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GOP-only Control Center

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Overview

- GO/GOP
- Control Center
- CIP-002-5.1a R1
- 2017 and 2025 FERC CIP Lessons Learned
- Future Registration 2027 and Beyond

GO/GOP Overview

- **“Generator Owner”** means an entity that: 1) owns and maintains generating Facility(ies) (Category 1 GO); or 2) owns and maintains non-BES inverter based generating resources that either have or contribute to an aggregate nameplate capacity of greater than or equal to 20 MVA, connected through a system designed primarily for delivering such capacity to a common point of connection at a voltage greater than or equal to 60 kV(Category 2 GO).
- **“Generator Operator”** means the entity that: 1) operates generating Facility(ies) and performs the functions of supplying energy and Interconnected Operations Services (Category 1 GOP); or 2) operates non-BES inverter based generating resources that either have or contribute to an aggregate nameplate capacity of greater than or equal to 20 MVA, connected through a system designed primarily for delivering such capacity to a common point of connection at a voltage greater than or equal to 60 kV (Category 2 GOP).

Control Center

- Control Center Defined
  - NERC Glossary Of Terms
    - 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 Filed and Pending Regulatory Approval Continent-wide Term Link to Project Page Acronym BOT Adoption Date FERC Approval Date Effective Date Definition 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.

CIP-002-5.1a R1

- CIP-002-5.1a R1 requires accurate identification and categorization of BES Cyber Systems.
    - CIP-002-5.1a requires entities to identify and categorize BES Cyber Systems and associated BES Cyber Assets.
    - Categorization determines applicable cybersecurity controls.
- What are Impact Rating Criteria?
    - These are the criteria entities implement to determine high, medium, or low impact rating to determine asset applicability for CIP Standards.
    - The threshold between low and medium impact — 1,500 megawatts — makes a big difference in CIP applicability.

CIP-002-5.1a R1

- *"2.11. Each Control Center or backup Control Center, not already included in High Impact Rating (H) above, used to perform the functional obligations of the Generator Operator for an aggregate highest rated net Real Power capability of the preceding 12 calendar months equal to or exceeding 1,500 MW in a single interconnection."*
- Summary
  - Attachment 1 — Impact Rating Criteria 2.11
    - Applies to Control Centers performing Generator Operator (GOP) functions
    - Threshold: ≥ 1,500 MW aggregate highest net Real Power capability
    - Measured over the preceding 12 calendar months
    - Applies within a single interconnection

2017 FERC CIP Lessons Learned

Identifying BES Cyber Systems

3. Consider all owned generation assets, regardless of BES-classification, when evaluating impact ratings to ensure proper classification of BES Cyber Systems.

Relates To
CIP-002-5.1a
Requirement
R1
Identify BES
Cyber Systems

While identification of BES Cyber Systems was generally performed adequately by the audited entities, there was some confusion regarding the generation assets that should be considered when evaluating the rating impact classification of BES Cyber Systems. Reliability Standard CIP-002-5.1a Attachment 1 identifies aggregated thresholds to determine the categorization of a BES Cyber System. For example, Criteria 2.11 requires categorization as Medium Impact of all Control Centers or backup Control Centers, not already categorized as High Impact, used to perform the functional obligations of the Generator Operator for an aggregate highest rated net Real Power capability of the preceding 12 calendar months equal to or exceeding 1500 MW in a single Interconnection. To determine whether a generation Control Center or back-up Control Center meets the 1500 MW threshold, the MW capacity of both BES generation and non-BES generation are considered. During audit fieldwork, staff found that some entities were only considering BES generation in applying Criteria 2.11, and therefore excluding all "non-BES generation" in their calculations.[9]

For example, a single generator operating with an individual nameplate of 10 MVA would not be included in the BES, and thus not have to categorize its cyber systems. However, a Control Center that controls 150 10-MVA generating resources would have to categorize its cyber systems, some possibly at a Medium Impact rating.[10] Ensuring that all owned generation assets, regardless of BES-classification, are considered in addressing Attachment 1 reduces the risk of improper identification and classification, and insufficient protection, of BES Cyber Systems.

1. What does your GOP Control Center operate?
2. "To determine whether a generation Control Center or back-up Control Center meets the 1,500 MW threshold, the MW capacity of both BES generation and non-BES generation [is] considered."

2025 FERC CIP Lessons Learned

- 2025 Lessons Learned from Commission-led CIP Reliability Audit (a staff report)
- CIP Reliability Standards
  - CIP-002-5.1a (BES Cyber System Categorization)
  - CIP-003-8 (Security Management Controls)
  - CIP-004-7 (Personnel & Training)
  - CIP-006-6 (Physical Security of BES Cyber Systems)
  - CIP-010-4 (Configuration Change Management and Vulnerability Assessments)

2025 FERC CIP Lessons Learned

Control Center Categorization as Required by CIP-002-5.1a, Requirement R1

OVERVIEW

Ensure that BES Asset Identification and Categorization Procedures consider DERs[20] when determining Control Center[21] impact rating.

Reliability Standard CIP-002-5.1a, Requirement R1 requires registered entities to identify and categorize BES Cyber Systems and their associated BES Cyber Assets for the application of cyber security requirements commensurate with the adverse impact that loss, compromise, or misuse of those BES Cyber Systems could have on the reliable operation of the BES. To identify and categorize these systems and assets, registered entities refer to the Reliability Standard's Attachment 1, which defines the criteria for each impact rating. Pursuant to Reliability Standard CIP-002-5.1a, Attachment 1, BES Cyber Systems and associated BES Cyber Assets may be classified as low, medium, or high impact.

Specifically, Attachment 1, criterion 2.11 applies to any Control Center or backup Control Center used to perform GOP functions where, in the preceding 12 calendar months, the aggregate highest rated net Real Power capability of generation resources is equal to or exceeds 1,500 MW within a single interconnection. Criteria 2.11 does not specify that the aggregate generation must be from BES resources. To determine whether a generation Control Center or back-up Control Center meets the 1,500 MW threshold, the MW capacity of both BES generation and non-BES generation are considered.[22]

22 See FERC, See e.g., 2017 Staff Report on Lessons Learned from Commission-led CIP Version 5 Reliability Audits, Lesson Learned #3 (Oct. 6, 2017), www.ferc.gov/sites/default/files/2020-05/10-06-17-CIP-audits-report_3.pdf.

2025 FERC CIP Lessons Learned

- The risk identified by FERC
  - FERC audit staff observed that registered entities own and operate a wide mix of generation resources with different net real outputs.
    - Including larger generation resources with a gross individual nameplate rating greater than 20 MVA or a gross plant/facility aggregate nameplate rating greater than 75 MVA
  - The mix includes some registered entities that operate smaller DERs, many below 10 MVA.
    - In some cases, these smaller resources numbered in the hundreds, adding up to a significant amount of aggregate generation in a single interconnection.

2025 FERC CIP Lessons Learned

- FERC suggested mitigation
  - When identifying their Control Centers, registered entities should assess and document generation resources holistically, including DERs. When these resources are being operated from the same Control Center, and aggregated capacity exceeds 1,500 MW in a single interconnection, the Control Center must be categorized as Medium Impact under Attachment 1, Section 2.11.

2025 FERC CIP Lessons Learned

- To FERC's point of risk
  - North Carolina Electric Coop and OATI Connect Microgrids and DERs Under Real-time Control Platform
    - The real-time DERMS to be deployed by NCEMC and OATI will enable live orchestration and control of the cooperatives' solar and battery storage assets, demand response programs, and five microgrids.
    - About 15 % of NCEMC's peak need is served by DERs, including both utility- and customer-owned solar and energy storage assets, according to Lee Ragsdale, NCEMC's senior vice president of strategic projects.
      - Aggregate peak across all members is 6–7 GW.
    - North Carolina is investing heavily in microgrids. After Hurricane Helene left many rural communities without power for weeks, the state announced it would invest $5 million to develop 26 microgrids across the state, two of which will be mobile.

2025 FERC CIP Lessons Learned

- Use of Third Parties to Perform Reliability Standards Compliance Duties CIP-003-8, CIP-006-6, and CIP-010-4
- Perform due diligence when relying on third parties to perform compliance duties.
  - Registered entities are ultimately responsible for compliance with the applicable Reliability Standards, even when using third parties for their compliance obligations.
  - If registered entities use third parties to perform a function that could affect compliance, they must ensure their third parties comply with the Reliability Standards.
  - Third parties may include contractors, sub-contractors, vendors, and consultants, which may be located on or off premises.
  - The NERC ERO Registration Procedure allows registered entities to “delegate the performance of a task to another entity, including a non-registered party, using a third-party agreement,” it also makes clear that “the registered entity remains solely responsible for compliance and is accountable for violations even with respect to tasks performed by the non-registered third-party on its behalf.”
    - For example, registered entities should have written evidence available to demonstrate third-party completion of assigned tasks and adherence to the NERC Rules of Procedure (ROP) for data access.

Future Registration 2027 and Beyond

- Current registration questionnaire

CIP Inherent Risk Assessment – New Registrations Only

Please select the correct categorization regarding your entity's external routable connectivity to non-NERC Registered Entities including vendors.

☐ Entity has external electronic communication to non-registered entities i.e., any other 3rd party.
☐ Entity has external electronic communication only to NERC Registered Entities.
☐ Entity has external electronic communication within the Entity's own registration.
☐ Entity has no external electronic communication.

For GOs only, please select the correct categorization regarding your entity's capability to operate and monitor generation.

☐ Entity has monitoring and control capability of generation Cyber Assets, at a single location, with an aggregate impact greater than 3000 MW.
☐ Entity has monitoring and control capability of generation Cyber Assets, at a single location, with an aggregate impact between 1500 MW and 3000 MW.
☐ Entity has monitoring and control capability of generation Cyber Assets, at a single location, with an aggregate impact less than 1500 MW.
☐ Entity has no monitoring and control capability of generation, only the GOP is responsible.

Does your entity have any Cyber Assets which are end-of-life?

Click or tap here to enter text.

Please provide any additional information if needed.

Click or tap here to enter text.

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