SUCCESS STORY

IBERDROLA RENEWABLE ENERGIES TOLEDO OPERATION CENTER

PcVue is the CORE SCADA solution for efficient remote control of wind farms.

Iberdrola Renewables is the world leader in electricity production from renewable sources, in particular from wind power. Founded in 1995 by merging several engineering companies, Iberdrola Ingeniería y Construcción is an energy operations center at Toledo, near Madrid, that manages and remotely controls ten wind farms across all the regions of Spain. The firm is responsible for the installations in terms of electrical generation, distribution and control. It ensures services that comprise project management, engineering, supply, construction and operational support. Iberdrola Renewables aim is to provide the service without geographical limits.

In the context of a project for supervision and control of modern wind power systems, Iberdrola Ingeniería has chosen ARC Informatique's PcVue software for its reliability, scalability and high performance in a Client-Server data architecture.

The main objective of the project was to make the information from the wind farms, especially alarms and historical data, available remotely.

The control system at each site samples the main operational data from the generators and the various substations. These systems are connected to the CORE (Iberdrola's Renewable Energies Operation Center) via long-distance communication links.

CORE uses this data to identify and diagnose potential problems and respond with corrective action. Previously each wind farm was monitored from one local SCADA station and the operators sent the data in by telephone. All the required data were saved to disk and then forwarded for manual data recording.

For remote monitoring of the wind farms and so for remote control through a dedicated VSAT network, Iberdrola Renewables has chosen to install in the CORE an OPC based architecture with PcVue SCADA server and FrontVue clients.

PcVue and FrontVue are both Windows-based software packages capable of managing millions of I/O points online from thousands of devices. The PcVue-FrontVue SCADA system in the CORE has been implemented to provide the operators with all the required information regarding alarms from the turbines.

Up to 2.4 million data items are monitored by the FrontVue client stations, which communicate via OPC with the front end over a 1,000 Mbps redundant TCP/IP Ethernet network. Each front end can receive up to 70,000 I/O points.

Currently they are 30 redundant PcVue servers that manage a million real-time variables and the network can be extended without limits or structural changes.

BUSINESS OBJECTIVE

- Remote access to wind farm information
- Ensure efficient service

AN EASY, EFFICIENT PROCESS

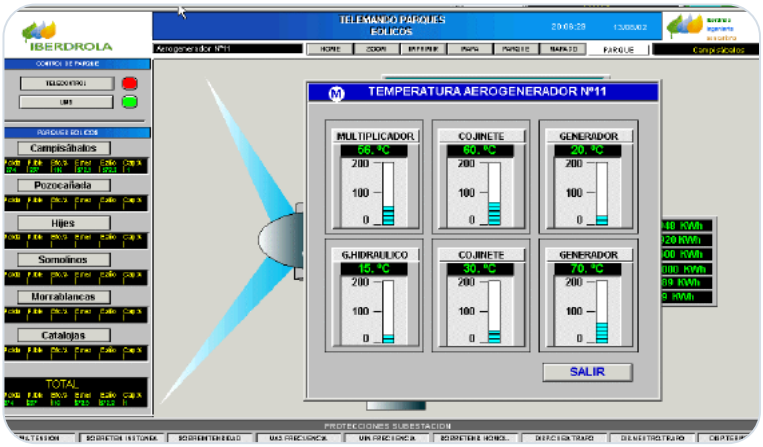
Using the PcVue-FrontVue architecture, the operators can analyze the data from the remote wind farms in detail.

Given the huge volume of data (around 350 points per turbine) and so as to ease maintenance operations, the supervision takes place at two levels:

- The upper level gives a panoramic view of the most significant alarms, data values and counters, as required for monitoring the turbines and to detect faults that require intervention;
- The next level is more detailed to enable better analysis of all the data from the turbines so that the operators can immediately and accurately diagnose problems and take appropriate action.

All of the data received are processed by way of set points, historical data, alarms and trends.

The solution implemented with the PcVue SCADA software has allowed a remarkable reduction in maintenance costs, while centralizing all the information from the remotely controlled plants.



MAIN TECHNICAL FEATURES

- 2.4 million points
- 270 wind farms
- 3500 Megawatts
- 6000 turbines
- 30 redundant PcVue servers

KEYS TO SUCCESS

- Reliability of the SCADA software
- Scalability
- High Performance
- Open system to interface to third-party automation technology

RESULTS

PcVue provides centralized information and remote control of wind farms

PcVue operators maintain control wind farms and perform corrective actions to reduce maintenance costs

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