

Solar farm benefits from open solution

A solar farm built by the Compagnie Nationale du Rhône (CNR) at its Bollène site in France, forms part of the development of the Donzère-Mondragon hydro-electric power plant, a site which has gradually become a cluster for producing renewable energy including hydro-electric, solar, and wind. CEE explores its SCADA choice.

The systems integrator for the project was INEO MPLR Agence Industrie. To manage the technical equipment for the project it specified a Panorama E² SCADA solution from Codra, which was chosen for three main reasons – its easy learning curve, its open design for working with other systems, and the simplicity for re-using developments at other sites.

A spokesperson for Codra explained more about the features of this SCADA solution: "Component-based application modeling encourages developers to create standard objects, accelerating the development and deployment of applications by unifying methods and re-using components. "In order to reduce engineering and maintenance costs, the software provides true 'object oriented' application mechanisms across all functions – from field items through to user level functions – this helps reduce application development and maintenance times.

The solution can also be used with other systems because Codra provides developers with the same resources used to create the basic Panorama E² functions, allowing them to add

their own functions directly into Panorama E². These user functions are developed as independent software objects then defined inside Panorama E² to be run as standard functional or workstation objects. Developers can add .NET or OLE Automation objects as functions to extend functionality. When a user object is declared to the infrastructure using a class descriptor, its properties are made available to all other functions such as links, scripts, alarms, history, etc.

The SCADA solution specified for use in the CNR application needed to be able to meet the following technical requirements:

Data acquisition – CNR collects data from field equipment such as measurement equipment that compares the energy generated vs. the energy consumed; DC to AC converters; transformers that increase the voltage from 270 to 20,000 volts for EDF; transducers that measure intensity; and analogue/digital inputs that indicate luminosity and the temperature above and below the panels.

Human-machine Interface – CNR uses custom views created from vector-based graphical objects to display information on light intensity, energy, and the power generated per transformer unit and

delivery unit across the entire site.

Remote control – Users need to be able to remotely control the electric current, the opening of cells at each unit, outdoor lighting, forced ventilation exhaust fans, and triggering of circuit breakers. The remote connection uses TSE mode with three simultaneous access points, allowing the company to manage the Southern farm from Bollène, or INEO is able to directly control the application from Toulouse.

Event and alarm management – Built-in functions alert SCADA users and system administrators to alarms and system malfunctions. The function for sending and receiving SMS text messages, used in conjunction with schedules, warns mobile operators according to their availability.

Archiving – The SCADA system stores the data acquired from the site concerning production, maintenance, schedules, etc. This information is exported to an SQL Server database. CNR centralises and analyses the production of the various farms.

"The determining factor in choosing Panorama E² was its ease of use," said Christophe Cammas, development engineer at INEO MPLR Agence Industrie. "We can easily export data to SQL Server databases – a crucial requirement for CNR. Furthermore, Panorama E² is easy to learn; the online help system is very well done, and specific functions are well documented."

Another solar farm project at Beaucaire in the Gard region, was also able to benefit from the experience of the Bollène farm. CNR is able to re-use all or part of the application and adapt it to the constraints of the new site. Panorama E²'s object-oriented technology simplifies the re-use of components as well as maintenance. "We were able to cut our development time in half, which has significantly reduced costs," concluded Cammas.

