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* 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 Category

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 entities have 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.

MOD-033-2 is designed to mitigate risks to the reliable operation of the Bulk Power System (BPS) by establishing consistent modeling data requirements and reporting procedures to develop planning horizon cases to analyze BPS reliability.

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 *Modeling Data* risk category and MOD-033-2. You may want to consider these three objectives:

> **Control Objective 1**: Develop a data validation process.

> **Control Objective 2**: Provide/collect data for data validation simulations.

> **Control Objective 3**: Perform data validation simulations.

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: Develop a data validation process.

Control Activity A: Select actual system behavior scenario(s) and planning models for comparison. (Relates to risk associated with R1.1 and R1.2)

1. How does your entity select appropriate actual system behavior scenario(s) and planning models for comparison?
    a. What person or group is responsible for making the selection?
    b. Do you select a state estimator case or other real-time data taken as close to the system peak

as possible?

    c. If you determine a different system snapshot is more appropriate, what guidelines are used to make that decision (e.g., shoulder season outages, light load conditions, drought or other generation impact conditions)?

    d. Do you use the same event/power flow model for steady-state and dynamic model validation?

    e. Do you use local or wide-area events or both?

    f. Do the selected events include fault-induced, inverter-based resource performance issues?

    g. Do you perform validation for multiple system disturbances?

        i. If so, what event parameters trigger a validation?

    h. Do you perform QA/QC to verify that a technically sound rationale supports the selections?

Control Activity B: Define unacceptable differences in performance between planning power flow model or planning dynamic model and actual system behavior/response. (Relates to risk associated with R1.3)

1. How does your entity define the acceptable range of discrepancy?

    a. Do you define acceptable differences as a percentage, an absolute difference, or a combination?

    b. How is engineering judgment applied?

    c. How do you ensure you have trained and skilled subject matter experts to define acceptable differences in performance?

    d. Do you have a separate person verify or approve the work of the person who determined the acceptable difference?

Control Objective 2: Provide/collect data for data validation simulations.

Control Activity A: Obtain actual system behavior data such as state estimator case or other Real-time data (including disturbance data recordings) to validate actual system response. (Relates to risk associated with R1.1 and R1.2)

1. How does your entity request and obtain data to perform validations?

2. How does your entity ensure the actual system behavior data it receives suffices to perform validations?

3. What QA/QC does your entity perform to ensure it obtains valid actual system behavior data? (i.e., steps taken to review submitted data)

4. How does your entity address situations when it does not receive valid actual system behavior data?

Control Activity B: Provide actual system behavior data to perform validations between planning power flow models or planning dynamic models and actual system behavior or response. (Relates to risk associated with R2)

1. How does your entity ensure it timely provides actual system behavior data that is valid to its Planning Coordinator (PC) so the PC can validate performance between planning power flow

models or planning dynamic models and actual system behavior or response?

2. How does your entity ensure the actual system behavior data it provides is sufficient to perform those validations?
3. What QA/QC does your entity perform to ensure it provides actual system behavior data that is valid to its PC for those validations?
4. How does your entity address situations when it discovers data inaccuracies?

Control Objective 3: Perform data validation simulations.

Control Activity A: Compare the planning model to actual system behavior. (Relates to risk associated with R1.1 and R1.2)

1. How does your entity adjust the planning model to compare with the selected case?
   a. What person or group is responsible for making the adjustments?
   b. Do you perform QA/QC to verify the adjustments are based on a technically sound rationale?
2. How does your entity determine whether the performance of its part of the interconnected transmission system successfully matches modeled performance?
   a. What tools or software do you use?
   b. Do you perform QA/QC to verify the determination?
3. How does your entity ensure it has the proper subject matter experts to correctly compare the performance of its portion of the existing system in a planning model to actual system behavior?
   a. What person or group is responsible for making the comparison?
   b. What training or expertise do they have?
   c. Do you have a separate person verify or approve the work of the person who performed the comparison to validate the conclusion?
4. Does your entity hire an independent third party to compare your model to actual system behavior?
   a. If so, what QA/QC do you perform to validate the results from the third party?

Control Activity B: Resolve unacceptable differences in performance between the planning power flow model or planning dynamic model to actual system behavior or response. (Relates to risk associated with R1.4)

1. How does your entity determine the source of discrepancies between its planning power flow model or planning dynamic model and actual system behavior or response?
   a. Do you verify equipment calibrations to ensure they provide accurate data?
   b. Do you verify load models and generator models?
   c. For events involving loss of inverter-based resources, how are specific plant response or performance characteristics compared?
   d. How do you confirm you used the most current WECC-approved generator models?
   e. What other steps do you take to identify the source of the discrepancy?

2. How does your entity request new data from the data owner based on unacceptable differences in performance?
    a. Do you have specific roles and responsibilities to request and track information through MOD-026, MOD-027, and MOD-032?
    b. How is load model information obtained? Do you have agreements with the Distribution Provider?
    c. How are possible corrections to generator models obtained from individual asset owners?
3. How does your entity ensure it correctly resolves unacceptable differences in performance between its planning power flow model or planning dynamic model and actual system behavior or response?

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 create and implement a documented data validation process.

1. If your entity is a PC, has it created and implemented a data validation process containing the four parts specified in R1.

Potential Failure Point (R1): Failure to meet data validation deadlines.

1. How does your entity track data validation deadlines?
2. Does your entity use any technical controls?
3. Does your entity perform QA/QC to confirm validation was completed within 24 calendar months of the previous data validation?

Potential Failure Point (R2): Failure to provide actual system behavior data (or a written response that it does not have the requested data) to any PC performing system performance validation within 30 calendar days of a written request.

1. How does your entity ensure it provides actual system behavior data (or a written response it does not have the requested data) to a PC performing system performance validation within 30 calendar days of a written request?
2. What person or group is responsible to—
    a. Receive the request?
    b. Track the request?
    c. Respond to the request?
3. Does your entity perform QA/QC to confirm it responded to the request within 30 calendar days?