



PCVUE SUPPLIES THE SCADA SOFTWARE PLATFORM FOR THE FIRST PHOTOVOLTAIC PLANT WITH BATTERY ENERGY STORAGE IN SPAIN

When Iberdrola was considering a pioneering project in Spain, installing batteries for the first time in a photovoltaic plant, it did not hesitate to turn to PcVue to supply the software platform for monitoring production and managing load. PcVue's SCADA system more than fulfilled its mission in terms of performance, ease of installation and almost full compatibility with all types of hardware.

The Campo Arañuelo complex is a grand photovoltaic project of the power company Iberdrola, with an investment of 80 million euros. The complex, located in the municipality of Romangordo (Cáceres, Extremadura), consists of three photovoltaic plants, called Arañuelo I, II, and III, with a total installed capacity of 143 MW.

The entire installation generates renewable energy equivalent to the supply needs of a population of 65,000 homes per year and will prevent the emission of 41,000 tons of CO₂ into the atmosphere per year.

Arañuelo III, the most recent plant, with a power of 40 MW, came into operation in 2022 and has a particularity that makes it a unique installation in Spain: it is the first photovoltaic plant with batteries, whose power is 3 MW and its storage capacity reaches up to 9 MWh.

In addition, the batteries have been integrated into the photovoltaic plant itself in a distributed manner. Specifically, the batteries have been coupled in DC coupling mode, i.e. connected to the same DC input of the inverter to which the photovoltaic panels are connected.

The advantages of this novel structure are increased efficiency and better utilization of surplus solar production. In other words, a higher level of plant optimization is achieved.

Ingeteam, a company specializing in electrical conversion, supplied Iberdrola with everything from power systems such as electrical substations, solar inverters and battery containers to the SCADA (Supervision Control And Data Acquisition) monitoring system.

20 YEARS AS IBERDROLA'S SOFTWARE PLATFORM

Ingeteam had it very easy when it came to the SCADA system, as it contacted PcVue Spain, a company belonging to the French ARC group, which has been supplying its software platform to Iberdrola for more than 20 years.

«The platform, in this case configured and installed by Ingeteam, is the central digitization tool of the solar plant. It enables production monitoring and load management,» explains Vincent Reynaud, CEO of PcVue SPAIN.



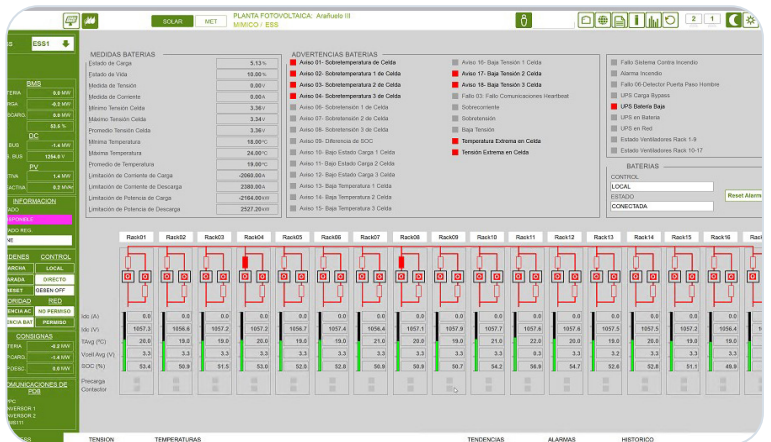
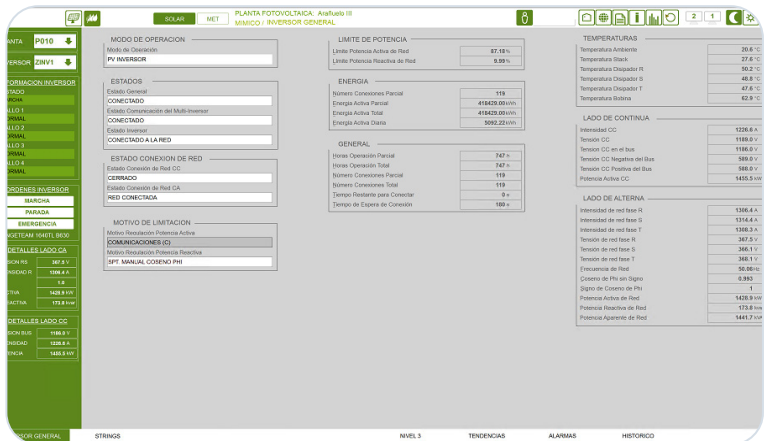
Ingeteam's implementation was guaranteed thanks to the certification and training on the PcVue platform obtained through previous training sessions. This was complemented throughout the project by the continuous local technical support offered by PcVue SPAIN from Irun (Basque Country).

The technical capabilities provided by PcVue software to Ingeteam and Iberdrola are divided into three main areas, the first being field data acquisition. In this area, the key has been its almost total compatibility with the equipment on the market and specifically with native protocols such as IEC 104, IEC 61850, DNP3 (Distributed Network Protocol version 3) and ICCP (Inter-Control Center Communications Protocol), all of them approved by reference organizations around the world.

A second aspect covered by PcVue is the high availability architecture by integrating the platform with multi-stations and redundant servers, hybrid architectures with servers hosted in the cloud or data centers. Finally, data visualization is guaranteed with the possibility of entering real-time commands on media ranging from PCs with HTML5 web browser to mobile notification messages and contextual information.

The complexity of the supervised process is evident when describing the implementation of PcVue for Iberdrola through Ingeteam. This took the form of a client/server architecture that, through 11 PLCs (programmable logic controllers), collects information from inverters, strings (sets of solar panels connected in series), meteorological towers, electrical substations, etc., the plant's PPC (Power Plant Controller) and the EMS (battery management system).

Iberdrola's demands in terms of management capacity show how ambitious the project is and demonstrate PcVue ability to meet the high requirements. In fact, through the Modbus TCP PROTOCOL, the system handles 17,000 signals, of which 9,000 are alarms and 2,000 are historical and serve to track trends.



DIRECT DATA COLLECTION

The suitability of PcVue for the Arañuelo III PV plant, as well as for many other applications, goes far beyond the described performance.

«PcVue offers the possibility of collecting field data via native communication protocols, without an intermediate software layer, such as IEC 104,» Vincent Reynaud emphasizes. «This solution is also scalable and its handling is intuitive when it comes to adding several servers and/or visualization clients.»

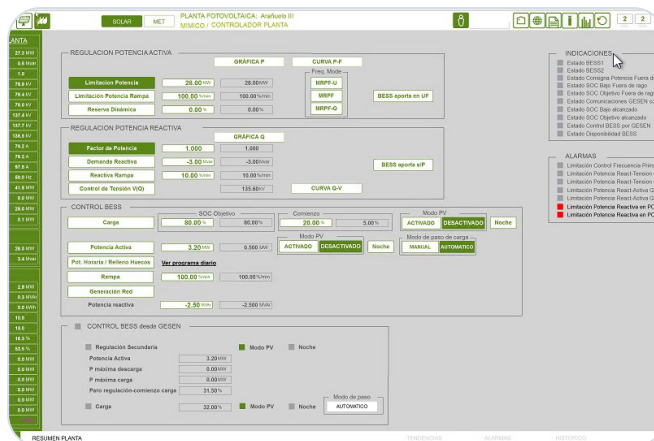
Its degree of compatibility is also excellent:

«Being open, it can provide its data to third-party systems, such as Iberdrola's CORE (Renewables Operation Center) in Toledo, guaranteeing optimal data quality at all times,» says Vincent Reynaud. Plant maintenance tasks of equipment are also facilitated because PcVue has tools for this purpose.

Ingeteam greatly appreciates the support provided by PcVue, as well as its performance. ù

«Apart from being the tool approved by Iberdrola for photovoltaic plants, we have verified in practice that it is indeed a powerful and flexible system,» acknowledges Ángel Medrano, Ingeteam's Director of Engineering Services.

«It is a complete system that incorporates many functionalities, and therefore makes it possible to dispense with additional software for the resolution of the project.»



AN INDEPENDENT PROPOSAL

A differentiating factor of PcVue SPAIN, and the ARC group, is its total dedication to software development and remains PLCs vendor agnostic. In addition, the availability of numerous native protocols allows direct communication with the equipment.

«Its real-time database management by branch facilitates the maintenance of plants throughout their service life, whether the applications installed are small or large,» explains Vincent Reynaud.

The presence of PcVue in the renewable energies sector has Iberdrola as one of its cornerstones, but it is common in the control of many other photovoltaic plants and wind farms. Siemens Gamesa, for example, has been using PcVue for its turbine control center worldwide for 10 years. General Electric, for its part, has more than 300 wind farms with PcVue platform installed.

THE PCVUE PLATFORM, AN ESSENTIAL BASE FOR IBERDROLA

The choice of PcVue for the SCADA of this latest generation photovoltaic plant of Iberdrola - unique in Spain due to the installation of batteries integrated in the facilities themselves - has been another milestone for the ARC group company in its long relationship with this electric company, a world reference in renewable energies.

Back in 2003, Iberdrola chose PcVue to set up its control center for renewable energy assets: the CORE (Renewable Energy Operation Center) in Toledo, whose mission is to ensure the remote control of wind farms, solar and hydroelectric power plants from a single location. Iberdrola selected PcVue software for its reliability, scalability and high performance in a client/server data architecture.

The close collaboration between Iberdrola and ARC Group transformed into a longtime partnership and today there are more than 4 million points connected within the PcVue architecture. It has evolved into a world-class platform with native communication protocols especially suited for energy management and smart grid interoperability, such as IEC 61850 client (certified by DNV KEMA), IEC 60870-5-104 client and server and DNP3 master.

The resounding success, experience, expertise and in-house developments have made the ARC Group a valued supplier also in Scotland (Scottish Power Control Center), the United States (Avangrid Control Center), Australia (Battery Energy Storage System) and Brazil (Neoenergia Control Center). Iberdrola itself uses the PcVue platform in such distinctive installations as Pizarro, the largest photovoltaic plant in Europe with its 590 MW.


KEYS TO SUCCESS


Iberdrola selected PcVue software for its reliability, scalability and high performance in a client/server data architecture




ARC Informatique

Headquarters and Paris office
2 avenue de la Cristallerie
92310 Sèvres, France

 +331 4114 3600

 Hotline: +331 4114 3625

 arcnews@arcinfo.com

 www.pcvue.com



ARC Informatique is ISO 9001,
ISO 14001 and 27001 certified