Controls Guidance and Compliance Failure Points

FAC-008-5

Asset/System Identification
Asset/System Management and Maintenance
Modeling Data

June 2022

WECC Intent

The *Controls Guidance and Compliance Failure Points* document guides registered entities in assessing risks associated with their business activities and designing appropriate internal controls in response. WECC's intent is to provide examples supporting the efforts of registered entities to design controls specific to operational risk *and* compliance with the NERC Reliability Standards. The registered entity may use this document as a starting point in assessing risk and designing appropriate internal controls. Each registered entity should perform a risk assessment to identify its entity-specific risks and design appropriate internal controls to mitigate those risks; WECC does not intend for this document to establish a standard or baseline for entity risk assessment or controls objectives.

> *Note: Guidance questions help an entity understand and document controls. Any responses, including lack of affirmative feedback, will have no consequences on an entity's demonstration of compliance during a Compliance Monitoring and Enforcement Program (CMEP) engagement.*

> * *Please send feedback to internalcontrols@WECC.org with suggestions on controls guidance and potential failure points questions.*

Definitions and Instructions

Control Objective: Aim or purpose of internal control to address identified risk or operational concern.

Control Activities: Policies, procedures, techniques, and mechanisms to achieve control objectives and mitigate related risks.

Quality Assurance/Quality Control (QA/QC): How an entity *verifies* whether it performed an activity or verifies an activity was performed *correctly* (examples include separation of duties, having a supervisor double-check someone's work, *etc*.).

Risk Category: Type of operational and inherent risks identified by the ERO Enterprise for use in the Compliance Oversight Plan (COP). Entities should use Risk Categories to understand, monitor, and mitigate known and future risks.

Risk Categories

Asset/System Identification: Identifying and tracking assets and Bulk Electric System (BES) Facilities is

critical to Bulk Power System (BPS) security and reliability. Failure to correctly identify, document, and track items may result in gaps and compromise the integrity, reliability, or security of the BPS.

Asset/System Management and Maintenance: BPS reliability depends on an entity's success in tracking, managing, and maintaining significant amounts of data, components, assets, and systems. The scope and complexity of this effort require programs to ensure that the entity effectively performs these activities. Failure to execute these programs can result in various types of lapses and may compromise the integrity and reliability of the BPS. Failure to actively track and manage BES Elements that make up an entity's Facilities could result in inaccurate Facility Ratings, thereby risking the integrity and reliability of the BPS.

Modeling Data: Simulation tools model individual components and their control systems, when applicable. The models form the building blocks of power system studies in the planning and operations horizons. Models verified as accurate are critical to a range of reliability studies, including transmission planning assessments and establishing System Operating Limits (SOL) and Interconnection Reliability Operating Limits (IROL), as well as state estimation for Real-time Assessments (RTA) and Operation Planning Assessments (OPA). The validity of those assessments depends on modeling data, including, but not limited to, correct Facility Ratings, verified generator real and reactive capability, and knowing how control systems respond to dynamic system conditions. Failure to provide data in a timely manner and at intervals to ensure model accuracy during retirements and new construction may compromise BPS reliability and security.

Control Objective(s)

Your entity should perform a risk assessment and identify entity-specific control objectives to mitigate those risks. To help your entity get started, WECC has identified generic control objectives to mitigate the risks associated with the risk categories mentioned above and FAC-008-5. You may want to consider these objectives:

Control Objective 1: Ensure Facility Ratings are based on current BES Elements.

Control Objective 2: Ensure your entity considers external factors that may limit Facility Ratings.

Control Objective 3: Ensure Facility Ratings are based on a technically sound methodology.

Control Objective 4: Ensure your entity provides information to external stakeholders that may affect their Facility Ratings.

Reliability and Security Control Activities

Control activities are how your entity meets your control objectives. As you design controls, your entity should tailor them to entity-specific control objectives.

Below are examples of control activities based on good practices WECC has observed that are designed to meet the objectives listed above. WECC does not intend for these activities or the associated questions to be

prescriptive. Rather, they should help your entity consider how you might meet your objectives in your own unique environment. They also may help your entity identify controls you did not realize you had.

Control Objective 1: Ensure Facility Ratings are based on current BES Elements.

Control Activity A: Ensure all knowledgeable SMEs participate in identifying relevant Elements.

1. How does your entity ensure all knowledgeable SMEs participate in identifying relevant Elements to determine Facility Ratings?

    a. Who is responsible for identifying SMEs to participate in identifying Elements?

2. How does your entity track personnel changes (e.g., transfers, attrition) that may require identifying replacement personnel to identify relevant Elements?

Control Activity B: Identify and evaluate BES Elements. (Relates to risk associated with R2.4/R3.4)

1. How does your entity determine the scope of the equipment in a Facility?
2. How does your entity ensure all Elements of a Facility are identified—particularly switches, disconnects, jumpers or drops, and current transformers?
    a. What stakeholders are included in the process?
    b. Are the criteria for identification clearly defined?
3. How does your entity ensure the most current one-line diagrams, Element nameplates or engineering drawings are used to determine applicable Elements of a facility?
4. How does your entity communicate and coordinate with all applicable planning, protection, and operations departments regarding identified Elements and their Ratings (amps, MVA, per unit, etc.)?

Control Activity C: Track changes to Facility Ratings.

1. How does your entity track Facility status? Do you include:
    a. Newly commissioned Facilities
    b. Changes made in the field to Facilities (emergency or planned)
    c. Changes to project plans
    d. Modified and new most limiting equipment of a Facility?
2. How does your entity manage change control for equipment used in Facility Ratings?
    a. Who has authority to make changes (to prints, databases, ratings, etc.)?
    b. Who provides quality control for those changes?
    c. How do you know whether a change would trigger updates to Facility Ratings or Facility Ratings documentation?
3. How does your entity track changes to equipment and Facility Ratings of neighboring and jointly owned facilities?
4. How does your entity communicate changes to relevant stakeholders, including other departments (e.g., planning, protection, and operations departments)?

    a.   Are there any automated notifications from your data management solution?

    b.   Is there a process to verify that appropriate follow-up actions are triggered after a change?

Control Activity D: Verify equipment in the field.

1. Does your entity periodically perform physical walk-downs to reconcile actual physical equipment to prints and other relevant documentation?
    a. Do physical walk-downs include all Elements of a Facility (including ties with neighboring entities)?
    b. Are walk-downs triggered by events (e.g., emergency repairs, construction)?
    c. Do you use a risk-based approach to identify the most critical Facilities when determining the frequency of walk-downs?
    d. How do you document walk-downs?
2. What QA/QC does your entity perform to verify contractor work (if applicable)?
3. How does your entity correct discrepancies found in the field?
    a. What personnel or department is responsible for updating the database, repository, or master spreadsheet?
    b. How do you communicate corrections to other relevant departments (e.g., planning, protection, and operations departments)?

Control Activity E: Manage Facility and Equipment Ratings Data.

1. What technology does your entity use to manage Facility and Equipment Ratings data (e.g., spreadsheet, single database, multiple databases, file share)?
2. How do relevant stakeholders access the data?
    a. Is the data shared with other departments that use the same data?
3. Does your entity have documented data management processes?
    a. Who has authority to make entries or changes?
    b. Who provides quality control for those entries or changes?
    c. How is access controlled?

Control Objective 2: Ensure your entity considers external factors that may limit Facility Ratings.

Control Activity A: Identify and record responsibilities between neighboring entities (tie-lines).

1. How does your entity ensure communication and coordination with neighboring entities regarding all Elements of a Facility including end-to-end transmission Facilities (breaker to breaker protection) and generator-to-substation Facilities (stator to substation breaker protection)?
2. Does your entity have combined Transmission Owner (TO)–Generator Owner (GO) documents for determining Facility Ratings?
    a. If no, how do you ensure alignment between TO and GO Facility Ratings on Generation Interconnections?

3. How does your entity coordinate with the other entities whose Element may limit your Facility Rating?
   a. How do you request and provide Equipment Ratings from and to owners of jointly owned Facilities?
   b. How do you request and receive data needed from neighboring entities to document your Facility Ratings?

Control Objective 3: Ensure Facility Ratings are based on a technically sound methodology.

Control Activity A: Define and apply technically sound assumptions used in developing Ratings.

1. How does your entity define assumptions and ensure they are technically sound? (Relates to risk associated with R2.1/R2.2/R3.1/R3.2)
2. How does your entity ensure all Facility Ratings follow the Facility Ratings Methodology? (Relates to risk associated with R6)
   a. How do you ensure SMEs understand and apply defined approaches for Facility Ratings?
   b. Which departments review and approve Facility Ratings?
3. How does your entity ensure Normal and Emergency Ratings are addressed for each piece of equipment in a Facility? (Relates to risk associated with R2.4/R3.4)

Control Activity B: Identify the most limiting equipment in the Facility. (Relates to risk associated with R2.3/R3.3/R8)

1. How does your entity identify the most limiting equipment in a Facility?
   a. How do you ensure you use a common denominator or common unit of measure to determine the most limiting equipment of a Facility?
2. How does your entity identify the next-most-limiting equipment and its Thermal Rating?
3. How does your entity validate identifications of most limiting and next-most-limiting equipment?

Control Activity C: Communicate with and train personnel on developing Facility Ratings.

1. How does your entity communicate program changes to stakeholders?
2. How does your entity identify personnel for training on how to perform Facility Ratings? Does it include:
   a. New hires?
   b. Existing personnel?
   c. Internal transfers from one role to another?
   d. Contractors?
3. How does your entity determine the specific training required?
   a. Who identifies necessary content for training modules?
   b. What periodic reinforcement (refresher training, emails, meetings, etc.) is included?
   c. How is knowledge or understanding verified?

Control Objective 4: Ensure your entity provides information to external stakeholders that may affect their Facility Ratings.

Control Activity A: Share information with external stakeholders. (Relates to risk associated with R8)

1. How does your entity manage requests for information?
    a. How are requests received?
    b. Does the control assign responsibility for fulfilling requests for information?
    c. Does the control track status or completion of the request?
        i. How is completion of the request verified and documented?
    d. How do you manage deadlines for requests?
        i. How do you verify you understand the requestor's schedule?
        ii. How do you know a deadline is approaching?
        iii. How do you prevent missing a deadline?
2. How does your entity identify Thermal Ratings that limit the use of Facilities under the authority of its Reliability Coordinator, Planning Coordinator, Transmission Planner, Transmission Owner, or Transmission Operator?
    a. Do the controls account for the following operating conditions?
        i. An Interconnection Reliability Operating Limit
        ii. A limitation of Total Transfer Capability
        iii. An impediment to generator deliverability
        iv. An impediment to service to a major load center

Compliance Potential Failure Points

The control activities listed above are specifically targeted at mitigating risk to the reliability and security of the BPS, but also promote compliance with the referenced standard. Your entity should also develop controls specifically to mitigate compliance risk. The following compliance potential failure points relate directly to compliance risk and warrant consideration.

Potential Failure Point (R1): Failure to maintain documentation showing how your entity determined Facility Ratings for its solely and jointly owned generator Facility(ies).

1. Does your entity maintain documentation that includes:
    a. Assumptions used to rate the generator Facilities (electrical Elements only)?
        i. Design or construction information?
        ii. Operational information?
    b. How do you ensure your Facility Ratings documentation is consistent with the principle that the Facility Ratings do not exceed the most limiting applicable Equipment Rating of the that Facility?
2. Who is responsible for ensuring the Facility Ratings documentation is correct and up to date?

3. How often is the Facility Ratings documentation reviewed?

Potential Failure Point (R2): Failure to document a Facility Ratings methodology of solely and jointly owned equipment connected between the location specified in R1 and the point of interconnection with the Transmission Owner.

1. Does your entity's documented Facility Ratings methodology include:
    a. The methodology used to establish the Ratings of the equipment that comprises the Facility consistent with R2.1:
    b. The underlying assumptions, design criteria, and methods used to determine the Equipment Ratings considering each part of R2.2
    c. A statement that a Facility Rating shall respect the most limiting applicable Equipment Rating of the individual equipment comprising that Facility
    d. The process by which you determine the Rating of equipment, including each part of R2.4.

Potential Failure Point (R3): Failure to document a Transmission Owner Facility Ratings methodology for solely and jointly owned Facilities.

1. Does your entity's documented Facility Ratings methodology include:
    a. The methodology to establish the Ratings of the Facility's equipment consistent with R3.1
    b. The underlying assumptions, design criteria, and methods used to determine the Equipment Ratings considering each part of R3.2
    c. A statement that a Facility Rating shall respect the most limiting applicable Equipment Rating of the individual equipment that comprises that Facility.
    d. The process by which your entity determines the Rating of equipment that comprises a Facility, including all the parts of R3.4.

Potential Failure Point (R2/R3): Failure to review and update the Facility Ratings methodology.

1. How does your entity review and update the Facility Ratings methodology?
    a. Who is responsible for ensuring the Facility Ratings methodology is reviewed and updated as needed?
    b. How do you ensure personnel responsible for developing and reviewing the methodology understand the Facility Ratings methodology?
    c. How often is the Facility Ratings methodology reviewed?
    d. What are the criteria that would trigger an update to the Facility Ratings methodology?
    e. Who is responsible for that update?

Potential Failure Point (R6): Failure to implement the Facility Ratings methodology.

1. How does your entity store evidence to demonstrate it implemented its Facility Ratings methodology?
2. Who is responsible for ensuring evidence for the implementation of the Facility Ratings

methodology is stored in the correct repository?

Potential Failure Point (R8): Failure to manage requests for information that the entity must provide.

1. Does your entity have a process to provide requested information to your Reliability Coordinator, Planning Coordinator, Transmission Planner, Transmission Owner, or Transmission Operator for existing Facilities, new Facilities, modifications to Facilities, and re-ratings of existing Facilities as specified in R8?