Background:

The Phase III & IV drafting team thanks all commenters who submitted comments on the second draft of the standards included in Set One of the Phase III & IV Standards. Set One of the Phase III & IV Standards was posted for a second public comment period from September 1 through October 15, 2005. The SDT asked industry participants to provide feedback on the standards through a special Standard Comment Form. There were 46 sets of comments, including comments from more than 144 different people 6 of the 9 Industry Segments, and all NERC Regions as shown in the table on the following pages.

After careful review and consideration of the comments received, the drafting team believes that the following eight standards have reached stakeholder consensus. The drafting team will post these standards for a 30-day pre-ballot review:

- MOD-024 - Verification of Generator Gross and Net Real Power Capability
- MOD-025 - Verification of Generator Gross and Net Reactive Power Capability
- PRC-003 - Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004 - Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- PRC-005 - Transmission and Generation Protection System Maintenance and Testing
- PRC-020 - Under-Voltage Load Shedding Program Database
- PRC-021 - Under-Voltage Load Shedding Program Data
- PRC-022 - Under-Voltage Load Shedding Program Performance

Two standards have not reached stakeholder consensus, and these have been modified based on stakeholder comments and will be posted for an additional comment period:

- PRC-002 - Define Regional Disturbance Monitoring and Reporting Requirements
- PRC-018 - Disturbance Monitoring Equipment Installation and Data Reporting

The changes made to PRC-002 as a result of comments submitted with the second posting, are listed at the front of the Comment Form posted with the revised standard. The changes include modifications to the definitions of Protection System (removed power circuit breaker) and Disturbance Monitoring Equipment (removed 'continuous' from recording requirements), and changes to make the requirements more applicable to devices in service today.

The Standards Authorization Committee (SAC) directed the drafting team to field test two of the standards in Set One of Phase III & IV:

- MOD-19 - Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection
- PRC-024 - Generators Performance During Frequency and Voltage Excursions

The drafting team will post a description of the field test as soon as it is approved. Informational versions of PRC-019 and PRC-024 have been posted so stakeholders can see the changes made based on comments submitted during the second comment period. PRC-019 was modified so that the Generator Owner does not have to 'send' its data to various entities – the Generator Owner has to have study results available for inspection. These changes re-aligned the revised standard with its original intent, which was to ensure that generator voltage regulator controls and limit

functions are coordinated with the generator's capabilities and protective relays. Draft 2 of this standard had moved in the direction of requiring the Generator Owner to provide data that would be used for modeling, and that data is addressed in other standards. Only minor, 'word-smithing' changes were made to PRC-024.

In addition to the changes identified above, the drafting team made the following changes to definitions:

- Definition of Mitigation Plan – changed to 'Action Plan' because stakeholders were concerned about confusion with NERC's Compliance Enforcement Program's use of the term, 'mitigation plan'.
- Definition of Misoperation – added language to clarify that a misoperation is an 'unintentional Protection System' and added language to exclude operations related to on-site maintenance and testing activity.

The drafting team modified the levels of non-compliance for MOD-024 and MOD-025 so that they are linked to noncompliance for a % of units rather than noncompliance for individual data elements. This change should make compliance easier to administer and should be more fair.

This 'Consideration of Comments' document includes the comments on the standards that are in 'Set One' and they are listed in the Index on the following pages.

In this document, stakeholder comments have been organized so that it is easier to see the summary of changes being requested of each standard. The comments can be viewed in their original format at:

http://www.nerc.com/~filez/standards/Phase-III-IV.html

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

[1] The appeals process is in the Reliability Standards Process Manual: http://www.nerc.com/standards/newstandardsprocess.html.

Legend:

Groups that submitted comments:

(G1) - SERC EC Planning Standards Subcommittee (PSS)
(G2) - CP9, Reliability Standards Working Group
(G3) – Pepco Holdings, Inc
(G4) – Southern Company Generation
(G5) - WECC-Technical Studies Subcommittee
(G6) - Midwest Reliability Organization
(G7) - BPAP
(G8) - WECC Disturbance Monitoring Work Group
(G9) - NERC Interconnection Dynamics Working Group
(G10) – FRCC
(G11) – SPCTF
(G12) – SERC Protection and Control Subcommittee (PCSC)

(I) – Indicates that a set of comments was submitted individually in addition to submitting comments as part of a group

Industry Segments:
1 - Transmission Owners
2 - RTOs, ISOs, Regional Reliability Councils
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 Gv't Entities

Commenter	Organization	Industry Segments								
		1	2	3	4	5	6	7	8	9
Navin Bhatt (G9) (I)	AEP	x				x				
Henry Miller (G11)	AEP									
Jerome B. Williams (G11)	AEP									
John Kehler (G8)	AESO		x							
Darren McCrank (G8)	AESO		x							
Darrell Pace (G1)	Alabama Electric Coop	x								
Jay Farrington (G12)	Alabama Electric Coop	x								
Ken Goldsmith (G6)	ALT		x							

John E. Sullivan	Ameren	x								
Franklin D. Bristol (G9)	ATC									
Peter Burke	ATC	x								
Doug Selin (G8)	AZ Public Service Co.	x								
Baj Agrawal (G11)	AZ Public Service Co.									
Bill Kennedy (G11)	b7kennedy & Associates									
Harry Lee (G8)	BC Hydro			x						
Mike Kwok (G8)	BC TC	x								
Donald P. Milanicz	BG&E	x								
Jim Burns (G8)	BPA	x								
Ken Martin (G8)	BPA	x								
Bill Mittelstadt (G8)	BPA	x								
Carson W. Taylor (G9)	BPA	x								
Jon F. Daume (G11)	BPA									
Charles E. Matthews	BPA – Transmission	x								
Rebecca Berdahl (G7)	BPAP			x						
Brenda Anderson (G7)	BPAP						x			
Fran Halpin (G7)	BPAP					x				
Jeff Baker	Cinergy	x								
Fred Ipock (G11)	City Utilities - Springfield									

Michael Gildea	Constellation Gen					x				
Charles Rogers (G11)	Consumers Energy Co.									
Carl Kinsley (G3)	Delmarva Power & Light	x								
Ronnie Bailey (G12)	Dominion VA Power	x								
Barry Jackson (I) (G12)	Duke Power Co.	x								
Brian Moss (G1)	Duke Power Co.	x								
Victoria L Bannon (G12)	Duke Power Co.	x								
Greg Mason	Dynergy					x				
Jose Conto (G9)	ERCOT		x							
William J. Miller (G11)	Exelon Corporation									
Charlie Fink (G12)	Entergy	x								
Raymond M. Morella	FirstEnergy Corp	x								
John W. Shaffer (G9) (G10)	FP&L	x								
John Mulhausen (G11)	FP&L									
Ed Clark (G10) (I)	FP&L	x								
Bob Schoneck (G10)	FP&L	x								
John Odom (G10)	FRCC		x							
Linda Campbell (G10)	FRCC		x							
Eric Senkowicz (G10)	FRCC		x							
Philip B. Winston (G11) (G12)	Georgia Power Co	x								

Steven E. Waldrep (G12)	Georgia Power Co	x								
Hong Ming Shuh (G12)	Georgia Trans Co	x								
Nathan Lovett (G12)	Georgia Trans Co	x								
David Kiguel (G2)	Hydro One Networks	x								
John L. Ciufo (G11)	Hydro One, Inc.									
David Angell (G11) (I)	Idaho Power Company	x								
Khaqan Khan (G2)	IESO		x							
Ron Falsetti	IESO		x							
Kathleen Goodman (G2)	ISO-New England		x							
Jim Useldinger	Kansas City Pwr & Light	x								
John Horakh	MAAC		x							
David Weekley (G1)	MEAG Power	x								
Mike Gazda (G12)	MEAG Power	x								
Ernesto Paon (G12)	MEAG Power	x								
Tom Mielnik (G6)	MEC		x							
Harish Mehta	Mehta Tech, Inc.									
Robert Coish (G6)	MHEB		x							
Dennis Florom (G6)	Midwest Reliability Org		x							
Terry Bilke (G6)	MISO		x							
Mark Kuras	MMWG									

Joe Knight (G6)	MRO		x							
Peter Lebro (G2)	National Grid USA	x								
Philip Tatro (G9) (G11) (I)	National Grid USA									
Greg Ludwicki	NIPSCO					x				
John Ferraro	Northeast Utilities	x								
Les Pereira (G9)	Northern CA Pwr Agency									
David Little (G2)	Nova Scotia Power	x								
Guy Zito (G2)	NPCC		x							
Alan Boesch (G6)	NPPD		x							
Greg Campoli (G2)	NYISO		x							
Jim Ingleson (G11) (I)	NYISO		x							
Ralph Rufrano (G2)	NYPA	x								
Al Adamson (G2)	NYSRC		x							
Todd Gosnell (G6)	OPPD		x							
Jason J. Weiers (G9)	Otter Tail Pwr Co.									
Chifong Thomas (G5)	Pacific Gas and Elec Co.	x								
Bill Miller (G8)	Pacific Gas and Elec Co.	x								
Fred Henderson (G8)	Pacific Gas and Elec Co.	x								
John Hauer (G8)	Pacific NW Nat. Lab.									x
Henry Huang (G8)	Pacific NW Nat. Lab.									x

Fabio Rodriguez (G8)	PacifiCorp	x								
Evan Sage (G3) (G11)	Pepco									
Alvin Depew (G3)	Pepco	x								
Evan T. Sage	Pepco									
Ricahrd Kafka (G3)	Pepco Holdings	x								
Joseph M. Burdis (G9) (G11)	PJM Interconnection		x							
Mahendra C. Patel (G9)	PJM Interconnection		x							
Abraham Ellis (G8)	Public Service of NM	x								
Mary H. Johannis	Resource Issues Sub									
John Hernadez (G8)	Salt River Project	x								
Robert Kondziolka	Salt River Project	x								
Art Brown (G1)	Santee Cooper	x								
Bridget Coffman (G12)	Santee Cooper	x								
Clay Young (G1)	SC Gas & Electric Co			x						
C. V. Chung (G5)	Seattle City Light			x						
Pat Huntley (G1)	SERC		x							
Susan Morris (G12)	SERC		x							
Dilip Mahendra	SMUD	x								
Marion E. Frick (G12)	South Carolina E&G	x								
Terry Crawley (G4)	So Nuclear & SoCo Gen					x				

Roman Carter (G4)	SoCo Generation						x			
Roger Green (G4)	SoCo Generation					x				
Tom Higgins (G4)	SoCo Generation					x				
Therron Wingard (G4)	SoCo Generation					x				
Lucius Burris (G4)	SoCo Generation						x			
Clifford Shepard (G4)	SoCo Generation						x			
Wayne Moore (G4)	SoCo Generation						x			
Joel Dison (G4)	SoCo Generation						x			
Dana Cabbell (G5)	Southern CA Edison	x								
Bharat Bhargava (G8)	Southern CA Edison	x								
Bob Jones (G1)	Southern Co Services	x								
Lee Taylor (G9)	Southern Company									
Wayne Guttormson (G6)	SPC		x							
Alan Gale (G10)	TAL					x				
R. Peter Mackin (G8)	TANC	x								
Kirit Shah	Trans Issues Sub									
Roger Champagne (G2)	TransEnergie (Quebec)	x								
Russell W. Patterson (G12)	TVA	x								
Gary Kobet (G12)	TVA	x								
Travis Sykes (G1)	TVA	x								

David Till (G1)	TVA	x								
Jerry Nicely	TVA					x				
Gary L. Kobet (G11)	TVA									
W. Mark Carpenter (G11)	TXU Electric Delivery									
Jay Seitz	U.S. Bureau of Recl					x				
Darrick Moe (G6)	WAPA		x							
Dan Hamai (G8)	WAPA	x								
Deven Bhan (G11)	WAPA									
Mariam Mirzadeh (G5)	WAPA-SNR	x								
Donald Davies (G8)	WECC		x							
Donald D. Taylor (G9)	Westar Energy									
Tom Wiedman (G11)	Wiedman Pwr Sys Cnsltg									
Jim Maenner (G6)	WPS		x							
Martin Trence	Xcel Energy - NSP	x								

Index to Questions and Responses

1. Do you agree with the proposed definitions that were added or revised?

Comments on Protective System:

Protection System: Protective relays, associated communication systems, voltage and current sensing devices, ~~power circuit breakers~~, station batteries and DC control circuitry.

Summary Consideration: The definition was revised to remove the term, 'power circuit breakers'. Addressing specific substation equipment, including power circuit breakers, can be addressed by interested parties in a separate SAR.

Ed Clark; Florida Power and Light	No	Recommend the definition of a Protective System as written in PRC-002-1 be changed. The term power circuit breakers should be deleted from the definition of a protective system. Isolation devices, such as a power circuit breaker or any other piece of substation equipment should be handled separately.
Response: The definition was revised to remove the term, 'power circuit breakers'.		
FRCC	No	PRC-002-1 Definition of Protection System should not include power circuit breakers. Isolation devices, such as a power circuit breaker or any other piece of substation equipment should be handled separately.
Response: The definition was revised to remove the term, 'power circuit breakers'.		
Dynergy Greg Mason	No	The definition for "Protection System" needs to be revised.As drafted it is too broad,too vague and would make misoperation analyses in PRC-003 and PRC-004 and maintenance and testing in PRC-005 impractical to complete.Under the proposed definition, it will be impractical to define understandable physical and reporting boundaries for such a broad range of equipment. Suggest revising wording to read:"Protective relays,associated communication systems,voltage and current sensing devices,power circuit breakers and DC battery status." In addition,the "Protection System" definition should only be used in PRC-003, PRC-004 and PRC-005 and not in PRC-002.This definition is too broad and would exceed the practical capability and capacity of the equipment referenced in PRC-002.
Response: The definition was revised to remove the term, 'power circuit breakers'. As revised, the definition should be acceptable for PRC-002 as well as PRC-003, PRC-004 and PRC-005.		
MAAC John Horakh	No	The definition for *Protection System* should not include *power circuit breakers*; they are part of the *Switching/Interrupting System*, with input from the *Protection System*. They are operated, tested

1. Do you agree with the proposed definitions that were added or revised?

		and maintained differently than the other equipment listed in the definition.
Response: The definition was revised to remove the term, 'power circuit breakers'.		
Southern Company Generation	No	Delete the term power circuit breakers which greatly increases the scope of the standard. This standard should be limited to protective system controls.
Response: The definition was revised to remove the term, 'power circuit breakers'.		
Duke Power Barry Jackson	No	Adding power circuit breakers to the definition on protective system is a significant addition and should be carefully considered.
Response: The definition was revised to remove the term, 'power circuit breakers'.		
NY ISO James W. Ingleson ISO NE Kathleen Goodman	No	Remove "Power Circuit Breaker" from definition." The overall maintenance of power circuit breakers in considered by us to be a different discipline area. Our protection system maintenance program includes verification of the ability of each trip coil to trip the circuit breaker, however the overall maintenance of the circuit breaker in not addressed as a part of the protection system maintenance program.
Response: The definition was revised to remove the term, 'power circuit breakers'.		
NERC Standards Evaluation Subcommittee Bill Bojorquez	No	The SES does not believe the proposed definition for Protection System goes far enough, and believes it is not proper to define a protection system as just a list of components as stated in the proposed definition. SES offers the following: Protection System--A protection system contains a number of individual components coordinated together such that any element of a power system is promptly removed from service when it suffers a fault, or when it starts to operate in any abnormal manner that might cause damage or other interfere with the effective operation of the remainder of the system.
Response: Most commenters indicated that the definition had gone too far, and the drafting team revised the definition to remove the reference to power circuit breakers.		
NERC System Protection and Controls Task Force	No	SPCTF objects to the inclusion of power circuit breakers in the definition of protection systems in PRC-002. Although breakers are controlled by the protection system, their inclusion in this definition makes them subject to the protection system maintenance requirements in PRC-005. That change is a significant expansion of the original Phase III-IV planning standards on equipment maintenance. This change also applies to SMR-001.
Response: The definition was revised to remove the term, 'power circuit breakers'.		

1. Do you agree with the proposed definitions that were added or revised?

MAAC Mark Kuras	No	Power circuit breakers should not be considered part of a Protection System.
Response: The definition was revised to remove the term, 'power circuit breakers'.		
Baltimore Gas & Electric- System Protection & Control Donald P. Milanicz	No	Including power circuit breakers in the definition of a protective system should be viewed with caution. Power circuit breakers are the means to accomplish the intended function of the protective system. If power circuit breakers are included in the definition, other types of high voltage equipment [circuit switchers & high speed ground switches for example] would have to be included as well.
Response: The definition was revised to remove the term, 'power circuit breakers'.		
SERC EC Planning Standards Subcommittee (PSS) SERC Protection and Control Subcommittee (PCS)	No	Delete the term power circuit breakers. This addition is a significant scope creep. The thrust of this standard should be on protective system controls and not isolation devices. Addition of power circuit breakers or any other piece of substation equipment should be handled through a separate SAR, if needed.
Response: The definition was revised to remove the term, 'power circuit breakers'.		

1. Do you agree with the proposed definitions that were added or revised?

Comments on Misoperations:

- Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection.
- Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone).
- Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity.
- ~~Any failure to properly reclose following a Protection System operation.~~

Summary Consideration: The definition was revised to remove the reference to reclosing. The proposed NERC definition is consistent in principle with the IEEE PSRC Working Group I3 Report available on the PSRC web site.

Note that PRC-017 includes R1.6 the RRO is required to develop a definition of misoperations and each Region may make this definition more comprehensive if needed to suit the Region's reliability-related needs.

Ed Clark; Florida Power and Light	No	Recommend the Misoperation definitions in PRC-003-1 be changed. 1) Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection. The word element is not defined. System failure should be defined at bus, line, or transformer level and not at relay element level. 2) Any operation when no fault or other abnormal condition has occurred. The definition should exclude testing errors. The wording of any operation leaves much to interpretation and should be changed to automatic relay trip operation. 3) Any failure to properly reclose following a Protection System operation. The reporting of a reclosing misoperation should be removed or limited to specific critical lines in the region. Reclosing practices vary from utility to utility and no standards exist. Having no automatic reclosing installed should not be considered more desirable than an occasional failure to reclose.
Response: The word element seems to be understood and the drafting team did not change this. Protection system operations that occur during maintenance and testing are not considered misoperations. The definition was revised to include the phrase, '. . . unrelated to on-site maintenance and testing activity. ' The definition was revised to remove the reference to reclosing.		

Consideration of Comments on 2nd Posting of Set One of Phase III & IV Standards

1. Do you agree with the proposed definitions that were added or revised?

FRCC	No	PRC-003-1 Definition of Misoperation should not refer to a Protection System "element" since this is not defined and system failures should be defined at bus, line or transformer level and not the relay element level. Third bullet - Definition should make it clear that a testing error is not a misoperation. The words "Any operation" should be changed to "Automatic relay trip operation", since the words "Any operation" is vague and open to interpretation. Fourth bullet - The reporting of a reclosing misoperation should be removed or limited to specific critical lines in the Region. Reclosing practices vary from utility to utility. Having no automatic reclosing on a line should not be considered more desirable than an occasional failure to reclose.
Response: The word element seems to be understood and the drafting team did not change this. Protection system operations that occur during maintenance and testing are not considered misoperations. The definition was revised to include the phrase, '. . . unrelated to on-site maintenance and testing activity. ' The definition was revised to remove the reference to reclosing.		
Southern Company Generation	No	Misoperation: Revise the 3rd bullet to state, "Any 'unintentional' operation when no fault or other abnormal condition has occurred.
Response: The word, 'unintentional' was added as suggested.		
Duke Power Barry Jackson	No	Any failure of a Protective System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection. This is confusing and can lead to very detailed reviews that are unnecessary. This could be interpreted as having to investigate if a zone 1 relay could of operated instead of a zone 2 relay. More understanding and detail examples would help. Misoperations definition - Any failure to properly reclose following a Protective System Operation. This is an addition that greatly change the reporting process, where there would be little if any affect on the BES. Would suggest a change to only report failure to reclose where it is required to meet stability margins.
Response: The definition was revised to remove the reference to reclosing. Providing detailed examples within a definition is discouraged.		
Bonneville Power Admin. – Transmission Business Line Charles E. Matthews	No	The definition for misoperation includes both misoperation and failure to operate. One implies security whereas the other implies reliability of a protection system. Since these have different implications, they should be referred to separately. If these terms are used, gross and net output need further definition.
Response: The definition was revised to remove the reference to reclosing. The drafting team avoided developing definitions for gross and net real and reactive power and suggested that definitions for these terms should		

1. Do you agree with the proposed definitions that were added or revised?

be developed by the associated Region because these definitions will most likely contain some 'duration' component that can vary between Regions and may contain other qualifying factors such as ambient temperature.		
NY ISO James W. Ingleson ISO NE Kathleen Goodman CP9, Reliability Standards Working Group IESO, Ontario Ron Falsetti Northeast Utilities John Ferraro Hydro-Quebec TransEnergie Roger Champagne	No	Definition of Misoperation in PRC-003. In the third bullet, this should be limited to protection system operations only. In the fourth bullet, NYISO does not consider failure to properly reclose to be a protection system misoperation. Autoreclosing is considered to be a control function rather than a protection function. The following is the NPCC definition of misoperations from NPCC Guideline B-21. A misoperation is considered to be one in which one or more specified protective functions: • did not occur as intended by the protection system design, or • did not occur within the time intended by the protection system design, or • occurred for an initiating event for which they were not intended by the protection system design to occur, or • occurred for no initiating event. Common examples of misoperations include: • failures to trip, • slow trips, • incorrect tripping during a fault, or • tripping for a non-fault condition. The following are not considered misoperations: • operations that are initiated by power plant, SVC, HVdc, circuit breaker, or other facility control systems (including autoreclosing), • operations that occur during commissioning or testing, or • Operations that occur at a time when the affected or an associated element is out of service.
Response: The definition was revised to add the phrase, 'Protection System' as an adjective to clarify that misoperations is only related to Protection System operations. The definition was also revised to remove the reference to reclosing.		
WECC – Technical Studies Subcommittee SMUD	No	Please change the fourth bullet in the definition of Misoperation to read: Any failure to properly reclose as intended following a Protection System operation. This would allow for the instances when the protection system is not designed to reclose.

1. Do you agree with the proposed definitions that were added or revised?

Dilip Mahendra		
Response: The definition was revised to remove the reference to reclosing.		
NERC Standards Evaluation Subcommittee Bill Bojorquez	No	The SES recommends the SDT remove the last reference to: Any failure to properly reclose following a Protection System operation.
Response: The definition was revised to remove the reference to reclosing.		
Southern Company – Transmission	No	The definition of Misoperation includes all -failures to reclose. - The failure to reclose should only be considered a misoperation when such reclosing has been identified as critical to the system.
Response: The definition was revised to remove the reference to reclosing.		
NERC System Protection and Controls Task Force	No	PRC-003 -- Part of the definition of MISOPERATION should be modified to: Any protection system operation when no fault or other abnormal condition has occurred. The words protection system were added. This change should be repeated in the definition section of PRC-004. This change also applies to SMR-001.
Response: The definition was revised to add the phrase, 'Protection System' as an adjective to clarify that misoperations is only related to Protection System operations. This change will be applicable to all uses of the term, 'Misoperation' where the term is capitalized.		
MAAC Mark Kuras	No	Instead of …within the specified time… use the following…at the desired time… to cover the misoperation where a relay trips faster than desired. After the word …reclose… insert, …, if reclosing is installed,…
Response: The drafting team did not modify the first bullet since the alternative offered is synonymous with the language in the first bullet. The definition was revised to remove the reference to reclosing.		
SERC Protection and Control Subcommittee (PCS)	No	1. The definition of Misoperation includes all "failures to reclose." The failure to reclose should only be considered a misoperation when such reclosing has been identified as critical to the system. 2. The first item in the definition "Any failure… to operate within the specified time " leaves much to interpretation. It should be further explained, provided with examples, or removed. 3. Remove the 3rd bullet (Any operation when no fault or other abnormal condition has occurred). The bullet could be interpreted to include intentional operation (such as relay tests). Instead, the wording from the 5th bullet in the background document should be used, which states "Any unintentional operation when no fault or other abnormal condition has occurred.

1. Do you agree with the proposed definitions that were added or revised?

		Note: The Background document contains a different definition for misoperation from the definition in PRC-003. The definitions in the background document should be consistent with the definitions in the proposed Standards.
Response: The definition was revised to remove the reference to reclosing. Adding examples within definitions is discouraged. The third bullet was revised to include the phrase, 'unintentional Protection System operation'. The definition in PRC-003 is the definition the drafting team had intended to include in the Background document.		
SERC EC Planning Standards Subcommittee (PSS)	No	Remove the 3rd bullet (Any operation when no fault or other abnormal condition has occurred). The bullet could be interpreted to include intentional operation (such as relay tests). Unintentional operations, which constitute true misoperations, are covered by the 5th bullet.
Response: The third bullet was revised to clarify that it only relates to 'unintentional Protection System operations' . . . 'unrelated to on-site maintenance and testing activity.'		
Salt River Project Robert Kondziolka	No	Please change the fourth bullet in the definition of Misoperation to read: Any failure to properly reclose as intended following a Protection System operation. This would allow for the instances when the protection system is not designed to reclose.
Response: The definition was revised to remove the reference to reclosing.		
US Bureau of Reclamation Jay Seitz	No	The definition provided in PRC-003-1 of misoperation includes failure of a protection system element. This seems to be a different category of event than a misoperations and will require a different mitiagation approach.
Response: The definition does not address all failures – just failures to operate within some specified time.		
MAAC John Horakh	No	The definition for Misoperation in PRC-003-1 is acceptable, but is misstated in the Background document, pages 3 of 4.
Response: Agreed. The definition in PRC-003 is the definition the drafting team had intended to include in the Background document.		
Pepco Holding, Inc – Affiliates	Yes	The definition for Misoperation in PRC-003-1 is acceptable, but is misstated in the Background document. Power circuit breakers should not be included in the definition of protection systems (PRC-002). Their inclusion in this definition makes them subject to the protection system maintenance requirements in PRC-005.
Response: Agreed. The definition in PRC-003 is the definition the drafting team had intended to include in the Background document.		

1. Do you agree with the proposed definitions that were added or revised?

Comments on ~~Mitigation~~ Corrective Action Plan:

A list of ~~corrective~~ actions and an associated timetable for implementation to remedy a specific problem.

Summary Consideration: As used in these standards, the mitigation plan is not related to any specific compliance violation. The term was revised to, "Corrective Action Plan."

Southern Company Generation	No	Replacement of this term with the term "Corrective Action Plan" will avoid confusion with Mitigation Plans to address non-compliances.
Response: As used in the standards, this substitution would not be appropriate since there is no compliance violation being remedied it is a misoperation that is being remedied. .		
Southern Company – Transmission	No	Substitute compliance violation for problem.
Response: As used in the standards, this substitution would not be appropriate since there is no compliance violation being remedied – it is a misoperation that is being remedied.		
SERC EC Planning Standards Subcommittee (PSS) SERC Protection and Control Subcommittee (PCS)	No	Substitute compliance violation for problem. In SERC the phrase mitigation plan is used to denote required actions to alleviate a non-compliance. The phrase corrective action plan is used to denote correcting any problems identified through system or problem assessments. These phrases should not be used interchangeably. Use of these phrases needs to be made consistent throughout the NERC Reliability Standards.
Response: As used in the standards, this substitution would not be appropriate since there is no compliance violation being remedied it is a misoperation that is being remedied. .		

1. Do you agree with the proposed definitions that were added or revised?

Comments on DME:

Devices capable of recording system data pertaining to a Disturbance. Such equipment includes the following categories of recorders:

- Sequence of event recorders, which record equipment response to the event.
- Fault recorders, which record actual waveform data replicating the system primary voltages and currents. This may include protective relays.
- Dynamic Disturbance recorders, which ~~continuously~~ record incidents that portray power system behavior during dynamic events such as low-frequency (0.1 Hz – 3 Hz) oscillations and abnormal frequency or voltage excursions.

Summary Consideration: The word, 'continuously' was removed from the definition. The definition does not specifically address PMUs - this leaves the definition broad enough that it can include the recording devices in use today as well as those that may be in use in the future.

Duke Power Barry Jackson	No	Most changes to DME definition add value, but the definition for DDR does not seem consistence with devices being used. Most DDRs do not continuous store data. Most use system changes to trigger the data capture. There is also a lot of confusion within the industry on what a DDR is and how it should be used. More education on use and deployment of disturbance recorders is needed as well as lessons learned from the Northeast blackout review before setting high level standard as being proposed.
Response: The word, 'continuously' was removed from the definition.		
NY ISO James W. Ingleson ISO NE Kathleen Goodman	No	Remove the word "continuously." Not all such devices have the ability to store or forward continuous data. In addition, the definition for Dynamic Disturbance Recording Equipment should mention that PMUs, although members of the DDR family, are not included. The PMU function should be addressed in a separate NERC standard. As we are engaged in a PMU demonstration program at the present, the "EIPP," it is premature to introduce a standard on a PMU system at this time. Such standards are under consideration by the EIPP.
Response: The word, 'continuously' was removed from the definition.		
CP9, Reliability Standards Working Group IESO, Ontario Ron Falsetti Northeast Utilities John Ferraro	No	Dynamic Disturbance Recorder Definition in PRC-002. Remove the word "continuously." Not all such devices store continuous data. In addition, the definition for Dynamic Disturbance Recording Equipment should mention that PMUs, although members of the DDR family, are not included. This function should be addressed in a separate NERC standard.

1. Do you agree with the proposed definitions that were added or revised?

Hydro-Quebec TransEnergie Roger Champagne		
Response: The word, 'continuously' was removed from the definition.		
NERC Interconnection Dynamics Working Group	No	The word continuously should be removed from the definition of disturbance data recorders (in PRC-002 or SMR-001). This inappropriately excludes devices that are triggered. Continuous recording versus triggering is more appropriately addressed within the Standard (requirements for DDRs), rather than in the definition.
Response: The word, 'continuously' was removed from the definition.		
MAAC Mark Kuras	No	Triggered Dynamic Disturbance Recorders should also be considered as Dynamic Disturbance Recorders.
Response: The word, 'continuously' was removed from the definition. This should enable Triggered Dynamic Disturbance Recorders to be considered as Dynamic Disturbance Recorders.		
SERC Protection and Control Subcommittee (PCS)	No	In the definition of DDR, some of the items are applicable only to the newest, most highly evolved DDRs (mostly phasor measurement units (PMUs)), and are not applicable to all DDR's. These defining parameters should be reevaluated to account for the capabilities of various types of existing DDRs, including fault recorders (with continuous/slow speed facilities or triggered slow speed recording capability). Specifics on some of these parameters are listed in comments on "Question 8 (SMR-001 and SMR-002).
Response: The word, 'continuously' was removed from the definition. PRC-002 was modified to be applicable to a greater number of devices in service today.		

1. Do you agree with the proposed definitions that were added or revised?

Other Comments on Definitions

Duke Power Barry Jackson	No	Bulk Electric System (BES) This tern needs to be more clearly defined.
Response: This term was defined with Version 0.		
Baltimore Gas & Electric- System Protection & Control Donald P. Milanicz	No	Definition of the Bulk Electric System [BES] above 200kV needs a limit of applicability.
Response: This term was defined with Version 0.		
Transmission Issues Subcommittee Kirit S. Shah	No	TIS does not agree with the drafting team that each Region should develop its own definitions for Gross and Net Real and Reactive Power. Even if the verification procedures defined in MOD-024 and MOD-025 are different from region-to-region, TIS believes that the definitions of these quantities should be uniform across NERC.
Response: The drafting team avoided developing definitions for gross and net real and reactive power and suggested that definitions for these terms should be developed by the associated Region because these definitions will most likely contain some 'duration' component that can vary between Regions and may contain other qualifying factors such as ambient temperature.		
Ameren John E. Sullivan	No	Definitions for Gross and Net Real and Reactive Power should be uniform across NERC, rather than subject to individual Regional variations.
Response: The drafting team avoided developing definitions for gross and net real and reactive power and suggested that definitions for these terms should be developed by the associated Region because these definitions will most likely contain some 'duration' component that can vary between Regions and may contain other qualifying factors such as ambient temperature.		
NIPSCO Greg Ludwicki	No	DC control circuitry is too broad
Response: Most commenters seemed to understand and accept this term without definition.		
Constellation Generation Michael Gildea	No	Constellation Generation sees PRC-024 as incomplete.
Response: Please be more specific in identifying areas where you feel more specificity is needed.		
WECC Disturbance Monitoring Work	Yes	The WECC DMWG only reviewed the definition for Disturbance Monitoring Equipment.

1. Do you agree with the proposed definitions that were added or revised?

Group		
Response: Thank you for your comment.		
ATC Peter Burke	Yes	ATC strongly supports all the revised and/or new definitions. Very helpful to have Protection System, Misoperation and Mitigation Plan as defined terms. We recognize the importance of circuit breaker as an integral and vital protection system component to help achieve the ultimate objective of protective relaying --- to clear and isolate any faulted equipment. We also recognize that a circuit breaker failure or misoperation contributes to and results in protection system misoperations. Therefore, it is very encouraging to note that the SDT has included circuit breaker in the definition of Protection System and we lend our full support to the revised definition.
Response: Unfortunately, most commenters did not agree with the inclusion of power circuit breaker in the definition of Protection System, and this was removed.		
Kansas City Power and Light Jim Useldinger	Yes	
Midwest Reliability Organization	Yes	
FirstEnergy Corp Raymond M. Morella	Yes	
MMWG Mark Kuras - MAAC	Yes	
Xcel Energy – Northern States Power Company Martin Trence	Yes	
Resource Issues Subcommittee Mary H Johannis	Yes	
Cinergy	Yes	

1. Do you agree with the proposed definitions that were added or revised?

Jeff Baker		
American Electric Power Navin Bhatt	Yes	

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments

2. Please identify anything you believe needs to be modified before this set of standards is balloted: (PRC-020, PRC-021, PRC-022)

Summary Consideration: The data requirements of PRC-020 were modified so that they are consistent between PRC-020 and PRC-021, which meant adding the following to list of data in the RRO's database addressed in PRC-020:

- Time delay from initiation to trip signal.
- Breaker operating times.

In the second draft of the standard, generator protection (R1.2.3), islanding schemes (R1.2.4) and automatic load restoration (R1.2.5) are items that were required to be included in the Regional database, but have now been moved into a more general list of miscellaneous items because stakeholders indicated they aren't applicable to all UVLS systems. The general list included in the revised standard under (PRC-020) R1.6 and (PRC-021) R1.5 is:

> R1.6. Any other schemes that are part of or impact the UVLS programs such as related generation protection, islanding schemes, automatic load restoration schemes, UFLS and Special Protection Systems.

PRC-020 had language in R1 to clarify that the UVLS programs being addressed were those that were implemented by entities within the Region to mitigate the risk of voltage collapse or voltage instability in the BES. The same language was included in the purpose of PRC-021 and PRC-022 and was moved into the requirements of these standards for improved consistency.

Comments on PRC-020

ISO NE Kathleen Goodman	For PRC-020, the "Proposed Effective Date" does not match the "Anticipated Actions Date".
Response: These have been corrected to match.	
Bonneville Power Admin. – Transmission Business Line Charles E. Matthews	Regarding lsanding Schemes refered to in Requirement R1.6, an islanding scheme is not necessarily included as part of a load shedding scheme, but a load shedding scheme can react to an islanding scheme. In the BPA system this is more applicable to under frequency load shedding rather than under voltage load shedding. Therefore, it may be difficult to associate a specific islanding scheme to a specific UVLS scheme. Transmission Operator is included in Requirement R3 and Measure M2 and therefore should be included in the Introduction under Applicability

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments
Response: The requirement to include islanding schemes has been modified so that it is not necessarily mandatory to include this in the Regional database. There are no performance requirements for the TOP in this standard.	
Midwest Reliability Organization	Change D2.2 “provided did” to “provided, but did”. In the Future Development Plan, the effective date given for step 8 does not match the body of the standard. This should be changed to "May 1, 2006" to be consistent.
Response: The change to D2.2 was made as suggested. The dates were modified to match.	
IESO, Ontario Ron Falsetti	Section B, R1 - The IESO recommends that the Requirement R1.3 of PRC-021 be added to PRC-020 (R1.2) to have consistency between these two standards.
Response: The data requirements were modified so that they are consistent between PRC-020 and PRC-021.	
CP9, Reliability Standards Working Group NY ISO James W. Ingleson ISO NE Kathleen Goodman Hydro-Quebec TransEnergie Roger Champagne	NPCC Participating Members recommend that the Requirements of PRC-021 (R1.1 - R1.8) replace PRC-020 (R1.1 - R1.3) and revise M1 and Levels of Non-Compliance 2.2, accordingly.
Response: The data requirements were modified so that they are consistent between PRC-020 and PRC-021. Conforming changes to M1 and Levels of non-compliance were made as suggested.	
NERC Standards Evaluation Subcommittee	R1: The SES believes this requirement to be somewhat vague and recommends the SDT clarify what constitutes "sufficient information". As written it appears something more is required beyond the requirements in R1.2. R1.3: Appears to be a "catch-all" phrase, the SES is unsure how one can measure compliance of this requirement

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments
Bill Bojorquez	since it is not clearly stated. Measures and Levels of Non-Compliance are not consistent. The measures require the RRO to have evidence that it performed a function, but the compliance appears to be related to whether the function was carried out. The SES believes what is important to measure is if the requirement action was done (i.e. a database established/updated and made available).
Response: R1 was abbreviated to eliminate the vague language. R1.3 was modified and is now R1.6 and states: R1.6 Any other schemes that are part of or impact the UVLS programs such as related generation protection, islanding schemes, automatic load restoration schemes, UFLS and Special Protection Systems. The measures and levels of non-compliance are closely linked – each addresses 4 areas - whether the database was established and annually updated; whether the database includes all required elements; whether the data was provided to others as required. Although there is no level of non-compliance that includes the word, 'establish', if there is no annual update and no data provided the assumption is that the database was not established and this would be a level four non-compliance.	
NERC System Protection and Controls Task Force	Change section R1.2 to match the data requirements of Standard PRC-006-0 UFLS – R1.2. Data Requirement: R1.2.1. Voltage set points. R1.2.2. Size of corresponding load shedding blocks (% of connected loads.) R1.2.3. Intentional and total tripping time delays. R1.2.4. Generation protection. R1.2.5. Tie tripping schemes. R1.2.6. Islanding schemes. R1.2.7. Automatic load restoration schemes. R1.2.8. Any other schemes that are part of or impact the UVLS programs. ------
Response: The data requirements were modified so that they are consistent between PRC-020 and PRC-021. Some of the items in the suggested list above, such as tie tripping schemes, are not relative to UVLS programs.	
Idaho Power David Angell	The sections specifying the data requirements in PRC-020-1 and PRC-021-1 should have similar data requirements to PRC-006-0 UFLS. The data requirements should be listed as: PRC-020-1 & PRC-021-1

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments
	R1.2. Data Requirements: R1.2.1. Voltage set points. R1.2.2. Size of corresponding load shedding blocks (% of connected loads). R1.2.3. Intentional and total tripping time delays. R1.2.4. Generation protection. R1.2.5. Tie tripping schemes. R1.2.6. Islanding schemes. R1.2.7. Automatic load restoration schemes. R1.2.8. Any other schemes that are part of or impact the UVLS programs.
Response: The data requirements were modified so that they are consistent between PRC-020 and PRC-021. Some of the items in the suggested list above, such as tie tripping schemes, are not relative to UVLS programs.	
FRCC	PRC-020-1 Requirements R1.2.3, R1.2.4 and R1.2.5 are generally not part of UVLS schemes. The standard as written requires the Region to provide data for items that may not exist or are not related to a particular UVLS scheme. If some aspect of R1.2.3, R1.2.4 and R1.2.5 is particularly salient to a specific UVLS scheme, the data for that aspect shall be provided as called for in requirement R1.3. Remove requirements R1.2.3, R1.2.4 and R1.2.5.
Response: The data requirements were modified so that they are consistent between PRC-020 and PRC-021. Note that several stakeholders indicated that the items identified in R1.2.3, R.1.2.4, and R1.2.5 aren't common to all UVLS programs and these have been added to what had been R1.3 and is now R1.6	
Transmission Issues Subcommittee Kirit S. Shah	1. PRC-020-1 R1 refers to UVLS implemented to mitigate voltage collapse or voltage instability in the BES. TIS agrees with this philosophy, so as not to get burdened with "localized" schemes. However, PRO-022-1 R1, refers to "all UVLS". TIS understands that this discrepency with PRC-020 and PRC-021 is intentional. TIS disagrees with this approach, and recommends that PRO-022-1 should refer to the same UVLS systems that are described in PRC-020-1, which are those UVLS systems for the protection of the BES. 2. PRC-020-1 TIS recommends that R1.2.3, R1.2.4, and R1.2.5 be dropped from the standard, and R1.3 be reworded to state: Any other schemes that are part of or impact the UVLS programs such as, related generation protection, islanding schemes, and automatic load restoration schemes.

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments
Response: 1. The drafting team appreciates your support. 2. The drafting team modified the set of standards so they are all applicable to UVLS implemented to mitigate voltage collapse or voltage instability in the BES. The language had been in the purpose statement, but the standard was revised to include the qualifying language in both the purpose and R1 as suggested in PRC-022. 3. The suggestion to modify R1.3 was adopted and is reflected in the revised standard.	
Ameren John E. Sullivan	The data collected for the UVLS systems should be sufficient to permit modeling the operation of the UVLS systems in powerflow and dynamics simulations. Some additional information which should be considered for inclusion in the reporting requirements are: A. Is the UVLS system triggered by metering in a local substation or by a central computer? If a central computer is used, what inputs are used to trigger the UVLS system? B. Is the UVLS always available or only armed as needed? How is the arming of the UVLS system determined? C. For which critical contingencies or operating conditions is the UVLS system designed to protect?
Response: The additional data suggested seems to be more site-specific than necessary for a Regional database aimed for use in planning and modeling.	

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments
Comments on PRC-021	
ISO NE Kathleen Goodman	In PRC-021-1, the "Proposed Effective Date" does not match the "Anticipated Actions Date". In the "Applicability", "Requirements" and "Measures" sections, the responsible entities should match those contained in the respective sections of PRC-022-1.
Response: The dates have been corrected so they match. PRC-021 only applies to facility owners and LSE's don't own equipment.	
Ameren John E. Sullivan	The Applicability section of PRC-022-1 refers to Load-Serving Entities, while PRC-021-1 does not. Should Load-Serving Entities be included in PRC-021-1?
Response: LSE's don't own equipment – PRC-021 only applies to facility owners.	
ISO NE Kathleen Goodman	For example, PRC-021 has applicability to the TO and DP; and PRC-022 has applicability to the TOP, DP and LSE. Recommend that these both indicate "TOP, TO, DP, and LSE who own and/or operate such equipment" in the applicability section.
Response: PRC-021 is requiring data that the owners have – PRC-022 requires operating information associated with the performance of these systems.	
Southern Company – Transmission SERC EC Planning Standards Subcommittee (PSS)	In PRC-021-1 R1, delete the words -provide, and- in the 1st sentence. The requirement to provide the data is covered by R2. This change will make the standard requirements internally consistent with measurements M1 and M2, and other similar standards (e.g. PRC-020-1).
Response: Agree – the words, '…provide, and…' were removed as suggested in the 1st sentence of R1.	
IESO, Ontario Ron Falsetti	Section B, R1 - The IESO would suggest that Requirement R1 should read "Each Transmission Owner and Distribution Provider that owns a UVLS program shall provide, and annually update, its UVLS implementation data as defined in PRC-020-1_R1 to support the Regional UVLS program database."
Response: The drafting team has been advised to minimize cross-references between standards because of difficulties in keeping the references in synch with one another as the standards change over time.	
FirstEnergy Corp Raymond M. Morella	Combine R1.3 and R1.4 into overall clearing time as in PRC-020-1 R1.2.2.

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments
Response: The additional specificity is needed for model accuracy. PRC-020 was modified to include these additional data elements so that the two standards do match.	
NERC System Protection and Controls Task Force Idaho Power David Angell	The sections specifying the data requirements in PRC-020-1 and PRC-021-1 should have similar data requirements to PRC-006-0 UFLS. The data requirements should be listed as: PRC-020-1 & PRC-021-1 R1.2. Data Requirements: R1.2.1. Voltage set points. R1.2.2. Size of corresponding load shedding blocks (% of connected loads). R1.2.3. Intentional and total tripping time delays. R1.2.4. Generation protection. R1.2.5. Tie tripping schemes. R1.2.6. Islanding schemes. R1.2.7. Automatic load restoration schemes. R1.2.8. Any other schemes that are part of or impact the UVLS programs.
Response: The data requirements were modified so that they are consistent between PRC-020 and PRC-021. Some of the items in the suggested list above, such as tie tripping schemes, are not relative to UVLS programs.	
FRCC	Requirements R1.5, R1.6 and R1.7 are generally not part of UVLS schemes. The standard as written requires the Region to provide data for items that may not exist or are not related to a particular UVLS scheme. If some aspect of R1.5, R1.6 and R1.7 is particularly salient to a specific UVLS scheme, the data for that aspect shall be provided as called for in requirement R1.8. Remove requirements R1.5, R1.6 and R1.7.
Response: The data requirements were modified so that they are consistent between PRC-020 and PRC-021. Note that several stakeholders indicated that the items identified in R15, R.16, and R1.7 aren't common to all UVLS programs and these have been added to what is now R1.5 as suggested.	
Transmission Issues Subcommittee Kirit S. Shah	TIS recommends that R1.5, R1.6, and R1.7 be dropped and R1.8 be renumbered and revised to state: Any other schemes that are part of or impact the UVLS programs, such as related generation protection, islanding schemes, and automatic load restoration schemes.
Response: The data requirements were modified so that they are consistent between PRC-020 and PRC-021. Note that several stakeholders indicated that the items identified in R15, R.16, and R1.7 aren't common to all UVLS programs and these have been added to what is now R1.5 as suggested.	
NERC Standards	R1: The SES believes this standard should require the owner to document its UVLS program in terms of the program's

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments
Evaluation Subcommittee Bill Bojorquez	guiding principles and overall philosophy including the a detailed descripton of the program's scope and breadth, not just data only. M1: Please clarify what is intended by "documentation of its UVLS program that shows an annual update ...". Does the documentation have to include a requirement that the data be updated annually? Data Retention: Is it the data supplied to the RRO that is to be retained for two years? Non-Compliance: Level 2.4 is the non-compliance that the owner did not provide the data or did not meet the measurement to have evidence that it provided the data?
Response: The additional data suggested seems to be the type of data that should be reviewed by the Regions when systems are installed rather than data used for a Regional database for use in planning and modeling. The ' . . . documentation of its UVLS program that shows an annual update . . . ' was unclear and has been substituted with the following language, ' . . . documentation that its UVLS data was updated annually. . . '. The intent is to have some evidence to show that the data was updated at least once a year. The data retention section was modified to add more specificity – the intent is to keep enough data to show that you did update the data provided to the RRO. It is the data that is provided to the RRO that is being retained. Non-compliance is that the owner did not have evidence that it provided the required data.	
Midwest Reliability Organization	Change D2.2 "provided did" to "provided, but did", Change D2.3 "provided did" to "provided, but did". In the Future Development Plan, the effective date given for step 8 does not match the body of the standard. This should be changed to "August 1, 2006" to be consistent.
Response: The modifications suggested to D2.2 and D2.3 were adopted and are reflected in the revised standard. The dates have been modified so they match.	

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments
Comments on PRC-022	
Midwest Reliability Organization	In the Future Development Plan, the effective date given for step 8 does not match the body of the standard. This should be changed to "May 1, 2006" to be consistent.
Response: The dates have been modified so they match.	
ISO NE Kathleen Goodman	The "Proposed Effective Date" does not match the "Anticipated Actions Date."
Response: The dates have been modified so they match.	
ISO NE Kathleen Goodman	For example, PRC-021 has applicability to the TO and DP; and PRC-022 has applicability to the TOP, DP and LSE. Recommend that these both indicate "TOP, TO, DP, and LSE who own and/or operate such equipment" in the applicability section.
Response: PRC-021 is requiring data that the owners have – PRC-022 requires operating information associated with the performance of these systems.	
Ameren John E. Sullivan	Whereas PRC-020-1 covers UVLS systems which would mitigate risk of voltage collapse in the Bulk Electric System, PRC-022-1 as worded covers all UVLS systems. This wording in PRC-022-1 should be modified to cover the same UVLS systems as in PRC-020-1.
Response: This suggestion was adopted and is reflected in the revised standards.	
Ameren John E. Sullivan	In PRC-022-1 R1, the effects of any automatic load restoration should be included.
Response: This is already addressed in existing requirements as part of the sequence of events and may also be included in the summary of findings. R1.3 was modified to remove the parenthetical phrase 'trip' in recognition that events such as automatic load restoration may be significant 'events' that may be analyzed.	
SMUD Dilip Mahendra WECC – Technical Studies Subcommittee Salt River Project Robert Kondziolka	In PRC-022-1, R 1.3. A simulation of the event, if deemed appropriate by the Regional Reliability Organization. We agree that for most events, analysis of sequence of events (trips) may be sufficient and dynamic simulations may not be required. Further, we suggest that analysis of sequence of events (trip) should be initiated if the misoperation of the UVLS cannot be explained as incorrect UVLS relay settings.

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments
Response: The standard gives the RRO flexibility in determining which events must be simulated. Part of any analysis would be to review the sequence of events.	
Southern Company – Transmission SERC EC Planning Standards Subcommittee (PSS)	In PRC-022-1 R1.5, delete the word mitigation and reinsert the terms corrective action.
Response: This was done.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	Measure M1: Should M1 read : "shall have documentation of its analysis of.."? Measures and Levels of Non-Compliance: M1 requires documentation but the compliance does not. M2 requires evidence of documentation to be provided within 90 days. Should Level 4 also include that such evidence was not provided within 90 days? With regards to the Levels of Non-Compliance, Level 2 and Leve3: The reference to Reliability Standard PRC-002 should be PRC-022.
Response: M1 was revised as suggested. Levels of non-compliance were modified to add the word, 'documentation' as suggested. In the levels of non-compliance, the reference to PRC-002 was changed to PRC-022.	
IESO, Ontario Ron Falsetti	Section D, Levels of Non-Compliance (2.2 and 2.3) - Change the references from PRC-002 Requirement R1 to PRC-022 Requirement R1.
Response: In the levels of non-compliance, the reference to PRC-002 was changed to PRC-022.	
Ameren John E. Sullivan	In the 'Levels of Non-Compliance' section of PRC-022-1, reference is made to PRC-002-1. It appears these references should be to PRC-022-1.
Response: In the levels of non-compliance, the reference to PRC-002 was changed to PRC-022.	
CP9, Reliability Standards Working Group NY ISO James W. Ingleson	In PRC-022, the levels of non-compliance (2.2 and 2.3) change the references from PRC-002 to PRC-022.

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments
Northeast Utilities John Ferraro Hydro-Quebec TransEnergie Roger Champagne ISO NE Kathleen Goodman	
Response: In the levels of non-compliance, the reference to PRC-002 was changed to PRC-022.	

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments
Other Comments on PRC-020, PRC-021, PRC-022	
MAAC Mark Kuras	All of the UVLS standards should include the following words after the Applicability listings. …installed to mitigate the risk of voltage collapse or voltage instability in the Bulk Electric System (BES) to exclude UVLS systems installed for local conditions only.
Response: This suggestion was adopted and is reflected in the revised standards.	
MAAC John Horakh	PRC-021-1 is applicable to *owners* and PRC-022-1 is applicable to *operators*. This is logical and avoids assigning the same responsibility to two different entitities, but it is inconsistent with the Background document (page 2 of 4), which indicates the *owner* is responsible for both 021 and 022. This should be resolved.
Response: The background document was incorrect; the standards were correct.	
Pepco Holding, Inc – Affiliates	The Background document (page 2 of 4), indicates the “owner” is responsible for both PRC-021 and PRC-022, but PRC-002 is applicable to those entities who “operate” a UVLS. This should be corrected in the Background document.
Response: The background document was incorrect; the standards were correct.	
FirstEnergy Corp Raymond M. Morella	PRC-021-1 is applicable to *owners* and PRC-022-1 is applicable to *operators*. This is inconsistent with the background documentation file that states both PRC-020-1 and PRC-021-1 [---- were modified so that the requirements are only applicable to the entities that‘own’ UVLS programs rather than to entities that either ‘own or operate’ UVLS programs.] This discrepancy between the PRC-022-1 and background documentation should be resolved. It appears the background document is misleadin
Response: The background document was incorrect; the standards were correct.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	General Comments for PRC-020-1, PRC-021-1, and PRC-022-1: This family of three standards requires that the RRO maintain a database of UVLS systems, requires the TO and the DP to provide data on their systems to the RRO, and requires the TO and DP to report operations and misoperations to the RRO. There does not appear to be any requirement that, like UFLS systems (PRC-006-0), any entity study whether UVLS would be effective, and to implement UVLS if found to be effective. Recognizing that UVLS is more local in nature than UFLS, it may be more appropriate to require the TO to study UVLS, rather than a RRO. The SDT should consider incorporating into this family of standards a requirement that each TO should study, and implement if found effective, a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES. The TO should also be required to demonstrate that its UVLS program is coordinated with adjacent TOs.
Response: PRC-010 already requires an assessment of the effectiveness at least every 5 years or as required by changes in system conditions.	

2. What needs to be modified before balloting PRC-020, PRC-021, PRC-022?

Commenters	Comments
The performance assessments done in compliance TPL-001 through TPL-004 should identify the need for additional UVLS programs. The Blackout Recommendations recommend the Regions encourage Transmission Owners to install these schemes in locations where the schemes would improve BES reliability. Adding a requirement to address the installation of additional UVLS equipment is outside the scope of this set of SARs.	
Northeast Utilities John Ferraro	We suggest that NERC define what they consider to be an Under-Voltage Load Shedding "Program". Many entities use UV as a means to identify loss-of-source conditions and initiate a transfer to an alternate source. In a wide-area UV situation, this could result in opening of breakers for both the normal and alternate supplies. This isn't done as part of a UVLS "Program". Does it become "programmatic" regardless of the voltage level at which load shedding occurs? Is recoverability a parameter for defining a UVLS "Program"?
Response: PRC-021 and PRC-022 were modified to include the following phrase: "… to mitigate the risk of voltage collapse or voltage instability in the BES" to qualify which subset of UVLS programs are addressed by this set of standards.	
American Electric Power Navin Bhatt	This set does not need any modifications; it is perfect
Response: Thank you for your support. Other commenters made some suggestions for changes that were adopted – please review those changes.	
ATC Peter Burke	ATC supports all modifications done to these standards since Draft 1 posting. The posted drafts are ready to ballot.
Response: Thank you for your support. Other commenters made some suggestions for changes that were adopted – please review those changes.	

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments

3. Please identify anything you believe needs to be modified before this set of standards is balloted: (MOD-024, MOD-025)

Summary Consideration: Most commenters seemed to agree with the standards as proposed. The drafting team did move the 'effective date' for the Generator Owner from July 1, 2006 to January 1, 2007 and modified the levels of non-compliance to reference % of units for which complete data was provided as a base rather than focusing on missing data in certain categories. Other changes to format were made to improve consistency between standards.

MOD-024

Midwest Reliability Organization	In the Future Development Plan, the effective date given for step 8 does not match the body of the standard. This should be changed to "April 1, 2006" to be consistent.
Response: The dates have been modified so they match.	
MMWG Mark Kuras - MAAC	In MOD-024, please more clearly explain seasonal gross and Net Real Power.
Response: The drafting team avoided developing definitions for gross and net real and reactive power and suggested that definitions for these terms should be developed by the associated Region because these definitions will most likely contain some 'duration' component that can vary between Regions and may contain other qualifying factors such as ambient temperature.	
IESO, Ontario Ron Falsetti	Section B, R3 - There is a typo, "requirement 1" should be "Requirement 1"
Response: This was changed so the word, 'requirement' is no longer used.	
FirstEnergy Corp Raymond M. Morella	MOD-024-1:Very General Comment in the area of "B. Requirements": Why are the Regions tasked with the responsibility of selecting these Requirements? Why doesn't NERC adopt a uniform set of Requirements for all of North America, then task each Region with enforcement? A more basic question would be: Why should/would there be any need for differing requirements under MOD-024-1 in different Regions? (This same comment applies to MOD-025-1.)
Response: This is a translation of the Planning Measures that assigned this task to the RRO. Getting consensus on this set of requirements seemed easier to accomplish if the requirements are initially assigned to the RRO. In the future, once the RRO's requirements are established, it may be possible and practical to establish Interconnection-wide requirements or a single set of requirements for North America.	
NERC Standards Evaluation	The SES believes the stated purpose of MOD-024-1 is to produce "accurate" information of gross and net real power capability of generators for steady state models. However, there is no requirement in the standard that the RRO

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
Subcommittee Bill Bojorquez	demonstrate that its procedures produce such a result. In theory, a RRO could require all generators in its region to supply the nameplate rating of its generators, an estimate of station service, and exempt all generators above 600 MW from the requirements of the region's procedures, and be in compliance with the standard. As a minimum, the SES believes the RRO should be required to demonstrate that its procedures produce the required result and suggests the following: R1. After the first sentence, add "The RRO shall demonstrate that its procedures produce accurate steady state models of generator gross and net real power capability." M1 should become "The RRO shall submit its procedures for the verification and reporting of generator gross and net real power capability in accordance with Requirement 1 to NERC for review. Updates to these procedures shall be provided to NERC for review when they occur". Compliance should be modified to be consistent with the revised R1 and M1.
Response: This is a translation of the Planning Measure (IIBM1) which did not require that the RRO's requirements be reviewed by NERC. Getting consensus on this set of requirements seemed easier to accomplish if the requirements initially give the RRO more latitude in establishing its requirements. In the future, once the RRO's requirements are established, it may be possible and practical to establish Interconnection-wide requirements or a single set of requirements for North America.	
Dynergy Greg Mason	R1.3-Wording needs to be added to the end of R1.3 that explicitly states that "engineering analyses and calculations" is another acceptable method of data verification.
Response: This addition is not applicable to MW.	
Ameren John E. Sullivan	R1.4 of MOD-024-1 and MOD-025-1 should specify a maximum time period for testing (five years), rather than leaving the periodicity completely open.
Response: Testing is not the only way to perform this verification. Periodicity has been left up to the RRO to define.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	MOD-024-1: R1.5 Should be labeled R1.1 as it is the core requirement of the standard.
Response: The order in the draft procedure seems as acceptable as the alternative suggested. Most commenters seemed to accept the order presented.	
Southern Company Generation	Reporting: We question the need for the Generator to report this information to the RRO under Requirement 3. It would be more appropriate for the Transmission Planner and Planning Authority to assimilate all the data for their Balancing Area and provide it to the RRO.

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
Response: R3 requires the Generator Owner to follow its RRO's procedures with respect to reporting – R3 does not require reporting to the RRO.	
Ameren John E. Sullivan	Because personnel employed by the Transmission Owner are frequently involved in the development of system models, both MOD-024-1 and MOD-025-1 should be modified to show the Transmission Owner as one of the parties to which generator capability data is reported in Requirement R3 and Measurements M2 and M3.
Response: R3 requires the Generator Owner to follow its RRO's procedures with respect to reporting – R3 does not require reporting to the RRO. M3 was modified to more accurately support R3.	
Dynergy Greg Mason	M3-The Generation Owner is not going to know all the entities that are applicable TP's and PA's. M3 needs to be revised so that the Generation Owner is only required to routinely send its Real Power capabilities to one entity-the RRO.The TP or PA can receive the data from the RRO.This approach will also minimize the risk of creating mutiple sets of the same data.
Response: M3 was modified to more accurately support R3 which requires compliance with the RRO's procedures for reporting.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	Levels of Non-compliance: Levels for the RRO do not include compliance for M2.
Response: This was included in the levels of non-compliance, but it wasn't as clear as possible. The levels of non-compliance were modified so they are easier to interpret.	
IESO, Ontario Ron Falsetti	Section D, 3.1 Level 1 - There is a typo, "but but" should be "but"
Response: The typos were corrected.	
FirstEnergy Corp Raymond M. Morella	Under the section D (Compliance), item 3.4.2: Why limit this to just R1.5.1 and not just all of R1.5? (This same comment applies to MOD-025-1.)
Response: Compliance was targeting the actual values modified and was intended to only cover R1.5.1 which is the most critical of the 3 elements in R1.5.	
MAAC Mark Kuras	In MOD-024 - No Requirement for GO to provide info to TP or PA but it's in M3. Recommend that RRO be clearing house for GO data so that they only have to send data to one place.

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
Response: The measure was modified to more accurately reflect the requirement R3.	
MMWG MAAC Mark Kuras	Extra s in Compliance Section 3.2. In Compliance Section 3.4.1 is redundant with other compliance requirements, especially 3.4.2.
Response: The typographical error was fixed. Levels of non-compliance were modified to use % - redundancy was eliminated.	
Southern Company Generation	Levels of Non-Compliance: SoCo Generation again recommends: The Levels of Non-Compliance as written are on a per generator basis, and will not work well for entities that have a large number of generators. In addition, because the details of the requirements are left up to the RRO, the levels of non-compliance should be rewritten as follows: 3.1. Level 1: Verified generator data were provided and were complete for less than 100% of a generator owner's units as required by the RRO procedures. 3.2. Level 2: Verified generator data were provided and were complete for less than 95% of a generator owner's units as required by the RRO procedures. 3.3. Level 3: Verified generator data were provided and were complete for less than 90% of a generator owner's units as required by the RRO procedures. 3.4. Level 4: Verified generator data were provided and were complete for less than 85% of a generator owner's units as required by the RRO procedures.
Response: The levels of non-compliance to use % as suggested; however the % of complete data were made more stringent than suggested.	

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
MOD-025	
Southern Company Generation	Reporting: We question the need for the Generator to report this information to the RRO under Requirement 3. It would be more appropriate for the Transmission Planner and Planning Authority to assimilate all the data for their Balancing Area and provide it to the RRO.
Response: R3 requires the Generator Owner to follow its RRO's procedures with respect to reporting – R3 does not require reporting to the RRO.	
Southern Company Generation	Due to the magnitude and complexity of implementing these requirements, a phased-in Implementation Plan is needed. A phase-in period equivalent to PRC-019 seems appropriate since there is an interrelationship between these two standards, especially in terms of the engineering/analyses and field alignment/testing evolutions.
Response: The effective dates were modified to mimic the phase-in period originally proposed for PRC-019.	
Ameren John E. Sullivan	Because personnel employed by the Transmission Owner are frequently involved in the development of system models, both MOD-024-1 and MOD-025-1 should be modified to show the Transmission Owner as one of the parties to which generator capability data is reported in Requirement R3 and Measurements M2 and M3.
Response: R3 requires the Generator Owner to follow its RRO's procedures with respect to reporting.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	As with MOD-024-1, the SES believes the stated purpose of MOD-025-1 is to produce "accurate" information of gross and net reactive power capability of generators for steady state models. However, there no requirement in the standard that the RRO demonstrate that its procedures produce such a result. In theory, a RRO could require all generators in its region to supply the nameplate rating of its generators, an estimate of station service, and exempt all generators above 600 MW from the requirements of the region's procedures, and be in compliance with the standard. As a minimum, the SES believes the RRO should be required to demonstrate that its procedures produce the required result and suggests the following: R1. After the first sentence, add "The RRO shall demonstrate that its procedures produce accurate steady state models of generator gross and net reactive power capability." M1 should become "The RRO shall submit its procedures for the verification and reporting of generator gross and net reactive power capability in accordance with Requirement 1 to NERC for review. Updates to these procedures shall be provided to NERC for review when they occur." Compliance should be modified to be consistent with the revised R1 and M1.
Response: This is a translation of the Planning Measure (IIBM3) which did not require that the RRO's requirements be reviewed by NERC. Getting consensus on this set of requirements seemed easier to accomplish if the requirements initially give the RRO more latitude in establishing its requirements. In the future, once the RRO's requirements are established, it may be possible and practical to establish	

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
Interconnection-wide requirements or a single set of requirements for North America.	
Ameren John E. Sullivan	R1.4 of MOD-024-1 and MOD-025-1 should specify a maximum time period for testing (five years), rather than leaving the periodicity completely open.
Response: Testing is not the only way to perform this verification. Periodicity has been left up to the RRO to define.	
Ameren John E. Sullivan	MOD-025-1 should state that generating unit reactive capability will be verified at or near the unit's maximum rating.
Response: R1.5.1 requires this.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	MOD-025-1:R1.5 should be labeled R1.1 as it is the core requirement of the standard.
Response: The order in the draft procedure seems as acceptable as the alternative suggested. Most commenters seemed to accept the order presented.	
Bonneville Power Admin – Transmission Business Line Charles E. Matthews	In Standard MOD-025-1 requirement R1.5.1, the reactive capability curve should be verified rather than just the reactive power capability at a single real power output. To more accurately simulate the power system in steady-state models, the reactive capability curve is required.
Response: R1.5.1 requires submission of max and min – these points are used to verify the curve received from the manufacturer.	
NIPSCO Greg Ludwicki	-R1.5.3 What is the value of knowing the reactive power of the aux. Power? Our Aux. Power does not have Reactive Power monitoring devices. In verifying unit capability, does one have to test, based on Document 4, or can it be stated based on original design? If testing is required is this a one-time test or is retesting required at some frequency? MOD 25-1 Verify Max. Reactive Power at seasonal gross and net Real Power capabilities -R1.5.1. Could you explain what seasonal value is? ECAR's present Doc #4 is implying the Reactive Power Test is to be performed at the generator max. output and to test the max. and min. Reactive Power per the generator capability curve or when you hit a limit. Will ECAR correct to Seasonal?

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
Response: R1.5.3 – This data is required for dynamic stability evaluations. You must provide the data required – how you acquire the data is up to you. The data must be provided in accordance with RRO procedures, which don't necessarily require testing. Seasonal is the ambient conditions present at the peak of that season – the word, 'seasonal' was used instead of 'winter' and 'summer' to allow for more variations. The drafting team has no control over ECAR.	
Dynergy Greg Mason	1.R1.3-Wording needs to be added to the end of R1.3 that explicitly states that "engineering analyses and calculations" is another acceptable method of data verification. 2.R1.5.1-The word "seasonal" needs to be eliminated.Lagging and leading Reactive Power Capability is measured at different output levels,but not for different "seasonal" Real power capabilities. 3.M3-The Generation Owner is not going to know all the entities that are applicable TP's and PA's. M3 needs to be revised so that the Generation Owner is only required to routinely send its Real Power capabilities to one entity-the RRO.The TP or PA can receive the data from the RRO.This approach will also minimize the risk of creating mutiple sets of the same data.
Response: R1.3 - Engineering analyses includes calculations, so this wasn't changed. Reactive power output may be affected by ambient temperature. The Generator Owner is required to report the data to entities consistent with the Regional Reliability Organization's procedures	
MMWG Mark Kuras - MAAC	Delete 1.5.2 in MOD-025, there is no need to collect this information since the effects are already included in 1.5.1 and the same data is requested in PRC-019 R2.1.4.
Response: PRC-019 was modified to remove the requirement to submit this. The limitations that reduce the VAR limit need to be identified for the TOP.	
FirstEnergy Corp Raymond M. Morella	R1.5.4.: I would suggest defining the term "conditions", so that enough data is collected and supplied by the Generating Company. In addition, it would be helpful to specify in this document that a sample test data sheet be included in each RRO's document (as was done in the past with Reactive and Real Power Testing in ECAR Letter #4) to ensure consistency and complete reporting.
Response: These are the conditions that were identified in the RRO's procedures (R1.3). This level of detail should be identified in the RRO's procedures.	

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
NERC Standards Evaluation Subcommittee Bill Bojorquez	Levels of Non-compliance: Levels for the RRO do not include compliance for M2
Response: Levels of non-compliance were modified to address this.	
MMWG Mark Kuras - MAAC	In Compliance Section 3.4.1 is redundant with other compliance requirements, especially 3.4.2.
Response: The levels of non-compliance were modified to eliminate this redundancy.	
Southern Company Generation	Levels of Non-Compliance: SoCo Generation again recommends: The Levels of Non-Compliance as written are on a per generator basis, and will not work well for entities that have a large number of generators. In addition, because the details of the requirements are left up to the RRO, the levels of non-compliance should be rewritten as follows: 3.1. Level 1: Verified generator data were provided and were complete for less than 100% of a generator owner's units as required by the RRO procedures. 3.2. Level 2: Verified generator data were provided and were complete for less than 95% of a generator owner's units as required by the RRO procedures. 3.3. Level 3: Verified generator data were provided and were complete for less than 90% of a generator owner's units as required by the RRO procedures. 3.4. Level 4: Verified generator data were provided and were complete for less than 85% of a generator owner's units as required by the RRO procedures.
Response: The levels of non-compliance to use % as suggested; however the % of complete data were made more stringent than suggested.	

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
Other Comments on MOD-024, MOD-025	
Bonneville Power Administration	MOD-024-1 and MOD-025-1 Please add definitions for 'generator gross real power' and 'generatior net real power'. Auxillary loads should be associated with the generation plant and not the generation plant units.t
Response: The drafting team avoided developing definitions for gross and net real and reactive power and suggested that definitions for these terms should be developed by the associated Region because these definitions will most likely contain some 'duration' component that can vary between Regions and may contain other qualifying factors such as ambient temperature.	
Bonneville Power Admin. – Transmission Business Line Charles E. Matthews	I assume Generator Gross Capability refers to the generator capability at the generator bus and Net Generator Capability refers to the capability of the generator netted with the auxiliary load. This standard needs more definition or clarification. In general, generator output is unit specific and auxiliary load would be plant specific. This is especially true for projects with more than one unit sharing a common step-up transformer. These standards should require verification of the Generator Capability, and auxiliary loads should be verifed explicitly rather than netted with the generation.
Response: The drafting team avoided developing definitions for gross and net real and reactive power and suggested that definitions for these terms should be developed by the associated Region because these definitions will most likely contain some 'duration' component that can vary between Regions and may contain other qualifying factors such as ambient temperature. How to account for a shared auxiliary unit is left to the RRO to clarify in its procedures.	
US Bureau of Reclamation Jay Seitz	The terms gross real power, net real power, gross reactive power, and net reactive power used throughout the standards are not defined in the standards or the NERC glossary. It is assumed that net power (real or reactive) is the gross power with the auxiliary load power netted out. Auxiliary loads should be associated with the plant rather than a generating unit and should be modeled explicitly rather than netted with generation. Would recommend doing away with the gross and net power terms and instead require maximum power output capability and concentrate on accurate modeling of the auxiliary loads at genration facilities.
Response: The drafting team avoided developing definitions for gross and net real and reactive power and suggested that definitions for these terms should be developed by the associated Region because these definitions will most likely contain some 'duration' component that can vary between Regions and may contain other qualifying factors such as ambient temperature. How to account for a shared auxiliary unit is left to the RRO to clarify in its procedures. Both gross and net are needed for models.	

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
Wind Generator Task Force Mahendra Patel	The WGTF notes that verifying the capabilities of wind generating plants could require different processes than those used for synchronous generators. R1.3 for both standards should state that the RRO's procedures should identify specific procedures for wind generators. The RRO's procedures for real and reactive capability should recognize that capability of the entire wind plant should be verified, rather than the capability of individual wind generators.
Response: The standard as written neither requires nor excludes the RRO from having to write separate procedures for wind generation units.	
Transmission Issues Subcommittee Kirit S. Shah	There is a potential for wide variance in verification procedures among RROs. The standard should establish certain criteria for the RRO, such as testing at the time of commissioning of new equipment and not permitting reliance on manufacurer's design data, name plate data, or engineering calculations. Similarly, the periodicity in R1.4 for verification should not be left entirely to the RRO in order to avoid wide variations in this requirement. R1.4 of the standards should establish a maximum five year period for verification unless there is a change in equipment which may affect these capabilities. However, TIS would not disagree should a RRO establish a more frequent verification period than five years.
Response: This is a translation of the Planning Measure (IIBM3) that assigned this task to the RRO. Getting consensus on this set of requirements seemed easier to accomplish if the requirements are initially assigned to the RRO. In the future, once the RRO's requirements are established, it may be possible and practical to establish Interconnection-wide requirements or a single set of requirements for North America.	
Resource Issues Subcommittee Mary H Johannis - NERC	These standards as written do not appear to be enforceable on a consistent basis due to the lack of any performance requirement on the RRO's procedures. At a minimum, these standards must provide guidance to the RRO on how the RRO procedure is to relate to the objective of the standard, which is to ensure accurate information on unit capability is provided to steady-state models. Does the drafting team mean this to be limited to verification of Pmax, Pmin, Qmax, and Qmin that is submitted for use in NERC load flow models? Or does the drafting team intend the objective to verify generator performance parameters throughout the entire range of operation? MOD-025, in particular, should require the verification of a generating unit's reactive capability at or near the unit's maximum rating. Without additional guidance to the RRO, unacceptably wide variation in regional procedures may occur.
Response: This is a translation of the Planning Measure (IIBM3) that assigned this task to the RRO. Getting consensus on this set of requirements seemed easier to accomplish if the requirements are initially assigned to the RRO. In the future, once the RRO's requirements are established, it may be possible and practical to establish Interconnection-wide requirements or a single set of requirements for North America.	

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
WECC – Technical Studies Subcommittee SMUD Dilip Mahendra Salt River Project Robert Kondziolka	For steady state simulations, we generally think of net generator capability as the gross generator capability minus the auxiliary loads. The auxiliary loads are not necessarily an integral part of the generator itself. By specifying gross and net generator capability in MOD-024-1, R1.5.1 and R1.5.2 would seem to overlap, and begs the question as to whether compliance is to be measured at the generator terminal, or at the low side of the generator step up transformer. It may be clearer to require reporting of gross power capability in R1.5.1, rather than gross and net power generating capabilities. In MOD-025-1, for R.1.5.1 requires Verified maximum reactive power capability (both lagging and leading) at seasonal gross and net Real power generating capabilities as reported in accordance with Reliability Standard MOD-024 Requirement 1.5.1. Please delete the reference to gross and net because both gross and net refer to the same operating point of the generator, inlcuding both could lead to confusion. In addition, please delete the reference to Real power because MOD-024 is for Real power only, and this description is not necessary.
Response: The RRO must identify acceptable methods for model and data verification (R1.3). R1.5.1 was modified to clarify what was intended. The reference to 'gross and net' was moved as follows: 'Verified maximum gross and net Reactive Power capability… " The term, 'Real power' is needed to define the point.	
MMWG Mark Kuras - MAAC	MVAR capability should be evaluated at the interconnection point specifically. The models need to reflect the MVAR's that actually make it to the grid. Limitations internal to the plant may limit MVAR capability that may not be reflected if only GSU losses considered. These may be parasitic loads or generator bus voltage limitations (frequently occurs at nuclear plants). Bottom line is that we need accurate data for what actually reaches the grid. The Regional Reliability Organization needs time to develop accepted standards and methods for determining consistent requirements for the associated standards for Generator Owners so field testing and/or some external evaluation and additional costs may be necessary.
Response: The information collected through the standard is needed for studies. The intent of the effective date is to provide the RRO with a year to develop these procedures.	
Kansas City Power and Light Jim Useldinger	Replace Generator Owner with Generator Operator to accomodate jointly owned units. Net real power capability is all that is needed. Numerous generators are modeled without step-up transformers (connected directly to high voltage buses). Requiring data for gross capability and unit auxiliary loads would be onerous, particularly for small generators.
Response: The responsibility is assigned to the Generator Owner – the Generator Owners may delegate this task to the Generator Operator or other entity.	

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
The requested data is needed for modeling. The RRO must identify exemption criteria and may exempt units from reporting all or some of the data.	
Hydro-Quebec TransEnergie Roger Champagne CP9, Reliability Standards Working Group NY ISO James W. Ingleson Northeast Utilities John Ferraro	The NPCC participating Members request clarification as to which generators these standards apply to (i.e. size, voltage, BPS classification, etc). Or, is this determination at the Region's discretion? NPCC's participating Members recommend that some consideration be given to technically feasible physical testing as opposed to meeting requirements based solely upon commissioning data sheets or vendor supplied diagrams
Response: This determination is left to the RRO. Testing is allowed but not required. The RRO must specify methods of verifying and may elect to set time limits on the allowance of commissioning data sheets.	
IESO, Ontario Ron Falsetti	The IESO requests clarification as to which generators these standards apply to (i.e. MW size, voltage, BPS classification, etc). Or, is this determination at the Region's discretion?
Response: This determination is left to the RRO.	
ISO NE Kathleen Goodman	ISO NE requests clarification as to which generators these standards apply to (i.e. size, voltage, BPS classification, etc). Or, is this determination at the Region's discretion? ISO NE recommends that some consideration be given to technically feasible physical testing as opposed to meeting requirements based solely upon commissioning data sheets or vendor supplied diagrams. ISO NE recommends that each of these standards should be broken down into separate standards covering RRO requirements and GO requirements similar to PRC-002 & PRC-018. For MOD-024, the "Proposed Effective Date" does not match the "Anticipated Actions Date". Requirements R1.3 & R1.4 of both standards do not appear to be related to the titles of these standards. These requirements should be put into a separate model data verification standard.

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
Response: This determination is left to the RRO. The intent of both standards is to verify that the data is accurate. Testing is allowed but not required. Most commenters seemed to agree with including the RRO's requirements with the Generator Owner's requirements. The Anticipated Actions Dates and Proposed Effective Dates now match. The titles seem appropriate for the requirements.	
Southern Company – Transmission SERC EC Planning Standards Subcommittee (PSS)	In MOD-024-1 and MOD-025-1, and as recommended in our Draft-1 comments, we again strongly recommend: The Levels of Non-Compliance as written are on a per generator basis, and will not work well for entities that have a large number of generators. In addition, because the details of the requirements are left up to the RRO, the levels of non-compliance should be rewritten as follows: 3.1. Level 1: Verified generator data were provided and were complete for less than 100% of a generator owner's units as required by the RRO procedures. 3.2. Level 2: Verified generator data were provided and were complete for less than 95% of a generator owner's units as required by the RRO procedures. 3.3. Level 3: Verified generator data were provided and were complete for less than 90% of a generator owner's units as required by the RRO procedures. 3.4. Level 4: Verified generator data were provided and were complete for less than 85% of a generator owner's units as required by the RRO procedures.
Response: The levels of non-compliance to use % as suggested; however the % of complete data were made more stringent than suggested.	
NIPSCO Greg Ludwicki	Are the real and reactive capabilities to be determined by simply achieving instantaneous outputs or sustained outputs over specific time period?
Response: This will be defined by the RRO's procedures.	
American Electric Power Navin Bhatt NERC Interconnection Dynamics Working Group	No modifications are suggested for this set.
Response: The drafting team appreciates your support.	

3. What needs to be modified before balloting MOD-024, MOD-025?

Commenters	Comments
ATC Peter Burke	ATC supports all modifications done to these standards since Draft 1 posting. The posted drafts are ready to ballot.
Response: The drafting team appreciates your support.	
MAAC John Horakh	OK as is
Response: The drafting team appreciates your support.	

4. What needs to be modified before balloting PRC-003, PRC-004, PRC-005?

Commenters	Comments

4. What needs to be modified before this set of standards is balloted: (PRC-003, PRC-004, PRC-005)

Summary Consideration: Most commenters seemed to agree with the standards as proposed, providing the definitions of Mitigation. The drafting team made minor changes to PRC-003 to change the word, 'requirement' to 'procedure' to avoid confusion. In PRC-004 the word, 'mitigation plan' was replaced with 'corrective action plan' to avoid confusion with the use of the term 'mitigation plan' as used in reference to NERC's Compliance Enforcement Program. Other minor changes were made to improve consistency in format.

PRC-003

NERC System Protection and Controls Task Force	PRC-003 — Regional Requirements for Analysis of Misoperations of Transmission and Generation Protection System Applicability Because the SPCTF feels that the definition of the applicable circuits recommends for PRC-003 that these standards apply to: • All transmission circuits 200 kV and above • All transmission circuits 100 kV to 200 kV operationally significant circuits, as defined by the RROs • Generator protection systems, whose misoperations impact the bulk electric system Definition of Misoperation Part of the definition of Misoperation should be modified to read: • Any protection system operation when no fault or other abnormal condition has occurred. The words "protection system" should be added. This change should be reflected throughout the standards, wherever the definition is restated.
Response: Most of the requirements in PRC-003 are from the Version 0 standard and can't be modified by the drafting team. The phrase, 'Protection System' was added to the definition of Misoperation as suggested.	
Bonneville Power Administration	Add to 'Mitigation Plan' definition that further clarifies that the 'corrective action' be coordinated and controlled.
Response: Requiring coordination and control of corrective actions is beyond the scope of what was intended with the measure being	

4. What needs to be modified before balloting PRC-003, PRC-004, PRC-005?

Commenters	Comments
translated. Note that the term, 'mitigation plan' was changed to, 'corrective action plan.'	
Florida Power and Light Ed Clark	Recommend the Misoperation definitions in PCR-003 be changed. 1) Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection. The word element is not defined. System failure should be defined at bus, line, or transformer level and not at relay element level. 2) Any operation when no fault or other abnormal condition has occurred. The definition should exclude testing errors. The wording of any operation leaves much to interpretation and should be changed to automatic relay trip operation. 3) Any failure to properly reclose following a Protection System operation. The reporting of a reclosing misoperation should be removed or limited to specific critical lines in the region. Reclosing practices vary from utility to utility and no standards exist. Having no automatic reclosing installed should not be considered more desirable than an occasional failure to reclose.
Response: The word element seems to be understood and the drafting team did not change this. Protection system operations that occur during maintenance and testing are not considered misoperations. The definition was revised to include the phrase, '. . . unrelated to on-site maintenance and testing activity. ' The definition of Protection System was also modified to eliminate the reference to reclosing.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	R1.1: The SES believes this requirement as written is too vague and provides little guidance as a standard. Specifically, the SES asks can the SDT clarify what is intended to be reviewed by …misoperations (due to their potential impact on BES reliability). The SES believes a requirement such as this will result in a wide variety of differing interpretations as to what types of misoperations are routinely reviewed and analyzed such that the effectiveness of this standard will be diminished. The SES recommends the SDT use language similar to that found in other standards such as "…all protection systems on lines and devices 100 kV and above (or at a lower voltage if designated by the RRO) that misoperate". Data Retention: The wording is confusing. Is the current RRO version of the procedures to be retained for three years? The SES believes the stated purpose of PRC-003-1 is to ensure protection system misoperations are analyzed and mitigated. No where in the standard is there a requirement that the procedures developed to meet this purpose be effective, and the standard does not provide for the review of the RRO's procedures. The RRO should be required to demonstrate that the requirements developed in accordance with R1 produce the desired result. Also suggest adding to M1 "The RRO shall submit its procedures for the review and mitigation of protection system misoperations prepared in accordance with R1 to NERC for review. Updates to these procedures shall be provided to NERC for review when they occur."
Response: Other standards do not reference specific voltage classes. Data Retention – this does require that the current RRO version of the procedures be retained for three years.	

4. What needs to be modified before balloting PRC-003, PRC-004, PRC-005?

Commenters	Comments
PRC-003 is a Version 0 Standard – making the type of modifications suggested to include a review of the RRO's procedures goes beyond the additions needed to address the the translation of the Phase III & IV Planning Measure (IIICM10) and is beyond the scope of the SARs.	
FirstEnergy Corp Raymond M. Morella	PRC-003-1 In R1.2 change format to content. It is more important to have the required content than having the same format. Many companies have existing databases that would need to be rewritten to get a common format.
Response: R1.2 is a Version 0 requirement and making the proposed change is outside the scope of the SARs.	
Midwest Reliability Organization	R2. Remove "a" In the Future Development Plan, the effective date given for step 8 does not match the body of the standard. This should be changed to "May 1, 2006" to be consistent.
Response: The 'a' was removed as suggested. The dates in the Future Development Plan were modified to match the date in the standard.	
MAAC Mark Kuras	In PRC-003 - R2 has two requirements in it. A requirement to review and update and a requirement to forward to TOs, DPs and GOs. Please separate. In Levels of Non-Compliance the use of the term …requirements… is confusing because of the use of requirements in NERC standards in general. Suggest changing to …Procedure… as used in the Title.
Response: R2 was subdivided into two requirements as suggested. The word, 'requirements' was changed to 'procedure' throughout the standard.	
FRCC	Definition of Misoperation - See comments for question 1. PRC-003-1 R3 - Add the word "and" after "Transmission Owner" and remove the comma. PRC-003-1 M3 - Replace the word "any" with "each" before "Distribution Provider" to be consistent with the rest of the Measures.
Response: The definition of misoperation was modified. See response to comments for question 1. There is no R3 or M3 in PRC-003.	

4. What needs to be modified before balloting PRC-003, PRC-004, PRC-005?

Commenters	Comments

PRC-004

NERC System Protection and Controls Task Force	PRC-004 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations: Definition of Misoperation Part of the definition of Misoperation should be modified to read: • Any protection system operation when no fault or other abnormal condition has occurred. The words "protection system" should be added. This change should be reflected throughout the standards, wherever the definition is restated.
Response: The definition was modified as suggested.	
Midwest Reliability Organization	D 1.3. Suggest removal of "or for 12 months, whichever is later". It may take the entity longer than 12 months before they are able to take the effected equipment out of service in order to complete the mitigation plan. In the Future Development Plan, the effective date given for step 8 does not match the body of the standard. This should be changed to "August 1, 2006" to be consistent.
Response: The language, 'whichever is later' addresses your concern. The dates were corrected in the Future Development Plan so they match the dates in the standard.	

4. What needs to be modified before balloting PRC-003, PRC-004, PRC-005?

Commenters	Comments
PRC-005	
Midwest Reliability Organization	In the Future Development Plan, the effective date given for step 8 does not match the body of the standard. This should be changed to "May 1, 2006" to be consistent.
Response: The dates were corrected in the Future Development Plan so they match the dates in the standard.	
SERC Protection and Control	The SERC PCS offers the following comments on PRC-005: -The addition of power circuit breakers to the definition of Protection Systems in PRC-002, which is referenced PRC-005 on maintenance adds a new component of major equipment maintenance. Breakers were not in the original scope of the Phase III-IV Planning Standards, and this constitutes a major scope expansion of the original standard. Please remove circuit breakers from this standard. -This standard should apply to all protection systems on the Bulk Electric System (BES) not just those that 'impact' the BES **Note: The term BES (Bulk Electric System) needs to be more clearly defined at the NERC level.
Response: The definition of Protection Systems was modified to remove the reference to power circuit breakers. The drafting team tried to bring the three standards in this sequence into a common level of consistency with respect to scope which was interpreted as protection systems that affect the reliability of the BES. The definition of BES was approved with Version 0.	
NERC System Protection and Controls Task Force Pepco Holding, Inc – Affiliates	PRC-005 — Transmission and Generation Protection System Maintenance and Testing: Definition of Protection Systems The SPCTF recommends that breakers be removed from the definition of Protection Systems in PRC-002, which is referenced PRC-005 on maintenance. Breakers were not in the original scope of the Phase III-IV Planning Standards, and this constitutes a major scope expansion of the original standard. This change should be reflected throughout the standards, wherever the definition is restated in standards PRC- Applicability SPCTF recommends that PRC-005 apply to: • All protection systems on the bulk electric system. All generation protection systems whose misoperations impact the bulk electric system

4. What needs to be modified before balloting PRC-003, PRC-004, PRC-005?

Commenters	Comments
Response: Power circuit breakers were removed from the definition as suggested. The drafting team tried to bring the three standards in this sequence into a common level of consistency with respect to scope which was interpreted as protection systems that affect the reliability of the BES.	
Southern Company – Transmission	PRC-005: Power circuit breakers as defined in PRC-002, 003, 004 and -005 were not in the original scope of the Phase III-IV Planning Standards, and this constitutes a major scope expansion of the original standard. Please remove circuit breakers from this standard.
Response: Power circuit breakers were removed from the definition as suggested.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	R1: Similar to our comments for PRC-003-1, the proposed requirement does not adequately define …Protection Systems that affect the reliability of the BES. This leaves the decision to the TO, GO, or DP as to what systems are covered under this requirement. As with our previous comment, the SES believes this will result in a wide diverse interpretation of the standard which will in effect reduce the standards effectiveness. The SES recommends the SDT state at what minimum level should this standard apply to. The SES believes the stated purpose of the standard is to ensure that protections systems are maintained and tested. However, there is no performance requirement or measure of effectiveness of a maintenance program required by the standard. In theory, a TO, GO or DP could maintain and test its protection systems once every ten years, and as long as this was documented, the standard was met. The standard should require the TO, GO, or DP to demonstrate that its maintenance and testing program facilitates reliable protection systems. The standard should also provide for RRO review and approval that the maintenance and testing programs are effective, and meet good industry practice. The SES suggests: R2 should become: Each TO, GO, and any DP that owns a transmission or generation protection system shall provide documentation of its protection system maintenance and testing program, and the implementation of that program, to the RRO for review and approval. The TO, GO, and DP shall demonstrate to the RRO that its program will produce reliable protection systems in accordance with good industry practice.
Response: Other standards do not reference specific voltage classes. PRC-005 is a Version 0 Standard – making the type of modifications suggested to include a review of the RRO's procedures goes beyond the additions needed to address the the translation of the Phase III & IV Planning Measure (IIICM12) and is beyond the scope of the SARs.	

4. What needs to be modified before balloting PRC-003, PRC-004, PRC-005?

Commenters	Comments
Other comments on PRC-003, PRC-004, PRC-005	
Dynergy Greg Mason	None except for earlier comment on defininition of "Protection System."
Response: The definition of Protection System was modified.	
MAAC John Horakh Pepco Holding, Inc – Affiliates	OK, but note: Titles in this question are misstated. For PRC-003-1, cross out *Procedure for* and *and Generator Control Systems*. For PRC-004-1, replace *Reporting* with *Mitigation*. Note: The definition for Misoperation in PRC-003-1 is acceptable, but is misstated in the Background document, page 3 of 4. The fourth bullet should state *properly* instead of *successfully*; the fifth bullet is redundant.
Response: The titles in the comment form were misstated. The definition provided in the standard was correct. Please see the changes to definitions provided under Question 1.	
Pepco Holding, Inc – Affiliates	PHI supports that the definition of the applicable circuits for PRC-003 apply to: • All transmission circuits 200 kV and above • All transmission circuits 100 kV to 200 kV operationally significant circuits, as defined by the RROs • Generator protection systems, whose misoperations impact the BES 1. PHI recommends that breakers be removed from the definition of Protection Systems in PRC-002, which is referenced PRC-005 on maintenance. Breakers were not in the original scope of the Phase III-IV Planning Standards, and this constitutes a major scope expansion of the original standard.
Response: No other standards identify a particular voltage class to define the applicability of a standard. The drafting team does not see where the phrase, 'operationally significant circuits' is more definitive than the language in the proposed standard. Power circuit breakers were removed from the definition of Protection Systems.	
Southern Company Generation	PRC-003, 004, 005 Scope and Definition of Protection System: Delete power circuit breakers which greatly increases the scope of the standard. This standard should be limited to its original scope of protective system controls. PRC-003, 004, 005 Application to Generation Protection Systems: These standards represent new requirements for

4. What needs to be modified before balloting PRC-003, PRC-004, PRC-005?

Commenters	Comments
.	Generators and a significant increase in the amount of work and documentation required to fully comply. Therefore, a reasonable phase-in period (similar to PRC-019) should be allowed for full compliance.
Response: Power circuit breakers were removed from the definition of Protection Systems. The amount of work needed to comply with PRC-004 and PRC-005 should not be so significant that it would take until January 1, 2012 to achieve compliance. Generator Owners should already have maintenance and testing programs for their protection systems, and should already be investigating misoperations. Additional time has been provided for the Generator Owner to adjust to the associated reporting requirements.	
SERC Protection and Control	The SERC PCS offers the following comments on PRC-003 and PRC-004: -The definition of Misoperation that appears in PRC-003 but is referenced in this standard includes all 'failures to reclose'. The failure to reclose should only be considered a misoperation when such reclosing has been identified as critical to the system. - The first item in the definition, 'Any failure ... to operate within the specified time.....' leaves much to interpretation. It should be further explained, provided with examples, or removed.
Response: The definition of Misoperations was revised to eliminate the reference to reclosing. Providing examples within definitions has been discouraged.	
SERC EC Planning Standards Subcommittee (PSS)	See earlier comments in Question 1 concerning mitigation versus corrective action.
Response: See response to earlier comments.	
Duke Power Barry Jackson	No comments other than what is listed under definitions above.
Response: See responses to comments on definitions.	
ISO NE Kathleen Goodman	ISO NE is in agreement with these Standards as written with the exception of the definitions (see question 1 above) and the following comment: the "Proposed Effective Dates" for these standards do not match the "Anticipated Actions Dates."

4. What needs to be modified before balloting PRC-003, PRC-004, PRC-005?

Commenters	Comments
Response: See responses to definitions – they were modified as suggested. The dates were modified so they are correct in both the Anticipated Actions and the Proposed Effective Dates.	
CP9, Reliability Standards Working Group NY ISO James W. Ingleson Hydro-Quebec TransEnergie Roger Champagne IESO, Ontario Ron Falsetti	NPCC participating Members are in agreement with these Standards as written with the exception of the definitions (see question 1 above)
Response: See responses to definitions – they were modified as suggested.	
Bonneville Power Admin. – Transmission Business Line Charles E. Matthews	The standards should explicitly include both misoperation and failure to operate. Since these have different implications for the impacted systems, they should be referred to separately.
Response: The definition of Misoperations does include, 'Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection. '	
Kansas City Power and Light	Replace Generator Owner and Transmission Owner with Generator Operator and Transmission Operator to accomodate jointly owned facilities.

4. What needs to be modified before balloting PRC-003, PRC-004, PRC-005?

Commenters	Comments
Jim Useldinger	
Response: The reporting responsibilities are assigned to the facility owners - the Owners may delegate this task to the Generator Operator, Transmission Operator or other entity.	
Northeast Utilities John Ferraro	No comments except for the definitions (see question 1 above).
Response: See responses to comments on definitions.	
American Electric Power Navin Bhatt	No modifications are suggested for this set.
ATC Peter Burke	ATC supports all modifications done to these standards since Draft 1 posting. The posted drafts are ready to ballot.
NERC Interconnection Dynamics Working Group	No modifications are suggested for this set.

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment

5. Please identify anything you believe needs to be modified before this set of standards is balloted: (PRC-019, PRC-024)

Summary Consideration: PRC-019 was modified to remove the emphasis on providing data for models and returned the emphasis to verifying that the generator voltage regulator controls are coordinated with unit capabilities and protection. With this change, the Generator Owner must be prepared to show that its facilities are coordinated, but the Generator Owner is not required to distribute its studies to other entities. There were no significant modifications to PRC-024 but the drafting team did make some minor changes to improve consistency in format. PRC-019 and PRC-024 will be field tested before they are finalized.

PRC-019

Ameren John E. Sullivan	Under the Proposed Effective Dates section of PRC-019-1, the readability would be enhanced by using quantities of 20%, 40%, 60%, 80%, and 100% in the table, rather than incremental 20% quantities with each time period.
Response: This may be changed following field testing.	
MAAC John Horakh Pepco Holding, Inc – Affiliates	OK, but note: The title in this question is misstated for PRC-019-1. Add *and Protection* after *Capabilities*.
Response: The comment form will not be used again.	
FirstEnergy Corp Raymond M. Morella	It is suggested that NERC specify *(that)* the settings of Generator Voltage Regulators and Protective Relays be provided to the Transmission Operator who can supply these to the RRO/NERC upon request. Draft Committee should consider requiring a detailed coordination study for each generating unit, to be submitted on a periodic basis, along with a report identifying shortcomings. Committee should consider requiring remediation of any shortcomings as a compliance issue.]
Response: The standard was modified to omit the distribution requirements. The standard was not intended to provide data for models. These recommendations are outside the scope of this standard. Detailed exciter settings are addressed in MOD-026. Not all shortcomings, such as limits, cannot be eliminated.	
Southern Company	Purpose: The scope of this standard should focus on coordination of the devices with the generator's

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
Generation	capabilities (which includes but is not limited to the generator D-curve). Therefore, the Purpose statement should be revised to only say, "Ensure generator voltage regulator controls and limit functions are coordinated with the generator's capabilities and protective relays." The first sentence in the current draft is not needed and may cause confusion.
Response: This suggestion was adopted and is reflected in the revised standard.	
NERC Interconnection Dynamics Working Group American Electric Power Navin Bhatt	Comments #1: The purpose is "Ensure the generator capability curve is consistent with the actual generator capability and ensure - - - and protective relays." Availability of data of R2.1.1 through R2.1.6 is not adequate to meet the stated Purpose. A knowledgeable engineer would probably have to review the R2.1.1- R2.1.6 data to make sure that the generator capability curve is consistent and that the generator voltage regulator controls and limit functions are coordinated with the generator's capabilities and protective relays. This standard is inadequate in addressing this critical process step of reviewing the data and perhaps certifying the consistency mentioned in the Purpose.
Response: The purpose was modified to eliminate the reference to the generator capability curve.	
Southern Company Generation	R2: Why do the RRO and TO need all this documentation? What will they do with it? Submittal of all documentation generated for PRC-019 to these two entities will impose a significant and unnecessary burden on generator owners. Southern Generation believes Generator Owners should only be required to submit this documentation/data to the TO and RRO "upon request." In addition, the TO should specify which data is needed and in what format. The TO should coordinate this with the RRO to ensure the data will satisfy the RRO needs as well.
Response: The standard was modified to remove the requirement to provide this documentation to the RRO and TOP. The revised standard states that the GO will have the information available upon request for the RRO to review.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	R2: requires the GO to provide generator data to the RRO. and the TO. The Transmission Planner also has a need for good models; however, the SES is uncertain the TP needs all the data. The SES is concerned as to what the RRO and TO are obligated to do with all the data collected. The SES would hope that at least one end product would be to ensure generator models reflect capability, and that the capability is coordinated with the generator protection. As a result, the SES would recommend the SDT provide language to state which party is responsible for ensuring this coordination and the accuracy of the models? R2 and R1 should be interchanged as R2 represents the core of the standard.
Response: The standard was modified to remove the requirement to provide this documentation to the RRO and TOP. The revised standard states that the GO will have the information available upon request for the RRO to review. The GO is responsible for ensuring that the coordination exists. The Compliance Monitor is responsible for verifying that the data to show coordination has been compiled.	

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
NIPSCO Greg Ludwicki	R2.1.1 I do not understand the request for the nominal voltage, ambient air temperature or cooling temperature. Explain?
Response: This data is collected as part of the study because it impacts the performance of the generator.	
NERC Interconnection Dynamics Working Group American Electric Power Navin Bhatt	Comment #2: Modify R2.1.2 as follows: Steady state over-excitation limiter and underexcitation limiter control characteristics, including field current inverse time characteristics, as appropriate.
Response: This level of detail doesn't seem to be needed in this standard.	
FRCC	R2.1.2 - Change the words "control characteristics" to "settings". The words "control characteristics" can be interpreted to mean damping and time constants of the limiting control scheme. An evaluation of set points is sufficient to determine proper coordination. Provision of additional data implied by "control characteristics" could be very burdensome and of little value since the control schemes used by many limiters cannot be modeled with currently available commercial simulation software. Re-write Requirements R2.1.2 and R2.1.5 as follows: R2.1.2 Overexcitation limiter settings and overexcitation protection settings R2.1.5 Underexcitation limiter settings and loss of field protection settings. This change is necessary to ensure that overexcitation limiters coordinate with overexcitation protection and that under excitation limiters coordinate with loss of field protection.
Response: You can't plot a 'setting' but you can plot a 'control characteristic.' All protection and controls have to be coordinated.	
MMWG Mark Kuras - MAAC	In PRC-019 R2.1.4 change …limit… to …condition…
Response: This was not changed because the use of the word 'condition' could lead to more frequent study updates than necessary.	

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
Wind Generator Task Force Mahendra Patel	PRC-019-1 The WGFT believes that the information to be collected under the intent of this standard is important. However, for wind generation, the proper measurement is for the capability of the entire wind generating plant, and not individual wind generators. Also, the language of R2 is specific to synchronous generators and not applicable to wind generator technology. The WGTF recommends that the drafting team specifically exclude wind plants from PRC-019, as developing a new section, R2.2, to address wind plants cannot be done in a short time due to the complexity of the issue. The scope of the WGTF includes developing SARs for areas that are not properly addressed by NERC standards with respect to wind technology. The WGTF is considering developing a SAR at a later date to cover the subject of PRC-019 for wind generating plants.
Response: The standard requires the RRO to identify generators exempt from compliance with the requirements in this standard.	
Midwest Reliability Organization MMWG Mark Kuras - MAAC	R2 and R3: Change "and the Transmission Operator:" to ", Transmission Planner, Planning Authority, Reliability Coordinator, and the Transmission Operator:"
Response: The purpose of this standard is to ensure there is coordination, not to support modeling. There are other standards that address provision of data for modeling.	
Ameren John E. Sullivan	Because personnel employed by the Transmission Owner are frequently involved in the development of system models, PRC-019-1 should be modified to add the Transmission Owner as one of the parties to which generator data is reported in Requirements R2 and R3, and Measure M2.
Response: The purpose of this standard is to ensure there is coordination, not to support modeling. There are other standards that address provision of data for modeling.	
Dynergy Greg Mason	1.R3 and M2-The Generation Owner is not going to know all the entities that are applicable TO's. R3 and M2 need to be revised so that the Generation Owner is only required to routinely send it's the data from R2.1-R2.1.6 to one entity-the RRO.The TO can receive the data from the RRO.This approach will also minimize the risk of creating mutiple sets of the same data.
Response: The standard was modified to remove the requirement to provide this documentation to the RRO and TOP. The revised standard states that the GO will have the information available upon request for the RRO to review.	
NERC Standards Evaluation	R3: should require the generator to provide documatation showing that generator capability and

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
Subcommittee Bill Bojorquez	protection/limiter settings are coordinated. R3.1 should be provided sufficently in advance of the connection date, at least in preliminary form, so that system studies can be carried out.
Response: The purpose of this standard is to ensure there is coordination, not to support modeling. There are other standards that address provision of data for modeling.	
SERC EC Planning Standards Subcommittee (PSS)	In PRC-019-1, the SERC PSS recommends that the Levels of Non-Compliance for the RRO and the generator owners be split into 2 sections, as was done in MOD-024-1, MOD-025-1, and PRC-004-1.
Response: In this standard, the levels of non-compliance seem simple enough when combined that the drafting team elected to leave them as is.	
MMWG Mark Kuras - MAAC	In R2.1.3, do prime movers have MW limits? I thought generators have MW limits.
Response: The word limit seemed acceptable to most commenters and wasn't changed. This may be modified after field testing.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	Levels of Non-compliance: RRO and GO levels should not be combined.
Response: In this standard, the levels of non-compliance seem simple enough when combined that the drafting team elected to leave them as is.	

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
PRC-024	
Southern Company Generation	PRC-024: This standard should be addressed separately from Phase III/IV and included in a separate SAR. Southern Generation does not support this standard being in Set 1 of Phase III/IV because the industry has not developed the engineering basis for establishing the temporary voltage and frequency excursions for which turbine-generator and auxiliary equipment can safely continue to perform its intended functions. A generating plant is made up of many complex electrical devices and control systems that may have a variety of voltage and frequency transient responses. Therefore, at this point many questions still exist about what would be required to comply with this standard. Once this hurdle is overcome, a period of one year for the Generator Owner to comply with the RRO's requirements (which have not been defined, developed, and field tested) will probably be inadequate. A phased-in approach with a schedule similar to PRC-019 would be more appropriate.
Response: This standard will be field tested to identify areas where additional details are needed. The implementation plan will become more detailed following field testing. The phased-in approach you've suggested may be needed to give owners with many units time to meet compliance. We encourage you to volunteer to participate in the field test.	
Constellation Generation Michael Gildea	Constellation Generation sees PRC-024 as incomplete. PRC-024 must also explicitly convey that Generators have a primary obligation to protect their equipment (turbines) and then a secondary obligation to coordinate with LSE Load Shedding. (Generators may be required to set their underfrequency trips and/or time delay in the region that causes cumulative turbine damage.) Additionally, since PRC-024 requires Regions to establish criteria for generators to remain connected to the grid during frequency and voltage excursions, Generators need to have advanced input and acceptance to the durations and magnitudes of these excursion that their generators are expected to ride through. This input and acceptance must also be explicitly cited in the proposed standard or another NERC standard that is implemented concurrently.
Response: This standard will be field tested to identify areas where additional details are needed. The implementation plan will become more detailed following field testing. We encourage you to volunteer to participate in the field test.	
Southern Company – Transmission	Southern Company - Transmission believes that proposed Reliability Standard PRC - 024 is critical to transmission reliability. Minimum criteria for generators to remain connected during system frequency and voltage excursions has to be established so that reliable and secure transmission schemes, such as underfrequency load shedding and undervoltage load shedding, can be implemented. Southern Company -

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
	Transmission also encourages RROs to solicit and utilize both generator and transmission system experts in developing the RRO criteria.
Response: This standard will be field tested to identify areas where additional details are needed. We encourage you to volunteer to participate in the field test.	
Wind Generator Task Force Mahendra Patel	PRC-024-1 The WGTF encourages the RROs to coordinate their low voltage ride through standards on an interconnection wide basis in order to be consistent with the recent NERC/AWEA joint recommendation to FERC on the LVRT requirement in FERC order 661.
Response: This standard will be field tested to identify areas where additional details are needed. We encourage you to volunteer to participate in the field test.	
Resource Issues Subcommittee Mary H Johannis - NERC	RIS does not believe that standard PRC-024 as written, provides the RRO with adequate guidance from which to develop acceptable criteria. Based upon the current language in the standard, RIS questions how NERC would determine whether a RRO's criteria is adequate and meets the intent of the standard. RIS suggests that R1 of PRC-024 require, at a minimum, that a RRO's criteria for generators remaining online be consistent with TPL-003, Table 1 events.
Response: This standard will be field tested to identify areas where additional details are needed. Compliance with one standard does not negate the requirement to be compliant with other standards. We encourage you to volunteer to participate in the field test.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	R1.1: The SES believes the SDT should work with other NERC technical committees to develop a standard "minimum criteria" for frequency and voltage excursions. The SES believes it is important that NERC set a standard in this area instead of allowing a variety of differing standards based on RRO discretion as to the establishment of these standards.
Response: This standard will be field tested to identify areas where additional details are needed. We expect the SAC to require that the field test be monitored by a Subcommittee or Task Force appointed by the NERC Planning Committee.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	R3. The SES questions the need for exemptions. Underfrequency situations indicate a capacity shortfall. If a unit is exempt, can it be counted on as a network resource?
Response: Exemptions may be linked to age of units or the marginal impact associated with a unit or other factors. The need for exemptions should be confirmed during the field test.	

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
NIPSCO Greg Ludwicki	PRC-024 should be applicable to Transmission Owner PROC-024-1 Generator performance during frequency and voltage excursions: - We believe the need to add under A4 a 4.3 Transmission Owner since the Transmission Owner is mentioned several times in the Standard. -D1 1.2 What does Compliance Monitoring Period and Reset Timeframe mean?
Response: This is applicable to Transmission Owners. The Compliance Monitoring and Reset Timeframe is the time period over which the performance is measured, evaluated and then reset.	
Bonneville Power Admin – Transmission Business Line Charles E. Matthews	Transmission Owner is included in Requirement R7 and therefore should be included in the Introduction under Applicability.
Response: This is applicable to Transmission Owners.	
Midwest Reliability Organization	4.3 Add “Transmission Owners” to Applicability to be consistent with R5 and R7
Response: This is applicable to Transmission Owners.	
Ameren John E. Sullivan	In PRC-024-1, Transmission Owners should be added to the list of applicable parties. The standard specifically mentions Transmission Owners in Requirement R7.
Response: This is applicable to Transmission Owners	
Xcel Energy – Northern States Power Company Martin Trence	PRC-024-1 , Add Transmission Owner to the List of Applicable Entities as Requirement 7 has the Transmission Owner performing a function in this standard.
Response: This is applicable to Transmission Owners	
Salt River Project Robert Kondziolka SMUD	As written, Standard PRC-024-1 is applicable to Regional Reliability Organizations (RRO), and Generator Owners (GO). However, Requirement R7 and Measure M4 as well as the Compliance Section apply also to Transmission Owners. This seems inconsistent.

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
Dilip Mahendra WECC – Technical Studies Subcommittee	How is the requirement for the Transmission Owner in this Standard relate to the Requirements in FAC-001-0? For example, in FAC-001-0, R2.1.5 requires that the Transmission Owner's Facility Connection Requirements address, among other things, System Proctection and Coordination. It would seem cleaner for this Standard to require the Generator performance to meet FAC-001-0. In addiiton, It may be easier to implement if we separate the Standard into two, one contains the requirements for the Regional Reliability Organizations, and, another one, the Generator Owners.
Response: This is applicable to Transmission Owners. FAC-001 is aimed at coordination of protection between the Transmission System and Generators at the point of interconnect and doesn't require that issues such as 'frequency and voltage excursions' be addressed. Since changes to the RROs requirements are linked to changes in the Generator Owner's requirements, it seemed logical to put the requirements together into a single standard.	
SERC EC Planning Standards Subcommittee (PSS)	In PRC-024-1, since R7 and D.3 place requirements on both generator owners and transmission owners, transmission owners should be added to the list of applicable entities in A.4.
Response: This is applicable to Transmission Owners.	
MMWG Mark Kuras - MAAC	There seems to be an error in that PRC-024 R1 is missing, but I'm assuming R1.1 to be that.
Response: The numbering has been corrected.	
ATC Peter Burke	PRC-024-R1: Numbering within R1 is incorrect --- re-number all sub-requirements by moving them up one heirarchy level.
Response: The numbering has been corrected.	
FRCC	PRC-024-1 Requirement R1.1 should be changed to R1 with subsequent bullets becoming R1.1, R1.2, and R1.3.
Response: The numbering has been corrected.	

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
US Bureau of Reclamation Jay Seitz	PRC-024-1; the numbering for this standard is not consistent. There is no requirement R1 (Suggest renumbering R1.1 and R1.1.1; R1.1.2;R1.1.3).
Response: The numbering has been corrected.	
FRCC	The word "criteria" in R1.1 should be changed to "requirements".
Response: This change was adopted and is reflected in the revised standard.	
SERC EC Planning Standards Subcommittee (PSS)	In PRC-024-1, R2 seems to require the same thing as R1, however the sub-items in R2 refer to coordination between generation protection and transmission protection.
Response: The numbering has been corrected.	
ATC Peter Burke	PRC-024-R2: Should the word disturbances in "during frequency and voltage disturbances" be changed to "excursions" to be consistent with the rest of the standard?
Response: Agree. This change was adopted and is reflected in the revised standard.	
SERC EC Planning Standards Subcommittee (PSS)	The PSS recommends that R2 be changed to read: The Regional Reliability Organization shall establish and maintain requirements for coordination between transmission system protection/performance and generator protection/performance.
Response: This change would modify the intent of the requirement and wasn't adopted.	
FRCC	R2 should be deleted as a requirement within the standard. In developing its "criteria" or "requirements" in R1, the RRO will consider the performance of its transmission protection systems, the generator protection and the RRO's Under Frequency Load Shedding (UFLS) program, as well as other Region specific information. Since R2.1 and R2.2 are not the only factors to consider and since determining coordination is not readily measurable, these requirements should be deleted.
Response: This standard will be field tested to identify areas where additional details are needed.	
US Bureau of Reclamation	Requirement R2 is concerned with requirements for generators to remain connected during frequency and

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
Jay Seitz	voltage disturbances. R2.1 requires generator underfrequency protection to align with the RRO UFLS program. Suggest this requirement be modified to also address overfrequency. It is unclear how R2.2 is related to frequency or voltage excursions. Suggest this requirement be clarified.
Response: This standard will be field tested to identify areas where additional details are needed. Voltage controlled OC relays would need to be coordinated with those that are not voltage controlled.	
Bonneville Power Administration	Clarify in R.2.2 - Does the generation protection schemes being discussed go beyond voltage and frequency disturbance? Clarify what is meant by 'backup protection'. '
Response: No. Voltage controlled backup OC relays would need to be coordinated with those that are not voltage controlled.	
Bonneville Power Admin. – Transmission Business Line Charles E. Matthews	Standard PRC-024-1 Requirement R2.2 states "Coordination of generator protection, including back-up protection, with transmission protection systems." Since this standard applies to generator performance during frequency and voltage excursions, clarification is needed on what transmission protection schemes this requirement is referring to. It would have been expected that since R2.1 refers to coordination between generator underfrequency protection and regional under frequency load shedding, that R2.2 would then refer to voltage protection such as regional requirements for voltage ride-through.
Response: Voltage controlled backup OC relays would need to be coordinated with those that are not voltage controlled.	
MMWG Mark Kuras - MAAC	In R3 and R3.2, drop …through 2.1.6… assumed when 2.1 is stated. In R3.2, replace ...that any… with …any known change…. This perserve the requirement to report if you know something changed but prevent non-compliance for unknown changes like drift in settings.
Response: The standard was modified as suggested. R3.2 was eliminated because it required distribution to entities that need data for modeling, and that is not the intent of this standard.	
ATC Peter Burke	PRC-024-R7: Requires GOs and TOs to "comply with the regional requirements for coordination of generator protection defined in PRC-024-R1 and R2 and any approved variances". However, the coordination of generator protection (with transmission protection) is only covered in R2.2. Suggest following language to clarify the intent of R7 "….regional requirements for coordination of generator protection with transmission protection systems as defined in PRC-024-R2.2." Further, since the Applicability of this standard is to RROs and Generator Owners, the inclusion of Transmission Owners in R7 appears to be in error.

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
Response: R7 was modified to require compliance with R2. This is applicable to Transmission Owners.	
ATC Peter Burke	PRC-024-M2: Applies to Generator Operators and Transmission Operators, whereas the corresponding requirement R5 applies to Generator Owners and Transmission Owners. Please correct whichever is in error.
Response: This is applicable to Transmission Owners not Operators and the standard was modified to correct this.	
ATC Peter Burke	PRC-024-M4: Modify as per the comments above on PRC-024-R7.
Response: Done	
ATC Peter Burke	PRC-024-D1.3 and D1.4: Is the Transmission Owner included here by mistake? See previous comments regarding Applicability. PRC-024-D3: Is the Transmission Owner included here by mistake? See previous comments regarding Applicability.
Response: This is applicable to the Transmission Owner.	
FirstEnergy Corp Raymond M. Morella	[PRC-024-1 It seemed effective in this case to make the standard applicable for both the Regional Reliability Organizations and the Generation Owners. Perhaps there are other pairs of standards that could be combined in a similar manner. M.4 - change Requirements 1 and 2 to PRC-024 R1 and R2 to be consistent with previous wording.]
Response: This is the format established by the Director, Standards.	
ATC Peter Burke	ATC supports all modifications done to these standards since Draft 1 posting. The posted drafts will be ready to ballot provided the following comments are addressed: (Note –comments subdivided and distributed)
Response: The drafting team appreciates your support.	
FRCC	PRC-024-01 should be field tested to ensure that the requirements are measurable.

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment

Response: This standard will be field tested to identify areas where additional details are needed.

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
Other comments on PRC-019, PRC-024	
ISO NE Kathleen Goodman	ISO is agreement with these Standards as written except as follows: ISO NE recommends that each of these standards should be broken down into separate standards covering RRO requirements and GO requirements similar to PRC-002 & PRC-018. For PRC-024, TO's and other entities that have UFLS should be added to the "Applicability" section. Recommend that this be changed to indicate "TOP, TO, DP, and LSE who own and/or operate such equipment" in the applicability section.
Response: Most commenters seemed to agree with the reorganization of the MOD-023 through MOD-027 standards. The operation of UFLS programs is addressed in other standards (PRC-007).	
Kansas City Power and Light Jim Useldinger	Replace Generator Owner with Generator Operator to accommodate jointly owned units.
Response: The responsibility is assigned to the Generator Owner – the Generator Owners may delegate this task to the Generator Operator or other entity.	
NY ISO James W. Ingleson	NYISO is agreement with these Standards as written
Response: The drafting team appreciates your support. Other commenters suggested changes to the standards and some changes have been made. Please review the summary considerations of the individual standards to see if you support these changes.	
IESO, Ontario Ron Falsetti	The IESO is in agreement with these Standards as written.
Response: The drafting team appreciates your support. Other commenters suggested changes to the standards and some changes have been made. Please review the summary considerations of the individual standards to see if you support these changes.	
CP9, Reliability Standards Working Group	NPCC participating Members are in agreement with these Standards as written
Response: The drafting team appreciates your support. Other commenters suggested changes to the standards and some changes have been made. Please review the summary considerations of the individual standards to see if you support these changes.	

5. What needs to be modified before balloting PRC-019, PRC-024?

Commenter	Comment
Hydro-Quebec TransEnergie Roger Champagne	We are in agreement with these Standards as written
Response: The drafting team appreciates your support. Other commenters suggested changes to the standards and some changes have been made. Please review the summary considerations of the individual standards to see if you support these changes.	

6. Do you agree with deletion of MOD-022, MOD-028, PRC-023?

Commenter	Agree?	Comment

6. Do you agree with the deletion of the following standards from the set of Phase III-IV Standards? (MOD-022, MOD-028, PRC-023)

Summary Consideration: Most commenters agreed with the deletion of these three standards.

MOD-022

Bonneville Power Administration	No	Retain and modify MOD-022 because justification as stated for removal may not be valid. Disturbance monitoring data is used to monitro system response and validate system models.
Response: The use of data to validate dynamic models is not precluded as a result of the deletion of this standard. Most stakeholders agreed with the deletion of this standard.		
IESO, Ontario Ron Falsetti	No	The IESO believes that there are merits to using disturbance data to develop and varify models, therefore suggest delaying the implementation of this standard, to allow further development. We are opposed to deleting it.
Response: The intent of the Phase III & IV Standards was to translate measures that were assumed to be ready for stakeholder adoption. Where measures need additional industry research and development, the drafting team believes it is more appropriate to remove the measure from the set being developed under the 'Phase III & IV' umbrella, and let another individual or group submit a SAR to address the topic.		
NERC Interconnection Dynamics Working Group American Electric Power Navin Bhatt		Agree with the deletion of MOD-022. No comment on the deletion of MOD-028 and PRC-023.
Response: Thank you for your support.		
US Bureau of Reclamation Jay Seitz	No	It is unclear how the deletion of MOD-022 may impact the intent of an RRO to allow the use data obtianed from disturbance monitoring equipment to validate dynamic models. Data obtained from real events is valuble and its use for validation should be allowed.
Response: The use of data to validate dynamic models is not precluded as a result of the deletion of this standard.		
WECC Disturbance	Yes	The WECC DMWG supports the deletion of MOD-022 at this time. (The WECC will continue to use disturbance data to develop and maintain models using its own Regional processes.) The DMWG

6. Do you agree with deletion of MOD-022, MOD-028, PRC-023?

Commenter	Agree?	Comment
Monitoring Work Group		has no opinion either way on MOD-028 or PRC-023.
Response: Thank you for your support.		

MOD-028

IESO, Ontario Ron Falsetti		MOD-028-1 The IESO disagrees with the draft teams position that all the information within this standard is redundant and contained within MOD-012 & MOD-013, As an example, Requirement R2 (data has to be validated every five years) is not in the above noted standards. This requirement should be moved to MOD-013. With the above recommendation, MOD-028 could then be retired.
Response: Once a transmission Power Electronic Control Device is installed on the BES, it is then subject per the TPL—01 through TPL-003 standards which requires annual study.		

PRC-023

Bonneville Power Administration		Recommend that PRC-023 be modified/remanded without deleting - there are elements in this standard that need to remain in place (such as redundancy of communications) while modification occurs. Recommend that this standard be posted following modification by the Planning Subcommittee.
Response: Most commenters agreed that the purpose and requirements address two different types of redundancies. The drafting team is recommending that the Planning Committee review this measure and submit a SAR if needed.		
Ameren John E. Sullivan	Yes	The deletion of PRC-023 is acceptable for now, provided that a revised standard is published after adequate review.
Response: Most commenters agreed that the purpose and requirements address two different types of redundancies. The drafting team is recommending that the Planning Committee review this measure and submit a SAR if needed.		
NERC System Protection	Yes	PRC-023 -- IT is inappropriate to completely drop a standard on protection system redundancy…this

6. Do you agree with deletion of MOD-022, MOD-028, PRC-023?

Commenter	Agree?	Comment
and Controls Task Force		clearly was a causal factor in the West Wing outage in June 2004 that caused all three Palo Verde Units to trip. Instead of droppping it, SAC should postpone work on this until SPCTF completes its review protection system redundancy (already planned) and will submit a SAR, with a revised draft standard.
Response: Most commenters agreed that the purpose and requirements address two different types of redundancies. The drafting team is recommending that the Planning Committee review this measure and submit a SAR if needed.		

Other comments on MOD-022, MOD-028, PRC-023

MAAC John Horakh	Yes	Good reasons to delete
ATC Peter Burke	Yes	
Dynergy Greg Mason	Yes	
Pepco Holding, Inc – Affiliates	Yes	
Southern Company Generation	Yes	
Duke Power Barry Jackson	Yes	
Kansas City Power and Light Jim Useldinger	Yes	
CP9, Reliability Standards Working Group	Yes	

6. Do you agree with deletion of MOD-022, MOD-028, PRC-023?

Commenter	Agree?	Comment
Kansas City Power and Light Jim Useldinger	Yes	
Midwest Reliability Organization	Yes	
FirstEnergy Corp Raymond M. Morella	Yes	
NERC Standards Evaluation Subcommittee Bill Bojorquez	Yes	
FRCC	Yes	
NY ISO James W. Ingleson	Yes	
MMWG Mark Kuras - MAAC	Yes	
Southern Company – Transmission	Yes	
MAAC Mark Kuras	Yes	
SERC Protection and Control Subcommittee (PCS)	Yes	
ISO NE Kathleen Goodman	Yes	
Northeast Utilities John Ferraro	Yes	

6. Do you agree with deletion of MOD-022, MOD-028, PRC-023?

Commenter	Agree?	Comment
Baltimore Gas & Electric-System Protection & Control Donald P. Milanicz	Yes	
SERC EC Planning Standards Subcommittee (PSS)	Yes	
Hydro-Quebec TransEnergie Roger Champagne	Yes	
Xcel Energy – Northern States Power Company Martin Trence	Yes	
Transmission Issues Subcommittee Kirit S. Shah	Yes	
NIPSCO Greg Ludwicki	Yes	
Cinergy Jeff Baker	Yes	

7. Do you agree with the proposed implementation plan? If, please specify changes needed.

Commenter	Agree?	Comment

7. Do you agree with the proposed implementation plan?

Summary Consideration: Most commenters agreed with most aspects of the implementation plan. The effective date for Generator Owners to be fully compliant with MOD-024 was moved out about half a year to give the Generator Owners more time to become compliant. Similarly, the implementation plan for MOD-025 was phased over several years to give the Generator Owners more time to become fully compliant.

MOD-024

Dynergy Greg Mason	No	MOD-024-1:The standard references a compliance date of 7/1/06 and the Implementation Plan states that Generation Owners must "begin" to provide verified data by 7/1/06.At a minimum, this apparent conflict needs to be clarified and a date for full compliance should be specified instead of a "begin" date.In addition,since the RRO has the capability of specifying how data can be verified, the RRO requirements could result in the installation of equipment to measure loads,etc.Therefore,the compliance deadline should be extended to 1/1/2007.
Response: The effective date for Generator Owners was changed to January 1, 2007. This is the date for 'full compliance'.		

MOD-025

Dynergy Greg Mason	No	MOD-025-1:The standard references a compliance date of 1/1/08 and the Implementation Plan states that Generation Owners must "begin" to provide verified data by 1/1/08.At a minimum, this apparent conflict needs to be clarified and a date for full compliance should be specified instead of a "begin" date.In addition,since the RRO has the capability of specifying how data can be verified, the RRO requirements could result in the installation of equipment to measure loads,etc.Also,reactive power testing requires more extensive coordination at the plants and with Transmission Owners.Therefore, based on these considerations,the compliance deadline should be extended to 1/1/2009.
Response: The implementation plan for MOD-025 was revised to phase in implementation over several years as suggested. The new dates for compliance extend to January 1, 2012.		
Southern Company Generation	No	A phase-in period for MOD-025 equivalent to PRC-019 is recommended. See our comments under Question 3 above.

7. Do you agree with the proposed implementation plan? If, please specify changes needed.

Commenter	Agree?	Comment
Response: The implementation plan for MOD-025 was revised to phase in implementation over several years as suggested. The new dates for compliance extend to January 1, 2012.		

PRC-005

FirstEnergy Corp Raymond M. Morella	No	PRC-005-1 Recommend an effective date of at least 1/2007 since the NERC definition of a protective system now includes power circuit breakers. This gives RROs, GOs, and TOs time to include circuit breakers in their protective system maintenance programs. Alternatively, should power circuit breakers be removed from the definition of the protection system and be viewed as a device controlled by the protection system?
Response: The scope was modified to remove circuit breakers.		
Dynergy Greg Mason	No	PRC-005-01:The scope of existing maintenance and testing programs may be increased by the RRO determination of applicable Protection Systems under PRC-003.This RRO work in PRC 003 is to be completed by 5/1/2006.Therefore,the compliance deadline for this standard should be extended from 5/1/2006 to 12/31/2006.
Response: The scope was modified to remove circuit breakers.		

PRC-018

Northeast Utilities John Ferraro	No	PRC-018: Certain companies are undergoing a substantial build-out of their transmission systems over the next several years. In so doing, financial and human resource limits are being challenged. While this work will include DME installation at the affected facilities, it may not be possible to upgrade all unaffected facilities to bring them into compliance with the new standards (channels may need to be added to existing recorders, etc.). We suggest the "entities" should be asked to provide a timeline for compliance once the RRO establishes the monitoring requirements covered by PRC-002.
Response: The standard was modified and it should be easier for entities to achieve compliance with existing equipment.		

7. Do you agree with the proposed implementation plan? If, please specify changes needed.

Commenter	Agree?	Comment
PRC-024		
Dynergy Greg Mason	No	PRC-024-01:The compliance deadline in R7 needs to be extended.RRO requirements are not proposed for completion until 1/1/2007.However,the RRO requirements may necessitate the installation of new equipment that has to be coordinated with unit outages.Therefore based on these considerations and the uncertainty of RRO requirements, the R7 compliance deadline should be extended from 1/1/2008 to 1/1/2010.
Response: This standard will be field tested. Effective dates will be established following the field test.		
Southern Company Generation	No	PRC-024 should be removed from Phase III/IV and addressed under a separate SAR. See our comments under Question 5 above.
Response: This standard will be field tested. Effective dates will be established following the field test.		
Other comments on Implementation Plan		
Bonneville Power Administration	No	Move item numbers 4, 5, 6 and 7 out 1 month in the implementation plan. Too many ballot issues being decided during the holiday season and representation may be very thin.
Response: The schedule has been modified to allow a longer time for balloting. If the schedule is moved out an entire month, the standards will not make it to the BOT until May.		
US Bureau of Reclamation Jay Seitz	No	The implementation plan includes an aggressive schedule of activity during the busy holiday season. The schedule should be adjusted to reflect this reality by moving actions 4 through 7 out one month.
Response: The schedule has been modified to allow a longer time for balloting. If the schedule is moved out an entire month, the standards will not make it to the BOT until May.		
Southern Company Generation	No	We support the drafting team's approach for phased-in compliance. However, we recommend not holding the 2nd ballot during the holiday season and end-of-year work activities as currently projected.
Response: The balloting window, if approved by the SAC, will be extended so that the first begins on December 15 and extends through		

7. Do you agree with the proposed implementation plan? If, please specify changes needed.

Commenter	Agree?	Comment
December 30, giving balloters more time to ballot than is normally provided. The second ballot would be held in January.		
Midwest Reliability Organization	No	Concern that Non-Compliance Levels of each Standard are not necessarily of equal nature. It will be necessary to rearrange Compliance Levels against their impact on reliability. This becomes especially important when at some point in the future when they may carry financial penalty. NERC should update industry on development of Standards Writing Handbook detailing consistency between standards. Concern that RROs may not be able to develop policies and procedures within the given timelines for the many standards that have been directed to the RROs. Also concern among some members whether or not these responsibilities even apply to RROs within NERC functional model.
Response: Modifying standards to achieve equality between the levels of non-compliance between standards is beyond the scope of the drafting team. Many of the procedures required by these standards should already be in existence. In most cases, the drafting team has allowed a year for the RROs to 'clean up' these procedures or to develop new procedures.		
Kansas City Power and Light Jim Useldinger	No	Implementation of these standards should be delayed pending the outcome of the development of the ERO.
Response: The drafting team works at the direction of the Standards Authorization Committee (SAC) and the SAC has directed the drafting teams to continue to develop standards.		
FRCC	No	Comments about implementation dates have been made within the standards.
Response: Responses have been provided.		
MAAC John Horakh	Yes	The delayed implementation will allow much higher compliance.
Response: This is what was intended.		
NERC Standards Evaluation Subcommittee Bill Bojorquez	Yes	The SES offers no opinion at this time pending the SDT's reconcilation of all comments received.
Response: OK		

7. Do you agree with the proposed implementation plan? If, please specify changes needed.

Commenter	Agree?	Comment
Xcel Energy – Northern States Power Company Martin Trence	Yes	Implementation dates should be adjusted to coordinate with BOT date of approval.
Response: This will happen if needed.		
Transmission Issues Subcommittee Kirit S. Shah	Yes	TIS agreement with the implementation plan is for standards MOD-025, PRC-020, PRC-021, and PRC-022.
Response: Thank you for your support.		
ATC Peter Burke	Yes	Although PRC-024 and PRC-019 are much "crisper" standards compared to the Planning Measures they originate from, the industry may benefit by field testing them before approval and adoption.
Response: Agree.		
Pepco Holding, Inc – Affiliates	Yes	
Duke Power Barry Jackson	Yes	
CP9, Reliability Standards Working Group	Yes	
NERC Interconnection Dynamics Working Group	Yes	
NY ISO James W. Ingleson	Yes	
MMWG Mark Kuras - MAAC	Yes	

7. Do you agree with the proposed implementation plan? If, please specify changes needed.

Commenter	Agree?	Comment
Southern Company – Transmission	Yes	
MAAC Mark Kuras	Yes	
IESO, Ontario Ron Falsetti	Yes	
SERC Protection and Control Subcommittee (PCS)	Yes	
ISO NE Kathleen Goodman	Yes	
Baltimore Gas & Electric-System Protection & Control Donald P. Milanicz	Yes	
SERC EC Planning Standards Subcommittee (PSS)	Yes	
Hydro-Quebec TransEnergie Roger Champagne	Yes	
Cinergy Jeff Baker	Yes	
American Electric Power Navin Bhatt	Yes	

8. Should requirements for DDRs be placed into two new standards?

Commenter	Comment

8. Do you agree that the requirements for DDRs should be placed into the two new standards (SMR-001 and SMR-002) as proposed above?

Summary Consideration: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards. PRC-002 was revised to exclude PMUs. The revised standard proposes that, for new installations of DDRs, compliance with the RRO's requirements be effective 3 years beyond BOT adoption of PRC-002.
Several commenters felt that stakeholders needed an opportunity to submit specific comments on the technical merits of PRC-002 and PRC-018, and the drafting team will repost these for an additional comment period.

Definitions

NERC System Protection and Controls Task Force	No	SPCTF Specific Comments on PRC-002 (and SMR-001) Definition of Protection Systems SPCTF objects to the inclusion of power circuit breakers in the definition of protection systems in PRC-002. Although breakers are controlled by the protection system, their inclusion in this definition makes them subject to the protection system maintenance requirements in PRC-005. That change is a significant expansion of the original Phase III-IV planning standards on equipment maintenance. The definition of Protection Systems should be modified to read: Protection System: Protective relays, associated communication systems, voltage and current sensing devices, station batteries, and DC control circuitry. This change should be reflected where the definition is restated in PRC-003, PRC-004, PRC-005, and PRC-018. Definition of Disturbance Measurement Equipment (DME) If the Dynamic Disturbance Recorders (DDRs) are kept in this standard, the definition of DDR should not address PMUs at this time…it may be premature. Some of the parameters are applicable only to PMUs and are not applicable to all DDRs. A separate SMR standard or later inclusion of PMUs in the standard should be created for PMUs, specifically addressing their performance requirements.
Response: Power circuit breakers were removed from the definition of Protection Systems. The definition of DME was modified to remove the requirement for 'continuous' recording – this should make the standard more applicable to existing facilities.		
MAAC Mark Kuras	No	Strongly disagree with requirement that a DDR be recording continously. Triggered recorders should be allowed.
Response: The definition of DME was modified to remove the requirement for 'continuous' recording – this should make the standard more		

8. Should requirements for DDRs be placed into two new standards?

Commenter		Comment
applicable to existing facilities.		
SERC Protection and Control Subcommittee (PCS)	No	In the definition of DDR, some of the items are applicable only to the newest, most highly evolved DDRs (mostly phasor measurement units (PMUs)), and are not applicable to all DDR's. These defining parameters should be reevaluated to account for the capabilities of various types of existing DDRs, including fault recorders (with continuous/slow speed facilities or triggered slow speed recording capability). Specifics on some of these parameters are listed in comments on "Question 8 (SMR-001 and SMR-002).
Response: The definition of DME was modified to remove the requirement for 'continuous' recording – this should make the standard more applicable to existing facilities.		
Pepco Holding, Inc – Affiliates	Yes	The definition of DDR should not address PMUs at this time…it may be premature. Some of the parameters are applicable only to PMUs and are not applicable to all DDRs. A separate SMR standard or later inclusion of PMUs in the standard should be created for PMUs, specifically addressing their performance requirements.
Response: The definition of DME was modified to remove the requirement for 'continuous' recording – this should make the standard more applicable to existing facilities.		
Duke Power Barry Jackson	Yes	Definition for DDR applies to PMUs instead of the normal usage of equipment for this purpose.
Response: The definition of DME was modified to remove the requirement for 'continuous' recording – this should make the standard more applicable to existing facilities.		

Comments about Moving DDRs into New Standards

ATC Peter Burke	No	We disagree with the proposed splitting of PRC-002 and PRC-018 into two new SMR-001 and SMR-002 standards for DDRs only. There is some merit to the IDWG argument that some potential applications and functions of DDRs are not disturbance-related, and hence DDRs can be considered to be in a class different than the FRs or SOERs. However, the fact remains that DDRs are fundamentally recording and monitoring equipment, just like FRs and SOERs. Since the proposed separation of DDR standards is not based on any technical deficiencies identified in the requirements for DDRs in PRC-002, we fail to see the reliability benefit achieved by the proposed separation of standards. Doing the suggested separation under a new topical acronym (SMR)

8. Should requirements for DDRs be placed into two new standards?

Commenter		Comment
		seems superfluous and unnecessary. If the SMR category of Reliability Standards is to be created at this time, the first logical step would be to rename the posted PRC-002 and PRC-018 drafts (including SOERs, FRs and DDRs) to SMR-001 and SMR-002 respectively. Perhaps in the future, after the DDRs are widely installed within the industry and their potential usage starts diverging significantly from those of conventional DME, it could be useful to extract new SMR standards for DDRs.
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards.		
Southern Company Generation	Yes/No	Southern Company Generation believes it is premature to include any of the SMR standards in Set 1 of the Phase III/IV standards. The SMR standards SHOULD NOT go to ballot with Set 1 of the phase III/IV standards because Industry should have an opportunity to comment and provide feedback. If they do go directly to ballot with no due process, then it would defeat the Reliability Standards development process. More time is needed for the industry to discuss these standards and determine the appropriate requirements and direction. If SMR-001 and SMR-002 are included in the Phase III/IV set 1 ballot, Southern Generation will cast a "NO" vote on the ballot. The scope and detail of the requirements in Draft 2 of PRC-002 and 018 have increased significantly from Draft 1. SMR-001 and SMR-002 introduce additional specific information that may be well understood by experts in this area, but need explanation for those who are not. These standards appear to be presenting a list that includes nice-to-have equipment specifications and event data for future installations/upgrades as opposed to identifying what should really be a "requirement" for reliability. While these concepts may be based on good intentions, the reality could be major costs for implementation of equipment upgrades, since the existing equipment may not meet these requirements.
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards. PRC-002 was revised to exclude PMUs. The revised standard proposes that, for new installations of DDRs, compliance with the RRO's requirements be effective 3 years beyond BOT adoption of PRC-002. The drafting team was not trying to circumvent the standards development process and will post PRC-002 and PRC-018 for an additional comment period.		
Southern Company – Transmission	Yes/No	We vote both yes and no because they should be separated but they should not be voted on as they are. They should be separated but if SMR-001 and SMR-002 go directly to ballot with no due process then that would defeat the Reliability Standards development process. In the installation requirements specified in the Reliability Standard, some of the items are

8. Should requirements for DDRs be placed into two new standards?

Commenter		Comment
		applicable only to the newest, most highly evolved DDRs (mostly phasor measurement units (PMUs)), and are not applicable to all DDR's. These defining parameters should be reevaluated to account for the capabilities of various types of existing DDRs, including fault recorders (with continuous/slow speed facilities or triggered slow speed recording capability).
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards. PRC-002 was revised to exclude PMUs. The revised standard proposes that, for new installations of DDRs, compliance with the RRO's requirements be effective 3 years beyond BOT adoption of PRC-002. The drafting team was not trying to circumvent the standards development process and will post PRC-002 and PRC-018 for an additional comment period.		
Duke Power Barry Jackson	Yes	DDRs normally use triggers instead of continuous recording. Should allow existing DDRs to meet the standard instead of requiring them to be changed out for new devices that are just being developed. The area of use and deployment of DDRs is very misunderstood or unknown for most utility engineers. Would suggest NERC work with IEEE-PSRC to develop better documents and training to assist engineering in understanding equipment available and usage of the data to improve the performance of BES.
Response: PRC-002 was revised to exclude PMUs and the revised standard's requirements are applicable to many devices installed today. The drafting team will post PRC-002 and PRC-018 for an additional comment period.		
MAAC Mark Kuras	No	No problem with separation of DDRs into its own standard. New standards should be clearly posted on website, not burried in a comment form.
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards.		
CP9, Reliability Standards Working Group Hydro-Quebec TransEnergie Roger Champagne NY ISO James W. Ingleson IESO, Ontario Ron Falsetti ISO NE		This does not follow the approved ANSI process. If SMR-001 and SMR-002 would be proposed through ANSI process, then associated PRC-002 and PRC-018 should be posted with SMR-001 and SMR-002, and not included in this Phase III - IV package.

8. Should requirements for DDRs be placed into two new standards?

Commenter		Comment
Kathleen Goodman		
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards. The drafting team was not trying to circumvent the standards development process and will post PRC-002 and PRC-018 for an additional comment period.		
SERC Protection and Control Subcommittee (PCS)	No	The SERC PCS offers the following suggestions for the Standard Drafting Team (SDT) for the new standards (SMR-001 and SMR-002) The SMR-001 and SMR-002 should not go to ballot with set 1 of the phase III & IV standards because of several issues that require industry input. SMR-001 and SMR-002 should go out for comment with set 2 of the phase III and IV standards to give the NERC IDWG a chance to draft the standards and to give the industry an opportunity to offer feedback. If SMR-001 and SMR-002 go directly to ballot with no due process then that would defeat the Reliability Standards development process.
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards. The drafting team will post PRC-002 and PRC-018 for an additional comment period.		
CP9, Reliability Standards Working Group Hydro-Quebec TransEnergie Roger Champagne NY ISO James W. Ingleson IESO, Ontario Ron Falsetti ISO NE Kathleen Goodman Northeast Utilities John Ferraro	No	We recommend that, if PRC-002 is posted with the Phase III - IV package as proposed, PRC-002 should be modified to generalize the definitions of DDRs to include all DDRs, not just PMUs. In order to accomplish this. *(comments distributed . . .)* Conclusion: We would close by saying that dial-up devices which make triggered recordings of reasonable size which can be transferred and shared conveniently are very important in our area. We are not willing to have all these "workhorse" devices judged "sub-standard" by NERC as would be implied by the present PRC-002-01 definitions and sections R3. and R4.
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards. The definition of DMEs was modified to remove the reference to 'continuous recording' and PRC-002 was revised to exclude PMUs.		
WECC Disturbance	No	The WECC DMWG believes that technology is moving towards a convergence where the same

8. Should requirements for DDRs be placed into two new standards?

Commenter		Comment
Monitoring Work Group		device will be able to perform multiple functions (e.g., DDR and SER or DDR and DFR). Given this trend, it does not make sense to separate the standards as proposed.
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards.		
Midwest Reliability Organization	No	Since these would be the only two new standards in this category at this stage, there is no compelling reason to make this move at this point. There may be a better time at a later date for a more dramatic move for a larger equipment category move.
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards.		
Xcel Energy – Northern States Power Company Martin Trence	No	The requirements of the proposed new set of DDR standards mirror the existing V0 set of standards to the extent that there is no definitive difference between them, therefore it is more prudent to maintain the requirements for both DDR's and DME"s in one set of standards until such time definitive differences are established.
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards.		
Northeast Utilities John Ferraro	No	Legacy DDRs perform adequately for the purposes they were intended for. If NERC wants to proliferate the use of PMUs, a separate standard should be created. However, this should wait until it's thoroughly understood what benefit PMUs bring to the system, either in terms of real-time operation or in terms of post-event analysis.
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards. PRC-002 was revised to omit requirements for PMUs.		
Duke Power Barry Jackson	Yes	SMR-001 and 002 should go through due process as is normal for new SARs.
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards. The drafting team was not trying to circumvent the standards development process and will post PRC-002 and PRC-018 for an additional comment period.		
FRCC	No	If there is sufficient justification for creating two new standards, the SMR standards should be posted for comments after the decision is made to separate them from the PRC-002 & PRC-018.

8. Should requirements for DDRs be placed into two new standards?

Commenter		Comment
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards. The drafting team will post PRC-002 and PRC-018 for an additional comment period.		
NERC Interconnection Dynamics Working Group American Electric Power Navin Bhatt	Yes	The DDR-related requirements must be placed in the 2 new standards SMR-001 and SMR-002. There are several significant differences between the DDRs and the DFRs/SOERs. These differences include data recording requirements, data analyses tools/techniques and use/application of data. Also, the equipment installation needs/ requirements are quite different.
Response: Most commenters indicated that the requirements should remain in PRC-002 and PRC-018, consequently the drafting team is not pursuing development of SMR-001 and SMR-002 as separate standards. Stakeholders did not support inclusion of requirements related to PMUs and the revised PRC-002 reflects this change.		

Comments about Compliance dates

Florida Power and Light Ed Clark	No	The proposed compliance dates for the SMR-002 requirement 1 are too stringent. The 16 months from the SMR-001 implementation date to the first proposed compliance date for the SMR-002 requirement 1 does not allow appropriate time for new system designs. The DDR equipment will be new technogly for some transmission owners who will need time to develop the system requirements and get it into their budgeting process. It is difficult for a tranamission owner to commit to the proposed compliance dates without knowing how much monitoring the region will require.
Response: The standard was revised to specifically exclude PMUs. For new installations of DDRs, compliance with the RRO's requirements are phased so they are effective 3 years beyond BOT adoption of PRC-002.		
FRCC	No	One issue that needs to be addressed if the SMR standards are created is that the proposed compliance dates for the SMR-002 R1 is too short. The 15 months from SMR-001 implementation date to the first proposed compliance date does not allow enough time for new system designs. The DDR technology will be new for some transmission owners and they will need time to develop the system requirements and get the new technology into their budgets after the Region specifies the requirements.
Response: The standard was revised to specifically exclude PMUs. For new installations of DDRs, compliance with the RRO's requirements are phased so they are effective 3 years beyond BOT adoption of PRC-002.		

8. Should requirements for DDRs be placed into two new standards?

Commenter	Comment

Recommendations for Specific Changes to Requirements on PRC-018 or SMR-002 (Includes comments submitted with Question 9)

Southern Company Generation	Yes/No	PRC-018 Applicability: This standard should only apply to generators for which the Generator Owner also has ownership of interconnecting transmission facilities.
Response: The RRO needs to identify where to locate these devices for BES reliability. Whoever owns the device needs to provide the information.		
FRCC	PRC-018-1 The proposed compliance dates are too stringent. The 15 months between the Region developing specific requirements in PRC-002-1 and the installation requirement of 25% of the Region's requirement does not give the Transmission Owners enough time to specify, budget, procure and install the equipment.	
Response: As revised, many entities are expected to be able to achieve compliance with existing installations.		
Florida Power and Light Ed Clark	The proposed compliance dates listed in PRC-018-1 (A5) are too stringent. It is difficult for a tranamission owner to commit to the proposed compliance dates without knowing the region's specific PRC-002-1 requirements 1 through 3.	
Response: As revised, many entities are expected to be able to achieve compliance with existing installations.		
Midwest Reliability Organization	In the Future Development Plan, the effective date given for step 8 does not match the body of the standard. This should be changed to "Oct 1, 2007" to be consistent.	
Response: The dates have been modified so they are consistent.		

Recommendations for Specific Changes to Requirements on PRC-002 or SMR-001 (Includes comments submitted with Question 9)

SMUD WECC – Technical Studies Subcommittee Salt River Project	In PRC-002-1, Section B, Requirements R1 states, The Regional Reliability Organization shall the following installation requirements etc. - This appears to be an incomplete sentence.

8. Should requirements for DDRs be placed into two new standards?

Commenter		Comment
Response: The word, 'establish' was added to the first sentence in R1.		
FRCC		PRC-002-1 R1 - Insert the word "establish" between the words "shall" and "the".
Response: The word, 'establish' was added to the first sentence in R1.		
ATC Peter Burke		PRC-002-R1: Add missing word "establish" so that R1 reads "The Regional Reliability Organization shall establish the following …".
Response: The word, 'establish' was added to the first sentence in R1.		
Cinergy Jeff Baker		PRC-002-1 R1. insert word "establish" after "shall".
Response: The word, 'establish' was added to the first sentence in R1.		
Midwest Reliability Organization		Wording on R1 needs to change. Suggest putting word "develop" after "shall".
Response: The word, 'establish' was added to the first sentence in R1.		
CP9, Reliability Standards Working Group Hydro-Quebec TransEnergie NY ISO IESO, Ontario ISO NE Northeast Utilities		R1. Add the word "establish" after shall. R1.2.2 We suggest that the word "synchronism" should be deleted. (Also in other places.)
Response: The word, 'establish' was added to the first sentence in R1. The word, 'synchronism' was removed from R1.2.2.		
NERC System Protection and Controls Task Force	No	R1.2.2. Change synchronization time from one to four milliseconds to be consistence with the Fault Recording Equipment requirement R2.2.3. (PRC-002) – While internal time precision is capable of one millisecond accuracy, the input for external time synchronization equipment is typically only of four millisecond accuracy.

8. Should requirements for DDRs be placed into two new standards?

Commenter		Comment
Response: Synchronization time was changed from one to four milliseconds as suggested.		
Southern Company Generation	Yes/No	R2: Since fault recording equipment may include digital relays, the technical requirements should not be written based only on traditional fault recording equipment, but should make allowances for the relay's capabilities. For example, most digital relays in service now could not meet the R2 sampling rate of 16 samples per cycle.
Response: Relays that can't meet the required sampling rate shouldn't be considered as fault recorders.		
Florida Power and Light Ed Clark		Recommend the proposed requirement R2.1.3 in Standard PRC-002-1 be changed to; Electrical quantities to be recorded for each monitored element shall consider the following. This would give the individual regions better flexibility in allocating the DME electrical quantities within their area. The DME may only have the capacity to cover a few lines with all phases, when it may be better to monitor scattered phases at a station and cover all lines. Single phase Megawatts and MegaVars values should be sufficient for disturbance analysis.
Response: The requirements being proposed are aimed at ensuring that events involving multiple Regions can be analyzed more efficiently and effectively.		
FRCC		PRC-002-1 R2.1.3 Replace the words "be sufficient to determine" with "consider". Since this standard is for the RRO to establish requirements the existing words are very restrictive. As an example, the RRO should be able to determine if measurement of all three phases are required at specific locations.
Response: The requirement states that the data collected must give the ability to 'determine.'		
NERC System Protection and Controls Task Force	No	Separate the R2.1.3.1 electrical quantities to be recorded by Fault Recording Equipment into two sections. One section should cover bus monitoring and the other section to cover power system element monitoring. R2.1.3.1. Electrical quantities to be recorded for each bus element shall be sufficient to determine the following: R2.1.3.1.1. Three phase to neutral voltages R2.1.3.1.2. Polarizing currents and voltages, if used R2.1.3.1.3. Frequency R2.1.3.2. Electrical quantities to be recorded for each monitored element shall be sufficient to estimate the following: R2.1.3.2.1 Positive and zero sequence currents (this would allow

8. Should requirements for DDRs be placed into two new standards?

Commenter	Comment
	monitoring two phases or one phase and ground of each power system element) R2.1.3.2.2. Megawatts and megavars
Response: The change doesn't seem needed and wasn't adopted.	
CP9, Reliability Standards Working Group Hydro-Quebec TransEnergie NY ISO IESO, Ontario ISO NE Northeast Utilities	R2.2.3 We suggest that the word "synchronism" should be deleted.
Response: The word, 'synchronism' was deleted from R2.2.3 as suggested.	
SERC Protection and Control Subcommittee (PCS)	No The SDT for the new standards should consider the following modifications to the requirement similar to draft 2 of PRC-002 R3. It should be revised to "Data sampling rate of at least 1600 samples per second and recording rate of the RMS value of electrical quantities of at least x (x = some more reasonable number) samples per second." A recording rate of 30 samples per second would preclude use of existing DDR equipment that is not capable of faster rates. Alternately, the faster rate could be limited to new installations. We recommend the SDT for the new standards solicit the industry to determine sampling and recording rate requirements. It would appear that what eliminates a number of existing DDR's is the combination of continuous recording, recording rate, and data retention requirements that all add together to insufficient memory. Time sync accuracy also becomes an issue. The SDT for the new standards should consider existing equipment impacts as well as requirements for new installations.
Response: The requirement (for future installations) was changed to: R3.2.3. Each device shall sample data at a rate of at least 1600 samples per second and shall record the RMS value of electrical quantities at a rate of at least 6 records per second. The definition of DME was revised to eliminate the reference to 'continuous recording' and in PRC-002 the requirement for continuous recording was revised to clarify that it was for 'future installations'.	
Midwest Reliability Organization	R3.1.2. Change "phrases" to "phases"

8. Should requirements for DDRs be placed into two new standards?

Commenter	Comment
Response: The typographical error was corrected.	
Southern Company – Transmission	PRC-002: on R3.1.2 change -number of phrases- to -number of phases.
Response: The typographical error was corrected.	
CP9, Reliability Standards Working Group Hydro-Quebec TransEnergie NY ISO IESO, Ontario ISO NE Northeast Utilities	R3. Add "This section of the standard does not apply to Phasor Measurement Units (PMUs). This function should be addressed in a separate NERC standard." R3.1.2. The word “phrases” should be changed to “phases.” R3.1.3.1 and R.1.3.2. Change to a construction similar to R3.1.1. We suggest the criteria for electrical quantities recorded should be left to the RRO. We would like to have the flexibility to install some special purpose devices in some locations which do not necessarily record all these quantities. R3.2.1. This matter should be in section 3.1.1. The RRO should assess the need for continuous recording. R3.2.2. 100 us accuracy applies to PMUs, which normally have integral GPS clocks. It is not needed for DDR equipment, and this time synchronization accuracy is not required for event reconstruction. Although a modern GPS clock can itself be accurate to 100 microseconds or less, the IRIG-B distribution and the DDR device input circuit introduce errors. A more appropriate statement would be “time synchronized to UTC within 4 ms.,” as previously stated in R2.2.3. R3.2.3. Recording rate of 6 Hz (samples per second) has been entirely adequate to observe the active oscillation modes, which are all under 1.0 Hz. We have in fact operated some installations at 30 Hz and higher, but it is not clear than this is always necessary or desirable for this purpose. There appears to be no justification for making "at least 30 Hz" a NERC standard. We have many stations operating well now at 6 Hz and 10 Hz. Going to 30 Hz at all locations would result in an unjustified large increase in record size, transfer time, and inconvenience. What we want is for engineers to read and understand these records, and adding unneeded data density at all locations is an impediment. This matter should be left to the RROs, perhaps with a minimum of 6 Hz.
Response: R3 – a footnote was added to the standard to clarify that the requirements do not address PMUs. The typographical error (phrases) was changed to phases. The format for 3.1.1.1 is intended to indicate that the list of items must be considered, but aren’t required to be included in the Region’s criteria. Under 3.1.3 are required and need to have an associated requirement identifier. As proposed, the standard does allow the Region to specify the electrical quantities to be recorded for each monitored element as long as they are sufficient to determine voltage, current, frequency,	

8. Should requirements for DDRs be placed into two new standards?

Commenter		Comment
megawatts and megavars. R3.2.1 The requirement for capability for continuous recording was modified so that this is only applicable to devices installed 3 years or more beyond the date the standard is adopted by the BOT. R3.2.2 – The standard was revised to exclude requirements for PMUs – the requirement was modified as suggested, with time synchronized to UTC within four milliseconds R3.2.3 – This requirement was modified to say' …6 samples per second.'		
Ameren John E. Sullivan	Yes	Regarding SMR-001-1 R1.1.1: Criteria for equipment location will be very difficult to develop and could be inconsistent from region to region. The MAIN Relay Task Force has already examined this issue. The result was a general statement that strategic locations should be selected to provide sufficient data to enable verification of powerflow and dynamic simulations of disturbances to the EHV system, with specific locations determined by the Planning Authority. Further clarification is needed in SMR-001-1 R1.1.4: Does 'capability' indicate a present or future requirement? Continuous recording is defined differently from manufacturer to manufacturer. Some claim continuous recording with data saved only when triggered, while others save data continuously. Where does this data need to be stored? If centralized data collection is required, then high-speed communications (LAN) is required.
Response: The standard requires each Region to identify where to locate this equipment. Because there are questions about the scope of the Planning Authority with respect to size of territory, this requirement was not assigned to the Planning Authority. The requirement for continuous recording was modified to clarify that this is only required of DDRs installed more than 3 years beyond the date of the BOT adoption of the standard. The additional clarifications requested are details that identify 'how' and are beyond the scope of this standard.		
ATC Peter Burke		PRC-002-R2: Why is the 4ms time-synchronization requirement for Fault Recorders less stringent than the corresponding 1ms requirement for Sequence-of-Event Recorders? Allowing a 4ms time synchronization tolerance can result in the time-stamp of recorded data or waveform from two FR's that are triggered by the same event to be out-of-sync by 1/4 cycle --- this is not acceptable. We recommend that the time-synchronization requirement for FRs be changed to 1ms. Note that our recommendation is consistent with the minimum time synchronization requirements for Fault Recorders in MAIN Guide 12 (Disturbance Monitoring Systems) approved in March, 2005.
Response: These are now the same and are both '…within 4ms' allowing many existing installations to be compliant.		
Ameren		Regarding PRC-002-1 R2.2.5: Existing MAIN requirements do not include requirements for sequence of event recording equipment (SOER). The method of data retrieval is not specified. Does SOER data need to be

8. Should requirements for DDRs be placed into two new standards?

Commenter	Comment
John E. Sullivan	collected at a centralized point, or is dial-up remote access acceptable?
Response: This standard does not address the method of getting the data – this is up to the Region to specify.	
SMUD WECC – Technical Studies Subcommittee Salt River Project	The format of Requirement R3 seems to be different from Requirements R1 an R2. Is that intentional?
Response: This was intentional – the items in the list have to be 'considered' but aren't required to be 'included' in every Region's criteria. For example, some Regions may not have major generation clusters.	
SMUD Dilip Mahendra WECC – Technical Studies Subcommittee Salt River Project Robert Kondziolka	The next comment applies whether the Standards is separated or not: In PRC-002-1, R3.1.1, please add the word, critical, to the first bullet to read, Site(s) in or near in or near critical and major load centers. The will provide guidance on priority when there is more than a few major load centers in an area. In addition, please delete the refernce to EHV in the seventh bullet point to read, Major interconnections between control areas. This will be less prescriptive and allow a wider net for installation of equipment where needed.
Response: Critical is an undefined term and means different things to different entities. The list is only a list of criteria for consideration, and was not intended to be comprehensive.	
FRCC	PRC-002-1 R3.1.2 "number of phrases" should be replaced with "phases".
Response: This typographical error was corrected.	
NERC Interconnection Dynamics Working Group	Yes — R3.2.1 in PRC-002-1 or R1.1.4 in SMR-001-1: Should be modified to read: Capability for continuous recording (all new installations). This is in keeping with recommendation 6 of the DME report prepared by the IDWG , which states: 6.IDWG recommends use of continuous recording DRDs for future installations. That recommendation was approved by the NERC Board of Trustees in May 2005
Response: PRC-002 was revised to clarify that the capability for continuous recording is only required for DDRs installed 3 years beyond BOT adoption of the standard. The referenced recommendation was 'accepted' by the NERC BOT, not 'approved'.	
SERC Protection and Control	No — The time synchronism requirements for DDRs set forth in R3.2.2 (100 microseconds) are

8. Should requirements for DDRs be placed into two new standards?

Commenter		Comment
Subcommittee (PCS)		excessively stringent and would invalidate most DDRs presently in service. This requirement needs to be reanalyzed and adjusted based on the capabilities of the various types of existing DDRs, including fault recorders (with continuous/slow speed facilities) and phasor measurement units (PMUs). We recommend the SDT for the new standards solicit the industry to determine a synchronism requirement.
Response: This was changed to 4 milliseconds. These standards will be posted for additional comments.		
Duke Power Barry Jackson	Yes	Time sync requirement of 100 microseconds would not be available in most installed equiopment, would suggest 1 millisecond.
Response: This was changed to 4 milliseconds.		
Southern Company – Transmission	Yes/No	The 100 microseconds time synchronism requirements for DDRs are excessively stringent and would invalidate most DDRs presently in service. We recommend the SDT for the new standards solicit the industry to determine a synchronism requirement.
Response: This was changed to 4 milliseconds. These standards will be posted for additional comments.		
Baltimore Gas & Electric-System Protection & Control Donald P. Milanicz	Yes	The time synchronization requirement for DDR's as written is quite possibly unattainable by certain classes of equipment
Response: This was changed to 4 milliseconds.		
Pepco Holding, Inc – Affiliates NERC System Protection and Controls Task Force	Yes	R3.2.2 in PRC-002 (SMR-001 R1.2.2), as worded, precludes DDRs other than PMUs. Other measurement instruments can also act as DDRs. This wording should have the same synchronization parameters as PRC-002 R2.2.3 to generalize the standard to current DDRs. R3.3.3 (SMR-001 R1.2.3) should be revised to "Data sampling rate of at least 1600 samples per second and recording rate of the RMS value of electrical quantities of at least 6 samples per second." A recording rate of 30 samples per second would preclude use of existing DDR equipment that is not capable of faster rates. Alternately, the faster rate could be limited to new installations.
Response: PRC-002 was revised to exclude PMUs. The synchronization was revised for DDRs to 4 milliseconds. The recording rate suggested was adopted and is reflected in the revised standard.		
ATC Peter Burke	PRC-002-R3.2.3: Why is the minimum sampling rate for DDRs specified as 1600 samples per second (or 26.67 samples/cycle)? Wouldn't specifying an integral number of samples per cycle be better? Say, 27 samples/cycle,	

8. Should requirements for DDRs be placed into two new standards?

Commenter	Comment	
	or equivalently, 1620 samples/second. Further, we are not sure why the sampling rate requirement for DDRs is higher than that of FRs even though the FRs are intended to capture much faster events compared to DDRs. Please check against commercially available DDR specifications to ensure that the >16s/c sampling rate is not unreasonable.	
Response: Frequency is variable; milliseconds aren't. The sampling rate for DDRs was modified to 6 samples/second.		
CP9, Reliability Standards Working Group Hydro-Quebec TransEnergie NY ISO IESO, Ontario ISO NE Northeast Utilities		R4.1 & R4.2 We would suggest "Data from continuous recording DDRs shall be retained for at least 10 days. All DME data used for analysis of identified events shall be retained for a period of 3 years."
Response: The order of these requirements was switched. Some events aren't analyzed right away – in some cases the data may be recalled for analysis with other similar events.		
CP9, Reliability Standards Working Group Hydro-Quebec TransEnergie NY ISO IESO, Ontario ISO NE Northeast Utilities	No	R5.4. It is not possible to provide SER files in Comtrade format so this section needs to be revised. We believe the correct year for C37.111 to be 1999, not 1997.
Response: Most commenters seemed to agree with the requirement. The drafting team will highlight this as a possible issue and ask stakeholders if this will be a problem in implementing this standard. The year was 1999 as indicated.		
Ameren John E. Sullivan	Regarding PRC-002-1 R5.4 and R5.5 - Many older DFR's may not support the COMTRADE format or the renaming of files. Current MAIN requirements allow hard-copy, Facsimile, e-mail, and COMTRADE submittals.	
Response: Most commenters seemed to agree with the requirement. The drafting team will highlight this as a possible issue and ask stakeholders if this will be a problem in implementing this standard.		
Kansas City Power and Light	No	

8. Should requirements for DDRs be placed into two new standards?

Commenter		Comment
Jim Useldinger		
MAAC John Horakh	Yes	Note: In PRC-002-1, under M2 and M3, add *shall* before *include*. SMR-002-1 title is wrong in attached proposed standard. Need to decide what to call equipment left in PRC-002-1 and PRC-018-1 after Dynamic Data Recorders are removed. Sequence Of Events and Fault Recorders are left; calling them Disturbance Monitoring Equipment seems too broad a term that could also still apply to DDRs.Maybe *Event Recorders* or something like that?
Response: The word, 'shall' was added where suggested. SMR-002 is not being developed as a separate standards.		
Midwest Reliability Organization	M3. Delete "PRC-002" to be consistent with other measures.	
Response: There was no 'PRC-002' reference in M3.		
Cinergy Jeff Baker	PRC-002-1 Section 2.4 - Change "Level 3" to "Level 4".	
Response: done		
NERC Standards Evaluation Subcommittee Bill Bojorquez	Yes	The SES offers no opinion
FirstEnergy Corp Raymond M. Morella	Yes	
Dynergy Greg Mason	Yes	
Idaho Power David Angell	Yes	
Cinergy Jeff Baker	Yes	
SERC EC Planning Standards Subcommittee (PSS)	Yes	

9. Other comments on the standards not already provided?

Commenter	Comment

9. Please provide any other comments on this set of standards that you haven't already provided.

Note: Comments specific to a standard were moved to the questions on specific standards.

ATC Peter Burke	PRC-002 and PRC-018: ATC supports all modifications done to these standards since Draft 1 posting. The posted drafts will be ready to ballot provided the following comments are addressed: *(comments moved to PRC-002 and PRC-018)*
Response: The drafting team appreciates your support – and has addressed your concerns.	
FirstEnergy Corp Raymond M. Morella	These comments apply to the content of PRC-002-1, PRC-018-1, SMR-001, and SMR-002. These standards include verify specific equipment characteristic requirements. NERC should be sure these characteristics are available in monitoring products that currently can be purchased. These standards should not use a draft IEEE standard (PC37.232) to establish requirements. The list of criteria for locating DDR equipment seems complete. How do the affected entities prove that all of the criteria listed were considered? Is a different choice of words appropriate to imply these are criteria to consider? Consider merging PRC-002-1 and PRC-018-1 and merging SMR-001 and SMR-002 in a similar format as PRC-024-1 which applies to both the RROs and GOs.
Response: The standards were revised so that it is clear that the requirements do not specifically address PMUs. The standard was modified with a footnote to indicate that compliance with the IEEE standard is not effective until the IEEE standard is approved – this is expected to happen before PRC-002 is approved by the Ballot Pool. It is left up to the Region to 'consider' the criteria – no documentation is required of this consideration – but the RRO is expected to have documented criteria. The expectation is that some, but not necessarily all, of the topics listed would be included in the criteria. Most commenters seemed to accept PRC-002 and PRC-018 as separate standards – with separate standards, its easier to see that the RRO is responsible for developing its requirements for DMEs at least a year before other entities are responsible for complying with those requirements.	
Southern Company – Transmission SERC Protection and Control Subcommittee (PCS)	The SMR-001 and SMR-002 should not go to ballot with set 1 of the phase III & IV standards because of several issues that require industry input. SMR-001 and SMR-002 should go out for comment to give the NERC IDWG a chance to draft the standards and to give the industry an opportunity to offer feedback. If SMR-001 and SMR-002 go directly to ballot with no due process then that would defeat the Reliability Standards development

9. Other comments on the standards not already provided?

Commenter	Comment
	process and will impact the ballot results.
Response: Most commenters seemed to agree with leaving the requirements in PRC-002 and PRC-018 as long as PMUs are not specifically included.	
MAAC John Horakh	No question was asked about PRC-002-1 and PRC-018-1. Although these may be changed by removing the DDR requirements, you should have agreement on the way they are now before continuing. I believe they are OK as is.
Response: The drafting team thanks you for your comment.	

MOD-026, MOD-027, VAR-002 ***(Note – these standards are in Set Two)***

Summary Consideration: These standards are in 'Set Two' of the Phase III & IV standards, and the drafting team is not accepting comments on these standards with Set One comments. Please re-submit your comments during the posting period for Set Two which is from October 15 through November 30, 2005.

NIPSCO Greg Ludwicki	MOD-026-1 R1.4 Should/shall the frequency of verification follow Document 4, every 5 years you test/tune the regulator?
NIPSCO Greg Ludwicki	MOD-027-1 R1.3 R1.4 Should/shall the frequency of verification follow Document 4, every 5 years you test/tune the speed/governor frequency response?
NIPSCO Greg Ludwicki	VAR-002 Would like to see all the verbiage read "Generator Owner and/or Transmission Operator to be responsible for this information since in our company the generator owner/operator forwards this information to our transmission operator.

Other comments

Southern Company Generation	In all of these standards, there is an inappropriate emphasis on having "evidence" a requirement was met. We believe it is sufficient to have "documentation" that a requirement was met. The word "evidence" could have legal implications that go beyond the bounds of what is intended here, namely that sufficient documentation will be on hand to support compliance audits. Therefore, we recommend replacing the word "evidence" with the word "documentation" throughout these standards.

9. Other comments on the standards not already provided?

Commenter	Comment
Response: Documentation is one type of evidence. There are situations where an entity could use code in a software program, or could use other ways of showing the compliance monitor that it had 'evidence'. The word, 'evidence' was used deliberately so that there would be the widest possible acceptance of existing methods. The intent was to avoid having all entities adopt a specific method or tool unless this was needed for reliability.	
Pepco Holding, Inc – Affiliates	All proposed standards have the following statement in the Roadmap, should only be in PRC-002-1: "This proposed standard is the Version 0 PRC-002 modified to include a translation of planning measure I.F.M3, which was not included in the approval Version 0 reliability standards because it required further work."
Response: The roadmaps have been updated so they are correct.	
MAAC John Horakh	A lot of positive changes, heading in the right direction. Note: All proposed standards have the following statement in the Roadmap, should only be in PRC-002-1: This proposed standard is the Version 0 PRC-002 modified to include a translation of planning measure I.F.M3, which was not included in the approval Version 0 reliability standards because it required further work.
Response: The roadmaps have been updated so they are correct.	
Kansas City Power and Light Jim Useldinger	Development or implementation of standards at this time should be delayed pending the outcome of the development of the ERO.
Response: These standards are needed for reliability whether NERC is selected as the ERO.	
NERC Standards Evaluation Subcommittee Bill Bojorquez	The SES commends the SDT for their hard work in publishing these proposed standards for comments and in general supports the work of the SDT with the comments contained herein. On a broader level, the SES is disappointed the SDT left many of the requirements contained in these standards up to the RRO or other entities rather than proposing a more specific minimum NERC standard. As noted in our comments, the SES is concerned that standards which offer a broad latitude in the development of their requirements usually result in a wide variety of interpertations and in time a general consensus that the standard is at best ineffective or at worst contributing to degradation of reliability. The SES would have preferred the SDT take what is admittately a more difficult challenge and propose a more definitive set of minimum standards for review and consideration.
Response: As indicated in response to other comments, this set of standards is a translation of the Planning Measure which did not require that the RRO's requirements be reviewed by NERC. Getting consensus on this set of requirements seemed easier to accomplish if the requirements initially give the RRO more latitude in establishing its requirements. In the future, once the RRO's requirements are established, it may be possible and practical to establish Interconnection-wide requirements or a single set of requirements for North America.	

9. Other comments on the standards not already provided?

Commenter	Comment
MMWG Mark Kuras - MAAC	Concern that Non-Compliance Levels of each Standard are not necessarily of equal nature among all standards in this group. It will be necessary to rearrange Compliance Levels against their impact on reliability. This becomes especially important when at some point in the future when they may carry financial penalty. NERC should update industry on development of Standards Writing Handbook detailing consistency between standards.
Response: Please be more specific in identifying levels of non-compliance that you feel need modification. Publishing a Standards Writing Handbook is outside the scope of the drafting team.	
Transmission Issues Subcommittee Kirit S. Shah	TIS greatly appreciates the response to and acceptance by the drafting team of many of TIS's comments on the earlier posting of these standards. TIS believes the drafting team made numerous improvements to the standards that are reflected in this posting.
Response: The drafting team appreciates your support.	
Midwest Reliability Organization	Throughout the standards, the reference to a Requirement is inconsistent. At times, the word "Requirement" is spelled out (as in "Requirement 1.1"), while in other places it is abbreviated to just "R" (as in "R1.1"). Recommend that NERC utilize just the abbreviations throughout the standards.
Response: The format was established by the Director, Standards.	