

## TRANSMISSION PLANNING | FERC and NERC

### Federal Energy Regulatory Commission (FERC)

#### *The “how” of transmission planning*

**Background.** FERC has jurisdiction over energy matters that cross state lines, including the electric transmission system in most of the United States except Texas. FERC oversees electricity sales between power suppliers and utilities, the delivery of electricity along high-voltage power lines, and the approval of rules for the safe and reliable operation of the grid.

FERC also approves certain plans and new investments in transmission systems, and oversees the rates charged for transmission infrastructure. Regional transmission organizations, independent system operators, and vertically integrated utilities are examples of transmission operating entities. Transmission plans are often used to demonstrate the need to build new infrastructure.

### FERC’S ROLE

**FERC establishes the rules and procedures for transmission planning (“how”).** FERC established its transmission planning policies in a series of orders, which include the following:

- Order No. 888 (1996): Requires utilities to provide open access to transmission infrastructure for wholesale users.
- Order No. 890 (2007): Mandates transparent, public transmission planning processes and requires consideration of non-transmission alternatives (like demand response and energy storage).
- Order No. 1000 (2011): Requires regional collaboration, cost allocation principles, consideration of grid economics, and public policy objectives (like lines to connect renewable resources to meet decarbonization policies).
- Order No. 1920 (2024): Increases requirements for regional coordination and long-term planning scenarios.

FERC requires transmission owners to develop transmission plans but does not conduct formal reviews of every individual plan when complete. If parties feel plans do not meet transmission planning process requirements, they may file a formal complaint with FERC.

### North American Electric Reliability Corporation (NERC)

#### *The “what” of transmission planning*

**Background.** NERC was established in response to major blackouts in the Northeastern United States in 1965 and 2003. It develops transmission plan reliability standards subject to FERC approval and enforces compliance. The Energy Policy Act of 2005 allowed NERC to have federal enforcement authority.

### NERC’S ROLE

**NERC establishes a transmission planner’s reliability standards (“what”).** NERC has developed hundreds of electric reliability standards, some mandatory and others optional. One of NERC’s most consequential mandatory standards is NERC’s Transmission System Planning Performance Requirement. It requires a transmission owner to develop a detailed power flow model of their transmission system and use it to identify its expansion needs and potential weaknesses.

Planners look at load growth patterns and new generation sources to determine where to add transmission lines and how existing transmission infrastructure performs to determine replacements or upgrades. NERC’s Transmission System Planning Performance Requirement establishes criteria for how the transmission system must perform, which serve the objectives that planning models must satisfy.

NERC’s Transmission System Planning Performance Requirement also establishes requirements for how the grid must respond to a disturbance and how fast to restore regular power flows. Planners use contingency (“what-if”) modeling to simulate what happens when an element of the grid goes out of service. These are often called “n-1” scenarios, where “n” represents the complete set of transmission elements in the system and “1” represents the element that is lost. If standards are unmet, planners must determine necessary investments to verify compliance.

