

# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# Industry Webinar

## Project 2021-04 Modifications to PRC-002

July 6, 2022

**RELIABILITY | RESILIENCE | SECURITY**



- Presenters
  - Standard Drafting Team
    - Chair, Manish Patel, Southern Company Services
    - Member, Terry Volkmann, Volkmann Consulting
  - NERC Staff
    - Ben Wu (Project Developer)
- Administrative Items
- Project 2021-04 Status
- Proposed Revisions
- Next Steps
- Questions and Answers

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  - Comments must be submitted during the formal posting
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  - Q/A feature or the raise hand feature

Name	Organization/ Company
Manish Patel (Chair)	Southern Company Services
Chris Milan (Vice Chair)	CrestCura
Bret Garner Burford	American Electric Power
Tracy Kealy	Bonneville Power Administration
Jacob Magee	Transmission Asset Management
Don Burkart	Consolidated Edition of New York
Amy Key	MidAmerican Energy Company
Terry Volkmann	Volkmann Consulting

- Project 2021-04 contains two SARs (Glencoe Light SAR and the NERC Inverter-based Resource Performance Task Force SAR).
- The Standards Committee (SC) January 20, 2021 meeting, the SC accepted both SARs.
- At the SC's June 19, 2021 meeting, the SC appointed members, chair, and vice chair to the SAR Drafting Team.
- The SAR Drafting Team started to work on the SARs in October, 2021.
- The SC accepted the Project 2021-04 Modifications, authorized drafting revisions on January 19, 2022.
- At the SC's May 18 (2022) meeting, the SC authorized initial posting for Glencoe Light SAR.

- Industry Need
  - Adequate sequence of events recording (SER) and fault recording (FR) data
- Purpose/Goal
  - Clarification
  - Implementation Plan
  - Possible Responsible Entities
- Project Scope

## Requirement R1, Part 1.2 in PRC-002-3:

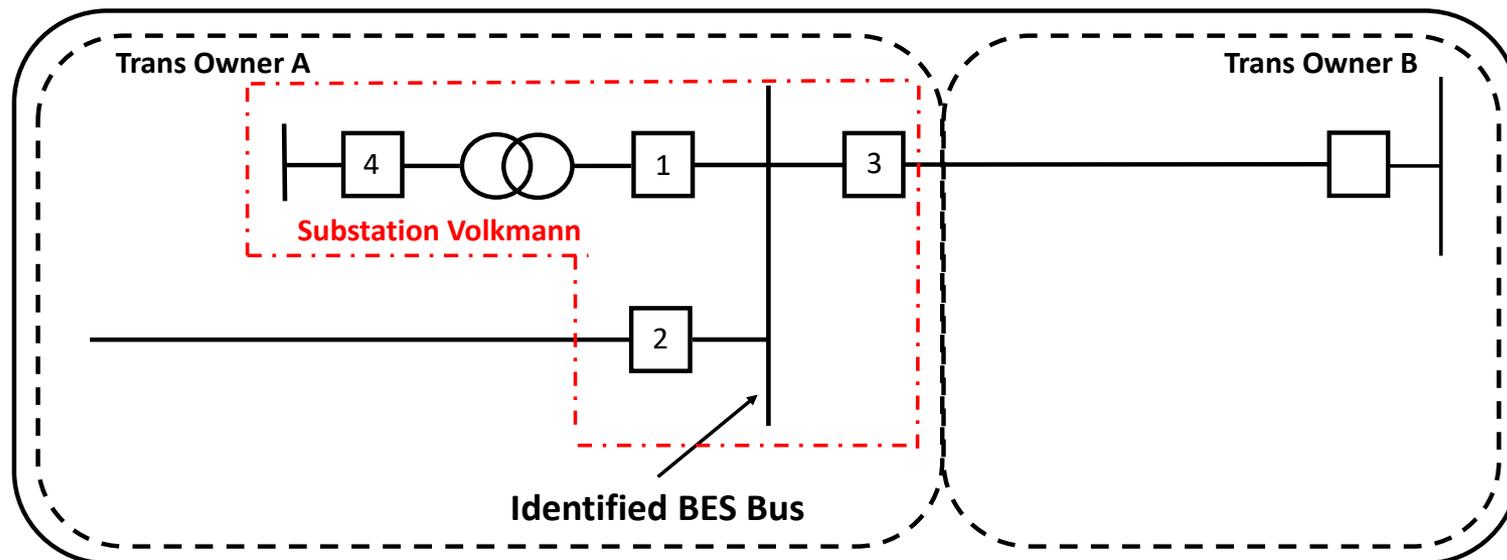
- R1.** Each Transmission Owner shall: *[Violation Risk Factor: Lower ] [Time Horizon: Long-term Planning]*
- 1.1.** Identify BES buses for which sequence of events recording (SER) and fault recording (FR) data is required by using the methodology in PRC-002-2, Attachment 1.
  - 1.2.** Notify other owners of BES Elements connected to those BES buses, if any, within 90-calendar days of completion of Part 1.1, that those BES Elements require SER data and/or FR data.
  - 1.3.** Re-evaluate all 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 re-evaluated list of BES buses as per the Implementation Plan.

## Requirement R3 in PRC-002-3:

R3: Each Transmission Owner and Generator Owner shall have FR data to determine the following electrical quantities for each triggered FR for the **BES Elements it owns connected to the BES buses identified in Requirement R1:** *[Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*

- 3.1** Phase-to-neutral voltage 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 Lines.

## Example:



- Presently, TO A is required to notify TO B that their BES Element connected to the “identified BES Bus” require SER data and/or FR data.
- TO B must include this line in their requested audit data under R3. If no faults during audit period may be required to demonstrate the specification of the recording equipment.
- This was not the intent of PRC-002 Standard. Clarification is needed.

## R1, Part 1.3 & R5, Part 5.4 refers to Implementation Plan

- 1.3.** Re-evaluate all 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 re-evaluated list of BES buses as per the Implementation Plan.
  
- 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 to implement the re-evaluated list of BES Elements as per the Implementation Plan.

## PRC-002-2 Implementation Plan

Entities shall be 100% compliant with a re-evaluated list from R1 or R5 within three (3) years following the notification by the TO or the Responsible Entity that re-evaluated the list.

- This requires Registered Entities to continue to reference the Implementation Plan.
- Moving the three-year requirement from the Implementation Plan to the standard itself provides clarity.

## Requirement R1, Part 1.3 in PRC-002-3:

- 1.3.** Re-evaluate all 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 re-evaluated list of BES buses as per the Implementation Plan.

## Attachment 1, Step 7:

If the list has 1 or more but less than or equal to 11 BES buses: FR and SER data is required at the BES bus with the highest maximum available calculated three phase short circuit MVA as determined in Step 3. Proceed to Step 9.

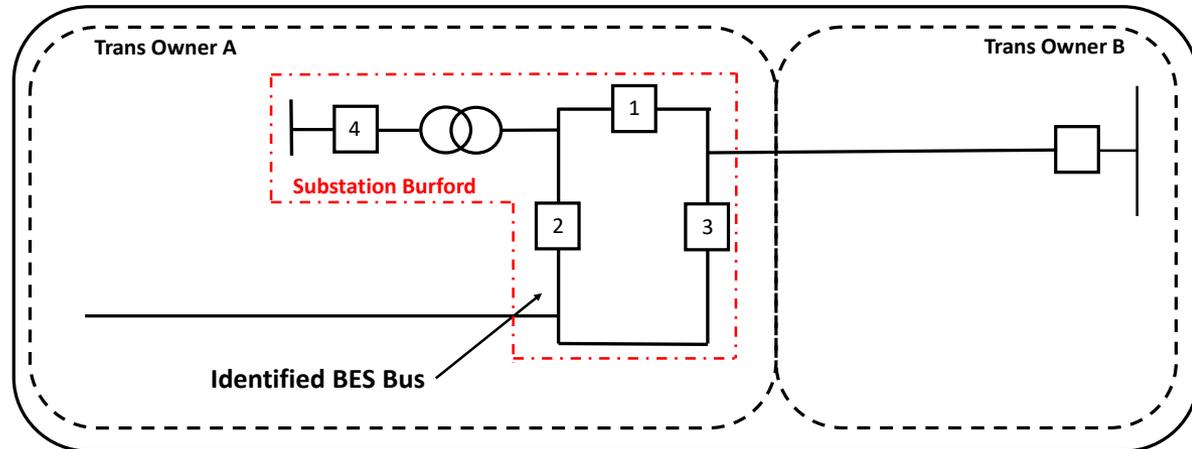
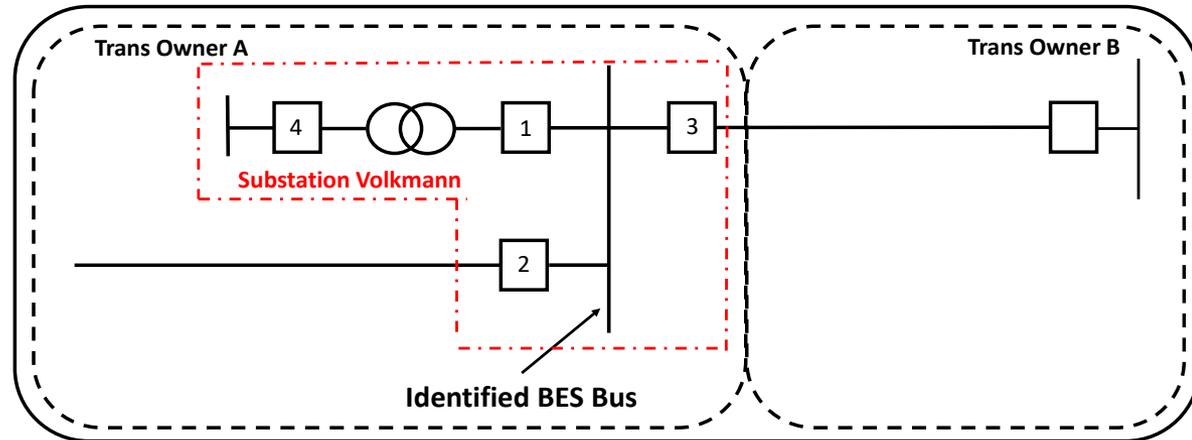
- Location at which SER/FR data is required could change due to minor change in 3-phase SC MVA.
- Adding a criterion that constitutes a substantial change in 3-phase SC MVA which would require changing SER/FR data recording location could help.

## Revisions to Requirement 1, Part 1.2

- R1.** Each Transmission Owner shall: *[Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*
- 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-002-34, Attachment 1.
  - 1.2.** Notify other owners of BES Elements, for which the Transmission Owner does not record SER or FR data, connected directly to those BES buses that they are responsible for recording the SER or FR data. This notification is required, if any, within 90-calendar days of completion of Part 1.1, ~~that those BES Elements require SER data and/or FR data.~~ If the owner of a BES Element is no longer required to have SER or FR data, notify the owner within 90-calendar days.

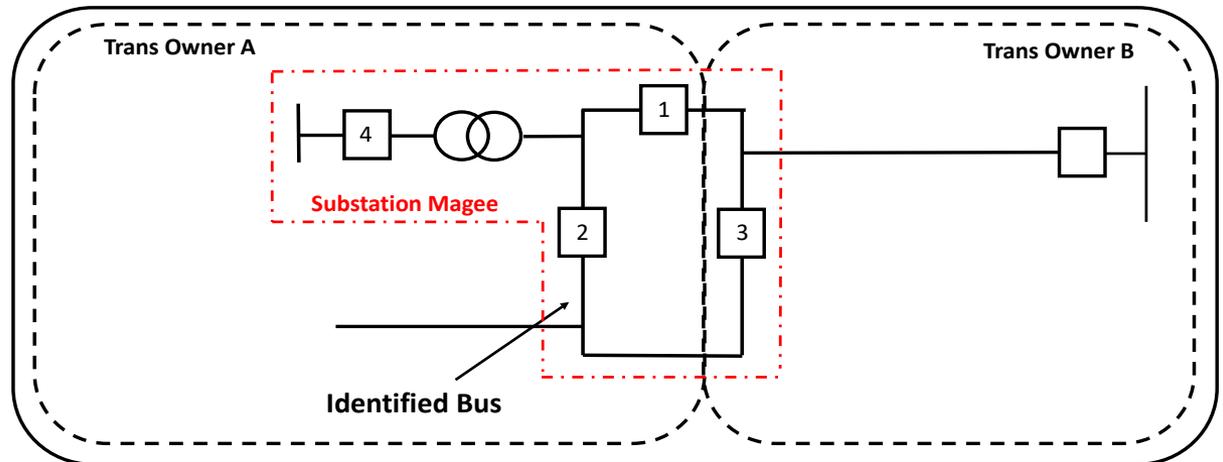
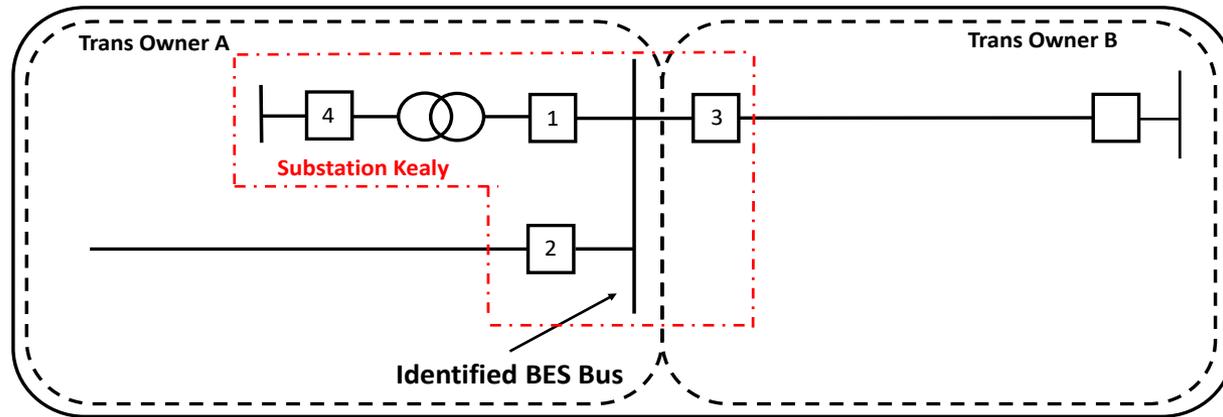
## Examples:

- TO A records SER/FR data for all three circuit breakers.
- TO A is not required to send notification to TO B.



## Examples:

- TO A is responsible for SER/FR data for CBs 1 & 2.
- If TO A does not record SER/FR data for CB 3, then TO B must be notified of responsibility to record SER/FR data for CB 3.



## Revisions to Requirement R1, Part 1.3

- 1.3.** Re-evaluate all BES buses at least once every five calendar years in accordance with Part 1.1 and, **if necessary**, notify other owners **of their responsibilities, if any**, in accordance with Part 1.2, ~~and implement the re-evaluated list of BES buses as per the Implementation Plan.~~

## Revisions to Requirement R5, Part 5.4

- 5.4.** Re-evaluate all BES Elements **under its purview** 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 ~~to implement the re-evaluated list of BES Elements as per the Implementation Plan.~~

## New Requirement R13

**R13.** Each Transmission Owner and Generator Owner shall: *[Violation Risk Factor: Lower]*  
*[Time Horizon: Long-term Planning]*

**13.1.** Within three (3) years of notification under Requirement R1, Part 1.3, have SER or FR data as applicable for BES Elements directly connected to BES buses identified during the re-evaluation.

**13.2.** Within three (3) years of notification under Requirement R5, Part 5.4, have DDR data for BES Elements identified during the re-evaluation.

## Attachment 1, Step 7 – Criterion for substantial change

If there are no BES buses on the list: the procedure is complete and no FR and SER data will be required. Proceed to Step 9.

If the list has 1 or more but less than or equal to 11 BES buses: FR and SER data is required at the BES bus with the highest maximum available calculated three phase short circuit MVA as determined in Step 3. Proceed to Step 9.

During re-evaluation per Requirement R1, Part 1.3, if the three phase short circuit MVA of previously identified BES bus is within 15% of three phase short circuit MVA of the newly identified BES bus then it is not necessary to change the applicable BES bus where FR and SER data is required.

If the list has more than 11 BES buses: SER and FR data is required on at least the 10 percent of the BES buses determined in Step 6 with the highest maximum available calculated three phase short circuit MVA. Proceed to Step 8.

- A definite time to implement this version of Reliability Standard is not specified because:
  - Revisions to R1, R3, and R5 are clarifying in nature, and
  - Relocates the amount of implementation time prescribed in PRC-002-2 Implementation Plan to the new Requirement R13.
- The elements of the PRC-002-3 Implementation Plan shall remain applicable to PRC-002-4.

- Posting
  - [Project Page 2021-04](#)
  - 45-day comment period and formal ballot June 9 – July 25, 2022
- Point of contact
  - Ben Wu, Senior Standards Developer
  - [Ben.Wu@nerc.net](mailto:Ben.Wu@nerc.net) or call 470-542-6882
- Webinar posting
  - Three business days
  - Standards Bulletin



# Questions and Answers