

GEODAQ DELIVERED:

- ▶ A monitoring system for each tower: several GST modules measuring tilt, strain, displacement and acceleration, placed from the foundation to the top of the tower, and one GCM controller module with an internet modem in protective casing.
- ▶ Simultaneous sampling of all sensors.
- ▶ Remotely adjustable sampling frequencies with a range of 10 to 500 Hz.
- ▶ Dedicated server, secure database, and redundant backup for data storage of over 2.6 million time history records.
- ▶ Password-protected web interface for real-time data monitoring and analysis.
- ▶ Web-based data analysis tools as follows:
 - ▶ First phase analysis plots of minimum, maximum, and root mean squared value over time that could be analyzed with weather data;
 - Second phase analysis plots of time-history,
 - FFT plots, digital filtering, and single and double integration of acceleration.
- ▶ Web-based viewing of every record for every sensor, with data analysis available at the click of a button

Texas

DYNAMIC STRUCTURAL MONITORING OF WIND TURBINE TOWERS

OVERVIEW

GEODAQ teamed with Lymon C. Reese and Associates (LCRA) to monitor and evaluate the dynamic behavior of five wind turbines with an overall height of nearly 500 feet. These were among the tallest in the world at the time, with correspondingly high stresses. Turbines are in constant motion, and tower loading and vibration change with wind speed. So monitoring needs to sample every sensor frequently, while maintaining records over months or years that can be analyzed with respect to weather conditions.

SOLUTION

GEODAQ built an easy to use field monitoring system that could dynamically monitor each tower, with adjustable sampling frequencies at up to 500 samples per second. GEODAQ also provided real-time web-based monitoring and data analysis tools for millions of records totaling billions of data points. These tools allowed LCRA engineers to sort through every record and identify specific time-histories for further analysis.



"I was pleased to use Geodaq's products in one of our wind-turbine projects . Their system generated all the data we needed and gave us the tools to analyze it."

Shin-Tower Wang, President
Lymon C. Reese and Associates

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