

## Planning reports address stability and voltage impacts from increased renewable generation on ERCOT system

ERCOT's Planning group routinely performs studies to assess the electric grid and determine what it may look like in the future. ERCOT recently conducted two groundbreaking studies that address stability limits and voltage issues related to increased amounts of variable generation on the electric system and the challenges associated with these resources being located in remote areas.

In April 2018, ERCOT released the [Panhandle and South Texas Stability and System Strength Assessment](#) and the [Dynamic Stability Assessment of High Penetration of Renewable Generation in the ERCOT Grid](#). Both studies are designed to help ERCOT maintain the reliability and resilience of the grid as system conditions continue to evolve.

### **Panhandle and South Texas Stability and System Strength Assessment analyzes Panhandle and Rio Grande Valley**

This assessment analyzed operating conditions for high concentrations of wind generation in the Panhandle region, and for the first time, in the Rio Grande Valley, which also is seeing a significant amount of wind generation development. The study showed that there are electric system stability limitations when wind and solar resources are unable to detect voltage signals due to a lack of thermal/synchronous generation in an area.

While previous studies have been conducted to help identify stability limits in the Panhandle, this recent study showed the benefits of using more accurate and detailed models, and provided information on the interaction between customer demand and stability limits. ERCOT plans to use this data to help inform future studies and better understand the reliability implications associated with increased variable generation on the electric system.

### **Dynamic study assesses system stability issues associated with high penetrations of renewable generation**

This study analyzed the system-wide stability impacts for a potential future scenario that included a high penetration of renewable generation. In the scenario, a total of 28,000 MW of renewable generation was dispatched to serve about 70% of the total system load. At this level of renewable penetration, ERCOT determined there would be significant stability issues that would need to be addressed to maintain a reliable grid.

The study demonstrated the need to perform a stability analysis when analyzing future system conditions involving high penetrations of renewable generation. The study also makes recommendations regarding the modeling, performance and system improvements that will be necessary to maintain a stable grid in the future. ERCOT will continue to analyze these issues and work to identify the most cost-effective solutions to address these challenges.

