

# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# PJM RS&C Subcommittee Update

NERC Project 2023-06: CIP-014 Risk Assessment Refinement  
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**RELIABILITY | ACCOUNTABILITY**



- Applicability section

- A reliability gap has been identified for the jointly owned Transmission stations or Transmission substations

**4. Applicability:**

**4.1. Functional Entities:**

- 4.1.1.** Transmission Owner that owns **or jointly owns one or more** Transmission **station(s)stations** or Transmission **substation(s)substations** that meet the applicability criteria of Attachment 1.

## Updates

- R1 (document applicable facilities)

## Proposed Language

- R1.** Each Transmission Owner, at least once every 36 calendar months, shall ~~document a list of~~ ~~identify each~~ applicable Transmission station ~~(s)~~ and Transmission substation ~~(s)~~ meeting any of the criteria in Attachment 1 that ~~are~~ is either existing or planned to be in service within 36 calendar months. *[Violation Risk Factor: High; Time-Horizon: Long-term Planning]*

## Updates

- R2 (documented proximity criteria)

## Proposed Language

- R2. Each Transmission Owner shall ~~have documented criteria to determine those~~ identify proximate Transmission station(s) and Transmission substation(s), irrespective of ownership, within ~~½ mile~~ 1500 feet or 457 meters (the shortest distance, measured substation fence line to substation fence line) of an applicable Transmission station or Transmission substation ~~documented~~ identified in Requirement R1, ~~that could be impacted by a single physical attack. The criteria shall address at a minimum the following:-~~ *[Violation Risk Factor: Medium; Time-Horizon: Long-term Planning]*
- ~~2.1. Line of sight between multiple Transmission station(s) or Transmission substation(s) from a single location without obstruction.~~
- ~~2.2. Ease of access from a common roadway that exists between multiple Transmission station(s) or Transmission substation(s).~~

## Updates

- R3 (risk assessment methodology)

## Proposed Language

- R3. Each Transmission Owner shall have a documented risk assessment methodology, ~~including criteria for steady state and dynamic simulations,~~ for evaluating the loss ~~due to a physical attack~~ of each applicable Transmission station(s) ~~and or~~ Transmission substation(s) ~~documented identified~~ in Requirement R1 ~~and Transmission substation(s) or Transmission station(s) determined to be in proximity per Requirement R2~~. The methodology shall include, at a minimum, the following:  
*[Violation Risk Factor: High; Time-Horizon: Long-term Planning]*

- 3.1.** Documented criteria for assessing instability, uncontrolled separation, or Cascading within an Interconnection. The criteria shall include, at a minimum, thresholds identifying unacceptable generation and load loss within an Interconnection.
- ~~**3.1.** Technically supported thresholds and rationale for determining the amount of acceptable load loss, the amount of acceptable generation loss, post event response, and any additional considerations recognized as resulting in instability, uncontrolled separation, or Cascading within an Interconnection. The technical rationale shall include:
  - ~~**3.1.1.** Steady state and dynamic system response to events that could lead to load loss, generation loss, and other unacceptable post event response within an Interconnection.~~~~

- 3.2.** ~~Steady-state~~ A provision that steady-state and dynamic simulations shall each be performed ~~under System conditions that are more likely to contribute to instability, uncontrolled separation, or Cascading within an Interconnection using~~ a System peak Load case and a System Off-Peak Load case.
- 3.3.** A specification for Fault simulations, including:
- 3.2.1.** ~~The simulations shall include the removal of all Elements that Protection Systems and other controls are expected to automatically disconnect for each event.~~
- 3.2.2.** ~~If steady state and dynamic simulations each show acceptable system response but additional Elements trip during the dynamic simulation of an event, then additional steady state analysis including any tripped Elements from the dynamic simulations shall be conducted.~~
- 3.3.1.** ~~3.3.~~ For each applicable Transmission station or Transmission substation listed in accordance with Requirement R1, ~~analysis shall include~~ a Fault at the applicable Transmission station or Transmission substation ~~and~~.
- For each Transmission station or Transmission substation ~~identified~~ determined in accordance with Requirement R2 as being in proximity to ~~the~~ an applicable Transmission station or Transmission substation, Faults at both the applicable and proximate Transmission station(s) or Transmission substation(s).

- 3.4.** A specification that Fault simulations ~~that~~ assume the loss of communication and Protection ~~System~~Systems at the **applicable** Transmission station(s) or Transmission substation(s) **prior to or simultaneous with the Fault(s)** studied under Requirement R3, Parts ~~3.23.3.1~~ and ~~3.33.3.2~~.
- 3.4.1.** Removal of all Elements that Protection Systems and other controls are expected to automatically disconnect for each event.
- 3.4.2.** ~~3.4.1~~-Delayed (remote) clearing times shall be used unless otherwise technically substantiated.
- 3.4.3.** ~~3.4.2~~-Actual or more conservative ~~estimates of~~ clearing times shall be used unless otherwise technically substantiated.

## Updates

- R4 (joint ownership/coordination)

## Proposed Language

- R4. Each Transmission Owner with applicable Transmission station(s) and Transmission substation(s) ~~per identified in~~ Requirement R1 **containing Bulk Electric System (BES) Elements** owned by multiple Transmission Owners shall coordinate with ~~those each~~ **appropriate** Transmission ~~Owners~~ **Owner(s)** to determine and document their individual and joint responsibilities for **documenting a risk assessment methodology under Requirement R3 and for** performing any required risk assessments per Requirement R5. [~~VRF~~ **Violation Risk Factor: Medium; Time-Horizon: Operations Planning, Long-term Planning**]

## Updates

- R5 (risk assessment)

## Proposed Language

- R5.** At least once every 36 calendar months, each Transmission Owner shall perform a risk assessment to identify **applicable** Transmission station(s) and Transmission substation(s) **identified in Requirement R1**, that if rendered inoperable or damaged **as a result of a physical attack** could result in instability, uncontrolled separation, or Cascading within an Interconnection, using the methodology established in Requirement R3, including any Transmission station(s) and Transmission substation(s) identified in accordance with **documentation established per Requirement R4**. **If proximate Transmission station(s) and Transmission substation(s) were identified in Requirement R2, they should also be included in the risk assessment.** *[VRF Violation Risk Factor: High; Time-Horizon: Operations Planning, Long-term Planning]*

- 5.1. ~~ADuring the current risk assessment, a~~ Transmission station or Transmission substation identified in ~~either the~~ dynamic or ~~steady-state~~ ~~simulationssimulation~~ as causing instability, uncontrolled separation, or Cascading within an Interconnection when rendered inoperable or damaged ~~as a result of a physical attack does not require any additional simulations during the current risk assessment~~ requires no further simulation.
- 5.2. If a previous risk assessment has identified a Transmission station or Transmission substation as causing instability, uncontrolled separation, or Cascading within an Interconnection when rendered inoperable or damaged, then the Transmission Owner may forgo additional assessments on that Transmission station or Transmission substation. Requirement R5, Part 5.3 and Requirement R7 through Requirement R10 still apply to that Transmission station or Transmission substation until a new risk assessment demonstrates otherwise.
- 5.3. ~~5.2.~~ The Transmission Owner shall identify the primary control center that operationally controls each Transmission station or Transmission substation identified ~~as causing instability, uncontrolled separation, or Cascading within an Interconnection when rendered inoperable or damaged~~ in the Requirement R5 risk assessment.

## Attachment 1 – Applicability Criteria

Applicable Transmission station(s) or Transmission substation(s) are those that meet any of the following criteria:

1. Transmission Facilities operated at 500 kV or higher. For the purpose of this criterion, the collector bus for a generation plant is not considered a Transmission Facility, but is part of the generation interconnection Facility.
2. Transmission Facilities that are operating between 200 kV and 499 kV at a single station or substation, where the station or substation is connected at 200 kV or higher voltages to three or more other Transmission stations or substations and has an "aggregate weighted value" exceeding 3000 according to the table below. The "aggregate weighted value" for a single station or substation is determined by summing the "weight value per line" shown in the table below for each incoming and each outgoing BES Transmission Line that is connected to another Transmission station or substation. For the purpose of this criterion, the collector bus for a generation plant is not considered a Transmission Facility, but is part of the generation interconnection Facility.

Voltage Value of a Line	Weight Value per Line
less than 200 kV (not applicable)	(not applicable)
200 kV to 299 kV	700
300 kV to 499 kV	1300
500 kV and above	0N/A

3. Transmission Facilities at a single station or substation location that are identified by its Reliability Coordinator, Planning Coordinator, or Transmission Planner as critical to the derivation of Interconnection Reliability Operating Limits (IROLs) and their associated contingencies.
4. Transmission Facilities identified as essential to meeting Nuclear Plant Interface Requirements (NPIRs).



# Questions and Answers