

EDP Renewables

Wind Energy Management System

The winds are at work. Be in control.

Climate change, rising fossil fuel prices, energy security concerns – in the middle of these issues, the demand for electricity is ever-growing and Energias de Portugal Renewables (EDPR) is tapping into the vast possibilities of wind energy.

A world leader in the renewable energy sector, EDPR designs, develops, builds and runs wind power plants.

EDPR became the third largest wind energy company in the world after acquiring Horizon Wind Energy. Horizon is the second largest wind energy company in the US. The takeover naturally meant a rise in challenges – strategic, tactical and operational.

WHAT EDP RENEWABLES NEEDED

Control and efficiency was right at the top of EDPR's mind. EDPR had wind farms across Portugal and Spain and an ambitious expansion plan in various continents. They wanted to be Top3 world player. EDPR understood very early the benefits of having a single view of all portfolio. And the business control they would have from being independent from turbine vendors. This created a need for a solution that would integrate processes in real time across different countries. And that would evolve in accordance to market uncertainties and EDPR's business strategy.

THE CHALLENGE

The wind energy industry was relatively new, and there were no standards available in the marketplace. Compliance was a concern. Alongside, stability and security of the grid also had to be maintained. EDPR needed a single, easy-to-use system that could scale up at short notice. Across different geographical locations and different manufacturers and models of wind turbines.



CASE STUDY

UTILITIES

Key benefits

With our solution EDP Renewables is able to:

- Control hundreds of wind farms remotely in real time
- Maximize energy injected in the grid by improving assets availability
- Benchmark different turbine manufacturers
- Reduce operational costs
- Comply with regulatory framework and grid code in different countries
- Increase energy revenues
- Make renewable energy more viable

This made the process more complex. Because we had to create a solution that would be effective despite the differences in turbine characteristics.

But that wasn't all. EDPR also needed a powerful solution. At any given moment, each turbine provides 200 to 300 signals. The system had to be able to retrieve data and control all 6000 turbines in real time. Added to this, EDPR wanted historical data representation to make reporting and analysis simpler and to achieve operational excellence.

OUR ANSWER

EDPR chose us as a partner in 2006. The idea was to start with a control and management system for 48 wind farms across Iberia. Together with EDPR, we delivered the solution Wind Energy Management System (WEMS) based on our Renewables Management System or RMS. WEMS also needed to scale up to 50 more wind farms in the following six months.

In 2009, after acquiring Horizon Wind Energy, the second largest wind energy company in the US, EDPR needed to change their corporate model with common processes. We entered in one more phase of WEMS.

This meant to establish real-time control centers in Porto, Oviedo and Houston. The goal was to manage nearly 300 wind power plants and 6000 wind turbines. Moreover, we established common procedures and systems to integrate related departments spread across different continents. 'Bridged the Atlantic' – that's what EDPR did with our contribution.

Operational excellence is now one of the key challenges in the Utilities industry. It became a cornerstone of EDPR's business strategy. This defined the most recent phase of WEMS with a new performance management system. EDP now can compare actual turbine performance with what is stated in vendor contracts and benchmark assets behaviour. Thus ensuring the right returns on investment. They can improve margins by accessing more information for negotiating and enabling liabilities management.

A SUCCESS STORY

WEMS based on RMS solution is clearly a hit. In March 2011, it won the 'Technology Innovation of the Year Award for Excellence in Renewable Energy' at the Renewable Energy World conference in Tampa, Florida. And why not? RMS has enabled countries like Portugal and Spain reach a penetration of renewable energy of up to 50% of total electricity consumption.

Now, RMS is integral to the management of hundreds of EDPR wind farms across Portugal, Spain, France, Belgium, Poland, Romania, USA and Brazil. The business sees it as key to support expansion plans and continuous efficiency improvement.



"This project bound to become an international reference in the renewable energy sector, while also driving EDPR's growth"

Rui Chousal, Director, EDP Renewables

WHY WORK WITH CGI

We have over 20 years' experience in developing and implementing supervision control and data acquisition systems (SCADA) and performance management systems.

We developed the RMS solution based on industry-leading platforms. And then incorporated the international standard for data normalization for wind power plants.

We have the knowledge and experience required to implement systems supporting operational performance optimization processes.

We have a flexible, collaborative culture. Our innovative, practical solutions are tailored to client needs.

We deliver a blended service model that combines local knowledge with global resourcing. And, we create new ways for clients to succeed. By being cost-effective and delivering projects on time, and within the budget.

Founded in 1976, CGI is a global IT and business process services provider with 72,000 professionals delivering high-quality business consulting, systems integration and outsourcing services.

For more information, please contact us at

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