CASE STUDY

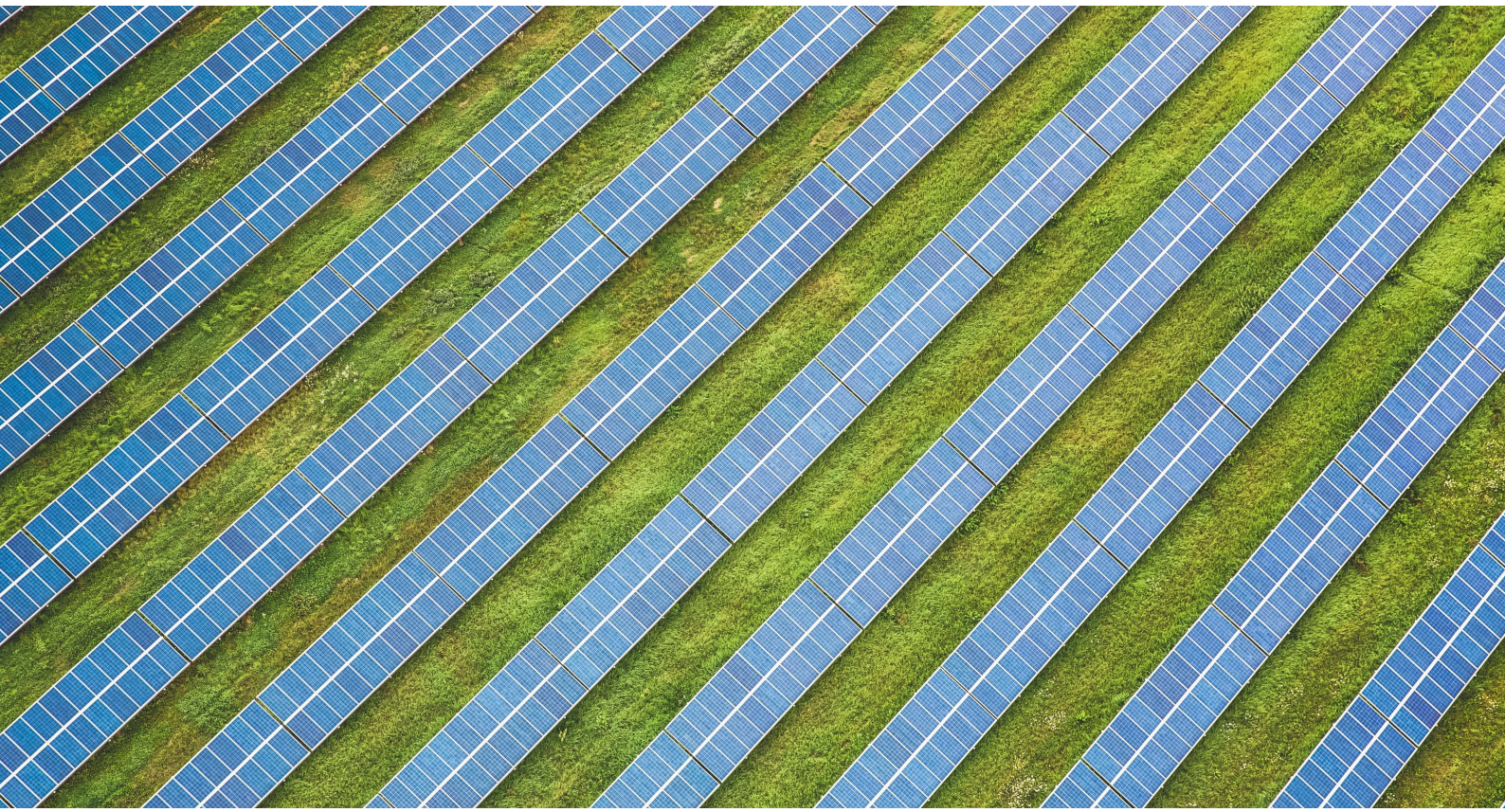
Delin Elettronica

Industry | Energy

The ideal supervision solution for sustainable energy of large photovoltaic parks

Movicon.NExT from Progea was chosen for the revamping of the systems of supervision of photovoltaic fields

Delin Elettronica started up in Modena in 1983 as distributors of industrial automation components and electronics of some of the most prestigious brands in the sector. It soon evolved as an integrator in the design and realization of supervisory and control systems in the most diverse application sectors. Delin Elettronica currently offers its services as a System Integrator in the industrial automation sector with the capability to provides its customers with all-inclusive control system solutions. Its teams are capable of defining and engineering the necessary system architecture and designing and building electric control panels, develop PLC, HMI, DCS, and Safety Integrated Systems using leading platforms in the sector. They also perform the final test runs and startup of the entire control system. Among the many application sectors, in which Delin Elettronica operates, are those that deal with renewable energy sources and where, in particular, photovoltaic field supervision systems are of great importance. They have been developing applications of this type for more than ten years for their customers who are leading Italian companies in energy, inverter and solar string production. Delin Electronica's mission is to provide a top quality service in design engineering and building systems that manage and control machines and plants by offering solution that use the most advanced technology. The main services offered by Delin Elettronica are the studying and engineering of control systems, the design engineering and realization of electric control panels, developing software for PLC, HMI, DCS, Safety Integrated Systems, operator panels and Robots, test run and starting up the developed system into operation at final customer. The application sectors which Delin Elettronica mainly operate in are renewable energy, Oil and Gas, energy production and power control, building automation, automatic systems and machines for the chemical, ceramics, textile, picking, industrial laundries, aluminium extrusion, food and pharmaceutical industries.



Goal: innovation

The main objectives requested by the customer were to revamp the supervision system's graphics and introduce advanced tools for visualizing graphical trends and data analysis of collected data using reports.
In addition, the customer also requested that their supervision system be integrated with web pages and the possibility to export collected data in .csv file format.

The developed application

The project's key goal was to revamp the photovoltaic field supervision system which had been developed for their customers more than ten years ago using different software platforms. The main functions of these system are to collect large amounts of data (form 5000 to 10000 I/O for each system), process, aggregate and visualize the collected data and communicate with DCS or third party systems.
The new supervision systems have been developed for 11 enormous photovoltaic fields in South Africa and Brazil, with a total capacity of 825 MW.
The supervision systems are based on the Movicon.NExT platform with which the Alarm Dispatcher options have been integrated, to send alerts and reports by e-mail, and the OPC UA Server to communicate with the electric grid managers.
All field data are collected using the TCP/IP Modbus communication drivers that come with Movicon.NExT. The supervision system can also be used to monitor the states of inverters, photovoltaic strings, weather stations, network analysers, meters, medium voltage cell switches and also control the power supplied by the system by controlling the inverters and and power plant controllers.
Each of the 11 supervision systems is build with a rack cabinet which mainly contains UPS, Ethernet Switch, Patch Panel for optic fibres and a PC Server where the Movicon.NExT software has been installed.
The system's architecture necessitates that both client and server reside in the same physical machine. The PC Server uses a network card to collect data from the field, communicate with the power grid manager by means of the OPC UA protocol and to send notifications and reports by email. The collected data are historically logged by Movicon.NExT in the SQL Server Express database in the PC Server.
Finally, web pages have been integrated within the supervision system to for security video camera surveillance and visualization and tracker control system that deals with solar panel movements.

"We chose the Progea software for its modern and captivating graphics and the platform's integrated tools."

Andrea Bononcini, Senior Software Engineer, Delin Elettronica srl

All-inclusive application

The main advantage of this type of architecture is that the Movicon.NExT software platform is an all-inclusive platform for developing and implementing all the functions needed by the supervision system. In addition, the system's architecture is also predisposed for the use of additional remote clients when the need arises.

Scalability and modern software technology

The main reasons that drove Delin Electronica to use this platform are its scalability and modern software technology, graphics and connectivity. One of the big advantages we discovered while using the Movicon software is the possibility to have all those features needed for control systems available in one unique product and that you only need to purchase one license.

A positive conclusion

Even though the project's goal was to revamp the supervision system, it also had to retain all the previous software's actual functions as requested by the customer. Thanks to Progea's technical support, we were able to replicate all those functions that were not natively present in Movicon.NExT, using the appropriate workarounds. This proved fruitful for Delin Elettronica who were able to provide feedback to Progea involving possible improvements and integration of new features in the next Movicon versions.