

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Project 2021-03

CIP-002

Industry Webinar
April 26, 2024

RELIABILITY | RESILIENCE | SECURITY



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Participants are reminded that this meeting is public. Notice of the meeting was widely distributed. Participants should keep in mind that the audience may include members of the press and representatives of various governmental authorities, in addition to the expected participation by industry stakeholders.

- Project Background
- Control Center Definition Revisions
- CIP-002
 - Attachment 1 Revisions
 - Criteria 2.12 and Exclusion Clause Revisions
- Implementation Plan

Name	Entity
Megan Sauter (chair)	Oncor Electric Delivery
Russell A. Noble (vice-chair)	American Public Power Association (APPA)
Mark R. Atkins	Acumen
Brian Evans-Mongeon	Village of Hyde Park
Terry Volkmann	Volkmann Consulting
Josh Aldridge	Ferrovial
Josh Powers	Southwest Power Pool (SPP)
Jennifer Tidwell	Southern Company
Barry Jones	Western Area Power Administration (WAPA)
Dawn Triplett	American Electric Power (AEP)

- The 2021-03 CIP-002 TOCC Standard Drafting Team (SDT) was formed to conduct further study and recommend next steps, in response to the following language of the 2016-02 SAR

Transmission Owner (TO) Control Centers Performing Transmission Operator (TOP) Obligations

V5TAG is aware of multiple interpretations of the language “used to perform the functional obligation of” in CIP-002-5.1 Attachment 1, section 2.12 and recommends clarification of:

- The applicability of requirements on a TO Control Center that performs the functional obligations of a TOP, particularly if the TO has the ability to operate switches, breakers and relays in the BES.
- The definition of Control Center.
- The language scope of “perform the functional obligations of” throughout the Attachment 1 criteria.

- The SDT designed a Field Test to obtain data to support the development of an appropriate Criterion 2.12 bright line that does not expose the Bulk Electric System to vulnerabilities
 - The Field Test was initiated Jan 10, 2022; results from the Field Test have been incorporated in drafting
 - An informal comment period was held Jun 13 – Jul 12, 2023 and responses were incorporated in initial drafting
- The first formal comment period was held Sep 26 – Nov 9, 2023
 - Responses to comments have been posted, and responses were incorporated in initial drafting. This webinar is primarily intended to be focused on major themes among the comments received and the corresponding language changes.
- A second formal comment period is open Apr 2 – May 16, 2024

- The SDT has identified the following items to revisit as a team after the current commenting period concludes:
 - Consider an alternate approach to defining Control Center that more clearly separates the physical location of operating personnel from the location of Cyber Assets
 - Monitor progress of parallel effort to define ‘Cyber System’ and consider use in the Control Center definition in place of ‘Cyber Asset’
 - Evaluate impacts associated with changes to the Control Center definition and replacing language in CIP-002 related to ‘functional obligations’
 - Review the CIP-002 Criterion 2.12 exclusion language to ensure the intent of the SDT is clear and the scope is adequately limited

One or more facilities hosting operating personnel that monitor and control the BES in real-time to perform the reliability tasks, including their associated data centers, of: 1) a Reliability Coordinator, 2) a Balancing Authority, 3) a Transmission Operator for transmission Facilities at two or more locations, or 4) a Generator Operator for generation Facilities at two or more locations.

One or more facilities used by the operating personnel described below to monitor and control the Bulk Electric System (BES) in real-time, and any facilities that contain the Cyber Assets required for operating personnel to monitor and control the BES in real-time. Field assets, such as remote terminal units and data aggregators, are excluded from the scope of the Control Center definition.

- 1) Reliability Coordinator personnel who perform the BES company-specific Real-time reliability related tasks of a Reliability Coordinator;
- 2) Balancing Authority personnel who perform the BES company-specific Real-time reliability-related tasks of a Balancing Authority;
- 3) Transmission Operator personnel who perform the BES company-specific Real-time reliability-related tasks of a Transmission Operator for Transmission Facilities at two or more locations;
- 4) Transmission Owner personnel who have the capability to control Transmission Facilities at two or more locations using Supervisory Control and Data Acquisition (SCADA); or
- 5) Generator Operator personnel who perform the reliability tasks of a Generator Operator for generation Facilities at two or more locations.

Control Center - One or more facilities used by the rooms where a responsible entity hosts operating personnel described below to monitor and control the Bulk Electric System (BES) in real-time, ~~and as described below, including~~ any ~~facilities spaces~~ that ~~contain house~~ the Cyber Assets ~~required for used by operating personnel to monitor and control the BES in real-time.~~ ~~Cyber Assets used by~~ operating personnel to monitor and control the BES in real-time. Field are generally housed in a centralized location and exclude field assets, such as remote terminal units and data aggregators, are excluded from the scope of the Control Center definition.

- Restored the lowercase term ‘facility’ in place of ‘rooms’
- Considered defining a ‘Data Center’, but instead proposed alternate language in the existing definition
- Replaced ‘spaces that house’ with ‘facility that contains Cyber Assets required for operating personnel.’
- Retained ‘Cyber Assets’ over ‘BES Cyber Assets’ to avoid a circular reference with CIP-002

1) Reliability Coordinator~~Operating~~ personnel who perform the BES company-specific Real-time reliability-related tasks of a Reliability Coordinator;

2) Balancing Authority~~Operating~~ personnel who perform the BES company-specific Real-time reliability-related tasks of a Balancing Authority;

3) Transmission Operator~~Operating~~ personnel who perform the BES company-specific Real-time reliability-related tasks of a Transmission Operator for Transmission Facilities at two or more locations;

- Dropped ‘Operating’ and pointed to the functions and obligations under BES company-specific Real-time reliability-related tasks
- Used PER-005 language “BES company-specific Real-time reliability-related tasks” to define the obligations of the function

~~4) Operating personnel of a~~ Transmission Owner personnel who have the capability to ~~electronically~~ control Transmission Facilities at two or more locations using Supervisory Control and Data Acquisition (SCADA); in real time; or

- Dropped ‘Operating’ and pointed to Transmission Owner (TO) personnel that can control
- Replaced the concept of ‘capability to electronically control’ with control ‘using Supervisory Control and Data Acquisition (SCADA) to differentiate between TOs that use control systems to operate equipment and TOs who dispatch via telephone
 - Supervisory Control and Data Acquisition: A system of remote control and telemetry used to monitor and control the transmission system

~~5) Operating personnel of a~~ Generator Operator personnel who ~~perform~~have the reliability tasks ~~of a Generator Operator for~~capability to electronically control generation Facilities at two or more locations ~~in real time~~.

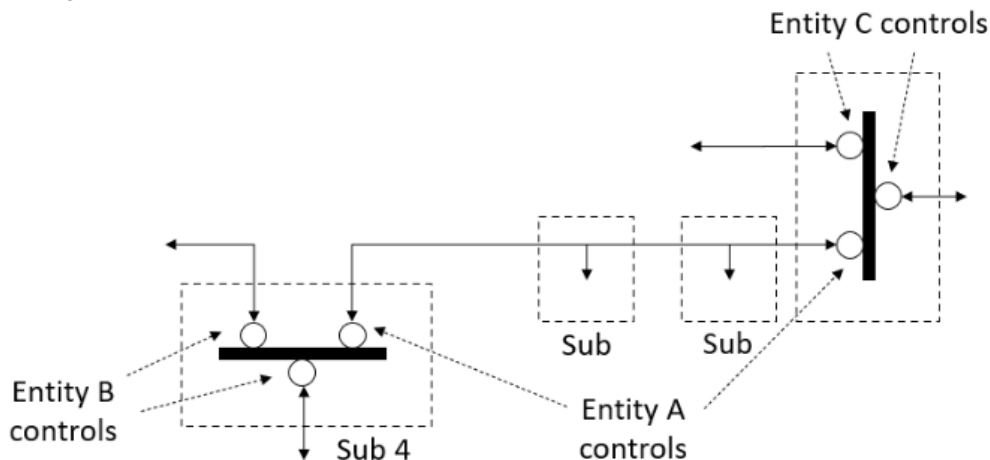
- Reverted language back to align with the original definition as applicable to a Generator Operator (i.e., replaced ‘capability to electronically control’ with a reference to performing the reliability tasks of the Generator Operator

3) ~~Transmission Operator~~~~Operating~~ personnel who perform the BES company-specific Real-time reliability-related tasks of a Transmission Operator for Transmission Facilities at two or more locations;

4) ~~Operating personnel of a~~ Transmission Owner personnel who have the capability to ~~electronically~~ control Transmission Facilities at two or more locations using Supervisory Control and Data Acquisition (SCADA);in real time; or

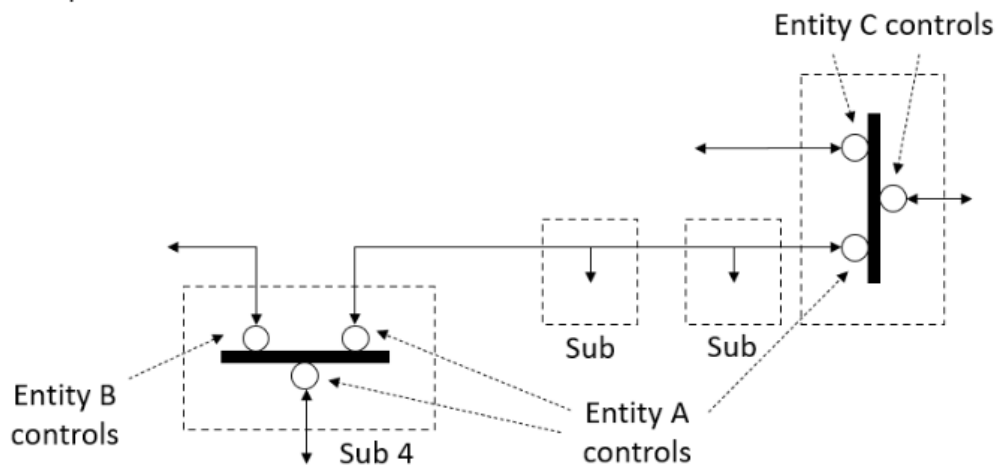
- Retained language “Transmission Facilities at two or more locations” and provided examples in the Technical Rationale
- Intentional use of the defined term “Facility” to indicate BES
 - Facility: A set of electrical equipment that operate as a single Bulk Electric System Element (e.g., a line, a generator, a shunt compensator, transformer, etc.)

Example 1



- In Example 1, Entities B & C have Transmission Facilities at one location. Entity A has one Transmission Facility at two locations
- None of the entities meet the Control Center criteria

Example 3



- In Example 3, Entity A has Transmission Facilities at two or more locations
- Entity A meets the Control Center criteria



Questions and Answers

1. High Impact Rating (H)

Each BES Cyber System used by and located at any of the following:

- 1.1. Each Control Center or backup Control Center ~~operated by a used to perform the functional obligations of the~~ Reliability Coordinator.
- 1.2. Each Control Center or backup Control Center ~~operated by a used to perform the functional obligations of the~~ Balancing Authority: 1) for generation equal to or greater than an aggregate of 3000 MW in a single Interconnection, or 2) for one or more of the assets that meet criterion 2.3, 2.6, or 2.9.
- 1.3. Each Control Center or backup Control Center, ~~operated by a used to perform the functional obligations of the~~ Transmission Operator or owned by a Transmission Owner, for one or more of the assets that meet criterion 2.2, 2.4, 2.5, 2.7, 2.8, 2.9, or 2.10.

- Replaced language “used to perform the functional obligations of” with specific references to ‘owned by’ or ‘operated by’
- Specific to Criterion 1.3, addressed the gap identified in comments for the Transmission Owner with added language

2. Medium Impact Rating (M)

Each BES Cyber System, not included in Section 1 above, associated with any equipment as described in criteria 2.1 through 2.10~~of the following~~:

Each BES Cyber System, not included in Section 1 above, used by and located at any of the Control Centers or backup Control Centers described in criteria 2.11 through 2.13~~following~~:

- In response to comments received, revised language to more clearly indicate which criteria are being referenced by the preface language “associated with” vs “used by and located at”
- This ensure Sections 2 and 3 of Attachment 1 are aligned with Section 1 of Attachment 1, and prevents the expansion of BES Cyber Systems associated with a Control Center from growing to include all data sources

2.12. Each Control Center or backup Control Center, operated by a Transmission Operator or owned by a Transmission Owner, ~~that is not already included in High Impact Rating (H) above~~, with an “aggregate weighted value” exceeding 6000 according to the table below and subject to the listed exclusion. The “aggregate weighted value” for a Control Center or backup Control Center is determined by summing the “weight value per BES Transmission Line characteristic” shown in the table for each BES Transmission Line monitored and controlled by the Control Center or backup Control Center.

Voltage Value of a BES Transmission Line	Weight Value per BES Transmission Line
<100 kV	100
100 kV to 199 kV	250
200 kV to 299 kV	700
300 kV to 499 kV	1300
500 kV and above	0 <u>(N/A)</u>

- Assets <100kV must specifically be included in the BES
- Assets >=500kV are included in Section 1 of Attachment 1

- Exclusion Clause Revisions to First Draft
 - Created ceiling of 12,000 AWW
 - Exclusion of a single “group of contiguous transmission Elements” (GCTE)
 - Gross export as opposed to net export
- Draft 2 Exclusion Clause:

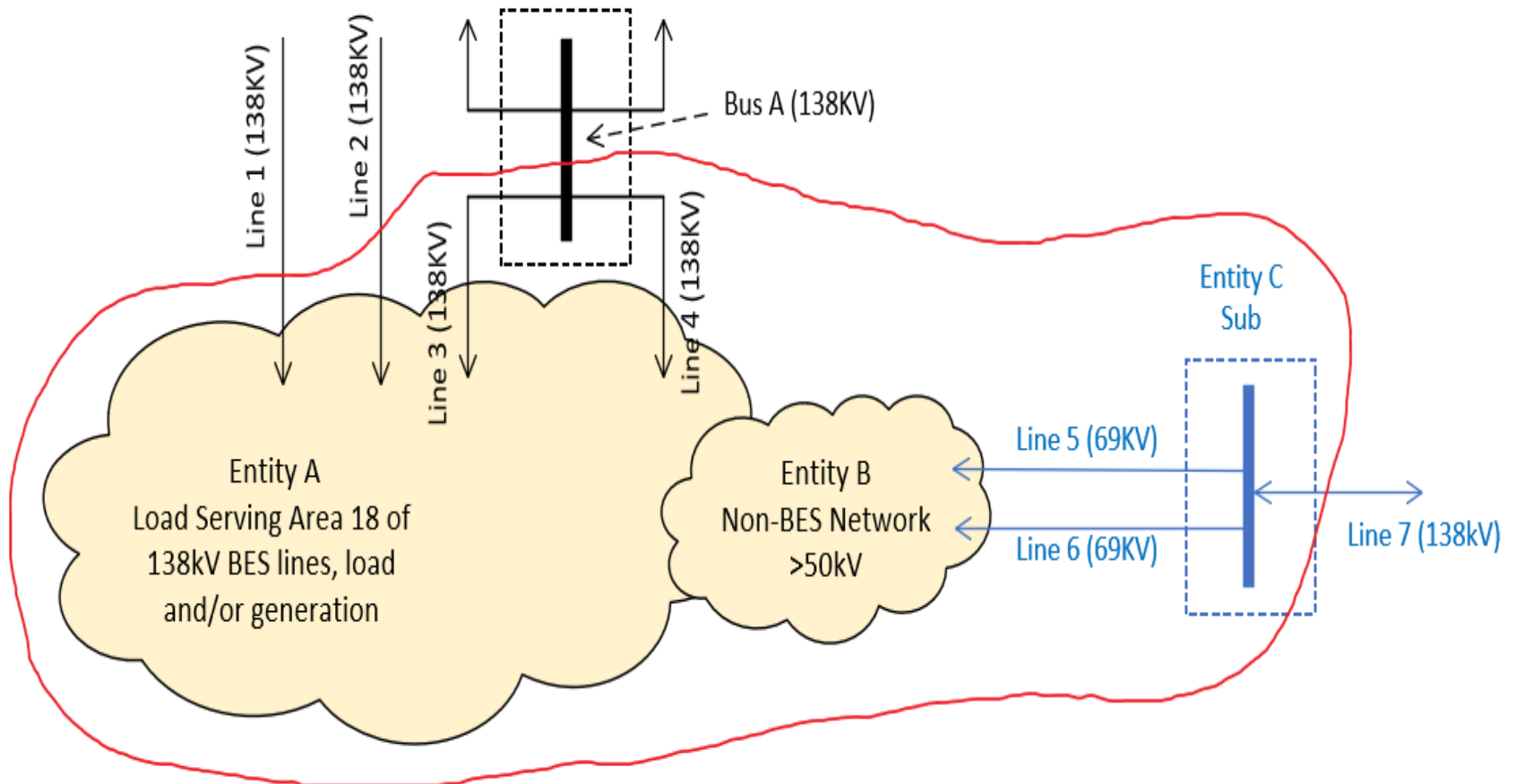
Provided that the “aggregate weighted value” calculated according to the table above is less than 12000, a Transmission Operator or a Transmission Owner may calculate a modified “aggregate weighted value” that excludes BES Transmission Lines monitored and controlled by the Control Center or backup Control Center that are part of a single group of contiguous transmission Elements that operate at less than 300kV, and where the gross export does not exceed 75 MW during non-Energy Emergency Alert (EEA) conditions. The gross export is based on the hourly integrated values for the most recent 12-month period.

- 12,000 AWW Ceiling
 - The Limit to BES transmission control area size needed
 - Field Study evaluated entities with AWW ranging between 500 and 11,300 found to have low reliability risk
 - Exclusion clause application is limited to entities having:
 - No single station or substation meeting Criterion 2.5
 - Control area limited to equivalent weight of four medium impact stations or substations meeting Criterion 2.5

- Exclusion of Single Group of Contiguous Transmission Elements (GCTE)
 - Only one GCTE may be defined by the entity
 - Prevents ability to segment off multiple areas in a large geographic area
 - GCTE system may have non-BES transmission Elements
 - Contiguous transmission operated between 50 kV and 299 kV
 - GCTE system may contain Elements owned and operated by other entities
 - GCTE serves local load

- Gross Export vs. Net Export
 - Export out of GCTE is limited to 75 MW
 - Net Export only accounts for internal generation
 - Gross Export accounts for both internal generation and flow through the GCTE
 - Entity will need to track hourly integrated flows at each connection point of the GCTE to the outside system
 - For each hour, points of outflow are summed for GCTE gross export
 - SCADA data may be used
 - May be necessary to have GCTE boundary cut through a bus

- GCTE Example





Questions and Answers

- Initial Performance of Periodic Requirements in CIP-002-Y
 - Responsible Entities shall initially comply with the periodic requirements in CIP-002-Y, Requirement R2, within **15 calendar months** of their last performance of Requirement R2 under CIP-002-5.1a
- Phased-in Implementation Date for CIP-002-Y, Requirement 1, Attachment 1 Criterion 2.12
 - Provides Responsible Entities a longer implementation period if criterion revisions would result in a higher impact level categorization of a BCS
 - If the changes to Criterion 2.12 result in a higher impact level categorization of a BCS, the Responsible Entity shall not be required to identify that BCS as that higher categorization until **24 calendar months** after the effective date of CIP-002-Y

- Planned or Unplanned Changes
 - The planned and unplanned change provisions in the Implementation Plan associated with CIP-002-5.1a shall apply to CIP-002-Y

Scenario of Unplanned Changes After the Effective Date	Compliance Implementation
New high impact BES Cyber System	12 months
New medium impact BES Cyber System	12 months
Newly categorized high impact BES Cyber System from medium impact BES Cyber System	12 months for requirements not applicable to Medium impact BES Cyber Systems
Newly categorized medium impact BES Cyber System	12 months
Responsible Entity identifies its first high impact or medium impact BES Cyber System (i.e., the Responsible Entity previously had no BES Cyber Systems categorized as high impact or medium impact according to the CIP-002 identification and categorization processes)	24 months

- Posting

- [Project Page 2021-03](#)
- 45-day formal comment period from April 2 – May 16, 2024
- Additional ballots and non-binding polls on the Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs), conducted during the last 10 days of the comment period (May 7 – May 16, 2024)

- Point of Contact

- Dominique Love, Standards Developer
- Dominique.Love@nerc.net or call 404-217-7578



Questions and Answers

- [Project Page 2021-03](#)
- [2016-02 SAR](#)
- [Field Test Plan](#)
- [Field Test Final Report](#)
- [CIP-002-Y Clean](#)
- [CIP-002-Y Redline To Last Posted](#)
- [CIP-002-Y Redline to Last Approved](#)
- [Draft 2 - Technical Rationale](#)
- [Draft 2 - Implementation Plan](#)