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Standard Authorization Request Form

Title of Proposed Standard	Assess Transmission Future Needs and Develop Transmission Plans
Request Date	May 01, 2004

SAR Requestor Information		**SAR Type** (Put an 'x' in front of one of these selections)	
Name	Paul Rocha	☒	New Standard
Primary Contact	Paul Rocha	☐	Revision to existing Standard
Telephone	(713) 207-2768	☐	Withdrawal of existing Standard
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Purpose/Industry Need (Provide one or two sentences)

To establish a standard for assessing and planning the transmission systems in North America. The transmission system must be assessed and planned to ensure that it performs its intended functions in providing reliable delivery of power for the future needs of customers.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies by double clicking the grey boxes.)*		
☒	Reliability Authority	Ensures the reliability of the bulk transmission system within its Reliability Authority area. This is the highest reliability authority.
☐	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within its metered boundary and supports system frequency in real time
☐	Interchange Authority	Authorizes valid and balanced Interchange Schedules
☒	Planning Authority	Plans the bulk electric system
☐	Resource Planner	Develops a long-term (>1year) plan for the resource adequacy of specific loads within a Planning Authority area.
☒	Transmission Planner	Develops a long-term (>1 year) plan for the reliability of transmission systems within its portion of the Planning Authority area.
☐	Transmission Service Provider	Provides transmission services to qualified market participants under applicable transmission service agreements
☒	Transmission Owner	Owns transmission facilities
☐	Transmission Operator	Operates and maintains the transmission facilities, and executes switching orders
☐	Distribution Provider	Provides and operates the “wires” between the transmission system and the customer
☐	Generator Owner	Owns and maintains generation unit(s)
☐	Generator Operator	Operates generation unit(s) and performs the functions of supplying energy and Interconnected Operations Services
☐	Purchasing-Selling Entity	The function of purchasing or selling energy, capacity and all necessary Interconnected Operations Services as required
☐	Market Operator	Integrates energy, capacity, balancing, and transmission resources to achieve an economic, reliability-constrained dispatch.
☐	Load-Serving Entity	Secures energy and transmission (and related generation services) to serve the end user

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check boxes for all that apply by double clicking the grey boxes.)*	
☒	1. Interconnected bulk electric 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 electric 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 electric 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 electric 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 electric systems.
☐	6. Personnel responsible for planning and operating interconnected bulk electric systems shall be trained, qualified and have the responsibility and authority to implement actions.
☐	7. The security of the interconnected bulk electric systems shall be assessed, monitored and maintained on a wide area basis.

Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box by double clicking the grey area.)*
1. The planning and operation of bulk electric systems shall recognize that reliability is an essential requirement of a robust North American economy. Yes
2. An Organization Standard shall not give any market participant an unfair competitive advantage.Yes
3. An Organization Standard shall neither mandate nor prohibit any specific market structure. Yes
4. An Organization Standard shall not preclude market solutions to achieving compliance with that Standard. Yes
5. An Organization 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

Detailed Description (Provide enough detail so that an independent entity familiar with the industry could draft, modify, or withdraw a Standard based on this description.)

The Standard shall establish requirements for assessing the performance of planned bulk electric transmission systems and the requirements for documenting a plan to remedy any inadequacies identified in the process of conducting such assessments.

The scope of such assessments and plans is for a planning horizon of one year or more. The scope *does not* include the operating horizon less than one year. While the planning horizon is intended to provide for facility additions, there is no intent to exclude appropriate operating procedures from the transmission plan.

The planning horizon must be long enough to permit timely implementation of viable solutions to remedy the potential inadequacies found. Assessments should cover a planning horizon of at least 5 years. The horizon may be longer than 5 years, based on regulatory or legislative requirements, or on the judgment of the Transmission Planner or Planning Authority.

The Standard shall identify reliability requirements, but shall not specify *how* to achieve such requirements. These requirements shall apply to Transmission Planners and to Planning Authorities.

The applicable portions of the following existing NERC Planning Standards will be used as the starting point in drafting these requirements:

- I.A Transmission Systems
- I.B Reliability Assessment
- I.D Voltage Support & Reactive Power
- II.A System Data
- II.D Actual and Forecast Demands

The Standard shall require that system models be developed, maintained and shared in a manner consistent with the Functional Model. Included will be requirements that each Planning Authority and Transmission Planner document and disclose the methodology used for incorporating planned generation assets in the model, as well as how such generation is dispatched. While methodologies and assumptions must be documented, the Standard will *not* prescribe specific tools to be used in the performance assessment of the planned systems.

The Standard will identify the various planning functions that are responsible for compliance with the standard criteria. The assignment of compliance responsibility will be consistent with the Functional Model.

This Standard will *not* include requirements for:

- Resource Planning (i.e., assessing or ensuring the availability of adequate generation resources to serve load).
- Planning generation additions to remedy any generation resource inadequacies.
- Mitigation plans to relieve congestion due to economy transfers of generation resources.

However, the Standard should neither preclude nor require the consideration of generation or load (demand side management) or operating procedures as alternatives to transmission reinforcement/reconfiguration when developing solutions to potential transmission inadequacies.

While the Standard should start from and closely align with the existing Planning Standards I.A, .B, .D, II.A,.D, the system conditions to be studied or assessed may need to be better defined or clarified. For example, the Standard should clarify that the requirement to assess the performance at ***all*** demand levels does not mean that a multitude of transmission models need to be created for every possible demand level, only that a representative sample covering critical operating conditions needs to be modeled in accordance with regionally-defined criteria.

Other examples of areas that should be considered for clarification in the Standard include:

- The Standard should provide a clearer definition of "cascading outages".*

  *Existing Planning Standard I.A definition: "Cascading is the uncontrolled successive loss of system elements triggered by an incident at any location. Cascading results in widespread service interruption which cannot be restrained from sequentially spreading beyond an area predetermined by appropriate studies"

- The Standard should take into account the variability of load due to factors such as weather and time of day.

- The Standard should allow for the development and use of probabilistic planning methods. The minimum requirements of probabilistic methods are the contingencies as described in Table 1 of existing Planning Standard I.A.. There should be NERC approval of acceptable levels of risk.

- Existing Planning Standard S1, S2, S3, S4 and Table I.A Category A, B, C, D should be clarified on the issue of how a planned outage should be used in an assessment.

- Performance requirements for Category C events shall be re-evaluated. For example, for certain Category C events, such as #2, #3 and #9 events, consider removing references to "Applicable Ratings" to clarify that the performance requirement is "No Cascading Outages are Allowed".

- The Standard should include requirements to ensure that the maximum available short circuit current is within the ratings of transmission facilities.

Related Standards

Standard No.	Explanation

Related SARs

SAR ID	Explanation
FACILITY_RATINGS_01_01	*"Determine Facility Ratings, Operating Limits and Transfer Capabilities".* The Planning Standard will use some data collected within the "Facility Ratings" SAR. The Draft "Facility Ratings" Standard, Section 603, establishes some guidelines for the planning function to set operating limits based on Table 1 of the existing Planning Standard I.A.
OPER_WITHN_LMTS_01_01	*"Operate Within Interconnection Reliability Operating Limits".* This Planning Standard needs to establish future planning criteria such that the bulk electric power system can be operated within operating limits.

Regional Differences

Region	Explanation
ECAR	
ERCOT	
FRCC	
MAAC	
MAIN	
MAPP	
NPCC	
SERC	
SPP	
WECC	

Related NERC Operating Policies or Planning Standards

ID	Explanation
Planning Std. I.A	Transmission Systems: Plan within ratings, avoid cascading outages, uncontrolled system separation, and voltage and transient instability.
Planning Std. I.B	Reliability Assessment
Planning Std. I.D	Voltage Support & Reactive Power
Planning Std. II.A	System Data
Planning Std. II.D	Actual & Forecast Demands
