

NPCC

Evaluation of Internal Controls (EIC)

FAC-008-3

NPCC Webinar
July 14, 2020

NPCC ENTITY RISK ASSESSMENT (ERA)



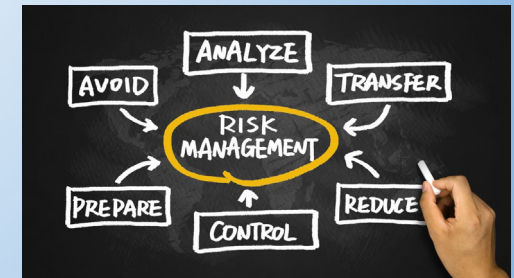
Ben Eng – Manager, ERA



Duong Le – Sr. Compliance Engineer



Mike Bilheimer, Sr. CIP Analyst



INHERENT RISK ASSESSMENT (IRA)

RISK FACTOR RATINGS (H/M/L)

Information Category	What is needed
Load	What is your organization's system load?
Transmission Portfolio	Indicate which of the following is true: 0) Does not own, operate, coordinate transmission facilities. 1) Has transmission facilities less than 100 miles in length. 2) Has transmission facilities between 100 and 4,000 miles in length. 3) Has transmission facilities greater than 4,000 miles in length.
Voltage Control	1. As a TOP/RC, degree that you control voltage other than the AVR. 2. As a TO, describe whether entity controls voltage other than the AVR. 3. As a GO/GOP, describe whether entity controls voltage other than the AVR. 4. If a GO/GOP, have you been notified of an IROL as per CIP-005?
Largest Generator Facility	Nameplate MVA size of single largest generator (contain multiple units)
Total Generation Capacity	Total nameplate MVAs owned or operated (Use the Generation tab to provide details)
Planned Facilities	Indicate whether entity plans to build or acquire new transmission facilities as a PC the degree of new transmission facilities

COMPLIANCE OVERSIGHT PLAN (COP)

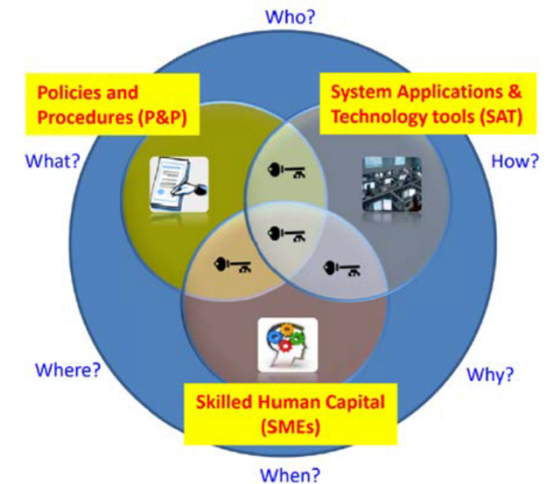


- RISK CATEGORIES
- MONITORING OVERSIGHT CATEGORY
- INHERENT RISK ASSESSMENTS
- MONITORED STANDARDS

INTERNAL COMPLIANCE PROGRAM (ICP)



INTERNAL CONTROLS



Objectives



- Why the Focus on FAC-008-3?
- NPCC Bulletins and Survey results
- Suggested Actions from NPCC
- What is NPCC doing to address these concerns?

How Did We Get Here?



NPCC Compliance Bulletin – March 27, 2020.

FAC-008 Facility Ratings Survey and Increasing Entity Awareness

In February 2020, NPCC conducted a targeted survey on Transmission Owner (TO) FAC-008 Facility Ratings programs within the NPCC Region. The survey was sent to seventeen (17) TOs.

The success and sustainability of the FAC-008 Facility Ratings program at each registered entity is paramount to ensuring the reliability and security of the Bulk Power System (BPS) in Northeastern North America. The topic of Facility Ratings is a key focus area amongst the NERC, FERC, and the Regional Entities. Issues with Facility Ratings have been discovered across North America due to change management weaknesses that include inaccurate equipment inventories, multiple historical Facility Rating methodologies, ratings not being updated as a result of projects, asset transfers, or upon the addition of new equipment, mergers/acquisitions, and following severe weather replacements.

The intent of this survey to raise the awareness of NPCC registered entities on the key role that accurate Facility Ratings play in reliability and system security. From these responses, NPCC will acquire an understanding of the similar and different practices associated with the FAC-008 programs of our larger Transmission Owners.

How Did We Get Here?



NPCC Compliance Bulletin – March 24, 2020 (violation trends)

FAC-008-3, R6

Root Cause: Several FAC-008-3, R6 noncompliance were due to a lack of mature internal controls to ensure that Facility Ratings were calculated and implemented in accordance with the registered entity's documented Facility Rating methodology. Specific control issues to be aware of are:

- Failing to consider all series components, which were limiting, during the establishment of the overall Facility Rating.
- Failing to consider substation components that could limit the overall Facility Rating.
- Inputting erroneous data into a tool or ratings database.
- Failure to verify changes to the rating of any piece of equipment that was part of the overall Facility Rating (i.e. one person can change an Equipment Rating without peer/manager review.)
- Failure to verify whether the actual completed work on a Facility matched the planned work/design of the Facility. (Engineering and Operations/Planning coordination).
- Having separate documented Facility Ratings Methodologies for different operating areas of the entity that were not reviewed for consistency and correctness when the Standard became effective in 2007.
- Failure to have a change management process for capital and emergency work that impact Facilities.
- Complex computer application for calculating Real-time Facility Ratings based on ambient temperature, recent load, and other factors had incorrect information on the most limiting series component.

[NPCC Compliance Bulletin Noncompliance Trends.pdf](#)

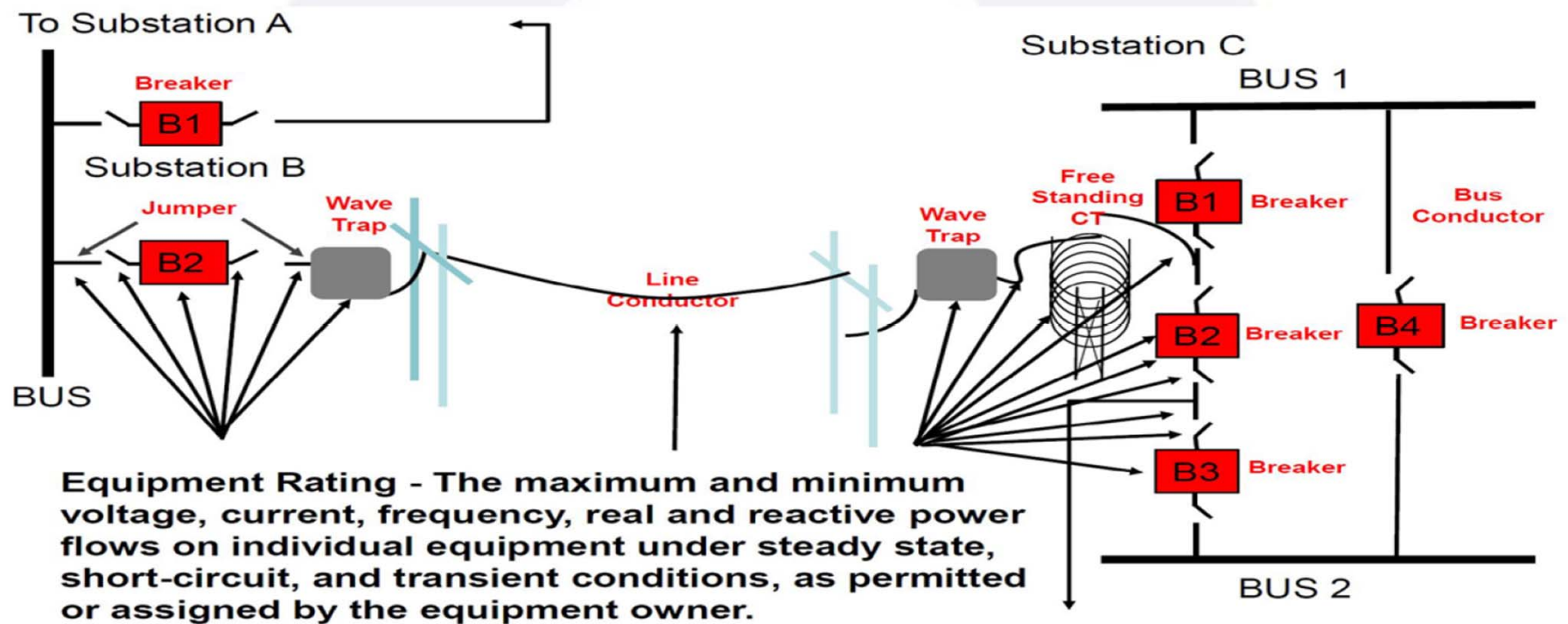
Why are Facility Ratings important?

They are the main component in the determination of accurate System Operating Limits (SOL)

Without accurate Facility Ratings, accurate real-time situational awareness is not accomplished and planning models are inaccurate.

- Interface MW Flow
- Transient Stability
- Voltage Stability
- System Voltage Limits
- Interconnection Reliability Operating Limits (IROL)

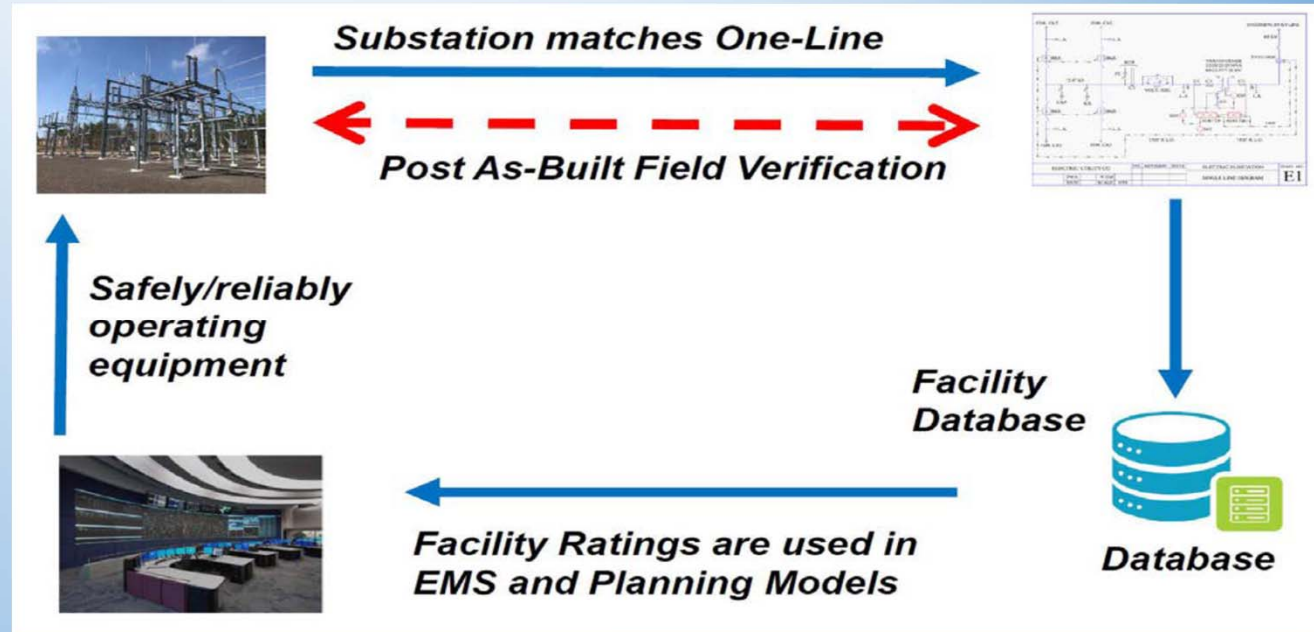
Example - Series Components



How Does This All Fit Together?

The FAC-008-3 requirements deal with

- Equipment Ratings which help develop
- Facility Ratings for
 - Various configurations
 - Various conditions
 - Identifying most limiting elements
- Change Management for the above:
 - *As-Built* (field) info
 - Drawing info
 - Database/Spreadsheet info
 - Triggers for information change
 - Equipment replacement
 - Planned
 - Emergency
 - Identical?
 - Most Limiting Element(s) same?
 - Database, drawing, ratings updates
 - Communicate changes to others



FAC-008-3 Violations



Reasons:

- Database issues, Changes in Field, Change Management
- Most Limiting Series Component not respected

FAC-008 Survey Results



Confirms the challenges encountered by entities having Violations

- Biggest challenge regarding accuracy of Facility Ratings?
 - Change Mgmt for Planned and Emergency work (7)
 - Databases that are not synched (4)
 - Mergers/Consolidation (1)
- How are Ratings changes and updates tracked or managed?
 - Software (7)
 - Spreadsheet (3)
 - Access Database (2) (without a template)
 - Changes are peer checked (9)
- How often is Facility Rating Methodology vs. equipment field data vs. database verified by substation visits and ROW walkdown?
 - Rarely (12) [As needed, for new equipment]
- Facility Ratings Database Access Controls
 - Key people make changes w/o review (6)
 - Key people make changes with review (4)
 - Anyone can change (2)

FAC-008-3 Violations



NPCC Method of Discovery (for the last 3 years)

- Self-report: 6 (all penalties)
- Onsite Audit: 0
- Offsite Audit: 1 (Minimal Risk)

Best Way for NPCC to Help Its Region?



- Keep a constant platform in place for best practices and internal controls
- Offer a voluntary outreach program to discuss processes w/o visiting stations
- Surveys like this (FAC-008) have succeeded in raising awareness already at my company
- Outreach at workshops, scheduled engagements and bulletins

Best Way for NPCC to Help Its Region?

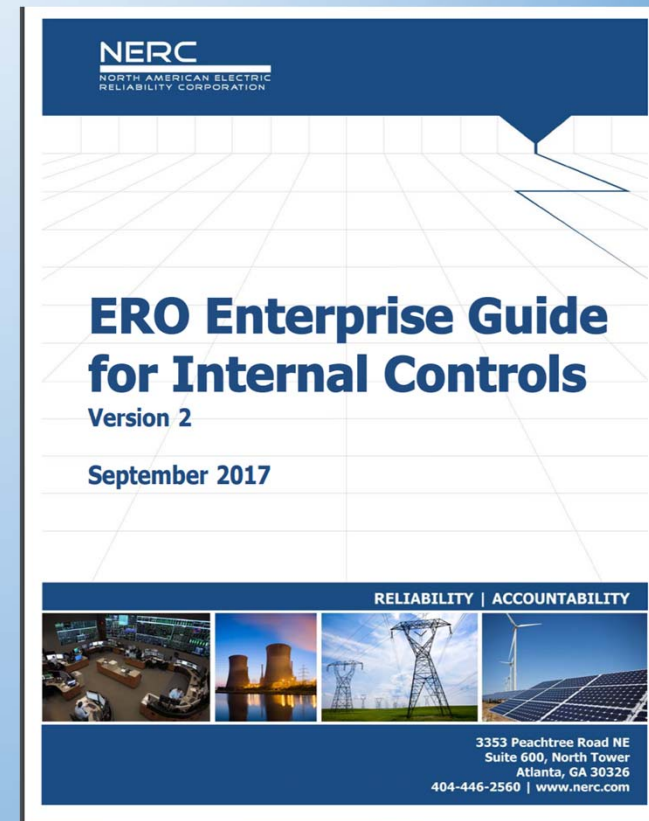


- Keep a constant platform in place for best practices and **internal controls**
- Offer a voluntary outreach program to discuss processes w/o visiting stations
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- March 24, 2020 *Non-Compliance Trends Bulletin* states:
 - “...NPCC also recommends that all entities, regardless of the posted monitoring schedule, review these trends to **perform self-assessments**. The **discovery of these possible noncompliance at an earlier point in time** will enhance the reliability and security of the BPS because mitigation actions will start earlier than they otherwise would have, thereby reducing the duration of the potential aggregated risk to the BPS”
 - Translation – volunteer for NPCC EIC of FAC-008. EIC is an assessment (and testing) of preventive, detective and corrective controls that help the entity maintain compliance with FAC-008 (or determine the need to self-report, if necessary)

What has NPCC been doing for you?



- Implemented Internal Controls Evaluations (ICE) since 2015.
- Multiple NPCC Compliance Workshops on the objectives of ICE, tutorial on controls (types, modalities of controls, controls questions and testing) [*\[posted on NPCC ERA Home Page\]*](#)
- Promote the use of *Process Flow Diagrams*, annotated with controls. Provide controls and testing questions. Stress the importance of layering, oversight/detective controls and testing of key controls. Guidance for controls information capture.

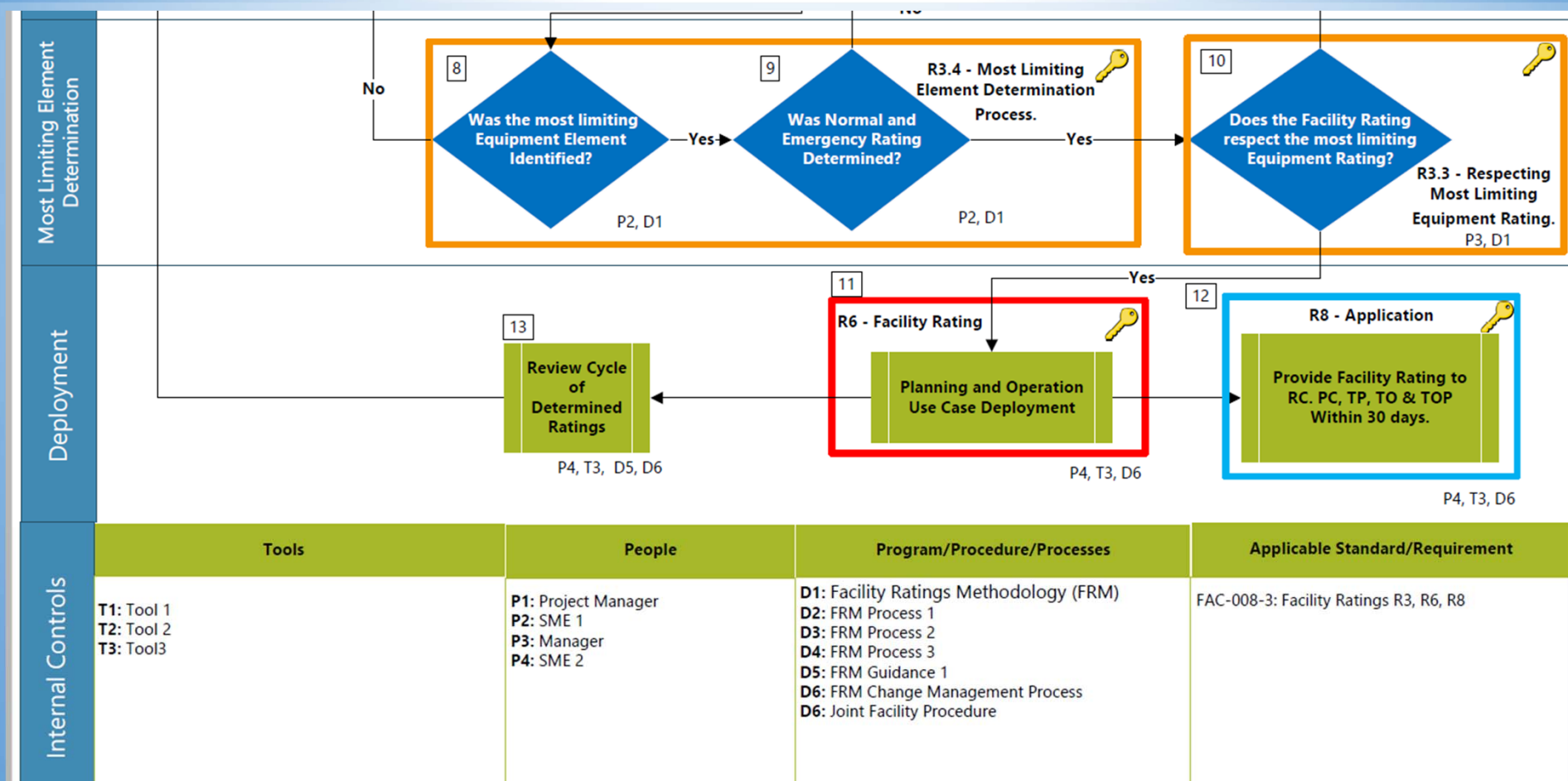


“But what has NPCC done for me lately?” (FAC-008)

- Canvased ERO knowledgebase to find ERO Tools specific to FAC-008-3:
 - *Standards Application Guide FAC-008-3*, dated March 21, 2017
 - <https://www.nerc.com/pa/comp/guidance/EROEndorsedImplementationGuidance/FAC-008-3%20Standard%20Application%20Guide.pdf>
 - *CMEP Practice Guide, Evaluation of Facility Ratings and System Operating Limits*, dated June 17, 2020
 - <https://www.nerc.com/pa/comp/guidance/CMEPPracticeGuidesDL/ERO%20Enterprise%20CMEP%20Practice%20Guide%20Evaluation%20of%20Facility%20Ratings%20and%20System%20Operating%20Limits.pdf>
- NPCC FAC-008 EIC team has taken the above, enhanced it with our past EIC experience, and is developing a “do-it-yourself” EIC kit for FAC-008 R3, R6 and R8.

NPCC, Inc.

EIC Tools – Process Flow Diagram (in progress)



NPCC List of Controls Questions for FAC-008



The NPCC EIC Team is developing a comprehensive list of controls questions and related testing questions for the entity to consider and answer.

Standard	Req.	Control Question.
FAC-008		Does a Facility Rating discrepancy exist between Real-time models (e.g., State Estimator and RTCA), models used for Operational Planning Analysis, and models used in the Short-Term and Long-Term Transmission Planning Horizon? If so, why are the Facility Rating values different?
FAC-008		When a Facility Rating used in the Applications listed above is not the same as that supplied by the Facility Owner, why does that difference exist?
FAC-008		Does the Facility Rating, based on how the Facility is defined in the Facility Ratings methodology, accurately reflect the most limiting applicable Equipment Rating of the individual equipment that comprises that Facility?
FAC-008		Is the Facility rated using a temperature adjusted rating or seasonal ambient temperature rating?
FAC-008		Is the Facility Rating different in EMS due to a nodal operations model vs. a bus line planning model?
FAC-008	R6	Is the identification of each BES Facility and its Facility Rating consistent with the Facility Ratings Methodology?
FAC-008	R6	Is all equipment comprising the Facility identified?
FAC-008	R6	Are ratings of all equipment comprising a Facility, consistent with the Facilities Rating Methodology
FAC-008	R6	Identification of the Most Limiting Series Element (and if applicable, the next Most Limiting Series Element) ☐ Have these been identified for the owner/joint owner of each facility? ☐ Have Normal and Emergency Ratings, as appropriate, been identified for equipment in each facility?
FAC-008	R6	Comparison of Facility Ratings between Facility Ratings database(s) and: ☐ Planning models ☐ EMS/SCADA (tools used to alarm and perform RTCA) ☐ One-line diagrams and/or other design drawings ☐ Actual field equipment
FAC-008		What tools do you use to track and update your Equipment and Facility Ratings in your Facility Ratings database?
FAC-008		How often do you conduct substation walkdowns to ensure what's in the field matches system one-lines and/or design drawings?
FAC-008		Do you perform an independent review of ratings for all equipment for correctness in the Facility Rating database to ensure the Equipment Ratings are consistent with the FRM?

EIC Tools Target the Controls Listed Below



FAC-008-3, R6

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If you volunteer for EIC of FAC-008, NPCC will:



- Conduct a customized presentation for your company including
 - Tutorial on controls, types, modality, control silos, testing, documentation
 - Explanation of what EIC **is** and **is not**
 - Comparison of EIC to Compliance Audit
 - Explanation of approach, tools, logistics, milestones, and deliverables
- Provide FAC-008 Process Flow Diagram template and guidance.
- Provide FAC-008 Controls/Testing Questions and guidance.
- Coordinate data submittal dates, initial questions from NPCC, answers from volunteer entity, EIC “walkthrough” review
- Develop deliverables (*FAC-008 EIC Report* and *Table of Suggestions to Enhance/Improve Controls*)

Current Status of NPCC FAC-008 EIC

- *Two of the NPCC survey TO's have volunteered for FAC-008 EIC*
- Conducted the NPCC FAC-008 EIC presentations for them with proposed milestones
 - NPCC generic FAC-008 Process Flow Diagram will be provided to volunteer entities.
 - NPCC's list of FAC-008 Controls Questions and Testing Questions will be provided.
- 3rd volunteer waiting in the wings for NPCC to proceed with the above.

If interested in volunteering, or any questions, contact ERA@NPCC.org

FINI



THANK YOU FOR YOUR ATTENTION