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CASE STUDY

EDP Renewables Wind Energy Management System

The winds are changing. Opportunity is in the air.

Climate change, rising fossil fuel prices, energy security concerns – in the middle of these issues the demand for electricity continues to grow 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 in the USA. The takeover naturally meant an increase in challenges – strategic, tactical and operational.

WHAT EDP RENEWABLES NEEDED

Control and efficiency was right at the forefront of EDPR's mind. EDPR had wind farms across Portugal and Spain and an ambitious expansion plan across several continents.

They wanted to be a top three world player. EDPR understood very early the benefits of having a single view of the whole portfolio, and the business control they would have if they were independent from turbine vendors. This created the need for a solution that would integrate processes in real time across different countries, and that would evolve in accordance with market uncertainties and EDPR's business strategy.

THE CHALLENGE

The wind energy industry was relatively new, and there were no standards established in the marketplace, so the compatibility of data from different turbine models was a concern. Alongside this issue, stability 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, with different manufacturers and different models of wind turbines.

These requirements made the process more complex: 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 6,000 turbines in real time. Added to this, EDPR wanted historical data representation to make reporting and analysis simpler and to achieve operational excellence.

Key Benefits

With our solution EDP Renewables is able to:

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



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

Rui Chousal, Diretor da EDP Renováveis

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 Wind Energy Management System (WEMS) based on our Renewables Management System (RMS). WEMS also needed to rapidly scale up to manage 50 more wind farms in the following six months.

In 2009, after acquiring Horizon Wind Energy (the second largest wind energy company in the USA), EDPR needed to change their corporate model with common processes. This meant the establishment of real-time control centers in Porto (Portugal), Oviedo (Spain) and Houston (USA). The goal was to manage nearly 300 wind power plants and 6,000 wind turbines. Moreover, we established common procedures and systems to integrate related departments spread across different continents. **With our help, EDPR “bridged the Atlantic”.**

Since then, this client’s WEMS system has gone from strength to strength. A further dispatch center has been set up in Bucharest (Romania), with more in the pipeline. The system was also adapted to allow the integration of photovoltaic energy, with a number of solar parks across Europe and America now monitored and controlled from within WEMS.

Operational excellence is one of the key challenges in the utilities industry of today. It became a cornerstone of EDPR’s business strategy. This defined the most recent phase of WEMS, with the introduction of a new performance management system. EDP can now compare actual turbine performance with what is stated in vendor contracts, and benchmark asset behavior, thus ensuring the right return on investment. They can improve margins by accessing more information for negotiating and enabling liabilities management.

A STORY OF SUCCESS

WEMS, based on the 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. Why did it win? Because RMS has enabled countries like Portugal and Spain to reach a penetration of renewable energy of up to 50% of their 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 RMS as key to supporting expansion plans and continuous efficiency improvement.

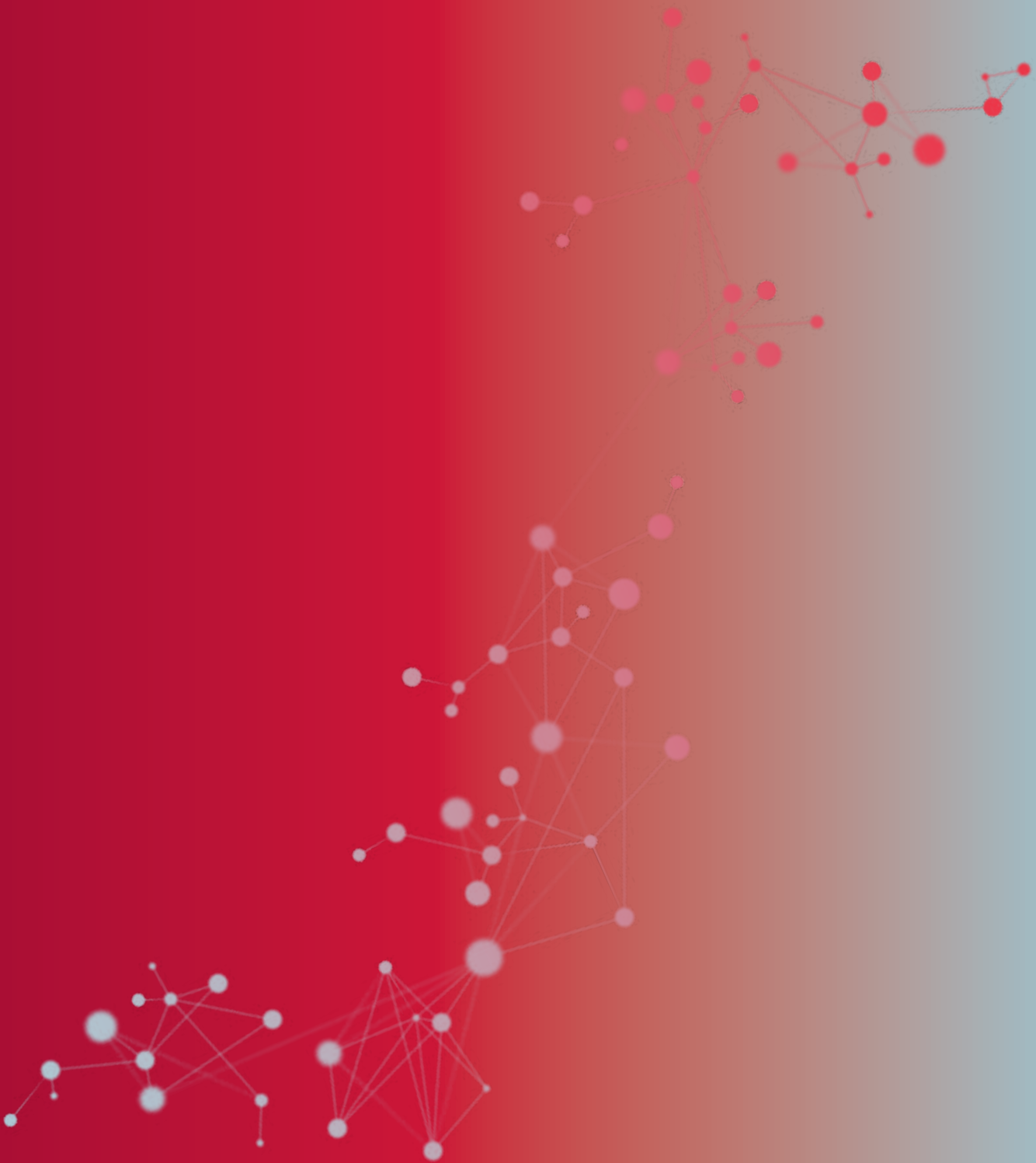


WHY WORK WITH CGI

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, 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, delivering via 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.





For more information about CGI, visit www.cgi.com or email us at info@cgi.com.

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Founded in 1976, CGI is a global IT and business process services provider with 68,000 professionals delivering high-quality business consulting, systems integration and managed services.
