

**NERC**

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# Response to Comments

Project 2021-03 CIP-002

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**RELIABILITY | RESILIENCE | SECURITY**



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# Introduction

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NERC Project 2021-03 proposes revisions to the Control Center definition and CIP-002-8 Criterion 2.12 in Attachment 1. CIP-002-8 provides “bright-line” criteria for applicable Responsible Entities to categorize their Bulk Electric Systems (BES) Cyber Systems based on the impact to their associated Facilities, systems, and equipment, which, if destroyed, degraded, misused, or otherwise rendered unavailable, would affect the reliable operation of the BES. The proposed revisions to Attachment 1 address the categorization of Transmission Owner Control Centers (TOCCs) performing the functional obligations of a Transmission Operator (TOP), specifically those that meet medium impact criteria, and clarifying the language scope of “perform the functional obligations of” throughout the Attachment 1 criteria.

There were 67 sets of responses, including comments from approximately 166 different people from approximately 100 companies representing 10 of the industry Segments.

Additional information is available on the [project page](#).

## Background

Based on industry feedback, the drafting team (DT) modified the Control Center definition along with CIP-002-8. Please refer to the CIP-002-8 Technical Rationale document for additional justification and information regarding requirements within the proposed standards.

## Response to Comments Document Layout

The DT will be responding to all comments in a summary response report. Each chapter covers topics identified throughout the comments received (e.g., Applicability, Definition, Administrative, Requirements, etc. Comments received are outlined at a high level in each chapter followed by the drafting team’s response on how it considered the comment and the outcome of how the comment was addressed. If you have any questions, please contact standards developer, Dominique Love ([Dominique.love@nerc.net](mailto:Dominique.love@nerc.net)).

## Thank You

The drafting team thanks industry for your time in reviewing the proposed CIP-002-8 standard and providing comments and proposals for the DT’s consideration. All comments received have been reviewed and discussed. Response to comments have been drafted in a summary response.

# Control Center Definition

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## Control Center Definition

Currently approved definition:

**Control Center** - One or more facilities hosting operating personnel that monitor and control the Bulk Electric System (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.

Draft 1<sup>1</sup> proposed definition:

**Control Center** - One or more rooms where a responsible entity hosts operating personnel to monitor and control the Bulk Electric System (BES) in real-time, as described below, including any spaces that house the Cyber Assets 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 are generally housed in a centralized location and exclude field assets such as remote terminal units.

1. Operating personnel who perform the Real-time reliability-related tasks of a Reliability Coordinator;
2. Operating personnel who perform the Real-time reliability-related tasks of a Balancing Authority;
3. Operating personnel who perform the Real-time reliability-related tasks of a Transmission Operator for Transmission Facilities at two or more locations;
4. Operating personnel of a Transmission Owner who have the capability to electronically control Transmission Facilities at two or more locations in real-time; or
5. Operating personnel of a Generator Operator who have the capability to electronically control generation Facilities at two or more locations in real-time.

Draft 2<sup>2</sup> proposed definition:

**Control Center** - 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

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<sup>1</sup> Posted for comment and ballot period September 26 – November 9, 2023

<sup>2</sup> Posted for comment and ballot period April 2 – May 16, 2024

5. *Generator Operator personnel who perform the reliability tasks of a Generator Operator for generation Facilities at two or more locations.*

## Industry Comments

- Data center language and related field asset exclusion
  - Disagree with revising the Control Center definition to reference “any facilities that contain the Cyber Assets required for operating personnel to monitor and control the BES in real-time” and prefer reverting to the original “associated data centers” language.
  - The “any facilities” language could be broadly interpreted to encompass facilities that were not intended by the drafting team, and clarity regarding the term ‘data center’ could be achieved via other means such as technical rationale, implementation guidance, or other supporting materials.
- Revert to ‘hosting operating personnel’ instead of ‘used by operating personnel’
  - The proposed language is inappropriately over-broad and has the potential to errantly identify Transmission Facilities as Control Centers, a function they were never intended to execute.
- Language applicable to Reliability Coordinator (RC), Balancing Authority (BA), TOP and Generator Operator (GOP) should remain the same as it is today, including exclusive use of real-time as opposed to Real-time.
- Focus on facilities that TO have the capability to control via Supervisory Control and Data Acquisition (SCADA) as using an existing defined term helps with differentiation for different types of control that may exist.

## DT Response

After considering the industry comments received, the DT has identified that the changes previously proposed to the Control Center definition that were intended to address existing areas of ambiguity such as use of the term ‘associated data center’ and further defining reliability tasks performed by registered entities created additional challenges. The DT believes that the work needed to resolve these additional challenges that were raised by the industry extends beyond the scope of the portion of the 2016-02 SAR that was assigned to the 2021-03 DT. For this reason, the DT has reverted to the original Control Center definition language as it applies to the RC, BA, TOP and GOP. The DT has added a specific provision to the definition that applies to the TO to ensure registered entities properly identify TOCCs based on the capability to control transmission Facilities at two or more locations in real-time using SCADA.

The DT believes that the new language is better suited to addressing the portion of the 2016-02 SAR that was assigned to the 2021-03 DT, as it more clearly indicates that monitoring capabilities and the performance of reliability related tasks are not relevant to the identification of a TOCC.

Below provides the updated proposed Control Center definition that will be posted with Draft 3.

**Control Center** - *One or more facilities hosting operating personnel that monitor and control the Bulk Electric System (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.*

OR

*One or more facilities of a Transmission Owner that have the capability to control transmission Facilities at two or more locations in real-time using Supervisory Control and Data Acquisition (SCADA), including their associated data centers and excluding field Cyber Assets used for telemetry.*

In addition, the DT will add a definition section to the Technical Rationale (TR) document explaining the rationale behind this definition. Please see the updated TR posted with draft 3.

# Administrative

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## SAR Scope

There were many industry concerns that were related to items that extend beyond the scope of the portion of the 2016-02 Standard Authorization Request (SAR) that was assigned to the 2021-03 DT.

## Industry Comments

- Recommendation to create an additional inclusion criteria in Attachment 1 2.6 for interconnection of a certain aggregate rated net Real Power capability for the TOP and TO
- Concern expressed regarding an instance where the transmission facility is considered “medium” under Attachment 1 2.6; however, the Control Center (that operates the facility at a TOP) could exclude that facility under the 2.12 Exclusion
- Suggest removing the word ‘discrete’ or shared
- Recommendation to modify language “perform the functional obligation of” to specifically exclude non-BES generation for the GOP from the aggregation of relevant criteria

## DT Response

The SAR allows the DT to recommend clarification of applicability of requirements for a TOCC that has the capability to control BES Elements, the definition of Control Center and the language “perform the functional obligations of” throughout the Attachment 1 criteria. The SAR does not extend to proposing any additional inclusion clauses in relation to the risk associated with TOP or TO monitoring and controlling transmission Elements interconnected with generating units. Further, the SAR does not extend to addressing issues with criterion 2.6, or its associated references throughout Attachment 1. The DT does note that there are two additional SARs under separate consideration that are specifically intended to address the concerns with criterion 2.6. Finally, the incorporation of the term ‘discrete’ in Attachment 1 criteria 2.1 and 2.2 is not a red-line proposed by the DT. This change was separately proposed by the 2016-02 DT in order to address the associated implementation guidance currently included in CIP-002-5.1a.

While the portion of the 2016-02 SAR that was assigned to the 2021-03 DT includes addressing the language “perform the functional obligations of” throughout CIP-002, the DT has identified that certain modifications to the language that may fundamentally impact interpretation by entities other than TOP and TO falls beyond the scope of the SAR.

### **“Perform the Functional Obligations of”**

Some entities expressed concern with ‘operated by’ not being representative of the functions performed. It does not account for scenarios where multiple different RCs have appointed an RC agent or other non-RC RE to host the real-time RC functions.

#### **DT Response**

The DT recognizes the challenges identified by commenters with the previously proposed ‘owned by’ and ‘operated by’ language. For these reasons, the DT has proposed an alternative approach that consists of replacing the term ‘functional obligations’ with the term ‘reliability tasks’. This is viewed as an improvement over use of ‘functional obligations’ as it eliminates the obsolete reference to the NERC Functional Model. It also aligns CIP-002 language with the existing language of the Control Center definition and is viewed as a net neutral change that will not further complicate the challenges surrounding aggregation of BES versus non-BES resources for calculating net Real Power. Further, the concept of ‘reliability tasks’ is an established concept that is described in the existing CIP-002 technical rationale and will be retained in the updated technical rationale document.

### **TOP and TO Functions**

Entities request separating TOP and TO functions into two different criteria.

#### **DT Response**

The DT modified the Control Center definition to specifically identify the unique functions of the Transmission Owner. Once a TOP or TO has identified the Control Center per the definition, the DT believe that the combined criteria in Attachment 1 are adequate to disposition the BES Cyber Systems used by and located at the Control Center. In addition, the DT believes that a single criterion 1.3 and a single criterion 2.12 that applies to both TOP and TO is clearer and more concise.

### **Use of ‘equipment’ in the Preface Language**

Entities commented that that the use of ‘equipment’ in the preface language of Attachment 1 is ambiguous and reduces clarity compared to the previous language.

#### **DT Response**

The DT agrees that the use of the phrase ‘associated with any equipment as described in’ is introducing unnecessary ambiguity. For this reason, the DT has reverted to the original language ‘associated with any of the following’. Further, the drafting team has recognized that its modifications to the preface language for the criteria that specifically address Control Centers and backup Control Centers using the phrase “used by and located at” will not impact application of CIP-002 Requirement R1 that already requires identification of high impact and medium impact BES Cyber Systems “at each asset”. While concerns have been raised about future applications for cloud computing and similar technologies, holistic modifications to the requirements and attachments are outside the scope of the 2021-03 SAR. Therefore, the DT has reverted to the original language.

### **Criteria 2.11, 2.12, and 2.13 and Preface Language**

Commenters expressed concern that the deletion of the phrase ‘that is not already included in High Impact Rating above’ in Attachment 1, Criteria 2.11, 2.12, and 2.13 will likely result in double classification of many Control Centers as both containing both High and Medium Impact BCS.

#### **DT Response**

The preface language in Section 2 of Attachment 1 includes language ‘not included in Section 1 above’. The preface language in Section 3 of Attachment 1 includes language ‘not included in Sections 1 and 2 above’. With this preface

language, there is no need to include the language ‘not included in High Impact Rating above’ in each individual criterion in Sections 2 and 3 of Attachment 1. The preface language ensures that there is no double classification of the BES Cyber Systems used by and located at Control Centers or backup Control Centers.

## Criteria 2.12 Table

Commenters mentioned that the table header could be interpreted to mean that all transmission lines below 100kV should be counted in the aggregated weight of a Control Center or backup Control Center. It was suggested the inclusion of clarifying language in the form of an Exclusion for all transmission lines below 100kV, except those that have been identified, through Appendix 5C of the NERC Rules of Procedure as BES transmission lines.

### DT Response

The DT considered adding a note to the table that specifically references back to Appendix 5C of the NERC Rules of Procedure, which is the exception process through which a Transmission Line as defined in the NERC Glossary of Terms that is less than 100 kV could be identified as part of the BES. The DT believes that the specific reference to the “BES Transmission Line” in the table makes it adequately clear that it is only a subset of lines below 100kV that are to be considered. Any non-BES Transmission Lines would not be included in the aggregate weighted value calculation. Additional detail regarding the inclusion of lines <100kV in the Aggregate Weighted Value calculation can be found in the Technical Rationale.

## Exclusion Clause

Commenters expressed concerns in regards to the exclusion clause. Comments are listed below:

### Industry Comments

- Group of Contiguous Transmission Elements (GCTE) is not well understood, consider a new defined term
- Language is not currently clear that an entity can only identify one GCTE
- Clarity is needed regarding whether the Aggregate Weighted Value includes tie-lines
- Requirements for metering infrastructure to support the 2.12 exclusion may be challenging for smaller entities

### DT Response

The DT has reworded the exclusion clause in an attempt to clarify and simplify the concept. Further, the team replaced the concept of a group of contiguous transmission Elements (GCTE) with the concept of a group of contiguous Elements to clarify that the group of Elements may contain transmission Elements and non-transmission Elements. The use of an acronym, i.e. GCE, within the standard was removed. The DT elected not to create a new defined term because it would only apply in the Technical Rationale. This approach is consistent with the approach taken to define a Local Network within the Bulk Electric System definition, as opposed to creating a separate definition. The new language proposed by the DT more specifically states that an entity may only exclude a single group of contiguous Elements. In addition, the 75 MW gross export limitation was changed to 75 MWh to correctly represent an hourly integrated gross export, and not an instantaneous measurement within the hour.

Regarding the inclusion of generation tie-lines in the aggregate weighted value calculation, the DT has modified criterion 2.12 to parallel the language in criterion 2.5. This more clearly states DT’s intention that the aggregate weighted value is only calculated for each BES Transmission Line that is connected to two or more Transmission stations or substations.

An entity may choose for themselves whether or not to pursue an exclusion under the documented exclusion clause. With respect to an entity’s use of the exclusion clause, it is the entity’s responsibility to determine the most



appropriate method to demonstrate their compliance and to retain the evidence necessary. Further, the Technical Rational clarifies that Criterion 2.12 does not require entities to install meters specifically for the purpose of calculating the hourly integrated gross export. Entities may choose to install metering for this purpose, or they may pursue other avenues such as using SCADA data to calculate the hourly integrated value.

# Implementation Plan

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## Planned vs. Unplanned

Entities expressed concerns in regards to timeframe for implementation for the Control Center definition and modifications to CIP. There were suggestions to increase from 24-month implementation window to 36 months and/or 48 months. The additional time will help entities reassess and determine the actions necessary to become compliant.

### DT Response

The DT considered increasing the phased-in implementation date for CIP-002-8, Requirement R1, Attachment 1 Criteria 2.12 from 24 months; however, the DT elected to retain 24 month window as it aligns with the established 24 month window that is currently provided to Responsible Entities who identify their first high impact or medium impact BES Cyber System. The DT does not see the justification for extending the implementation window. Further, given that the earliest effective date of CIP-002-8 is April 1, 2026 (aligning with the earliest possible effective date of CIP-002-7), entities will have adequate time to evaluate impacts before the 24 month window commences.

## Alignment with Other CIP related Projects

Entities expressed concerns about the syncing implementation plans together.

### DT Response

As the 2016-02 version of CIP-002-7 has passed final ballot, the next posting of CIP-002-8 will be sequenced accordingly. The revised implementation plan will reflect the natural sequencing of the two projects.

# Technical Rationale

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## **Industry Comments**

Many entities request the technical rationale document be updated regarding many aspects of the standard.

## **DT Response**

See the updated Technical Rationale, which addresses industry comments requesting additional clarifications or justification.