading, or separation."
Yes
We do not think that this requirement is necessary. It is the responsibility of the entity establishing compliance processes to reach out and verify that they have the right data to ensure compliance. If this requirement is to stay. We propose that this requirement is modified to reflect that upon request the BA shall provide this information within X timeframe. This will prevent unnecessary paperwork.
Yes
We like the revised data retention requirements, less is better when it comes to paperwork that draws resources away from the true compliance work.
No
No
Individual
Tom Haire
Rutherford EMC
Individual
David Thorne
Pepco Holdings Inc.
No
No
No

No
No
Individual
Ayesha Sabouba
Hydro One
Individual
Thomas Foltz
American Electric Power
Yes
The current applicability wording should be revised to more clearly indicate the applicability of sudden pressure relaying to dispersed generation facilities. The reader could make two very different interpretations of applicability: 1) 4.2.5.2 addresses transformers between the aggregation point and the BES that work effectively as GSU's while 4.2.5.3 addresses transformers located at the individual generating resources. Or 2) 4.2.5.2 addresses GSU transformers on traditional non-dispersed generation while 4.2.5.3 addresses all transformers on dispersed generation, none of which are required to maintain sudden pressure relaying. We believe the standard's applicability would be clearer by specifically listing the aggregation point at which sudden pressure relaying must be maintained at dispersed generation facilities. AEP believes Sudden Pressure Relaying should only be considered on collector systems transformers where the generation aggregate value is 75MVA and greater.
Yes
The rationale for R6 references Section 4.2.7, Applicability. The Applicability section does not contain a Section 4.2.7 and we believe the reference should instead be Section 4.2.6.
Yes
Data retention for R1 through R5 references the audit window, while for R6, it is based on a number of calendar years. We suggest that the data retention for R6 be made equivalent to that currently proposed for R1 through R5. AEP agrees overall with the proposed changes regarding data retention.
Yes
AEP believes the specified maintenance in Table 5 is partially duplicative of other control circuitry maintenance already required by PRC-005-2 in Table 1-5. Specifically, there are two components of circuitry; one from the fault pressure relay to the lockout relay and another from the lockout relay (auxiliary relay) to the interrupting devices. This is problematic since documenting maintenance on this circuitry might be recordable under either Sudden Pressure Relaying (Table 5) or under control circuitry maintenance (Table 1-5). AEP suggests including language in Table 1-5 to include control circuitry from the fault pressure relay to the lockout / auxiliary relay. The row associated with control circuitry testing in Table 5 would then be eliminated. The implementation plan does not address Requirement R6. AEP is fully supportive of the efforts of this drafting team, and the resulting draft standard. While we have chosen to vote in the affirmative on the latest draft, we remain concerned by potential difficulties posed by Table 5 in regards to proving compliance. AEP specifically encourages the drafting team to make the changes recommended in the first paragraph of our response to Q5.
Individual
AnthonyJablonski
ReliabilityFirst
Yes

Yes
ReliabilityFirst submits the following comments for consideration: 1. Requirement R3 – Requirement R3 sub-parts 3.1.1 and 3.1.2 are “OR” statements and should be bullet points to be consistent with the format of other NERC Reliability Standards. 2. Requirement R4 – Requirement R4 sub-parts 4.1.1 and 4.1.2 are “OR” statements and should be bullet points to be consistent with other NERC Reliability Standards.
Individual
Israel Beasley
Georgia Transmission Corporation
No
No
No
No
Yes
GTC is proposing to clarify the wording of the standard without changing what we believe is the intent of the Standard Drafting Team. We propose the following language: R3. Each Transmission Owner, Generator Owner, and Distribution Provider that utilizes time-based maintenance program(s) shall, except for components identified in R7, maintain its Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components that are included within the time-based maintenance program in accordance with the minimum maintenance activities and maximum maintenance intervals prescribed within Tables 1-1 through 1-5, Table 2, Table 3, and Table 4-1 through 4-2, and Table 5. [Violation Risk Factor: High] [Time Horizon: Operations Planning] R4. Each Transmission Owner, Generator Owner, and Distribution Provider that utilizes performance-based maintenance program(s) in accordance with Requirement R2 shall, except for components identified in R7, implement and follow its PSMP for its Protection System, and Automatic Reclosing, and Sudden Pressure Relaying Components that are included within the performance-based program(s). [Violation Risk Factor: High] [Time Horizon: Operations Planning] R7. Following a notification under Requirement R6, each Transmission Owner, Generator Owner, and Distribution Provider shall determine its applicable newly-identified Automatic Reclosing Components as identified in Applicability section 4.2.6. R8. Each Transmission Owner, Generator Owner, and Distribution Provider that identified Automatic Reclosing Components per R7 shall: 8.1. Perform maintenance activities or provide documentation of prior maintenance activities according to either 8.1.1 or 8.1.2. 8.1.1. Complete the maintenance activities prescribed within Tables 4-1, 4-2(a), and 4-2(b) for the newly-identified Automatic Reclosing Component prior to the end of the third calendar year following the notification under Requirement R6; or 8.1.2. Provide documentation that the Automatic Reclosing Component was last maintained in accordance with the minimum maintenance activities and maximum maintenance intervals prescribed within Tables 4-1, 4-2(a), and 4-2(b).
Group
MRO NERC Standards Review Forum
Joe DePoorter
No
Yes
The proposed Standard speaks of Section 4.2.7 Applicability. But there is no Section 4.2.7 within the Standard. The Rational for R6 refers to Section 4.2.7, please clarify. The NSRF cannot accurately apply this section without knowing the Applicability of section 4.2.7. The NSRF does not see the reliability benefit of the BA passing along this information and questions if this should be a Requirement in the first place.
Yes

The NSRF does not understand why R6 has a retention requirement of of 3 calanedar years when R2-R5 has a “most recent” requirement? We do not see the “largest BES generator” changing multiple times every year. Please clarify.
No
No
Individual
Andrew Z. Pusztai
American Transmission Company, LLC
No
No
No
No
No
Individual
Heather Rosentrater
Avista
No
Yes
Under R6, the BA is required to notify the TOs, GOs and DPs within its balancing area of the largest generating unit in the balancing area on a yearly basis to determine what reclosing relays to maintain. The requirement fails to realize a GO may be in a BA but interconnect to the BES through another TOP. The reclosing relays affecting the GO may not be identified and maintained. We suggest the TOP be the entity to determine the reclosing relays to maintain based upon a threshold.
No
No
No
Individual
Andrew Gallo
City of Austin dba Austin Energy
Yes
City of Austin dba Austin Energy (AE) supports the comments of Florida Municipal Power Agency. Sudden Pressure Relaying (SPR) devices do not respond to electrical quantities and do not impact the reliable operation of the Bulk Electric System. Additionally, AE believes the addition of SPR to PRC-005 is administratively and operationally burdensome and unnecessary. AE already tests SPRs, but the record keeping is rolled into records for the autotransformer. Calling out SPRs in PRC-005 would require separate documentation for just one of many auxiliary devices on an autotransformer, creating an administrative burden which does not enhance the reliability of the BES. Further, these devices are located on top of the transformer and an outage will be required to gather necessary data, creating an operational burden.
Yes

AE supports the comments of Florida Municipal Power Agency and Sacramento Municipal Utility District.
Yes
AE supports the comments of Florida Municipal Power Agency.
Yes
AE supports the comments of Florida Municipal Power Agency.
Yes
AE supports the comments of Florida Municipal Power Agency.
Group
SERC Protection and Controls Subcommittee
David Greene
No
Yes
1) If the BA and this requirement is retained, please require the BA to also provide their basis (or means) of determining the gross MW or MVA capacity of the largest BES generating unit. For example, the BA could use gross capacity in MW or MVA derived from the FAC-008-3 rating, or the generator nameplate MVA, or the MOD-025-2 standard, or the Interconnection Agreement, or plant capacity as limited by the mechanical equipment (e.g., boiler, turbine, condenser). We prefer the BA use a means that is unlikely to vary from year-to-year, like generator nameplate MVA so that Automatic Reclosing at a given location is not oscillating into and out of Applicability. The TO / GO / DP need to know the BA's basis in order to consistently determine the TO / GO /DP locations where the total installed capacity exceeds this largest unit's gross capacity size, and thus are within Automatic Reclosing Applicability. 2) The addition of the Balancing Authority to this Standard is problematic. This Standard focuses on the Maintenance and Testing of TO, GO, and DP assets: therefore, the responsibility to determine the assets that should be included in their program should be their responsibility. As such the requirement should be that the "TO, GO, and DP shall request …. "; not that the "BA shall notify …..". Another option would be for this Requirement to be moved to a Standard that is applicable to the BA.
No
Yes
1) We concur with the Component definition change. Please add 'These are examples and were never intended to be an all inclusive list' at the end of the explanatory language now in the Supplementary Reference (clean) on pages 55 and 58 "The designation of what constitutes a control circuit component is very dependent upon how an entity performs and tracks the testing of the control circuitry. Some entities test their control circuits on a breaker basis whereas others test their circuitry on a local zone of protection basis. Thus, entities are allowed the latitude to designate their own definitions of control circuit components. Another example of where the entity has some discretion on determining what constitutes a single component is the voltage and current sensing devices, where the entity may choose either to designate a full three-phase set of such devices or a single device as a single component. These are examples and were never intended to be an all inclusive list."
Yes
In the Implementation Plan page 2 bottom, last bullet point, please add " or 'new to PRC-005' if the Component is newly included within PRC-005 scope" at the end of " Whether each component has last been maintained according to PRC-005-2 (or the combined successor standards PRC-005-3 and PRC-005-X), PRC-005-1b, PRC-008-0, PRC-011-0, PRC-017-0, or a combination thereof, or 'new to PRC-005' if the Component is newly included within PRC-005 scope." 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
John Seelke

Public Service Enterprise Group
No
No
No
No
Yes
• With regard to R1, please clarify that an entity is NOT required to have a PSMP for all Section 4.2 Facilities. Its PSMP is only required for the Facilities listed in Section 4.2 that the entity owns. For example, a GO with no UFLS Protection Systems need not include these in its PSMP. • The maintenance of Sudden Pressure Relays in transformers will be most efficiently performed at the same time transformers are maintained. Their maintenance interval should therefore conform with transformer maintenance intervals, which greater than the 6 year interval in Table 5. We recommend 12 years. • The Implementation Plan for R3 addresses Automatic Reclosing relays in two places: o Paragraph #5 on p.7 for the 6 year interval o Paragraph #7 on p. 8 for the 12 year interval Since relays in the Applicability Section 4.2.6.1 and 4.2.6.2 cannot be identified until notification is made by the BA in R6, it appears that all 4.2.6.1 and 4.2.6.2 relays will be newly identified under R3.1.1 and would therefore have a three year implementation schedule. It would be preferable is R3.1.1 allowed a staggered implementation for newly identified relays as provided for in paragraphs 5 and 7. See the suggested language below for R3.1.1 3.1.1. Complete the maintenance activities prescribed within Tables 4-1, 4-2(a), and 4-2(b) for the newly-identified Automatic Reclosing Component following the notification under Requirement R6 in accordance to the table below; or Maintenance Interval % compliant after notification under R6 6 years 30% within 36 months; 60% within 60 months; 100% within 84 months 12 years 30% within 60 months; 60% within 108 months; 100% within 156 months
Individual
Chang Choi
City of Tacoma
Yes
Recognizing that even the technical report acknowledges that “[t]here is no operating experience in which misoperation of a pressure switch in response to a system disturbance has contributed to a cascading event,” it is a concern that an enforceable regulatory requirement to maintain sudden pressure relays will be established based upon a theoretical risk of inadvertant operation during a disturbance that might contribute to a cascading event. Consequently, unless evidence can be produced of actual inadvertant operation of sudden pressure relays protecting BES elements during a disturbance that, under slightly different system conditions, could have led to a cascading event (i.e., a “near miss”), modification of PRC-005-3 to address sudden pressure relays should not be necessary at this time. Setting aside the first comment submitted under Question 1, consider adding a footnote to the effect that this standard should not be construed to require an entity to apply Sudden Pressure Relaying [or Automatic Reclosing, except where integral to a Special Protection System]. This footnote would be especially important for 4.2.5.4 “Protection Systems and Sudden Pressure Relaying for station service or excitation transformers connected to the generator bus of generators which are part of the BES, that act to trip the generator either directly or via lockout or tripping auxiliary relays.” Setting aside the first comment submitted under Question 1, including “control circuitry associated with a fault pressure relay” in the proposed definition of Sudden Pressure Relaying, without modifying the definition of a Protection System, undermines prior assertions that this control circuitry is included in the definition of a Protection System or that Table 1-5 in PRC-005-2 and PRC-005-3 would apply to this control circuitry.
Yes
How does Requirement R6 address (a) Generator Owners whose generation may be part of a Pseudo Tie such that the generation is not electrically near the majority of the Balancing Authority’s

generation or (b) Transmission Owners or Distribution Providers who may interconnect with those Generator Owners but reside in a different Balancing Authority? Would the Transmission Operator, Transmission Planner, or Planning Coordinator be the more appropriate function to provide notification? Depending on the standards drafting team's response, it may also be necessary to modify the Applicability section. In any case, in order to avoid a potential compliance trap for entities registered only for functions (e.g., Balancing Authority) not normally associated with maintenance activities, it is strongly recommended that Requirement R6 be relocated to another standard as soon as possible so that PRC-005-X can remain applicable only to Transmission Owners, Generator Owners, and Distribution Providers.
Yes
Tacoma Power is generally supportive of the proposed change in data retention except for the following. First, Tacoma Power questions whether or not the Balancing Authority is the appropriate function related to Requirement R6 (see comment submitted under Question 2). Second, the statement that "…[f]or instances where the evidence retention period specified below is shorter than the time since the last audit, the Compliance Enforcement Authority may ask an entity to provide other evidence to show that it was compliant for the full time period since the last audit…" may be construed to contradict the statement that "…the Transmisison Owner, Generator Owner, and Distribution Provider shall each keep documentation of…all performances of each distinct maintenance activity for the Protection System, Automatic Reclosing, or Sudden Pressure Relaying Component since the previous scheduled audit date…" Does the standards drafting team wish to modify the latter statement to something like the following? "…the Transmisison Owner, Generator Owner, and Distribution Provider shall each keep documentation of…all performances of each distinct maintenance activity for the Protection System, Automatic Reclosing, or Sudden Pressure Relaying Component since the previous scheduled audit date in addition to documentation of performance of at least one distinct maintenance activity for the Protection System, Automatic Reclosing, or Sudden Pressure Relaying Component prior to the previous scheduled audit date (except as permitted by the Implementation Plan)…"
Yes
Setting aside other concerns and questions, in the Supplementay Reference and FAQ Document, in the definition of Sudden Pressure Relaying, change "…that detecting…" to "…that detects…"
No
Individual
Jo-Anne Ross
Manitoba Hydro
Yes
R1.2: Since Table 5 does not include using monitoring to extend the maintenance intervals for Sudden Pressure Relaying, the references to Table 5 and Sudden pressure Relaying should be removed from this requirement. M1: For the same reason, the references to Sudden Pressure Relaying and Table 5 should be removed from the third paragraph of M1.
No
No
No
Yes
(1) Why are there two separate definition sections ("Definitions Used in this Standard" and "Definitions of Terms Used in Standard")? Is there something that differentiates these two sets of terms? (2) In the Implementation plan (page 11), consider revising to include "For Sudden Pressure Relaying Component" within section (9) instead of in the heading to clarify what is being referenced. It should read: "For Sudden Pressure Relaying Component maintenance activities with maximum allowable intervals of twelve (12) calendar years, as established in Table 5:"
Individual

Mauricio Guardado
Los Angeles Department of Water and Power
Yes
LADWP believes that it may not be necessary to add sudden pressure relays to PRC-005 for the reason that this devices are primarily for equipment health monitoring. Also, FERC did not specifically direct the inclusion of such devices to the scope of PRC-005.
Yes
LADWP is voting “Negative” on PRC-005-X for the reason that Requirement 6 (applicable to BAs)seems to be out-of-place in the standard, it does not align with the other requirements, and even in the provided rationale for the requirement, it is indicated that this requirement may be relocated to another standard during future reviews of standards for quality and content.
No
No
No
Individual
Si Truc PHAN
Hydro-Quebec TransEnergie
No
No
No
No
Yes
Hydro-Quebec TransEnergie (HQT) has an issue with the 6 calendar years of Maximum Maintenance Interval. We consider this interval too short because our Sudden Pressure Relays are Buchholz type relays. This type of relay is very reliable, therefore it is installed on the Free Breathing Transformers (FBT). HQT has only FBTs in its RTP (BES) network. A period of 6 years is too short for completing the testing and maintenance of all our equipment. HQT request to increase the Maximum Maintenance Interval to 12 calendar years for the Buchholz relay type.
Individual
Gul Khan
Oncor Electric Delivery LLC
No
Yes
Oncor recommends the following revised R6 language “Each Balancing Authority shall, at least once every calendar year with not more than 12 calendar months between notifications, notify each Transmission Owner, Generator Owner, and Distribution Provider within its Balancing Authority Area of the gross capacity, in MW or MVA, of the largest BES generating unit within the Balancing Authority Area.”
No
No
No

Group
SPP Standards Review Group
Robert Rhodes
Yes
Maintenance testing in Table 5 calls for testing the sensing mechanism once every 6 years and testing control circuitry to the trip coil of the interrupting device every 12 years. The SDT indicated that these intervals were consistent with other testing intervals in the existing standard. Yet we see a difference between these intervals and those contained in Table 1-5 which indicates control circuitry testing every 6 years. We also note that Table 3 indicates 12 year testing for control circuitry. We would appreciate any clarification the SDT could provide to indicate which intervals the Sudden Pressure Relay testing is consistent with. Insert 'and Sudden Pressure Relaying' between 'Systems' and 'for' in 4.2.5.3 in the Applicability section. Footnote 1 on Page 1 and the Rational Box for Requirement R6 refer to 4.2.7 in the Applicability section but there is no 4.2.7. The reference in the footnote is probably to 4.2.6. Insert an 'in' between 'requirement' and 'the' in the last line of the Rational Box for Requirement R6 on Page 8.
Yes
Rather than make the Balancing Authority soley accountable in Requirement R6, we suggest requiring the Balancing Authority provide the information within 30 days upon request from a Transmission Owner, Generator Owner or Distribution Provider. This places the burden of responsibility on the shoulders of those ultimately responsible for the Automatic Reclosing Relays and makes the Balancing Authority involvement secondary.
No
Yes
There is a reference to Applicability Section 4.2.7 in the Supplementary Reference document on Page 6 in the 2nd paragraph under Section 2.4 Applicable Relays. There is no 4.2.7 in the Applicability section. (See our comment in Question 1.) The reference should be to 4.2.6. In the newly inserted 3rd paragraph under Section 2.4 Applicable Relays on Page 6, the references to the Applicability section should be 4.2.1, 4.2.5.2, 4.2.5.3 (our recommendation in Question 1) and 4.2.5.4. Delete the reference to 4.2.6. Capitalize 'Fault' in the added section on Sudden Pressure Relays on Page 12. In the answer for 'Is Sudden Pressure Relaying installed on distribution transformers included in PRC-005-4?' on Page 12, change the reference from 4.2.6.1 to 4.2.5.4. In the question 'Are non-electrical sensing devices (other than fault pressure relays) such as as low oil level or high winding temperatures included in PRC-005-4?' on Page 12, delete the 2nd 'as'. In the answer to this question, insert a comma after 'December 2013'. In the continuation of this answer on Page 13, change 'fault pressure relay' to 'Sudden Pressure Relay'.
Yes
For consistency with other standards, most recently CIP-014-1, capitalize Part in the references in the VSLs for Requirement R1.
Group
ACES Standards Collaborators
Ben Engelby
No
The inclusion of sudden pressure relaying is consistent with the FERC directive.
Yes
We support NRECA's comments that the BA should be removed from PRC-005. The inclusion of the Balancing Authority as an applicable entity in this version of the draft standard and the associated addition of R6. We do not believe that the drafting team has provided sufficient technical justification to warrant the inclusion of Balancing Authorities as an applicable entity in a Protection System Maintenance standard and the inclusion of the associated R6 is onerous and meets the criteria to be classified as an "administrative" requirement. The applicable entities in this standard should only be those entities that own and maintain the Protection Systems described in the draft standard not an entity responsible "that integrates resource plans ahead of time, maintains load-interchange-

generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time."
Yes
As stated above, we disagree with the inclusion of the Balancing Authority to PRC-005. Therefore, we also disagree with the changes to the data retention relating to the BA. For Requirement R1, the data retention is reasonable, but the focus should be on the most current version of the program for audits. For Requirements R2-R5, there is improvement from maintaining the two most recent maintenance activities to the single most recent maintenance activity. However, we have an issue with maintaining evidence prior to the previous audit date and recommend removing the language, "whichever is longer." This language could result in unintended consequences of maintaining evidence prior to when the standard is in effect.
Yes
We question the need to modify definitions and other parts of the standard that do not relate to sudden pressure relays. For example, why modify the word "component" to be a standard-specific term? The word component is used over 400 times in the NERC standards. Having a PRC-005 specific component type is very confusing. There are components relating to ACE, sub-components of requirements, components regulated by Nuclear Regulatory Commission, to name a few. Each of these occurrences of the word component are lower-cased, meaning that everyday dictionary definitions apply. By creating a PRC-005 "Component," the drafting team has further complicated the reliability standards. We recommend striking the proposed definition.
Yes
Why has the drafting team decided to call this version PRC-005-X? The technical reference guide clearly states on page 5, "PRC-005-4 addresses this directive regarding sudden pressure relays and, when approved, will supersede PRC-005-3." The use of the letter "x" as the version only adds confusion to industry members. Please use consistent naming conventions for the draft standards and their associated projects.
Individual
Joe Tarantino
Sacramento Municipal Utility District/Balancing Authority Northern California
No
Yes
SMUD encourages the SDT to adopt a 1500 MW threshold approach that is consistent with other NERC developed threshold applications as established in other standards/definitions for the following reasons: SMUD views the current Requirement R6 places an administrative burden on the BA requiring notification to FEs of the gross capacity of the largest BES generator unit that would be resolved through a threshold approach. An established threshold would also eliminate applicability adjustments when changes occur to the gross capacity of the largest BES generating unit within the BA footprint. SMUD also believes that the current requirements R3 & R6 places an onerous compliance burden on Functional Entities who reside in smaller BA footprints where larger generating units, typically included in the larger BA footprints, would exclude similar FEs who are located in their larger BAs. In addition to this issue SMUD believes the SDT's current approach, where applicability of 4.2.6.1 is subject to "installed gross generating plant capacity is greater than the gross capacity of the largest BES generating unit within the BA", creates inconsistent applicability of automatic reclosing (relay) at generation plant substations.
No
No
No
Individual
David Jendras

Ameren
Yes
We agree with the SDT approach and commend the SPCS for its "Sudden Pressure Relays and Other Devices that Respond to Non-Electrical Quantities" in response to FERC order 758.
Yes
1) Ameren concurs with the SERC PCS comments and includes all of them via this reference. 2) Does R6 apply to an overall BA, like MISO; or the local BA, like Ameren? 3) We do not believe this requirement should be included in the standard because the rational for R6 references section 4.2.7 do not exist.
Yes
This is a good step in the right direction.
Yes
We agree with the SERC PCS response to this question.
Yes
1) We request the drafting team to use this as an opportunity to better clarify Automatic Reclosing control circuitry. In previous drafts we have specifically asked for ANSI device numbers in the Supplementary Reference during PRC-005-3 development and the SDT had elected not to. The SPCS "Sudden Pressure Relays and Other Devices that Respond to Non-Electrical Quantities" Appendix C categorizes devices 25 and 79 as 'Subject of separate report by SAMS and SPCS' which implies both these devices could be within Automatic Reclosing scope. Since the 79 is the reclosing relay itself, this implies the 25 could be part of the Control Circuitry. We suggest another FAQ: "What ANSI Device numbers, if any, do the Automatic Reclosing Component Types include? Answer: a) The 'Reclosing relay' Component Type includes ANSI device 79, which could be a stand-alone relay if electromechanical; or could be the 79 function within a microprocessor-based relay. b) The 'Control circuitry associated with the reclosing relay' Component Type could include ANSI device 25 as part of the circuitry but it's important to focus on the concern being addressed within the standard which is premature autoreclosing that has the potential to cause generating unit or plant instability. The device 25 would need to be included in your maintenance only if device 25 could lead to such premature autoreclosing." Our purpose in seeking this clarification is for entities to comply as they implement rather than later be trapped into a non-compliance later.
Group
Bureau of Reclamation
Erika Doot
Yes
The Bureau of Reclamation (Reclamation) does not support the proposal to include sudden pressure relays to PRC-005. Reclamation does not agree with the System Protection and Control Subcommittee's Technical Report classification that sudden pressure relays are designed to "initiate actions to clear faults or mitigate abnormal system conditions to support reliable operation of the Bulk Power System." Instead, Reclamation believes that sudden pressure relays "initiate action for abnormal equipment conditions" to protect transformers (like thermal relays and pressure switches, etc.). Sudden pressure relays are designed to prevent further equipment damage when a transformer experiences an internal fault, not to protect the system or respond to external faults. Therefore, Reclamation believes that sudden pressure relays fall within the classification of devices that NERC has not proposed to include within PRC-005. Reclamation's position is consistent with several industry documents, including the 1991 WECC Report, Transformer Protection Sudden Pressure Relays, http://www.wecc.biz/library/Documentation%20Categorization%20Files/Reports%20and%20Whitepapers/Transformer%20Protection%20Sudden%20Pressure%20Relays.pdf As described in the WECC report, some types of sudden pressure relays may misoperate due to through-fault current. If NERC's intent is to prevent the misoperation of sudden pressure relays due to through-fault current from external system faults, Reclamation does not believe that PRC-005 is the appropriate standard to address the issue. Reclamation believes that the issue is better addressed through PRC-004 misoperations analysis and industry technical guidance documents (e.g., on blocking schemes to prevent sudden pressure relay misoperations due to external faults).
No

No
No
Yes
Reclamation requests that drafting teams post comments received on the Standards Authorization Request (SAR) to promote transparency, and prepare dispositions of comments on these documents. The industry invests substantial resources in the formulation of comments and would appreciate feedback on comments submitted.
Group
ISO RTO Council Standards Review Committee
Greg Campoli
Yes
We understand the need for NERC to address the FERC directive for adding Sudden Pressure Relays into the System Protective Device Maintenance requirements. As the drafting team acknowledges in the draft, these devices are not consistent with the current NERC term for Protection System. We think adding these devices into this standard will result in confusion in the future that any protective devices and mechanical actuators may be added to PRC-005 regardless of whether it is a part of the Protection System. The rationale for adding Sudden Pressure should be memorialized in the standard itself and not just in the change history so future drafting teams understand the circumstances leading to the addition.
Yes
We do not support R6 as a reliability requirement. We believe the intent of the BA communicating any changes of the largest BES generating unit to the Transmission Owner, Generator Owner, and Distribution Provider within its Balancing Authority Area is to assist them in determining if any of their auto reclosing schemes meet the applicability criteria for inclusion in their maintenance program. This imposes a compliance requirement on entities which is unnecessary for reliability. All registered entities are obligated to provide data to NERC through Rules of Procedure Section 1600. Alternatively, the identification of the largest BES generating unit within a BA can easily be obtained through GADS by amending the GADS reporting procedures to include a BA association. We disagree with the need to make the provision of information, especially one that rarely changes, through a NERC standard. Requiring the BA to report this information is inconsistent with the provision of numerous other data registered entities are required to provide through other means. NERC can create and make available a list of the largest BES generating units by BA to achieve the same intent.
No
No
Yes
R3.1. Adding the word “notified” after the word “each” could add some clarity. As written it could read to mean that “all TOs, GOs and DPs would be required to do maintenance for the same relay given that the BA informed them of the largest unit (per R6); which would seem to itself include all TOs, GOs and DPs. The addition is somewhat redundant but it may not hurt to add the adjective.
Individual
Jamison Cawley
Nebraska Public Power District
Yes
Did the survey respondents indicate if the testing of the transformer sudden pressure device and associated protective circuitry corresponded to normally scheduled transformer maintenance intervals? One of the unintended consequences of testing the sudden pressure device is increasing the number of times a transformer is taken out of service for maintenance. Taking the transformer out of service for another maintenance activity will increase the unavailability of the device, reducing

system reliability. It would be beneficial that the testing interval specified for sudden pressure relays be flexible enough that the pressure relay test frequency could equal the transformer test frequency (SFRA, Doble, TTR, etc.). Also, we are unaware of instances of Sudden Pressure Relay devices creating instability, uncontrolled separation, or a cascading event. Has there been an instance where the failure of a Sudden Pressure Relay can be shown as a contributing factor in any case of instability, uncontrolled separation, or cascading event?
No
No
Yes
This is in regard to the last sentence in the response to the question, “Why is the maintenance of Sudden Pressure Relaying being addressed in PRC-005-4?” in Section 2.4.1 of the Supplementary Reference and FAQ Document. The response indicates that the operation of Sudden Pressure Relaying can limit damage to equipment. In the event of an internal fault releasing sufficient energy to actuate the Sudden Pressure Relay, the equipment will have already been damaged. We feel this part of the response may be misleading.
No
Individual
Karen Webb
City of Tallahassee
Yes
The City of Tallahassee (TAL) believes Sudden Pressure Relaying should not be added to PRC-005-X because they are not necessary for the “reliable operation” of the bulk power system as defined in statute. What is necessary for the reliable operation of the BPS are differential relays, overcurrent relays, etc., that are there to clear a major phase to ground or phase to phase fault that if left uncleared can cause instability. The purpose for a sudden pressure relay is primarily to monitor equipment health, e.g., detecting a turn-to-turn failure, not a phase to ground or phase to phase fault. If a sudden pressure relay fails to operate, there is no threat to BPS reliability since the differential relay / overcurrent relays are there if the fault develops into a major phase to ground or phase to phase fault. TAL believes that the use of sudden pressure relays are a good business practice, but we also believe that utilities should be free to adopt good business practice beyond the requirements of the standards, without the reverse incentives that being regulated, audited, etc., bring.
Yes
As proposed, this language will not impact TAL. However, smaller utilities coordinating with multiple BAs will now be required to coordinate and document heavily on something that adds little value to the reliability of the BES. It does not appear to add value to the standard. A requirement for a BAL should not be buried in a PRC standard.
Yes
The change in data retention should not impact TAL. However, as commented for question 2, the burden on smaller utilities will increase.
No
Group
Dominion
Mike Garton
No
Yes

No
No
No
Group
Duke Energy
Colby Bellville
No
No
No
No
Yes
Duke Energy requests clarification from the drafting team on the responsibilities of an entity in the event that the entity decides to block or remove a Sudden Pressure Relay device from service after the standard has taken effect. As written, the draft standard does not provide any requirement as to the documentation or retention of records regarding Sudden Pressure Relays that have been blocked or taken out of service. Will an entity be required to notify the ERO or a Regional Entity of the decision to remove a device, or retain documentation on the device after its removal? Also, we request clarification from the drafting team regarding the draft standard's title, PRC-005-X. Upon the conclusion of this project as well as Project 2014-01 (Standards Applicability for Dispersed Generation), will this standard be renamed PRC-005-4, or remain as PRC-005-X? The changing of the name of the standard will require alteration of an entity's internal documentation, and we would like to be aware of any possible impending changes.
Group
National Grid
Michael Jones
Yes
We suggest revising section 4.2.1 to read as: "Protection Systems and Sudden Pressure Relaying installed for the purpose of detecting Faults and initiating the automatic operation of interrupting device(s) to isolate the BES Elements it is monitoring." Section 4.2.1 should only apply to detecting devices required to initiate fault clearing action.
Individual
Bill Fowler
City of Tallahassee
Yes
The City of Tallahassee (TAL) believes Sudden Pressure Relaying should not be added to PRC-005-X because they are not necessary for the "reliable operation" of the bulk power system as defined in statute. What is necessary for the reliable operation of the BPS are differential relays, overcurrent relays, etc., that are there to clear a major phase to ground or phase to phase fault that if left uncleared can cause instability. The purpose for a sudden pressure relay is primarily to monitor equipment health, e.g., detecting a turn-to-turn failure, not a phase to ground or phase to phase

fault. If a sudden pressure relay fails to operate, there is no threat to BPS reliability since the differential relay / overcurrent relays are there if the fault develops into a major phase to ground or phase to phase fault. TAL believes that the use of sudden pressure relays are a good business practice, but we also believe that utilities should be free to adopt good business practice beyond the requirements of the standards, without the reverse incentives that being regulated, audited, etc., bring.
Yes
As proposed, this language will not impact TAL. However, smaller utilities coordinating with multiple BAs will now be required to coordinate and document heavily on something that adds little value to the reliability of the BES. It does not appear to add value to the standard. A requirement for a BAL should not be buried in a PRC standard.
Yes
The change in data retention should not impact TAL. However, as commented for question 2, the burden on smaller utilities will increase
No
No
Individual
Karin Schweitzer
Texas Reliability Entity
Yes
Section 4: Applicability – 4.2.4 should have Sudden Pressure Relaying (SPR) added to its inclusion as a SPS. While not often used as an SPS, the SPR needs to be included here to allow the inclusion of SPR when it is part of a Registered Entity's (RE) SPS. We recognize that the original intent was only to include Sudden Pressure Relaying whose purpose is to detect faults. Adding "and Sudden Pressure Relaying" after "Protection Systems" but before the words "installed as a Special Protection System…" will eliminate a reliability gap where SPR isn't otherwise included in the PRC-005 when it is part of an SPS. 4.2.5.3 should include SPR for those transformers included in this section. Transformers with PRC-005 included Protection Systems (PE) should also have their SPR covered by PRC-005. We recognize that the original intent was only to include Sudden Pressure Relaying whose purpose is to detect faults. Adding "and Sudden Pressure Relaying" after "Protection Systems" but before the words "for transformers connecting aggregated generation…" will eliminate a reliability gap otherwise left in transformer protection for transformers covered by PRC-005. Section 6: Definitions Used in this Standard – "Sudden Pressure Relaying" definition - After "isolate" in the phrase "to isolate the equipment" add "at least". This addition will allow the SPR system to include the other equipment that the SPR does clear. This will prevent the SPR definition from being limited to only systems that isolate only the monitored equipment. "Fault pressure relay" within the "Sudden Pressure Relaying" definition, the description is for a singular "device". By adding ", or combination of devices," after "device" the singular meaning is expanded. A Fault pressure relay need not be defined in terms of a single component but may be inclusive of a system of devices that perform the detection of the rapid change in pressure. If this change isn't made the fault pressure relay systems consisting of more than one component may not be covered by PRC-005, resulting in a reliability gap. "Countable Event" definition excludes "relay settings different from specified settings". Doing so may result in a reliability gap as that represents one of the largest populations for misoperations. Maintenance can include settings adjustment and a PSMP could include a field check of the settings. Table 1-5 "Component Type - Control Circuitry Associated With Protective Functions" should expressly include or exclude Sudden Pressure Relaying control circuitry. Without that clarification there may be confusion in the auditing and enforcement of PRC-005. Table 2 "Alarming Paths and Monitoring" should expressly include or exclude Sudden Pressure Relaying control circuitry. Without that clarification there may be confusion in the auditing and enforcement of PRC-005.
No
Yes

Page 10, 3rd paragraph, last sentence should include “Automatic Reclosing and Sudden Pressure Relaying” after “Protection System” but before “Component Type”. This change will be consistent with language in the last sentence of the following paragraph.
No
Yes
Footnote on page 4 – the references are incorrectly adjusted and should remain as 4.2.6.1 and 4.2.6.2. Rationale for R6 (page 8) - the reference is incorrectly adjusted and should remain as 4.2.6.
Individual
Richard Vine
California ISO
Individual
Sergio Banuelos
Tri-State Generation and Transmission Association, Inc.
No
No
Yes
Tri-State supports the change to require only retaining the most recent performance of maintenance activity.
No
Yes
Tri-State disagrees with the 6 year interval and believes it should be a 10 year interval to align with transformer maintenance. We don't believe that the failure modes of SPRs are the same as other EM relays.
Group
Florida Municipal Power Agency
Frank Gaffney
Yes
There has been some misinformation floating in industry as to whether FERC directed inclusion of sudden pressure relays in PRC-005. In Order 758, that they did not. The NOPR did propose to require it, e.g., Order 758 at P 12: “In the NOPR, the Commission noted a concern that the proposed interpretation may not include all components that serve in some protective capacity. The Commission’s concerns included the proposed interpretation’s exclusion of auxiliary and non-electrical sensing relays. The Commission proposed to direct NERC to develop a modification to the Reliability Standard to include any component or device that is designed to detect defective lines or apparatuses or other power system conditions of an abnormal or dangerous nature, including devices designed to sense or take action against any abnormal system condition that will affect reliable operation, and to initiate appropriate control circuit actions.” Many entities commented on this, including NERC. In its comments, NERC proposed to develop (Order 758 P 14) “technical documents (that) will address those protective relays that are NECESSARY FOR THE RELIABLE OPERATION OF THE BULK-POWER SYSTEM and will allow for differentiation between protective relays that detect faults from other devices that monitor the health of the individual equipment and are advisory in nature (e.g., oil temperature)” (emphasis added). And, depending on the results of the technical papers, NERC stated that it would (Order 758 P 14) “propose a new or revised standard (e.g. PRC-005) using the NERC Reliability Standards development process to include maintenance of such devices, including establishment of minimum maintenance activities and maximum maintenance intervals.” FERC does not direct the inclusion of sudden pressure relays, instead (Order 758, P 15): “The Commission accepts NERC’s proposal, and directs NERC to file, within sixty days of publication of this Final Rule, a schedule for informational purposes regarding the development of the technical documents referenced above, including the identification of devices

that are designed to sense or take action against any abnormal system condition that will affect reliable operation. NERC shall include in the informational filing a schedule for the development of the changes to the standard that NERC stated it would propose as a result of the above-referenced documents. NERC should update its schedule when it files its annual work plan." Subsequent to the Order, the NERC Planning Committee approved a report of the NERC System Protection and Control Subcommittee that recommends inclusion of sudden pressure relays in PRC-005. FMPA disagrees with the conclusion of the NERC SPCS. Section 215 defines the bulk-power system as including (at (a)(1)(A)): "…control systems NECESSARY for operating an interconnected electric energy transmission network …" (emphasis added). In addition, NERC's proposal is to evaluate what non-electrical relays are: "… NECESSARY for the RELIABLE OPERATION of the Bulk-Power System …" (emphases added, Order 758 P 14). The statute defines "reliable operation" of the bulk-power system as (at (a)(4)): "The term `reliable operation' means operating the elements of the bulk-power system within equipment and electric system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance, including a cybersecurity incident, or unanticipated failure of system elements". Sudden pressure relays do none of this; that is, the purpose of sudden pressure relays is not to operate equipment within thermal, voltage and stability limits so that instability, uncontrolled separation or cascading will not occur. Sudden pressure relays are not "necessary", in fact, older transformers will likely not have them. What is necessary for "reliable operation" are the differential relays, overcurrent relays, etc., that are there to clear a major phase to phase or phase to ground fault that if left uncleared can cause instability. A sudden pressure relay is there primarily for equipment health monitoring, e.g., detecting a turn-to-turn failure, not a phase to ground or phase to phase fault. If a sudden pressure relay fails to operate, there is no threat to BPS reliability since the differential relay / overcurrent relays are there if the fault develops into a major phase to ground or phase to phase fault. Hence, FMPA is voting negative and recommends a reversal of the SCPS recommendation. It is beyond the scope of the statute, not necessary for bulk-power system reliability, and more importantly, will result in unintended consequences due to perverse incentives that may cause entities to disable their sudden pressure relays, put them on alarm only, etc. We need to resist the perception that all good utility practice needs to be regulated by standard, that is not the intent of the statute. The statute is written that only those necessary to prevent blackouts should be regulated by standard. Utilities should be free to adopt good business practice beyond the requirements of the standards, like sudden pressure relays and testing of those relays, without the reverse incentives that being regulated, audited, etc., bring.
Yes
FMPA believes the SDT has done a good job in concept around the inclusion of reclosing relays; however, the BA is not always the "right" entity to identify the largest loss of source contingency. There are numerous very small BAs, some of whom do not even have any BES generation within their BA Area. In those cases, those small BAs usually participate in a Reserve Sharing Group (RSG). As such, FMPA recommends one of three approaches: 1) establish a brightline as SMUD proposes, e.g., 1500 MW; 2) make the requirement applicable to the Reliability Coordinator instead of the BA; or 3) word the requirement such that if a BA participates in a Reserve Sharing Group, the BA can identify the largest loss of source in the Reserve Sharing Group rather than its own BA Area in a similar fashion to BAL-002.
Individual
Scott Langston
City of Tallahassee
Yes
The City of Tallahassee (TAL) believes Sudden Pressure Relaying should not be added to PRC-005-X because they are not necessary for the "reliable operation" of the bulk power system as defined in statute. What is necessary for the reliable operation of the BPS are differential relays, overcurrent relays, etc., that are there to clear a major phase to ground or phase to phase fault that if left uncleared can cause instability. The purpose for a sudden pressure relay is primarily to monitor equipment health, e.g., detecting a turn-to-turn failure, not a phase to ground or phase to phase

fault. If a sudden pressure relay fails to operate, there is no threat to BPS reliability since the differential relay / overcurrent relays are there if the fault develops into a major phase to ground or phase to phase fault. TAL believes that the use of sudden pressure relays are a good business practice, but we also believe that utilities should be free to adopt good business practice beyond the requirements of the standards, without the reverse incentives that being regulated, audited, etc., bring.
Yes
As proposed, this language will not impact TAL. However, smaller utilities coordinating with multiple BAs will now be required to coordinate and document heavily on something that adds little value to the reliability of the BES. It does not appear to add value to the standard. A requirement for a BAL should not be buried in a PRC standard.
Yes
The change in data retention should not impact TAL. However, as commented for question 2, the burden on smaller utilities will increase.
No
Group
JEA
Tom McElhinney
Yes
NERC needs to get clarification from FERC. Because the order states any sensing systems that monitor the health of any component of the BES, this could lead to major scope creep. The next version will be “Protection Systems, Automatic Reclosing, Sudden Pressure Relaying, Vibration Monitoring, Fuel Pumps, Flame out Sensors, Temperature Monitoring, etc., etc., etc.
Individual
Dixie Wells
Lower Colorado River Authority
Yes
FERC Order 758 did not direct inclusion of sudden pressure relays, these relay types are for equipment health not BES security.
Yes
Propose inclusion of a 1500 MW bright-line for reclosing relays to remove administrative burden on BA, effectively removes the BA from the applicability (R6).
No
No
No
Individual
Bob Thomas
Illinois Municipal Electric Agency
Group
Seattle City Light
Paul Haase

Yes
Seattle City Light supports the general concept of testing for some (but not all) sudden pressure relays, and believes the Standard Drafting Team to have done a good job in identifying and specifying in the draft Standard only those sudden pressure relays required by BES reliability. Seattle would not support the expansion to testing to sudden pressure relays not in scope of the present draft PRC-005-X, and wishes to express concern about the recent trend of enlarged scope throughout the body of Standards. The ongoing scope creep does not appear consistent with either the recommendations of the Expert Review Panel (to focus effort on revising existing Standards to be more clear) or with NERC's concept of a steady-state body of world-class Standards (which would require boundaries to be set and new requirements to be thoroughly validated before being proposed).
Yes
Seattle City Light supports the comments of FPMA as regards the addition of Balancing Authority to PRC-005-X. Specifically: FMPA believes the SDT has done a good job in concept around the inclusion of reclosing relays; however, the BA is not always the “right” entity to identify the largest loss of source contingency. There are numerous very small BAs, some of whom do not even have any BES generation within their BA Area. In those cases, those small BAs usually participate in a Reserve Sharing Group (RSG). As such, FMPA recommends one of three approaches: 1) establish a brightline as SMUD proposes, e.g., 1500 MW; 2) make the requirement applicable to the Reliability Coordinator instead of the BA; or 3) word the requirement such that if a BA participates in a Reserve Sharing Group, the BA can identify the largest loss of source in the Reserve Sharing Group rather than its own BA Area in a similar fashion to BAL-002. Seattle adds that the concern about small BAs is not small. Within WECC (which hosts one third of all NERC BAs), more than half of BAs could be considered "small" BAs having limited information/influence regarding largest contengincies. Perhaps one third of BAs continent-wide could fall into this same category.
Yes
Seattle City Light believes the drafting team has made appropriate and welcome clarifications to the data retention period in PRC-005-X. However Seattle remains concerned that auditors may interpret the clarifications variously, given that they differ from PRC-005 auditing practices to date. As such, Seattle recommends that something akin to a CAN be issued in this case, to clearly state the clarifications for both registered entities and auditors alike.
Yes
Seattle City Light appreciates the effort to updat the supplemental documents to include information about sudden pressure relays prior to the ballot on PRC-005-X. Seattle would have prefered a stand-alone document on sudden pressure relays, rather than spreading the new information throughout two existing (and large) documents. Seattle also wonders where from the "frequently asked questions" were sourced, given that the draft Standard has not been posted for many weeks.
Yes
Seattle City Light seeks clarification and/or justification of the requirement to test the function of sudden pressure relay actuators. Access to such actuators within oil tanks can be difficult, and it is not certain that the risk of oil contamination, components being dropped into tanks, or other practical problems associated with testing is less than the reliability benefit of testing such actuators. Seattle wonders if alternative approaches to actuator testing might be accepted and what they might be.
Individual
Roger Dufresne
Hydro-Quebec Production
Individual
Wiliam Waudby
Consumers Energy Company
Yes
Applicability 4.2.5.3 Because transformers used to aggregate generation are listed separately, they should also have sudden pressure relays included. The aggregation could include more than dispersed generation, for example a group of 19MVA gas peakers on one site. Therefor the

beginning of the first sentence should read “Protection Systems and Sudden Pressure Relaying for transformers…”. The recent draft of the dispersed generation white paper included the transformer that aggregates the generation as a BES Element, therefore the SPR should be applied to transformers functioning to aggregate generation over 75MVA. 6 Definitions Used in this Standard. The definitions section should include a definition for “control circuitry”. Investigations into the failure of BES equipment to operate in the desired sequence has, on occasion, identified permissive contacts failing to function correctly, causing a misoperation. A definition of the control circuitry and an associated requirement as to maintenance testing requirements would clarify the extent of maintenance required and should result in a more reliable BES. 6 Definitions Used in this Standard. We agree that the previous definition of “Component” was explanatory and not appropriate, however the replacement definition is weak to the point of being useless. Relying on the Supplementary Reference and FAQ Documents to address a definition is not appropriate, given the inclusion of other definitions within this standard. The following definition for Component is suggested “Any specific element of a Protection System, Automatic Reclosing or Sudden Pressure Relaying including, but not limited to protective relays, communication system, voltage and current sensing devices, protection system dc supply system, trip coils or actuators of interrupting devices, reclosing relays, sudden pressure relay, gas accumulation relay, electromechanical lockout and/or tripping auxiliary devices and battery charger.” 6 Definitions Used in this Standard. The purpose of a maintenance standard should be to determine if equipment is operating in the intended manner. The definition for Countable Event correctly excludes misoperations, which seems fair. However by listing items such as “relay settings different from specified settings” as a misoperation, the standard has a conflict with the maintenance activity in the tables. Specifically the first maintenance activity on Table 1-1, page 19 is to “verify that the settings are as specified”. While there may not have been an actual misoperation, this exclusion may be interpreted to mean that finding the settings not as specified is not a Countable Event, which from the table it should be. An incorrect relay setting could result in a risk to the reliability of the BES just as much as a defective relay. An Entity may have systemic problems leading to misoperations that would be masked by not including these items in its performance based maintenance program. We recommend that the SDT review the listing of exclusions in Countable Events and verify that they do not conflict with the maintenance activities of the tables. Table 1-1, page 19. A maintenance activity for all relays is to verify the “as found” settings. Since it is possible that a microprocessor relay could be left without the appropriate protective functions enabled, it would seem prudent to verify the “as left” settings of the microprocessor relay. This is appropriate because most microprocessor relays have multiple setting groups and the testing may be conducted by modifying the setting group or by changing to an alternate group. We suggest that the last step in the maintenance activity for microprocessor relays is to verify the correct group is enabled and its “as left” settings are correct. Measure M1. One aspect of Measure M1 addresses monitoring to extend the maintenance intervals. Table 5 for Sudden Pressure Relaying (correctly) does not include monitoring. The wording addition of “…and Sudden Pressure Relaying” to the third paragraph of M1 should be deleted, since (per Table 5) it does not apply. Rational for R6. The rational mentions Section 4.2.7 Applicability, however there is no such section in this Standard. Section 4.2.6 is probably the intended reference. R6. The determination of critical reclosing locations (and the documentation requirements) should reside within a planning standard, not in PRC-005. Once the facility locations are established, the maintenance of the devices at those locations should fall to PRC-005. The inclusion of the Balancing Authority and Requirement R6 should be removed from PRC-005.
No
No
No
No
Individual
Angela P Gaines
Portland General Electric Company

Yes
Portland General Electric Company (PGE) appreciates the work of the standard drafting team and its efforts to craft a workable standard. However, PGE has concerns based on the following comment from the Supplementary Reference and FAQ document, (page 3, section 2.3): …if the Element is a BES Element, then the Protection System protecting that Element should then be included within this standard. Although this version of the proposed standard addresses sudden pressure relays, the above comment suggests a much broader increase in protection system testing and maintenance. The scope of testing and documentation suggested by the comment above creates an unreasonable burden that would not produce a commensurate increase in reliability to the BES. In fact, the extensive testing suggested by this language could very well decrease reliability because all testing carries with it a level of risk. PGE suggests that by defining specific elements for the term Protection System, per the NERC definitions of terms, maintenance efforts are focused on the areas of greatest benefit while providing entities with some assurance that the maintenance burden has a well defined limit. PGE also has specific concerns regarding the testing of the sensing mechanism of sudden pressure relays. Testing of SPR sudden pressure relays requires increasing tank pressure on gas space devices then opening a plug to create a sudden pressure drop. Devices of the oil pressure FPR type would require an external pressure pump to simulate a change in pressure. To perform these tests, utilities would need to remove the protected transformer from service, reducing reliability of the BES. In addition to taking transformers out of service, utilities would need to physically remove Buckholtz relays from the transformers in order to test rapid oil flow sensing. The added complexity of testing Buckholtz relays would increase the down time of critical transformers and introduce the possibility that the relays are not reinstalled properly.
No
No
Yes
Please see my comments in question 1.
No
Individual
RoLynda Shumpert
South Carolina Electric and Gas
Group
Florida Power & Light
Mike O'Neil
No
Yes
Specific to R6, in some regions, this information is already available to all Transmission Owners, Generator Owners, and Distribution Providers. A list of all generating facilities with the location, Gross & Net MW for each BA, including the largest units, is provided annually to the Region (FRCC). There is no need to provide this information to entities when it’s already available. R6 should be changed to provide the information if it isn't available by the Region.
No
No
No
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
Wayne Johnson
No
Yes
We do not disagree that there needs to be some way for the Enitity to get the information from the BAs; however, the requirement as stated belongs in an existing or new Standard which is applicable to the BA. If the requirement remains in Prc-005-x, it should read as follows: “TO, GO, and DP shall request …. “; not that the “BA shall notify …..” since this Standard is specifically focused on the M&T activities related to TO, GO, and DP Protrction Systems. Additionally the verbiage used in the Standard “notify each Transmission Owner, Generator Owner, and Distribution Provider within its Balancing Authority Area..” should be changed to “notify each Entity (TO, GO, DP) within its Balancing Authority Area …” to avoid the misinterpretation that it is all TOs and GOs; but only DPs within the BA area.)
No
No
No
Group
Associated Electric Cooperative, Inc. - JRO00088
David Dockery
Yes
AECI supports FMPA’s comments. - - - Suggestion - - - FOR: PRC-005-X, Applicability 4.2.1 REMOVE: “and Sudden Pressure Relaying” APPEND: “,and Sudden Pressure Relaying configured on transformers to support reliable operation of the Bulk-Power System.” RATIONALE: Accuracy - The “SPCS Order 758 Sudden Pressure Report Final 02132014.pdf”, page 9, Table 1, Column 1, “Sudden Pressure (63)”, (conditional), failed to include the same qualifying phrase “to support reliable operation of the Bulk-Power System” (located: Appendix D, “Pressure Switch (63), “Conclusion:”, final sentence) for the type of fault clearing that pertains. AECI believes this omission misled the PRC-005-X SDT to overgeneralize that all transformer Sudden Pressure Relay implementations should be applicable, rather than the much more restricted subset specified within the referenced report’s Appendix D Details.
Yes
AECI supports FMPA’s comments. Further, AECI emphasize FMPA’s assertion of the technical inequity within the current draft. - - - Suggestions - - - FOR: PRC-005-X, Applicability 4.2.6.1 REPLACE: “the gross capacity of the largest BES generating unit within the Balancing Authority Area” WITH: “1500 MW” RATIONALE: Consistency of this bright-line threshold for plants within other NERC Standards. - - - OR - - - FOR: PRC-005-X, Applicability 4.2.6.1 REPLACE: “Balancing Authority Area” WITH: “Balancing Authority Area or the Balancing Authority’s Reserve Sharing Group” RATIONALE: The NERC Glossary of Terms definition for “Reserve Sharing Group”, embodies the concept of the Areas of the RSG’s BAs.
No
Yes
See RATIONALE: AECI submitted for any suggested changes the SDT might adopt.
No
Group
MEAG Power

Scott Miller
Group
Bonneville Power Administration
Andrea Jessup
Yes
BPA suggest clarification as to which devices would fall under the classification of Sudden Pressure Relaying. The sudden pressure device is a specific relay that senses pressure waves inside the transformer main tank. However, the definition given on page 5 (red-line version) indicates that Sudden Pressure Relaying includes devices which monitor sudden oil flow. Both the buchholz relay and the load tap changer protective device monitor a sudden flow and are different devices than the sudden pressure relay. Are those devices included under this standard?
No
No
No
BPA noted that PRC-005 Attachment A “Criteria for a Performance-Based Protection System Maintenance Program” contains the method to continue the use of a performance-based system which is different than the time based system proposed under this standard. The supplementary reference and FAQ document provide examples of how to establish performance based maintenance systems. When performance based maintenance practices can be practiced they provide value to the utility. Does the standard intend to use a similar approach or concepts from a streamlined reliability centered maintenance program when establishing time based maintenance intervals for sudden pressure relaying?