

Facility Ratings Task Force 2021 Year-End Report

Executive Summary

Over the last few years, the industry and the Electric Reliability Organization (ERO) Enterprise have identified instances of discrepancies between documented Equipment, actual field conditions, and resultant Facility Ratings. Some of these discrepancies have resulted in the lowering of Facility Ratings and/or changes to the Most Limiting Element (“impactful”) that determines the Facility Rating; while some of the discrepancies impact neither (“non-impactful”). Currently the Standard, and therefore the Compliance and Enforcement approaches, do not distinguish between impactful and the non-impactful discrepancies. Further, there is no distinction in the Standard between high “risk” Facility Ratings vs lower “risk” Facility Ratings. For these reasons, the joint task force under the NERC Reliability and Security Technical Committee (“RSTC”) and the NERC Compliance and Certification Committee (“CCC”) created the Facility Ratings Task Force (“FRTF”) to provide additional insights to the ERO Enterprise and the industry. Additional technical and risk analytics will provide guidance for industry to prioritize resources ensuring reliability of the Bulk Electric System as well as an appropriate risk response. In conclusion of the work, the FRTF offers recommendations and next steps for existing NERC committees to address the path forward.

Current Observations

There have been concerns raised about Facility Rating Methodologies considering specific equipment types that are not delineated in the existing Standard. This has been captured in guidance documents. The issues identified to date generally involve discrepancies between current field conditions and documented Equipment inventories and/or Facility Ratings. More specifically, the ERO reports that the discrepancies tend to occur as the result of the following:

- Lack of processes and controls to ensure changes in the field (emergency or otherwise) are being properly documented and communicated in order to update the Facility Rating.
- Lack of communication between parties responsible for determining Facility Ratings (i.e., substation and transmission).
- Insufficient processes and controls to ensure Facility Rating are accurate when facilities are commissioned or when Facility Ratings are otherwise initially determined.
- Insufficient processes and controls to ensure planned facility changes that resulted in updated Facility Ratings are either implemented as planned or, if not, that the Facility Ratings are updated because of the planned changes with revisions to reflect current conditions.

In addition, industry highlighted the following opportunities to address the challenges below relative to the existing Standard.

- Need for recognition of different reliability risk levels associated with different BES elements.

- Need for consistent ERO interpretation, Guidance, and Compliance/Enforcement practices regarding FAC-008.
- Need for recognition of relationship between data discrepancies and reliability consequences, impactful and non-impactful data discrepancies.

Incorrect Facility Rating calculations have been performed because of missing, or incomplete assessments of the equipment identified within the Facility. For example, missing or incorrectly rated equipment includes jumpers and risers inside substations, bus bars, current transformers (including delta connected current transformers), circuit breakers, and transmission line conductors. Based on compliance monitoring activities, the ERO Enterprise has observed multiple contributing causes related to insufficient processes and lack of controls to prevent these discrepancies.

Also, as noted above, there is a need to provide for better collaboration of Facility Ratings between types of Registered Entities. There have been instances where differences between entities have resulted in incomplete or inaccurate modeling assumptions in the various Planning Coordinator and Transmission Planner assessments.

While the industry has matured to respond to the overall compliance requirements, we believe refinements are needed to further identify the reliability risk associated with discrepancies in facility ratings. Designing and implementing new specific cause codes could provide all stakeholders with a deeper understanding of Facility Ratings performance, clarity of materiality of the reliability risk to the grid and necessary actions and timing to reasonably resolve identified risks.

Recommendations

To conclude the 2021 work of the FRTF, based on identified potential gaps and areas for improvement, there are numerous actions that are believed to be required and necessary to drive change to manage risk efficiently and effectively.

- 1. The FRTF recommends the Facility Ratings Task Force transition oversight to the RSTC to continue to provide focus and technical expertise on Facility Ratings, including reliability risk to the grid, technical analysis, and additional industry perspectives in problem statement definition. Furthermore, we recommend adding additional technical expertise from the industry to the group for more robust discussion.**
 - a. Consideration of implementing new specific cause codes in the availability data systems for tracking and trending of Facility Ratings vulnerabilities. New cause codes may include items such as discovery of changing elements, changes to the most limiting element, Facility Rating changes including de-rates as well as up-rates, de-ratings to equipment, inventory misses, identification of incorrect device ratings or settings, identification of field/inventory mismatches, etc. Causal code analysis will allow for quantification and better understanding of Facility Ratings risk.
- 2. Through the ongoing efforts of the FRTF, the industry should seek understanding and quantifying Facility Ratings risk, however, this may represent a large project that is better served in phases, some of which maybe worked in parallel.**

- a. Conduct a field test with the industry to gather more information on Facility Ratings and risk analytics.
 - b. Focus reporting aspects first on changes to the most limiting element and derates.
 - c. Work with industry organizations to gather risk informed technical data to prioritize industry resources on responsiveness to the ERO's risk assessment.
- 3. The NERC CCC will continue to communicate issues and recommendations regarding concerns about consistency or interpretation related to ERO Guidance, Compliance and Enforcement matters, publications beyond the standard language, etc.**
- 4. The NERC CCC will continue to work with the ERO Enterprise on the risk-based compliance approach related to Facility Ratings in the following ways:**
- a. Consideration for risk of each element – not all elements pose the same level of risk,
 - b. Impactful versus Non-impactful data changes representing violations, and
 - c. Registered entity's approach to self-identify and report impactful changes and controls.

Background

In October 2019, the ERO Enterprise informed industry that concerns related to Facility Ratings were increasing and that patterns were emerging that required the industry to lean in to address an escalating risk profile. The description of the problem statement is as follows:

The issues identified to date generally involve Facility Ratings calculations that are incorrect as a result of missing components and/or incorrect ratings for multiple types of components. As examples, the missing or incorrectly rated components include Elements such as jumpers and risers inside substations, bus bars, current transformers (including delta connected current transformers), circuit breakers, and transmission line conductors. The identified issues involve multiple causal factors relating to insufficient processes and lack of controls to prevent these discrepancies. More specifically, the discrepancies tend to occur as the result of the following:

- *Lack of processes and controls to ensure changes in the field (emergency or otherwise) are being properly documented and communicated in order to update the Facility Rating.*
- *Lack of communication between parties responsible for determining Facility Ratings (i.e., substation and transmission).*
- *Insufficient processes and controls to ensure Facility Rating are accurate when facilities are commissioned or when Facility Ratings are otherwise initially determined; and*
- *Insufficient processes and controls to ensure planned facility changes that resulted in updated Facility Ratings are either implemented as planned or, if not, that the Facility Ratings updated as a result of the planned changes are revised to reflect current conditions.*

These recurring causes, coupled with the lack of mandatory detective controls such as periodic reviews of Facility Ratings, contribute to concerns that there are potentially more discrepancies on the system than

what is currently known. Ultimately and in order to fully identify and mitigate the Facility Rating issues that may be present on the system, it is critical that entities perform their own self-assessments. Entities are encouraged, if an issue arises, to self-report potential noncompliance findings to Regional Entity.

To clarify, Facility Ratings are required for certain facilities per NERC Reliability Standard FAC-008-3, Facility Ratings. Under the requirements, a Generator Owner must have documentation of its determination of Facility Ratings while a Transmission Owner must have a documented methodology for determining Facility Ratings. There has been substantive work across the industry on Facility Ratings related to processes, programs, frameworks, controls and best practices. Facility Ratings continues to be an area that is challenging and complex – for numerous reasons. The implied view is that all equipment and / or components are created equal from a risk perspective. From a system operating perspective, all elements on the grid are not equal (from an individualized registered entity view) even though the standard suggests that is the case. In addition, the current “blanket” application of the FAC-008-3 requirements can be costly to implement and thus requires a risk-based perspective to ensure these costs are providing corresponding reliability benefits. The cost implications are not a prohibition to adhere to standards, but a discussion to ensure that coveted technical resources are appropriately focused on the highest risk aspects of the process. In the end, solutions are needed that strengthen the reliability and the resilience of the grid. The current approach to Facility Ratings does not provide a straightforward way to implement a risk-based framework in the correlation of reliability and resiliency risks with adherence to the FAC-008-3 standard.

The NERC CCC formed a FRTF, which was expanded to include members from the NERC RSTC, to evaluate and work to propose alignment of the risk assessment and risk appetite related to Facility Ratings. The objective of expanding the FRTF to include the RSTC targeted the incorporation of broader technical, risk-based perspectives into ongoing activities around the current FAC-008 standards. Some of the discussions that occurred have been informed broadly by the Facility Ratings Standards (FAC-008-3) filings and industry performance as evaluated under the CMEP including lessons learned. The potential areas where changes to approach should be evaluated relate to alignment of industry’s processes and procedures, risk tolerance and the current body of regulations. The impact of those opportunities and risk analytics supported by technical analysis will directly translate to further compliance oversight discussions, institution of controls, assessments of risk, and prioritization of resources through NERC’s Known and Emerging Risk Framework that translate to association of industry’s processes and procedures that assist with focusing resources with corresponding reliability risks.

The FERC NOPR released in the staff report at the meeting on Thursday, November 19, 2020 could be a reason for broader concerns related to Facility Ratings. The NOPR suggests a move to dynamic Facility Ratings (from static) to maximize the capability of those facilities. This NOPR and the potential changes in the already complex issue of Facility Ratings make it even more critical that technical experts are involved in the evaluation of Facility Rating-related processes, procedures, risk analytics to ensure the path forward is based on a risk-based approach with common understanding of risk tolerance and acceptance. The recommendations hope to provide the RSTC a path to incorporate a fulsome view of Facility Ratings with technical basis for risk tolerances and ensure that industry’s technical perspectives and expertise is carried into any future activities related to FAC-008-X, dynamic Facility Ratings or other topics which may occur going forward.