

## Wind Data Analysis Application

Client Leading MNC in the Wind Energy Sector

### Platforms

- ▶ Windows Server 2003
- ▶ ASP.Net 2.0, C#
- ▶ JavaScript, HTML, CSS
- ▶ MS SQL Server 2005
- ▶ .Net Charting Tool

### The Problem

The client is one among on the top five utilities firm in India with wind measurement units across 65 locations. They were looking for a customized online application that would enable them to take a decision to install a wind power unit. At their wind measurement units they used dataloggers to acquire data from different sensors which measures the parameters such as Temperature, Pressure, Relative humidity, Wind speed & Wind direction. The datalogger produces a data file output for the collected data for a selected duration. Different types of dataloggers provided different type of data files as output. The capacity and specifications of the unit was being derived from the wind data analysis. Once the unit is installed, the expected energy output v/s actual would be compared for taking corrective actions. All these required parameters data was taken in various data analysis tool on monthly basis. The MIS reports for each site and area are created from the data analysis tool which was from different vendors. With the help of this tool multiple locations data was managed and data logger parameters configuration was done. With different format of data and multiple locations, client was facing issues for data analysis and decision making.

### The Solution

Axcend provided the client with an efficient software application that allows the user to import the data logger files from different vendors. Configuration options are provided to configure the locations, measurement parameters, sensor specifications (scaling, output etc.), data logger specifications (sensor channel configuration, data output etc.), projects, sites and user access levels. Application allows the user to import the data from multiple data logger. Statistical analysis methodologies are used for filling of missing data (due to sensor failure, outages) based on profiles, mean variation etc. Estimation of Energy production is provided by the application for wind measurement parameters for selected duration. Statistical analysis is an important part of the application. High end reporting options is provided so that user could use analyze the data obtained

from the wind power units. Both graphical and text reports are the part of the application. There are reports which also help the user to analyze not only from single sites but from multiple sites across locations.

## ROI

- ▶ Integration of data from multiple data loggers across sites and locations
- ▶ Reduces manual efforts in cleaning and patching the defective data from multiple sites thus decreasing delivery time & increasing delivery quality
- ▶ Support for the latest operating systems environment
- ▶ Automatic Estimation of Energy production helping in predicting the energy output
- ▶ Graphical and text Reduces downtime and manual errors

## Salient Features

Application allows the user to import the data from multiple data logger. It also allows the user to use different Statistical Algorithms to mark, unmark and patch the data based on threshold limits, mean variations, missing data. Estimation of Energy production is provided by the application for given wind measurement parameters for selected duration.

The key modules included are:

- ▶ Project
- ▶ Site
  - Site History
- ▶ Sensor
  - Sensor History
- ▶ Import Data
- ▶ Data Validation and Patching
- ▶ Reports And Graphs
- ▶ Utilities
  - Configure Data loggers, users profile, turbines, validation parameters
- ▶ Feedback and Admin notes