Comment Report

Project Name:	2019-04 Modifications to PRC-005-6 | Draft 1
Comment Period Start Date:	5/25/2023
Comment Period End Date:	7/24/2023
Associated Ballots:	2019-04 Modifications to PRC-005-6 Implementation Plan IN 1 OT 2019-04 Modifications to PRC-005-6 PRC-005-7 IN 1 ST

There were 81 sets of responses, including comments from approximately 202 different people from approximately 128 companies representing 10 of the Industry Segments as shown in the table on the following pages.

Questions

1. The Standard Drafting Team (SDT) modified the definition of Protection System. The SDT determined that these modifications were necessary to provide clarity on the inclusion of components of control systems which measure and utilize similar quantities as protective relays and perform similar functions as protective relays. Do the revisions to the Protection System definition and proposed PRC-005-7 (along with the Technical Rationale document) provide clarity to which, if any, components of excitation systems and other control systems are applicable to PRC-005? If you do not agree, please provide your recommendation for clarifications, examples and, if appropriate, technical or procedural justification.

2. Do the changes to PRC-005 Tables 1-4 adequately address alternative dc supply technologies? If you do not agree, please provide your recommendation for clarifications, examples and, if appropriate, technical or procedural justification.

3. The Applicability section, Requirements R1-R5, and Measures M1-M5 were updated to include entities registered as UFLS-only DPs for consistency with changes made to NERC's FERC-approved Risk-Based Registration (RBR). Do you agree with the revisions to include UFLS-only DPs? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

4. The SDT believes the language of PRC-005-7 addresses the issues outlined in the SAR in a cost effective manner. Do you agree? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

5. The implementation plan for PRC-005-6 provided compliance dates for Sudden Pressure Relaying, Automatic Reclosing, and dispersed generation resources Entities are currently subject to implementation requirements under the PRC-005-6 implementation plan, which incorporated the PRC-005-2(i) implementation plan by reference for Components first addressed in that standard. Those prior implementation requirements are carried forward in the PRC-005-7 Implementation Plan. Do you agree with the proposed implementation plan timeframes? If you think an alternate timeframe is needed, please propose an alternate implementation plan with detailed explanation.

6. Please provide any additional comments on the standard, technical rationale, and Supplementary Reference and FAQ.

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
Public Utility District No. 1 of Chelan County	Anne Kronshage	6		Public Utility District No. 1 of Chelan County - Voting Group	Anne Kronshage	Public Utility District No. 1 of Chelan County	6	WECC
					Glen Pruitt	Public Utility District No. 1 of Chelan County	1	WECC
					Rebecca Zahler	Public Utility District No. 1 of Chelan County	5	WECC
					Joyce Gundry	Public Utility District No. 1 of Chelan County	3	WECC
					Joyce Gundry	Public Utility District No. 1 of Chelan County	3	WECC
Portland General Electric Co.	Brooke Jockin	1		Portland General Electric Co.	Brooke Jockin	Portland General Electric	1	WECC
					Dan Mason	Portland General Electric	6	WECC
					Ryan Olson	Portland General Electric	5	WECC
					Adam Menendez	Portland General Electric Co.	3	WECC
WEC Energy Group, Inc.	Christine Kane	3		WEC Energy Group	Christine Kane	WEC Energy Group	3	RF
					Matthew Beilfuss	WEC Energy Group, Inc.	4	RF
					Clarice Zellmer	WEC Energy Group, Inc.	5	RF
					David Boeshaar	WEC Energy Group, Inc.	6	RF
Jennie Wike	Jennie Wike		WECC	Tacoma Power	Jennie Wike	Tacoma Public Utilities	1,3,4,5,6	WECC

					John Merrell	Tacoma Public Utilities (Tacoma, WA)	1	WECC
					John Nierenberg	Tacoma Public Utilities (Tacoma, WA)	3	WECC
					Hien Ho	Tacoma Public Utilities (Tacoma, WA)	4	WECC
					Terry Gifford	Tacoma Public Utilities (Tacoma, WA)	6	WECC
					Ozan Ferrin	Tacoma Public Utilities (Tacoma, WA)	5	WECC
ACES Power Marketing	Jodirah Green	1,3,4,5,6	MRO,RF,SERC,Texas RE,WECC	ACES Collaborators	Bob Soloman	Hoosier Energy Electric Cooperative	1	RF
					Bill Pezalla	Old Dominion Electric Cooperative	3,4	RF
					Sara Orr	Golden Spread Electric Cooperative, Inc.	5	Texas RE
					Amber Skillern	East Kentucky Power Cooperative	1	SERC
					Jason Procuniar	Buckeye Power, Inc.	4	RF
					Scott Brame	North Carolina Electric Membership Corporation	3,4,5	SERC
					Andrew Anderson	Wolverine Power Supply Cooperative, Inc.	1	RF
Eversource Energy	Joshua London	1		Eversource	Joshua London	Eversource Energy	1	NPCC
					Vicki O'Leary	Eversource Energy	3	NPCC
MRO	Jou Yang	1,2,3,4,5,6	MRO	MRO NSRF	Bobbi Welch	Midcontinent ISO, Inc.	2	MRO

Chris Bills	City of Independence, Power and Light Department	5	MRO
Fred Meyer	Algonquin Power Co.	3	MRO
Christopher Bills	City of Independence Power & Light	3,5	MRO
Larry Heckert	Alliant Energy Corporation Services, Inc.	4	MRO
Marc Gomez	Southwestern Power Administration	1	MRO
Matthew Harward	Southwest Power Pool, Inc. (RTO)	2	MRO
Bryan Sherrow	Board of Public Utilities	1	MRO
Terry Harbour	Berkshire Hathaway Energy - MidAmerican Energy Co.	1	MRO
Terry Harbour	MidAmerican Energy Company	1,3	MRO
Jamison Cawley	Nebraska Public Power District	1,3,5	MRO
Seth Shoemaker	Muscatine Power & Water	1,3,5,6	MRO
Michael Brytowski	Great River Energy	1,3,5,6	MRO
Shonda McCain	Omaha Public Power District	6	MRO
George E Brown	Pattern Operators LP	5	MRO
George Brown	Acciona Energy USA	5	MRO
Jaimin Patel	Saskatchewan Power Cooperation	1	MRO

					Kimberly Bentley	Western Area Power Administration	1,6	MRO
					Jay Sethi	Manitoba Hydro	1,3,5,6	MRO
					Michael Ayotte	ITC Holdings	1	MRO
FirstEnergy - FirstEnergy Corporation	Mark Garza	4		FE Voter	Julie Severino	FirstEnergy - FirstEnergy Corporation	1	RF
					Aaron Ghodooshim	FirstEnergy - FirstEnergy Corporation	3	RF
					Robert Loy	FirstEnergy - FirstEnergy Solutions	5	RF
					Mark Garza	FirstEnergy-FirstEnergy	1,3,4,5,6	RF
					Stacey Sheehan	FirstEnergy - FirstEnergy Corporation	6	RF
Southern Company - Southern Company Services, Inc.	Pamela Hunter	1,3,5,6	SERC	Southern Company	Matt Carden	Southern Company - Southern Company Services, Inc.	1	SERC
					Joel Dembowski	Southern Company - Alabama Power Company	3	SERC
					Jim Howell, Jr.	Southern Company - Southern Company Generation	5	SERC
					Ron Carlsen	Southern Company - Southern Company Generation	6	SERC
Patricia Robertson	Patricia Robertson		WECC	BC Hydro Balloters	Adrian Andreoiu	BC Hydro and Power Authority	1	WECC
					Helen Hamilton Harding	BC Hydro and Power Authority	5	WECC

					Hootan Jarollahi	BC Hydro and Power Authority	3	WECC
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	NPCC RSC	Gerry Dunbar	Northeast Power Coordinating Council	10	NPCC
					Alain Mukama	Hydro One Networks, Inc.	1	NPCC
					Deidre Altobell	Con Edison	1	NPCC
					Jeffrey Streifling	NB Power Corporation	1	NPCC
					Michele Tondalo	United Illuminating Co.	1	NPCC
					Stephanie Ullah-Mazzuca	Orange and Rockland	1	NPCC
					Michael Ridolfino	Central Hudson Gas & Electric Corp.	1	NPCC
					Randy Buswell	Vermont Electric Power Company	1	NPCC
					James Grant	NYISO	2	NPCC
					John Pearson	ISO New England, Inc.	2	NPCC
					Harishkumar Subramani Vijay Kumar	Independent Electricity System Operator	2	NPCC
					Randy MacDonald	New Brunswick Power Corporation	2	NPCC
					Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1	NPCC
					David Burke	Orange and Rockland	3	NPCC
					Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC

					Salvatore Spagnolo	New York Power Authority	1	NPCC
					Sean Bodkin	Dominion - Dominion Resources, Inc.	6	NPCC
					David Kwan	Ontario Power Generation	4	NPCC
					Silvia Mitchell	NextEra Energy - Florida Power and Light Co.	1	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Sean Cavote	PSEG	4	NPCC
					Jason Chandler	Con Edison	5	NPCC
					Tracy MacNicoll	Utility Services	5	NPCC
					Shivaz Chopra	New York Power Authority	6	NPCC
					Vijay Puran	New York State Department of Public Service	6	NPCC
					ALAN ADAMSON	New York State Reliability Council	10	NPCC
					David Kiguel	Independent	7	NPCC
					Joel Charlebois	AESI	7	NPCC
					John Hastings	National Grid	1	NPCC
					Michael Jones	National Grid USA	1	NPCC
					Joshua London	Eversource Energy	1	NPCC
Ryan Strom	Ryan Strom		RF	Buckeye Power Group	Carl Spaetzel	Buckeye Power, Inc.	3	RF
					Jason Procuniar	Buckeye Power, Inc.	4	RF
					Kevin Zemanek	Buckeye Power, Inc.	5	RF

Stephen Whaite	Stephen Whaite			ReliabilityFirst Ballot Body Member and Proxies	Lindsey Mannion	ReliabilityFirst	10	RF
					Stephen Whaite	ReliabilityFirst	10	RF
Western Electricity Coordinating Council	Steven Rueckert	10		WECC Entity Monitoring	Steve Rueckert	WECC	10	WECC
					Phil O'Donnell	WECC	10	WECC
Tim Kelley	Tim Kelley		WECC	SMUD and BANC	Nicole Looney	Sacramento Municipal Utility District	3	WECC
					Charles Norton	Sacramento Municipal Utility District	6	WECC
					Wei Shao	Sacramento Municipal Utility District	1	WECC
					Foung Mua	Sacramento Municipal Utility District	4	WECC
					Nicole Goi	Sacramento Municipal Utility District	5	WECC
					Kevin Smith	Balancing Authority of Northern California	1	WECC
Associated Electric Cooperative, Inc.	Todd Bennett	3		AECI	Michael Bax	Central Electric Power Cooperative (Missouri)	1	SERC
					Adam Weber	Central Electric Power Cooperative (Missouri)	3	SERC
					Stephen Pogue	M and A Electric Power Cooperative	3	SERC
					William Price	M and A Electric Power Cooperative	1	SERC
					Peter Dawson	Sho-Me Power Electric Cooperative	1	SERC
					Mark Ramsey	N.W. Electric Power	1	NPCC

						Cooperative, Inc.		
					John Stickley	NW Electric Power Cooperative, Inc.	3	SERC
					Tony Gott	KAMO Electric Cooperative	3	SERC
					Micah Breedlove	KAMO Electric Cooperative	1	SERC
					Kevin White	Northeast Missouri Electric Power Cooperative	1	SERC
					Skyler Wiegmann	Northeast Missouri Electric Power Cooperative	3	SERC
					Ryan Ziegler	Associated Electric Cooperative, Inc.	1	SERC
					Brian Ackermann	Associated Electric Cooperative, Inc.	6	SERC
					Brad Haralson	Associated Electric Cooperative, Inc.	5	SERC
Santee Cooper	Vicky Budreau	3		Santee Cooper	Paul Camilletti	Santee Cooper	1,3,5,6	SERC
					Mark Taylor	Santee Cooper	1,3,5,6	SERC
					Wesley Brickle	Santee Cooper	1,3,5,6	SERC
					Will Beasley	Santee Cooper	1,3,5,6	SERC
					Russ Bramlett	Santee Cooper	1,3,5,6	SERC
					Bridget Coffman	Santee Cooper	1,3,5,6	SERC

1. The Standard Drafting Team (SDT) modified the definition of Protection System. The SDT determined that these modifications were necessary to provide clarity on the inclusion of components of control systems which measure and utilize similar quantities as protective relays and perform similar functions as protective relays. Do the revisions to the Protection System definition and proposed PRC-005-7 (along with the Technical Rationale document) provide clarity to which, if any, components of excitation systems and other control systems are applicable to PRC-005? If you do not agree, please provide your recommendation for clarifications, examples and, if appropriate, technical or procedural justification.

Thomas Foltz - AEP - 5	
Answer	No
Document Name	
Comment	
AEP does not agree that the definition of Protection System is clear for a number of reasons. First, the phrase “protective function” within the definition is not clear as the phrase itself is naturally unbounded. Limitations should be added to it to provide clarity that the phrase is limited only to embedded protection designs that are intended to detect faults on BES components. Similarly, clarity needs to be provided which specifically states that the entirety of the definition is only within the scope of the BES. This will prevent entities from inconsistently applying the term and the devices which would be brought into scope.	
Likes 0	
Dislikes 0	
Response	

Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
The goal of the revision was to incorporate excitation system components as per industry request and to clarify what specific devices should be maintained under PRC-005. Reclamation does not agree with the updated definition for Protection Systems. The definitions of the components in the Protection Systems are vague and do not provide specific guidance for what elements, devices, or systems require testing. “Protection function” and “Components of control systems” does not define what equipment or systems are included and is open to broad interpretation.	
Likes 0	
Dislikes 0	
Response	

David Vickers - David Vickers On Behalf of: Daniel Roethemeyer, Vistra Energy, 5; - David Vickers	
Answer	No

Document Name	

Comment

The standard needs to provide clear guidance for what automatic voltage regulators or control protective functions are in-scope.

The language in the technical reference is vague and at times contradictory. For example, the document states functions that are used for detecting malfunctions of an excitation system are not in scope but item 5 in the FAQ specifically lists a bridge failure. There are multiple protection schemes in a typical excitation system that are designed to protect the excitation equipment but not the generator which is a BES element. An excitation failure may result in a generator trip but there are numerous other protection schemes in a plant that can have the same result. Excitation equipment protection functions should be excluded from the standard

The standard should focus on elements that protect BES elements, i.e. generator stator protection such as loss of field, over voltage, etc.

Should DC electrical quantities be included in PRC-005? In most if not all circumstances the DC electrical quantities that could be applicable are generator field voltage and field current. Field voltage or current is typically used for rotor thermal protection and will trip the unit if the field current exceeds IEEE C50.13 limits.

Field ground protection is listed in the FAQ section; however, active field ground protection typically consistent of an AC injection source and not BES primary electric quantities. Passive ground detection schemes do calculate resistance based on field voltage and leakage current but the purpose of the scheme is to protect the generator rotor and not the BES. Depending on company philosophies and risk tolerance field ground protection can be used for alarm only and not trip. If field ground protection was included in PRC-005-6 some generator owners could elect to remove the trip to avoid testing requirements.

Likes 0	
Dislikes 0	

Response

Robert Follini - Avista - Avista Corporation - 3

Answer	No
Document Name	

Comment

Avista supports EEI's recommendation of revising the current definition to clarify that protection functions supporting BES Reliability that are contained within excitation systems and certain control systems, as necessary. We recommend the following modification to the currently approved definition for Protection System (changes shown in bold face) to provide greater clarity to the industry.

Likes 0	
Dislikes 0	

Response

Donald Lock - Talen Generation, LLC - 5

Answer	No

Document Name	

Comment

The vagueness of the expression, “components of control systems,” invites widely varying interpretations, reducing rather than enhancing the clarity of PRC-005-6. The Project 2019-04 Technical Rationale notes that NERC intends to cover elements that “perform similar functions as protective relays,” which could further degrade the situation if “similar” is taken to mean any form of protection. Numerous components that PRC-005 is not meant to govern might thereby be brought in-scope, and GO/GOPs could be made responsible for CTG control panel proprietary programming that they aren’t even able to see.

The impetus for PRC-005-7 began with recognition of the need to explicitly cover protective functions in AVRs that open the generator breaker, e.g. V/Hz. These functions are not *similar* to relays, they *are* relays, since this word simply means a switch, which can be a physical device labeled “Relay” or a line of code in AVR programming.

Changing, “electrical quantities,” to cover DC systems is another inappropriate alteration to PRC-005-6. This standard has always addressed only AC power system protectives that open the generator breaker directly or via a lockout, and should remain so. NERC says that the proposed expanded definition covers generator excitation, but only as an example, and could pull in-scope numerous ancillary elements that can take a unit offline due to a DC measurement going out-of-bounds.

A better approach would be to define “relay” as stated above, note that AVRs in particular bear scrutiny, and leave everything else in PRC-005-6 as it is. The in-scope versus out-of-scope examples in the Frequently Asked Questions and Analysis of IEEE Device Numbers portions of the Technical Rationale (which should be added to the Supplementary Reference and FAQ document) could then flesh-out this highly specific core, rather than attempting (unsuccessfully) to give form to a highly nebulous starting point.

Likes 0	
Dislikes 0	

Response

Glen Farmer - Avista - Avista Corporation - 5

Answer	No
Document Name	

Comment

Avista supports EEI’s recommendation of revising the current definition to clarify that protection functions supporting BES Reliability that are contained within excitation systems and certain control systems, as necessary. We recommend the following modification to the currently approved definition for Protection System (changes shown in bold face) to provide greater clarity to the industry.

Protection System –

{C}· Protective relays, **or functionally equivalent devices or systems,** which respond to electrical quantities,

{C}· Communications systems necessary for correct operation of protective functions,

{C}· Voltage and current sensing devices providing inputs to protective relays **or functionally equivalent devices or systems**,

{C}· Station dc supply associated with protective functions (including station batteries, battery chargers, and non-battery-based dc supply) **or functionally equivalent systems**, and

{C}· Control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.

Likes 0	
Dislikes 0	

Response

Donna Wood - Tri-State G and T Association, Inc. - 1

Answer	No
Document Name	

Comment

When applying the modified definition of Protection System - to the Table 1-1 Maintenance Activities for Unmonitored Microprocessor Relays/Components, verification of the operation of the inputs and outputs (I/O) for excitation systems and control systems can have hundreds of I/O, thus requiring a significant increase in time and cost for testing all of these devices. Given the quantity of inputs and outputs associated with the newly impacted systems, we would like clarification as to which inputs and outputs must be tested, all of which are arguably essential.

Examples are:

1. Lube oil pump status which, when “stopped”, directly trips the unit offline. This particular example applies to any status from the field that would result in a generator trip.

2. A signal fails from a Watt transducer that is used for a load setpoint, resulting in a generator trip.

3. Field overcurrent detection in the AVR that trips the generator.

4. Loss of Field detection in the AVR that trips the generator.

5. Watchdog (system failure) status from the AVR or turbine control that trips the generator.

Likes 0	
Dislikes 0	

Response

Isidoro Behar - Long Island Power Authority - 1

Answer	No
Document Name	

Comment

1. For the proposed Protection System definition, revise the five bullet items to include the word “tripping”. This is needed since some protective functions and control system functions which respond to measured electrical quantities are “alarm only” and “control only”.

2. For the proposed Protection System definition, revise the five bullet items to reference tripping functions of the BES element. This is needed since certain protective relays and control systems that respond to measured quantities may perform protective tripping that might not remove the associated BES element from service and perhaps control output (ex. absorbing/injecting vars).
    - "Protective relays and components of control systems which respond to measured electrical quantities and provide protective **tripping** functions **of the associated BES element.**
-
    -
        - "Communication systems necessary for correct operation of protective **tripping** functions **of the associated BES element**"
        - "Voltage and current sensing devices providing inputs necessary for the correct operation of protective **tripping** functions **of the associated BES element**"
        - "Station dc supply associated with protective **tripping** functions **of the associated BES element** …"
        - "Control circuitry associated with protective **tripping** functions **of the associated BES element** …"

3. The definition should not have "One or more of the following" in the beginning of the definition and also have "and/or" in the fourth bullet item. Logically this does not make sense to have "One or more of the following" and also have "and/or" in the fourth bullet item. This definition should be rewritten to clarify the intention.

4. The term "protective functions" should be defined in the NERC Glossary of Terms (not just in the Technical Rationale) since one could interpret it to include control functions (ex. injecting/absorbing VARS for Statcom/SVC) since some of these control systems impact the stability of the BES and perhaps limit "protective functions" to tripping actions only of the associated BES element. The term "protective functions" is too critical of a term to not have an agreed upon definition in the NERC Glossary of Terms.

5. NERC should consider keeping the definition of the "Protection System" the same or very similar and make a separate definition of "Control System" and keep "Control System" a separate category like it is for example for "Sudden Pressure Relay". This likely would help clarify the intent and scope of the changes.

6. In the proposed definition of "Protection System", the term "protective function" is used to help define "Protection System". It is not good practice to use same/similar terms when defining a word or term since the true intended definition is not clear. This gives further justification why the term "protective function" should be an agreed upon definition and this term be part of the "Continent-wide Terms" in the NERC Glossary of Terms in the NERC Reliability Standards. If "protective function" was defined as a term in the NERC Glossary of Terms then it would help allow it to be used when defining "Protection System".

Likes 0	
Dislikes 0	

Response

Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 1, 3; Raj Hundal, Powerex Corporation, 6; - Patricia Robertson, Group Name BC Hydro Balloters

Answer	No
Document Name	

Comment

There is ambiguity regarding some protective functions and control device components and whether they would be included or not in the definition of Protection System. Additional details are required on clarification of protective functions and control components related to "measuring electrical quantities" as the technical justification document doesn't provide sufficient clarity. It would be useful to understand the intent of the change with examples of the protective relays and components of control systems which respond to secondary electrical quantities and provide protective functions. It is suggested to exclude the excitation system protective functions such as bridge overcurrent, over temperature etc. that are designed to protect the

individual excitation system components, and do not necessarily disconnect the generating unit in response to the BES operating abnormalities or faults.	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
AES Clean Energy believes that the new definition of Protection System is too broad in scope and can include multiple elements/components? Are the components that are at inverter level also included? Can NERC provide a precise list of components that they are planning to include with the addition of the new language in the definition of Protection Systems? Additionally, AESCE would like to get a better understanding of whether the current definition of Protection Systems and current scope of PRC-005-6 is not sufficient and is leading to reliability issues? AESCE does not understand the reliability benefit of adding these other components. AESCE urges NERC to provide some examples of new elements being considered under PRC-005-7 and provide more clarity on the thought process.	
Likes 0	
Dislikes 0	
Response	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	No
Document Name	
Comment	
MRO NSRF does not agree with the proposed changes to the definition of Protection System. The broadening of the definition of Protection System, as proposed, creates even more confusion than previously existed surrounding the original issue, which was to address whether the protective functions activated within the automatic voltage regulators are in the scope of PRC-005 components requiring periodic maintenance and testing. Stating specifically that any protective function activated within the generator automatic voltage regulating equipment is in the scope of PRC-005 would have been all that was needed to address the initial concerns as expressed in the SAR.	

By broadening the definition, as proposed, many of the various control systems used at generating facilities are exposed to the possibility and uncertainty of their inclusion in the scope of this standard, and potentially others. This is an unwarranted change.

Provided is a list of some of the additional control systems present at many facilities that could potentially be included in the new definition of Protection System:

- Coal Handling Controls
- Distributed Control Systems
- Renewable Facility Power Plant Controllers
- Turbine Control Systems
- Water Wash controllers
- Vibration Monitors
- Transformer Cooling controls
- Transformer tap changers controls
- LCI controls – Combustion Turbine Start Up Variable Speed Drives
- Large medium voltage motor Variable Speed Drive controls
- Various PLC based controllers
- Inverter controllers (IBR power conversion, UPS systems) - [it is noted that the individual generators identified by Inclusion I4 of the BES definition (the inverters) are exempted by proposed applicability section 4.2.5]
- Battery charger controllers, to name a few.

These control systems do not have protective relaying types of protective elements and should not be drawn into the scope of evaluation for applicability to PRC-005, or potentially other standards. If there are control systems which measure and utilize similar quantities as protective relays and perform similar functions as protective relays for detecting faults on BES Elements that are believed to be needed in the inclusion of PRC-005, those control system should be specifically and clearly identified in the applicability. The MRO NSRF recommends bringing in the specific control systems providing protective functions in which the SDT feels PRC-005 should be applicable to, into the standard.

Additionally, in the proposed PRC-005-7 under New or Modified Term(s) Used in NERC Reliability Standards, it states that “The Protection System definition was changed to ensure uniformity among all reliability standards. Components of control systems which respond to *measured electrical quantities* and provide *protective functions* [emphasis added] provide the same functionality, and thereby present the same risk, to the Bulk Electric System as protective relays.”

These two terms, *measured electrical quantities* and *protective functions* are key to the revised Protection System definition and have been defined by the Standards Drafting Team within the Technical Rationale document. If these terms, as defined in the Technical Rationale document, are necessary, they need to be included in the NERC Glossary of Terms as separate definitions, or included in the new definition of Protection System.

Also, the definition of protective functions in the Technical Rationale document includes the following in the first bullet, "…To protect power system Elements; …". We suggest changing this to "…To prevent damage to power system Elements; …" in order to avoid defining a word [protective] with itself [protect].

Likes 0	
Dislikes 0	

Response

Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power

Answer	No
Document Name	

Comment

Tacoma Power is concerned that the proposed addition of "Protective relays and components of control systems which respond to measured electrical quantities and provide protective functions" to the Protection System definition may cause confusion and unintended expansion of scope. The new definition of Protection System could potentially include these additional control systems present at many facilities:

- Various PLC based controllers
- Vibration monitors
- Turbine control systems
- RTUs
- EMS
- ADMS

In order to address this concern, Tacoma Power recommends moving the protective function clarification (below) from the Technical Rationale to an Attachment to the PRC-005 Standard or making it a defined NERC Glossary Term. The Technical Rationale is not enforceable. The clarification of what is and is not considered a protective function is important to implementing the definition of Protection System, and therefore, this term needs to be clearly defined within the Standard or Glossary of Terms. For example, without a formal definition of protective function, an EMS could be considered a Protection System, because the EMS is a control system that responds to electrical quantities and arguably provides a protective function for the BES.

Proposed NERC Glossary of Term definition for Protective Function:

"Functions that are implemented to initiate or prevent the automatic isolation of Facilities:

- *To protect power system Elements;*
- *To maintain Stability; or*
- *In response to detected faults.*

Functions not applicable to the definition include those which do not initiate or prevent automatic isolation (such as limiters or functions which only provide indication) or devices which do not respond to the aforementioned scenarios; such as those detecting malfunctions of an excitation system, or automatic switching of capacitor banks for the purpose of voltage-control).

Protective functions focus on the action being performed and not the equipment itself, which allows for exclusion of components or functionality within the relay or control system that are not performing a protective function."

Alternatively, this concern could be addressed by specifying in the Protection System definition that only control systems that initiate or prevent automatic isolation of Facilities should be included, as shown below. This change to the definition would ensure that control systems with no automatic isolation functions, such as the EMS, are not included in the definition.

Proposed Definition (changes in bold)

Protection System – One or more of the following components **that are implemented to initiate or prevent automatic isolation of Facilities:**

- Protective relays and components of control systems which respond to measured electrical quantities and provide protective functions;
- Communications systems necessary for correct operation of protective functions;
- Voltage and current sensing devices providing inputs necessary for the correct operation of protective functions;
- Station dc supply associated with protective functions (including station batteries, battery chargers, and non-battery-based dc supply); and/or
- Control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.

Likes 0	
Dislikes 0	

Response

Andrea Jessup - Bonneville Power Administration - 1,3,5,6 - WECC

Answer	No
Document Name	

Comment

The phrase “components of control systems” is misleading. “Control” can take on a different meaning, depending on your role in the BES. For example, BPA, as a Tranmission Owner, distinguishes between relays that protect the BES and those that perform control functions, so this suggested change would add confusion. If the intent of this definition change is to add devices that perform protective functions but are not technically protective relays, then it is much cleaner to say “Protective relays, **or any device** which responds to measured electrical quantities and provides protective functions”.

Alternatively, BPA suggests that a cleaner approach to adding generator VAR protection might be to treat it similarly to automatic reclosing, Sudden Pressure, and UF/UVLS in past versions of PRC-005:
In PRC-005-3 a section was added to include Automatic Reclosing.
In PRC-005-5 an addition was added to include UF/UVLS; and Sudden Pressure.
PRC-005-7 would add generator VAR protection in a new table.

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	No
Document Name	

Comment

The project appears to be driven more toward changing the definition of Protection System than toward addressing the PRC-005 standard clarification. The two topics should be separate projects. The change in the Protection System definition through this project limits industry involvement and input as only those following the PRC-005 project may currently be tuned in.

Newly proposed definition of protection system still leaves room for different interpretations and creates more confusion than current definition.

Likes 0	
Dislikes 0	

Response

George E Brown - Pattern Operators LP - 5

Answer	No
Document Name	

Comment

Pattern Energy supports Midwest Reliability Organization's NERC Standards Review Forum's (MRO NSRF) comments on this question.

Likes 0	
Dislikes 0	

Response

Terry Volkmann - Glencoe Light and Power Commission - 1

Answer	No
Document Name	

Comment

Glencoe Light and Power (GLP) appreciates the SDT's attempt to clarify the Protection System (Protection System) Definition. Many of the NERC Standards predicate their applicability on Protection System Ownership. Modifying the Protection System definition to minimally apply to only one of the Protection System elements brings in certain standards (PRC-004, PRC-005, CIP-002, CIP-003, etc.) to be applicable to small Distribution Providers. These small Distribution Provider's may only own a current transformer, tripping path, or station battery.

The present Protection System definition by English language and Standard development principles require all 5 elements to be present to meet the definition. GLP agrees that the SDT's determination that the proposed modified definition does not change the reliability intent of other requirements or definitions. However, SDT has not considered the undue burden to the small Distribution Provider that only owns one of the Protection System Elements with the non-PRC-005 Standards. The burden is the establishment of compliance programs and evidence when the ownership of a single Protection System element has no reliability impact under that Standard.

GLP agrees that there is a PRC-005 applicability gap using the present definition when an entity only owns one Protection System element. That can be fixed by PRC-005 being applicable Protection System elements versus Protection Systems.

The SDT is requested to consider the following:

{C}1. Leave Protection System definition alone, but only change the bulleted items to meet the objective of including voltage control items into the Protection System definition.

{C}2. Modify PRC-005 language where Protection System is used to be replaced with Protection System elements. That way if you own a battery or current transformer used in a Protection System to detect BES faults, then there should be no doubt that PRC-005 applies.

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	No
Document Name	

Comment

First, we recommend changing the statement “to maintain stability” to, “to maintain stability of the BES.” Given the broader impact that changing the definition of Protection System could have on a company and industry at large, the modified definition should be accompanied with more guidance to help with accurately incorporating the change into existing protection system maintenance programs and to avoid the risk of misinterpreting the intent. It would be helpful if the changes are reflected in the tables and direction to which of the tables and which item this will be a part. To elaborate, please see our responses to question 2 and 3. We also that the SDT add words in the standard to differentiate further between NERC-related tripping functions of the excitation system, such as field overcurrent, V/Hz and other such ANSI functions, and trips due to thyristor failure, loss of cooling, stall monitoring, etc. The latter category should not be included in scope of the standard. Additionally, does the standard allow functional checks of the excitation system to lockouts as sufficient? Or does every ANSI function that is enabled need to be tested.

Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Marcus Freeman - Electricities of North Carolina - 4

Answer	No
Document Name	

Comment

I do not agree and have signed on to Glencoe Light and Power's comments.

Likes 0	
Dislikes 0	

Response	
Joseph Gatten - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC	
Answer	No
Document Name	
Comment	
Xcel Energy supports the comments of EEI and the MRO NSRF	
Likes 0	
Dislikes 0	

Response	
Brittany Millard - Lincoln Electric System - 5	
Answer	No
Document Name	
Comment	

The definition of Protection System is not clear for several reasons. Part of the definition states, "…which respond to measured electrical quantities and provide protective functions…". It isn't obvious if this phrase applies to both protective relays and components of a control system or possibly just components of a control system. Additionally, the use of "electrical quantities" isn't clear and could be interpreted to include a number of different things. The SDT could consider clarifying it by instead using "system measured AC or DC electrical quantities".

The SDT used the Technical Rationale to clarify which components should be included under the updated version of a Protection System. The additional clarity is appreciated, but the use of the Technical Rationale for this purpose causes several concerns. The first is that auditors are not required to use the Technical Rationale when auditing utilities. This could cause different interpretations both between and within a Regional Entity. The second issue this causes is that the Technical Rationale is closely tied to the PRC-005 project, but it greatly impacts the Glossary of Terms definition. It appears likely that SMEs not involved with PRC-005 may not be aware of the proposed definition change, and therefore, may not be properly evaluating all 30 impacted standards. The last concern with using the Technical Rationale is that any future auditor or SME will likely not know to look for, or use, it when determining which components should be included. The updated definition should either thoroughly define which functions would be considered protective and, therefore, part of a Protection System, or the definition should reference the documentation (Technical Rationale) that specifies which functions are considered protective.

The addition of the word "component" throughout the standard also creates several problems. Lower case c 'components' is used in the updated definition of a Protection System, but there are several references within the tables of the standard that use upper case C 'Components', which is defined within the standard. This is made more confusing by the fact that some table's Component Type was updated to include components of a control system (see Table 1-1), but other tables weren't (see Table 3). In Table 3, the Component Type has no mention of control systems or components of control systems, but by saying relay/Components in the Component Attributes, it could referring to any part of a protection system, automatic reclosing, or sudden pressure relaying. The SDT should inspect each use of component to ensure it has the proper capitalization, and due to the complexity and ease of misinterpretation, consider using a term other than component within the definition.

Likes 0	

Dislikes 0	

Response

Kenisha Webber - Entergy - NA - Not Applicable - SERC

Answer	No
Document Name	

Comment

There is no clear definition of "Stabilility" as described in the Technical Rationale document. "Stability" will need to be a defined term in PRC-005-7.

Likes 0	
Dislikes 0	

Response

Joseph McClung - JEA - 1

Answer	No
Document Name	

Comment

The definition of Protection System is being modified to add components of control systems that respond to measured electrical quantities and provide protective functions. The term “protective function” is vague because it is nowhere defined in the Glossary of Terms used in NERC reliability standards. The Technical Rationale document that I have included as an attachment with this email tries to clarify which functions within protective relays and control systems meet the criteria of a protective function for inclusion in the Protection System definition. These criteria are not included in the proposed body of the PRC-005-7 standard. Since the criteria to establish which functions meet the criteria of protective functions is not included in the main body of the standard, this can lead to potential confusion/overreach by the auditors in the future as the Technical Rationale document is not enforceable. JEA should suggest the following: Add the definition of Protective Function in the Glossary of Terms used in NERC reliability standard, or add language from Protective Functions and Evaluation of Functions from the technical rationale as an attachment to PRC-005-7.

Suppose Protective Function is added as a separate definition that will help the industry and certainly JEA assess which AVRs or control systems would be brought into the scope of Protection System.

JEA also echoes AEP’s comment, “AVR excitation systems were not necessarily designed to be tested like protective relays. The amount of effort required to develop these test plans and procedures will be significant, if it can be done at all.

Likes 1	Orlando Utilities Commission, 5, Colon Dania
Dislikes 0	

Response

Sheila Suurmeier - Black Hills Corporation - 5

Answer	No
Document Name	
Comment	
Black Hills Corporation agrees with fellow peers and NAGF comments. Consider bringing technical rationale language into the standard.	
Likes 0	
Dislikes 0	
Response	
Claudine Bates - Black Hills Corporation - 6	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees with fellow peers and NAGF comments. Consider bringing technical rationale language into the standard.	
Likes 0	
Dislikes 0	
Response	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation agrees with fellow peers and NAGF comments. Consider bringing technical rationale language into the standard.	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	

Comment	
Black Hills Corporation agrees with fellow peers and NAGF comments. Consider bringing technical rationale language into the standard.	
Likes 0	
Dislikes 0	
Response	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	No
Document Name	
Comment	
Avista supports EEI's recommendation of revising the current definition to clarify that protection functions supporting BES Reliability that are contained within excitation systems and certain control systems, as necessary. We recommend the following modification to the currently approved definition for Protection System (changes shown in bold face) to provide greater clarity to the industry. Protection System – - Protective relays, **or functionally equivalent devices or systems,** which respond to electrical quantities, - Communications systems necessary for correct operation of protective functions, - Voltage and current sensing devices providing inputs to protective relays **or functionally equivalent devices or systems**, - Station dc supply associated with protective functions (including station batteries, battery chargers, and non-battery-based dc supply) **or functionally equivalent systems**, and - Control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.	
Likes 0	
Dislikes 0	
Response	
Andy Fuhrman - Andy Fuhrman On Behalf of: Theresa Allard, Minnkota Power Cooperative Inc., 1; - Andy Fuhrman	
Answer	No
Document Name	
Comment	

MPC supports comments submitted by the MRO NERC Standards Review Forum.

Additionally, MPC suggests establishing a list of "protective functions" within an excitation system that are intended to be in scope for PRC-005.

Likes 0	
Dislikes 0	

Response

Patricia Ireland - DTE Energy - 4

Answer	No
Document Name	

Comment

DTE agrees with the proposal to move the protective function clarification from the technical rationale to the standard Or preferably, add it to the NERC defined terms in the glossary

Likes 0	
Dislikes 0	

Response

Joshua London - Eversource Energy - 1, Group Name Eversource

Answer	No
Document Name	

Comment

While Eversource is okay with the revisions to the Protection System Definition, we do see issues with the Technical Rationale.

The Technical Rationale defines functions that are implemented to initiate or prevent the automatic isolation of Facilities as:

{C}· To protect power system Elements

{C}· To maintain Stability; or

{C}· In response to detected faults (NOTE: faults should be capitalized as it is a NERC defined term)

The first bullet (protect power system Elements) does not follow the logic of the standard.

It makes sense from a generator prospective because the 4.2.5 Facilities include Protection Systems that trip generator elements.

It does not make sense from Transmission BES Elements because the 4.2.1 Facilities include Protections Systems installed for the purpose of detecting Faults. Automatic isolation of Facilities is not necessarily a Fault. An individual capacitor can failing on a BES capacitor bank is not a Fault. It is an equipment malfunction. A reverse power relay tripping a BES element is not a Fault. (NOTE: During a webinar, the Drafting Team stated Reverse

Power Relays would now be included. This statement is contradicted by the draft *Supplemental Reference / FAQ* bottom of page 8 “Reverse power relays are not “installed for the purpose of detecting” these Faults”.

In addition, the Drafting Team followed the logic of the SPCS in the *SPCS Order 758 Sudden Pressure Relay Report* listing IEEE device numbers which functions should be considered for inclusion in Protection Systems. Unfortunately, the Drafting Team did not follow the logic stated in the SPCS report carving out IEEE device numbers which “*The impact of removing BES equipment from service would be the sames as for a TPL-002-0b (now TPL-004-1) Category B contingency, “Loss of an Element without a Fault,” for which the system is designed and operated to withstand.”*

FAQ #5 does not follow the logic of the PRC-005 Standard.

Facilities that are applicable are

4.2.1 – Protection Systems installed for the purpose of detecting Faults on BES Elements

4.2.5 – Protection Systems for generator Facilities that are part of the BES etc.

4.2.5.1 – Protection Systems that act to trip the generator either directly or via lockout or aux relays

4.2.5.2 – Protection Systems for step-up transformers for generators part of BES

4.2.5.3 – Protection Systems for station service or excitation transformers connected to the bus of generators which are part fo the BES etc.

The new definition of Protection Systems adds clarity that generator excitation systems which “provide protective functions” are included.

Eversource disagrees with the inference in FAQ #5 that “protective functions” which protect individual equipment malfunctions would be included. 4.2.1 Facilities specifically states Protection Systems installed for the purpose of detecting Faults. “Individual equipment malfunctions” is not applicable (not a Fault – NERC defined term). In addition, *SPCS Order 758 Sudden Pressure Relay Report* specifically references IEEE elements in which “*The impact of removing BES equipment from service would be the sames as for a TPL-002-0b (now TPL-004-1) Category B contingency, “Loss of an Element without a Fault,” for which the system is designed and operated to withstand.”*

Likes 0	
Dislikes 0	

Response

Casey Perry - PNM Resources - 1,3 - WECC,Texas RE

Answer	No
Document Name	

Comment

PNM Resources (PNM & TNMP) supports EEI comments for Protection System definition changes.

Likes 0	
Dislikes 0	

Response	
Daniela Atanasovski - APS - Arizona Public Service Co. - 1	
Answer	No
Document Name	
Comment	

AZPS supports the following comments submitted by EEI on behalf of its members:

EEI is concerned that the current definition as proposed may be flawed for a number of reasons. First it is dependent on the definition of Component which is only defined in the PRC-005 and is uncapitalized in the Protection System definition. Consequently, its meaning must be understood through a standard collegiate dictionary. This could potentially expand the scope of this definition beyond what was intended. Additionally, while the definition of Component could be moved to the NERC Glossary, such a move would likely create additional unintended problems within other NERC Reliability Standards. Also, the assessment of the impacts on other Reliability Standards due to the proposed changes may not have been sufficient, noting a technical document that described the review was not provided for industry review. Further this drafting team may not have the necessary skills to fully assess the broader impacts given the number of NERC Reliability Standards that are impacted beyond the PRC Standards (i.e., CIP, EOP, IRO, PER, TOP & TPL Standards). While we appreciate the efforts made in this first draft, the above mentioned issues need to be resolved before approving any changes to this definition.

For these reasons, AZPS offers the following edits to the proposed definition which differs from the definition proposed by EEI. (See edits in boldface.)

Protection System – (Delete-One or more of the following components:)

- Protective relays **and/or an excitation system (including analog/digital Automatic voltage Regulators protective functions) and/or components of** control system**s that provide equivalent which respond to measured electrical quantities and provide** protective functions **for BES Elements**;
- Communications systems necessary for correct operation of protective functions;
- Voltage and current sensing devices providing inputs necessary for the correct operation of protective functions;
- Station dc supply associated with protective functions (including station batteries, battery chargers, and non-battery-based dc supply); and/or
- Control circuitry associated with protective functions **which directly trip the generator** through the trip coil(s) of the circuit breakers or other interrupting devices.

Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1	
Answer	No
Document Name	
Comment	

Exelon appreciates the work of the drafting team to bring clarity to the PRC-005 standard. While we support the limited edits to the standard to add control systems, the use of the term “component” when the term is already in use within the standard, creates confusion. We support the EEI comments as an approach to address the conflicting use of the term “component”.

Likes 0	
Dislikes 0	
Response	
Kinte Whitehead - Exelon - 3	
Answer	No
Document Name	
Comment	

Exelon appreciates the work of the drafting team to bring clarity to the PRC-005 standard. While we support the limited edits to the standard to add control systems, the use of the term “component” when the term is already in use within the standard, creates confusion. We support the EEI comments as an approach to address the conflicting use of the term “component”.

Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	No
Document Name	
Comment	

Components of other control systems lack sufficient specificity for utilities to comprehend which control system components (e.g., transducers, transmitters, i/o modules, etc.) require testing, and does not cover the minimum maintenance activities required if they are considered within PRC-005 scope.

For example:

1-Within current Table 1-1, it would appear that sensing inputs to the first terminal board connection of the controller and the outputs from the terminal board that connects externally to trip path and field device would be the necessary components to maintain. Please clarify; also, is that the intent of the SDT – please explain?

2-If terminal blocks are fused, would they require inspection and replacement on a defined periodicity – please clarify?

3-Inputs that have shielding, would that shielding require some sort of testing (test of noise into controller, etc.) – please clarify?

4-For nuclear sites, would DCS need to be tested to The U.S. Nuclear Regulatory Commission’s Regulatory Guide (RG) 1.180 or EPRI TR-102323 requirements – please clarify?

5-Would hardware and software changes to the DCS need to be tracked and require commissioning/functional testing? Also, would the trigger be similar to PRC-012 which uses the term "functionally modified" but altered for control circuits – please clarify?

Note: Functionally modified - Any modification to a RAS consisting of any of the following:

• Changes to System conditions or contingencies monitored by the RAS,

• Changes to the actions the RAS is designed to initiate,

• Changes to RAS hardware beyond in-kind replacement (i.e., match the original functionality of existing components),

• Changes to RAS logic beyond correcting existing errors,

• Changes to redundancy levels (i.e., addition or removal).

6-Does the power supply that supplies the myriad of pieces of the DCS or other control circuit now fall into PRC-005 – please clarify? For example, if the controller uses UPS-backed AC source would that system require testing?

Likes 1	Orlando Utilities Commission, 5, Colon Dania
Dislikes 0	

Response

Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer

Answer	No
Document Name	

Comment

Minnesota Power does not support the proposed definition as currently modified because the revised definition appears to expand the meaning of the term beyond what was intended by the project SAR. While the SAR was specific in what was to be added, the revised definition does not use terms that are sufficiently narrow to limit the definition as intended. Among our concerns include the use of the term “component[s]” in conjunction with control systems. This term is too broad, and not defined in the NERC Glossary of Terms (i.e., only in PRC-005) and therefore inappropriate for use in the definition of Protection System. Moreover, component is not capitalized and therefore must be understood as defined in a standard collegiate dictionary, not as defined in PRC-005. We also do not agree with the inclusion of “measured” in conjunction with electrical quantities because this could unintentionally exclude devices such as Sudden Pressure relays, which operate on the rapid expansion of gases due to an internal fault, not a measure electrical quantity. To address our concerns, we offer the following edits to the proposed definition. (See edits in boldface.)
Protection System – One or more of the following components:
• Protective relays **and or an excitation system (including analog/digital Automatic Voltage Regulators) and/or** control system**s that provides equivalent** protective functions **for BES Elements**;
• Communications systems necessary for correct operation of protective functions;
• Voltage and current sensing devices providing inputs necessary for the correct operation of protective functions;
• Station dc supply associated with protective functions (including station batteries, battery chargers, and non-battery-based dc supply); and/or
• Control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.

Likes 0	
Dislikes 0	

Response

Steven Taddeucci - NiSource - Northern Indiana Public Service Co. - 3

Answer	No
Document Name	
Comment	
NIPSCO does not agree that the definition of Protection System is clear. Limitations should be added to it to provide clarity that the phrase is limited only to embedded protection designs that are intended to detect faults on BES components. Definition of Protective functions and measured electrical quantities should also be explained as part of the definition.	
Likes 0	
Dislikes 0	
Response	
Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster	
Answer	No
Document Name	
Comment	
Evergy supports and incorporates by reference the comments of the Edison Electric Institute (EEI) and the MRO NSRF for question #1.	
Likes 0	
Dislikes 0	
Response	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2	
Answer	No
Document Name	
Comment	
ERCOT joins the comments submitted by the ISO/RTO Council (IRC) Standards Review Committe (SRC) and adopts them as its own.	
Likes 0	
Dislikes 0	
Response	
Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI	

Answer	No
Document Name	
Comment	
AECI supports comments submitted by the NAGF.	
Likes 0	
Dislikes 0	
Response	
Jesus Sammy Alcaraz - Imperial Irrigation District - 1	
Answer	No
Document Name	
Comment	
IID recommends to move the protective function clarification from the Technical Rationale to the PRC-005 standard as an attachment or to the NERC glossary of terms.	
Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	No
Document Name	
Comment	
EEI is concerned that the current definition as proposed may be flawed for a number of reasons. First it is dependent on the definition of Component which is only defined in the PRC-005 and is uncapitalized in the Protection System definition. Consequently, its meaning must be understood through a standard collegiate dictionary. This could potentially expand the scope of this definition beyond what was intended. Additionally, while the definition of Component could be moved to the NERC Glossary, such a move would likely create additional unintended problems within other NERC Reliability Standards. Also, the assessment of the impacts on other Reliability Standards due to the proposed changes may not have been sufficient, noting a technical document that described the review was not provided for industry review. Further this drafting team may not have the necessary expertise to fully assess the broader impacts given the number of NERC Reliability Standards that are impacted beyond the PRC Standards (i.e., CIP, EOP, IRO, PER, TOP & TPL Standards). While we appreciate the efforts made in this first draft, the above mentioned issues need to be resolved before approving any changes to this definition. To address these concerns, we suggest the following (proposed changes in boldface):	

Protection System:

- Protective relays and**/or portions of** control systems **that** responds to measured electrical quantities**, providing equivalent** protective functions **for BES Element;**
- Communications systems necessary for correct operation of protective functions;
- Voltage and current sensing devices providing inputs necessary for the correct operation of protective functions;
- Station dc supply associated with protective functions (including station batteries, battery chargers, and non-battery-based dc supply); and/or
- Control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.

Likes 0	
Dislikes 0	

Response

Greg Davis - Georgia Transmission Corporation - 1

Answer	No
Document Name	

Comment

We agree that AVRs should be covered by PRC-005 and that they already are without any changes to the existing standard. We see expanding an established definition as potentially dangerous and something that could lead to unintended consequences. We also note the following issues with the draft as written:

Table 1-3 should have “or control system Components which provide protective functions” added to the title after “correct operation of Protective Relays”

In Table 3 every added instance of the word “Component(s)” should say “Component(s) performing protective functions”. Alternatively, there may be a wording that could handle it as it is in Table 1-1, where the table title adequately describes the scope of Components covered. Table 3 is also interesting because instead of using the “relays/Components” language used earlier in the table, it switches towards the end to “device”. We believe for consistency that “device” should be replaced with “protective relay or Component providing protective functions”

Likes 0	
Dislikes 0	

Response

Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group

Answer	No
Document Name	

Comment

Buckeye supports the comments of ACES:

ACES does not agree with the proposed expansion of the Protection System definition to include control systems. This expansion will force the Registered Entities to evaluate any number of control systems at their Facilities for any additional applicability of the following Reliability Standards:
• CIP-002-5.1a – BES Cyber System Categorization
• CIP-003-8 – Cyber Security – Security Management Controls
• CIP-005-6 – Cyber Security – Electronic Security Perimeter(s)
• CIP-005-7 – Cyber Security – Electronic Security Perimeter(s)
• CIP-006-6 – Cyber Security – Physical Security of BES Cyber Systems
• CIP-007-6 – Cyber Security – Systems Security Management
• CIP-008-6 – Cyber Security – Incident Reporting and Response Planning
• CIP-009-6 – Cyber Security – Recovery Plans for BES Cyber Systems
• CIP-010-3 – Cyber Security – Configuration Change Management and Vulnerability Assessments
• CIP-010-4 – Cyber Security – Configuration Change Management and Vulnerability Assessments
• CIP-011-2 – Cyber Security – Information Protection
• CIP-013-2 – Cyber Security – Supply Chain Risk Management
• EOP-010-1 – Geomagnetic Disturbance Operations (in background section)
• IRO-010-2 – Reliability Coordinator Data Specification and Collection
• IRO-010-3 – Reliability Coordinator Data Specification and Collection
• PER-005-2 – Operations Personnel Training
• PER-006-1 – Specific Training for Personnel
• PRC-004-6 – Protection System Misoperation Identification and Correction
• PRC-012-2 – Remedial Action Schemes
• PRC-017-1 – Remedial Action Scheme Maintenance and Testing
• PRC-019-2 – Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection
• PRC-023-4 – Transmission Relay Loadability
• PRC-024-3 – Frequency and Voltage Protection Settings for Generating Resources

PRC-025-2 – Generator Relay Loadability

• PRC-026-1 – Relay Performance During Stable Power Swings
• PRC-027-1 – Coordination of Protection Systems for Performance During Faults
• TOP-003-4 – Operational Reliability Data
• TPL-001-4 – Transmission System Planning Performance Requirements
• TPL-001-5.1 – Transmission System Planning Performance Requirements
• TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events
In our opinion, this is an unacceptable increase in scope and compliance risk with very little reduction in the risk to the BES. Most control systems do not have protective relay type functionality and should not be pulled into scope for evaluation of applicability of PRC-005 (of the plethora of other potential standards). If there is a specific risk to the BES that the SDT is attempting to mitigate by including specific functions or types of control systems, then the applicability section of PRC-005 should be updated to include these specific systems. An overly broad and far-reaching definition change is not the correct approach to mitigating this perceived risk.
Furthermore, given the inherent configurability of control systems, there is a very real potential that control system logic could/will get modified by Facility personnel (or a vendor) that would meet the proposed definition of Protection System. This would very likely cause the control system to be inadvertently pulled into scope for any number of Reliability Standards.

Likes 0	
Dislikes 0	

Response	
LaTroy Brumfield - American Transmission Company, LLC - 1	
Answer	No
Document Name	
Comment	
With the proposed change, the use of the word “component” is not clearly defined and is open to interpretation and should be clarified.	
Likes 0	
Dislikes 0	
Response	
Brad Harris - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE	
Answer	No
Document Name	
Comment	
CenterPoint Energy Houston Electric, LLC (CEHE) supports the comments as submitted by the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	
NV Energy does not agree with the proposed changes to the definition of Protection System. The broadening of the definition of Protection System, as proposed, creates even more confusion than previously existed surrounding the original issue, which was to address whether the protective functions activated within the automatic voltage regulators are in the scope of PRC-005 components requiring periodic maintenance and testing. Stating specifically that any protective function activated within the generator automatic voltage regulating equipment is in the scope of PRC-005 would have been all that was needed to address the initial concerns as expressed in the SAR.	

By broadening the definition, as proposed, many of the various control systems used at generating facilities are exposed to the possibility and uncertainty of their inclusion in the scope of this standard, and potentially others. This is an unwarranted change.

Provided is a list of some of the additional control systems present at many facilities that could potentially be included in the new definition of Protection System:

• Coal Handling Controls

• Distributed Control Systems

• Renewable Facility Power Plant Controllers

• Turbine Control Systems

• Water Wash controllers

• Vibration Monitors

• Transformer Cooling controls

• Transformer tap changers controls

• LCI controls – Combustion Turbine Start Up Variable Speed Drives

• Large medium voltage motor Variable Speed Drive controls

• Various PLC based controllers

• Inverter controllers (IBR power conversion, UPS systems) - [it is noted that the individual generators identified by Inclusion I4 of the BES definition (the inverters) are exempted by proposed applicability section 4.2.5]

• Battery charger controllers, to name a few.

These control systems do not have protective relaying types of protective elements and should not be drawn into the scope of evaluation for applicability to PRC-005, or potentially other standards. If there are control systems which measure and utilize similar quantities as protective relays and perform similar functions as protective relays for detecting faults on BES Elements that are believed to be needed in the inclusion of PRC-005, those control system should be specifically and clearly identified in the applicability. NV Energy recommends bringing in the specific control systems providing protective functions in which the SDT feels PRC-005 should be applicable to, into the standard.

Additionally, in the proposed PRC-005-7 under New or Modified Term(s) Used in NERC Reliability Standards, it states that “The Protection System definition was changed to ensure uniformity among all reliability standards. Components of control systems which respond to measured electrical quantities and provide protective functions [emphasis added] provide the same functionality, and thereby present the same risk, to the Bulk Electric System as protective relays.”

These two terms, measured electrical quantities and protective functions are key to the revised Protection System definition and have been defined by the Standards Drafting Team within the Technical Rationale document. If these terms, as defined in the Technical Rationale document, are necessary, they need to be included in the NERC Glossary of Terms as separate definitions, or included in the new definition of Protection System.

Also, the definition of protective functions in the Technical Rationale document includes the following in the first bullet, “…To protect power system Elements; …”. We suggest changing this to “…To prevent damage to power system Elements; …” in order to avoid defining a word [protective] with itself [protect].

Likes 0	
Dislikes 0	

Response

David Campbell - David Campbell On Behalf of: Natalie Johnson, Enel Green Power, 5; - David Campbell	
Answer	No
Document Name	
Comment	
Enel North America Inc. does not agree with the modified definition of Protection System. Enel is concerned that 'control systems' has not been defined by the SDT that addition could produce unintended interpretations. The SDT has provided guidance regarding 'control systems' in the Technical Rationale document, however, the ERO assesses compliance based on the Reliability Standard and defined terms in the NERC Glossary of Terms. Enel would like to propose the SDT either a) define 'control systems' or b) modify the bullet point to "Protecive relays which respond to measured electrical quantities and provide protective functions".	
Likes 0	
Dislikes 0	

Response

Selene Willis - Edison International - Southern California Edison Company - 5	
Answer	No
Document Name	
Comment	
"See comments submitted by the Edison Electric Institute"	
Likes 0	
Dislikes 0	

Response

Randall Buswell - VELCO -Vermont Electric Power Company, Inc. - 1	
Answer	No
Document Name	
Comment	
Clarifications are needed in regards to Converter and SVC thyristor controls for clarity. This was discussed in webinar, and additional detail was provided to help drafting team consider	
Likes 0	

Dislikes 0	
Response	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	No
Document Name	
Comment	
TAL does not agree with considering a voltage regulator a protective relay in purview of PRC-005. The excitation system is a generator control system and the imbedded enabled “protective” functions, if any are enabled, should not be categorized the same as protective relay. The term “control systems” is too broad and should be limited to specific systems. The term “electrical quantities” is too broad and can lead to different interpretiations. Changes to the Definition of Protection System should not be expanded to include the protective functions of excitation or other control systems. A change to the NERC Glossary definition of Protection System could have an unintended or unnecessary impact to other NERC standards and support documents that would be outside of the scope of this SAR.	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
The NAGF does not agree with the proposed revisions to the Protection System definition for the following reasons: *a. Broadening the definition creates more confusion than previously existed under the current definition. The terms “components of control systems” and “protection functions” do not define what equipment or systems are included and unnecessarily exposes a multitude of generation facility control systems to the possibility and uncertainty of their inclusion under the scope of this standard (e.x. Combustion Turbine Generator control panel proprietary programming).* *b. The impetus for PRC-005-7 began with the recognition of the need to address protective functions activated within Automatic Voltage Regulating equipment that open the generator breaker. Including a statement or footnote noting such equipment is in-scope for PRC-005-7 is needed to address the initial concern/confusion.* *c. If there are control systems which measure and utilize similar quantities as protective relays and perform similar functions as protective relays for detecting faults on BES Elements, those control system(s) should be specifically and clearly identified in PRC-005-7.*	
Likes 0	
Dislikes 0	
Response	

Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	No
Document Name	
Comment	
SRP supports Tacoma Power and SMUD comments.	
Likes 0	
Dislikes 0	
Response	
Matt Lewis - Lower Colorado River Authority - 1	
Answer	No
Document Name	
Comment	
LCRA supports EEI's comments. The use of the term "component" is ambiguous and creates confusion.	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	No
Document Name	
Comment	
LCRA supports EEI's comments. The use of the term "component" is ambiguous and creates confusion.	
Likes 0	
Dislikes 0	
Response	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	

Answer	No
Document Name	
Comment	
See comments submitted by the Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	No
Document Name	
Comment	

Added "**and non-redundant**" to first bullet of EEI comments on Q1 following "**providing equivalent"**, otherwise we agree with and support EEI comments, please see below:

Protection System – One or more of the following components:

- Protective relays and**/or components of portions of** control systems **that** responds to measured electrical quantities**, and providing equivalent and non-redundant** protective functions **for BES Elements**;
- Communications systems necessary for correct operation of protective functions;
- Voltage and current sensing devices providing inputs necessary for the correct operation of protective functions;
- Station dc supply associated with protective functions (including station batteries, battery chargers, and non-battery-based dc supply); and/or
- Control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.

Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	No
Document Name	
Comment	

• Each bullet in the definition is a “component” of a Protection System. But then in the first bullet, “component” of a control system is mentioned. Too many use of word “component”. In other words, a “component” of Protection System could be a “component” of a control system. There no reason to state “component of a control system”. Additionally, the term “Component” is defined in PRC-005.

• In previous version, “Protection System” was a collection of relay, communication system (if applicable), DC supply and control circuitry. All these components collectively formed a Protection System. In the proposed revision, either of these components could be interpreted as a “Protection System”. Has the SDT considered any consequences of this change? If yes, and none identified, then please include in the technical rationale document. If not, then the SDT is urged to consider consequences of such a change.

• By proposing use of “component of control systems” in the definition of “Protection System”, which other control systems in addition to AVRs the SDT envisions are included. If there are no other control systems that may provide protective function then why to unnecessarily change the definition of “Protection System”. Simply call out AVRs in the PRC-004 and keep changes to minimum.

• The SDT conveyed via language in the supporting documents that “measured electrical quantities” includes “derived electrical quantities”, however, this is not clearly stated in the definition itself. The proposed definition states “measured electrical quantities” which leaves out “derived electrical quantities”. Suggest to keep “measured” out of the definition. The addition of “measured” is not necessary to exclude speed, temperature, vibration etc. These are not electrical quantities at the source of measurement.

• The reliability standards PRC-012, PRC-023, PRC-024 and PRC-025 do not use the defined “Protection System” term in the main body. It may have been used on supplemental material. Why are those listed as reviewed by the SDT?

• Thanks to the SDT for providing extra clarity regarding protective functions in Technical Rationale. But the definition of Protection System needs to stand on itself. With that said, it is neither necessary to define protective functions nor include details in the definition of Protection System.

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	No
Document Name	

Comment

First, we recommend changing the statement “to maintain stability” to, “to maintain stability of the BES.” Given the broader impact that changing the definition of Protection System could have on a company and industry at large, the modified definition should be accompanied with more guidance to help with accurately incorporating the change into existing protection system maintenance programs and to avoid the risk of misinterpreting the intent. It would be helpful if the changes are reflected in the tables and direction to which of the tables and which item this will be a part. To elaborate, please see our responses to question 2 and 3.

We also that the SDT add words in the standard to differentiate further between NERC-related tripping functions of the excitation system, such as field overcurrent, V/Hz and other such ANSI functions, and trips due to thyristor failure, loss of cooling, stall monitoring, etc. The latter category should not be included in scope of the standard. Additionally, does the standard allow functional checks of the excitation system to lockouts as sufficient? Or does every ANSI function that is enabled need to be tested.

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	

Dislikes 0	

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	No
Document Name	

Comment

ACES does not agree with the proposed expansion of the Protection System definition to include control systems. This expansion will force the Registered Entities to evaluate any number of control systems at their Facilities for any additional applicability of the following Reliability Standards:

- CIP-002-5.1a – BES Cyber System Categorization
- •CIP-003-8 – Cyber Security – Security Management Controls
- CIP-005-6 – Cyber Security – Electronic Security Perimeter(s)
- CIP-005-7 – Cyber Security – Electronic Security Perimeter(s)
- CIP-006-6 – Cyber Security – Physical Security of BES Cyber Systems
- CIP-007-6 – Cyber Security – Systems Security Management
- CIP-008-6 – Cyber Security – Incident Reporting and Response Planning
- CIP-009-6 – Cyber Security – Recovery Plans for BES Cyber Systems
- CIP-010-3 – Cyber Security – Configuration Change Management and Vulnerability Assessments
- CIP-010-4 – Cyber Security – Configuration Change Management and Vulnerability Assessments
- CIP-011-2 – Cyber Security – Information Protection
- CIP-013-2 – Cyber Security – Supply Chain Risk Management
- EOP-010-1 – Geomagnetic Disturbance Operations (in background section)
- IRO-010-2 – Reliability Coordinator Data Specification and Collection
- IRO-010-3 – Reliability Coordinator Data Specification and Collection
- PER-005-2 – Operations Personnel Training
- PER-006-1 – Specific Training for Personnel
- PRC-004-6 – Protection System Misoperation Identification and Correction
- PRC-012-2 – Remedial Action Schemes
- PRC-017-1 – Remedial Action Scheme Maintenance and Testing
- PRC-019-2 – Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection
- PRC-023-4 – Transmission Relay Loadability
- PRC-024-3 – Frequency and Voltage Protection Settings for Generating Resources
- PRC-025-2 – Generator Relay Loadability
- PRC-026-1 – Relay Performance During Stable Power Swings
- PRC-027-1 – Coordination of Protection Systems for Performance During Faults
- TOP-003-4 – Operational Reliability Data
- TPL-001-4 – Transmission System Planning Performance Requirements
- TPL-001-5.1 – Transmission System Planning Performance Requirements
- TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events

In our opinion, this is an unacceptable increase in scope and compliance risk with very little reduction in the risk to the BES. Most control systems do not have protective relay type functionality and should not be pulled into scope for evaluation of applicability of PRC-005 (of the plethora of other potential standards). If there is a specific risk to the BES that the SDT is attempting to mitigate by including specific functions or types of control

systems, then the applicability section of PRC-005 should be updated to include these specific systems. An overly broad and far-reaching definition change is not the correct approach to mitigating this perceived risk.

Furthermore, given the inherent configurability of control systems, there is a very real potential that control system logic could/will get modified by Facility personnel (or a vendor) that would meet the proposed definition of Protection System. This would very likely cause the control system to be inadvertently pulled into scope for any number of Reliability Standards.

Likes 0	
Dislikes 0	

Response

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	No
Document Name	

Comment

AEPC has signed on to ACES comments:

ACES does not agree with the proposed expansion of the Protection System definition to include control systems. This expansion will force the Registered Entities to evaluate any number of control systems at their Facilities for any additional applicability of the following Reliability Standards:
• CIP-002-5.1a – BES Cyber System Categorization
• CIP-003-8 – Cyber Security – Security Management Controls
• CIP-005-6 – Cyber Security – Electronic Security Perimeter(s)
• CIP-005-7 – Cyber Security – Electronic Security Perimeter(s)
• CIP-006-6 – Cyber Security – Physical Security of BES Cyber Systems
• CIP-007-6 – Cyber Security – Systems Security Management
• CIP-008-6 – Cyber Security – Incident Reporting and Response Planning
• CIP-009-6 – Cyber Security – Recovery Plans for BES Cyber Systems
• CIP-010-3 – Cyber Security – Configuration Change Management and Vulnerability Assessments
• CIP-010-4 – Cyber Security – Configuration Change Management and Vulnerability Assessments
• CIP-011-2 – Cyber Security – Information Protection
• CIP-013-2 – Cyber Security – Supply Chain Risk Management
• EOP-010-1 – Geomagnetic Disturbance Operations (in background section)
• IRO-010-2 – Reliability Coordinator Data Specification and Collection
• IRO-010-3 – Reliability Coordinator Data Specification and Collection
• PER-005-2 – Operations Personnel Training
• PER-006-1 – Specific Training for Personnel
• PRC-004-6 – Protection System Misoperation Identification and Correction
• PRC-012-2 – Remedial Action Schemes
• PRC-017-1 – Remedial Action Scheme Maintenance and Testing
• PRC-019-2 – Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection

• PRC-023-4 – Transmission Relay Loadability
• PRC-024-3 – Frequency and Voltage Protection Settings for Generating Resources

• PRC-025-2 – Generator Relay Loadability

• PRC-026-1 – Relay Performance During Stable Power Swings
• PRC-027-1 – Coordination of Protection Systems for Performance During Faults
• TOP-003-4 – Operational Reliability Data
• TPL-001-4 – Transmission System Planning Performance Requirements
• TPL-001-5.1 – Transmission System Planning Performance Requirements
• TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events
In our opinion, this is an unacceptable increase in scope and compliance risk with very little reduction in the risk to the BES. Most control systems do not have protective relay type functionality and should not be pulled into scope for evaluation of applicability of PRC-005 (of the plethora of other potential standards). If there is a specific risk to the BES that the SDT is attempting to mitigate by including specific functions or types of control systems, then the applicability section of PRC-005 should be updated to include these specific systems. An overly broad and far-reaching definition change is not the correct approach to mitigating this perceived risk.
Furthermore, given the inherent configurability of control systems, there is a very real potential that control system logic could/will get modified by Facility personnel (or a vendor) that would meet the proposed definition of Protection System. This would very likely cause the control system to be inadvertently pulled into scope for any number of Reliability Standards.

Likes 0	
Dislikes 0	

Response

Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF

Answer	No
Document Name	

Comment

Southern Indiana Gas & Electric, Company (SIGE) proposes the following edits:

Protection System:

- Protective relays or an excitation system (including analog/digital Automatic voltage Regulators) and/or a control system that provides equivalent protective functions;
- Communications systems necessary for correct operation of protective functions;
- Voltage and current sensing devices providing inputs necessary for the correct operation of protective functions;
- Station dc supply associated with protective functions (including station batteries, battery chargers, and non-battery-based dc supply); and/or
- Control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.

Likes 0	

Dislikes 0	
Response	
Nazra Gladu - Manitoba Hydro - 1	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Definition can be clarified. It includes control devices which respond to measured electrical quantities and provide protective functions- this should be limited and clarified to include only those protective functions that provide protection for BES elements. Definition of Protective functions and measured electrical quantities should also be explained as part of the definition. Should be specific on these terms and types of control devices that would need consideration in applicability section which is only seen in the Technical rationale document.	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Definition can be clarified. It includes control devices which respond to measured electrical quantities and provide protective functions- this should be limited and clarified to include only those protective functions that provide protection for BES elements. Definition of Protective functions and measured electrical quantities should also be explained as part of the definition. Should be specific on these terms and types of control devices that would need consideration in applicability section which is only seen in the Technical rationale document.	

Likes 0	
Dislikes 0	
Response	
Sean Steffensen - IDACORP - Idaho Power Company - 1	
Answer	Yes
Document Name	
Comment	
On its own, the redlined PRC-005-7 lacks strong language to distinguish the inclusion, in general terms, of protection systems with a generator's excitation control system. Without the 'Technical Rationale' document included, the purpose behind the change in version 7 would still be unclear.	
Likes 0	
Dislikes 0	
Response	
Vicky Budreau - Santee Cooper - 3, Group Name Santee Cooper	
Answer	Yes
Document Name	
Comment	
As is stated in the draft, this definition change affects many other standards. It is understood that the drafting team reviewed the implications to the other standards, but it seems like there should be some more uniform vetting of these implications, such as a review by NERC Protection and Control group or a special team created to review the implications, so that those who may have been more intricately involved with the creation/editing of these other standards have a chance to provide feedback on any implications.	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	

TVA agrees the revisions to the Protection System definition and proposed PRC-005-7 (along with the Technical Rationale document) provide clarity to which, if any, components of excitation systems and other control systems are applicable to PRC-005.

For further clarity, we recommend the following parts of the Technical Rationale document be incorporated into the PRC-005-7 standard – the "Protective Functions" section and "Appendix B – Analysis of IEEE Device Numbers".

Likes 0	
Dislikes 0	

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	Yes
Document Name	

Comment

Application of this definition to the Standard is dependent on the Technical Rationale. In general, WECC believes the definition of protection system should not use the term "protective functions" since that itself needs a definition. While this is done in the technical rationale it would be preferred to include that in any proposed change to the Glossary Term. Alternatively, the description of protective function could be added to the standard as an Appendix. Once that is done then the systems that accomplish those functions (relays, comm, sensing, DC supply and control circuitry) would make more sense.

Also consider expansion of the term "relays" and "components of control systems" to include Microprocessors, logic controllers and other devices that provide the triggered inputs to trip the BES device. The term "components of control systems" is broad and ambiguous.

Likes 0	
Dislikes 0	

Response

Anne Kronshage - Public Utility District No. 1 of Chelan County - 6, Group Name Public Utility District No. 1 of Chelan County - Voting Group

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Kwan - Ontario Power Generation Inc. - 4 - NPCC	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Gail Elliott - Gail Elliott On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Gail Elliott	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE agrees with the modified definition of Protection System. Texas RE recommends the following change: “Protective relays, *and or* components of control systems, which respond to Secondary measured electrical quantities and provide protective functions;” Protective relays and components of control systems that could perform protection functions can be applied independently in generator protection schemes. This change is consistent with the language used in the Technical Rationale for Modification of Protection System Definition document published in March 2023. If the SDT elects not to make the change, Texas RE encourages the team to review the VSLs as there are two components in that first bullet, as it is currently drafted.	
Likes 0	
Dislikes 0	
Response	

2. Do the changes to PRC-005 Tables 1-4 adequately address alternative dc supply technologies? If you do not agree, please provide your recommendation for clarifications, examples and, if appropriate, technical or procedural justification.

Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF

Answer	No
Document Name	

Comment

SIGE believes the alternative electrochemical battery systems such as lithium-ion and nickel sodium batteries may be too prescriptive.

Additionally, there are discrepancies between the redline and clean version of Table 1-4(f). In the clean version:

- The 4th Component Attribute listed appears to have changes that are not reflected in the redline.
- The VRLA/VLA batteries listed in the Component Attributes are included but are struck in the redline

SIGE assumes the clean version is correct but encourages the Standard Drafting Team to revise the redline to accurately reflect the changes shown in the clean version.

Likes 0	
Dislikes 0	

Response

Alison MacKellar - Constellation - 5

Answer	No
Document Name	

Comment

Clarification is needed for what is included in the electro chemical batteries table. Does this include zinc ion and Lithium iron phosphate batteries?

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	No
Document Name	

Comment

Southern Company sees an issue with the items in Table 1-4(g) activity under the 18 Calendar Month interval - specifically the " Integrity of all battery electrical connections" activity. This is normally performed using a digital low resistance ohmmeter (DLRO) meter to measure the connection resistance. This activity is all but impossible to perform in most installations of Lithium-Ion based and Nickel-Sodium batteries. The only other way to check this connection resistance is to use a thermo-imaging camera, which must be used with the battery is under heavy load. To comply with the proposed 18-month requirement we would have to load the battery down sufficiently long enough to take the thermo-image of all the connection. We believe that this activity is too burdensome and not justified since the installations are not prone to corrosion caused by acid or caustic nature of the battery's electrolyte. Performing such a scan during the load/capacity testing should be sufficient to provide assurance that the connections are acceptable. Most battery monitoring systems monitor and alarm when a temperature set point is exceeded within a module and most also monitor their connections also yet this is not consistent throughout all manufacturers.

Likes 0	
Dislikes 0	

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	No
Document Name	

Comment

Ameren agrees with and supports EEI comments.

Likes 0	
Dislikes 0	

Response

Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6

Answer	No
Document Name	

Comment

See comments submitted by the Edison Electric Institute

Likes 0	
Dislikes 0	

Response

Teresa Krabe - Lower Colorado River Authority - 5

Answer	No
Document Name	
Comment	
LCRA does not currently have alternative dc supply technologies to sufficiently assess the proposal internally. LCRA recommends considering a better approach such as performing maintenance as defined by the OEM for technologies not defined by PRC-005, with the goal that these technologies would be directly incorporated once matured in industry.	
Likes 0	
Dislikes 0	
Response	
Matt Lewis - Lower Colorado River Authority - 1	
Answer	No
Document Name	
Comment	
LCRA does not currently have alternative dc supply technologies to sufficiently assess the proposal internally. Perhaps a better approach would be to LCRA recommends performing maintenance as defined by the OEM for technologies not defined by PRC-005, with the goal that these technologies would be directly incorporated once matured in industry.	
Likes 0	
Dislikes 0	
Response	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	No
Document Name	
Comment	
The language used for the maintenance activities for alternate dc supply technologies does not seem to be consistent. The maintenance activities for "alternative electro chemical based energy storage" still reference "battery continuity" , "output voltage of battery charger", "battery electrical connections", "battery rack" and "battery bank". This does not make sense if we are talking about a non-battery based source of DC power.	
Likes 0	
Dislikes 0	
Response	

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
The NAGF does not agree that the proposed PRC-005 Tables 1-4 adequately address alternative dc supply technologies. Use of "alternative electrochemical based energy storage" terminology in Tables 1-4(f) and 1-4(g) does not provide a list of specific energy storage supplies as is done in other tables. Some types of storage devices may require different maintenance schedules and functions based on the specific equipment and usage. *For example, performing connection resistance measurements on most installations of Lithium-Ion and Nickel-Sodium batteries is all but impossible to accomplish. To comply with the proposed 18-month maintenance requirement, a thermal-image of the heavily loaded battery would have to be done. Recommend that this type of inspection/test be permitted to be done for these types of batteries during the load/capacity testing 6-year interval. This should be sufficient to provide assurance that the connection resistances are acceptable.*	
Likes 0	
Dislikes 0	
Response	

Selene Willis - Edison International - Southern California Edison Company - 5	
Answer	No
Document Name	
Comment	
"See comments submitted by the Edison Electric Institute"	
Likes 0	
Dislikes 0	
Response	

David Campbell - David Campbell On Behalf of: Natalie Johnson, Enel Green Power, 5; - David Campbell	
Answer	No
Document Name	
Comment	
Enel North America Inc. supports the MRO NSRF comments.	
Likes 0	
Dislikes 0	

Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	
NV Energy does not agree that the changes to PRC-005 Tables 1-4 adequately address alternative dc supply technology. We see an issue with the items in Table 1-4(g) activity under the 18 Calendar Month interval - specifically the “Integrity of all battery electrical connections” activity. This is often performed using a digital low resistance ohmmeter (DLRO) meter and taking connection resistance which is all but impossible to perform in most installations of Lithium-Ion based and Nickel-Sodium batteries. The only other way to check this is to use a thermo-imaging camera, which must be used with the battery is under heavy load. To comply with the proposed 18-month requirement we would have to load the battery down sufficiently long enough to take the thermo-image of all the connections. This is too burdensome and not justified since the installations are not prone to corrosion caused by acid or caustic nature of the battery’s electrolyte. Performing such a scan during the load/capacity testing should be sufficient to provide assurance that the connections are acceptable. Most battery monitoring systems monitor and alarm when a temperature set point is exceeded within a module and most also monitor their connections also, but this is not consistent throughout all manufacturers, especially with the exact placement of the actual thermocouples.	
Likes 0	
Dislikes 0	
Response	
Brad Harris - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE	
Answer	No
Document Name	
Comment	
CenterPoint Energy Houston Electric, LLC (CEHE) supports the comments as submitted by the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	No
Document Name	
Comment	

Ref.: Table 1-4(g) - EEI is concerned that the changes to address alternative electrochemical battery systems such as lithium-ion and nickel sodium batteries may be too prescriptive requiring a level of testing that in some cases may be impractical and/or considered unnecessary by the OEM. To address our concerns, we offer the following change:

Protection System station dc supply with alternative electrochemical based energy storage not having attributes of Table 1-4 (f) **may be altered to align with suggested methods and intervals as defined by the OEM. The associated modified maintenance activities listed must be supported with documentation from the OEM.**

Likes 0	
Dislikes 0	

Response

Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI

Answer	No
Document Name	

Comment

AECI supports comments submitted by the NAGF.

Likes 0	
Dislikes 0	

Response

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2

Answer	No
Document Name	

Comment

ERCOT joins the comments submitted by the IRC SRC and adopts them as its own.

Likes 0	
Dislikes 0	

Response

Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster

Answer	No

Document Name	
Comment	
Evergy supports and incorporates by reference the comments of the Edison Electric Institute (EEI) and the MRO NSRF for question #2.	
Likes 0	
Dislikes 0	
Response	
Daniela Atanasovski - APS - Arizona Public Service Co. - 1	
Answer	No
Document Name	
Comment	
AZPS supports the following comments submitted by EEI on behalf of its members: Ref.: Table 1-4(g) - EEI is concerned that the changes to address alternative electrochemical battery systems such as lithium-ion and nickel sodium batteries may be too prescriptive requiring a level of testing that is in some cases impractical and unnecessary by the OEM. To address our concerns we offer the following change: Protection System station dc supply with alternative electrochemical based energy storage not having attributes of Table 1-4 (f) **should be tested per the methods and intervals as defined by the OEM. The associated maintenance activities listed may be modified, however, supporting documentation from the OEM shall be maintained to support any such modification.**	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	No
Document Name	
Comment	
PNM Resources (PNM & TNMP) supports EEI addition to the Component Attribute in Table 1-4(g).	
Likes 0	
Dislikes 0	
Response	

Joshua London - Eversource Energy - 1, Group Name Eversource	
Answer	No
Document Name	
Comment	
There is no reference in the Technical Rationale for the basis of alternative dc supply technogies. Basis for Vented-Lead-Acid & Valve-Regulated Lead-Acid batteries include IEEE Standards and EPRI published documents.	
Likes 0	
Dislikes 0	
Response	
Andy Fuhrman - Andy Fuhrman On Behalf of: Theresa Allard, Minnkota Power Cooperative Inc., 1; - Andy Fuhrman	
Answer	No
Document Name	
Comment	
MPC supports comments submitted by the MRO NERC Standards Review Forum.	
Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC	
Answer	No
Document Name	
Comment	
Xcel Energy supports comments of the MRO NSRF	
Likes 0	
Dislikes 0	
Response	
Marcus Freeman - Electricities of North Carolina - 4	

Answer	No
Document Name	
Comment	
I do not agree and have signed on to Glencoe Light and Power's comments.	
Likes 0	
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	No
Document Name	
Comment	
Clarification is needed for what is included in the electro chemical batteries table. Does this include zinc ion and Lithium iron phosphate batteries? Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Terry Volkmann - Glencoe Light and Power Commission - 1	
Answer	No
Document Name	
Comment	
GLP does not agree that the changes to PRC-005 Tables 1-4 adequately address alternative dc supply technology. GLP agrees with the MRO NSRF comments on this question.	
Likes 0	
Dislikes 0	
Response	

George E Brown - Pattern Operators LP - 5	
Answer	No
Document Name	
Comment	
Pattern Energy supports Midwest Reliability Organization's NERC Standards Review Forum's (MRO NSRF) comments on this question.	
Likes 0	
Dislikes 0	
Response	

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	No
Document Name	
Comment	
MRO NSRF does not agree that the changes to PRC-005 Tables 1-4 adequately address alternative dc supply technology. We see an issue with the items in Table 1-4(g) activity under the 18 Calendar Month interval - specifically the "Integrity of all battery electrical connections" activity. This is often performed using a digital low resistance ohmmeter (DLRO) meter and taking connection resistance which is all but impossible to perform in most installations of Lithium-Ion based and Nickel-Sodium batteries. The only other way to check this is to use a thermo-imaging camera, which must be used with the battery is under heavy load. To comply with the proposed 18-month requirement we would have to load the battery down sufficiently long enough to take the thermo-image of all the connections. This is too burdensome and not justified since the installations are not prone to corrosion caused by acid or caustic nature of the battery's electrolyte. Performing such a scan during the load/capacity testing should be sufficient to provide assurance that the connections are acceptable. Most battery monitoring systems monitor and alarm when a temperature set point is exceeded within a module and most also monitor their connections also, but this is not consistent throughout all manufacturers, especially with the exact placement of the actual thermocouples.	
Likes 0	
Dislikes 0	
Response	

Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
Supporting NAGF recommendations.	
Likes 0	

Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation does not agree. Table 1-4(f) or Table 1-4(g) “alternative electrochemical based energy storage” does not provide a list of specific energy storage supplies like the previous tables. Some types of storage devices may require different maintenance schedules and functions based on the equipment and usage. Also, provide a clearer definition in the glossary of terms regarding the alternative electro-chemical based energy storage stated in Table 1-4 (g).	
Likes 0	
Dislikes 0	
Response	
Brittany Millard - Lincoln Electric System - 5	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
The posted redline doesn’t reflect any significant changes being made to Tables 1-2, 1-4(a), 1-4(b), 1-4(c), 1-4(d), 1-4(e), 2, 4-1, 4-2(a), 4-2(b), or 4-3. TVA agrees that the added Table 1-4(g) and changes to Table 1-4(f) address alternative dc supply technologies. We recommend adding additional information about Tables 1-5 to the Technical Rationale document.	
Likes 0	

Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 1	Orlando Utilities Commission, 5, Colon Dania
Dislikes 0	
Response	
Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	
Exelon supports the proposed change to Table 1-4. As the EEI points out in their comments, emerging battery technologies may require new or different methods. For this reason we suggest the maintenance activities for these alternative battery types allow for enetites to incorporate OEM recommended maintenance practices into the activies stated in the revised tables.	
Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Exelon supports the proposed change to Table 1-4. As the EEI points out in their comments, emerging battery technologies may require new or different methods. For this reason we suggest the maintenance activities for these alternative battery types allow for enetites to incorporate OEM recommended maintenance practices into the activies stated in the revised tables.	
Likes 0	

Dislikes 0	
Response	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes
Document Name	
Comment	
Avista supports EEI’s support for the development of NERC Reliability Standards that are technology neutral.	
Likes 0	
Dislikes 0	
Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
Wisconsin Electric Power Company does not use any ‘alternative DC supply storage’ technologies for their DC system reliability. We do not have practical expertise in these systems’ preventative maintenance work practices. The inclusions do, however, appear to fulfill the intent of the standard.	
Likes 0	
Dislikes 0	
Response	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
Avista supports EEI’s support for the development of NERC Reliability Standards that are technology neutral.	
Likes 0	
Dislikes 0	
Response	

Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	Yes
Document Name	
Comment	
The changes appear to adequately address alternative dc supply technologies. RF notes that Table 1-4(f) in the posted clean version of the draft standard adds rows documenting exclusions for Table 1-4(g) dc Supply Using Alternative Electrochemical Based Energy Storage without modification to the existing exclusions applying to Tables 1-4(a) through 1-4(e). However, strikethroughs in Table 1-4(f) of the redline version of the draft standard appear to inadvertently remove and replace the last three existing exclusion rows in Table 1-4(f). RF interprets the posted clean version as the intended draft standard and recommends a corrected “redline to currently enforced” draft be posted with any future comment periods and ballot events.	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
While AEP sees no issues with the language proposed, the topic may need to be revisited once industry has gained experience in applying the activities described in the tables.	
Likes 0	
Dislikes 0	
Response	
Nazra Gladu - Manitoba Hydro - 1	
Answer	Yes
Document Name	
Comment	
Manitoba Hydro does not have alternative dc supply technologies at present.	
Likes 0	

Dislikes 0	
Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Gail Elliott - Gail Elliott On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Gail Elliott	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Randall Buswell - VELCO -Vermont Electric Power Company, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
LaTroy Brumfield - American Transmission Company, LLC - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Greg Davis - Georgia Transmission Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jesus Sammy Alcaraz - Imperial Irrigation District - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Steven Taddeucci - NiSource - Northern Indiana Public Service Co. - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Kwan - Ontario Power Generation Inc. - 4 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Patricia Ireland - DTE Energy - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Micah Runner - Black Hills Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Claudine Bates - Black Hills Corporation - 6	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Joseph McClung - JEA - 1	
Answer	Yes
Document Name	
Comment	
Likes 1	Orlando Utilities Commission, 5, Colon Dania
Dislikes 0	
Response	
Kenisha Webber - Entergy - NA - Not Applicable - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Isidoro Behar - Long Island Power Authority - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Vickers - David Vickers On Behalf of: Daniel Roethemeyer, Vistra Energy, 5; - David Vickers	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sean Steffensen - IDACORP - Idaho Power Company - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Anne Kronshage - Public Utility District No. 1 of Chelan County - 6, Group Name Public Utility District No. 1 of Chelan County - Voting Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 1, 3; Raj Hundal, Powerex Corporation, 6; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	
Document Name	
Comment	
Abstain from commenting	
Likes 0	
Dislikes 0	
Response	

3. The Applicability section, Requirements R1-R5, and Measures M1-M5 were updated to include entities registered as UFLS-only DPs for consistency with changes made to NERC's FERC-approved Risk-Based Registration (RBR). Do you agree with the revisions to include UFLS-only DPs? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

Marcus Freeman - Electricities of North Carolina - 4	
Answer	No
Document Name	
Comment	
I do not agree and have signed on to Glencoe Light and Power's comments.	
Likes 0	
Dislikes 0	
Response	

Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI	
Answer	No
Document Name	
Comment	
AECI supports comments submitted by the NAGF.	
Likes 0	
Dislikes 0	
Response	

Nazra Gladu - Manitoba Hydro - 1	
Answer	Yes
Document Name	
Comment	
This is not applicable to Manitoba Hydro.	
Likes 0	
Dislikes 0	
Response	

Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
UFLS systems are critical to the reliability of the BES and should therefore be maintain under this Reliability Standard. For this reason, we are supportive of adding UFLS only DP as an Applicable Functional Entity.	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	
UFLS systems are critical to the reliability of the BES and should therefore be maintain under this Reliability Standard. For this reason, we are supportive of adding UFLS only DP as an Applicable Functional Entity.	
Likes 0	
Dislikes 0	
Response	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	Yes
Document Name	
Comment	
MRO NSRF agrees that with the revisions to include UFLS-only DPs.	
Likes 0	
Dislikes 0	
Response	

George E Brown - Pattern Operators LP - 5	
Answer	Yes
Document Name	
Comment	
Pattern Energy supports Midwest Reliability Organization’s NERC Standards Review Forum’s (MRO NSRF) comments on this question.	
Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC	
Answer	Yes
Document Name	
Comment	
Xcel Energy supports comments of the EEI and MRO NSRF	
Likes 0	
Dislikes 0	
Response	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes
Document Name	
Comment	
UFLS systems are critical to the reliability of the BES and should therefore be maintained under this Reliability Standard. For this reason, we are supportive of adding UFLS only DP as an Applicable Functional Entity.	
Likes 0	
Dislikes 0	
Response	
Andy Fuhrman - Andy Fuhrman On Behalf of: Theresa Allard, Minnkota Power Cooperative Inc., 1; - Andy Fuhrman	
Answer	Yes

Document Name	
Comment	
MPC supports comments submitted by the MRO NERC Standards Review Forum.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	
PNM Resources (PNM & TNMP) support the addition of UFLS-only DPs to the Applicability Section of PRC-005 and R1-R5.	
Likes 0	
Dislikes 0	
Response	
Daniela Atanasovski - APS - Arizona Public Service Co. - 1	
Answer	Yes
Document Name	
Comment	
none	
Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1	
Answer	Yes
Document Name	
Comment	

Exelon supports adding UFLS-Only DPs to the Applicability Section of PRC-005.	
Likes 0	
Dislikes 0	
Response	
Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	
Exelon supports adding UFLS-Only DPs to the Applicability Section of PRC-005.	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 1	Orlando Utilities Commission, 5, Colon Dania
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI supports adding UFLS-only DPs to the Applicability Section of PRC-005.	

Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
NV Energy agrees that with the revisions to include UFLS-only DPs.	
Likes 0	
Dislikes 0	
Response	
Selene Willis - Edison International - Southern California Edison Company - 5	
Answer	Yes
Document Name	
Comment	
“See comments submitted by the Edison Electric Institute”	
Likes 0	
Dislikes 0	
Response	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
See comments submitted by the Edison Electric Institute	
Likes 0	
Dislikes 0	

Response	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	Yes
Document Name	
Comment	
Ameren agrees with and supports EEI comments.	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Anne Kronshage - Public Utility District No. 1 of Chelan County - 6, Group Name Public Utility District No. 1 of Chelan County - Voting Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sean Steffensen - IDACORP - Idaho Power Company - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Vickers - David Vickers On Behalf of: Daniel Roethemeyer, Vistra Energy, 5; - David Vickers	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Isidoro Behar - Long Island Power Authority - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 1, 3; Raj Hundal, Powerex Corporation, 6; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Terry Volkmann - Glencoe Light and Power Commission - 1	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Brittany Millard - Lincoln Electric System - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kenisha Webber - Entergy - NA - Not Applicable - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Vicky Budreau - Santee Cooper - 3, Group Name Santee Cooper	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Claudine Bates - Black Hills Corporation - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Micah Runner - Black Hills Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Ireland - DTE Energy - 4	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Joshua London - Eversource Energy - 1, Group Name Eversource	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Kwan - Ontario Power Generation Inc. - 4 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Steven Taddeucci - NiSource - Northern Indiana Public Service Co. - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jesus Sammy Alcaraz - Imperial Irrigation District - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Greg Davis - Georgia Transmission Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
LaTroy Brumfield - American Transmission Company, LLC - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Brad Harris - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Campbell - David Campbell On Behalf of: Natalie Johnson, Enel Green Power, 5; - David Campbell	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Randall Buswell - VELCO -Vermont Electric Power Company, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Matt Lewis - Lower Colorado River Authority - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Gail Elliott - Gail Elliott On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Gail Elliott	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	
Document Name	
Comment	
The NAGF has no comment.	
Likes 0	
Dislikes 0	

Response
Alison MacKellar - Constellation - 5
Answer	
Document Name	
Comment
Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6
Likes 0	
Dislikes 0	
Response

4. The SDT believes the language of PRC-005-7 addresses the issues outlined in the SAR in a cost effective manner. Do you agree? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1

Answer	No
Document Name	

Comment

AEPC has signed on to ACES comments:

Based on the impacts of expanding the definition of Protection Systems and the inherent expansion of scope associated with this change, the language of PRC-005-7 does not address the issues outlined in the SAR in a cost-effective manner.

Likes 0	
Dislikes 0	

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators

Answer	No
Document Name	

Comment

Based on the impacts of expanding the definition of Protection Systems and the inherent expansion of scope associated with this change, the language of PRC-005-7 does not address the issues outlined in the SAR in a cost-effective manner.

Likes 0	
Dislikes 0	

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	No
Document Name	

Comment

Refer to Question 1 & 2 Comments

Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	No
Document Name	
Comment	
Based on the impacts of broadening the definition of Protection Systems and the potential inclusion of multiple additional systems, the language of PRC-005-7 does not address the issues outlined in the SAR in a cost effective manner. LCRA does not have AVR systems nor alternate dc supply technologies but the expanded definition would cause us to re-evaluate our existing PRC-005-6 compliance activities.	
Likes 0	
Dislikes 0	
Response	
Matt Lewis - Lower Colorado River Authority - 1	
Answer	No
Document Name	
Comment	
Based on the impacts of broadening the definition of Protection Systems and the potential inclusion of multiple additional systems, the language of PRC-005-7 does not address the issues outlined in the SAR in a cost effective manner. LCRA does not have AVR systems nor alternate dc supply technologies but the expanded definition would cause us to re-evaluate our existing PRC-005-6 compliance activities.	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	

The NAGF believes that the proposed changes to the Protection System definition leads to significant uncertainty as to the applicability under PRC-005-7 for a wide range of generation control systems. This could result in uncertain compliance costs associated with PRC-005-7 as well as the 29 other standards impacted by the proposed changes to the Protection System definition.	
Likes 0	
Dislikes 0	
Response	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	No
Document Name	
Comment	
See comments to Questions 1 & 6.	
Likes 0	
Dislikes 0	
Response	
David Campbell - David Campbell On Behalf of: Natalie Johnson, Enel Green Power, 5; - David Campbell	
Answer	No
Document Name	
Comment	
Enel North America Inc. does not believe these additions address the issues in a cost effective manner. The scope of Protection System Maintenance Plan and testing requirements has increased with the modifications to the definition of Protection System.	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	

Based on the impacts of broadening the definition of Protection Systems and the potential inclusion of multiple additional systems, the language of PRC-005-7 does not address the issues outlined in the SAR in cost effective manner.

Likes 0	
Dislikes 0	

Response

Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group

Answer	No
Document Name	

Comment

Based on the impacts of expanding the definition of Protection Systems and the inherent expansion of scope associated with this change, the language of PRC-005-7 does not address the issues outlined in the SAR in a cost-effective manner

Likes 0	
Dislikes 0	

Response

Jesus Sammy Alcaraz - Imperial Irrigation District - 1

Answer	No
Document Name	

Comment

It is difficult to know the cost of implementing the new version of this standard until the scope of the new elements is more clearly defined (related to question 1).

Likes 0	
Dislikes 0	

Response

Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI

Answer	No
Document Name	

Comment	
AECI supports comments submitted by the NAGF.	
Likes 0	
Dislikes 0	
Response	
Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster	
Answer	No
Document Name	
Comment	
Evergy supports and incorporates by reference the comments of the MRO NSRF for question #4.	
Likes 0	
Dislikes 0	
Response	
Steven Taddeucci - NiSource - Northern Indiana Public Service Co. - 3	
Answer	No
Document Name	
Comment	
Clarity needs to be brought to the Protection System definition before costs can be evaluated.	
Likes 0	
Dislikes 0	
Response	
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	No
Document Name	
Comment	

We believe the issue of DC supply technology was addressed effectively. See question 1. for thoughts about clarifying control systems intended to be included in PRC-005-7.

Likes 0	
Dislikes 0	

Response

Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF

Answer	No
Document Name	

Comment

Duke Energy's focus is to assure the effective and efficient reduction of risks to the reliability and security of the grid and will not provide comments on the cost effectiveness of the proposed changes.

Likes 0	
Dislikes 0	

Response

Andy Fuhrman - Andy Fuhrman On Behalf of: Theresa Allard, Minnkota Power Cooperative Inc., 1; - Andy Fuhrman

Answer	No
Document Name	

Comment

MPC supports comments submitted by the MRO NERC Standards Review Forum.

Likes 0	
Dislikes 0	

Response

Mike Magruder - Avista - Avista Corporation - 1

Answer	No
Document Name	

Comment

We are unable to address whether there are any logistical or cost consideration because the current scope is not clear.

Likes 0	
Dislikes 0	

Response

Sheila Suurmeier - Black Hills Corporation - 5

Answer	No
Document Name	

Comment

Black Hills Corporation will not comment on cost effectiveness.

Likes 0	
Dislikes 0	

Response

Kenisha Webber - Entergy - NA - Not Applicable - SERC

Answer	No
Document Name	

Comment

Due to not having a clear definition of "Stability", it would be difficult to determine the cost effective manner.

Likes 0	
Dislikes 0	

Response

Brittany Millard - Lincoln Electric System - 5

Answer	No
Document Name	

Comment

Our organization is still evaluating the impacts the proposed changes will have on the referenced 30 reliability standards. Due to the large number of impacted standards and the coordination with the associated SMEs, it is difficult to determine the cost of meeting the updated definition.

Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC	
Answer	No
Document Name	
Comment	
Xcel Energy supports comments of the MRO NSRF	
Likes 0	
Dislikes 0	
Response	
Marcus Freeman - Electricities of North Carolina - 4	
Answer	No
Document Name	
Comment	
I do not agree and have signed on to Glencoe Light and Power's comments.	
Likes 0	
Dislikes 0	
Response	
Terry Volkmann - Glencoe Light and Power Commission - 1	
Answer	No
Document Name	
Comment	
Based on the impacts and unintended consequences of broadening the definition of Protection Systems and the potential inclusion of multiple additional systems and other Standards, the language of PRC-005-7 does not address the issues outlined in the SAR in cost effective manner.	
Likes 0	
Dislikes 0	

Response	
George E Brown - Pattern Operators LP - 5	
Answer	No
Document Name	
Comment	
Pattern Energy supports Midwest Reliability Organization’s NERC Standards Review Forum’s (MRO NSRF) comments on this question.	
Likes 0	
Dislikes 0	
Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	No
Document Name	
Comment	
Addition of AVR and controls systems to PRC-005 is not well addressed in respective tables. Currently, tables are developed based on traditional protective relays design and testing practices. Tables should clearly specify what needs to be done with AVRs and controls systems. While protective relays testing can be summarized and scoped with generic approach, variety in AVR and controls system will leave industry in a struggle due to AVR and controls systems proprietary restrictions, lack of isolation limitations for testing, lack of provisions for testing, etc.. This results in uncertain compliance costs associated with PRC-005-7.	
Likes 0	
Dislikes 0	
Response	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	No
Document Name	
Comment	
Based on the impacts of broadening the definition of Protection Systems and the potential inclusion of multiple additional systems, the language of PRC-005-7 does not address the issues outlined in the SAR in cost effective manner.	

Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
It is difficult to agree and comment on the cost of adding the new components without knowing the full scope of the components being considered under PRC-005-7. AESCE requests NERC SDT to provide a list of new components being considered under PRC-005-7.	
Likes 0	
Dislikes 0	
Response	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 1, 3; Raj Hundal, Powerex Corporation, 6; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	No
Document Name	
Comment	
This depends on the clarification to Q1. More information is required to better understand the overall scope and then to look at the Exciter Protective functions and other control system components across the fleet to assess which new components should be added to the scope. If the scope changes, an engineering analysis and fleet analysis is required to identify all impacted equipment and components that require addition to the PRC-005 maintenance program	
Likes 0	
Dislikes 0	
Response	
Isidoro Behar - Long Island Power Authority - 1	
Answer	No
Document Name	

Comment
We are answering “No” since the scope/cost impact of including the control functions is not fully understood. If the intention is to include control system functions in addition to control system protective tripping functions this cost could be significant.

Likes 0	
Dislikes 0	

Response

Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	No
Document Name	

Comment
Verification of the operation of the inputs and outputs (I/O) for excitation systems and control systems can have hundreds of I/O, thus requiring a significant increase in time and cost for testing all of these devices.

Likes 0	
Dislikes 0	

Response

Glen Farmer - Avista - Avista Corporation - 5	
Answer	No
Document Name	

Comment
We are unable to address whether there are any logistical or cost consideration because the current scope is not clear.

Likes 0	
Dislikes 0	

Response

Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	

Comment

The updates needed for PRC-005-6 are very simple, as described above. The update currently proposed includes however fundamental, unnecessary alterations that complicate matters and thereby render compliance more expensive not only for this standard but, as listed in The “Terms” section of PRC-005-7 for 29 other standards as well.

Likes 0	
Dislikes 0	

Response

Robert Follini - Avista - Avista Corporation - 3

Answer	No
Document Name	

Comment

We are unable to address whether there are any logistical or cost consideration because the current scope is not clear.

Likes 0	
Dislikes 0	

Response

David Vickers - David Vickers On Behalf of: Daniel Roethemeyer, Vistra Energy, 5; - David Vickers

Answer	No
Document Name	

Comment

Without clear guidance generator owners will have to determine what protection systems in the control system and/or excitation systems are applicable. This may require consulting OEMs or other 3rd parties which could become a complex effort. While it best practice to perform routine maintenance on excitation systems requiring additional testing could add unnecessary maintenance cost, especially since OEMs are typically required to perform testing and maintenance.

Likes 0	
Dislikes 0	

Response

Richard Jackson - U.S. Bureau of Reclamation - 1

Answer	No
Document Name	

Comment	
Reclamation does not agree. The original SAR only spoke to excitation systems. The updated SAR speaks to a wide range of undefined equipment. Using the phrase “components of control systems” does not provide any clarification of what equipment or systems are included.	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	
There has not been a cost analysis developed for this standard to justify cost effectiveness for this revision.	
Likes 0	
Dislikes 0	
Response	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	No
Document Name	
Comment	
There has not been a cost analysis developed for this standard to justify cost effectiveness for this revision.	
Likes 0	
Dislikes 0	
Response	
Anne Kronshage - Public Utility District No. 1 of Chelan County - 6, Group Name Public Utility District No. 1 of Chelan County - Voting Group	
Answer	No
Document Name	
Comment	

AVR excitation systems were not necessarily designed to be tested like protective relays. The amount of effort required to develop these test plans and procedures will be significant, if it can be done at all.	
Likes 2	Wike Jennie On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merre; Public Utility District No. 1 of Snohomish County, 1, Rhoads Alyssia
Dislikes 0	
Response	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2	
Answer	Yes
Document Name	
Comment	
ERCOT joins the comments submitted by the IRC SRC and adopts them as its own.	
Likes 0	
Dislikes 0	
Response	
Daniela Atanasovski - APS - Arizona Public Service Co. - 1	
Answer	Yes
Document Name	
Comment	
none	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	

PNM Resources (PNM & TNMP) agrees PRC-005-7 can be implemented in a cost effective manner.

Likes 0	
Dislikes 0	

Response

Patricia Ireland - DTE Energy - 4

Answer	Yes
Document Name	

Comment

As long as the implementation timelines remain as they are proposed, the implementation should be cost effective.

Likes 0	
Dislikes 0	

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter

Answer	Yes
Document Name	

Comment

Currently, we see no objection.

Likes 0	
Dislikes 0	

Response

Nazra Gladu - Manitoba Hydro - 1

Answer	Yes
Document Name	

Comment

The reliability standards adoption process in Manitoba, which differs from US entities, allows for 156 months from the FERC approval date to be 100% compliant with all requirements in this standard. This will help Manitoba Hydro to implement PRC-005-7 in a cost effective manner.

Likes 0	
Dislikes 0	
Response	
Gail Elliott - Gail Elliott On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Gail Elliott	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Randall Buswell - VELCO -Vermont Electric Power Company, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

LaTroy Brumfield - American Transmission Company, LLC - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Greg Davis - Georgia Transmission Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Kwan - Ontario Power Generation Inc. - 4 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Joshua London - Eversource Energy - 1, Group Name Eversource	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sean Steffensen - IDACORP - Idaho Power Company - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	
Document Name	
Comment	
Constellation has no additional comments Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
David Jendras Sr - Ameren - Ameren Services - 3	

Answer	
Document Name	
Comment	
Ameren has no comment on the cost effectiveness of the proposed changes.	
Likes 0	
Dislikes 0	
Response	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	
Document Name	
Comment	
See comments submitted by the Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	
Document Name	
Comment	
No Comment	
Likes 0	
Dislikes 0	
Response	
Selene Willis - Edison International - Southern California Edison Company - 5	
Answer	
Document Name	

Comment	
“See comments submitted by the Edison Electric Institute”	
Likes 0	
Dislikes 0	
Response	
Brad Harris - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE	
Answer	
Document Name	
Comment	
CenterPoint Energy Houston Electric, LLC (CEHE) is abstaining.	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	
Document Name	
Comment	
Black Hills Corporation will not comment on cost effectiveness.	
Likes 0	
Dislikes 0	
Response	
Micah Runner - Black Hills Corporation - 1	
Answer	
Document Name	
Comment	

Black Hills Corporation will not comment on cost effectiveness.	
Likes 0	
Dislikes 0	
Response	
Claudine Bates - Black Hills Corporation - 6	
Answer	
Document Name	
Comment	
Black Hills Corporation will not comment on cost effectiveness.	
Likes 0	
Dislikes 0	
Response	
Joseph McClung - JEA - 1	
Answer	
Document Name	
Comment	
Based on the impacts of broadening the definition of Protection Systems and the potential inclusion of multiple additional systems, the language of PRC-005-7 does not address the issues outlined in the SAR in a cost effective manner.	
Likes 1	Orlando Utilities Commission, 5, Colon Dania
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	
Document Name	
Comment	

Constellation has no additional comments. Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	
Document Name	
Comment	
Based on the impacts of broadening the definition of Protection Systems and the potential inclusion of multiple additional systems, the language of PRC-005-7 does not address the issues outlined in the SAR in a cost effective manner.	
Likes 0	
Dislikes 0	
Response	

5. The implementation plan for PRC-005-6 provided compliance dates for Sudden Pressure Relaying, Automatic Reclosing, and dispersed generation resources Entities are currently subject to implementation requirements under the PRC-005-6 implementation plan, which incorporated the PRC-005-2(i) implementation plan by reference for Components first addressed in that standard. Those prior implementation requirements are carried forward in the PRC-005-7 Implementation Plan. Do you agree with the proposed implementation plan timeframes? If you think an alternate timeframe is needed, please propose an alternate implementation plan with detailed explanation.

Thomas Foltz - AEP - 5	
Answer	No
Document Name	
Comment	
Until the clarity requested in Response #1 is provided within the definition of Protection Systems, industry will not be able to determine the assets which would be newly brought into scope. Until that clarity is obtained, industry will not be able to determine whether or not the suggested implementation periods are appropriate.	
Likes 0	
Dislikes 0	
Response	

Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation does not agree. As “components of control systems” is not defined, it is unclear what equipment will need to be tested. For example, depending on outage schedules and size of the facility, equipment may not be able to be tested within the prescribed implementation plan.	
Likes 0	
Dislikes 0	
Response	

Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	No
Document Name	
Comment	
Tri-State recommends removing the 30% requirement and stay with B and C.	

Likes 0	
Dislikes 0	
Response	
Isidoro Behar - Long Island Power Authority - 1	
Answer	No
Document Name	
Comment	
We are answering “No” since the implementation plan of including the control functions is not fully understood. If the intention is to include control system functions in addition to control system protective tripping functions the time needed to implement could be significant and in some cases not be able to be implemented at all without design changes.	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	No
Document Name	
Comment	
AESCE cannot accept the implementation plan without knowledge of the full scope of components being considered under the new definition.	
Likes 0	
Dislikes 0	
Response	
Andrea Jessup - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	No
Document Name	
Comment	
BPA supports Reclamation’s comments: As “components of control systems” is not defined, it is unclear what equipment will need to be tested. For example, depending on outage schedules and size of the facility, equipment may not be able to be tested within the prescribed implementation plan.	

Likes 0	
Dislikes 0	

Response

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF

Answer	No
Document Name	

Comment

MRO NSRF does not agree with the proposed implementation plan timeframes due to the wide-ranging impacts of the proposed changes.

Likes 0	
Dislikes 0	

Response

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group

Answer	No
Document Name	

Comment

WEC Energy Group does not agree with the proposed implementation plan. There are too many uncertainties with proposed addition.

Likes 0	
Dislikes 0	

Response

George E Brown - Pattern Operators LP - 5

Answer	No
Document Name	

Comment

Pattern Energy supports Midwest Reliability Organization’s NERC Standards Review Forum’s (MRO NSRF) comments on this question.

Likes 0	
Dislikes 0	
Response	
Terry Volkmann - Glencoe Light and Power Commission - 1	
Answer	No
Document Name	
Comment	
GLP does not agree with the proposed implementation plan timeframes due to the wide-ranging impacts of the proposed changes.	
Likes 0	
Dislikes 0	
Response	
Marcus Freeman - Electricities of North Carolina - 4	
Answer	No
Document Name	
Comment	
I do not agree and have signed on to Glencoe Light and Power's comments.	
Likes 0	
Dislikes 0	
Response	
Joseph Gatten - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC	
Answer	No
Document Name	
Comment	
Xcel Energy supports comments of the NSRF	
Likes 0	
Dislikes 0	

Response	
Brittany Millard - Lincoln Electric System - 5	
Answer	No
Document Name	
Comment	
The section titled ‘Newly Applicable Components in PRC-005-7’ within the Implementation Plan appears to have several incorrect references to the tables within the standard. This may cause confusion when determining the dates the utility is required to be compliant. Our organization is still evaluating the impacts the proposed changes will have on the referenced 30 reliability standards. Due to the large number of impacted standards and coordination with the associated SMEs, it is difficult to determine what an appropriate timeframe would be.	
Likes 0	
Dislikes 0	
Response	
Kenisha Webber - Entergy - NA - Not Applicable - SERC	
Answer	No
Document Name	
Comment	
For item 3, new components not addressed in PRC-005-6, 18 months will not be enough. Nuclear maintenance is done during refueling outages, which are either on 18 or 24 month cylces. Time to determine new scope, develop maintenance preventative maintenance/ work orders and execute in less than 18 months is not achievable. Recommend having an implementation plan to allow 30/60/100 % completion dates starting at 36 months/72 months/ 96 months.	
Likes 0	
Dislikes 0	
Response	
Vicky Budreau - Santee Cooper - 3, Group Name Santee Cooper	
Answer	No
Document Name	
Comment	
Including control system, exciter, and automatic voltage regulator protections into this Standard is beyond the current testing capabilities of many GOs, and the GOs may need to rely on the OEM to complete the proposed testing requirements. Therefore, the entire industry may need to reach out to a	

small number of OEMs for support. Because of the bottleneck discussed above the Implementation Plan Items 1 & 2 should both run for a total of 156 months.

Also, for newly applicable components in PRC-005-7, Item 1 regarding maintenance activities with maximum allowable maintenance intervals of six (6) calendar years and Item 2 regarding maintenance activities with maximum allowable maintenance intervals of twelve (12) calendar years both include the qualification “as established in Tables 4-1, 4-2(a), 4-2(b), 4-3, and 5”. As written, newly applicable Protection System components with six (6) calendar year or twelve (12) calendar year maintenance activities from any other table are not addressed. There are draft changes to other tables.

Santee Cooper suggests removing the “as established in Tables 4-1, 4-2(a), 4-2(b), 4-3, and 5” qualifications described above. Likewise, the “as established in tables 1-1 through 1-5” qualification in Item 3 regarding new components with maximum allowable intervals of less than one (1) calendar year could be removed.

Likes 0	
Dislikes 0	

Response

Sheila Suurmeier - Black Hills Corporation - 5

Answer	No
Document Name	

Comment

See Black Hills Corporation response to #1.

Likes 0	
Dislikes 0	

Response

Claudine Bates - Black Hills Corporation - 6

Answer	No
Document Name	

Comment

See Black Hills Corporation response to #1.

Likes 0	
Dislikes 0	

Response

Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
See Black Hills Corporation response to #1.	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
See Black Hills Corporation response to #1.	
Likes 0	
Dislikes 0	
Response	
Andy Fuhrman - Andy Fuhrman On Behalf of: Theresa Allard, Minnkota Power Cooperative Inc., 1; - Andy Fuhrman	
Answer	No
Document Name	
Comment	
MPC supports comments submitted by the MRO NERC Standards Review Forum.	
Likes 0	
Dislikes 0	
Response	
Patricia Ireland - DTE Energy - 4	
Answer	No

Document Name	
Comment	
In theory, the implementation plan compliance dates are acceptable however, would prefer the dates to extend to a calendar year end date to align with current requirements. i.e., 36 months or calenadar end date.	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	No
Document Name	
Comment	
Duke disagrees with incorporating the current milestone implementation plan. The testing window of these newly incorporated components will be limited on generation units by available outages and testing resources. Consider increasing due dates as stated below: -Extend 1/1/2025 R3 and R4 AR/SPR/DG 12-Yr 60% Implementation to 1/1/2026 -Extend 4/1/2027 R3 and R4 Non AR/SPR/DG 12-Yr 100% Implementation to 4/1/2028 -Extend 1/1/2029 R3 and R4 AR/SPR/DG 12-Yr 100% Implementation to 1/1/2030 Additionally, please clarify whether the incorporation of current milestone timeline for the expansion in scope to the required equipment take into account the new GO-IBR registration and all the equipment that will require testing at those sites if NERC decides PRC-005 is applicable.	
Likes 1	Orlando Utilities Commission, 5, Colon Dania
Dislikes 0	
Response	
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	No
Document Name	
Comment	
Minnesota Power does not agree with the proposed implementation plan timeframes due to the wide-ranging impacts of the proposed changes.	
Likes 0	
Dislikes 0	

Response	
Steven Taddeucci - NiSource - Northern Indiana Public Service Co. - 3	
Answer	No
Document Name	
Comment	
Clarity needs to be brought to the Protection System definition before appropriate proposed implementation plan timeframes can be determined.	
Likes 0	
Dislikes 0	
Response	
Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster	
Answer	No
Document Name	
Comment	
Evergy supports and incorporates by reference the comments of the MRO NSRF for question #5.	
Likes 0	
Dislikes 0	
Response	
Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI	
Answer	No
Document Name	
Comment	
AECI supports comments submitted by the NAGF.	
Likes 0	
Dislikes 0	
Response	

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
The Draft 1 implementation plan is unclear for “Newly Applicable Components in PRC-005-7”. Bullets #1 (6 year intervals) and #2 (12 year intervals) only cite Tables 4-1, 4-2(a), 4-2(b), 4-3, and 5, all of which appear to be unchanged. This section needs to be closely reviewed and corrected such that the Tables associated with newly applicable Components under PRC-005-7 are correctly cited. For example, Table 1-1 appears to now incorporate 6 and 12 calendar year maintenance interval requirements for newly applicable Components (control systems which respond to measured electrical quantities and provide protective functions) but Table 1-1 is not cited in Bullets #1 or #2. The drafting team should also determine if any newly applicable Components have maintenance intervals >/= 1 year up to < 6 years (e.g., 18 calendar months) as that timeframe is not addressed in Bullets #1 - #3.	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	
NV Energy does not agree with the proposed implementation plan timeframes due to the wide-ranging impacts of the proposed changes.	
Likes 0	
Dislikes 0	
Response	
David Campbell - David Campbell On Behalf of: Natalie Johnson, Enel Green Power, 5; - David Campbell	
Answer	No
Document Name	
Comment	
Enel North America Inc. does not agree with the implementation plan due to ambiguity of the modification of Protection System and the inclusion of the undefined ‘control systems’.	

Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
The NAGF does not agree with the proposed implementation plan timeframes due to the uncertainty with the term "components of control systems".	
Likes 0	
Dislikes 0	
Response	
Matt Lewis - Lower Colorado River Authority - 1	
Answer	No
Document Name	
Comment	
LCRA will not be able to determine implementation plan impact until sufficient clarification is made as per response to question #1.	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5	
Answer	No
Document Name	
Comment	
LCRA will not be able to determine implementation plan impact until sufficient clarification is made as per response to question #1.	
Likes 0	
Dislikes 0	

Response	
Nazra Gladu - Manitoba Hydro - 1	
Answer	Yes
Document Name	
Comment	
This standard has provided more clarity as to how to transition from the current version of PRC-005 to PRC-005-7.	
Likes 0	
Dislikes 0	
Response	
Robert Follini - Avista - Avista Corporation - 3	
Answer	Yes
Document Name	
Comment	
Avista supports the current implementation plan.	
Likes 0	
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Please clarify that the components identified for implementation in PRC-005-6 will not be expanded to include additional components in PRC-005-7. Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	

Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes
Document Name	
Comment	
Avista supports the current implementation plan.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	Yes
Document Name	
Comment	
PNM Resources (PNM & TNMP) supports the proposed Implementation Plan as proposed.	
Likes 0	
Dislikes 0	
Response	
Daniela Atanasovski - APS - Arizona Public Service Co. - 1	
Answer	Yes
Document Name	
Comment	
none	
Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1	

Answer	Yes
Document Name	
Comment	
Exelon supports the proposed implementation plan.	
Likes 0	
Dislikes 0	
Response	
Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	
Exelon supports the proposed implementation plan.	
Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI supports the proposed Implementation Plan as proposed.	
Likes 0	
Dislikes 0	
Response	
Selene Willis - Edison International - Southern California Edison Company - 5	
Answer	Yes
Document Name	

Comment	
“See comments submitted by the Edison Electric Institute”	
Likes 0	
Dislikes 0	
Response	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
See comments submitted by the Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	Yes
Document Name	
Comment	
Ameren agrees with and supports EEI comments.	
Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	

Please clarify that the components identified for implementation in PRC-005-6 will not be expanded to include additional components in PRC-005-7.

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Anne Kronshage - Public Utility District No. 1 of Chelan County - 6, Group Name Public Utility District No. 1 of Chelan County - Voting Group

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Martin Sidor - NRG - NRG Energy, Inc. - 6

Answer	Yes
Document Name	

Comment

Likes 0	

Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sean Steffensen - IDACORP - Idaho Power Company - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

David Vickers - David Vickers On Behalf of: Daniel Roethemeyer, Vistra Energy, 5; - David Vickers	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Donald Lock - Talen Generation, LLC - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Joshua London - Eversource Energy - 1, Group Name Eversource	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Kwan - Ontario Power Generation Inc. - 4 - NPCC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jesus Sammy Alcaraz - Imperial Irrigation District - 1	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Greg Davis - Georgia Transmission Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
LaTroy Brumfield - American Transmission Company, LLC - 1	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Brad Harris - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Randall Buswell - VELCO -Vermont Electric Power Company, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Gail Elliott - Gail Elliott On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Gail Elliott	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 1, 3; Raj Hundal, Powerex Corporation, 6; - Patricia Robertson, Group Name BC Hydro Balloters	
Answer	
Document Name	
Comment	
Abstain from commenting	
Likes 0	
Dislikes 0	
Response	

Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE inquires as to the rationale behind a 156 month, or 13 year, implementation plan for 100% compliance. This is quite a long time to mitigate a risk that is identified presently. Beyond the length of the proposed implementation plan, Texas RE notes that the phased-in implementation plans generally present challenges for both registered entities and Regional Entities. In the past, calculating fleet-wide percentages have caused inconsistencies and confusion. Texas RE recommends the SDT re-evaluate whether there is a manner to implement the standard that is less confusing and would allow for more consistency in application.	
Likes 0	
Dislikes 0	
Response	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	
Document Name	
Comment	
No Comment	
Likes 0	
Dislikes 0	
Response	

6. Please provide any additional comments on the standard, technical rationale, and Supplementary Reference and FAQ.	
Jennifer Bray - Arizona Electric Power Cooperative, Inc. - 1	
Answer	
Document Name	
Comment	
AEPC has signed on to ACES comments: The proposed modification to R1.1 to include “All batteries, non-battery based energy storage and alternative electrochemical based energy storage (emphasis added)” in a time-based program is confusing and seemingly unnecessary. Additional explanation of the intended meaning of the italicized phrase along with a few examples are needed to avoid confusion across the industry.	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	
Document Name	
Comment	
The proposed modification to R1.1 to include “All batteries, non-battery based energy storage and alternative electrochemical based energy storage (emphasis added)” in a time-based program is confusing and seemingly unnecessary. Additional explanation of the intended meaning of the italicized phrase along with a few examples are needed to avoid confusion across the industry.	
Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	
Document Name	
Comment	

Constellation has no additional comments

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	
Document Name	

Comment

Please also consider comments submitted by EEI on Modifications to PRC-005-6

Likes 0	
Dislikes 0	

Response

Romel Aquino - Edison International - Southern California Edison Company - 1,3,5,6

Answer	
Document Name	

Comment

See comments submitted by the Edison Electric Institute

Likes 0	
Dislikes 0	

Response

David Jendras Sr - Ameren - Ameren Services - 3

Answer	
Document Name	

Comment

Ameren agrees with and supports EEI comments.	
Likes 0	
Dislikes 0	
Response	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	
Document Name	
Comment	
See comments submitted by the Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Gail Elliott - Gail Elliott On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Gail Elliott	
Answer	
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	
Document Name	
Comment	
SRP supports SMUD's "additional" comments.	

Likes 0	
Dislikes 0	

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	
Document Name	

Comment

While the technical rationale is valuable it would be preferable to include the complete definition of protective functions within either the NERC Glossary or the standard itself. It is important to determine applicability of the standard and since it is not part of the standard can be modified or deleted without any external review or approval process. Also additional specificity of which types of components would be grouped and included under the terms “relay” and “components of control systems” should be included to reduce ambiguity.

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	
Document Name	

Comment

The NAGF provides the following additional comments for consideration:

a. The phrase “protective function settings” is contradictory. A setting is a value while a function is an act based on the equipment’s design.

b. Device numbers added to Table C-1 for Protection System Elements use wording such as “might be”, “might provide”, etc. without clarification, additional criteria, or guidance.

c. The technical rational document identified IEEE devices nomenclature as the primary basis for determining specific functions; however, the FAQs identify other components that are unrelated to the IEEE terminology.

Likes 0	
Dislikes 0	

Response

Scott Langston - Tallahassee Electric (City of Tallahassee, FL) - 1	
Answer	
Document Name	
Comment	
As part of PRC-004, if this requires “control systems” to be maintained under PRC-005 does that mean they need to be monitored for inclusion in the misoperation determination process and report as part of MIDAS? Under PRC-024, are these protective functions considered part of the voltage and frequency relays if transition to using IEEE function numbers or do they fall under control systems protective functions whereby all studies need to be redone upon classification as relay? Will these protective functions be required to be coordinated under PRC-027?	
Likes 0	
Dislikes 0	
Response	
Brooke Jockin - Portland General Electric Co. - 1, Group Name Portland General Electric Co.	
Answer	
Document Name	
Comment	
1. Measured electrical quantities, per the Technical Rationale document, include ac and dc signals. The Standard, Rationale, and Supplementary FAQ documents all contain references to ac quantities that could lead one to believe only ac quantities are in view, at least in certain instances (for example Table 1-1, page 21: “Ac measurements are continuously verified by comparison to an independent ac measurement source…”). PGE requests that the SDT review Project 2019-04 document references to ac and dc, to ensure they are consistent and clear. 2. The word component(s) is capitalized 159 times in the redline. Four times it is not capitalized. Is there a distinction to be made between the capitalized and uncapitalized terms? Component is not a NERC defined term in the Glossary – should it be?	
Likes 0	
Dislikes 0	
Response	
Selene Willis - Edison International - Southern California Edison Company - 5	
Answer	
Document Name	
Comment	
“See comments submitted by the Edison Electric Institute”	
Likes 0	

Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	
Document Name	
Comment	
No Comments.	
Likes 0	
Dislikes 0	
Response	
Brad Harris - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE	
Answer	
Document Name	
Comment	
CenterPoint Energy Houston Electric, LLC (CEHE) supports the comments as submitted by the Edison Electric Institute.	
Likes 0	
Dislikes 0	
Response	
LaTroy Brumfield - American Transmission Company, LLC - 1	
Answer	
Document Name	
Comment	
A red-lined version of the FAQ was not available on the NERC project site which made reviewing proposed changes difficult.	
Likes 0	
Dislikes 0	
Response	

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC

Answer	
Document Name	

Comment

There are several instances of the capitalization of the word “Component” throughout the standard. Suggest removing the capitalization.

Harmonize the usage of either DC supply or dc supply in the standard and implementation plan. The implementation plan uses “DC supply” while the standard uses “dc supply”.

Review the list of standards on page 3: CIP-003-9, PRC-023-5, and TOP-003-5 are not included in the list.

Purpose: Automatic Reclosing, and Sudden Pressure Relaying: These are not defined terms and therefore should not be capitalized as they are not defined in the NERC Glossary. Comment applies throughout the document and in the Implementation Plan.

R5: is Unresolved Maintenance Issues a defined term? If not, they should not be capitalized as they are not defined in the NERC Glossary. Comment applies throughout the document. It is not capitalized in the last bullet of section C1.2.

VSL R1: is “Part 1.1” referring to the 1st bullet in R1? If so, change bullets to numbers in R1, otherwise, specify which Part 1.1 you are referring to. Comment applies to all VSLs

VSL R2: “Countable Event” is not a defined term, therefore it should not be capitalized. Comment applies throughout the document.

VSL R2: “Segment” is not a defined term, therefore it should not be capitalized. Comment applies throughout the document.

Table 1-1, Table 1-2: Calendar Years and Calendar Months should not be capitalized.

Table 1.3: “Voltage and Current Sensing devices”: terms should not be capitalized. “AC” instead of “ac”? Comment applies throughout the document.

Table 1.4a, Table 1-4b: “Protection System Station dc supply”; “Station” should not be capitalized. “DC” instead of “dc”? Comment applies throughout the document.

Table 1-4c: why are “Nickel-Cadmium (NiCad) batteries” in bold?

Table 1-4f: why is Alternative Electro-chemical Based Energy Storage capitalized? Comment applies throughout the document.

Table 4-2b: why is “ARE” capitalized?

Standards Attachment: PRC-005 Attachment A,” AAA-000-0 Supplemental Material” is not the right title in the page header.

Likes 0	
Dislikes 0	

Response

Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom, Group Name Buckeye Power Group

Answer	

Document Name	
Comment	
Buckeye supports the comments made by ACES: The proposed modification to R1.1 to include “All batteries, non-battery based energy storage and alternative electrochemical based energy storage (emphasis added)” in a time-based program is confusing and seemingly unnecessary. Additional explanation of the intended meaning of the italicized phrase along with a few examples are needed to avoid confusion across the industry.	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	
Document Name	
Comment	
The posted “Redline to Last Approved” version of PRC-005-7 Draft 1 is misleading in terms of proposed changes to the Protection System definition. The redline reflects the entire definition is being changed. We suggest the drafting team provide a redline of the definition against what is currently contained in the NERC Glossary of Terms.	
Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	
Document Name	
Comment	
EEI does not support the following changes made to PRC-005-7: (Table 1-3, Page 25 and Table 1-5, Page 38) EEI does not support the use of the phrase “control system Components” or “Components of control system” because these terms are too broad and expand the scope beyond what was intended by the SAR. To address this concern, these phrases should be replaced with the following “or an	

excitation system (including analog/digital Automation Voltage Regulators) and/or a control system (that provides functionally equivalent protective functions for BES Elements)."

(Table 3, Page 40, 41)

EEI is concerned that adding "Components" after protective relay inappropriately expands the scope of Table 3 beyond what was originally intended, noting that the defined term for Components is: "Any individual discrete piece of equipment included in a Protection System, Automatic Reclosing, or Sudden Pressure Relaying." To address this concern, we suggest replacing "Components" with "or an excitation system (including analog/digital Automation Voltage Regulators) and/or a control system (that provides functionally equivalent protective functions for BES Elements)." We also do not support the substitution of relay with device because the term "relay" is well understood while "device" could mean many thing beyond what is intended and would be subject to interpretation.

Likes 0	
Dislikes 0	

Response

Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI

Answer	
Document Name	

Comment

AECI supports comments submitted by the NAGF.

Likes 0	
Dislikes 0	

Response

Tony Gott - KAMO Electric Cooperative - 3

Answer	
Document Name	

Comment

Want to support comments submitted by Associated Electric Cooperative, Inc.

Likes 0	
Dislikes 0	

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer	
Document Name	
Comment	

Texas RE has the following comments regarding the tables:

- Table 1-1: Texas RE recommends stating “components of control system” rather than “Components” in order to be more clear
- Table 1-3 The title should be changed to Need to add ‘components of control system” to the title: Component Type - Voltage and Curren t Sensing Devices Providing Inputs necessary for the correct operation of Protective relays*/components of control system.* Additionally, Texas RE recommends using the term “components of control system” instead of “control system Components” for consistency.
- Table 1-4(f): Texas RE recommends updating the maintenance activities for the addition of alternative electro-chemical based energy store. Texas RE suggests specifying “no periodic verification of battery string(s) continuity is required.”
- Table 1-4(f): Texas RE is concerned the addition of “or output voltage monitoring” in the fourth maintenance activity is unclear. The argument could be made that it is covered in the first Maintenance Activity.
- Table 1-4(g): If the intent of the SDT was to clearly indicate differences in “battery” and “alternative electro-chemical based energy storage” is the use of the term “battery” in Maintenance Activities the correct usage for all the activities?
- Table 3: Texas RE recommends stating “components of control system” rather than “components”, in the last row on page 40 – “Monitored microprocessor protective relay*/components of control system* with preceding row attributes and the following:”

Likes 0	
Dislikes 0	
Response	

Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster	
Answer	
Document Name	
Comment	

Evergy supports and incorporates by reference the comments of the Edison Electric Institute (EEI) for question #6.

Likes 0	
Dislikes 0	
Response	

Steven Taddeucci - NiSource - Northern Indiana Public Service Co. - 3	
Answer	
Document Name	
Comment	

N/A	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	
Document Name	
Comment	
None.	
Likes 1	Orlando Utilities Commission, 5, Colon Dania
Dislikes 0	
Response	
Kinte Whitehead - Exelon - 3	
Answer	
Document Name	
Comment	
Exelon agrees with the concerns expressed in the EEI comments for this question.	
Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1	
Answer	
Document Name	
Comment	
Exelon agrees with the concerns expressed in the EEI comments for this question.	

Likes 0	
Dislikes 0	
Response	
David Kwan - Ontario Power Generation Inc. - 4 - NPCC	
Answer	
Document Name	
Comment	
Concur with NPCC RSC comments	
Likes 0	
Dislikes 0	
Response	
Daniela Atanasovski - APS - Arizona Public Service Co. - 1	
Answer	
Document Name	
Comment	

AZPS supports the following comments submitted by EEI on behalf of its members:

(Table 1-3, Page 25 and Table 1-5, Page 38)

EEI does not support the use of the phrase “control system Components” or “Components of control system” because these terms are too broad and expand the scope beyond what was intended by the SAR. To address this concern, we suggest these phrases be replaced with the following “or an excitation system (including analog/digital Automation Voltage Regulators) and/or a control system (that provides functionally equivalent protective functions for BES Elements).”

(Table 3, Page 40, 41)

EEI is concerned that adding “Components” after protective relay inappropriately expands the scope of Table 3 beyond what was originally intended, noting that the defined term for Components is: “Any individual discrete piece of equipment included in a Protection System, Automatic Reclosing, or Sudden Pressure Relaying.” To address this concern, we suggest replacing “Components” with “or an excitation system (including analog/digital Automation Voltage Regulators) and/or a control system (that provides functionally equivalent protective functions for BES Elements).” We also reject the substitution of relay with device because the term “relay” is well understood while “device” could mean many thing beyond what is intended and would be subject to interpretation.

Likes 0	
Dislikes 0	
Response	

Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	
Document Name	
Comment	
PNM Resources (PNM & TNMP) supports EEI comments for Question 6.	
Likes 0	
Dislikes 0	
Response	
Joshua London - Eversource Energy - 1, Group Name Eversource	
Answer	
Document Name	
Comment	
For future postings, please provide “Clean” and “Redline to Last Approved” versions of Supplementary Reference and FAQ. Why isn’t the FAQ’s of Technical Rationale included in Supplementary Reference and FAQ? Pg. 94 of Supplementary Reference and FAQ. “Micahael Gerken” should be “Michael Gerken”. “Evercourse” should be “Eversource”	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	
Document Name	
Comment	
Maintenance Table 1-3 title should be revised to describe voltage and current sensing devices providing inputs necessary for the correct operation of Protective Relays or Components of control systems. The implementation plan timeframe for Newly Applicable Components in PRC-005-7 should reference Table 1-1 in addition to Tables 4-1, 4-2(a), 4-2(b), 4-3 and 5 for maintenance activities with maximum allowable intervals of six (6) calendar years.	
Likes 0	

Dislikes 0	

Response

Micah Runner - Black Hills Corporation - 1	
Answer	
Document Name	

Comment
Maintenance Table 1-3 title should be revised to describe voltage and current sensing devices providing inputs necessary for the correct operation of Protective Relays or Components of control systems. The implementation plan timeframe for Newly Applicable Components in PRC-005-7 should reference Table 1-1 in addition to Tables 4-1, 4-2(a), 4-2(b), 4-3 and 5 for maintenance activities with maximum allowable intervals of six (6) calendar years.

Likes 0	
Dislikes 0	

Response

Claudine Bates - Black Hills Corporation - 6	
Answer	
Document Name	

Comment
Maintenance Table 1-3 title should be revised to describe voltage and current sensing devices providing inputs necessary for the correct operation of Protective Relays or Components of control systems. The implementation plan timeframe for Newly Applicable Components in PRC-005-7 should reference Table 1-1 in addition to Tables 4-1, 4-2(a), 4-2(b), 4-3 and 5 for maintenance activities with maximum allowable intervals of six (6) calendar years.

Likes 0	
Dislikes 0	

Response

Sheila Suurmeier - Black Hills Corporation - 5	
Answer	
Document Name	

Comment

Maintenance Table 1-3 title should be revised to describe voltage and current sensing devices providing inputs necessary for the correct operation of Protective Relays or Components of control systems.

The implementation plan timeframe for Newly Applicable Components in PRC-005-7 should reference Table 1-1 in addition to Tables 4-1, 4-2(a), 4-2(b), 4-3 and 5 for maintenance activities with maximum allowable intervals of six (6) calendar years.

Likes 0	
Dislikes 0	

Response

Kenisha Webber - Entergy - NA - Not Applicable - SERC

Answer	
Document Name	

Comment

A clear definition of Stability is needed in all PRC-005 documents. Please provide an example(s) of alternative electro-chemical energy storage that can maintain stability? If this is unknown (emerging technology), how can you determine the cost effectiveness?

Likes 0	
Dislikes 0	

Response

Joseph Gatten - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC

Answer	
Document Name	

Comment

Xcel Energy supports the comments of EEI.

Likes 0	
Dislikes 0	

Response

Marcus Freeman - Electricities of North Carolina - 4

Answer	
Document Name	

Comment
I have no additional comments.

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6	
Answer	
Document Name	

Comment
Constellation has no additional comments. Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Terry Volkmann - Glencoe Light and Power Commission - 1	
Answer	
Document Name	

Comment
GLP believes the Protection System definition change creates an unintended consequence regarding the DP registration criteria, when only owning one element. Distribution entities with less than 75MW that own one Protection System element under the new definition may need to be a registered Distribution Provider because they are a Protection System owner. This becomes a burden for the small entities by being required to register and stand up a compliance program.

Likes 0	
Dislikes 0	

Response

Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	
Document Name	
Comment	

1. There are several instances of the capitalization of the word “Component” throughout the standard. Suggest removing the capitalization.

2. Harmonize the usage of either DC supply or dc supply in the standard and implementation plan. Implementation plan uses “DC supply” while the standard uses “dc supply”.

3. Review list of standards on page 3: CIP-003-9, PRC-023-5 and TOP-003-5 are not included in the list.

4. Purpose: Automatic Reclosing, and Sudden Pressure Relaying : Are not defined terms therefore should not be capitilized as they are not defined in the NERC Glossary. Comment applies throughout the document and in the Implementation Plan.

5. R5: is Unresolved Maintenance Issues a defined term? If not, it should not be capitilized as they are not defined in the NERC Glossary. Comment applies throughout the document. It is not capitalized in the last bullet of section C1.2.

6. VSL R1: is “Part 1.1” referring to the 1st bullet in R1? If so, change bullets to numbers in R1, otherwise, specify which Part 1.1 you are referring to. Comment applies to all VSLs

7. VSL R2 : “Countable Event” is not a defined term, therefore it should not be capitalized. Comment applies throughout the document.

8. VSL R2: “Segment” is not a defined term, therefore it should not be capitalized. Comment applies throughout the document.

9. Table 1-1, Table 1-2: Calendar Years and Calendar Months should not be capitalized.

10. Table 1.3: “Voltage and Current Sensing devices”: terms should not be capitalized. “AC” instead of “ac”? Comment applies throughout the document.

11. Table 1.4a, Table 1-4b: “Protection System Station dc supply” ; “Station” should not be capitalized. “DC” instead of “dc”? Comment applies throughout the document.

12. Table 1-4c: why is “Nickel-Cadmium (NiCad) batteries” in bold?

13. Table 1-4f: why is Alternative Electro-chemical Based Energy Storage capitalized? Comment applies throughout the document.

14. Table 4-2b: why is “ARE” capitalized?

Standards Attachment: PRC-005 Attachment A,” AAA-000-0 Supplemental Material” is not the right title in the page header.

Likes 0	
Dislikes 0	
Response	

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	

Document Name	
Comment	
If at all possible, please make redline version of the Supplementary Reference and FAQ documents available.	
Likes 0	
Dislikes 0	
Response	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	
Document Name	
Comment	
No Comments.	
Likes 0	
Dislikes 0	
Response	
Andrea Jessup - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	
Document Name	
Comment	
BPA finds that the proposed definition change to the definition of Protection System does not provide clarity to which components are in scope for PRC-005. The Technical Rationale does provide clarity but there is a concern that relying multiple support documents to be able to interpret a Standard is problematic. BPA believes that the information in the Technical Rationale should be moved to the Supplementary Reference and FAQ for PRC-005.	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	
Document Name	

Comment
AESCE would request NERC to provide data supporting the need for additional regulations and additional list of components being considered under the new definition of Protection System for reliability. The reliability need for expanding the scope of PRC-005-6 to additional componenets is not clearly explained.

Likes 0	
Dislikes 0	

Response

Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	
Document Name	

Comment
N/A

Likes 0	
Dislikes 0	

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	
Document Name	

Comment
None at this time.

Likes 0	
Dislikes 0	

Response

Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	
Document Name	

Comment

- The phrase “protective function settings” is contradictory. A setting is a value and a function is an act based on the equipment’s design.
- Device numbers added to Table C-1 in the Technical Rationale for Protection System Elements have wording such as “might be,” “might provide,” etc. without clarification, additional criteria, or guidance.
- The technical rationale paper identifies IEEE devices as the primary basis for determining specific functions; however, the FAQs identify other components that are unrelated to IEEE devices.
- Based on the intent of the original SAR to incorporate excitation system components, recommend a new table be created for excitation system-specific tasks.

Likes 0	
Dislikes 0	

Response

Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC

Answer	
Document Name	

Comment

In the proposed PRC-005-7 under New or Modified Term(s) Used in NERC Reliability Standards, it states that “The Protection System definition was changed to ensure uniformity among all reliability standards. Components of control systems which respond to ***measured electrical quantities*** and provide ***protective functions*** [emphasis added] provide the same functionality, and thereby present the same risk, to the Bulk Electric System as protective relays.”

These two terms, *measured electrical quantities* and *protective functions* are key to the revised Protection System definition and have been defined by the Standards Drafting Team within the Technical Rationale document. These terms need to be included in the NERC Glossary of Terms as separate definitions, or included in the new definition of Protection System so that the details of their meaning are not lost after PRC-005-7 is approved and because the Protection System definition applies to so many other NERC Reliability Standards.

Also, the definition of *protective functions* in the Technical Rationale document includes the following in the first bullet, “…To protect power system Elements; …”. SMUD and BANC suggest changing this to “…To prevent damage to power system Elements; …” in order to avoid defining a word [protective] with itself [protect].

Finally, it is not clear in the Technical Rationale document’s Frequently Asked Questions (FAQs) if the revised definition of Protection System applies to the functions within an inverter at a BES Facility if the functions will trip the inverter? This would seem to meet the definition of a *protective function* in that the inverter initiates automatic isolation to protect power system Elements. SMUD and BANC recommend that the Standards Drafting Team add this question and the answer to the FAQs to assist entities in applying the new Protection System definition to inverter-based resources.

Likes 1	Wike Jennie On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merre
Dislikes 0	

Response

Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	
Document Name	
Comment	
RF appreciates the Standard Drafting Team's efforts on this project.	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	
Document Name	
Comment	
AEP is concerned by Item 5 of the FAQs within the Technical Rationale document. FACTS controllers are proprietary to the manufacturer and their internal details are not available to users. FACTS controllers use measured equipment operational parameters to set the firing angle and related control functions to control the desired output of the device. If a discrepancy occurs in the measured signals, the controller may issue a controlled shutdown of the device. Due to the proprietary nature of the FACTS controllers, end users have not always been able to receive vendor support to test and verify any embedded protective functions *within* the controller. Wherever possible, protective functions involving the FACTS system and its AC interconnection are handled by discrete protective relays connected at the Point of Interconnection to the Bulk Electrical System. As a result, each FACTS controller must be examined on a case-by-case basis to determine if it is within the scope of PRC-005. Controlled shutdowns of SVCs, STATCOMs, and small HVDC ties should not adversely affect the associated BES system. Major faults within the FACTS system or its interconnecting transformer will be cleared by the external relaying and external switches or circuit breakers. Therefore, FACTS system controllers not considered as protective devices would not fall under the PRC-005 requirements. Large HVDC ties may be an exception since a large power flow could be interrupted by a controlled shutdown. Technically there would be no fault observed, only a reduction or stoppage of AC power flow. True faults would be cleared by external relaying in the usual manner.	
Likes 0	
Dislikes 0	
Response	
Nazra Gladu - Manitoba Hydro - 1	
Answer	
Document Name	
Comment	

None.	
Likes 0	
Dislikes 0	
Response	

Comments submitted by ISO RTO Council Standards Review Committee

1. The Standard Drafting Team (SDT) modified the definition of Protection System. The SDT determined that these modifications were necessary to provide clarity on the inclusion of components of control systems which measure and utilize similar quantities as protective relays and perform similar functions as protective relays. Do the revisions to the Protection System definition and proposed PRC-005-7 (along with the Technical Rationale document) provide clarity to which, if any, components of excitation systems and other control systems are applicable to PRC-005? If you do not agree, please provide your recommendation for clarifications, examples and, if appropriate, technical or procedural justification.
   ☐ Yes
   ☒ No

   Comments: The Technical Rationale explains those protective devices that are used to protect equipment when offline are not considered applicable to PRC-005 requirements. The IRC Standards Review Committee seeks clarification regarding whether synch check relays such as those used to close open breakers back on-line are considered offline or applicable to PRC-005 since they partly monitor offline status equipment.

2. Do the changes to PRC-005 Tables 1-4 adequately address alternative dc supply technologies? If you do not agree, please provide your recommendation for clarifications, examples and, if appropriate, technical or procedural justification.

   ☐ Yes
   ☒ No

   Comments: Rather than specifying known alternative dc supply technologies, the IRC Standards Review Committee asks the SDT to consider an approach that describes the purpose of dc supply so that any new technologies used to provide station power will automatically be included. The SDT may consider developing a NERC Glossary Term that clearly includes these supply technologies that are used to power substation controls so that standard changes are not needed to incorporate new technologies for powering substation controls.

3. The Applicability section, Requirements R1-R5, and Measures M1-M5 were updated to include entities registered as UFLS-only DPs for consistency with changes made to NERC's FERC-approved Risk-Based Registration (RBR). Do you agree with the revisions to include UFLS-only DPs? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.
   ☒ Yes
   ☐ No

   Comments:

4. The SDT believes the language of PRC-005-7 addresses the issues outlined in the SAR in a cost effective manner. Do you agree? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.
   ☒ Yes
   ☐ No

   Comments: Preventative maintenance of relays is the common industry practice to ensure protective systems are reliable and secure.

5. The implementation plan for PRC-005-6 provided compliance dates for Sudden Pressure Relaying, Automatic Reclosing, and dispersed generation resources Entities are currently subject to implementation requirements under the PRC-005-6 implementation plan, which incorporated the PRC-005-2(i) implementation plan by reference for Components first addressed in that standard. Those prior implementation requirements are carried forward in the PRC-005-7 Implementation Plan. Do you agree with the proposed implementation plan timeframes? If you think an alternate timeframe is needed, please propose an alternate implementation plan with detailed explanation.

☒ Yes
☐ No

Comments: No comment