

RELIABILITY & SECURITY

Workshop - Portland, Oregon



October 29–30, 2024



Adjacency and More In CIP-014-4

October 29, 2024

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Why CIP-014 Matters

A confidential E-ISAC report shows that physical attacks on the electric grid increased by 71% in 2022 from 2021.

Shootings at two substations in Moore County, North Carolina, cut power to 45,000 people.

A Christmas Day attack on four substations in the Pacific Northwest cut power for 14,000 customers.

In the Western Interconnection in 2023, there were 107 physical security incidents reported through the DOE-417 process.

In June 2023, an attack on two hydroelectric dams in the Hells Canyon Complex interrupted service and caused more than \$200,000 in damage.

Topics for the Panel

Background

- FERC Order
- Standard Authorization Request for CIP-014-4
- Update on the CIP-014-4 ballot process

CIP-014 Reliability Studies

- Perspectives on complete loss of service
- Considerations for load loss criteria

Adjacency, Proximity, and Line of Sight

FERC Order Standard Authorization Request Ballot Process

Could you summarize the key points in FERC's order to evaluate the effectiveness of CIP-014?

181 FERC ¶ 61,230
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Richard Glick, Chairman;
James P. Danly, Allison Clements,
Mark C. Christie, and Willie L. Phillips.

North American Electric Reliability Corporation

Docket No. RD23-2-000

ORDER DIRECTING REPORT

(Issued December 15, 2022)

1. As part of its ongoing oversight of the Bulk-Power System, and pursuant to section 39.2(d) of the Commission's rules and regulations,¹ the Commission directs the North American Electric Reliability Corporation (NERC), as the Commission-certified electric reliability organization (ERO), to conduct a study evaluating (1) the adequacy of the Applicability criteria set forth in the Physical Security Reliability Standard CIP-014-3 (Physical Security Reliability Standard); (2) the required risk assessment set forth in the

***What reliability and security
benefits does Project 2023-06 seek
to provide?***

Project Scope (Define the parameters of the proposed project):

The DT should revise CIP-014-3 R1 to:

1. Clarify the risk assessment methods for studying instability, uncontrolled separation, and Cascading within an Interconnection. The methods should account for dynamic studies.
2. Clarify the case(s) used for the risk assessment to be tailored to the Requirement R1 in-service window and correct any discrepancies between the study period, frequency of study, and the base case(s) a Transmission Owner uses.
3. Assure the adequacy and consistent implementation of technically supported justification for study decisions. Clarity should include specificity regarding the documentation, and usage of criteria to identify instability, uncontrolled separation, or Cascading within an Interconnection occur as part of a risk assessment.
4. Clarify what study scenario(s) and other study assumptions are appropriate and reasonable considering the intent of CIP-014-3 and the potential range of issues during a physical attack. Simulations should incorporate the loss of station elements without the reliance on local system protection.
5. Clarify how to account for adjacent Transmission stations or Transmission substations of differing ownership as well as for those Transmission stations or Transmission substations within line-of-sight to each other.

Where are we today in the ballot process for CIP-014-4?

Reliability Studies

Complete Loss of Service

Load Loss Criteria

Reliability Studies Complete Loss of Service Load Loss Criteria



What is the difference between transient and dynamic stability studies? Why is it important to include dynamic stability studies in a CIP-014 risk assessment?

Could you describe for a beginner what delayed clearing is and why it is an important assumption in CIP-014 reliability studies?

I already have TPL Planning Assessments—am I done?

It would be so unlikely to experience an instantaneous event that faults an entire substation and causes protective relays to remove it from the system. Do I need to study such a scenario?

Can NERC provide criteria for the threshold of load loss I need to use for my studies?

Adjacency
Proximity
Line of Sight

Are adjacency and proximity the same thing?

Do they imply being electrically connected?

I own a non-critical substation adjacent to another entity's critical substation. How do I study this scenario?

Is the definition for line of sight in the FAC-003-5 Standard for Transmission Vegetation Management applicable to attack scenarios for physical security?

4.3. Generation Facilities: Defined below (referred to as “applicable lines”), including but not limited to those that cross lands owned by federal,² state, provincial, public, private, or tribal entities:

4.3.1. Overhead transmission lines that (1) extend greater than one mile or 1.609 kilometers beyond the fenced area of the generating station switchyard to the point of interconnection with a Transmission Owner’s Facility or (2) do not have a clear line of sight³ from the generating station switchyard fence to the point of interconnection with a Transmission Owner’s Facility and are:

4.3.1.1. Operated at 200kV or higher; or

4.3.1.2. Operated below 200kV and are identified by the Planning Coordinator or Transmission Planner, per its Planning Assessment of the Near-Term Transmission Planning Horizon as a Facility that if lost or degraded are expected to result in instances of instability, Cascading, or uncontrolled separation that adversely impacts the reliability of the Bulk Electric System for a planning event; or

4.3.1.3. Operated below 200 kV identified as an element of a Major WECC Transfer Path in the Bulk Electric System by WECC.

³ “Clear line of sight” means the distance that can be seen by the average person without special instrumentation (e.g., binoculars, telescope, spyglasses, etc.) on a clear day.

What kind of distances are we talking about for advanced optical technologies and the latest targeting equipment?

***Could you share your perspective
on coordinated multi-point attacks
and exploiting multiple adjacent
substations simultaneously?***

References

[FERC Docket No. RD23-2-000](#)

[NERC's response to FERC's Docket](#)

[Project 2023-06 CIP-014 Risk Assessment Refinement](#)

[CIP-014-4 Standard Authorization Request](#)

