

Project Description

Located in Haskell, Texas, the Horse Creek Wind project's nameplate capacity is 230 MW. Interconnection point: American Electric Power (AEP)'s 345 KV Smoky Hill substation. The proposed 230 MW project consisted of one hundred (100) GE 2.3-116 wind turbines, each having an 80 meter hub above ground level and 116 meter rotor diameter. Each wind turbine is rated at 2.3 MW and connected to one (1) 2600 kVA, 3-phase, 2-winding turbine's step up (ISU) transformer.

Need

EPE provided engineering support with the interconnection, registration, testing and commissioning of the 230 MW Horse Creek Wind project with the Electric Reliability Council of Texas (ERCOT). EPE also performed a Sub-Synchronous Oscillation (SSO) analysis to determine if the proposed 230 MW Horse Creek Wind project may become radially connected to a series compensated transmission line under specific contingency conditions and in turn experience SSO disturbances causing risk to the project or the ERCOT grid.

Results

Horse Creek Wind RARF passed programmatic Nodal Common Information Model (CIM) screening rules currently in effect for Resource, Transmission and Planning parameters. Horse Creek Wind also passed all tests required by ERCOT and that EPE performed. EPE's SSO study concluded that Horse Creek Wind is not susceptible to SSO disturbances. AEP accepted EPE's SSO study results and ERCOT granted approval to synchronize Horse Creek Wind to the ERCOT grid. **Finally, Horse Creek Wind met all ERCOT's requirements to begin commercial operation as of January 2017.**

EPE provided the following services:

- Updated and assisted in the submission of the Resource Asset Registration Forms (RARF) of the Horse Creek Wind through the ERCOT Market Information System (MIS) site.
- Completed the commissioning plan narrative for the project in accordance with ERCOT's latest Interconnection Handbook.
- Completed and provided technical support during the Lagging/Leading reactive power tests.
- Primary Frequency Response (PFR) and Automatic Voltage Regulator (AVR) tests.
- Performed a generator/grid frequency scan to determine any potential resonant points that may coincide with the grid side frequency scan.
- As a second step, EPE completed a detailed SSO study using a PSCAD™ model made up of the equivalent project model and the equivalent AEP system model representing the area of concern for SSO.

