

Consideration of Comments on Proposed Definition of Protection System for Project 2007-17

The Protection System Maintenance and Testing Standard Drafting Team thanks all commenters who submitted comments on the draft definition of "Protection System." This document was posted for a special 35-day public comment period from June 11, 2010 through July 16, 2010. Stakeholders were asked to provide feedback on the proposed definition through a special Electronic Comment Form. There were 50 sets of comments, including comments from more than 110 different people from over 55 companies representing 8 of the 10 Industry Segments as shown in the table on the following pages.

Based on stakeholder comments, the drafting team refined its proposed definition of Protection System as shown below:

Protective relays , which respond to electrical quantities, communication systems necessary for correct operation of protective functions, voltage and current sensing devices providing inputs to protective relays, station dc supply, and control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.

Several comments questioned the reason for implementing the definition of Protection System in advance of implementing the proposed modifications to PRC-005-1. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given "priority." To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now.

Stakeholder comments indicated that applying the expanded scope of the definition of Protection System would to PRC-005-1 would require more than six months and suggested expanding this to 12 months, and the drafting team made this change to the implementation plan. The team adjusted the implementation plan so that entities will have at least twelve months, rather than the six months originally proposed, to apply the new definition of Protection System to PRC-005-1 – Protection System Maintenance and Testing to Requirement R1 of PRC-005-1. The other parts of the implementation plan remain unchanged.

All work of the drafting team has been posted at the following site:

http://www.nerc.com/filez/standards/Protection_System_Maintenance_Project_2007-17.html

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Herbert Schrayshuen, at 609-452-8060 or at Herb.Schrayshuen@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.¹

¹ The appeals process is in the Reliability Standards Development Procedures: <http://www.nerc.com/standards/newstandardsprocess.html>.

Index to Questions, Comments, and Responses

1. Do you believe the proposed definition of Protection System is ready for ballot? If not, please explain why. 10

2. Do you agree with the implementation plan for the revised definition of Protection System? The implementation plan has two phases – the first phase gives entities at least six months to update their protection system maintenance and testing program; the second phase starts when the protection system maintenance and testing program has been updated and requires implementation of any additional maintenance and testing associated with the program changes by the end of the first complete maintenance and testing cycle described in the entity’s revised program. If you disagree with this implementation plan, please explain why. 30

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The Industry Segments are:

- 1 — Transmission Owners
- 2 — RTOs, ISOs
- 3 — Load-serving Entities
- 4 — Transmission-dependent Utilities
- 5 — Electric Generators
- 6 — Electricity Brokers, Aggregators, and Marketers
- 7 — Large Electricity End Users
- 8 — Small Electricity End Users
- 9 — Federal, State, Provincial Regulatory or other Government Entities
- 10 — Regional Reliability Organizations, Regional Entities

		Commenter	Organization	Industry Segment											
				1	2	3	4	5	6	7	8	9	10		
1.	Group	Guy Zito	Northeast Power Coordinating Council												X
Additional Member		Additional Organization		Region Segment Selection											
1.	Alan Adamson	New York State Reliability Council, LLC	NPCC	10											
2.	Gregory Campoli	New York Independent System Operator	NPCC	2											
3.	Kurtis Chong	Independent Electricity System Operator	NPCC	2											
4.	Sylvain Clermont	Hydro-Quebec TransEnergie	NPCC	1											
5.	Chris de Graffenried	Consolidated Edison Co. of New York, Inc.	NPCC	1											
6.	Gerry Dunbar	Northeast Power Coordinating Council	NPCC	10											
7.	Ben Eng	New York Power Authority	NPCC	4											
8.	Brian Evans-Mongeon	Utility Services	NPCC	8											
9.	Dean Ellis	Dynegy Generation	NPCC	5											
10.	Brian L. Gooder	Ontario Power Generation Incorporated	NPCC	5											
11.	Kathleen Goodman	ISO - New England	NPCC	2											
12.	David Kiguel	Hydro One Networks Inc.	NPCC	1											
13.	Michael R. Lombardi	Northeast Utilities	NPCC	1											
14.	Randy MacDonald	New Brunswick System Operator	NPCC	2											
15.	Bruce Metruck	New York Power Authority	NPCC	6											

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	Commenter	Organization	Industry Segment																	
			1	2	3	4	5	6	7	8	9	10								
16.	Lee Pedowicz	Northeast Power Coordinating Council	NPCC	10																
17.	Robert Pellegrini	The United Illuminating Company	NPCC	1																
18.	Saurabh Saksena	National Grid	NPCC	1																
19.	Michael Schiavone	National Grid	NPCC	1																
20.	Peter Yost	Consolidated Edison Co. of New York, Inc.	NPCC	3																
21.	Chantel Haswell	FPL Group	NPCC	5																
22.	Si Truc Phan	Hydro-Quebec TransEnergie	NPCC	1																
2.	Group	Steve Alexanderson	Pacific Northwest Small Public Power Utility Comment Group				X	X												
Additional Member Additional Organization Region Segment Selection																				
1.	Russ Noble	Cowlitz PUD	WECC	3, 4, 5																
2.	Dave Proebstel	Clallam County PUD	WECC	3																
3.	John Swanson	Benton PUD	WECC	3																
4.	Steve Grega	Lewis County PUD	WECC	3, 5																
3.	Group	Margaret Ryan	PNGC Power				X											X		
Additional Member Additional Organization Region Segment Selection																				
1.		Blachly-Lane Electric Cooperative	WECC	3																
2.		Central Electric Cooperative	WECC	3																
3.		Clearwater Electric Cooperative	WECC	3																
4.		Consumer's Power Company	WECC	3																
5.		Coos-Curry Electric Cooperative	WECC	3																
6.		Douglas Electric Cooperative	WECC	3																
7.		Fall River Electric Cooperative	WECC	3																
8.		Lane Electric Cooperative	WECC	3																
9.		Lincoln Electric Cooperative	WECC	3																
10.		Lost River Electric Cooperative	WECC	3																
11.		Northern Lights Electric Cooperative	WECC	3																
12.		Okanogan Electric Cooperative	WECC	3																
13.		Raft River Electric Cooperative	WECC	3																

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			1	2	3	4	5	6	7	8	9	10				
14.	Salmon River Electric Cooperative	WECC 3														
15.	Umatilla Electric Cooperative	WECC 3														
16.	West Oregon Electric Cooperative	WECC 3														
17.	PNGC	WECC 8														
4.	Group	Denise Koehn	Bonneville Power Administration	X		X		X	X							
Additional Member			Additional Organization	Region Segment Selection												
1.	Dean Bender	BPA, Transmission SPC Technical Svcs	WECC 1													
5.	Group	Sam Ciccone	FirstEnergy	X		X	X	X	X							
Additional Member			Additional Organization	Region Segment Selection												
1.	Doug Hohlbaugh	FE	RFC 1, 3, 4, 5, 6													
2.	Jim Kinney	FE	RFC 1													
3.	Ken Dresner	FE	RFC 5													
4.	Brian Orians	FE	RFC 5													
5.	Bill Duge	FE	RFC 5													
6.	J. Chmura	FE	RFC 1													
7.	Dave Folk	FE	RFC 1, 3, 4, 5, 6													
6.	Group	Terry L. Blackwell	Santee Cooper	X		X			X							
Additional Member			Additional Organization	Region Segment Selection												
1.	S. Tom Abrams	Santee Cooper	SERC 1													
2.	Rene' Free	Santee Cooper	SERC 1													
3.	Bridget Coffman	Santee Cooper	SERC 1													
7.	Group	Kenneth D. Brown	Public Service Enterprise Group ("PSEG Companies")	X		X		X	X							
Additional Member			Additional Organization	Region Segment Selection												
1.	Jim Hubertus	PSE&G	RFC 1, 3													
2.	Scott Slickers	PSEG Power Connecticut	NPCC 5													
3.	Jim Hebson	PSEG ER&T	ERCOT 5, 6													
4.	Dave Murray	PSEG Fossil	RFC 5													

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		Commenter	Organization	Industry Segment										
				1	2	3	4	5	6	7	8	9	10	
8.	Group	Daniel Herring	The Detroit Edison Company			X	X	X						
		Additional Member	Additional Organization	Region	Segment Selection									
1.	David A Szulczewski	Relay Engineering	RFC	3, 4, 5										
9.	Group	Sasa Maljukan	Hydro One	X										
		Additional Member	Additional Organization	Region	Segment Selection									
1.	David Kiguel	Hydro One Networks, Inc.	NPCC	1										
10.	Individual	Sandra Shaffer	PacifiCorp	X		X		X	X					
11.	Individual	Brent Inebrightson	E.ON U.S.	X		X		X	X					
12.	Individual	Brandy A. Dunn	Western Area Power Administration	X					X					
13.	Individual	Jana Van Ness	Arizona Public Service Company	X		X		X	X					
14.	Individual	Jack Stamper	Clark Public Utilities	X										
15.	Individual	Dan Roethemeyer	Dynegy Inc.					X						
16.	Individual	Robert Ganley	Long Island Power Authority	X										
17.	Individual	Lauri Dayton	Grant County PUD	X				X						
18.	Individual	Fred Shelby	MEAG Power	X		X		X						
19.	Individual	James A. Ziebarth	Y-W Electric Association, Inc				X							
20.	Individual	Armin Klusman	CenterPoint Energy	X										
21.	Individual	Andrew Z.Pusztai	American Transmission Company	X										
22.	Individual	Eric Ruskamp	Lincoln Electric System	X		X		X	X					
23.	Individual	Kasia Mihalchuk	Manitoba Hydro	X		X		X	X					
24.	Individual	Edward Davis	Entergy Services	X		X		X	X					
25.	Individual	James Sharpe	South Carolina Electric and Gas	X		X		X	X					
26.	Individual	Jon Kapitz	Xcel Energy	X		X		X	X					
27.	Individual	Scott Kinney	Avista Corp	X										

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28.	Individual	Amir Hammad	Constellation Power Generation					X						
29.	Individual	Jeff Nelson	Springfield Utility Board			X								
30.	Individual	Michael R. Lombardi	Northeast Utilities	X		X		X						
31.	Individual	John Bee	Exelon	X		X		X						
32.	Individual	Barb Kedrowski	We Energies			X	X	X						
33.	Individual	Jianmei Chai	Consumers Energy Company			X	X	X						
34.	Individual	Art Buanno	ReliabilityFirst Corp.											X
35.	Individual	Greg Rowland	Duke Energy	X		X		X	X					
36.	Individual	Thad Ness	American Electric Power	X		X		X	X					
37.	Individual	Rex Roehl	Indeck Energy Services					X						
38.	Individual	Claudiu Cadar	GDS Associates	X										
39.	Individual	Terry Bowman	Progress Energy Carolinas	X		X		X	X					
40.	Individual	Kirit Shah	Ameren	X		X		X	X					
41.	Group	Joe Spencer - SERC staff and Phil Winston - PCS co-chair	SERC Protection and Control Sub-committee (PCS)											X
		Additional Member	Additional Organization	Region Segment Selection										
1.	Paul Nauert	Ameren Services Co.	SERC											
2.	Bob Warren	Big Rivers Electric Corp.	SERC											
3.	Trevor Foster	Calpine Corp.	SERC											
4.	John (David) Fountain	Duke Energy Carolinas	SERC											
5.	Paul Rupard	East Kentucky Power Coop.	SERC											
6.	Charles Fink	Entergy	SERC											
7.	Marc Tunstall	Fayetteville Public Works Commission	SERC											
8.	John Clark	Georgia Power Co	SERC											
9.	Nathan Lovett	Georgia Transmission Corp	SERC											

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					1	2	3	4	5	6	7	8	9	10						
10.	Danny Myers	Louisiana Generation, LLC	SERC																	
11.	Ernesto Paon	Municipal Electric Authority of GA	SERC																	
12.	Jay Farrington	PowerSouth Energy Coop.	SERC																	
13.	Jerry Blackley	Progress Energy Carolinas	SERC																	
14.	Joe Spencer	SERC Reliability Corp	SERC																	
15.	Russ Evans	South Carolina Electric and Gas	SERC																	
16.	Bridget Coffman	South Carolina Public Service Authority	SERC																	
17.	Phillip Winston	Southern Co. Services Inc.	SERC																	
18.	George Pitts	Tennessee Valley Authority	SERC																	
19.	Rick Purdy	Virginia Electric and Power Co.	SERC																	
42.	Group	Frank Gaffney	Florida Municipal Power Agency		X		X	X	X	X										
				Additional Member	Additional Organization	Region Segment Selection														
1.	Timothy Beyrle	Utilities Commission of New Smyrna Beach	FRCC	4																
2.	Greg Woessner	Kissimmee Utility Authority	FRCC	1																
3.	Jim Howard	Lakeland Electric	FRCC	1																
4.	Lynne Mila	City of Clewiston	FRCC	3																
5.	Joe Stonecipher	Beaches Energy Services	FRCC	1																
6.	Cairo Vanegas	Fort Pierce Utilities Authority	FRCC	4																
43.	Group	Richard Kafka	Pepco Holdings, Inc. - Affiliates		X		X		X	X										
				Additional Member	Additional Organization	Region Segment Selection														
1.	Alvin Depew	Potomac Electric Power Company	RFC	1																
2.	Carl Kinsley	Delmarva Power & Light	RFC	1																
3.	Rob Wharton	Delmarva Power & Light	RFC	1																
4.	Evan Sage	Potomac Electric Power Company	RFC	1																
5.	Carlton Bradsaw	Delmarva Power & Light	RFC	1																
6.	Jason Parsick	Potomac Electric Power Company	RFC	1																
7.	Walt Blackwell	Potomac Electric Power Company	RFC	1																
8.	John Conlow	Atlantic City Electric	RFC	1																
9.	Randy Coleman	Delmarva Power & Light	RFC	1																

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44.	Group	Mallory Huggins	NERC Staff												
		Additional Member	Additional Organization	Region	Segment Selection										
1.	Joel DeJesus	NERC	NA - Not Applicable	NA											
2.	Mike DeLaura	NERC	NA - Not Applicable	NA											
3.	Al McMeekin	NERC	NA - Not Applicable	NA											
4.	Earl Shockley	NERC	NA - Not Applicable	NA											
5.	Bob Cummings	NERC	NA - Not Applicable	NA											
6.	David Taylor	NERC	NA - Not Applicable	NA											
45.	Individual	JT Wood	Southern Company Transmission		X			X							
46.	Individual	Tom Schneider	WECC												X
47.	Individual	Hugh Conley	Allegheny Power		X										
48.	Individual	Scott Berry	Indiana Municipal Power Agency					X							
49.	Individual	Terry Harbour	MidAmerican Energy Company		X										
50.	Individual	Martin Bauer	US Bureau of Reclamation						X						

1. Do you believe the proposed definition of Protection System is ready for ballot? If not, please explain why.

Summary Consideration: Almost half of the commenters felt that the definition itself was not ready for ballot.

Many commenters wanted more clarity regarding the portion of the definition addressing “voltage and current sensing inputs to protective relays ... “. The SDT inserted the words “devices providing” into the phrase to clarify that instrument transformers are included in the definition. This portion of the definition now reads:

- Voltage and current sensing devices providing inputs to protective relays,

Many commenters also suggested that the definition should limit the protective relays “to those using electrical quantities”, rather than addressing this subject as a footnote in the standard. The SDT incorporated this suggestion; this portion of the definition now reads:

- “Protective relays which respond to electrical quantities”.

The SDT also removed the phrase “from the station dc supply” from the “control circuitry” portion of the definition.

Some commenters suggested that “protective relays” be defined; the SDT chose not to do this as IEEE already defines this term. Many commenters also offered comments on the standard itself. These comments are being addressed in the comment forms for the standard.

The revised definition is:

Protection System:

- Protective relays which respond to electrical quantities,
- Communications systems necessary for correct operation of protective functions,
- Voltage and current sensing devices providing inputs to protective relays,
- Station dc supply, and
- Control circuitry associated with protective functions through the trip coil(s) of the circuit breakers or other interrupting devices.

Several commenters indicated that the definition should not apply to PRC-005-1. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the

drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given "priority." To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.

Organization	Yes or No	Question 1 Comment
GDS Associates	No	<ol style="list-style-type: none"> 1. The inserted wording "and associated circuitry from the voltage and current sensing devices" implies that the maintenance program will include the verification, monitoring, etc. of the wiring from the voltage/current sensing devices which requirement will be a bit excessive under current presentation of the standard. See comment on the standard as well. 2. SDT's additional wording such as "from the station DC supply through the trip coil(s) of the circuit breakers or other interrupting devices" can be a bit of an issue as the coils could be good at time of verification and testing, but can fail right after or due to the testing. We recommend to change the Protection System definition to read "up to the trip coils(s)" instead the word "through"
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The definition has been modified to say, "voltage and current sensing devices providing inputs to protective relays". 2. The SDT disagrees, and asserts that the trip coil(s) must be included within the Protection System. The observation that the element may be good at the time of verification and testing, but fail immediately thereafter, is true of any device that is not monitored continuously for proper operating function. 		
Grant County PUD	No	<ol style="list-style-type: none"> 1) We note that the definition of a "Protection System" has been expanded to include the trip coils and what used to be confined to batteries has now been expanded to "station DC supply." "Trip coils" is an improvement. Inasmuch as the mark-up changing "DC" to "dc" is intended to communicate a more general term as opposed to a strict definition, it leaves room for differing opinions among auditors as to what all should be included. We

Organization	Yes or No	Question 1 Comment
		<p>support the change to exclude battery chargers since the rationale for their inclusion was never clear. The battery itself will be, without exception, the “first responder” to provide DC power to a Protection System. However, battery chargers have not been excluded under the FAQs.</p> <p>2) The SPCTF’s effort to define applicability in terms of “Facilities” is confusing. Additionally, it is unclear how the terms “component,” “element” and “Facility” are intended to relate to one another. An assumption may be that one or more components (which are physical assets) can comprise an “element,” one or more of which can be associated with an identifiable function, aligning with the five Protection System Equipment Categories, found in SPCTF’s “PROTECTION SYSTEM MAINTENANCE-A Technical Reference, dated Sept. 13, 2007, and that “Facility” is as used in 4.2.1 of the Standard Development Roadmap, dated May 27, 2010. Please provide guidance on the terms relate to one another.</p> <p>3) The structure of the proposed standard is less clear than the existing standard PRC-005-1 because of the potential for ambiguity between the definition of Protection System and how the term “Facilities” is applied. A suggested resolution would be to revise the definition of Protection System to resolve this ambiguity or to delete reference to 86 lockouts and auxiliary relays in the description of “Facilities.” If the 86 lockout relays are to be included, they should be added as part of the DC Control Circuitry “element” (as found in the NERC Glossary) of the circuit that energizes the 86 relay, thus placing it within the definition of a “Protection System.”-once-and therefore in a manner that would require only one scheduled maintenance to be performed if the testing schemes are properly set up. We do agree, however, that sudden pressure relays, reclosing relays, and other non fault detecting relays such as loss of cooling relays should not be referenced as part of the “dc control circuitry” Element.</p>
<p>Response: Thank you for your comments.</p> <p>1. A recent Interpretation request, referring to the currently approved definition specifying “station batteries”, excluded</p>		

Organization	Yes or No	Question 1 Comment
		<p>battery chargers. The change to “station dc supply” is intended to expand the definition to include all essential elements including battery chargers; without proper functioning of battery chargers, the battery will be discharged by normal station dc load, and will be unable to perform its function; also, there are some entities which use a charger to provide the dc supply without use of a battery. Use of “dc” rather than “DC” reflects the IEEE style guide for this term. The FAQ intentionally does not exclude battery chargers as the SDT intend to include them within PRC-005-2.</p> <p>2. This comment does not appear to apply to the definition, but instead to the draft Standard itself.</p> <p>3. The SDT contends that “dc control circuitry” includes elements such as lockout relays and auxiliary relays.</p>
Consumers Energy	No	<p>1. It is unclear whether “voltage and current sensing inputs” include the instrument transformer itself, or does it pertain to only the circuitry and input to the protective relays?</p> <p>2. It is not clear what is included in the component, “station dc supply” without referring to other documents (the posted Supplementary Reference and/or FAQ) for clarification. The definition should be sufficiently detailed to be clear.</p> <p>3. If Protection Systems trip via AC methods, are those systems, and the associated control circuitry included?</p>
<p>Response: Thank you for your comments.</p> <p>1. The SDT has modified the definition for clarity; the SDT intends that the output of these devices, measured at the relay, properly represents the primary quantities.</p> <p>2. There are many possible variations to “station dc supply”; it seems impossible to reflect all variations in the definition. The definition must be sufficiently general such that variations can be included.</p> <p>3. The definition has been generalized such that ac tripping is included.</p>		
Public Service Enterprise Group ("PSEG Companies")	No	Based on review of ballot pool comments there are still too many questions that should be resolved prior to submittal for ballot. It is suggested that a specific reference to the supplementary reference document figures 1 & 2 and the legend be added. That would

Organization	Yes or No	Question 1 Comment
		further define the protection system components and scope boundary.
Response: Thank you for your comments. The SDT has revised the definition to make it more clear as a stand-alone product.		
CenterPoint Energy	No	<p>CenterPoint Energy believes the proposed definition of “Protection System” is technically incorrect. The present definition does not include trip coils of interrupting devices, such as circuit breakers; and correctly so, as trip coils are components of the interrupting device. A Protection System has correctly performed its function if it provides tripping voltage up to the circuit breaker trip coil. From that point, the circuit breaker can fail to timely interrupt fault current due to several factors, such as a binding mechanism that affects breaker clearing time, a broken pull rod, a bad insulating medium, or bad trip coils. Local breaker failure protection, or remote backup protection, is installed to address the various possible causes of circuit breaker failure.</p> <p>For correctness, the definition of “Protection System” should be “Protective relays, communication systems necessary for correct operation of protective functions, voltage and current sensing inputs to protective relays and associated circuitry from the voltage and current sensing devices, station dc supply, and control circuitry associated with protective functions from the station dc supply UP TO THE TERMINALS OF the trip coil(s) of the circuit breakers or other interrupting devices.”</p>
Response: Thank you for your comments. The SDT disagrees, and asserts that the trip coil(s) must be included within the Protection System.		
Constellation Power Generation	No	Constellation believes that this definition is too verbose, which can lead to unintended interpretations. Constellation is concerned with the term sensing inputs, which may infer that testing on instrument transformers must be completed while they are energized. This proves difficult at a generating facility where most testing is completed during planned outages when this equipment is not energized.

Organization	Yes or No	Question 1 Comment
<p>4. Response: Thank you for your comments. The SDT has modified the definition for clarity; the SDT intends that the output of these devices, measured at the relay, properly represents the primary quantities. Testing methods are not a part of the definition.</p>		
<p>Hydro One</p>	<p>No</p>	<ol style="list-style-type: none"> 1. Hydro One suggests adding “Components including” in the beginning. This is because the word “components” has been used extensively throughout the standard and there is no mention of what constitutes a protection system component in the standard. The word “component” does find mention in FAQs, however, it is recommended to mention it in the main standard. The revised definition should read as follows: Protective System Components including Protective relays, communication systems necessary for correct operation of protective functions, voltage and current sensing devices providing inputs to protective relays and associated circuitry from the voltage and current sensing devices, station dc supply, and control circuitry associated with protective functions from the station dc supply through the trip coil(s) of the circuit breakers or other interrupting devices. 2. There is not enough clarity on whether a Distribution Provider (DP) will be able to clearly identify which all protection system components does it own and need to maintain. This is critical since NPCC had proposed a SAR to this effect which was not accepted by NERC citing that this concern will be incorporated in the revised standard. 3. Also, reference should be made to Project 2009-17 in which Y-W Electric Association, Inc. (Y-WEA) and Tri-State Generation and Transmission Association, Inc. (Tri-State) requested an interpretation of the term "transmission Protection System" and specifically whether protection for a radially-connected transformer protection system energized from the BES is considered a transmission Protection System and is subject to these standards.
<p>Response: Thank you for your comments.</p> <p>1. The SDT believes that the suggested text does not add to the definition, and may actually lead to additional problems,</p>		

Organization	Yes or No	Question 1 Comment
<p>such as an implication that the list within the definition is incomplete.</p> <p>2. This issue is properly addressed within the Standard, not within the definition.</p> <p>3. This issue relates to the application of the standard, and is not part of the definition.</p>		
<p>Pacific Northwest Small Public Power Utility Comment Group</p>	<p>No</p>	<p>1. It is still unclear whether relays that respond to mechanical inputs, such as sudden pressure relays, are included in the proposed definition as protective relays.</p> <p>While PRC-005-2 R1 limits the scope of that particular standard to protection systems that sense electrical quantities, it remains unclear in other standards that use the defined term whether mechanical input protections are included.</p> <p>2. We suggest that “Protective Relay” also be defined, and that the definition clearly exclude devices that respond to mechanical inputs in line with the NERC interpretation of PRC-005-1 in response to the CMPWG request.</p>
<p>Response: Thank you for your comments.</p> <p>1. The definition has been modified to specify, “Protective relays which respond to electrical quantities”.</p> <p>2. “Protective relay” is defined by IEEE and does not have a unique meaning when used in a NERC standard, thus the SDT sees no need to either modify or duplicate that definition.</p>		
<p>Pepco Holdings, Inc. - Affiliates</p>	<p>No</p>	<p>It is still unclear whether relays that respond to mechanical inputs, such as sudden pressure relays, are included in the proposed definition as protective relays.</p> <p>While PRC-005-2 R1 limits the scope of that particular standard to protection systems that sense electrical quantities, it remains unclear in other standards that use the term “Protection System” (such as PRC-004) whether devices responding to mechanical inputs</p>

Organization	Yes or No	Question 1 Comment
		<p>are included.</p> <p>As such, we suggest that the term “Protective Relay” also be defined, and that the definition clearly exclude devices that respond to mechanical inputs in line with the NERC interpretation of PRC-005-1 in response to the CMPWG request.</p>
<p>Response: Thank you for your comments.</p> <p>The definition has been modified to specify, “Protective relays which respond to electrical quantities”.</p> <p>“Protective relay” is defined by IEEE and does not have a unique meaning when used in a NERC standard, thus the SDT sees no need to either modify or duplicate that definition.</p>		
PNGC Power	No	<p>It is still unclear whether relays that respond to mechanical inputs, such as sudden pressure relays, are included in the proposed definition as protective relays.</p> <p>While PRC-005-2 R1 limits the scope of that particular standard to protection systems that sense electrical quantities, it remains unclear in other standards that use the defined term whether mechanical input protections are included.</p> <p>We suggest that “Protective Relay” also be defined, and that the definition clearly exclude devices that respond to mechanical inputs in line with the NERC interpretation of PRC-005-1 in response to the CMPWG request.</p>
<p>Response: Thank you for your comments.</p> <p>The definition has been modified to specify, “Protective relays which respond to electrical quantities”.</p> <p>“Protective relay” is defined by IEEE and does not have a unique meaning when used in a NERC standard, thus the SDT sees</p>		

Organization	Yes or No	Question 1 Comment
no need to either modify or duplicate that definition.		
Duke Energy	No	It is unclear whether the revised definition includes PTs and CTs, but it does include the wiring. We don't see a way to list the wiring in R1.1 and provide supporting compliance evidence. We believe the phrase "and associated circuitry from the voltage and current sensing devices" should be struck from the definition.
Response: Thank you for your comments. The definition has been modified as suggested.		
Indeck Energy Services	No	<p>It presumes that all relays in a plant are Protective Systems that affect BES reliability.</p> <p>As discussed at the FERC Technical Conference on Standards Development, the goal of the standards program is to avoid or prevent cascading outages--specifically not loss of load. The purpose of PRC-005-2 uses the term in its global sense but there is no subset of the Protection Systems that affect reliability. PRC-005 R1 requires identification of all components.</p> <p>With the broad definition proposed and no separate term for only relays and other components that have been identified as affecting reliability, confusion results. If this term has its global meaning, then another term, such as Reliability Protection Systems, should be instituted to avoid confusion.</p>
Response: Thank you for your comments. The SDT believes that this issue is one for application of the definition within various standards, not one of the definition itself.		
Lincoln Electric System	No	LES believes the proposed definition of Protection System as written remains open to interpretation. LES offers the following Protection System definition for the SDT's consideration: "Protection System" is defined as: A system that uses measurements of

Organization	Yes or No	Question 1 Comment
		voltage, current, frequency and/or phase angle to determine anomalies and trips a portion of the BES and consists of 1) Protective relays, and associated auxiliary relays, that initiate trip signals to trip coils, 2) associated communications channels, 3) current and voltage transformers supplying protective relay inputs, 4) dc station supply, excluding battery chargers, and 5) dc control trip path circuitry to the trip coils of BES connected breakers, or equivalent interrupting device, and lockout relays.
<p>Response: Thank you for your comments. The SDT has modified the definition to address some of the suggestions. Other elements of the suggestion do not add to the existing definition, and the SDT disagrees with the suggestions regarding “trip a portion of the BES” since Special Protection Systems and UVLS may actually trip non-BES facilities, and with excluding battery chargers.</p>		
Long Island Power Authority	No	<ol style="list-style-type: none"> 1. LIPA suggests adding “Protection System Components including” in the beginning. This is because the word “components” has been used extensively throughout the standard and there is no mention of what constitutes a protection system component in the standard. The word “component” does find mention in FAQs, however, it is recommended to mention it in the main standard. 2. Also, LIPA proposes a change in the proposed definition (changing "voltage and current sensing inputs" to "voltage and current sensing devices providing inputs").The revised definition should read as follows: Protective System Components including Protective relays, communication systems necessary for correct operation of protective functions, voltage and current sensing devices providing inputs to protective relays and associated circuitry from the voltage and current sensing devices, station dc supply, and control circuitry associated with protective functions from the station dc supply through the trip coil(s) of the circuit breakers or other interrupting devices. 3. There is not enough clarity on whether a Distribution Provider (DP) will be able to clearly identify all protection system components it owns and needs to maintain. This is critical since NPCC had proposed a SAR to this effect which was not accepted by NERC citing that this concern will be incorporated in the revised standard.

Organization	Yes or No	Question 1 Comment
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The SDT believes that the suggested text does not add to the definition, and may actually lead to additional problems, such as an implication that the list within the definition is incomplete. 2. The SDT has modified the definition as suggested regarding voltage and current sensing inputs. 3. This issue is properly addressed within the Standard. 		
Progress Energy Carolinas	No	See comment associated with question 2.
<p>Response: Thank you for your comments. Please see our response to your comment associated with question 2.</p>		
Northeast Power Coordinating Council	No	<ol style="list-style-type: none"> Suggest adding “Protection System Components including” in the beginning. This is because the word “components” has been used extensively throughout the standard and there is no mention of what constitutes a protection system component in the standard. The word “component” does find mention in FAQs, however, it is recommended to mention it in the body of the standard. The revised definition should read as follows: Protection System Components including Protective relays, communication systems necessary for correct operation of protective functions, voltage and current sensing devices providing inputs to protective relays and associated circuitry from the voltage and current sensing devices, station dc supply, and control circuitry associated with protective functions from the station dc supply through the trip coil(s) of the circuit breakers or other interrupting devices. An alternative definition for Protection System to eliminate the need to capitalize “component”:The collective components comprised of protective relays, communication systems necessary for correct operation of protective functions, voltage and current sensing devices providing inputs to protective relays and associated circuitry from the voltage and current sensing devices, station dc supply, and control circuitry associated with protective functions from the station dc supply through the trip coil(s) of the circuit

Organization	Yes or No	Question 1 Comment
		<p>breakers or other interrupting devices.</p> <p>3. There is not enough clarity on whether a Distribution Provider (DP) will be able to clearly identify which protection system components it does own and needs to maintain. Many DPs own and/or operate equipment identified in the existing or proposed definition. However, not all such equipment translates into a transmission Protection System. The definition needs clarification on when such equipment is a part of the transmission protection system. This is critical since NPCC had proposed a SAR to this effect which was not accepted by NERC citing that this concern will be incorporated in the revised standard. Also, reference should be made to Project 2009-17 in which Y-W Electric Association, Inc. (Y-WEA) and Tri-State Generation and Transmission Association, Inc. (Tri-State) requested an interpretation of the term "transmission Protection System" and specifically whether protection for a radially-connected transformer protection system energized from the BES is considered a transmission Protection System and is subject to these standards.</p>
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The SDT believes that the suggested text does not add to the definition, and may actually lead to additional problems, such as an implication that the list within the definition is incomplete. 2. The SDT believes that the suggested text does not add to the definition, and may actually lead to additional problems, such as an implication that the list within the definition is incomplete. 3. This issue relates to the application of the standard, and is not part of the definition. 		
Y-W Electric Association, Inc	No	<p>The application of this definition to Reliability Standards NUC-001-2, PER-005-1, PRC-001-1, and PRC-004-1 results in confusion as to whether relays with mechanical inputs are included or excluded from this definition. PRC-005-2_R1 contains language limiting its applicability to relays operating on electrical inputs only, but the remaining standards that rely on this definition are not so specific. This being the case, it would make much more sense to clearly define what devices are actually meant in the glossary definition rather</p>

Organization	Yes or No	Question 1 Comment
		than leaving it up to each individual standard to do so.
<p>Response: Thank you for your comments. The definition has been modified to specify, “Protective relays which respond to electrical quantities”.</p>		
Arizona Public Service Company	No	<ol style="list-style-type: none"> 1. The change to the definition relative to the voltage and current sensing devices is too prescriptive. 2. Methods of determining the integrity of the voltage and current inputs into the relays to ensure reliability of the devices should be up to the discretion of the utility.
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The SDR modified the definition, relating to voltage and current sensing inputs, for clarity. 2. The issue regarding methods, etc, is an issue for the standard itself, not the definition. 		
MidAmerican Energy Company	No	<p>The definition is expanded and clarified in the language of PRC-005-2. These changes should be incorporated in the definition to insure it is used consistently in PRC-005 and any other standards where it appears.</p> <p>The following is a suggested revised definition:”Protection System” is defined as: A system that uses measurements of voltage, current, frequency and/or phase angle to determine anomalies and to trip a portion of the BES to provide protection for the BES and consists of 1) Protective relays for BES elements and, 2) Communications systems necessary for correct BES protection system operations and, 3) Current and voltage sensing devices supplying BES protective relay input and, 4) Station DC supply to BES protection systems excluding battery chargers, and 5) DC control trip paths to the trip coil(s) of the circuit breakers or other interrupting devices for BES elements.</p>

Organization	Yes or No	Question 1 Comment
<p>Response: Thank your for your comments.</p> <p>The SDT modified the definition to address some of the suggestions. Other elements of the suggestion do not add to the existing definition, and the SDT disagrees with the suggestions regarding “trips a portion of the BES” since Special Protection Systems and UVLS may actually trip non-BES facilities, and with excluding battery chargers.</p>		
The Detroit Edison Company	No	The definition should clarify whether current and voltage transformers themselves are included.
<p>Response: Thank you for your comments. The SDT modified the definition to state, “voltage and current sensing devices providing inputs to protective relays”.</p>		
Avista Corp	No	The modified definition of Protection System now refers to “functions” rather than “devices.” What are the “functions?” This new term adds confusion without being defined in the standard.
<p>Response: Thank you for your comments. The “functions” are the accumulated performance of the various portions of the Protection System. This term is used to distinguish “protective functions” from annunciation, signaling, or information.</p>		
American Electric Power	No	The term "station" should either be defined or removed from the definition, as it implies transmission and distribution assets while the term "plant" is used to define generation assets. It would suffice to simply refer to the "DC Supply".
<p>Response: Thank you for your comments. The term “station” is used in a generic sense to apply to either “substation” or “generation station” facilities.</p>		
Xcel Energy	No	We recommend modifying the language to remove circuit breakers altogether: “...through the trip coil(s) of the circuit breakers or other interrupting devices.”
<p>Response: Thank you for your comments. The SDT believes that circuit breakers are by far the most prevalent interrupting</p>		

Organization	Yes or No	Question 1 Comment
devices, and to generalize as suggested will lead to industry confusion.		
Allegheny Power	Yes	
American Transmission Company	Yes	
Bonneville Power Administration	Yes	
Clark Public Utilities	Yes	
Dynegy Inc.	Yes	
E.ON U.S.	Yes	
Entergy Services	Yes	
Exelon	Yes	
Indiana Municipal Power Agency	Yes	
Manitoba Hydro	Yes	
MEAG Power	Yes	
Northeast Utilities	Yes	
PacifiCorp	Yes	

Organization	Yes or No	Question 1 Comment
Springfield Utility Board	Yes	
US Bureau of Reclamation	Yes	
We Energies	Yes	
WECC	Yes	
Western Area Power Administration	Yes	
Florida Municipal Power Agency	Yes	<p>Because the definition changes the scope of what a protection system covers, increasing that scope, the definition should not be balloted separately from PRC-005-2 so that the industry knows what is being committed to. For instance, the circuitry connecting the voltage and current sensing devices to the relays is a scope expansion. Station DC supply increases the scope to include the charger, etc. This scope increase needs to have an appropriate implementation period.</p>
<p>Response: Thank you for your comments. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given "priority." To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
NERC Staff	Yes	<p>Still, to make sure the reference to dc supply is more generic than just "station dc supply," NERC staff suggests the following modified definition of Protection System: "Protective relays, communication systems necessary for correct operation of protective functions, voltage and current sensing inputs to protective relays and associated circuitry from the voltage and current sensing devices, and any dc supply or control circuitry associated with</p>

Organization	Yes or No	Question 1 Comment
		the preceding devices."
<p>Response: Thank you for your comments. The SDT believes that modifying the definition as suggested does not add to the definition.</p>		
FirstEnergy	Yes	<ol style="list-style-type: none"> 1. The definition is ready for ballot with the addition of auxiliary relays to the definition of protective relays. There is a potential for an entity to determine that auxiliary relays do not perform a protection function since they typically do not sense fault current. Furthermore, one could determine that the term "circuitry" only refers to the wiring to connect the various DC devices together. We suggest adding "auxiliary relays necessary for correct operation of protective devices" to improve clarity of the definition. 2. With regard to the change from the current definition phrase "station batteries" to the new definitions phrase "station DC supply", it may not be clear to the reader that this includes battery chargers. To alleviate future interpretation issues, we suggest adding a clarifying statement at the end of the definition, such as "The station DC supply includes the battery, battery charger, and other DC components". 3. The acronym "dc" should be capitalized.
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The SDT believes that auxiliary relays are implicitly part of the control circuitry. The Supplementary Reference as posted in June 2010 (Section 15.3, page 22) specifically states that “the dc control circuitry also includes each auxiliary tripping relay ...”. 2. Clarifications such as this properly belong in supplementary materials. This is described in the FAQ posted in June 2010 (FAQ II.5.A). 3. The term, “dc”, rather than “DC”, reflects the NERC style guide. 		
ReliabilityFirst Corp.	Yes	The definition should probably include interrupting devices as the Protection System is of

Organization	Yes or No	Question 1 Comment
		little value if the fault cannot be interrupted.
Response: Thank you for your comments. Interrupting devices are not within the scope of this project.		
South Carolina Electric and Gas	Yes	The new definition effective date should be directly linked to the approval and implementation schedule of PRC-005-2 to avoid any possible compliance issues under the current PRC-005 standard.
Response: Thank you for your comments. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given "priority." To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.		
Ameren	Yes	<ol style="list-style-type: none"> 1. We agree that the definition provides clarity and will enhance the reliability of the Protection Systems to which it is applicable; however, we suggest that a Glossary term for Protective Relay be added in order to clarify in all standards inclusion of relays that measure voltage, current, frequency and/or phase angle to determine anomalies, as stated in PRC-005-2 R1. 2. We believe there should be a direct linkage of the definition's effective date to the approval and implementation schedule of PRC-005-2. Since this new definition is directly linked to the proposed revised standard, it would be premature to make this definition effective prior to the effective date of the new standard. 3. We agree that the voltage and current inputs at the protective relays correctly identifies that component, that this excludes the instrument transformer itself. 4. We suggest replacing "to" with "at", and omitting "and associated circuitry from the voltage and current sensing devices."

Organization	Yes or No	Question 1 Comment
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. Thank you. “Protective relay” is defined by IEEE and does not have a unique meaning when used in a NERC standard, thus the SDT sees no need to either modify or duplicate that definition. 2. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given “priority.” To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1. 3. Based on other industry comments, the SDT has modified the definition to include these devices. 4. The SDT modified this portion of the definition to state, “voltage and current sensing devices providing inputs to protective relays”. 		
SERC Protection and Control Sub-committee (PCS)	Yes	We agree that the definition provides clarity and will enhance the reliability of the Protection Systems to which it is applicable; however, we believe there should be a direct linkage of the definition’s effective date to the approval and implementation schedule of PRC-005-2. Since this new definition is directly linked to the proposed revised standard, it would be premature to make this definition effective prior to the effective date of the new standard.
<p>Response: Thank you for your comments. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given “priority.” To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
Southern Company	Yes	We agree that the definition provides clarity and will enhance the reliability of the Protection Systems to which it is applicable. However, we feel that there needs to be a direct linkage

Organization	Yes or No	Question 1 Comment
Transmission		of the definition’s effective date to the approval and implementation schedule of PRC-005-2. Since this new definition is directly linked to the proposed revised standard, it would be premature to make this definition effective prior to the effective date of the new standard.
<p>Response: Thank you for your comments. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given “priority.” To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
Santee Cooper	Yes	We agree with the proposed definition. However, the effective date of this definition should be linked to the implementation schedule of PRC-005-2. This definition should not be made effective prior to the new standard.
<p>Response: Thank you for your comments. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given “priority.” To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		

2. Do you agree with the implementation plan for the revised definition of Protection System? The implementation plan has two phases – the first phase gives entities at least six months to update their protection system maintenance and testing program; the second phase starts when the protection system maintenance and testing program has been updated and requires implementation of any additional maintenance and testing associated with the program changes by the end of the first complete maintenance and testing cycle described in the entity’s revised program. If you disagree with this implementation plan, please explain why.

Summary Consideration: Most commenters felt that the definition and its implementation should be linked to the approval and implementation of the revised standard. The retirement date for the existing definition, in the Implementation Plan, was developed upon advice of NERC Compliance staff and is intended to address a reliability gap caused by the existing definition. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given “priority.” To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now.

Additional commenters indicated that a 6-month implementation schedule for modifying their Protection System maintenance and testing program is insufficient. The SDT revised the first phase of the implementation plan to 12-months. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.

Organization	Yes or No	Question 2 Comment
WECC		Compliance agrees only if the original “Protection System” definition is in place for the interim implementation period, so that only the changes and or additions to the “Protection System” definition are covered under the proposed implementation plan.
<p>Response: Thank you for your comments. The retirement date for the existing definition, in the Implementation Plan, was developed upon advice of NERC Compliance staff and is intended to address a reliability gap caused by the existing</p>		

Organization	Yes or No	Question 2 Comment
definition.		
Public Service Enterprise Group ("PSEG Companies")	No	<ol style="list-style-type: none"> 1. The draft implementation plan general considerations have a requirement to identify all the protection system components addressed under PRC-005-1 and PRC-005-2 for potential audits while modifying the existing programs. The standard revision will require extensive reviews and possibly add significant amounts of components to the program. This is listed as a requirement without a specific deadline other than supplying the information as part of an audit. If an audit is scheduled or announced early in the implementation period the evidence is required. The requirement for identifying all the components in the implementation process should have a time specified with bases for the starting point. 2. Where additional definition of a protection system scope boundary is determined as a result of the standard revisions, the implementation plan completion requirement should be at the end of next maintenance interval of that added protection system component. There may be situations where additional scope as determined by the additions or revisions to the standard and/or supporting reference material (e.g., an auxiliary contact input in a tripping scheme) would require going back and taking equipment out of service to perform that one check. To keep the maintenance and outage schedules coordinated the new requirements should be at the end of current cycles, not beginning.
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The posted implementation plan for the definition specifies that the program be updated by the end of the first calendar quarter six months following regulatory approvals. This establishes the requested schedule for the definition alone. Implementation of PRC-005-2 is discussed in the implementation plan for the standard. 2. The posted implementation plan for the definition provides for the requested implementation by specifying, “and implement any additional maintenance and testing (required in Requirement R2 of PRC-005-1 – Transmission and Generation Protection System Maintenance and Testing) by the end of the first complete maintenance and testing cycle described in the entity’s program description and basis document(s) following establishment of the program changes 		

Organization	Yes or No	Question 2 Comment
resulting from the revised definition”.		
Ameren	No	As noted above, the implementation plan should be linked to the approval of PRC-005-2. Since this new definition is directly linked to the proposed revised standard, it would be premature to make this definition effective prior to the effective date of the new standard. Otherwise, entities must address equipment, documentation, work management process, and employee training changes needed for compliance twice within an unreasonably short timeframe. If PRC-005-2 receives regulatory approval in 1st quarter 2011, PSMP implementation along with this revised definition should be effective at the beginning of 2012 to coincide with the calendar year. These nine months will be needed to fully assess and address the necessary maintenance program documentation changes, maintenance system tool revisions, and personnel training needed to incorporate this new definition into our program.
<p>Response: Thank you for your comments. The retirement date for the existing definition, in the Implementation Plan, was developed upon advice of NERC Compliance staff and is intended to address a reliability gap caused by the existing definition. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given “priority.” To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
SERC Protection and Control Sub-committee (PCS)	No	As noted above, the implementation plan should be linked to the approval of PRC-005-2. Since this new definition is directly linked to the proposed revised standard, it would be premature to make this definition effective prior to the effective date of the new standard.
<p>Response: Thank you for your comments. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given “priority.” To close this</p>		

Organization	Yes or No	Question 2 Comment
<p>reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
Florida Municipal Power Agency	No	<p>As stated in response to Question 1, it is inappropriate to change the definition of Protection System for PRC-005-1 and the new definition should wait for the new standard. In all honesty, the new PRC-005-2 lays out the program anyway, so, any change to the definition needs to be accompanied by the commitment associated with that change.</p>
<p>Response: Thank you for your comments. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given "priority." To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
American Electric Power	No	<p>As written, the implementation plan only specifies a time frame for entities to update their documentation for PRC-005-1 and PRC-005-2 compliance. The implementation plan also needs to give entities a time frame to address any required changes to their documentation for other standards that use the term "Protection System", including but not limited to NUC-001-2, PER-005-1, PRC-001-1, etc.</p>
<p>Response: Thank you for your comments. An assessment of the changes to the definition (posted with the first comment period), relative to the entire body of other NERC Standards using this defined term, determined that the changes are consistent with the other existing uses of the definition, and that no other implementation plan considerations were necessary. No comments were received relative to this assessment.</p>		
American Transmission Company	No	<p>1. ATC does not agree to the implementation plan proposed. While it makes common sense to proceed with R1 prior to proceeding with implementing R2, R3, and R4, the timeline to be compliant for R1 is too short. It will take a considerable amount of</p>

Organization	Yes or No	Question 2 Comment
		<p>resources to migrate the maintenance plan from today’s standard to the new standard in phase one. ATC recommends that time to develop and update the revised program be increased to at least one year followed by a transition time for the entity to collect all the necessary field data for the protection system within its first full cycle of testing. (In ATC’s case would be 6 years) To address phase two, ATC believes human and technological resources will be overburdened to implement this revised standard as written. The transition to implementing the new program will take another full testing cycle once the program has been updated. Increased documentation and obtaining additional resources to accomplish this will be challenging.</p> <p>2. Implementation of PRC-005-2 will impact ATC in the following manner: a. Increase costs: double existing maintenance costs. b. Since there will be a doubling of human interaction (or more), it is expected that failures due to human error will increase, possibly proportionately. c. Breaker maintenance may need to be aligned with protection scheme testing, which will always contain elements that are include in the non-monitored table for 6 yr testing. d. ATC is developing standards for redundant bus and transformer protection schemes. This would allow ATC to test the protection packages without taking the equipment out of service. Further if one system fails, there is full redundancy available. With the current version of PRC-005-2, ATC would need to take an outage to test the protection schemes for a transformer or a bus, there is not an incentive to install redundant schemes. ATC is working with a condition based breaker maintenance program. This program’s value would be greatly diminished under PRC-005-2 as currently written.</p> <p>3. Consideration also needs to be given for other NERC standards expected to be passed and in the implementation stage at the same time, such as the CIP standards.</p>
<p>Response: Thank you for your comments.</p> <p>1. This comment appears to address implementation of the draft Standard, not the definition.</p> <p>2. This comment appears to address implementation of the draft Standard, not the definition.</p>		

Organization	Yes or No	Question 2 Comment
3. Thank you.		
Duke Energy	No	Definition should be implemented concurrently with PRC-005-2.
<p>Response: Thank you for your comments. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given "priority." To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
Consumers Energy Company	No	For entities that may not have included all elements reflected in the modified definition within their PRC-005-1 program, 6-months following regulatory approvals may not be sufficient to identify all relevant additional components, develop maintenance procedures, develop maintenance and testing intervals, develop a defensible technical basis for both the procedures and intervals, and train personnel on the newly implemented items. We propose that a 12-month schedule following regulatory approvals may be more practical.
<p>Response: Thank you for your comments. The Implementation Plan has been modified to allow a 12-month schedule as suggested. However, to agree with the SDT Guidelines established by NERC, "end of the first calendar quarter" was modified to "first day of the first calendar quarter".</p>		
Exelon	No	PECO would like to have the implementation plan provide at least 1 year for full implementation of the new standard. This will provide adequate time for development of documentation, training for all personnel, and testing then implementation of the new process(es).
<p>Response: Thank you for your comments. The Implementation Plan has been modified to allow a 12-month schedule as suggested. However, to agree with the SDT Guidelines established by NERC, "end of the first calendar quarter" was modified to "first day of the first calendar quarter".</p>		

Organization	Yes or No	Question 2 Comment
Progress Energy Carolinas	No	Progress Energy does not believe that the definition should be implemented separately from and prior to the implementation of PRC-005-2. We believe there should be a direct linkage between the definition's effective date to the approval and implementation schedule of PRC-005-2. Since this new definition should be directly linked to the proposed revised standard, it would be premature to make this new definition effective prior to the effective date of the new standard. We believe that changes to the maintenance program should be driven by the revision of the PRC standard, not by the revision of a definition.
<p>Response: Thank you for your comments. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given "priority." To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
Pepco Holdings, Inc. - Affiliates	No	The 6 month time frame to update the revised maintenance and testing program is too short. Specifically identifying and documenting each component not presently individually identified in our maintenance databases, auxiliary relays, lock-out relays, etc. will require a major effort. We recommend at least one year.
<p>Response: Thank you for your comments. The Implementation Plan has been modified to allow a 12-month schedule as suggested. However, to agree with the SDT Guidelines established by NERC, "end of the first calendar quarter" was modified to "first day of the first calendar quarter".</p>		
Indeck Energy Services	No	The definition should not be implemented separate from PRC-002-2. The PRC-002-2 implementation plan would be adequate.
<p>Response: Thank you for your comments. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given "priority." To close this</p>		

Organization	Yes or No	Question 2 Comment
<p>reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
E.ON U.S.	No	<p>The first phase is only 3 months (per Implementation Plan) to update the program, not the 6 months as listed in this question. E.ON U.S. recommends that it should be a minimum of 6 months, regardless.</p>
<p>Response: Thank you for your comments. The Implementation Plan for the definition specifically indicated a 6-month (increased to 12-months in response to comments) implementation schedule to update the program. However, to agree with the SDT Guidelines established by NERC, “end of the first calendar quarter” was modified to “first day of the first calendar quarter”.</p>		
Santee Cooper	No	<p>The implementation plan should be linked to the approval of PRC-005-2. The definition should not be made effective prior to the new standard.</p>
<p>Response: Thank you for your comments. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given “priority.” To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
Xcel Energy	No	<ol style="list-style-type: none"> <li>1. The implementation plans for both the definition and standard are confusing. Does this imply a "clean slate" approach can be used? i.e. do entities have up to the first interval window to complete the maintenance or must they have it complete on day 1 of the standard and again by the first interval? <li>2. It also appears that the implementation plans are conflicting whereby one requires full compliance and the other allows 6 months...the definition implementation plan also refer

Organization	Yes or No	Question 2 Comment
		to a basis document though the standard does not require one.
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The implementation plan for the definition specifically states that the entity has until the end of the first full interval established per their program and basis documents to implement the updated program (i.e. complete the maintenance). 2. The Implementation Plan for the definition specifically indicated a 6-month (increased to 12-months in response to comments) implementation schedule to update the program. However, to agree with the SDT Guidelines established by NERC, “end of the first calendar quarter” was modified to “first day of the first calendar quarter”. PRC-005-1 requires basis documents, where PRC-005-2 (draft) does not, as maximum intervals and minimum activities are prescribed within the standard. 		
Manitoba Hydro	No	The proposed implementation stage of 6 months is much too stringent and an 18 month window is suggested.
<p>Response: Thank you for your comments. The Implementation Plan has been modified to allow a 12-month schedule. However, to agree with the SDT Guidelines established by NERC, “end of the first calendar quarter” was modified to “first day of the first calendar quarter”.</p>		
MidAmerican Energy Company	No	The protection system definition implementation plan should be consistent with the implementation plan of PRC-005-2 R1. Actual maintenance requirements implementation should be as required by the PRC-005-2 implementation plan and should not be included in the implementation plan for the protection system definition.
<p>Response: Thank you for your comments.</p>		
Southern Company Transmission	No	The revised definition should not be made effective until the revised PRC-005-2 is in effect. There is no definite reliability benefit to balloting this definition prior to the revised standard. If balloted and approved, entities would definitely have to modify their Protection System Maintenance and Testing Program methodology, but there is no obligation to or guarantee

Organization	Yes or No	Question 2 Comment
		of any additional maintenance being performed. PRC-005-2 includes this definition, the maintenance activities, and the intervals that will ensure execution of the maintenance and testing.
<p>Response: Thank you for your comments. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given "priority." To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
Indiana Municipal Power Agency	No	The second part of the implementation effective date does not make sense and might be wrong. The second part talks about implementing any additional maintenance and testing (required in R2 of PRC-005-1- Transmission and Generation Protection system Maintenance and Testing); this is referring to version 1 of the standard and there should be no additional maintenance and testing added from version 1 of the standard, just version 2 which is the new version. Overall, the wording on this implementation plan needs to be made more clear about how the implementation plan will work.
<p>Response: Thank you for your comments. The second part of the implementation plan for the definition allows the entity to implement any program changes that result from the modified definition systematically via the intervals established to address those changes. The SDT believes that this portion of the implementation plan is clear.</p>		
US Bureau of Reclamation	No	The Time Horizons are too narrow for the implementation of the standard as written. The SDT appears to have not accounted for the data analysis associated with performance based systems. The data collection, analysis, and subsequent decisions associated development of a maintenance program and its justification do not occur overnight especially with larger utilities. In addition, this new standard will require complete rewrite of an entities internal maintenance programs. The internal processes associated with these vary based on the size of the entity and its organizational structure. Since this standard is

Organization	Yes or No	Question 2 Comment
		so invasive into the internal decisions concerning maintenance, the standard should allow at least 18 months for entities to rewrite their internal maintenance programs to meet the program development requirements and 18 months to train the staff in the new program, incorporate the program into the entities compliance processes, and to implement the new program.
<p>Response: Thank you for your comments. The Implementation Plan has been modified to allow a 12-month schedule to update the entities' program in accordance with the modified definition.</p>		
Hydro One	No	<ol style="list-style-type: none"> 1. The time provided for the first phase "at least six months" is too open ended and does not give entities a clear timeline. HYDRO ONE suggests 1 year for the first phase. 2. Also, HYDRO ONE suggests phasing out the second phase in stages.
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The Implementation Plan has been modified to allow a 12-month schedule as suggested. However, to agree with the SDT Guidelines established by NERC, "end of the first calendar quarter" was modified to "first day of the first calendar quarter". 2. The SDT does not understand this comment. 		
Long Island Power Authority	No	<ol style="list-style-type: none"> 1. The time provided for the first phase "at least six months" is too open ended and does not give entities a clear timeline. LIPA suggests 1 year for the first phase. 2. It is also suggested phasing out the second phase in stages.
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The Implementation Plan has been modified to allow a 12-month schedule as suggested. However, to agree with the SDT Guidelines established by NERC, "end of the first calendar quarter" was modified to "first day of the first calendar quarter". 		

Organization	Yes or No	Question 2 Comment
2. The SDT does not understand this comment.		
Northeast Power Coordinating Council	No	<ol style="list-style-type: none"> 1. The time provided for the first phase “at least six months” is too open ended and does not give entities a clear timeline. Suggest 1 year for the first phase. 2. Suggest phasing out the second phase in stages.
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The Implementation Plan has been modified to allow a 12-month schedule as suggested. However, to agree with the SDT Guidelines established by NERC, “end of the first calendar quarter” was modified to “first day of the first calendar quarter”. 2. The SDT does not understand this comment. 		
Northeast Utilities	No	The time provided for the first phase “at least six months” is too open ended and does not give entities a clear timeline. Northeast Utilities suggests 1 year for the first phase.
<p>Response: Thank you for your comments. The Implementation Plan has been modified to allow a 12-month schedule as suggested. However, to agree with the SDT Guidelines established by NERC, “end of the first calendar quarter” was modified to “first day of the first calendar quarter”.</p>		
Grant County PUD	No	There needs to be more clarity concerning the role of the 3 year audit during the implementation phase. Do the audit tests consist of varying proportions of -1 criteria and -2 criteria?
<p>Response: Thank you for your comments. This comment appears to address implementation of the revised standard, not the revised definition.</p>		
Constellation Power Generation	No	This does not match the implementation proposed for PRC-005-2. The implementation plan for revising the program is 6 months based on the “definition implementation” but R1 in

Organization	Yes or No	Question 2 Comment
		PRC-005-2 has a 3 month implementation plan.
<p>Response: Thank you for your comments. The intent is to implement the definition and apply it to PRC-005-1 before PRC-005-2 becomes effective. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given "priority." To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
The Detroit Edison Company	No	This implementation plan and the one for PRC-005-2 should be consistent.
<p>Response: Thank you for your comments. The intent is to implement the definition and apply it to PRC-005-1 before PRC-005-2 becomes effective. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given "priority." To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p>		
Entergy Services	No	<ol style="list-style-type: none"> 1. We agree with the definition, however we do not agree with the implementation plan. We believe implementation of the definition needs to coincide with the implementation of Standard PRC-005-2. To do otherwise, will cause entities to address equipment, documentation, work management process, and employee training changes needed for compliance twice within an unreasonably short timeframe. 2. Additional time, 12 months minimum, will be needed to fully assess and address the necessary maintenance program documentation changes, maintenance system tool revisions, and personnel training needed to incorporate this new definition into our

Organization	Yes or No	Question 2 Comment
		program.
<p>Response: Thank you for your comments.</p> <p>1. When the Board of Trustees was asked to approve an interpretation of PRC-005-1 that was written by the PSMT SDT, the board acknowledged the reliability gap identified by the drafting team caused by the definition of "protection system" and directed that work to close this reliability gap should be given "priority." To close this reliability gap the BOT has directed that revised definition be applied to PRC-005-1 as soon as practical - not years from now. The implementation plan now proposes at least 12 months for entities to apply the new definition to PRC-005-1, and that should give entities time to apply the new definition to PRC-005-1.</p> <p>2. The Implementation Plan for the definition has been modified to allow a 12-month schedule as suggested. However, to agree with the SDT Guidelines established by NERC, "end of the first calendar quarter" was modified to "first day of the first calendar quarter".</p>		
Clark Public Utilities	No	<p>1. While the drafting team has done a great job of simplifying the implementation plan from the original draft 1 language, the current language has some ambiguities. I do not understand what the term "the end of the first calendar quarter six months following regulatory approvals" means. What is wrong with just saying "within nine months (or six months or twelve months) following regulatory approvals? Using the current language I would be inclined to assume it is six months so I can avoid a dispute (and quite possibly a notice of alleged violation) over a date.</p> <p>2. Also, I am not sure what the term "the end of the first complete maintenance and testing cycle described in the entity's program description" means. It is quite likely that a registered entity will make the required definition change to its maintenance program (at approximately six months) and wind up with devices that need to be tested. Is the implementation plan attempting to provide some allowed time delay so the registered entity will not be out of compliance even though it has devices that are now beyond the maximum testing interval due to the definition change? The existing language implies that within approximately six months of regulatory approval, the maintenance program needs to be changed to incorporate the revised definition for Protection System.</p>

Organization	Yes or No	Question 2 Comment
		<p>However, the effective date for the revised maintenance program is going to be some date that corresponds with the end of the first complete maintenance and testing cycle in that program. I really don't understand what that time period is and I believe the drafting team needs to put in something that clears up this confusion. By testing cycle do you mean "maximum interval" as shown in the PRC-005 table? Do you mean the "maximum interval" that a registered entity includes in their maintenance program? If so, do you intend the implementation to be a different date for protection devices depending on the maximum testing interval? Or do you envision some date beyond the six months where the entire maintenance program (with the definition change) becomes effective and any registered entities with out-of-compliance issues would need to file mitigation plans?</p>
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. Within the US, NERC Standards are not mandatory and enforceable until approval by FERC. As established within the NERC Drafting Team Guidelines, the effective dates must be "the first day of the first calendar quarter after entities are expected to be compliant". The effective dates are always on the first day of a calendar quarter to make it easier for entities to track the effective dates of requirements. To agree with the SDT Guidelines established by NERC, "end of the first calendar quarter" was modified to "first day of the first calendar quarter". 2. Continuing on the example above, if an entity then establishes a 3-calendar-year schedule for additional components as addressed by the definition, the entity must be fully compliant by the end of 2014. 		
We Energies	No	<p>Wisconsin Electric does not agree with the six-month implementation requirement in the first phase. It is our position that a longer adjustment time is needed for entities to update their maintenance programs to implement the new definition. The new definition results in a significant increase in the scope of affected equipment and the documentation required to implement the program, and requires additional resources beyond present levels, including hiring and training. We estimate that this effort will require three years to fully implement.</p>
<p>Response: Thank you for your comments. The Implementation Plan for the definition has been modified to allow a 12-month</p>		

Organization	Yes or No	Question 2 Comment
schedule to update the program. The entity then has the full interval as established within their program to implement the program for added components.		
Allegheny Power	Yes	
Arizona Public Service Company	Yes	
Avista Corp	Yes	
Bonneville Power Administration	Yes	
Dynegy Inc.	Yes	
FirstEnergy	Yes	
Lincoln Electric System	Yes	
MEAG Power	Yes	
NERC Staff	Yes	
Pacific Northwest Small Public Power Utility Comment Group	Yes	
PacifiCorp	Yes	
PNGC Power	Yes	

Organization	Yes or No	Question 2 Comment
ReliabilityFirst Corp.	Yes	
South Carolina Electric and Gas	Yes	
Springfield Utility Board	Yes	
Western Area Power Administration	Yes	
Y-W Electric Association, Inc	Yes	