



Duke Energy Business Services Notrees Wind Storage Demonstration Project

Project Description

The Notrees Project will analyze and discern how, when integrated with wind power, energy storage can compensate for the inherent intermittency of this renewable power generation resource. Incorporating both existing and new tools, technologies and techniques, this demonstration project will provide valuable information regarding wind energy storage and serve as a model for other entities to adapt and replicate. The energy storage system will be designed and constructed using fast response, advanced lead-acid batteries configured to provide 36 MW output peak power with an energy storage capacity of 24 MWh.

Goals/Objectives

- Store energy during non-peak generation periods and re-issue the power to meet demand
- Quantify the value of wind storage
- Demonstrate the reliability and dispatchability of wind storage
- Use the storage system for system balancing
- Determine if energy storage solutions are commercially viable to support wind generation
- Provide a Fast Frequency Response Service (FFRS) to ERCOT as part of a pilot program for energy storage systems

Key Milestones

- Construction Phase Completed (October 2012)
- Performance Testing Completed (December 2013)
- Commercial Operations Testing Completed (February 2013)
- Initiated ERCOT Fast Frequency Response Service (February 2013)
- Complete Final Report (March 2015)

Benefits

- Congestion reduced
- Energy dispatch optimized
- Energy costs reduced
- Energy efficiency and grid reliability improved
- Carbon emissions decreased
- Wind energy knowledge advanced



CONTACTS

Kimberly Nuhfer
Project Manager
National Energy Technology Laboratory
3610 Collins Ferry Road
Morgantown, WV 26507-0880
304-285-6544
Kimberly.Nuhfer@netl.doe.gov

Matthew Johnson
Principal Investigator
Duke Energy Business Services
526 S Church Street
Charlotte, NC 28202-1802
704-382-7268
Matthew.Johnson@duke-energy.com

PARTNERS

Electric Power Research Institute

VALUED VENDOR

Xtreme Power, acquired by Younicos, Inc.

PROJECT DURATION

1/1/2010–12/31/2014

BUDGET

Total Project Value
\$43,612,464

DOE/Non-DOE Share
\$21,806,232/\$21,806,232

EQUIPMENT

Dynamic Power Resources™

DEMONSTRATION STATES

Texas

CID: OE0000195

Managed by the National Energy Technology Laboratory for the Office of Electricity Delivery and Energy Reliability