Guided Self-Certification

Tuesday, October 27, 2020

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Why Guided Self-Certifications?

We will explain—

▪ Our role and the purpose of Self-Certifications
▪ The process and what help is available
Why Guided Self-Certifications?

- NERC has defined the set of functions that must be performed to ensure the reliability of the BES
- The relationship among the entities responsible for performing the tasks within each function
Why Guided Self-Certifications?

- WECC is charged by NERC to determine which standards will be monitored, which tools will be used to monitor, and the monitoring frequency based on risk.
- Our monitoring tools are Audit & Observation, Self-Certification, Spot-Check, and Investigation.
Electricity is an integral part of the fabric of modern society. WECC strengthens that fabric to preserve and improve society's future.

There are nearly 400 registered entities. We will audit about 30 this year.
If 2020 Was a Hula Hoop
But Why Guided Self-Cert with Evidence?

We think registered entities may need help determining compliance with some standards.
FAC-008-3 Facility Ratings

Purpose:

▪ To ensure that Facility Ratings used in the reliable planning and operation of the BES are based on technically sound principles. A Facility Rating is essential to determine System Operating Limits.
State of emergency declared as California faces historic heat, possible power outages

A blazing sun silhouettes power lines in North Long Beach ahead of a heatwave that is forecast to begin on Saturday. (Luis Sinco / Los Angeles Times)
Hurricane-force winds wreaked havoc across northern Utah on Tuesday, killing one resident, toppling hundreds of huge trees, closing schools and knocking out the power for more than 170,000 homes and businesses.

—Salt Lake Tribune September 9, 2020
The worst fire season ever.

Again.
FAC-008-3 Facility Ratings

- Accurate Facility Ratings help ensure accurate SOLs
  - Better prepared to use available resources
  - System operators can keep the lights on, and
  - We will better understand how to strengthen that essential fabric of society
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Facility Ratings
FAC-008-3
Guided Self-Certification

October 27, 2020

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Facility Ratings Methodology

- FRM should have
  - Table of contents
  - Version updates
  - What was updated
- Standard became effective January 1, 2013; FRM should reference its own creation from that period
- An FRM that simply repeats standard language without any detail on elements and ratings is not adequate
Documents you should already have created since the standard was effective

- FRM and/or documentation on how entity determines facility ratings; the blueprint of how facilities derived their facility ratings
  - R1 requires documentation
  - R2 requires a methodology
Facility Ratings Methodology

**Failure point:** Only one department establishes the FRM and the document is not communicated and coordinated through other departments
Documentation Overall

- Documentation and/or FRM must address all requirements of standard
- Please annotate clearly where each requirement and sub-requirements are addressed
Documentation Overall

- A list of all applicable facilities and their associated elements, usually a spreadsheet (can be more than one)
- Entity must identify most limiting and second most limiting elements
  - If not evident, documentation is incomplete and must be resubmitted with elements clearly marked as most limiting
System one-line diagram(s) to verify the list of facilities. Should be most current and include entire footprint of the entity.
The documentation shall be consistent with the principle that the Facility Ratings do not exceed the most limiting applicable Equipment Rating of the individual equipment that comprises that Facility. Therefore, all elements must be identified between the generator and the low side terminal or high side bushing.

The scope of equipment addressed shall include, but not be limited to, conductors, bus bars, transformer, protective devices such as breakers and CTs, jumpers, any type of metering CTs, etc.
Documentation—R1

- A list of all applicable generator facilities and their associated elements, usually provided in a spreadsheet (can be more than one)
- Entity must identify the most limiting elements in its documentation. If not evident, documentation is incomplete and must be resubmitted with elements clearly marked as most limiting
- System one-line diagram(s) to verify the list of facilities. Should be most current and include entire generator station of entity
No requirement under R1 about ambient conditions or emergency ratings

Generator Owner should state whether it owns the Generator Step-up transformer (GSU) and identify the GSU’s rating
NERC Glossary of Terms defines Element as an electrical device.

Would *not* include mechanical devices (turbine, shaft, mechanical coupling, fuel flow restrictions, etc.) that may affect the capability of a generator.
Sample Set to Evaluate for R1

- A sample set of generators (five) owned by the entity should be derived by engineering judgment such that all voltages and different generator locations and types are represented.
- Documentation for the sample set should verify all elements and their ratings though nameplates and one-line or engineering drawings.
- Basically, the entity must provide how it derived its list of elements and their ratings by some type of documentation.
Requirement R2

R2 *does require* an FRM. Must list all elements of the facility from the GSU to breaker protection at the substation to which it connects.
Requirement R2

The scope of equipment addressed shall include, but not be limited to, conductors, transformers, relay protective devices, terminal equipment, and series and shunt compensation devices. If the entity does not own a common element such as a wave trap or other series devices such as series capacitors in their footprint this should be stated in its FRM.
Requirement R2

- R2 also requires, “Ambient conditions (for particular or average conditions or as they vary in real-time),” and “The scope of Ratings addressed shall include, as a minimum, both Normal and Emergency Ratings”
- FRM should address ambient conditions how they impact elements subject to ambient temperatures such as conductors, transformers and any protection equipment
Requirement R2

Normal Rating:
- Defined by the equipment owner; specifies the level of electrical loading, usually expressed in megawatts (MW) or other appropriate units that a system, facility, or element can support or withstand through the daily demand cycles without loss of equipment life.
- Equipment Rating for continuous use on a normal system configuration operated within normal parameters and specified environmental conditions.
Emergency Rating:

- Defined by the equipment owner; specifies the level of electrical loading or output, usually expressed in megawatts (MW) or Mvar or other appropriate units, that a system, facility, or element can support, produce, or withstand for a finite period.
- Rating assumes acceptable loss of equipment life or other physical or safety limitations for the equipment involved.
FRM must state, “that a Facility Rating shall respect the most limiting applicable Equipment Rating of the individual equipment that comprises that Facility.”
Requirement R2

Joint or shared facilities should include all elements of the facility. Ownership does not terminate the responsibility of the ratings. Entities must communicate and coordinate with their neighbors when determining the list of elements of the facility and their ratings of joint or shared facilities.
Requirement R2

If *IEEE Standards* are used as references in the FRM, the entity must explain how the IEEE Standard is used. Simply stating an IEEE Standard without any narrative on how it applies to establishing the ratings of the equipment is not sufficient.
Sample Set to Evaluate for R2

- Sample can be in line with the R1 sample
  - Transmission is simply the generator tie to the BES
  - Length of facility can vary from a few hundred feet to several miles; no limits on distance
  - If generator tie is only a few feet, it still requires a rating
  - Required documentation for the sample set should verify all elements and their ratings through nameplates and one-line or engineering drawings

- **Operating limitations** must be explained in the FRM document. Can include temporary derates, voltage limitations, and stability issues that impact a facility rating
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