

Consideration of Comments

Project 2010-05.2 – Special Protection Systems (Phase 2 of Protection Systems)

The Special Protection Systems Drafting Team thanks all commenters who submitted comments on the proposed definition of Remedial Action Scheme (RAS). These standards were posted for a 45-day public comment period from June 11, 2014 through July 25, 2014. Stakeholders were asked to provide feedback on the standards and associated documents through a special electronic comment form. There were 53 sets of comments, including comments from approximately 159 different people from approximately 110 companies representing all 10 Industry Segments as shown in the table on the following pages.

All comments submitted may be reviewed in their original format on the standard's [project page](#).

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 Director of Standards, Valerie Agnew, at 404-446-2566 or at valerie.agnew@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.¹

Summary of Changes

Definition:

Changed the phrase “curtailing or tripping generation or other sources” to “adjusting or tripping generation (MW and Mvar)”

Changed the phrase “curtailing or tripping load” to “tripping load”

Changed the introductory sentence to the objectives from: “RAS accomplish one or more of the following objectives” to “RAS accomplish objectives such as” because the objective list is no longer all inclusive

Inserted “Bulk Electric System” (BES) as a qualifier in the pertinent objectives

Removed the last objective: “Address other Bulk Electric System (BES) reliability concerns” because it was deemed overly broad.

¹ The appeals process is in the Standard Processes Manual:

http://www.nerc.com/comm/SC/Documents/Appendix_3A_StandardsProcessesManual.pdf

Revised the fifth objective to read: “Limit the impact of Cascading or extreme event”

Removed the sentence: “These schemes are not Protection Systems; however, they may share components with Protection Systems.”

Added a new exclusion “a” that reads: “Protection Systems installed for the purpose of detecting Faults on BES Elements and isolating the faulted Elements”

Combined exclusions “b” and “c” to read: “Schemes for automatic underfrequency load shedding (UFLS) and automatic undervoltage load shedding (UVLS) comprised of only distributed relays”

Changed exclusion “d” from “Autoreclosing schemes” to “Automatic Reclosing schemes” to be in alignment with Reliability Standard PRC-05-3

In exclusion “e”, changed the term “high voltage” to “overvoltage”

In exclusion “f”, removed the term “generation excitation”

In exclusion “k”, replaced “operator” with the defined term “System Operator”

Added a new exclusion “n” that reads: “Generator controls such as, but not limited to, automatic generation control (AGC), generation excitation [e.g. automatic voltage regulation (AVR) and power system stabilizers (PSS)], fast valving, and speed governing”

Implementation Plan:

Updated to add a specific Effective Date for PRC-024-1

Removed standards that are currently in implementation phase (these standards will be modified at a later date)

Removed retirement of “Special Protection System” (SPS) (the SPS definition will be needed until all references to SPS can be replaced with “Remedial Action Scheme” (RAS))

Background and FAQ:

The Background and FAQ document was updated to reflect the changes and additions made to the proposed definition.

Unresolved Minority Views:

A few commenters questioned the general formatting of the definition and the need for an exclusion list.

The drafting team explained the definition must be broad enough to include the variety of System conditions monitored and corrective actions taken by RAS. Because of the diversity of RAS in both action and objective, the practical approach to the definition is to begin with a wide scope and then list specific exclusions. Without the exclusions, equipment and schemes that should not be considered RAS could be subject to the requirements of the RAS-related NERC Reliability Standards. The exclusion list also assures that commonly applied protection and control systems are not unintentionally included as RAS. Note, if a scheme or protective system is not explicitly defined as an exclusion, it is not by default a RAS - the definition of RAS must be met in its entirety.

1. **Do you agree that using a single term; i.e., RAS, and clarifying its definition will lead to more consistent application of the related NERC Reliability Standards? If not, please provide specific suggestions and rationale16**

2. **Are there additional corrective actions that should be explicitly included in the proposed definition of RAS? If yes, please provide specific suggestions and rationale.31**

3. **Are there additional objectives that should be explicitly included in the proposed definition of RAS? If yes, please provide specific suggestions and rationale.39**

4. **Do you agree with the exclusion list in the proposed definition of RAS? If not, please provide specific suggestions and rationale.....50**

5. **Do you agree with the time frames in the proposed Implementation Plan associated with the proposed definition of RAS? Please provide specific comments in support of your position.72**

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

Group/Individual		Commenter	Organization	Registered Ballot Body 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.	David Burke	Orange and Rockland Utilities Inc.	NPCC	3									
3.	Greg Campoli	New York Independent 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.	Mike Garton	Dominion Resources Services, Inc.	NPCC	5									
8.	Kathleen Goodman	ISO - New England	NPCC	2									
9.	Michael Jones	National Grid	NPCC	1									
10.	Mark Kenny	Northeast Utilities	NPCC	1									

Group/Individual	Commenter	Organization	Registered Ballot Body Segment											
			1	2	3	4	5	6	7	8	9	10		
11. Peter Yost	Consolidated Edison Co. of New York, Inc.	NPCC 3												
12. Helen Lainis	Independent Electricity System Operator	NPCC 2												
13. Alan MacNaughton	New Brunswick Power Corporation	NPCC 9												
14. Bruce Metruck	New York Power Authority	NPCC 6												
15. Silvia Parada Mitchell	NextEra Energy, LLC	NPCC 5												
16. Lee Pedowicz	Northeast Power Coordinating Council	NPCC 10												
17. Robert Pellegrini	The United Illuminating Company	NPCC 1												
18. Si Truc Phan	Hydro-Quebec TransEnergie	NPCC 1												
19. David Ramkalawan	Ontario Power Generation, Inc.	NPCC 5												
20. Brian Robinson	Utility Services	NPCC 8												
21. Brian Shanahan	National Grid	NPCC 1												
22. Wayne Sipperly	New York Power Authority	NPCC 5												
23. Ayesha Sabouba	Hydro One Networks Inc.	NPCC 1												
24. Ben Wu	Orange and Rockland Utilities Inc .	NPCC 1												
2. Group	Kaleb Brimhall	Colorado Springs Utilities	X		X		X	X						
N/A														
3. Group	Joe DePoorter	MRO NERC Standards Review Forum	X	X	X	X	X	X						
	Additional Member	Additional Organization	Region	Segment Selection										
1.	Amy Casucelli	Xcel Energy	MRO	1, 3, 5, 6										
2.	Chuck Wicklund	Otter Tail Power	MRO	1, 3, 5										
3.	Dan Inman	Minnkota Power Cooperative	MRO	1, 3, 5, 6										
4.	Dave Rudolph	Basin Electric Power Cooperative	MRO											
5.	Kayleigh Wilkerson	Lincoln Electric System	MRO	1, 3, 5, 6										
6.	Jodi Jenson	WAPA	MRO	1, 6										
7.	Joseph DePoorter	Madison Gas & Electric	MRO	3, 4, 5, 6										
8.	Ken Goldsmith	Alliant Energy	MRO	4										
9.	Mahmood Safi	Omaha Public Power District	MRO	1, 3, 5, 6										
10.	Marie Knox	MISO	MRO	2										
11.	Mike Brytowski	Great River Energy	MRO	1, 3, 5, 6										
12.	Randi Nyholm	Minnesota Power	MRO	1, 5										
13.	Terry Harbour	MidAmerican Energy	MRO	1, 3, 5, 6										

Group/Individual	Commenter	Organization	Registered Ballot Body Segment											
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14. Tom Breene	Wisconsin Public Service	MRO 3, 4, 5, 6												
15. Tony Eddleman	Nebraska Public Power District	MRO												
4. Group	Louis Slade	Dominion	X		X		X	X						
Additional Member	Additional Organization	Region	Segment Selection											
1. Mike Garton	NERC Compliance Policy	NPCC	5, 6											
2. Connie Lowe	NERC Compliance Policy	RFC	5, 6											
3. Randi Heise	NERC Compliance Policy	SERC	1, 3, 5, 6											
4. Chip Humphrey	Power Generation Compliance	NPCC	5											
5. Jarad L Morton	Power Generation Compliance	RFC	5											
6. Larry Whanger	Power Generation Compliance	SERC	5											
7. Larry Nash	Electric Transmission Compliance	SERC	1, 3											
8. Jeffrey N Bailey	Nuclear Compliance													
5. Group	Paul Haase	Seattle City Light	X		X	X	X	X						
Additional Member	Additional Organization	Region	Segment Selection											
1. Pawel Krupa	Seattle City Light	WECC	1											
2. Dana Wheelock	Seattle City Light	WECC	3											
3. Hao Li	Seattle City Light	WECC	4											
4. Mike Haynes	Seattle City Light	WECC	5											
5. Dennis Sismaet	Seattle City Light	WECC	6											
6. Group	Robbie Bottoms	SERC DRS												
Additional Member	Additional Organization	Region	Segment Selection											
1. Art Brown		SERC												
2. John O'Connor														
3. Tom Cain														
4. Rick Foster														
5. Robbie Bottoms														
7. Group	Richard Hoag	FirstEnergy Corp.	X		X	X	X	X						
Additional Member	Additional Organization	Region	Segment Selection											
1. William Smith	FlrstEnergy Corp	RFC	1											
2. Cindy Stewart	FlrstEnergy Corp	RFC	3											

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3. Doug Hohlbaugh	Ohio Edison	RFC 4												
4. Ken Dresner	FirstEnergy Solutions	RFC 5												
5. Kevin Querry	FirstEnergy Solutions	RFC 6												
6. Richard Hoag	FirstEnergy Corp	RFC NA												
8. Group	Michael Jones	National Grid	X		X									
Additional Member Additional Organization Region Segment Selection														
1. Brian Shanahan	National Grid	NPCC 3												
9. Group	Dianne Gordon	Operational Compliance	X		X		X							
N/A														
10. Group	Brandy Spraker	Tennessee Valley Authority	X		X		X	X						
Additional Member Additional Organization Region Segment Selection														
1. Brandy Spraker		SERC 5												
2. Marjorie Parsons		SERC 6												
3. Ian Grant		SERC 3												
4. DeWayne Scott		SERC 1												
11. Group	Colby Bellville	Duke Energy	X		X		X	X						
Additional Member Additional Organization Region Segment Selection														
1. Doug Hils	Duke Energy	RFC 1												
2. Lee Schuster	Duke Energy	FRCC 3												
3. Dale Goodwine	Duke Energy	SERC 5												
4. Greg Cecil	Duke Energy	RFC 6												
12. Group	Frank Gaffney	Florida Municipal Power Agency	X		X	X	X	X						
Additional Member Additional Organization Region Segment Selection														
1. Tim Beyrle	City of New Smyrna Beach	FRCC 4												
2. Jim Howard	Lakeland Electric	FRCC 3												
3. Greg Woessner	Kissimmee Utility Authority	FRCC 3												
4. Lynne Mila	City of Clewiston	FRCC 3												
5. Cairo Vanegas	Fort Pierce Utility Authority	FRCC 4												
6. Randy Hahn	Ocala Utility Service	FRCC 3												
7. Stanley Rzad	Keys Energy Services	FRCC 4												

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8.	Don Cuevas	Beaches Energy Services	FRCC	1																																												
9.	Mark Schultz	City of Green Cove Springs	FRCC	3																																												
10.	Tom Reedy	Florida Municipal Power Pool	FRCC	6																																												
11.	Steve Lancaster	Beaches Energy Services	FRCC	1																																												
12.	Richard Bachmeier	Gainesville Regional Utilities	FRCC	1																																												
13.	Mike Blough	Kissimmee Utility Services	FRCC	3																																												
13.	Group	David Greene	SERC Protection and Controls Subcommittee																																													
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3. David Greene	SERC																																															
14.	Group	Phillip Hart	Associated Electric Cooperative, Inc. - JRO00088				X		X		X	X																																				
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15.	Group	Greg Campoli	IRC Standards Review Committee					X																																								
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16.	Group	Andrea Jessup	Bonneville Power Administration				X		X		X	X																																				
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			1	2	3	4	5	6	7	8	9	10		
2. Jenny Wilson	Transmission Planning	WECC 1												
3. Dan Goodrich	Technical Operations	WECC 1												
4. Dean Bender	System Control Engineering	WECC 1												
5. John Kerr	Technical Operations	WECC 1												
6. Heather Laslo	SPC Technical Svcs	WECC 1												
17.		Southern Company: Southern Company Services, Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Company; Southern Company Generation; Southern Company Generation and Energy Marketing	X		X		X	X						
	Group	Wayne Johnson												
N/A														
18.	Group	Shannon V. Mickens	SPP Standards Review Group		X									
	Additional Member	Additional Organization	Region	Segment Selection										
	1. Louis Guidry	Cleco Power LLC	SPP	1, 3, 5, 6										
	2. Greg Hill	Nebraska Public Power District	SPP	1, 3, 5										
	3. Tiffany Lake	Westar Energy, Inc	SPP	1, 3, 5, 6										
	4. Stephanie Johnson	Westar Energy, Inc	SPP	1, 3, 5, 6										
	5. Bo Jones	Westar Energy, Inc	SPP	1, 3, 5, 6										
	6. Lynn Schroeder	Westar Energy, Inc	SPP	1, 3, 5, 6										
	7. Ron Losh	Southwest Power Pool, Inc	SPP	2										
	8. James Nail	City of Independence, Missouri	SPP	3										
	9. Robert Rhodes	Southwest Power Pool, Inc	SPP	2										
	10. J.Scott Williams	City Utilities of Springfield	SPP	1, 4										
	11. Mahmood Safi	Omaha Public Power District	SPP	1, 3, 5										
	12. Ellen Watkins	Sunflower Electric Power Corporation	SPP	1										
19.	Group	Jason Marshall	ACES Standards Collaborators						X					
	Additional Member	Additional Organization	Region	Segment Selection										
	1. John Shaver	Arizona Electric Power Cooperative	WECC	4, 5										
	2. John Shaver	Southwest Transmission Cooperative	WECC	1										
	3. Shari Heino	Brazos Electric Power Cooperative	ERCOT	1, 5										

Group/Individual	Commenter	Organization	Registered Ballot Body Segment											
			1	2	3	4	5	6	7	8	9	10		
4. Mark Ringhausen	Old Dominion Electric Cooperative	SERC 3, 4												
5. Dick Chapman	Prairie Power	SERC 3												
6. Matt Caves	Western Farmers Electric Cooperative	SPP 1, 5												
20.	Group	Sandra Shaffer	PacifiCorp											
N/A														
21.	Individual	Aaron Staley	Orlando Utilities Commission	X		X		X	X					
22.	Individual	Steve Alexanderson	Central Lincoln			X	X						X	
23.	Individual	Michael Hill	Tacoma Public Utilities	X		X	X	X	X					
24.	Individual	John Brockhan	CenterPoint Energy	X										
25.	Individual	Barbara Kedrowski	Wisconsin Electric Power Company			X	X	X						
26.	Individual	Kathy Caignon	City of Vineland			X								
27.	Individual	Muhammed Ali	Hydro One	X		X								
28.	Individual	John Pearson	ISO New England		X									
29.	Individual	David Thorne	Pepco Holdings Inc	X		X								
30.	Individual	Michelle DAntuono	Ingleside Cogeneration LP					X						
31.	Individual	Andrew Z.Pusztai	American Transmission Company, LLC	X										
32.	Individual	Amy Casuscelli	Xcel Energy	X		X		X	X					
33.	Individual	Jo-Anne Ross	Manitoba Hydro	X		X		X	X					
34.	Individual	Gary Kruempel	MidAmerican Energy Company	X		X		X	X					
35.	Individual	Jonathan Meyer	Idaho Power	X										
36.	Individual	Chris Scanlon	Exelon Companies	X		X		X	X					
37.	Individual	Thomas Foltz	American Electric Power	X		X		X	X					
38.	Individual	Jamison Cawley	Nebraska Public Power District	X		X		X						
39.	Individual	Anthony Jablonski	ReliabilityFirst											X
40.	Individual	Michael Moltane	ITC	X										
41.	Individual	Mahmood Safi	Omaha Public Power District	X		X		X	X					

Group/Individual		Commenter	Organization	Registered Ballot Body Segment										
				1	2	3	4	5	6	7	8	9	10	
42.	Individual	Rich Salgo	NV Energy					X						
43.	Individual	Patti Metro	NRECA	X		X	X							
44.	Individual	David Jendras	Ameren	X		X		X	X					
45.	Individual	Martyn Turner	LCRA Transmission Services Corporation	X				X	X					
46.	Individual	Richard Pienkos	Consumers Energy Company			X	X	X						
47.	Individual	Michael Shaw	LCRA						X					
48.	Individual	Catherine Wesley	PJM Interconnection		X									
49.	Individual	Mark Wilson	Independent Electricity System Operator		X									
50.	Individual	David Kiguel	N/A								X			
51.	Individual	Thomas Standifur	Austin Energy	X		X		X		X				
52.	Individual	Gul Khan	Oncor Electric Delivery LLC	X										
53.	Individual	Sergio Banuelos	Tri-State Generation and Transmission Association, Inc.	X		X		X						

If you support the comments submitted by another entity and would like to indicate you agree with their comments, please select "agree" below and enter the entity's name in the comment section (please provide the name of the organization, trade association, group, or committee, rather than the name of the individual submitter).

Organization	Agree	Supporting Comments of "Entity Name"
SERC DRS	Agree	
Associated Electric Cooperative, Inc. - JRO00088	Agree	ACES
LCRA	Agree	<p>Lower Colorado River Authority-1. Do you agree that using a single term; i.e., RAS, and clarifying its definition will lead to more consistent application of the related NERC Reliability Standards? If not, please provide specific suggestions and rationale. YesComments: The following statement, "These schemes are not Protection Systems; however, they may share components with Protection Systems." is misleading and confusing. This statement should be deleted. 2. Are there additional corrective actions that should be explicitly included in the proposed definition of RAS? If yes, please provide specific suggestions and rationale. NoComments: LCRA TSC recommends an additional example be included under the heading "The following do not individually constitute a RAS:" stated, "Protection systems installed to clear faults." 3. Are there additional objectives that should be explicitly included in the proposed definition of RAS? If yes, please provide specific suggestions and rationale. NoComments:</p>

Organization	Agree	Supporting Comments of "Entity Name"
		<p>4. Do you agree with the exclusion list in the proposed definition of RAS? If not, please provide specific suggestions and rationale. No Comments: LCRA TSC recommends an additional example be included under the heading "The following do not individually constitute a RAS:" stated, "Protection systems installed to clear faults." It appears that items F and G of the proposed definition are in conflict. Item G creates an exclusion that is taken away in item F for FACTS devices but leaves in place the limitation for switched shunts. LCRA TSC recommends revising items f. and g. as follows: f. Controllers that switch or regulate series or shunt reactive devices, flexible alternating current transmission system (FACTS) devices, phase-shifting transformers, variable-frequency transformers, tap-changing transformers, or generation excitation, and that are located at and monitor quantities solely at the same station as the Element being switched or regulated g. FACTS controllers that remotely switch static shunt reactive devices located at other stations to regulate the output of a single FACTS device</p> <p>5. Do you agree with the time frames in the proposed Implementation Plan associated with the proposed definition of RAS? Please provide specific comments in support of your position. Yes</p>
N/A	Agree	NPCC

Organization	Agree	Supporting Comments of "Entity Name"
Seattle City Light		Florida Municipal Power Agency
Nebraska Public Power District		SPP

1. Do you agree that using a single term; i.e., RAS, and clarifying its definition will lead to more consistent application of the related NERC Reliability Standards? If not, please provide specific suggestions and rationale

Summary Consideration:

By a four to one margin, commenters agreed with the drafting team that adopting and using the single term RAS across all of the eight NERC Regions, and clarifying its definition, will promote consistency in the application of the related NERC Reliability Standards.

Several commenters suggested the drafting team delete the statement “These schemes are not Protection Systems; however, they may share components with Protection Systems.” from the definition because it created some confusion with regards to the use of the term Protection Systems in other Reliability Standards. In response, the drafting team removed the statement from the definition.

There were numerous comments unrelated to this question that were addressed but not included in this summary.

Organization	Yes or No	Question 1 Comment
Tennessee Valley Authority	No	We agree that using a single term should help bring the industry toward a common understanding/usage of the term. However, we believe the revised draft definition fails to add the desired clarity. We suggest the following modification:” A control scheme designed and installed to detect pre-analyzed System conditions and automatically perform corrective actions that may include, but are not limited to, curtailing or tripping generation or other sources, curtailing or tripping load, or reconfiguring a System(s). RAS accomplish one or more of the following objectives: o Meet requirements identified in the NERC Reliability Standards; o Maintain System stability, as related to the NERC Reliability Standards; o Maintain acceptable System voltages, as related to the NERC Reliability Standards; o Maintain acceptable power flows, as related to the NERC Reliability Standards; or o Limit the impact of Cascading, as related to the NERC Reliability Standards.; or o DELETE: Address other Bulk Electric System (BES) reliability concerns.

Organization	Yes or No	Question 1 Comment
<p>Response: Thank you for your comment. The drafting team agrees and revised the objectives by deleting the last bullet that read: "Address other Bulk Electric System (BES) reliability concerns" negating the all-inclusive nature of the objectives.</p>		
<p>Florida Municipal Power Agency</p>	<p>No</p>	<p>FMPA is casting a Negative ballot for the RAS definition.</p> <ol style="list-style-type: none"> 1) FMPA is concerned with the following statement in the Remedial Action Schemes (RAS) definition: "These schemes are not Protection Systems; however, they may share components with Protection Systems." This sentence is confusing. RAS is a scheme and stating that it may share components with Protection Systems and at the same time terminating the use of the SPS reference is confusing. FMPA supports the intent of creating a RAS definition and believes the referenced statement should be deleted. 2) Further, an additional example should be included under the heading, "The following do not individually constitute a RAS:" The addition may be worded something like, "Protection systems installed to clear faults are not RAS." 3) FMPA suggests that a thorough look at all the uses of Protection System in the standards to determine if it was intended to include SPS/RAS as part of the requirement. (One example is PRC-005; the proposed definition specifically states that SPS/RAS is not a Protection System. Applicability of PRC-005-2 at 4.2.4 states: "Protection Systems installed as a Special Protection System ..." Since RAS/SPS is proposed to no longer be Protection Systems, this is a null set, removing RAS/SPS from PRC-005 creating an illogical statement of applicability. Note: some other instances where Protection System is used, that may be intended to include RAS, are: EOP-010, NUC-001, PER-005, PRC001, TPL-00x-0, the Glossary definition for Planning Authority, the definition for Protection System Maintenance Program.)
<p>Response: Thank you for your comments.</p>		

Organization	Yes or No	Question 1 Comment
<p>1. To remove any confusion regarding the statement you identified, the drafting team deleted it from the definition.</p> <p>2. The drafting team agrees and added a new exclusion (a) which reads: Protection Systems installed for the purpose of detecting Faults on BES Elements and isolating the faulted Elements. The drafting team also added clarifying language in the FAQ.</p> <p>3. The removal of the aforementioned statement “These schemes are not Protection Systems; however, they may share components with Protection Systems.” should eliminate the need to review other Reliability Standards regarding the use of the term “Protection System(s).”</p>		
Tacoma Public Utilities	No	Tacoma Power supports FMPA’s comments concerning Question 1.
<p>Response: Thank you for your comment. See the drafting team’s response to FMPA’s comments.</p>		
ISO New England	No	Since the terms were defined the same and referenced each other, there is no need for the change. However, there is no harm in making the change either.
<p>Response: Thank you for your comment.</p>		
Ingleside Cogeneration LP	No	<p>Ingleside Cogeneration LP (ICLP) believes that the second draft of the definition of a RAS is too open ended.</p> <p>1) Two modifications have been made to the base definition of a RAS that infer that almost any Protection System not specifically identified in the list of exclusions is in scope. First, the removal of the qualifier that RAS takes corrective action “other than the isolation of faulted elements” adds almost every relay scheme back into the equation. ICLP sees no good reason for its deletion - if there are such systems that isolate faulted elements and need RAS-like oversight, they should be explicitly listed.</p> <p>2) Second, the bulleted list under the base definition includes a catchall that stipulates that a RAS may address “other Bulk Electric System (BES) reliability concerns.” We have seen ambiguous statements of this type</p>

Organization	Yes or No	Question 1 Comment
		<p>lead to Regional variations, and have watched the original intent vary over time. As such, the item should be removed.</p> <p>3) In ICLP’s view, the project team’s decision to eliminate the four categories of RAS by function and extent of impact was also a step backwards. Several Regions have made similar distinctions of this type in order to account for variations in the most appropriate oversight methods - a tactic that has proven to be very effective. Furthermore, our reading of the stakeholder comments indicates that most respondents were comfortable with the concept, but had various concerns that were easily accommodated. As such, ICLP believes that the deferral of those distinctions to the individual NERC standards is too unstructured, and that the four original categories should be retained.</p>
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The drafting team agrees and added a new exclusion (a) which reads: Protection Systems installed for the purpose of detecting Faults on BES Elements and isolating the faulted Elements. The drafting team also added clarifying language in the FAQ. 2. The drafting team agrees and revised the objectives by deleting the last bullet that read: “Address other Bulk Electric System (BES) reliability concerns” negating the all-inclusive nature of the objectives. 3. The classification of a RAS is not necessary for defining whether or not a scheme qualifies as a RAS. Informal feedback from many stakeholders indicated uncertainty about the classification types. Therefore, the SDT decided not to include RAS classification types within the definition. The classifications are more appropriately addressed concurrently with revisions to the RAS-related Reliability Standards. 		
Ameren	No	<p>The last bullet point in the definition of a Remedial Action Scheme “Address other Bulk Electric System (BES) reliability concerns.” appears too broad, and we request the drafting team removed this from the definition.</p>
<p>Response: Thank you for your comment. The drafting team agrees and revised the objectives by deleting the last bullet that read: “Address other Bulk Electric System (BES) reliability concerns” negating the all-inclusive nature of the objectives.</p>		

Organization	Yes or No	Question 1 Comment
Consumers Energy Company	No	<p>In general, we are encouraged with the redefinition of this scheme especially with the added clarity and emphasis on identifying that they are not Protection schemes but may share components. However, it is a little unclear if the intent of this definition was to define a term specifically for schemes applicable only to the BES or is the intent to have a broader definition and then restrict its applicability when used in each standard. To illustrate this point, in the first paragraph, the term “System” is used which in itself does not refer only to the BES. Yet in the list the objectives the RAS is to accomplish, the first item (Meet requirements identified in the NERC Standards) and the last item (address other BES reliability concerns) specifically refer to the applicability on the BES.</p>
<p>Response: Thank you for your comment. The drafting team revised the objectives by deleting the last bullet that read: “Address other Bulk Electric System (BES) reliability concerns” negating the all-inclusive nature of the objectives.</p>		
Austin Energy	No	<p>AE is casting a Negative ballot for the RAS definition.</p> <ol style="list-style-type: none"> 1) AE is concerned with the following statement in the Remedial Action Schemes (RAS) definition: “These schemes are not Protection Systems; however, they may share components with Protection Systems.” This sentence is confusing. RAS is a scheme and stating that it may share components with Protection Systems and at the same time terminating the use of the SPS reference is confusing. AE supports the intent of creating a RAS definition and believes the referenced statement should be deleted. 2) Further, an additional example should be included under the heading, “The following do not individually constitute a RAS:” The addition may be worded something like, “Protection systems installed to clear faults are not RAS.”

Organization	Yes or No	Question 1 Comment
		<p>3) AE suggests that a thorough look at all the uses of Protection System in the standards to determine if it was intended to include SPS/RAS as part of the requirement.</p>
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. To remove any confusion regarding the statement you identified, the drafting team deleted it from the definition. 2. The drafting team agrees and added a new exclusion (a) which reads: Protection Systems installed for the purpose of detecting Faults on BES Elements and isolating the faulted Elements. 3. The removal of the aforementioned statement “These schemes are not Protection Systems; however, they may share components with Protection Systems.” should eliminate the need to review other Reliability Standards regarding the use of the term “Protection System(s). 		
<p>Oncor Electric Delivery LLC</p>	<p>No</p>	<ol style="list-style-type: none"> 1) Oncor disagrees with using RAS as a replacement for SPS. A SPS is used within ERCOT as an automatic system designed to detect abnormal or pre-determined ERCOT System conditions and take pre-planned corrective action. This term applies to and is referenced in numerous guides, procedures and protocols. 2) Additionally the RAP (Remedial action plan) term is used in ERCOT and includes “controllable load shedding by dispatcher or ERCOT action.” ERCOTs RAP’s are predefined but not automatic and are used frequently within the system to maintain reliability under various operating conditions. Updating the various processes and procedures and training all the ERCOT TOPs on the new term will be a challenge and could cause significant confusion. 3) The term SPS should not be based upon normal operational schemes like a RAS. These are “special” systems designed to maintain reliability until solutions can be added to remove or “exit” their changes. We also anticipate other reliability coordinators having to go through a similar effort in regards to the SPS terminology change.

Organization	Yes or No	Question 1 Comment
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> The drafting team appreciates the fact that the selected term will cause some necessary documentation changes for entities but asserts that the use of the single term RAS will provide consistency and avoid the confusion associated with the SPS term. The drafting team acknowledges that entities will need time to adapt to the RAS term. The terms RAS and SPS are currently synonymous and interchangeable terms in the Glossary of Terms Used in NERC Reliability Standards. 		
Northeast Power Coordinating Council	Yes	A single term will lead to a more consistent application of reliability standards.
<p>Response: Thank you for your comment and support.</p>		
Colorado Springs Utilities	Yes	RAS is good - we agree with having one term and do not have a preference on which term is used.
<p>Response: Thank you for your comment and support.</p>		
MRO NERC Standards Review Forum	Yes	
Dominion	Yes	
Seattle City Light	Yes	
FirstEnergy Corp.	Yes	
National Grid	Yes	<p>While we agree with the desire to have a single term, both the proposed name "Remedial Action Scheme" (RAS) as well as the alternative term "Special Protection System" (SPS) seems to have issues.</p> <ol style="list-style-type: none"> The definition does not say anything about how the action is accomplished. A problem we have is that, of the two names, "Remedial

Organization	Yes or No	Question 1 Comment
		<p>Action Scheme" seems to be worse, because a scheme usually mitigates a condition, but it does not usually remedy it. Strictly speaking, it performs a trade-off by substituting one abnormality, such as an open line or severed interconnection, for another, such as a thermally overloaded line.</p> <p>2. We are not arguing for one term or the other, but it is critical that the various terms be applied correctly and consistently. Further, the term "Special Protection System" at least implied that it took automatic action, whereas the term "Remedial Action Scheme" does not. A system operator operating a circuit breaker by remote control is a remedial scheme, but we do not think it falls under the scope of what is intended. Although the provision that it be automatic is included within the definition, it might be helpful to include it in the title as is done with underfrequency load shedding.</p>
<p>Response: Thank you for your comments.</p> <p>1. Currently, both terms, SPS and RAS, are used in the eight NERC Regions. The drafting team asserts that the use of the single term RAS will provide consistency and avoid the confusion associated with the SPS term. The drafting team therefore recommends that the term RAS be retained as the industry-recognized term and that the term SPS be retired as soon as possible.</p> <p>2. The term "Remedial Action Scheme" (RAS) is a long-standing alternative term for "Special Protection System" (SPS) in the Glossary of Terms Used in NERC Reliability Standards, as such NERC already recognizes RAS as an "automatic" scheme.</p>		
Operational Compliance	Yes	
Duke Energy	Yes	
SERC Protection and Controls Subcommittee	Yes	
IRC Standards Review Committee	Yes	

Organization	Yes or No	Question 1 Comment
Bonneville Power Administration	Yes	
Southern Company: Southern Company Services, Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Company; Southern Company Generation; Southern Company Generation and Energy Marketing	Yes	
SPP Standards Review Group	Yes	The single term 'RAS' reduces the confusion and ambiguities that the current interchangeable terms 'SPS/RAS' have created for the industry.
Response: Thank you for your comment and support.		
ACES Standards Collaborators	Yes	<p>We agree with the need to modify the existing definition of SPS and RAS and that use of a single term will result in more consistent application of the standards. Furthermore, we are supportive of moving away from the SPS term to the RAS term to avoid confusion with Protection Systems and to more accurately reflect the intended purpose. The current definition lacks specificity, which leads to inconsistent application among the various NERC regions. We also note that the proposed changes have improved the RAS definition by removing some ambiguity. However, we believe there continues to remain to significant items of ambiguity that need to be addressed. Those are discussed below.</p> <ol style="list-style-type: none"> 1. Use of the term “meet requirements identified in the NERC Reliability Standards” is ambiguous which will lead to inconsistent enforcement. Would this clause apply to any standard or is it intended primarily to apply to TPL standards? Does this require the owner of the RAS to document for which standards the RAS is installed? For a newly

Organization	Yes or No	Question 1 Comment
		<p>installed RAS, this might be easy but there could be disagreement over the purpose of the installation of existing RAS especially those that have been installed for a decade or more. We recommend removing the phrase from the definition. If the phrase persists, please identify specific standards and requirements in the technical guideline section for clarity.</p> <ol style="list-style-type: none"> 2. Use of the term “address other Bulk Electric System (BES) reliability concern” is vague and ambiguous which will only lead to inconsistent enforcement. What other reliability concerns could there be besides system stability, system voltages, power flows, and Cascading that would not be excluded. Protecting equipment from damage would be one reliability concern that does not specifically fit into one of the categories but any schemes associated with protecting equipment from damage would be excluded by exclusion e. or excluded because they are Protection Systems. We simply cannot come up with any additional examples that warrant inclusion of such an ambiguity. We suggest the drafting team remove this phrase to remove the ambiguity. If there are other reliability concerns for which a RAS may be installed that do not fit into one of the five other buckets, then additional specific buckets should be added to avoid ambiguity. 3. “Relay” or “control” should be inserted just before scheme in the definition to provide additional clarity over what type of scheme is involved. 4. PRC-005-2 and PRC-005-3 will require further revision to the applicability section 4.2.4 other than simply replacing SPS with RAS to avoid ambiguity. The proposed definition of RAS specifically states that “these schemes are not Protection Systems.” However, applicability section 4.2.4 states that it is applicable to “Protection Systems installed as a Remedial Action Scheme (RAS)” which directly conflicts with the definition. One could argue that PRC-005-2 and PRC-005-3 are then

Organization	Yes or No	Question 1 Comment
		never applicable to a RAS once the new definition is approved since it is very specific that they are not Protection Systems.
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The drafting team contends that the requested level of specificity regarding the NERC Reliability Standards is not appropriate. It is important that the scope of the definition include schemes whose failure to operate or whose misoperation may pose a reliability risk. Listing specific standards may unintentionally limit the scope of the definition. The definition by itself imposes no requirements on RAS owners. 2. The drafting team agrees and revised the objectives by deleting the last bullet that read: “Address other Bulk Electric System (BES) reliability concerns” negating the all-inclusive nature of the objectives. 3. The drafting team disagrees and declines to make the suggested change so as not to unnecessarily limit the scope of the definition. 4. To remove any confusion regarding the statement you identified, the drafting team deleted the statement from the definition. 		
PacifiCorp	Yes	
Orlando Utilities Commission	Yes	
Central Lincoln	Yes	
CenterPoint Energy	Yes	
Wisconsin Electric Power Company	Yes	
City of Vineland	Yes	
Hydro One	Yes	
Pepco Holdings Inc	Yes	
American Transmission Company, LLC	Yes	

Organization	Yes or No	Question 1 Comment
Xcel Energy	Yes	
Manitoba Hydro	Yes	<ol style="list-style-type: none"> 1. Manitoba Hydro agrees that using a single term is the preferred approach. However, the proposed definition of “Remedial Action Scheme” is not clear. For example, it is not clear what “curtailing or tripping generation or other sources” means. Does it mean generation (real power) only but not reactive power? 2. What does “other sources” refer to? The single term will take time getting used to in some regions that are used to SPS. However, there has always been confusion between protection systems and special protection system. A remedial action scheme is a better term.
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The drafting team revised the first sentence of the definition to read: “A scheme designed to detect predetermined System conditions and automatically take corrective actions that may include, but are not limited to, adjusting or tripping generation (MW and Mvar), tripping load, or reconfiguring a System(s).” “Generation” is both real and reactive power. 2. The drafting team removed the phrase “other sources.” 		
MidAmerican Energy Company	Yes	
Idaho Power	Yes	
Exelon Companies	Yes	
American Electric Power	Yes	<p>AEP agrees with the concept of using a single term, and believes the project team is off to a good start in its development. AEP offers the following comments for continued improvement...</p> <ol style="list-style-type: none"> 1. It is unclear from the proposed definition and associated exclusions list whether automatic load rejection (ALR) of a generating unit is considered to be a Remedial Action Scheme.

Organization	Yes or No	Question 1 Comment
		<p>2. Our negative vote is driven solely on the lack of certainty surrounding this applicability of the definition. The qualifier “BES” should be incorporated into the definition as follows...Maintain *BES* System stability; Maintain acceptable *BES* System voltages; Maintain acceptable *BES* power flows; Limit the impact of *BES* Cascading; or</p>
<p>Response: Thank you for your comments.</p> <p>1. An automatic load rejection scheme (ALR) may or may not be a RAS depending upon the application details. AEP has not provided enough details in the comment for the drafting team to make a determination.</p> <p>2. The drafting team agrees and inserted “BES” as a qualifier in the pertinent objectives.</p>		
Nebraska Public Power District	Yes	
ReliabilityFirst	Yes	
ITC	Yes	
Omaha Public Power District	Yes	
NV Energy	Yes	
NRECA	Yes	<p>Although NRECA agrees that using the single term RAS can provide clarity in the forty-three (43) standards utilizing the term, the proposed RAS definition creates a conflict with the applicability sections in the PRC-005-2 and PRC-005-3 standards. In these standards, the applicability 4.2.4 states "Protection Systems installed as a Special Protection System ...", but the proposed definition of a RAS explains that a RAS is no longer a “Protection System”. With the proposed definition, PRC-005-2 and PRC-005-3 will not be applicable to a RAS. If these standards are meant to be applicable to the a RAS, then the applicability and possibly the associated requirements and tables included in PRC-005-2 and PRC-005-3 will require further revision</p>

Organization	Yes or No	Question 1 Comment
		rather than simply replacing SPS with RAS. NRECA recommends that the drafting team revisit the intent of designating that a RAS is not a "Protection System" which will require a thorough review of the standards to determine if a substitution creates a reliability gap by changing the intent of the modified standards.
<p>Response: Thank you for your comment. To remove any confusion regarding the statement you identified, the drafting team deleted it from the definition. The removal of the aforementioned statement should eliminate the need to review other Reliability Standards regarding the use of the term "Protection System(s).</p>		
LCRA Transmission Services Corporation	Yes	The following statement, "These schemes are not Protection Systems; however, they may share components with Protection Systems." is misleading and confusing. This statement should be deleted.
<p>Response: Thank you for your comment. To remove any confusion regarding the statement you identified, the drafting team deleted it from the definition.</p>		
PJM Interconnection	Yes	
Independent Electricity System Operator	Yes	
Tri-State Generation and Transmission Association, Inc.	Yes	Although Tri-State agrees that using the single term RAS can provide clarity in the forty-three (43) standards utilizing the term, the proposed RAS definition creates a conflict with the applicability sections in the PRC-005-2 and PRC-005-3 standards. In these standards, the applicability 4.2.4 states "Protection Systems installed as a Special Protection System ...", but the proposed definition of a RAS explains that a RAS is no longer a "Protection System". With the proposed definition, PRC-005-2 and PRC-005-3 will not be applicable to a RAS. If these standards are meant to be applicable to the a RAS, then the applicability and possibly the associated requirements and tables included in PRC-005-2 and PRC-005-3 will require further revision

Organization	Yes or No	Question 1 Comment
		rather than simply replacing SPS with RAS. Tri-State recommends that the drafting team revisit the intent of designating that a RAS is not a "Protection System" which will require a thorough review of the standards to determine if a substitution creates a reliability gap by changing the intent of the modified standards
<p>Response: Thank you for your comment. To remove any confusion regarding the statement you identified, the drafting team deleted it from the definition. The removal of the aforementioned statement should eliminate the need to review other Reliability Standards regarding the use of the term "Protection System(s).</p>		

2. Are there additional corrective actions that should be explicitly included in the proposed definition of RAS? If yes, please provide specific suggestions and rationale.

Summary Consideration:

Approximately 80% of commenters agreed with the corrective actions included in the proposed definition of RAS.

A few commenters requested the clarity around the phrase “curtailing or tripping generation or other sources.” The drafting team changed “curtailing” to “adjusting” because “curtailing” is associated with electronic tagging; and replaced “other sources” with “(MW and Mvar)” to clarify that generation includes both real and reactive power.

There were numerous comments unrelated to this question that were addressed but not included in this summary.

Organization	Yes or No	Question 2 Comment
Dominion	No	
FirstEnergy Corp.	No	
Operational Compliance	No	
Tennessee Valley Authority	No	
Duke Energy	No	
Florida Municipal Power Agency	No	
SERC Protection and Controls Subcommittee	No	
Bonneville Power Administration	No	

Organization	Yes or No	Question 2 Comment
Southern Company: Southern Company Services, Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Company; Southern Company Generation; Southern Company Generation and Energy Marketing	No	
ACES Standards Collaborators	No	We cannot identify any.
PacifiCorp	No	
Orlando Utilities Commission	No	
Central Lincoln	No	
Tacoma Public Utilities	No	
CenterPoint Energy	No	
Wisconsin Electric Power Company	No	
Hydro One	No	
ISO New England	No	
Pepco Holdings Inc	No	

Organization	Yes or No	Question 2 Comment
Ingleside Cogeneration LP	No	
American Transmission Company, LLC	No	
Xcel Energy	No	
Manitoba Hydro	No	
MidAmerican Energy Company	No	
Idaho Power	No	
Exelon Companies	No	
Nebraska Public Power District	No	
ITC	No	
Omaha Public Power District	No	
Ameren	No	
LCRA Transmission Services Corporation	No	LCRA TSC recommends an additional example be included under the heading “The following do not individually constitute a RAS:” stated, “Protection systems installed to clear faults.”
<p>Response: Thank you for your comment. The drafting team agrees and added a new exclusion (a) which reads: Protection Systems installed for the purpose of detecting Faults on BES Elements and isolating the faulted Elements. The drafting team also added clarifying language in the FAQ.</p>		

Organization	Yes or No	Question 2 Comment
PJM Interconnection	No	
Independent Electricity System Operator	No	
Austin Energy	No	
Oncor Electric Delivery LLC	No	The SPS definition should be implemented as soon as possible the way it was originally developed by the NERC System Analysis and Modeling Subcommittee (SAMS) and approved by NERC OC PC. SAMS took several years developing the definition and getting approvals.
<p>Response: Thank you for your comment. The drafting team recognizes the efforts of SAMS/SPCS in development of the proposed definition. Several drafting team members participated directly in that process and the drafting team used that report as a starting point in its efforts, but neither NERC nor the drafting team expected this starting point to also be the end point. While the approval of the NERC Operating and Planning Committees is important, it does not rise to the level of stakeholder vetting through the standards development process.</p>		
Tri-State Generation and Transmission Association, Inc.	No	
Northeast Power Coordinating Council	Yes	<ol style="list-style-type: none"> 1. The objective to “Meet requirements identified in the NERC Reliability Standards” improperly defines a NERC term by utilizing NERC requirements which can change over time. The purpose of this section is to describe the objectives of an RAS. An RAS is accomplishes the objectives of adequate reliability. Those Standards and requirements that will apply to RAS will list RAS in their requirements. 2. The final bullet in an RAS objective “Address other Bulk Electric System (BES) reliability concerns” is open ended. The previous bullets of voltage, stability, flows and Cascade are the hallmarks of adequate levels of reliability.

Organization	Yes or No	Question 2 Comment
		<p>3. To the existing definition of Special Protection System (Remedial Action Scheme), after “Such action may include changes in demand, generation (MW and Mvar)...” add the words HVDC power flows, FACTS device operating points,...</p>
<p>Response: Thank you for your comment.</p> <p>1. The SDT agrees that requirements in NERC reliability Standards can change over time. The statement in the definition does not refer to a specific standard or requirements, nor does it impose requirements by itself. The drafting team considers that meeting requirements in the NERC Reliability Standards is one objective for installing a RAS.</p> <p>2. The drafting team agrees that the item “Address other Bulk Electric System (BES) reliability concerns” is open ended and removed the bullet.</p> <p>3. The drafting team agrees that the proposed additions to the list of RAS actions are legitimate, but declines to make the change because the list provides examples only and is not all-inclusive.</p>		
MRO NERC Standards Review Forum	Yes	
IRC Standards Review Committee	Yes	Reverse Power Sensing Relays should be added to the list of RAS.
<p>Response: Thank you for your comment. The drafting team considers reverse power sensing relays to be a protective function. As such, they do not individually constitute a RAS under exclusion “e” which reads: “Schemes applied on an Element for non-Fault conditions, such as, but not limited to, generator loss-of-field, transformer top-oil temperature, overvoltage, or overload to protect the Element against damage by removing it from service.”</p> <p>However, the drafting team asserts that reverse power sensing relays could, as other protective functions, be part of a larger scheme that meets the definition of RAS.</p>		
SPP Standards Review Group	Yes	We have a concern in reference to the term ‘curtailed’ being used in the revised definition. Our thought process associates ‘curtailed’ with the tagging process. The

Organization	Yes or No	Question 2 Comment
		group suggests the term ‘reduce’ for it seems more fitting with the terms ‘tripping of generation or load’.
<p>Response: Thank you for your comment. The drafting team revised the first sentence of the definition to read: “A scheme designed to detect predetermined System conditions and automatically take corrective actions that may include, but are not limited to, adjusting or tripping generation (MW and Mvar), tripping load, or reconfiguring a System(s).”</p>		
City of Vineland	Yes	<ol style="list-style-type: none"> 1. With the statement in the definition of "but are not limited to", and the first of the inclusions of "Meet requirements identified in the NERC Reliability Standards", there is no real limit on the scope of the definition. Also, the last inclusion "Address other BES reliability concerns" looks like a catchall inclusion that could be applied after the fact. This is not so black and white when talking about a definition of a RAS. 2. There needs to be categorization and guidance for the industry to determine their own situations. Not all RAS (in the proposed definition) are equally critical to reliability of the BES.
<p>Response: Thank you for your comment.</p> <ol style="list-style-type: none"> 1. Because of the diversity of RAS in both action and objective, the practical approach to a definition is to begin with a wide and general scope and then list specific exclusions. However, the drafting team did limit the scope of the objectives by removing the last bullet as you suggested. The revised objectives provide examples and are no longer all-inclusive. 2. The classification of a RAS is not necessary for defining whether or not a scheme qualifies as a RAS. Informal feedback from many stakeholders indicated uncertainty about the classification types. Therefore, the drafting team decided not to include RAS classification types within the definition. The classifications are more appropriately addressed concurrently with revisions to the RAS-related Reliability Standards. 		
ReliabilityFirst	Yes	<p>ReliabilityFirst submits the following comments for consideration: 1. Item k. “Automatic sequences that proceed when manually initiated solely by an operator”</p> <ol style="list-style-type: none"> a. ReliabilityFirst is aware of a current RAS for a large generation plant in which the RAS can be armed/de-armed by a system operator. In the cases where this RAS is armed, we would consider this to be a RAS, applicable to any associated NERC

Organization	Yes or No	Question 2 Comment
		<p>Reliability Standards. ReliabilityFirst questions whether it is the intent of item “K” to exclude these types of schemes as a RAS. If so, what is the technical justification/basis for such exclusion?</p> <p>b. The term “operator” is undefined and may be left to interpretation. ReliabilityFirst recommends using the NERC Glossary of Terms definition of “System Operator” to further clarify the term “operator”.</p>
<p>Response: Thank you for your comment.</p> <p>a) Exclusion k is not referring to whether schemes are armed by a System Operator or not. A RAS can be armed and waiting on predetermined system conditions to take action. Arming only introduces a layer of supervision and does not determine whether or not a scheme is a RAS. Exclusion k refers to schemes that will take automatic actions upon being initiated manually by a System Operator.</p> <p>b) The drafting team agrees and revised the definition to use the term “System Operator.”</p>		
NV Energy	Yes	<p>The list of corrective actions taken by a RAS is comprehensive; however, we feel it would be a valuable improvement to clarify that each of the second through fifth bulleted items is applicable only to the BES. For instance, the second bullet would read “Maintain Bulk Electric System stability”; third bullet would read “Maintain acceptable BES voltages”; fourth bullet “Maintain acceptable BES power flows”; and fifth bullet “Limit the impact of Cascading throughout the BES”.</p>
<p>Response: Thank you for your comment. The drafting team agrees and inserted “BES” as a qualifier in the pertinent objectives.</p>		
Consumers Energy Company	Yes	<p>If the intent was indeed to have this definition apply only to the BES, then we suggest the additional clarifications since many companies may have similar schemes on non-applicable systems: A scheme designed to detect predetermined System conditions on the BES and automatically take corrective actions that may include, but are not limited to, curtailing or tripping generation or other sources, curtailing or tripping load, or reconfiguring a System(s). RAS accomplish one or more of the following objectives:</p> <ul style="list-style-type: none"> o Meet requirements identified in the NERC Reliability Standards; o Maintain BES System stability; o Maintain acceptable BES System voltages; o

Organization	Yes or No	Question 2 Comment
		Maintain acceptable BES power flows; <ul style="list-style-type: none"> o Limit the impact of Cascading on the BES; or o Address other Bulk Electric System (BES) reliability concerns.
<p>Response: Thank you for your comment. The drafting team agrees and inserted “BES” as a qualifier in the pertinent objectives. However, the detection of predetermined conditions should not be limited to the BES; therefore, that change was not made.</p>		
Colorado Springs Utilities		No Comments

3. Are there additional objectives that should be explicitly included in the proposed definition of RAS? If yes, please provide specific suggestions and rationale.

Summary Consideration:

A majority of commenters agreed there was no need for additional objectives.

Numerous commenters expressed concerns with the first and last stated objectives: respectively, they are “Meet requirements identified in the NERC Reliability Standards” and “Address other Bulk Electric System (BES) reliability concerns”. Commenters questioned whether RAS applications should be limited to meeting requirements of specific NERC Reliability Standards. The drafting team responded that RAS applications should not be limited to meeting requirements and that RAS could be implemented to limit the impact of an extreme event or Cascading. Commenters stated that the last objective was all encompassing making the other objectives irrelevant. In response, the drafting team deleted the objective; thereby, negating the all-inclusive nature of the objective list.

To clarify the intent of the proposed definition of Remedial Action Scheme, numerous commenters also requested that the list of objectives should specifically pertain to the Bulk Electric System (BES). The drafting team agreed and inserted the qualifier “BES” where appropriate.

There were numerous comments unrelated to this question that were addressed but not included in this summary.

Organization	Yes or No	Question 3 Comment
Dominion	No	<ol style="list-style-type: none"> <li data-bbox="779 1040 1906 1305">1. The objectives do not belong in a definition of RAS. These objectives are a restatement of the NERC defined term “Reliable Operation” which is the objective of all Reliability Standards. These are too broad and will cast to wide a net. “Meet the requirements identified in the NERC Reliability Standards” could include standards that are not developed yet. A RAS should only be a RAS if it solves a reliability violation for a specific contingency (not a generic “System condition”) of the type stated in TPL-001-4 or its successor standard. <li data-bbox="779 1305 1906 1419">2. Additionally, we are not sure if it should be a RAS if it only solves “extreme” events in the TPL standards since the label of RAS takes away incentive to mitigate problems.

Organization	Yes or No	Question 3 Comment
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. Because of the diversity of RAS in both action and objective, the practical approach to a definition is to begin with a wide scope and then list specific exclusions. However, the drafting team did limit the scope of the objectives by removing the last bullet. The revised objectives provide examples and are no longer all-inclusive. The objectives serve as examples of why RAS may be installed. The exclusions identify equipment and schemes that should not be considered RAS. The drafting team does not agree that RAS can only be designed to address specific contingencies. RAS may be used to solve either event-based "contingencies" or condition-based "System conditions" (e.g. overloads, etc.). 2. The drafting team contends that RAS are not limited to meeting the requirements of the NERC Reliability Standards but may also be implemented for applications such as limiting the impact on the BES of an extreme event or Cascading. 		
FirstEnergy Corp.	No	
Operational Compliance	No	
Duke Energy	No	
Florida Municipal Power Agency	No	
SERC Protection and Controls Subcommittee	No	
IRC Standards Review Committee	No	
Bonneville Power Administration	No	

Organization	Yes or No	Question 3 Comment
Southern Company; Southern Company Services, Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Company; Southern Company Generation; Southern Company Generation and Energy Marketing	No	The objective "Address other Bulk Electric System (BES) reliability concerns" is too broad. This encompasses every scheme on the system and makes the other objectives irrelevant. This objective should be deleted.
<p>Response: Thank you for your comments. The drafting team agrees and revised the objectives by deleting the last bullet that read: "Address other Bulk Electric System (BES) reliability concerns" negating the all-inclusive nature of the objectives.</p>		
SPP Standards Review Group	No	We would suggest the removal of the first bullet 'Meet requirements identified in the NERC Reliability Standards' from the definition because the RAS shouldn't be implemented in reference to a particular Standard but for the operational needs of the system. Also, we recommend the removal of the last bullet 'Address other Bulk Electric System (BES) reliability concerns' to avoid the lack of clarity that was an issue with the original 'SPS/RAS' definition including it leaves the definition too open to interpretation.
<p>Response: Thank you for your comments. Because of the diversity of RAS in both action and objective, the practical approach to a definition is to begin with a wide scope and then list specific exclusions. The drafting team did limit the scope of the objectives by removing the last bullet. The revised objectives provide examples and are no longer all-inclusive. The objectives serve as examples of why RAS may be installed. The exclusions identify equipment and schemes that should not be considered RAS. RAS may be used to solve either event-based "contingencies" or condition-based "System conditions" (e.g. overloads, etc.). The SDT maintains that satisfying requirements of a reliability standard is a legitimate RAS objective.</p>		

Organization	Yes or No	Question 3 Comment
<p>ACES Standards Collaborators</p>	<p>No</p>	<p>We do not believe any additional objectives are necessary and believe that two objectives should be removed as discussed below.</p> <ol style="list-style-type: none"> 1. Use of the term “meet requirements identified in the NERC Reliability Standards” is ambiguous which will lead to inconsistent enforcement. Would this clause apply to any standard or is it intended primarily to apply to TPL standards? Does this require the owner of the RAS to document for which standards the RAS is installed? For a newly installed RAS, this might be easy but there could be disagreement over the purpose of the installation of existing RAS especially those that have been installed for a decade or more. We recommend removing the phrase from the definition. If the phrase persists, please identify specific standards and requirements in the technical guideline section for clarity. 2. Use of the term “address other Bulk Electric System (BES) reliability concern” is vague and ambiguous which will only lead to inconsistent enforcement. What other reliability concerns could there be besides system stability, system voltages, power flows, and Cascading that would not be excluded. Protecting equipment from damage would be one reliability concern that does not specifically fit into one of the categories but any schemes associated with protecting equipment from damage would be excluded by exclusion e. or excluded because they are Protection Systems. We simply cannot come up with any additional examples that warrant inclusion of such an ambiguity. We suggest the drafting team remove this phrase to remove the ambiguity. If there are other reliability concerns for which a RAS may be installed that do not fit into one of the five other buckets, then additional specific buckets should be added to avoid ambiguity. 3. Because schemes could be interpreted to include AGC and excitation systems, the objectives could also inadvertently result in AGC or excitation systems being classified as RAS. AGC ultimately is required to meet several requirements in the BAL standards and excitation systems are used to control a generator’s reactive power output to maintain an acceptable voltage schedule. Thus, both AGC and excitation systems support at least one of the objectives of the RAS definition.

Organization	Yes or No	Question 3 Comment
		These objectives should ultimately be evaluated more closely. At the very least, AGC and excitation systems should be included in the exclusions list.
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The drafting team contends that the requested level of specificity regarding the NERC Reliability Standards is not appropriate to include in the RAS definition. It is important that the scope of the definition include schemes whose failure to operate or whose misoperation may pose a reliability risk. Listing specific standards in the definition may unintentionally limit the scope of the definition. The definition by itself imposes no requirements on RAS owners. 2. The drafting team agrees and revised the objectives by deleting the last bullet that read: “Address other Bulk Electric System (BES) reliability concerns” negating the all-inclusive nature of the objectives. 3. The drafting team agrees that generator controls were not clearly addressed by the exclusion list: therefore, the drafting team added a new exclusion (n) which reads: “Generator controls such as, but not limited to, automatic generation control (AGC), generation excitation [e.g. automatic voltage regulation (AVR) and power system stabilizers (PSS)], fast valving, and speed governing.” 		
Orlando Utilities Commission	No	
Central Lincoln	No	
Tacoma Public Utilities	No	
CenterPoint Energy	No	
Wisconsin Electric Power Company	No	
Hydro One	No	
ISO New England	No	
Pepco Holdings Inc	No	

Organization	Yes or No	Question 3 Comment
Xcel Energy	No	
Manitoba Hydro	No	
MidAmerican Energy Company	No	
Idaho Power	No	
Exelon Companies	No	
Nebraska Public Power District	No	
ITC	No	<p>What purpose does the objectives list serve? Would any scheme be not considered RAS due to its objective? The term “other BES reliability concerns” seems to be all-inclusive so there’s no point to the list.</p>
<p>Response: Thank you for your comments. Because of the diversity of RAS in both action and objective, the practical approach to the RAS definition is to begin with a wide scope and then list specific exclusions. The drafting team revised the objectives by deleting the last bullet that read: “Address other Bulk Electric System (BES) reliability concerns” negating the all-inclusive nature of the objectives. The objectives serve as examples of why RAS may be installed and are not intended to limit the scope of the RAS definition.</p>		
NV Energy	No	
Ameren	No	
LCRA Transmission Services Corporation	No	
PJM Interconnection	No	

Organization	Yes or No	Question 3 Comment
Independent Electricity System Operator	No	
Austin Energy	No	
Oncor Electric Delivery LLC	No	
Tri-State Generation and Transmission Association, Inc.	No	
Northeast Power Coordinating Council	Yes	<ol style="list-style-type: none"> 1. It is not clear why "unanticipated" was omitted from the first sentence of the definition. While it is true that at least in WECC most of the conditions its RASs detect are predetermined, in other regions that might not be the case and omission of the term creates a loophole that is not there now. A RAS is designed to respond to System Conditions that could happen. The schemes are developed in response to Planning Studies. Protection systems are not installed without considering the conditions that will activate them. 2. First bullet: Have SPS/RAS requirements literally been identified in NERC standards, or is the intent that the SPS/RAS be applied so that the power system meets the performance requirements identified in the NERC reliability standards? 3. Sixth bullet: What is a reliability "concern"? Wouldn't it be more accurate to say address other conditions that could otherwise result in failure to comply with reliability standards?
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. The drafting team contends that the system conditions being detected by the RAS must be predetermined in order to define operation of the RAS. Events which could lead to such conditions, however, may be "unanticipated" events specific or contingencies. The proposed definition encompasses both event and condition scenarios. 		

Organization	Yes or No	Question 3 Comment
		<p>2. No, SPS/RAS have not been literally identified in NERC standards. NERC Reliability Standards specify reliability objectives (outcomes) and do not specify the “how” or the methods used to achieve the objectives. Installing a RAS is one possible method to address the reliability objective of a standard.</p> <p>3. The drafting team removed the last objective that read: “Address other Bulk Electric System (BES) reliability concerns” as many commenters stated it was all-encompassing.</p>
MRO NERC Standards Review Forum	Yes	<p>The definition as drafted includes use of Bulk Electric System in some places and not in others. Assuming the RAS that are covered under this standard are only those in the BES, the following changes are suggested to clarify this: A scheme designed to detect predetermined Bulk Electric System (BES) conditions and automatically take corrective actions that may include, but are not limited to, curtailing or tripping BES generation or other BES sources, curtailing or tripping load, or reconfiguring a System(s). RAS accomplish one or more of the following objectives:</p> <ul style="list-style-type: none"> o Meet requirements identified in the NERC Reliability Standards; o Maintain BES stability; o Maintain acceptable BES voltages; o Maintain acceptable BES power flows; o Limit the impact of BES Cascading; or o Address other BES reliability concerns <p>To eliminate any doubt that the text used in NERC Reliability Standards properly applies to only BES Remedial Action Schemes. The NSRF recommends establishing a RAS Definition that applies explicitly to the BES. This objective could be accomplished by defining it as a “BES Remedial Action Scheme” and replacing the references to “System” with “BES”. The existing references in the proposed RAS Definition to “System or Systems” apply more broadly to non-BES transmission systems and distribution systems.</p>
<p>Response: Thank you for your comment. The drafting team agrees and inserted “BES” as a qualifier in the pertinent objectives. However, the detection of predetermined conditions should not be limited to the BES; therefore, that change was not made.</p>		
National Grid	Yes	<p>RE: "RAS accomplish one or more of the following objectives: Maintain System Stability" Can a RAS/SPS maintain system stability or does it prevent (or at least lessen the odds of) system instability?</p>

Organization	Yes or No	Question 3 Comment
<p>Response: Thank you for your comments. The drafting team inserted “BES” as a qualifier in the pertinent objectives. The drafting team contends that maintaining Bulk Electric System (BES) stability is synonymous with preventing System instability.</p>		
Tennessee Valley Authority	Yes	<p>The bulleted list of objectives fails to enhance clarity, and could in fact increase the uncertainty around RAS. Bullets 2-6 can be interpreted to cover objectives beyond NERC Reliability Standards, when taken in context with the first bullet. The scope of the definition should be limited to applications that are relevant to the NERC Reliability Standards in which the term is used. See proposed modifications under question 1 response.</p>
<p>Response: Thank you for your comments.</p> <p>Because of the diversity of RAS in both action and objective, the practical approach to the RAS definition is to begin with a wide scope and then list specific exclusions. However, the drafting team did limit the scope of the objectives by removing the last bullet that read: “Address other Bulk Electric System (BES) reliability concerns.” The revised objectives provide examples and are no longer all-inclusive. The objectives serve as examples of why RAS may be installed. The exclusions identify equipment and schemes that should not be considered RAS. RAS may be used to solve either event-based "contingencies" or condition-based "System conditions" (e.g. overloads, etc.). The SDT maintains that satisfying requirements of a reliability standard is a legitimate RAS objective. The drafting team does not agree that RAS should be limited to applications that are relevant to the NERC Reliability Standards in which the term is used. RAS may also be implemented for applications beyond requirements of the NERC Reliability Standards, such as to limit the impact of an extreme event or Cascading.</p>		
PacifiCorp	Yes	<p>To clarify the intent of the proposed definition of Remedial Action Scheme, PacifiCorp recommends inserting Bulk Electric System into the first sentence as follows: “A scheme designed to detect predetermined Bulk Electric System conditions and automatically take corrective actions that may include, but are not limited to, curtailing or tripping generation or other sources, curtailing or tripping load, or reconfiguring a System(s).”</p>
<p>Response: Thank you for your comment. The drafting team agrees and inserted “BES” as a qualifier in the pertinent objectives. However, the detection of predetermined conditions should not be limited to the BES; therefore, that change was not made.</p>		

Organization	Yes or No	Question 3 Comment
City of Vineland	Yes	Categorization of RAS for criticality.
<p>Response: Thank you for your comments. The classification of a RAS is not necessary for defining whether or not a scheme qualifies as a RAS. Informal feedback from many stakeholders indicated uncertainty about the classification types. Therefore, the drafting team decided not to include RAS classification types within the definition. The classifications are more appropriately addressed concurrently with revisions to the RAS-related Reliability Standards.</p>		
Ingleside Cogeneration LP	Yes	<p>The exclusions proposed by the drafting team are comprehensive and precise - and the bulleted list of “inclusions” under the base definition of RAS must be as well. In the original definition, such descriptors included those RAS whose loss or malfunction would lead to “Non-Consequential Load Loss ≥ 300 MW”, “Aggregate resource loss (tripping or runback of generation or HVdc) > the largest Real Power resource within the interconnection”, “Loss of synchronism between two or more portions of the system each including more than one generating plant”, and “Negatively damped oscillations”. ICLP is not sure why specifics like this were removed to begin with - and we believe it is the responsibility of the drafting team to provide the rationale, not the industry.</p>
<p>Response: Thank you for your comments. The SAMS-SPCS whitepaper does include specifics on suggested classifications. However, the classification of a RAS is not necessary for defining whether or not a scheme qualifies as a RAS. Informal feedback from many stakeholders indicated uncertainty about the classification types. Therefore, the SDT decided not to include RAS classification types within the definition. The classifications are more appropriately addressed concurrently with revisions to the RAS-related Reliability Standards. Please see the FAQ document.</p>		
American Transmission Company, LLC	Yes	<p>To eliminate any doubt that the text used in NERC Reliability Standards properly applies to only BES Remedial Action Schemes, ATC recommends establishing a RAS Definition that applies explicitly to the BES. This could be accomplished by defining it as a “BES Remedial Action Scheme” and replacing the references to “System” with “BES.” The existing references in the proposed RAS Definition to “System” or “Systems” apply more broadly to non-BES transmission systems and distribution systems.</p>

Organization	Yes or No	Question 3 Comment
<p>Response: Thank you for your comment. The drafting team agrees and inserted “BES” as a qualifier in the pertinent objectives. However, the detection of predetermined conditions should not be limited to the BES; therefore, that change was not made.</p>		
Omaha Public Power District	Yes	An objective of this project is to create a RAS definition and to eliminate the need for an SPS definition. Somewhere, that should be clarified.
<p>Response: Thank you for your comment. Please see the FAQ document.</p>		
Consumers Energy Company	Yes	<p>If the intent was indeed to have a broader definition and then restrict its applicability when used in each standard, then we suggest the following clarifications: A scheme designed to detect predetermined System conditions and automatically take corrective actions that may include, but are not limited to, curtailing or tripping generation or other sources, curtailing or tripping load, or reconfiguring a System(s). RAS accomplish one or more of the following objectives:</p> <ul style="list-style-type: none"> o Meet requirements identified in the NERC Reliability Standards; o Maintain System stability; o Maintain acceptable System voltages; o Maintain acceptable power flows; o Limit the impact of Cascading; or o Address other Bulk Electric System (BES) reliability concerns. <p>Then each standard using this term would state something like “...an RAS used to address BES reliability...” to help define applicability in each standard.</p>
<p>Response: Thank you for your comment. The drafting team agrees and inserted “BES” as a qualifier in the pertinent objectives.</p>		
Colorado Springs Utilities		No Comments

4. Do you agree with the exclusion list in the proposed definition of RAS? If not, please provide specific suggestions and rationale.

Summary Consideration:

Approximately 40% of commenters agreed with the proposed exclusion list. There were three primary themes in the comments submitted by stakeholders that disagreed.

1. Include an exclusion for Protection Systems that clear Faults

In response, the drafting team added a new exclusion (a) which reads: "Protection Systems installed for the purpose of detecting Faults on BES Elements and isolating the faulted Elements."

2. Include an exclusion for AGC and other generator excitation systems

In response, the drafting team added a new exclusion (n) which reads: "Generator controls such as, but not limited to, automatic generation control (AGC), generation excitation [e.g. automatic voltage regulation (AVR) and power system stabilizers (PSS)], fast valving, and speed governing".

3. Requested clarity of the UVLS exclusion

In response, the drafting team combined the posted exclusions (b) UFLS and (c) UVLS into a single exclusion (b) for this posting that reads: "Schemes for automatic under-frequency load shedding (UFLS) and automatic under-voltage load shedding (UVLS) comprised of only distributed relays." The drafting team tailored this exclusion to match the language of the recently-approved "UVLS Program."

A few commenters requested an exclusion for switching performed in the same station (including transfer- or cross-trip schemes) that trip Elements other than the impacted Element.

The drafting team thought this concept was too broad and contends that schemes that reconfigure the System should be RAS. No change made.

Other commenters requested additional examples be included several of the exclusions.

The drafting team declined to make the suggested changes noting that they were not attempting to provide an all-inclusive list of examples.

A few commenters questioned the general formatting of the definition and the need for an exclusion list.

The drafting team explained the definition must be broad enough to include the variety of System conditions monitored and corrective actions taken by RAS. Because of the diversity of RAS in both action and objective, the practical approach to the definition is to begin with a wide scope and then list specific exclusions. Without the exclusions, equipment and schemes that should not be considered RAS

could be subject to the requirements of the RAS-related NERC Reliability Standards. The exclusion list also assures that commonly applied protection and control systems are not unintentionally included as RAS. Note, if a scheme or protective system is not explicitly defined as an exclusion, it is not by default a RAS - the definition of RAS must be met in its entirety.

There were numerous comments unrelated to this question that were addressed but not included in this summary.

Organization	Yes or No	Question 4 Comment
Northeast Power Coordinating Council	No	<ol style="list-style-type: none"> 1. Regarding Item “c” (Undervoltage Load Shedding Programs [UVLS Programs]) of what does not individually constitute a RAS, UVLS Program must become an approved definition. Local undervoltage load shedding schemes that are not installed “to mitigate the risk of Cascading, voltage instability, voltage collapse, or uncontrolled separation resulting from undervoltage conditions” as defined in the draft PRC-010-1 should be excluded, therefore, “c. Undervoltage load Shedding Programs (UVLS Programs)” should be changed to “c. Automatic undervoltage load shedding schemes, including UVLS Programs. However, centrally controlled dispersed undervoltage load shedding schemes are RAS.” An objective could be added to address centrally controlled Remedial Action Schemes. 2. After the bulleted section, the sentence “The following do not individually constitute an RAS” could be read as implying that two or three of them taken together might constitute an RAS, which may or may not be the case. Suggest revising to read “The following do not individually, or combined in part or total, constitute a RAS.” 3. Please list UFLS and UVLS programs with the same capital letters and use of parentheses.

Response: Thank you for your comment.

1. The drafting team combined the posted exclusions (b) and (c) into a single exclusion (b) for this posting that reads: “Schemes for automatic under-frequency load shedding (UFLS) and automatic under-voltage load shedding (UVLS) comprised of only distributed relays.” The drafting team tailored this exclusion to match the language of the recently-approved “UVLS Program” definition.

Organization	Yes or No	Question 4 Comment
<p>2. The drafting team contends that two or more exclusions taken together may or may not constitute a RAS. Individually, an exclusion is not a RAS; however, any of the exclusion(s) could be an integral part of a larger scheme that meets the RAS definition.</p> <p>3. The drafting team followed the NERC style guide for capitalization.</p>		
Colorado Springs Utilities	No	<p>1. Colorado Springs Utilities does not agree with the exclusion list in the proposed definition. We do not think that it is reasonable or prudent to create a comprehensive list of exclusions. There will always be just one more exception that will force us to continue to modify the list of exclusions. Also, if it is not explicitly defined as an exception then by default it is automatically included whether it could affect reliability or not. The definition should clearly define what a RAS so as to include those schemes identified as essential to reliability. The only implicit exclusion we would recommend would be to exclude protection schemes that meet the definition of a RAS and are explicitly covered under other NERC reliability standards. Utilities would then use the definition to make sure that essential protection systems that meet the definition are included and document any further assumptions or judgement used in delineating between RAS and non-RAS schemes. Trying to micro-manage every possible exclusion or inclusion we think is not realistic and should not be necessary. If we do keep the exclusions list then we would offer the following suggestions on the current list of exclusions, and would anticipate a fairly steady flow of additions/modifications to this list moving forward.</p> <p>2. Remove “automatic” from UFLS.</p> <p>3. Should we explicitly exclude GMD responses? Refer to EOP-010-1/TPL-007-1.</p>
<p>Response: Thank you for your comment.</p> <p>1. The definition must be broad enough to include the variety of System conditions monitored and corrective actions taken by RAS. Because of the diversity of RAS in both action and objective, the practical approach to the definition is to begin with a wide scope and then list specific exclusions. Without the exclusions, equipment and schemes that should not be considered RAS could be subject to the requirements of the RAS-related NERC Reliability Standards. The exclusion list also assures that commonly applied protection and control systems are not unintentionally included as RAS. Note, if a scheme or protective system is not explicitly defined as an exclusion, it is not by default a RAS - the definition of RAS must be met in its entirety.</p>		

Organization	Yes or No	Question 4 Comment
<p>2. The drafting team disagrees and declined to make the suggested change.</p> <p>3. The drafting team contends that most GMD responses are equipment-based protection and would be covered by exclusion (e).</p>		
<p>MRO NERC Standards Review Forum</p>	<p>No</p>	<p>1. The NSRF suggests: Item c - Consider rewording to better show the correlation to Item b by including the adjective 'automatic', with text like, "Automatic Undervoltage Load Shedding Programs (UVLS Programs)</p> <p>2. Item f - consider adding ". . . and controllers that . . ." to the middle of the item for improved readability.</p> <p>3. Item h - Consider using wording more aligned with Item g, such as ". . . remotely switch static shunt reactive devices for voltage regulation . . .". Otherwise consider wording like, "remotely switch static shunt inductors or static shunt capacitors for voltage regulation . . .".</p>
<p>Response: Thank you for your comment.</p> <p>1. The drafting team combined the posted exclusions (b) and (c) into a single exclusion (b) for this posting that reads: "Schemes for automatic under-frequency load shedding (UFLS) and automatic under-voltage load shedding (UVLS) comprised of only distributed relays." The drafting team tailored this exclusion to match the language of the recently-approved "UVLS Program" definition.</p> <p>2. The drafting team disagrees and declined to make the suggested change.</p> <p>3. The drafting team disagrees and declined to make the suggested change.</p>		
<p>Dominion</p>	<p>No</p>	<p>From item "f", strike the term "and that are located at and monitor quantities solely at the same station as the Element being switched or regulated." Why does it make a difference whether the controller is local or remote? The advent of high-speed phase measurement units (PMUs) and faster computer systems will eventually allow wide area control. This will become essential as the customer's load characteristic evolves (less voltage and frequency dependency means local PSSs will be less effective). We are concerned that the definition in general will hamper innovation. Right now there are schemes that control LTC's and capacitors to minimize losses. Certainly these are not RAS. There are EMS controls such as what PJM uses that dispatch generation precontingency to avoid</p>

Organization	Yes or No	Question 4 Comment
		<p>overloads/voltage problems. These are not RAS either. Eventually computer EMS systems will become fast and robust enough to drop load or reconfigure the system so quickly that wide area blackouts will be virtually eliminated. Recall that only 500 MWs of load drop would have stopped the 2003 blackout. Therefore wide area systems that generically react to problems (not designed for a single specific contingency (if line A opens, do xyz action)) should not be RAS.</p>
<p>Response: Thank you for your comment. The difference between local and remote control is the associated increase of reliability risk. Schemes that act remotely are more likely to have a broad impact on the System and merit the more rigorous oversight required for RAS. For your examples: the drafting team agrees that schemes that control LTC's and capacitors to minimize losses are typically not RAS; EMS controls for generation dispatch are typically not RAS; however, "wide area systems that generically react to problems" by dropping load or reconfiguring the System are typically RAS.</p>		
Seattle City Light	No	<p>Seattle appreciates the efforts of the drafting team to be complete, but has concern with a definition that is primarily a negative definition, i.e. a definition of what a RAS is NOT. If such an approach is deemed the most practical, Seattle recommends that a general item be added to the list of what a RAS is not, such as "n. any other scheme that does not automatically act to maintain System performance or BES reliability on a wide area." The point is to have a general item that entities or auditors could point to, in the likely case that additional non-RAS schemes are identified that do not fall within the 13 "these are not a RAS" items identified so far.</p>
<p>Response: Thank you for your comment. Because of the diversity of RAS in both action and objective, the practical approach to a definition is to begin with a wide scope and then list specific exclusions. The exclusions identify equipment and schemes that should not be considered RAS. RAS may be used to solve either event-based "contingencies" or condition-based "System conditions" (e.g. overloads, etc.). The drafting team declines to make the suggested change because the proposed exclusion is too broad.</p>		
Operational Compliance	No	<p>Part c. of Exclusions lists "Undervoltage Load Shedding Programs (UVLS Programs)". The definition of "UVLS Programs" needs to be clarified up front in the same space as the RAS definition. 1. The distinction between "centrally controlled UVLS" being included as part of the RAS definition and "locally controlled UVLS" not included in</p>

Organization	Yes or No	Question 4 Comment
		<p>RAS Definition should be reclarified here. 2. The distinction between UVLS Program schemes and UVLS schemes that are not part of the entity “UVLS Program” also needs to be spelled out. For one intimately familiar with NERC standards, the information is available, but items 1. and 2. should be clear for a reader with somewhat limited knowledge of other standards. For example, engineers need to follow the NERC standards in their work, but may not be intimately familiar with other NERC standards, guidelines and definitions.</p>
<p>Response: Thank you for your comment. The drafting team combined the posted exclusions (b) and (c) into a single exclusion (b) for this posting that reads: “Schemes for automatic under-frequency load shedding (UFLS) and automatic under-voltage load shedding (UVLS) comprised of only distributed relays.” The drafting team tailored this exclusion to match the language of the recently-approved “UVLS Program” definition.</p>		
<p>Florida Municipal Power Agency</p>	<p>No</p>	<p>The RAS definition is too broad as drafted and should specifically exclude control systems such as AGC, AVR, governor controls, etc. Suggested language is provided under number 1.</p>
<p>Response: Thank you for your comment. The drafting team acknowledges this needed addition and added a new exclusion (n) which reads: “Generator controls such as, but not limited to, automatic generation control (AGC), generation excitation [e.g. automatic voltage regulation (AVR) and power system stabilizers (PSS)], fast valving, and speed governing.”</p>		
<p>Southern Company: Southern Company Services, Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Company; Southern Company Generation; Southern Company Generation and Energy Marketing</p>	<p>No</p>	<p>Additional words should be added to Exclusion e as follows: "Schemes applied on an Element for non-Fault conditions, such as, but not limited to, generator loss-of-field, transformer top-oil temperature, high voltage, or overload to protect the Element against damage by 1) removing it from service or 2) performing switching in the same substation as the Element to relieve the condition.</p>

Organization	Yes or No	Question 4 Comment
<p>Response: Thank you for your comment. The drafting team contends that “performing switching in the same substation as the Element to relieve the condition” is too broad of an exclusion. Schemes that reconfigure the System should be RAS.</p>		
SPP Standards Review Group	No	<p>The distinction between distributed and central controlled UVLS systems is not clear in the definition. The clarification is contained in the supporting documentation for the definition but requires extensive efforts to dig it out. We suggest the drafting team revise exclusion C in the proposed definition to provide more clarity.</p>
<p>Response: Thank you for your comment. The drafting team combined the posted exclusions (b) and (c) into a single exclusion (b) for this posting that reads: “Schemes for automatic under-frequency load shedding (UFLS) and automatic under-voltage load shedding (UVLS) comprised of only distributed relays.” The drafting team tailored this exclusion to match the language of the recently-approved “UVLS Program” definition.</p>		
PacifiCorp	No	<p>The proposed RAS definition will result in a significant expansion of the number of schemes that meet the criteria for classification as a RAS. In many instances, this expansion will not result in an improvement in Bulk Electric System reliability, and will unnecessarily complicate analysis of transmission system reliability.</p> <p>PacifiCorp recommends that the drafting team consider expansion of the exclusion list to include transfer- or cross-trip schemes that are located within a single substation. This exclusion would encompass schemes that operate from relays contained within substation apparatus to trip additional system elements other than those that are directly monitored by the relays with no additional logic or communications. As these schemes may be modeled with simple contingency definitions, PacifiCorp does not believe that their inclusion in the definition of RAS will provide any additional benefit for system reliability purposes. As stated in previous comments submitted to the drafting team by PacifiCorp on April 9, 2014, many common protection schemes that utilize breaker status contacts or lockout contacts to transfer trip multiple elements within a substation will meet the new SPS definition, despite limited potential impacts to the Bulk Electric System. For example, consider a scheme that utilizes a status contact on a line breaker to transfer-trip a</p>

Organization	Yes or No	Question 4 Comment
		<p>shunt capacitor within the substation in conjunction with line tripping. In this example, the scheme is contained within the substation, and does not utilize any arming logic. The intent of the example scheme is to provide fast shunt device tripping and to provide additional redundancy for the shunt device voltage control. Under the draft definition, this scheme would meet the RAS criteria, as the shunt capacitor control is not based on locally-sensed voltage and system elements are tripped for a reason other than facilitation of fault clearing. Tripping of the capacitor could easily be modeled with a single line of code in a contingency definition, with the same results for system analysis and reliability purposes as inclusion in RAS databases. As such, this scheme and similar schemes that cross-trip various system elements within a single substation should have a specific exclusion in the proposed RAS definition. In addition, PacifiCorp recommends one specific change to the list of RAS exclusions. Exclusion “e” should include an Element in series as follows: “Schemes applied on an Element for non-Fault conditions, such as, but not limited to, generator loss-of-field, transformer top-oil temperature, high voltage, or overload to protect the Element or series Element against damage by removing it from service.” It may be simpler and less costly to remove an Element in series with the overloaded Element rather than the overloaded Element itself.</p>
<p>Response: Thank you for your comment. The drafting team contends that performing switching in the same substation (including transfer- or cross-trip schemes) that trip Elements other than the impacted Element is too broad of an exclusion. Schemes that reconfigure the System should be RAS.</p>		
Orlando Utilities Commission	No	<p>It is not clear what the status is of an RAS type system on nonBES facilities. For example a system that if installed at 230 kV would clearly be RAS, but is installed below 100kv. A system that only operates and protects nonBES facilities.</p>
<p>Response: Thank you for your comment. To clarify, the drafting team inserted “BES” as a qualifier in the pertinent objectives.</p>		
Central Lincoln	No	<p>Central Lincoln proposes the following be excluded: “Automatic transfer or system reconfiguration schemes intended to limit the extent and/or duration of outages; and not intended to benefit the BES.” These systems operate similar to reclosing, in that</p>

Organization	Yes or No	Question 4 Comment
		<p>they are intended to restore power quickly. Unlike reclosing, they may restore the power via an alternate path. We note the radial systems likely to benefit from auto-reconfiguration of load are unlikely to meet the BES definition, but the proposed definition of RAS has little dependency on the BES definition. The third RAS inclusion (Maintain acceptable System voltages) might be interpreted to include the auto-reconfiguration of load described above.</p>
<p>Response: Thank you for your comment. The drafting team contends that auto-sectionalizing for restoration following a Fault would typically fall under exclusion (d) “Automatic Reclosing schemes;” however, system reconfiguration schemes that transfer the load to another source typically would be a RAS.</p>		
Tacoma Public Utilities	No	<ol style="list-style-type: none"> 1. Tacoma Power supports FMPA’s comments concerning Question 4. 2. Furthermore, additional clarification seems necessary for (e): “Schemes applied on an Element for non-Fault conditions, such as, but not limited to, generator loss-of-field, transformer top-oil temperature, high voltage, or overload to protect the Element against damage by removing it from service.” Perhaps there could be another category for backing-up operator response and re-dispatch: “Locally sensing devices intended to mitigate thermal damage, within expected system re-dispatch response times, such as 10 minutes or greater. Examples are cooling fans, oil pumps, or thermal protection systems.” 3. Does the phrase “power system stabilizers” need to be explicitly added to (f)? 4. In the FAQ document, on page 5 of 8, under “Schemes that automatically de-energize a line for a non-Fault operation when one end of the line is open,” include something like the following two examples: (1) Opening the remote terminal(s) to remove an overload on the line in question following operation of the local terminal when there was no fault on the line in question and (2) opening the remote terminal(s) as a precaution against inadvertently closing back into a local island with generation.
<p>Response: Thank you for your comment.</p>		

Organization	Yes or No	Question 4 Comment
		<ol style="list-style-type: none"> 1. The drafting team acknowledges this needed addition and has added a new exclusion (n) which reads: “Generator controls such as, but not limited to, automatic generation control (AGC), generation excitation [e.g. automatic voltage regulation (AVR) and power system stabilizers (PSS)], fast valving, and speed governing.” 2. The drafting team did not try to create an exhaustive list of examples. 3. The drafting team acknowledges this needed addition and has added a new exclusion (n) which reads: “Generator controls such as, but not limited to, automatic generation control (AGC), generation excitation [e.g. automatic voltage regulation (AVR) and power system stabilizers (PSS)], fast valving, and speed governing.” 4. The drafting team did not try to create an exhaustive list of examples.
Wisconsin Electric Power Company	No	<ol style="list-style-type: none"> 1. We recommend the following changes to the exclusions list a) through i), by item:e.) To simply include generator loss of field ignores many other generator protections for abnormal operating conditions. Revise this exclusions list to add the following: “Generator abnormal operating conditions listed in IEEE C37.102.” (Or, list each individually, that is, “loss of field, unbalanced currents, loss of synchronism, overexcitation, motoring, over/under-voltage, and abnormal frequencies.”) 2. f.) This exclusion needs clarification. Does the clause “controllers that switch or regulate...” apply only to “series or shunt reactive devices”, or does it extend to the rest of the items in this list? We suggest that the term “switch or regulate” creates ambiguity. We suggest simply using the term “controls “. Any controls for the various equipment listed should be excluded from being RAS. We also suggest that generator turbine controls be added to this list. 3. j.) We propose that the SDT add a new item after item i), to include “Schemes that automatically shutdown a generator upon load rejection.”
<p>Response: Thank you for your comment.</p> <ol style="list-style-type: none"> 1. The drafting team did not try to create an exhaustive list of examples. 2. The drafting team removed generator excitation from exclusion (f) and created a new exclusion (n) to address your concern. 		

Organization	Yes or No	Question 4 Comment
<p>3. The drafting team asserts that, regardless of the scheme used to originally remove the generator from service (RAS or not), once the generator is disconnected from the System, the reasons for any subsequent automatic shutdown actions would not be a RAS and not subject to RAS oversight.</p>		
City of Vineland	No	Problems with determining a UVLS Program and RAS.
<p>Response: Thank you for your comment. The drafting team combined the posted exclusions (b) and (c) into a single exclusion (b) for this posting that reads: “Schemes for automatic under-frequency load shedding (UFLS) and automatic under-voltage load shedding (UVLS) comprised of only distributed relays.” The drafting team tailored this exclusion to match the language of the recently-approved “UVLS Program” definition.</p>		
Hydro One	No	Local undervoltage load shedding schemes should be excluded, therefore, in the exclusion list, “c. Undervoltage load Shedding Programs (UVLS Programs)” should be changed to “c. Automatic undervoltage load shedding schemes, including UVLS Programs. However, centrally-controlled dispersed undervoltage load shedding schemes are RAS.”
<p>Response: Thank you for your comment. The drafting team combined the posted exclusions (b) and (c) into a single exclusion (b) for this posting that reads: “Schemes for automatic under-frequency load shedding (UFLS) and automatic under-voltage load shedding (UVLS) comprised of only distributed relays.” The drafting team tailored this exclusion to match the language of the recently-approved “UVLS Program” definition.</p>		
ISO New England	No	<ol style="list-style-type: none"> 1. Exclusion “e.” is too broad. There are instances where an overcurrent device that opens a line should be considered a RAS. As currently written, these schemes would fall under exclusion “e.” and would no longer be considered RAS. 2. Exclusion “j.” should be limited depending on the size of the island, as determined by the Reliability Coordinator. For example, in some areas 800 MW may be small for a single dedicated facility, but in other areas, an 800 MW island could be substantial. 3. Exclusion “m.” should be limited to SSR protection schemes that act solely at the same station. It should read: “Sub-synchronous resonance (SSR) protection schemes that directly detect and act solely at the same station depending on sub-synchronous quantities (e.g. currents or torsional oscillations).”

Organization	Yes or No	Question 4 Comment
		<p>4. Another exclusion (“n.”) should be added to exclude schemes that are specifically designed to restore load (often called load throw-over schemes) so that they are not considered RAS. An example of this is a 115-kV line that has load tapped off the middle. After a fault on the line, switches automatically open up at the tapped station and each end of the 115 kV line tries to pick up the load. The unfaulted end of the line will restore the load, and the faulted end will trip out and remain open. However, we do not believe that schemes which are taking actions such as automatic network reconfiguration to reenergize equipment that was tripped as a result of fault clearing which is not restoring load should be excluded.</p>
<p>Response: Thank you for your comment.</p> <ol style="list-style-type: none"> The list of exclusions in the RAS definition is prefaced by the statement: “The following do not individually constitute a RAS.” The drafting team contends that an overcurrent device applied to a single Element would usually not be a RAS. The drafting team contends the MW size of the island is inconsequential with regards to the definition of a RAS. Exclusion (m) is consistent with present industry practices and the drafting team declined to make the suggested change. The proposed definition excludes schemes that directly detect sub-synchronous quantities; however, SSR mitigation schemes installed to detect distinct System configurations and loading conditions (that studies have shown may make a generator vulnerable to SSR), and take action to trip the generator or bypass the series capacitor, are classified as RAS. The drafting team contends that auto-sectionalizing for restoration following a Fault would typically fall under exclusion (d) “Automatic Reclosing schemes;” however, system reconfiguration which transfers the load to another source typically would be a RAS. 		
Ingleside Cogeneration LP	No	<p>If the core definition is not modified as ICLP proposes in response to Question 1, we believe that an exclusion must be made for a protective scheme that takes corrective action “other than the isolation of faulted elements”. Without it, a relay owner will have to demonstrate to a CEA that they individually considered almost every relay system before determining that it is not a RAS. If there are such systems that isolate faulted elements and need RAS-like oversight, they can be explicitly listed under the core definition.</p>

Organization	Yes or No	Question 4 Comment
<p>Response: Thank you for your comment. The drafting team agrees and added a new exclusion (a) which reads: Protection Systems installed for the purpose of detecting Faults on BES Elements and isolating the faulted Elements. The drafting team also added clarifying language in the FAQ.</p>		
<p>Manitoba Hydro</p>	<p>No</p>	<ol style="list-style-type: none"> 1. In the exclusion list a), it is not necessary to include power swing blocking. 2. In the exclusion list e), it is not clear what “high voltage” here is intended to mean, does it mean overvoltage protection? Consider revise this as: “Schemes applied on an Element that react to non-Fault conditions, such as, but not limited to, generator loss-of-field protection, transformer top-oil temperature monitoring and protection, overvoltage protection, or overload protection to protect the Element itself against damage by removing it from service” 3. In exclusion list f), “switch or regulate” needs clarification, for example, what does “switch or regulate generation excitation” mean? Is converting a unit from a generator to a synchronous condenser considered as switching of generation excitation? 4. Also, “at the same station” needs clarification. For example, if a generator switching station is less than 1 km away from its generating station, can they be considered as the same station? 5. The exclusion list covers transmission elements very well. One special transmission element missing is a braking resistor. Is use of a braking resistor a RAS or a permissible element used to maintain stability? Braking resistors are somewhat uncommon and could fall under the RAS definition. 6. One special generator feature could be included in the exclusion list - fast valving. Fast valving is a common method used in steam turbines to improve stability and avoid generator tripping.
<p>Response: Thank you for your comment.</p>		

Organization	Yes or No	Question 4 Comment
		<ol style="list-style-type: none"> 1. The existing NERC Glossary of Terms definition of SPS or RAS excludes out-of-step relaying because it is a protective function. The SDT maintained the exclusion but changed the wording from “out-of-step relaying” to “out-of-step tripping and power swing blocking” to reflect current industry terminology. 2. The drafting team made the suggested change to “overvoltage.” 3. The drafting team removed generator excitation from exclusion (f) and created a new exclusion (n) which reads: “Generator controls such as, but not limited to, automatic generation control (AGC), generation excitation [e.g. automatic voltage regulation (AVR) and power system stabilizers (PSS)], fast valving, and speed governing.” 4. The drafting team contends that if the generating station and the switching station share infrastructure such as the same ground grid, then they could be considered to be the same station. 5. The drafting team contends that a braking resistor would typically be a component of a RAS. 6. Fast valving is included in the new exclusion (n).
MidAmerican Energy Company	No	Exception "e" could be read to only include schemes that take the action of removing an element from service. If an action does something other than removing an element from service but its objective is to protect the element it should be included in this exception. Suggest removing the words "by removing it from service" be deleted from this exception.
<p>Response: Thank you for your comment. The SDT contends that switching in the same substation other than the impacted Element is too broad of an exclusion. Schemes that reconfigure the System should be RAS.</p>		
Exelon Companies	No	Exception “c” of the proposed definition of RAS excludes “UVLS Programs”. The background information provided in the FAQ document suggests that the intent of using the term “UVLS Program” in this exclusion was to exclude UVLS schemes that are not centrally controlled. The Project 2008-02 Undervoltage Load Shedding drafting team states in their June 24, 2014 FAQ that UVLS schemes owned by Transmission Owners, Distribution Providers, or Transmission Operators but not required by the planners do not meet the attributes of the proposed defined term “UVLS Program” and are therefore not subject to the requirements of PRCâ€™010â€™1. This raises uncertainty as to whether such schemes, even if not centrally-controlled, are RAS, UVLS Programs, or neither. Please clarify whether

Organization	Yes or No	Question 4 Comment
		<p>exception “c” of the proposed definition of RAS would include a non-centrally-controlled UVLS scheme owned by a Transmission Owner, Distribution Provider, or Transmission Operator but not required by the Planning Coordinator or Transmission Planner, which is therefore not covered by the Project 2008-02 revisions to PRC-010. Exelon contends that such a scheme should not be considered a RAS.</p>
<p>Response: Thank you for your comment. The drafting team combined the posted exclusions (b) and (c) into a single exclusion (b) for this posting that reads: “Schemes for automatic under-frequency load shedding (UFLS) and automatic under-voltage load shedding (UVLS) comprised of only distributed relays.” The drafting team tailored this exclusion to match the language of the recently-approved “UVLS Program” definition.</p>		
<p>American Electric Power</p>	<p>No</p>	<p>Once again, AEP believes the drafting team has done well in developing their exclusions list. As stated previously however, AEP believes it is unclear from the proposed definition and associated exclusions list whether automatic load rejection (ALR) of a generating unit is considered to be a Remedial Action Scheme. AEP believes that ALR is not an RAS and should be explicitly excluded in definition to avoid confusion.</p>
<p>Response: Thank you for your comment. An automatic load rejection scheme (ALR) may or may not be a RAS depending upon the application details.</p>		
<p>Omaha Public Power District</p>	<p>No</p>	<p>The Omaha Public Power District (OPPD) believes that the exclusion list needs to be further clarified to state that the EMS/SCADA related schemes are not part of the RAS. Currently, this concern is addressed in the associated FAQ document; however, this document is not going to be part of the RAS Definition going forward. OPPD is concerned that lack of this clarity in the definition may cause inadvertent inclusion of schemes/systems that traditionally are not identified as RAS or SPS.</p>
<p>Response: Thank you for your comment. The drafting team acknowledge that the EMS/SCADA can be a component of a RAS as described in the FAQ which reads: “The above-mentioned control systems support and enable grid operations by issuing control commands mostly to geographically distributed power System devices. In this normal application, e.g. automatic generation control (AGC), these systems are not considered to be RAS. However, if these systems are configured to detect predetermined conditions</p>		

Organization	Yes or No	Question 4 Comment
<p>and take corrective actions consistent with the RAS definition, these automatic functions (not the entire EMS) would be considered to be part of a RAS. The identification of RAS is not dependent upon the specific hardware or platform utilized in the scheme. For example, an automatic UVLS scheme centrally controlled through an EMS would be a RAS.” The FAQ will remain as part of the documentation associated with the development of the RAS definition.</p>		
NRECA	No	<p>Although NRECA does not believe that Automatic Generation Control (AGC) is a Remedial Action Scheme (RAS), the definition of AGC includes “automatically adjusts generation” which for some NRECA members is implied in the “curtailing generation” language included in the RAS definition. For clarity, consider including AGC in the list of exclusions.</p>
<p>Response: Thank you for your comment. The drafting team acknowledges this needed addition and has added a new exclusion (n) which reads: “Generator controls such as, but not limited to, automatic generation control (AGC), generation excitation [e.g. automatic voltage regulation (AVR) and power system stabilizers (PSS)], fast valving, and speed governing.”</p>		
LCRA Transmission Services Corporation	No	<ol style="list-style-type: none"> 1. LCRA TSC recommends an additional example be included under the heading “The following do not individually constitute a RAS:” stated, “Protection systems installed to clear faults.” 2. It appears that items F and G of the proposed definition are in conflict. Item G creates an exclusion that is taken away in item F for FACTS devices but leaves in place the limitation for switched shunts. LCRA TSC recommends revising items f. and g. as follows: f. Controllers that switch or regulate series or shunt reactive devices, flexible alternating current transmission system (FACTS) devices, phase-shifting transformers, variable-frequency transformers, tap-changing transformers, or generation excitation.
<p>Response: Thank you for your comment.</p> <ol style="list-style-type: none"> 1. The drafting team agrees and added a new exclusion (a) which reads: Protection Systems installed for the purpose of detecting Faults on BES Elements and isolating the faulted Elements. The drafting team also added clarifying language in the FAQ. 2. Exclusions (f) and (g) are complementary in that (f) provides a broad exception for local controls at the same station while (g) provides a specific exclusion for FACTS control of shunt devices at one or more other stations. 		

Organization	Yes or No	Question 4 Comment
Consumers Energy Company	No	We recommend that the first more restrictive definition that applies only to the BES be adopted. If this were done, then we would vote affirmative for this definition.
<p>Response: Thank you for your comment. The drafting team agrees and inserted “BES” as a qualifier in the pertinent objectives. The drafting team further revised the objectives by deleting the last bullet that read: “Address other Bulk Electric System (BES) reliability concerns” negating the all-inclusive nature of the objectives.</p>		
Austin Energy	No	The RAS definition is too broad as drafted and should specifically exclude control systems such as AGC, AVR, governor controls, etc. Suggested language is provided under number 1.
<p>Response: Thank you for your comment. The drafting team acknowledges this needed addition and has added a new exclusion (n) which reads: “Generator controls such as, but not limited to, automatic generation control (AGC), generation excitation [e.g. automatic voltage regulation (AVR) and power system stabilizers (PSS)], fast valving, and speed governing.”</p>		
Tri-State Generation and Transmission Association, Inc.	No	Although Tri-State does not believe that Automatic Generation Control (AGC) is a Remedial Action Scheme (RAS), the definition of AGC includes “automatically adjusts generation” which for some may be implied in the “curtailing generation” language included in the RAS definition. For clarity, consider including AGC in the list of exclusions
<p>Response: Thank you for your comment. The drafting team acknowledges this needed addition and has added a new exclusion (n) which reads: “Generator controls such as, but not limited to, automatic generation control (AGC), generation excitation [e.g. automatic voltage regulation (AVR) and power system stabilizers (PSS)], fast valving, and speed governing.”</p>		
FirstEnergy Corp.	Yes	Exclusion "e", Schemes applied on an Element for non-Fault conditions, such as, but not limited to, generator loss-of-field, transformer top-oil temperature, high voltage, or overload to protect the Element against damage by removing it from service. Please provide clarification on this exclusion.
<p>Response: Thank you for your comment. The drafting team contends these schemes are protective functions applied on an Element to protect it from damage, and as such, are not RAS.</p>		

Organization	Yes or No	Question 4 Comment
Tennessee Valley Authority	Yes	We think it’s appropriate to address exclusions, however when the exclusion list is this long (and perhaps growing) it highlights the challenge in developing a good base definition for what constitutes a RAS NERC-wide. An alternative would be to “catalog” the RAS exclusions in a separate NERC reference document that could be revised without revising the base RAS definition.
<p>Response: Thank you for your comment. The drafting team declines to make the suggested change because having separate documents is more cumbersome.</p>		
Duke Energy	Yes	Duke Energy does agree with the exclusion list, however, we request clarification on exclusion “a. Out of step tripping and power swing blocking.” Does the exclusion apply when transfer trips and supervisory signals are used as an integral part of the Out of step tripping (OST) and power swing blocking (PSB) functions? It is possible to have an OST or a PSB and transfer a trip to many locations as part of that signal. It is also possible to have supervisory signals such as Voltage to enable the OST and PSB functions. A combination of signals and the transfer of signals are present, and we ask the standard drafting team if the intent was to exclude all of the possible functionalities/associated signals capable from an OST and PSB.
<p>Response: Thank you for your comment. The drafting team contends that OST and PSB functions within a substation are typically not a RAS. The drafting team contends that two or more exclusions taken together may or may not constitute a RAS. Individually, an exclusion is not a RAS; however, any of the exclusion(s) could be an integral part of a larger scheme that meets the RAS definition.</p>		
SERC Protection and Controls Subcommittee	Yes	
IRC Standards Review Committee	Yes	1. Exclusion “m.” should be limited to SSR protection schemes that act solely at the same station. It should read: “Sub-synchronous resonance (SSR) protection schemes that directly detect and act solely at the same station depending on sub-synchronous quantities (e.g. currents or torsional oscillations).”

Organization	Yes or No	Question 4 Comment
		<p>2. Another exclusion (“n.”) should be added to exclude schemes that are specifically designed to restore load (often called load throw-over schemes) so that they are not considered RAS. An example of this is a 115-kV line that has load tapped off the middle. After a fault on the line, switches automatically open up at the tapped station and each end of the 115 kV line tries to pick up the load. The unfaulted end of the line will restore the load, and the faulted end will trip out and remain open. However, we do not believe that schemes which are taking actions such as automatic network reconfiguration to reenergize equipment that was tripped as a result of fault clearing which is not restoring load should be excluded.</p>
<p>Response: Thank you for your comment.</p> <p>1. Exclusion (m) is consistent with present industry practices and the drafting team declines to make the suggested change. The proposed definition excludes schemes that directly detect sub-synchronous quantities; however, SSR mitigation schemes installed to detect distinct System configurations and loading conditions (that studies have shown may make a generator vulnerable to SSR), and take action to trip the generator or bypass the series capacitor, are classified as RAS.</p> <p>2. The drafting team contends that auto-sectionalizing for restoration following a Fault would typically fall under exclusion (d) “Automatic Reclosing schemes;” however, system reconfiguration schemes that transfer the load to another source typically would be a RAS.</p>		
Bonneville Power Administration	Yes	
ACES Standards Collaborators	Yes	We agree that the exclusion list is very detailed and helpful.
<p>Response: Thank you for your comment.</p>		
CenterPoint Energy	Yes	<p>1. (a) CenterPoint Energy believes the use of the capitalized term “UVLS Programs” is appropriate based upon the currently posted definition of “UVLS Program” that is proposed in NERC Project 2008-02 Undervoltage Load Shedding PRC-010-1.</p>

Organization	Yes or No	Question 4 Comment
		<p>2. (b) CenterPoint Energy suggests changing “Autoreclosing schemes” to “Automatic reclosing schemes” (item d) to be consistent with other NERC documents, such as, Reliability Standard PRC-005-3 Protection System and Automatic Reclosing Maintenance.</p> <p>3. (c) The extensive list of what is not a RAS appears to be well developed with thirteen schemes specifically identified. However, with the opening sentence currently stating “The following do not individually constitute a RAS”, it appears to be a finite list that would require a revision of the definition to include other possible control schemes. To not limit the list, CenterPoint Energy recommends the opening sentence be changed to “The following are examples of schemes that do not constitute a RAS”. (d) CenterPoint Energy is concerned that the use of the term “individually” in the opening sentence, which currently states “The following do not individually constitute a RAS”, reduces the clarity and specificity of the definition. Without clarity, this could result in inconsistent application across regions. As an example, if an entity has both a UVLS Program on their system and FACTS devices at a few locations, are these installations now considered to be collectively a RAS as opposed to individually? Under the existing NERC definition for SPS that states “An SPS does not include (a) underfrequency of Undervoltage load shedding”, there would not be any confusion that these installations are not RAS. Of the thirteen items on the exclusions list, there is only one example (item d for autoreclosing) in the project FAQ document that provides insight of the team’s intention with the use of “individually”. CenterPoint Energy suggests deleting the word “individually” by changing the opening sentence to “The following are examples of schemes that do not constitute a RAS”. Alternately, it may be possible to develop additional wording in the definition to codify the intent of the use of the term “individually”. In addition, CenterPoint Energy recommends that the project FAQ document include additional examples to help clarify the intent.</p>

Organization	Yes or No	Question 4 Comment
		<p>4. As an alternative to the FAQ document, NERC could instead develop an Applications Guidelines document, with specific examples, for the definition of RAS.</p>
<p>Response: Thank you for your comment.</p> <ol style="list-style-type: none"> The drafting team combined the posted exclusions (b) and (c) into a single exclusion (b) for this posting that reads: “Schemes for automatic under-frequency load shedding (UFLS) and automatic under-voltage load shedding (UVLS) comprised of only distributed relays.” The drafting team tailored this exclusion to match the language of the recently-approved “UVLS Program” definition. The drafting team agrees and made the suggested change. The drafting team disagrees and declined to make the suggested change. In the cited example, if the few FACTS devices and a UVLS program are controlled independently from each other, they would not be collectively regarded as a RAS. The FAQ will remain as part of the documentation associated with the development of the RAS definition. 		
Pepco Holdings Inc	Yes	
American Transmission Company, LLC	Yes	
Xcel Energy	Yes	<p>We also feel that sudden pressure relays (SPRs) should also be explicitly stated in item "e".</p>
<p>Response: Thank you for your comment. The drafting team agrees that SPRs are a legitimate example but declines to make the addition because the list is not intended to be all-inclusive.</p>		
Idaho Power	Yes	<p>We would like to see Protection System operations and fault clearing included as an exception. We feel this will better separate RAS actions from Protection System operations, e.g. fault clearing or generator loss of field tripping.</p>
<p>Response: Thank you for your comment. The drafting team agrees and added a new exclusion (a) which reads: Protection Systems installed for the purpose of detecting Faults on BES Elements and isolating the faulted Elements.</p>		

Organization	Yes or No	Question 4 Comment
Nebraska Public Power District	Yes	
ITC	Yes	
NV Energy	Yes	
Ameren	Yes	Editorial: add semi-colon after each lettered item in the exclusion list.
<p>Response: Thank you for your comment. The drafting team followed the NERC Style Guide and semi-colons are not required.</p>		
PJM Interconnection	Yes	
Independent Electricity System Operator	Yes	
Oncor Electric Delivery LLC	Yes	

5. Do you agree with the time frames in the proposed Implementation Plan associated with the proposed definition of RAS? Please provide specific comments in support of your position.

Summary Consideration:

Approximately 75% of commenters agreed with the time frames in the proposed Implementation Plan associated with the definition of RAS. The commenters that replied “no” to the question had a variety of thoughts and alternative approaches but overall did not offer any compelling argument to change the stated time frames. The drafting team reiterated that the Implementation Plan provides thirty-six (36) months from the time the definition is approved by an applicable governmental authority. The time is noted in the twelve (12) months leading up to the Effective Date of the standard plus the twenty four (24) months noted following the Effective Date. This only applies to existing schemes that must transition to RAS due to the revised definition. Future RAS are not subject to this Implementation Plan. When the drafting team revises the RAS-related standards, those standards will include their own implementation periods.

Organization	Yes or No	Question 5 Comment
Florida Municipal Power Agency	No	A thorough review of all the standards and their use of Protection Systems should be factored into the implementation plan.
<p>Response: Thank you for your comment. The drafting team agrees that a thorough review of all standards is prudent and asserts that the time period provided in the Implementation Plan is sufficient to evaluate existing compliance programs regarding the definition change.</p>		
SPP Standards Review Group	No	<ol style="list-style-type: none"> 1) We suggest extending the time frame from twenty-four (24) months to thirty-six (36) months. There are many elements that have to be considered when establishing a new RAS. For example, identifying new facilities/equipment, budgeting, outage coordination and receiving necessary approvals will require large amounts of time. 2) We would like to commend the SPS SDT on the quality of the documents in this posting. We did not find a single typo/grammatical error that are so typically present in these postings. Well done and thank you.
<p>Response: Thank you for your comment.</p>		

Organization	Yes or No	Question 5 Comment
<p>1. As a point of clarification, the Implementation Plan already provides thirty-six (36) months from the time the definition is approved by an applicable governmental authority. The time is noted in the twelve (12) months leading up to the Effective Date of the standard plus the twenty four (24) months noted following the Effective Date. This only applies to existing schemes that must transition to RAS due to the revised definition. When the drafting team revises the RAS-related standards, those standards will include their own implementation periods.</p> <p>2. Thank you for your compliment.</p>		
Tacoma Public Utilities	No	<p>Tacoma Power supports FMPA’s comments concerning Question 5. Furthermore, in the FAQ document, on page 7 of 8, under “What are the Implementation Plan time frames,” in the second paragraph, it should be 24 calendar months (or longer if the drafting team extends the timefram) from the effective date (see page 6 of the Implementation Plan), not 24 calendar months beyond the date of approval by a governmental authority.</p>
<p>Response: Thank you for your comments. Please refer to our responses to FMPA above. The language in the FAQ document has been clarified.</p>		
CenterPoint Energy	No	<p>CenterPoint Energy recommends implementing the proposed definition of RAS and retirement of SPS as soon as practicable to incorporate the clarifications and help provide consistent application across all regions more quickly. Instead of 12 months, we suggest the definition become effective the first day of the first quarter after needed approvals. As this change would impact the proposed implementation plan time frame for newly-identified RAS resulting from the revised definition, we suggest changing the proposed twenty-four (24) months to thirty-six (36) months after the Effective Date of the definition.</p>
<p>Response: Thank you for your comments. The drafting team does not see any benefit in making the definition effective immediately. Either way, entities will have at least thirty-six (36) months to identify RAS and become compliant with the existing RAS-related standards. This applies only to existing schemes that must transition to RAS due to the revised definition. Future RAS are not subject to this Implementation Plan. The new RAS-related standards will have separate effective dates and implementation plans of their own.</p>		
City of Vineland	No	

Organization	Yes or No	Question 5 Comment
ISO New England	No	24 months will be needed due to all the changes in documentation that will be required to address the revised definition.
<p>Response: Thank you for your comment. The revisions to the RAS definition should not require substantial changes for existing RAS-related documentation. For newly identified RAS, the time necessary for revisions is provided for in the Implementation Plan.</p>		
Manitoba Hydro	No	The effective date for the revised Reliability Standards should be specific for each revised standard, and it should be specified in each revised standard.
<p>Response: Thank you for your comment. The drafting team revised the Effective Dates of each standard such that it is standard specific. The timing of the Effective Dates for the standards will coincide with the Effective Date of the RAS definition.</p>		
Nebraska Public Power District	No	<p>Also, see SPP group comments. The FAQ document states: “The classification of a RAS is not necessary for defining whether or not a scheme qualifies as a RAS. Informal feedback from many stakeholders indicated uncertainty about the classification types. Therefore, the SDT decided not to include RAS classification types within the definition. The classifications are more appropriately addressed concurrently with revisions to the RAS related Reliability Standards. It appears the RAS classification types that are to be included in the RAS reliability standards will be a significant change that needs to be clarified before a full identification of RAS schemes and subsequent design requirements can be accurately completed if they are to be used. If other NERC standards must be updated or rewritten such as PRC or TPL standards in conjunction with this definition to clarify classification changes it is recommended the implementation plan specify that the proposed definition implementation not become effective until or following the most critically related RAS standards that would be updated in order to avoid confusion how the definition relates to existing or as yet un-revised standards. The FAQ document states “The Implementation Plan also provides owners of newly identified RAS twenty-four (24) calendar months beyond the date of approval by a governmental authority to be fully compliant with all standards applicable to the revised definition of Remedial Action Scheme. The drafting team contends that twenty-four (24) calendar months provides the RAS owner sufficient time to become compliant with the revised standards proposed in</p>

Organization	Yes or No	Question 5 Comment
		<p>the implementation Plan. If it is possible the RAS definition may include new schemes or require complete redundancy modifications near large generating plants that have long outage schedules due to any classification changes it seems the 2 year implementation time frame could be too short. It seems a minimum of 4 to 6 years for an implementation time frame would be more logical for modification changes based on the possible classification types. This would reduce the risk of unplanned or additional generation outages in order to meet this standard.</p>
<p>Response: Thank you for your comments. The drafting team does not see any benefit in making the definition effective immediately. Either way, entities will have at least thirty-six (36) months to identify RAS and become compliant with the existing RAS-related standards. This applies only to existing schemes that must transition to RAS due to the revised definition. Future RAS are not subject to this Implementation Plan. The new RAS-related standards will have separate effective dates and implementation plans of their own.</p>		
Ameren	No	<ol style="list-style-type: none"> 1. Direct substitution of RAS for SPS works in almost all cases, except for PRC-005-2, and - 3 section 4 Applicability 4.2.4 where it contradicts part of your proposed RAS definition “These schemes are not Protection Systems; however, they may share components with Protection Systems.” We request the drafting team reword PRC-005-2 and -3 section 4.2.4 by adding ‘Components’ and ‘part of’ to yield the following: “Protection System Components installed as part of a Remedial Action Scheme (RAS) for BES reliability.” 2. We request the drafting team to drop the word ‘other’ that’s in front of ‘protection systems’ in PRC-012, PRC-013, PRC-014, PRC-015, and PRC-016 because it can be read to imply that a RAS is a protection system, which contradicts with part of your proposed RAS definition “These schemes are not Protection Systems; however, they may share components with Protection Systems.”
<p>Response: Thank you for your comments.</p> <ol style="list-style-type: none"> 1. Please see the drafting team’s response to FMPA for Question 1. 		

Organization	Yes or No	Question 5 Comment
<p>2. The drafting team is currently developing only the RAS definition. The RAS-related standards development will begin in 2015 subsequent to the approval of the new definition. Any changes to other standards needed related to the new definition of RAS will occur at that time. The current standard changes proposed are only intended to accomplish the replacement of the term SPS with RAS.</p>		
Austin Energy	No	A thorough review of all the standards and their use of Protection Systems should be factored into the implementation plan.
<p>3. Response: Thank you for your comments. Please see the drafting team’s response to FMPA for Question 5.</p>		
Northeast Power Coordinating Council	Yes	
MRO NERC Standards Review Forum	Yes	
Dominion	Yes	
FirstEnergy Corp.	Yes	
Operational Compliance	Yes	
Duke Energy	Yes	
SERC Protection and Controls Subcommittee	Yes	The comments expressed herein represent a consensus of the views of the above-named members of the SERC EC Protection and Control Subcommittee only and should not be construed as the position of SERC Reliability Corporation, its board, or its officers.
IRC Standards Review Committee	Yes	

Organization	Yes or No	Question 5 Comment
Bonneville Power Administration	Yes	
Southern Company: Southern Company Services, Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Company; Southern Company Generation; Southern Company Generation and Energy Marketing	Yes	
ACES Standards Collaborators	Yes	We agree with the time frame of 12 months after regulatory approval for the effective date of the standard. We also agree with the time frame for application of standards to newly identified RAS which is 24 months after the revised definition for newly identified RAS.
Response: Thank you for your comments and support.		
PacifiCorp	Yes	
Orlando Utilities Commission	Yes	
Central Lincoln	Yes	
Wisconsin Electric Power Company	Yes	
Pepco Holdings Inc	Yes	

Organization	Yes or No	Question 5 Comment
Ingleside Cogeneration LP	Yes	
American Transmission Company, LLC	Yes	
Xcel Energy	Yes	
MidAmerican Energy Company	Yes	
Idaho Power	Yes	The initial 12 month period to identify new RAS appears to be adequate. However, the 24 month calendar should start once a new RAS is identified rather than the effective date of the definition.
<p>Response: Thank you for your comment. The drafting team contends the thirty-six (36) months (at a minimum) that entities will have to identify RAS and become compliant with the existing RAS-related standards is sufficient.</p>		
Exelon Companies	Yes	
Omaha Public Power District	Yes	
NV Energy	Yes	
LCRA Transmission Services Corporation	Yes	
Consumers Energy Company	Yes	
PJM Interconnection	Yes	

Organization	Yes or No	Question 5 Comment
Independent Electricity System Operator	Yes	
Oncor Electric Delivery LLC	Yes	The RAP and SPS definition are already being used within ERCOT and apply to and are referenced in numerous guides, procedures and protocols. Many of ERCOTs RAP's are not automatic and are used frequently within the system to maintain reliability under various operating conditions. Updating SPS to the new term RAS through ERCOT's process of revising their documents will not only be a significant challenge but could also cause confusion with the RAP term.
<p>Response: Thank you for your comments. The drafting team appreciates the fact that the selected term will cause some necessary documentation changes for many entities. The drafting team asserts that the use of the single term RAS will ensure consistency and avoid the confusion associated with the SPS term. The drafting team acknowledges that entities will need time to adapt to the RAS term.</p>		
Tri-State Generation and Transmission Association, Inc.	Yes	
Colorado Springs Utilities		No Comments
Tennessee Valley Authority		Three years seems like a reasonable implementation period (a 1 year period for the definition to go into effect and a 2 year period for any existing scheme pulled into the definition to be brought into compliance). However, with 38 additional standards to be revised, this could entail more work than anticipated to ensure full compliance with each one under the new definition.
<p>Response: Thank you for your comments. The drafting team appreciates the fact that the selected term will cause some necessary documentation changes for many entities. The drafting team asserts that the use of the single term RAS will benefit the industry. The revised Reliability Standards will reflect the use of the single term RAS.</p>		

END OF REPORT