Standard Authorization Request Form
Regional Standard or Variance
Texas Reliability Entity, Inc.

E-mail completed form to rsm@texasre.org

Texas RE to Complete
SAR No: SAR-011

Title of Proposed Regional Standard: BAL-001-TRE-1

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SAR Type (Check a box for each one that applies.)

☐ New Standard
☒ Revision to Existing Standard
☐ Revision to the Standard Development Process
☐ Withdrawal of existing standard
☐ Variance to a NERC Reliability Standard
Which one? Click or tap here to enter text.
☐ Urgent Action

Purpose (Describe what the standard action will achieve in support of bulk power system reliability.)

This SAR serves two purposes:

- The removal of governor deadband and droop setting requirements for steam turbines in a combined cycle train will resolve an inconsistency in the language of BAL-001-TRE and conform the language of the standard to the intent of the Standard Drafting Team and customary industry practice.

- The clarification of the responsible entity for FME exclusion requests (Requirements R9 and R10) will resolve an inconsistency in the language of BAL-001-TRE-1 and conform the language of the standard to the intent of the Standard Drafting Team and current processes.

Industry Need (Provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

Historically, most combined cycle resources in the ERCOT Region have operated with the combustion turbines able to respond to frequency deviations using governor controls, with associated steam turbines not providing a response. The original BAL-001-TRE drafting team accounted for the lack of Primary Frequency Response (PFR) from the steam turbines in a combined cycle resource train by requiring an overall 5.78% PFR performance for the entire train. See BAL-001-TRE-1 R2.1; footnote to R6.2. However, the standard also states that steam turbines are required to comply with the droop and deadband settings in R6 of the standard, and the standard also explicitly references a 5% droop setting for steam turbines in combined-cycle facilities. See BAL-001-TRE-1 R6.2, footnote to R6.2. ERCOT desires to correct this inconsistency and to align the standard's requirements with current operational practices. As the Balancing Authority for the ERCOT Region, ERCOT has already used its directive authority under R6 of the standard to explicitly exempt Generator Operators with steam turbines in combined-cycle trains from the droop and deadband settings in R6.1 and R6.2, pending a clarification to the standard. See ERCOT Market Notice W-C050418-01 (May 4, 2018).

Because this change would simply codify current operational practices, ERCOT has concluded it would not have any material reliability impact or market impact.

ERCOT, as the Balancing Authority (BA) for the ERCOT region, is responsible for calculation of the Primary Frequency Response performance for the interconnection (R4) as well as each generating unit (R2). ERCOT created a procedure document to allow generation entities to request exclusions for FME's when a legitimate operating condition prevented normal Primary Frequency Response (http://www.ercot.com/content/wcm/key_documents_lists/89338/BAL-001-TRE-1_PFR_Exclusion_Process.docx).

Texas RE desires to correct the inconsistency in Requirements R9.3 and R10.3 to align the standard's requirements with current processes for FME exclusion requests.

This change will clarify the requirements within the standard to be in-line with current procedures. It will not have any material reliability impact or market impact.

Brief Description (Provide a paragraph that describes the scope of this standard action.)

ERCOT proposes clarifying BAL-001-TRE-1 to eliminate language in R6 stating that steam turbines in combined-cycle generation facilities must comply with specified deadband and droop settings.

Texas RE proposes clarifying BAL-001-TRE-1 to revise language in R9.3 and R10.3 to state that a unit's Primary Frequency Response performance during an FME may be excluded from the rolling average calculation "by the BA". Texas RE also proposes to revise the

second bullet of R9.3 and R10.3 to state “Data telemetry failure. The BA may request raw data from the GO as a substitute.”

Detailed Description (Provide a description of the proposed project with sufficient details for the standard drafting team to execute the SAR.)

BAL-001-TRE-1 R6 mandates governor parameters for each generation resource. This includes the requirement that the steam turbines of combined cycle resources comply with Requirements R6.1, R6.2, and R6.3, which specify the required Governor deadband and droop settings. Requirement R6.2 also notes that compliance with Requirements R9 and R10 for combined cycle facilities will be determined through evaluation of PFR with a droop characteristic equal to 5.78. To get the maximum thermal efficiency, steam turbines in combined-cycle generation facilities are operated on inlet pressure control mode with a pressure setpoint that will keep the valves essentially wide open, leaving them unable to respond to governor controls from frequency deviations.

The history of the development of Requirement R6 indicates that the Standard Drafting Team did not intend that steam turbines would provide governor response, given that combined-cycle generation facilities would be evaluated on a facility-wide basis. The September 2011 consideration of comments states: “The proposed 5.78% droop figure is not a Governor setting, but rather an amount used in the PFR evaluation calculation to account for the steam turbine of the combined cycle train that is not responding to frequency.” The standard also imposes a stricter 4% droop setting requirement on combustion turbines of combined cycle resources. The Standard Drafting Team noted this more aggressive droop setting was required to compensate for the lack of governor response from the steam turbine of the combined cycle resource.

This SAR proposes to remove language in the current standard that mandates that the steam turbine of a combined cycle resource comply with governor droop and deadband characteristics prescribed in R6.1 and R6.2.

Texas RE proposes clarifying BAL-001-TRE-1 to revise language in R9.3 and R10.3 to state that a unit’s Primary Frequency Response performance during an FME may be excluded from the rolling average calculation “by the BA”. Texas RE also proposes to revise the second bullet of R9.3 and R10.3 to state “Data telemetry failure. The BA may request raw data from the GO as a substitute.”

Reliability Functions

*For a more detailed description of the Reliability Functions, please refer to **NERC Function Model_V5***

The Regional Standard will apply to the following functions: (Check all that apply.)

☒ Balancing Authority	☐ Resource Planner
☐ Distribution Provider	☐ Transmission Operator

☒ Generator Operator	☐ Transmission Owner
☒ Generator Owner	☐ Transmission Planner
☐ Planning Coordinator/Planning Authority	☐ Transmission Service Provider
☐ Reliability Coordinator	

Reliability and Market Interface Principles

Applicable Reliability Principles (Check all that apply.)	
☐	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☒	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
☐	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
☐	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
☐	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles?	
1. A reliability standard shall not give any market participant an unfair competitive advantage. ☒ Yes ☐ No	
2. A reliability standard shall neither mandate nor prohibit any specific market structure. ☒ Yes ☐ No	

3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. ☒ Yes ☐ No
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. ☒ Yes ☐ No

Related Standards

Standard No.	Explanation
BAL-001-TRE-1	Primary Frequency Response in the ERCOT Region

Related SARs

SAR ID	Explanation