

Reliability Standard Audit Worksheet¹

PRC-002-2 - Disturbance Monitoring and Reporting Requirements

This section to be completed by the Compliance Enforcement Authority.

Audit ID: Audit ID if available; or REG-NCRnnnnn-YYYYMMDD

Registered Entity: Registered name of entity being audited

NCR Number: NCRnnnnn

Compliance Enforcement Authority: Region or NERC performing audit
Compliance Assessment Date(s)²: Month DD, YYYY, to Month DD, YYYY

Compliance Monitoring Method: [On-site Audit | Off-site Audit | Spot Check]

Names of Auditors: Supplied by CEA

Applicability of Requirements [RSAW developer to insert correct applicability]

	ВА	DP	GO	GOP	IA	LSE	PA	PSE	RC/PC	RP	RSG	то	TOP	TP	TSP
R1												Х			
R2			Х									Х			
R3			Х									Х			
R4			Х									Χ			
R5							Х		X						
R6												Χ			
R7			Х												
R8			Х									Χ			
R9			Х									Χ			
R10			Х									Χ			
R11			Х									Х			
R12			Χ									Χ			

The NERC RSAW language contained within this document provides a non-exclusive list, for informational purposes only, of examples of the types of evidence a registered entity may produce or may be asked to produce to demonstrate compliance with the Reliability Standard. A registered entity's adherence to the examples contained within this RSAW does not necessarily constitute compliance with the applicable Reliability Standard, and NERC and the Regional Entity using this RSAW reserves the right to request additional evidence from the registered entity that is not included in this RSAW. Additionally, this RSAW includes excerpts from FERC Orders and other regulatory references. The FERC Order cites are provided for ease of reference only, and this document does not necessarily include all applicable Order provisions. In the event of a discrepancy between FERC Orders, and the language included in this document, FERC Orders shall prevail.

¹ NERC developed this Reliability Standard Audit Worksheet (RSAW) language in order to facilitate NERC's and the Regional Entities' assessment of a registered entity's compliance with this Reliability Standard. The NERC RSAW language is written to specific versions of each NERC Reliability Standard. Entities using this RSAW should choose the version of the RSAW applicable to the Reliability Standard being assessed. While the information included in this RSAW provides some of the methodology that NERC has elected to use to assess compliance with the requirements of the Reliability Standard, this document should not be treated as a substitute for the Reliability Standard or viewed as additional Reliability Standard requirements. In all cases, the Regional Entity should rely on the language contained in the Reliability Standard itself, and not on the language contained in this RSAW, to determine compliance with the Reliability Standard. NERC's Reliability Standards can be found on NERC's website. Additionally, NERC Reliability Standards are updated frequently, and this RSAW may not necessarily be updated with the same frequency. Therefore, it is imperative that entities treat this RSAW as a reference document only, and not as a substitute or replacement for the Reliability Standard. It is the responsibility of the registered entity to verify its compliance with the latest approved version of the Reliability Standards, by the applicable governmental authority, relevant to its registration status.

² Compliance Assessment Date(s): The date(s) the actual compliance assessment (on-site audit, off-site spot check, etc.) occurs.

Legend:

Text with blue background:	Fixed text – do not edit
Text entry area with Green background:	Entity-supplied information
Text entry area with white background:	Auditor-supplied information



Findings

(This section to be completed by the Compliance Enforcement Authority)

Req.	Finding	Summary and Documentation	Functions Monitored
R1			
R2			
R3			
R4			
R5			
R6			
R7			
R8			
R9			
R10			
R11			
R12			

Req.	Areas of Concern							

Req.	Recommendations							

Req.	Positive Observations	

Subject Matter Experts

Identify the Subject Matter Expert(s) responsible for this Reliability Standard.

Registered Entity Response (Required; Insert additional rows if needed):

SME Name	Title	Organization	Requirement(s)

R1 Supporting Evidence and Documentation

- **R1.** Each Transmission Owner shall:
 - 1.1 identify BES buses for which sequence of events recording (SER) and fault recording (FR) data is required by using the methodology in PRC-002-2, Attachment 1:
 - <u>1.2</u> <u>___nN</u>otify other owners of BES Elements connected to those BES buses, if any, within 90-_ calendar days <u>of completion of Part 1.1</u> that those BES Elements may require SER data and/or FR data; and
 - 1.11.3 rRe_evaluate all the identified BES buses at least once every five calendar years in accordance with Part 1.1 and notify other owners, if any, in accordance with Part 1.2, and implement the reevaluated list of BES buses as per the Implementation Plan.
- M1. The Transmission Owner has a dated (electronic or hard copy) list of BES buses for which SER and FR data are required, identified in accordance with PRC-002-2, Attachment 1, and evidence that allthe BES buses identification haves been reevaluated -within the required interval under Requirement R1. The Transmission Owner will also have dated (electronic or hard copy) evidence that it notified other owners in accordance with Requirement R1.

Registered Entity Response (Required):

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedi:

Provide the following evidence, or other evidence to demonstrate compliance.

A list of owners of BES Elements connected to applicable BES buses.

Dated documentation providing evidence of following the steps outlined in Attachment 1, including all steps <code>_as applicable_</code> at least once every five <u>calendar</u> years to identify the BES buses for which SER and FR data is required.

Dated documentation or other evidence that the TO-entity notified other owners of BES Elements connected to their BES buses within 90-calendar days, if identified per Part 1.1-applicable.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document
File Name	Document ritle	version	Date	Section(s)	of Document

Auc	it Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):
	The state of the s
Con	npliance Assessment Approach Specific to PRC-002-2, R1
This	section to be completed by the Compliance Enforcement Authority
	(Part 1.1) -Select all, or a sample of, entity's BES buses and verify Requirement R1 Part 1.1 identification
	has occurred using the methodology in PRC-002-2, Attachment 1.
	(Part 1.2) Select all, or a sample of other owners of BES Elements connected to applicable BES buses,
	and verify entity notified other owner within 90calendar days of completetion completion of Part 1.1
	that Elements-may require SER and/or FR data.
	(Part 1.3) Review evidence that entity evaluated BES buses at least once every five calendar years in
	accordance with Part 1.1 and notified other owners, if any, in accordance with Part 1.2 and implement
	the re-evaluated list of BES buses as per the Implementation Plan.
No	te to Auditor: A calendar year is defined as January 1 through December 31.
Us	e of a system one-line, list of buses or other information may be appropriate for identifying buses for
au	ditor to determine if they were appropriately identified by entity.
Se	e Attachment 1 of PRC-002-2 for methodology to be used in identifying applicable BES buses.
<u>Th</u>	e PRC-002-2 Implementation Plan States, "Entities shall be 100 percent compliant with a re-evaluated lis
fro	m Requirement R1 or R5 within three (3) years following the notification by the Transmission Owner or
th	Responsible Entity that re-evaluated the list."
Aud	itor Notes:

R2 Supporting Evidence and Documentation

- R2. Each Transmission Owner and Generator Owner shall have SER data for circuit breaker position (open/close) for each circuit breaker <u>itthey</u> owns connected directly to the BES buses identified in Requirement R1 and associated with the BES Elements at those BES buses-identified in Requirement
- M2. The Transmission Owner or Generator Owner has evidence (electronic or hard copy) of SER data for circuit breaker position as specified in Requirement R2. Evidence may include, but is not limited to: (1) documents describing the device interconnections and configurations which mayean include a single design standard as representative for common installations; or (2) actual data recordings; or (3) station drawings.

Registered Entity Response (Required):

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedⁱ:

Provide the following evidence, or other evidence to demonstrate compliance.

A one-line diagram or <u>list_of</u> the BES buses identified in Requirement R1 or a list of each circuit breaker owned connected directly to the BES buses identified in Requirement R1. This evidence does not show compliance but facilitates the auditor's testing of compliance.

Documents describing the SER device interconnections and configurations which can include a single design standard as representative for common installations. Actual data recordings or station drawings for those BES buses may also be presented.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to PRC-002-2, R2

This section to be completed by the Compliance Enforcement Authority

Select all, or a sample of, applicable entity-owned circuit breakers connmected directly to the BES buses identified in Requirement R1 and examine evidence to verify existence of SER data for circuit breaker position. If no events occurred to create SER data, then auditor may rely on basis documents such as installation drawings or device configurations to support compliance.

Note to Auditor:

Auditor Notes:

R3 Supporting Evidence and Documentation

- **R3.** Each Transmission Owner and Generator Owner shall have the following FR data to determine the following electrical quantities for each triggered FR for of the BES Elements it wons connected to the BES buses identified in Requirement R1:
 - **3.1** Phase-to-neutral voltages for each phase of each specified BES bus.
 - **3.2** Each phase current and the residual or neutral current for the following BES Elements:
 - **3.2.1** Transformers that have a low-side operating voltage of 100kV or above.
 - **3.2.2** Transmission **½**ines.
- M3. The Transmission Owner or Generator Owner has evidence (electronic or hard copy) of FR data is sufficient to determine electrical quantities as specified in Requirement R3. Evidence may include, but is not limited to: (1) documents describing the device specifications and configurations which may includeing a single design standard as a representation for common installations; or (2) actual data recordings or derivations; or (3) station drawings.

Registered Entity Response (Required):

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedⁱ:

Provide the following evidence, or other evidence to demonstrate compliance.

Documents describing the device specification and configurations as described in Measure M32.

Actual data recordings for applicable BES buses.

For electrical quantities not directly measured, provide documentation regarding the determination (calculation) of these quantities.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to PRC-002-2, R3

This section to be completed by the Compliance Enforcement Authority

(R3) Select all, or a sample of, <u>entity-owned BESapplicable</u> Elements (from list or one-line diagram)_ <u>connected to the BES buses identified in Requirement R1</u> and verify existence of FR data for the following electrical quantities <u>for each triggered FR</u>:

(Part 3.1) Phase_-to_-neutral voltages for each phase of each specified BES bus.

(Part 3.2) Each phase current and the residual or neutral current for Transformers that have a low-side operating voltage of 100kV or above and Transmission \underline{L} lines.

Note to Auditor: <u>If no events occurred to create FR data, then auditor may rely on basis documents such as installation drawings or device configurations to support compliance.</u>

Auditor	Notes:

R4 Supporting Evidence and Documentation

- **R4.** Each Transmission Owner and Generator Owner shall have FR data as specified in Requirement R3 that meets the following:
 - **4.1** A single record or multiple records that include:
 - A pre-trigger record length of at least two cycles and a <u>total post</u>-trigger record length of at least 30 cycles for the same trigger point, or
 - At least two cycles of the pre-trigger data, the first three cycles of the post-trigger data, and the final cycle of the fault as seen by the fault recorder.
 - **4.2** A minimum recording rate of 16 samples per cycle.
 - **4.3** Trigger settings for at least the following:
 - **4.3.1** Neutral (residual) overcurrent.
 - **4.3.2** Phase undervoltage or overcurrent.
- M4. The Transmission Owner or Generator Owner has evidence (electronic or hard copy) that FR data meets Requirement R4. Evidence may include, but is not limited to: (1) <u>documents describing the device</u> specification (R4, Part 4.2) and <u>device configuration or settings</u> (R4, Parts 4.1 and 4.3), or (2) actual data recordings or derivations.

Registered Entity Response (Required):

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedⁱ:

Provide the following evidence, or other evidence to demonstrate compliance.

Data device specification(s) that meet <u>Requirement R4</u>, Part 4.2 and data device configuration that meet <u>Requirement R4</u>, Parts 4.1 and 4.3. Actual data recordings or derivations to prove compliance with Requirement R4, Parts 4.1-4.3.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

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				Relevant			
		Revision		Page(s)			
		or	Document	or	Description of Applicability		
File Name	Document Title	Version	Date	Section(s)	of Document		

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Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):						
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	npliance Assessment	• •		-	ta	
nıs	s section to be comple		_		_	6.11
	(R4) Using items sele	ected by auditor for_	<u>Requiremen</u>	<u>t</u> R3, verity d	ata meets th	ne following:
	(Part 4.1) A single re	cord or multiple reco	ords that ind	clude a pre-tr	igger record	length of at least two
	cycles and a post-trig	gger record length o	f at least 30	cycles for the	e same trigge	er point, or at least two
	cycles of the pre-trig	ger data, the first th	ree cycles o	f the post-tri	gger data, ar	nd the final cycle of the
	fault as seen by the	fault recorder.	·	·		
	(Part 4.2) A minimur	n recording rate of 1	.6 samples p	er cycle.		
	(Part 4.3) Trigger set	tings for at least the	following <u>1</u>	<u>)</u> neutral (res	idual) overci	urrent and 2) and phase
	undervoltage or ove	rcurrent.				
No	ote to Auditor: <u>If no ev</u>	vents occurred to cre	eate FR data	, then audito	r may rely o	n basis documents such as
<u>ins</u>	stallation drawings or	device configuration	s to suppor	t compliance	<u>.</u>	
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Auditor Notes:

R5 Supporting Evidence and Documentation

- **R5.** Each Responsible Entity shall: identify BES Elements for which dynamic disturbance recording (DDR) data is required, notify other owners of BES Elements connected to those BES buses, if any, within 90 calendar days, that those BES Elements may require DDR data, and reevaluate the identified buses at least once every five calendar years.
 - **5.1** <u>Identify BES Elements for which dynamic Disturbance recording (DDR) data is required The BES Elements shall includinge the following:</u>
 - **5.1.1** Generating resource(s) with:
 - 5.1.1.1 Gross individual nameplate rating greater than or equal to 500 MVA, or
 - $\underline{5.1.1.2}$ Gross individual nameplate rating greater than or equal to 300 MVA where the gross plant/facility aggregate nameplate rating is greater than or equal to 1000 MVA.
 - 5.1.2 Any one BES Element that is part of a stability (angular or voltage) related System

 Operating Limit (SOL).associated with major transmission interfaces, as defined by the Responsible Entity. Selection of major transmission interfaces should consider the following guidelines:
 - Stability related interfaces or other significant Flowgates in the NERC Book of Flowgates for the Eastern Interconnection, or

Transfer Paths in the Western Interconnection Path Rating Catalog, or

Voltage stability limited transfer paths or load serving area, or

Interfaces between Balancing Authority Areas, or

- Areas of significant congestion, thermal violation history, or relatively low Available Transfer-Capability (ATC).
- **5.1.3** Each terminal of a high voltage direct current (HVDC) circuit with nameplate rating greater than or equal to 300 MVA, on the alternating current (AC) portion of the converter.
- **5.1.4** One or more BES Elements that are part of an associated with Interconnection Reliability Operating Limits (IROLs).
- **5.1.5** Any one BES Element within a major voltage sensitive area <u>as defined by an area</u> with an in-service undervoltage load shedding (UVLS) program.
- **5.2** Ensure a minimum DDR coverage, inclusive of those The BES Elements identified in Part 5.1, of at leastshall include a minimum of:
 - 5.2.1 One BES Element.
 - **5.2.2** One additional BES Element <u>perfor each additional</u> 3,000 MW of its historical peak Seystem Demand.

- 5.3 Notify all owners of identified BES Elements, within 90-calendar days of completion of Part 5.1, that their respective BES Elements require DDR data when requested.
- 5.4 Re-evaluate all BES Elements at least once every five calendar years in accordance with Parts 5.1 and 5.2 and notify owners in accordance with Part 5.3, and implement the reevaluated list of BES Elements as per the Implementation Plan.

Registered Entity Response (Required):

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedi:

Provide the following evidence, or other evidence to demonstrate compliance.

One-line diagram(s) of entity's system. Although not evidence of compliance, such diagrams can be used by auditor to identify candidates for identification.

Dated documentation, or other evidence, that the Responsible Entity notified other owners of BES Elements connected to their BES buses within 90<u>-calendar</u> days.

Dated documentation providing evidence of reevaluation of the BES Elements at least once every five <u>calendar</u> years for which DDR data is required. If the audit falls within the first five years of the <u>Himplementation Palan</u> for this standard, this evidence is not required.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

, , , , , , , , , , , , , , , , , , , ,		Revision	Document	Relevant Page(s)	Description of Applicability
		or	Document	or	Description of Applicability
File Name	Document Title	Version	Date	Section(s)	of Document

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to PRC-002-2, R5

This section to be completed by the Compliance Enforcement Authority

1115	section to be completed by the compliance Enjorcement Authority
	Review evidence that entity identified BES Elements for which DDR data is required. Using one-line
	diagram(s) (or other evidence) obtain reasonable assurance that entity identified BES Elements as
	follows:
	(Part 5.1.1) Generating resources with gross individual nameplate rating greater than or equal to 500
	MVA, or gross individual nameplate rating greater than or equal to 300 MVA where the gross
	plant/facility aggregate nameplate rating is greater than or equal to 1000 MVA.
	(Part 5.1.2) Any one BES Element that is part of a stability (angular or voltage) related SOL. associated
	with major transmission interfaces, as defined by the Responsible Entity.
	(Part 5.1.3) Each terminal of a high voltage direct current (HVDC) circuit with nameplate rating greater
	than or equal to 300 MVA, on the AC portion of the converter.
	(Part 5.1.4) One or more BES Elements associated with that are part of IROLs.
	(Part 5.1.5) Any one BES Element within a major voltage sensitive area as defined by an area with an in-
	service UVLS program.
	(Part 5.2) The BES Elements includes a minimum of one BES Element and <u>one-one-additional</u> BES
	Element for each additional per 3,000 MW of its historal peak Ssystem Demand.
	(Part 5.3) For all, or a sample of, BES Elements identified and having other owners, verify entity notified
	other owners of the BES Elements, within 90-calendar days of complete tion completion of Part 5.1, that
	their respective BES Elements require DDR data when requested. connected to those BES buses within
	90 calendar days that those BES Elements may require DDR data.

(Part 5.4) Verify that buses were reevaluated once every five calendar years in accordance with Parts 5.1 and 5.2 and notified owners in accordance with Part 5.3, and implemented the reevaluated list of BES Elements as per the Implementation Plan.

Note to Auditor: A calendar year is defined as January 1 through December 31.

With regard to Requirement R5 Part 5.2, auditor should consider the number of BES Elements required to be the peak demand divided by 3,000 MWs.

The PRC-002-2 Implementation Plan States, "Entities shall be 100 percent compliant with a re-evaluated list from Requirement R1 or R5 within three (3) years following the notification by the Transmission Owner or the Responsible Entity that re-evaluated the list."

Auditor Notes:		

R6 Supporting Evidence and Documentation

- **R6.** Each Transmission Owner shall have DDR data to determine the following electrical quantities for each BES Element it owns for which it received notification as identified in Requirement R5, to determine the following electrical quantities:
 - **6.1** One phase-to-neutral or positive sequence voltage.
 - **6.2** The phase current for the same phase at the same voltage corresponding to the voltage in Requirement R6, Part 6.1, or the positive sequence current.
 - **6.3** Real Power and Reactive Power flows expressed on a three phase basis corresponding to all circuits where current measurements are required.
 - **6.4** Frequency of any one of the voltage(s) in Requirement R6, Part 6.1.
- M6. The Transmission Owner has evidence (electronic or hard copy) of DDR data to determine electrical quantities as specified in Requirement R6. Evidence may include, but is not limited to: (1) documents describing the device specifications and configurations, which may include a single design standard as representative for common installations; or (2) actual data recordings or derivations; or (3) station drawings.

Registered	l Entity	Response	(Requ	ıired)
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Questions: Were there any quantities identified in Parts 6.1-6.4 that the entityyou could not determine
(directly or through calculation) the electrical quantities identified in Parts 6.1 6.4? ☐ Yes ☐ No
If yes, provide a list of such disturbances and quantities.

[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.]

Registered Entity Response (Required):

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedi:

Provide the following evidence, or other evidence to demonstrate compliance.

List of BES Elements for which entity owns and received notification pursuant to Requirement R5.

Documents describing the DDR device interconnections and configurations which can include a single design standard as representative for common installations. Actual DDR data recordings for those BES Elements buses.

For electrical quantities not directly measured, provide documentation regarding the determination (calculation) of these quantities.

					ce. Also, evidence submitted
	•	appropriate	e, to identify	the exact lo	cation where evidence of
compliance may be for	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document
Audit Team Evidence R	Reviewed (This section	to be comple	eted by the Co	mpliance Enf	orcement Authority):
Compliance Assessmen	nt Approach Specific t	o PRC-002-2	2. R6		
	• • •			ity	
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This section to be comp					n pursuant to Requirement
This section to be comp (R6) Select all, or a		ents where o	entity receive	d notificatio	•
This section to be comp (R6) Select all, or a R5 and verify entit	sample of, BES Elem	ents where of the the	entity receive following ele	d notificatio	•
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This section to be comp (R6) Select all, or a R5 and verify entit (Part 6.1) One pha (Part 6.2) The pha Requirement R6, R (Part 6.3) Real Pov	a sample of, BES Elements has DDR data to design as a secto-neutral or positive current for the same art 6.1, or the positive rand Reactive Pow	ents where of termine the ive sequenc ne phase at to e sequence er flows exp	entity receive following ele e voltage. he same volt current.	d notificatio ctrical quant age correspo	ities:
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This section to be comp (R6) Select all, or a R5 and verify entit (Part 6.1) One pha (Part 6.2) The pha Requirement R6, R (Part 6.3) Real Pow circuits where cur	a sample of, BES Elements has DDR data to design as a secto-neutral or positive current for the same art 6.1, or the positive rand Reactive Pow	ents where of termine the live sequence he phase at the re sequence er flows exp re required.	entity receive following ele e voltage. he same volt current. ressed on a t	d notificatio ctrical quant age correspo hreephase	ities: Inding to the voltage in

R7 Supporting Evidence and Documentation

- R7. Each Generator Owner shall have DDR data to determine the following electrical quantities for each BES Element it owns for which it received and is notificationed according to as identified in Requirement R5, to determine the following electrical quantities:
 - **7.1** One phase-to-neutral, phase-to-phase, or positive sequence voltage at either the generator step up (GSU) transformer high-side or low-side voltage level.
 - **7.2** The phase current for the same phase at the same voltage <u>corresponding to the voltage</u> in Requirement R7, Part 7.1, phase current(s) for any phase-to-phase voltages, or positive sequence current.
 - **7.3** Real Power and Reactive Power flows expressed on a three phase basis corresponding to all circuits where current measurements are required.
 - **7.4** Frequency of at least one of the voltages in Requirement R7, Part 7.1.
- M7. The Generator Owner has evidence (electronic or hard copy) of DDR data to determine electrical quantities as specified in Requirement R7. Evidence may include, but is not limited to: (1) documents describing the device specifications and configurations which may include a single design standard as representative for common installations; or (2) actual data recordings or derivations; or (3) station drawings.

Registered Entity Response (Required):

Were there any quantities, identified in Parts 7.1-7.4, that you_the entity_could not determine (directly or through calculation) the electrical quantities identified in Parts 7.1-7.4?

Yes No If yes, provide a list of such disturbances and quantities.

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedⁱ:

Provide the following evidence, or other evidence to demonstrate compliance.

List of BES Elements for which entity owns and received notification pursuant to Requirement R5.

Documents describing the DDR device interconnections and configurations which can include a single design standard as representative for common installations. Actual DDR data recordings for those BES Elements buses.

For electrical quantities not directly measured, provide documentation regarding the determination (calculation) of these quantities.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document

Aud	it Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):
	pliance Assessment Approach Specific to PRC-002-2, R7 section to be completed by the Compliance Enforcement Authority
	(R7) Select all, or a sample of, BES Elements where entity received notification pursuant to Requirement
	R5 and verify entity has DDR data to determine the following electrical quantities:
	(Part 7.1) One phase-to-neutral or positive sequence voltage at either the generator stepup (GSU)
	transformer high-side or low-side voltage level.
	(Part 7.2) The phase current for the same phase at the same voltage corresponding to the voltage in
	Requirement R7, Part 7.1, phase current(s) for any phase-to-phase voltages, or positive sequence
	current.
	(Part 7.3) Real Power and Reactive Power flows expressed on a three phase basis corresponding to all
	circuits where current measurements are required.
	(Part 7.4) Frequency of any one of the voltage(s) in Requirement R7, Part 7.1.
No	te to Auditor:

R8 Supporting Evidence and Documentation

- **R8.** Each Transmission Owner and Generator Owner responsible for DDR data <u>for the BES Elements</u> <u>identified</u> in Requirement R5 shall have continuous data recording and storage. If the equipment was installed prior to the effective date of this standard and is not capable of continuous recording, triggered records must meet the following:
 - **8.1** Triggered record lengths of at least three minutes.
 - **8.2** At least one of the following three triggers:
 - Off nominal frequency trigger set at:

		Low	High
o Eastern Interconnec	ction	<59.75 Hz	>61.0 Hz
o Western Interconne	ection	<59.55 Hz	>61.0 Hz
o ERCOT Interconnect	tion	<59.35 Hz	>61.0 Hz
 Hydro-Quebec 			
Interconnection		<58.55 Hz	>61.5 Hz

• Rate of change of frequency trigger set at:

 Eastern Interconnection 	< -0.03125 Hz/sec	> 0.125 Hz/sec
 Western Interconnection 	< -0.05625 Hz/sec	> 0.125 Hz/sec
 ERCOT Interconnection 	< -0.08125 Hz/sec	> 0.125 Hz/sec
o Hydro-Quebec		
Interconnection	< -0.18125 Hz/sec	> 0.1875 Hz/sec

- Undervoltage trigger set no lower than 85% of normal operating voltage for a duration of 5 seconds.
- **M8.** Each Transmission Owner and Generator Owner has dated evidence (electronic or hard copy) of data recording and storage in accordance with Requirement R8. Evidence may include, but is not limited to: (1) documents describing the device specifications and configurations, which may include a single design standard as representative for common installations; or (2) actual data recordings.

Registered Entity Response (Required):

Question:

Does entity have non-continuous triggered recording capability installed prior to the effective date of PRC-002-2? \square Yes \square No

If yes, provide documentation that trigger points were set according to the Requirements of R8.

[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.]

Registered Entity Response (Required):

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Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedi:

Provide the following evidence, or other evidence to demonstrate compliance.

Data device specification(s) and configuration(s) meeting criteria of <u>Requirement</u> R8. Actual data recordings or derivations to prove compliance with <u>Requirement</u> R8.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document

/	Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):
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Compliance Assessment Approach Specific to PRC-002-2, R8

This section to be completed by the Compliance Enforcement Authority

(R8) For all, or a sample of, BES Elements where entity is responsible for DDR data for the BES Elements identified in Requirement R5, examine evidence to verify that entity has continuous data recording and storage. If entity has recording equipment installed prior to the effective date of this standard and is not capable of continuous recording, skip this Compliance Assessment Step and perform the next step, which is not applicable if entity has continuous data recording and storage.

(Part 8.1 and 8.2) Select all, or a sample of, BES Elements where entity is responsible for DDR data <u>for the BES Elements identified in Requirement R5</u> and verify (Part 8.1) triggered records record lengths of at least three minutes for (Part 8.2) at least one of the three triggers listed in Part 8.2.

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Auditor Notes:	

R9 Supporting Evidence and Documentation

- **R9.** Each Transmission Owner and Generator Owner <u>responsible for DDR data for the BES Elements</u> identified in Requirement R5 shall have DDR data that <u>meetconforms to</u> the following technical specifications:
 - **9.1** Input sampling rate of at least 960 samples per second.
 - **9.2** Output recording rate of electrical quantities of at least 30 times per second.
- M9. The Transmission Owner or Generator Owner has evidence (electronic or hard copy) that DDR data meets Requirement R9. Evidence may include, but is not limited to: (1) <u>documents describing the</u> device specification, <u>and device</u> configuration, or <u>settings</u>; or (2) actual data recordings (R9, Part 9.2).

Evidence Requestedi:

Provide the following evidence, or other evidence to demonstrate compliance.

Actual DDR data recordings or derivations to prove compliance with Requirement R9.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document

Audit Team Evidence R	Reviewed (This s	ection to be c	ompleted by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to PRC-002-2, R9

This section to be completed by the Compliance Enforcement Authority

(R9) For all, or a sample of, BES Elements where entity is responsible for DDR data for BES Elements
identified in Requirement R5, examine evidence to verify that entity data conforms to meets the
following technical specifications:
(Part 9.1) Input sampling rate of at least 960 samples per second.
(Part 9.2) Output recording rate of electrical quantities of at least 30 times per second.

Note to Auditor:

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R10 Supporting Evidence and Documentation

- R10. Each Transmission Owner and Generator Owner shall time synchronize all SER₇ and FR and DDR data for the BES buses identified in Requirement R1 and DDR data for the BES Elements identified in Requirement R5 that meet the following:
 - <u>10.1. Synchrinization</u>Synchronization to Coordinated Universal Time (UTC) with or without a local time offset.
 - 9.1.10.2.Synchronized device clock accuracy to within ± 2 milliseconds of Coordinated Universal Time (UTC), time stamped with or without a local time offset.
- M10. The Transmission Owner or Generator Owner has evidence (electronic or hard copy) of time synchronization described in Requirement R10. Evidence may include, but is not limited to: (1) documents describing the device specification, and configuration or setting; or (2) time synchronization indication or status actual data recordings, or (3) station drawings.

Registered Entity Response (Required):

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedⁱ:

Provide the following evidence, or other evidence to demonstrate compliance.

Actual DDR data recordings or derivations to prove compliance with Requirement R10.

<u>Basis documents such as installation drawings or device configurations supporting the time synchronization of all SER and FR data as described in Requirement R10.</u>

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):						

Compliance Assessment Approach Specific to PRC-002-2, R10

This section to be completed by the Compliance Enforcement Authority

(R10) For all, or a sample of, BES buses/Elements examine evidence to verify that entity time synchronized all SER, and FR data for the BES buses identified in Requirement R1 and DDR data for the BES Elements identified in Requirement R5 as follows: to within ± 2 milliseconds of UTC per Requirement R10.

(Part 10.1) UTC with or without a local time offset.

(Part 10.2) devise clock accuracy within ± 2 milliseconds of UTC

Note to Auditor: <u>Auditors should rely on basis documents such as installation drawings or device</u> <u>configurations to the extent synchrinization</u> synchronization cannot be determined by reviewing the data.



R11 Supporting Evidence and Documentation

- R10.R11. Each Transmission Owner and Generator Owner shall provide, upon request, all SER and FR, and DDR data for the BES buses identified in Requirement R1 and DDR data for the BES Elements identified in Requirement R5 to the Responsible Entity liability Coordinator, Regional Entity, or NERC in accordance with the following sessions:
 - 11.1 The recorded dData will be retrievable for the period of 10 calendar days, inclusive of the day the data was recorded will be provided within 30 calendar days of a request.
 - 11.2 The recorded dData will be provided within 30 calendar days of a request unless an extension is granted by the requestor will be retrievable for the period of 10 calendar days preceding a request.
 - **11.3** SER data will be provided in <u>ASCII</u> Comma Separated Value (.CSV) format following Attachment 2.
 - **11.4** FR and DDR data will be provided in electronic <u>files that are formatted in conformance with</u> C37.111, (C37.111-2013 or later) IEEE Standard for Common Format for Transient Data Exchange (COMTRADE) revision C37.111-1999 or later, <u>formatted files</u>.
 - **11.5** Data files will be named in conformance with C37.232, IEEE Standard for Common Format for Naming Time Sequence Data Files (COMNAME), revision C37.232-2011 or later.
- **M11.** The Transmission Owner or Generator Owner has evidence (electronic or hard copy) data was submitted upon request in accordance with Requirement R11. Evidence may include, but is not limited to: (1) dated transmittals to the requesting entity with formatted records, (2) <u>documents describing data storage</u> <u>capability</u>, device specification, and configuration or settings, or (3) actual data recordings.

Registered Entity Response (Required):

Question: Did you have entity receive any requests for SER, FR and/or DDR data? ☐ Yes ☐ No
If yes, provide a list of such requests.
[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.]

Registered Entity Response (Required):

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedⁱ:

Provide the following evidence, or other evidence to demonstrate compliance.

Dated transmittals to the requesting entity with formatted records in accordance with Requirement R11,

Parts 11.1 and 11.2.

Actual data recordings that conform with <u>Requirement</u>-R11, Parts 11.3-11.5. In the absence of a request, device specification and configuration may be provided as evidence of compliance with R11.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

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				Relevant			
		Revision		Page(s)			
		or	Document	or	Description of Applicability		
File Name	Document Title	Version	Date	Section(s)	of Document		

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):						

Compliance Assessment Approach Specific to PRC-002-2, R11

This section to be completed by the Compliance Enforcement Authority

(R11) For all, or a sample of, requests for SER and FR data for BES buses identified in Requirement R1 and DDR data for the BES Elements identified in Requirement R5, BES buses/Elements examine evidence to-verify that entity provided theall SER, FR, and DDR data to the Reliability Coordinator Responsible Entity, Regional Entity or NERC as follows in accordance with the following:

(Part 11.1) within 30 days of request Data was retrievable for the period of 10-calendar days, inclusive of the day the data was recorded.

(Part 11.2) retrievable for 10 calendar days preceding request Data was provided within 30-calendar

days of a request unless an extension was granted by the requestor.

(Part 11.3) provided in ASCII .CSV format following Attachment 2 of this Reliability Standard.

(Part 11.4) FR and DDR data provided in electronic files that are formatted in conformance with— C37.111 with C37.111 IEEE COMTRADE, revision C37.232-2011 or later.—2013 or later format per IEEE-COMTRADE.

(Part 11.5) Data file named in conformance with C37.232 format per IEEE COMNAME, revision C37.232-2011 or later.

Note to Auditor: See Attachment 2 of PRC-002-2 for information regarding format of submitted SER data.

Auditor Notes:

DRAFT NERC Reliability Standard Audit Worksheet

Audit ID: Audit ID if available; or NCRnnnnn-YYYYMMDD



R12 Supporting Evidence and Documentation

- **R12.** Each Transmission Owner and Generator Owner shall, within 90 calendar days of the discovery of a failure of the recording capability for the SER, FR or DDR data, <u>either:</u>
 - Rrestore the recording capability, or
 - develop a timeline for restoration and <u>Submit</u> a Corrective Action Plan (CAP) for submission to the Regional Entity and implement it.
- M12. The Transmission Owner or Generator Owner has dated evidence (electronic or hard copy) that meets Requirement R12. Evidence may include, but is not limited to: (1) dated reports of discovery of a failure, (2) documentation noting the date the data recording was restored, or (3) <u>SCADA records, or (4)</u> dated CAP transmittals to the Regional Entity and evidence that it implemented the CAP.

	Registered Entity	y Response	(Regu	ired)	:
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Question: Did entityyou experience a failure of recording capability for SER, FR or DDR data-as required by
PRC-002-2? ☐ Yes ☐ No
If yes, provide a dated list of such failures.
[Include additional information regarding the question here, including the type of response and format of the
response requested, as appropriate.]
[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.

Registered Entity Response (Required):

Compliance Narrative:

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requestedi:

Provide the following evidence, or other evidence to demonstrate compliance.

If the responsible entity experienced the failure of recording capability for SER, FR or DDR-data as required by PRC-002-2, the responsible entity will provide (1) dated reports of discovery of a failure, (2) documentation noting the date the data recording was restored, or (3) dated CAP transmittals to the Regional Entity.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

		Revision			
		or	Document	Relevant	Description of Applicability
File Name	Document Title	Version	Date	Page(s)	of Document

					or			
					Section(s)			
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Auc	iit Team Evidence Ke	eviewed (This secti	on to be compi	leted by the Co	impliance Eni	orcement Authority):		
Con	npliance Assessment	Approach Specifi	ic to PRC-002-	2, R12				
	s section to be comp	• •			rity			
	For all, or a sample of, recording device failures per Requirement R12, examine evidence and verify							
	entity, within 90-calendar days, either restored the recording capability for the SER, FR or DDR data or							
	developed a timeline for restoration and a CAP, which it submitted it to its Regional Entity.							
	If entity developed a CAP, verify CAP was implemented.							
					e monitoring	period, auditor should		
	If entity experienced no applicable failures during the compliance monitoring period, auditor should understand entity's process for discovering and mitigating such failures in accordance with Requirement							
	R12.							
No	ote to Auditor: Imple	mentation means	that an entity	is following it	s document	ed CAP. For example, if the		
	Note to Auditor: <u>Implementation means that an entity is following its documented CAP. For example, if the CAP calls for certain activities to be completed within specified timeframes, then the auditor can verify that</u>							
	ch activities were co				rannes, enem	the dadren can verny that		
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Aud	litor Notes:							
	Martor reducts.							

Additional Information:

Reliability Standard

To be inserted by RSAW developer prior to posting of this RSAW associated with the enforceable date of this Reliability Standard.

Sampling Methodology

To be inserted by RSAW developer prior to posting of this RSAW associated with the enforceable date of this Reliability Standard, if applicable.

Regulatory Language

<u>To be inserted by NERC Legal prior to posting of this RSAW associated with the enforceable date of this Reliability Standard.</u>

Selected Glossary Terms

To be inserted by RSAW developer prior to posting of this RSAW associated with the enforceable date of this Reliability Standard, if applicable.

Reliability Standard

The RSAW developer should provide the following information without hyperlinks. Update the information below as appropriate.

The full text of PRC-002-2 may be found on the NERC Web Site (www.nerc.com) under "Program Areas & Departments", "Reliability Standards."

In addition to the Reliability Standard, there is an applicable Implementation Plan available on the NERC Web-Site.

In addition to the Reliability Standard, there is background information available on the NERC Web Site.

Capitalized terms in the Reliability Standard refer to terms in the NERC Glossary, which may be found on the NERC Web Site.

Sampling Methodology

Sampling is essential for auditing compliance with NERC Reliability Standards since it is not always possible or practical to test 100% of either the equipment, documentation, or both, associated with the full suite of enforceable standards. The Sampling Methodology Guidelines and Criteria (see NERC website), or sample guidelines, provided by the Electric Reliability Organization help to establish a minimum sample set for monitoring and enforcement uses in audits of NERC Reliability Standards.

Regulatory Language — [Developer to ensure RSAW has been provided to NERC Legal for links to appropriate Regulatory Language — See example below]

E.g. FERC Order No. 742 paragraph 34: "Based on NERC's.......

E.g. FERC Order No. 742 Paragraph 55, Commission Determination: "We affirm NERC's......



Revision History for RSAW

Version	Date	Reviewers	Revision Description
1	06/06/2014	NERC Compliance	New Document
<u>2</u>	09/19/2014	NERC Compliance, NERC Standards	Revisions to RSAW to reflect changes to Reliability Standard for posting during second formal comment period.

ⁱ Items in the Evidence Requested section are suggested evidence that may, but will not necessarily, demonstrate compliance. These items are not mandatory and other forms and types of evidence may be submitted at the entity's discretion.

