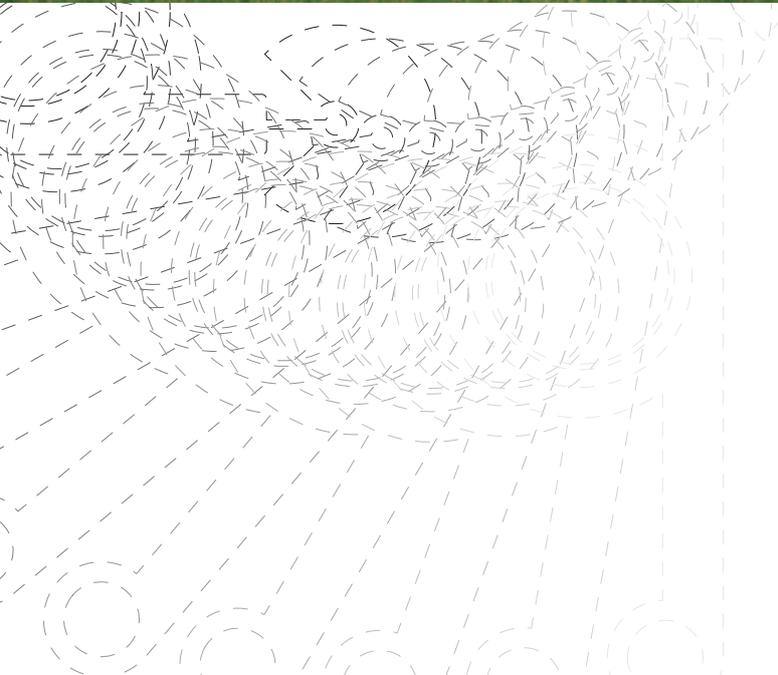


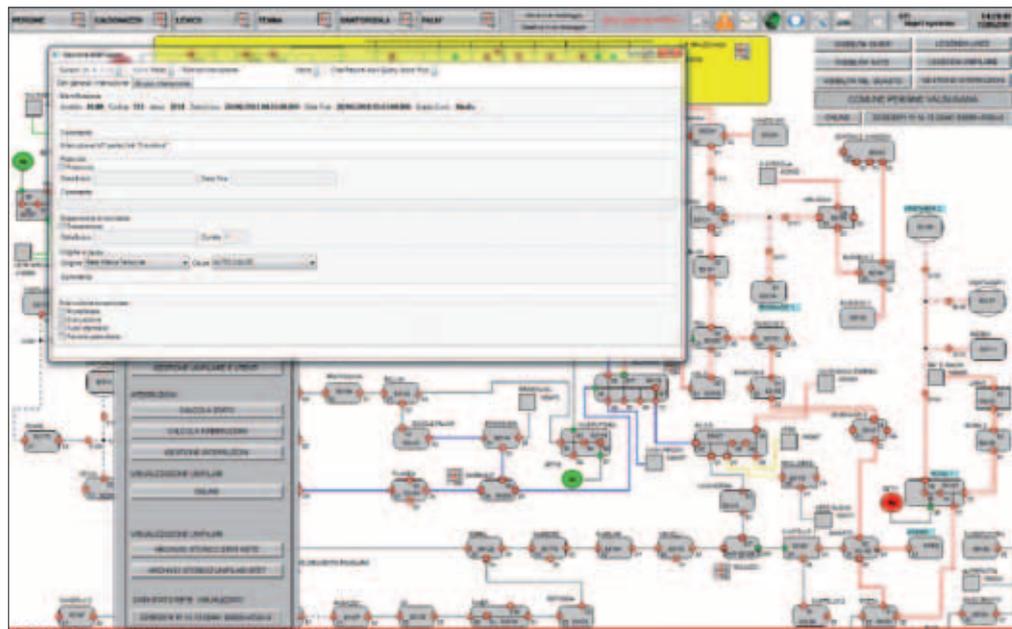
# Custom supervision for a cutting-edge multi-utility system

STET S.p.A., the company that manages electric power distribution in an area east of Trento, chose zenon to improve its services and manage compliance with the requirements of the electric utility supervisory authority. The solution chosen has proven itself to be affordable, scalable, open and able to operate with all of the most common remote monitoring communications protocols.



■ With the aim of improving quality standards for supply of utilities to customers, the Electric and Gas Utility Supervisory Authority (AEEG) has set new regulations for electric power distribution companies during the last few years.

STET, a multi-utility company, supplies public utility services, such as distribution of electric power, natural gas, public lighting, integrated water services (excluding waste water treatment), to an area located east of Trento. Focusing on electric power distribution, STET serves Pergine Valsugana,



Levico Terme, Cladonazzo, Tenna, Sant'Orsola Terme and Palù del Fersina, with a population of more than thirty thousand.

The acquisition of new electric power distribution grids and the necessity to efficaciously and precisely comply with Authority regulations drove STET to reconsider its remote monitoring systems. "Our system, even though fairly modern, was no longer able to sustain the expansion requirements for remote monitoring and control and management of the newly acquired grids. It no longer offered the flexibility for expansion of the grid automation needed to deal with the ever increasing quality demands of the utilities we provide," notes STET Engineering Manager, Roberto Baldo. "In particular, we needed a solution that would enable us to manage compliance with the complex requirements required by the Authority to power interruption conditions."

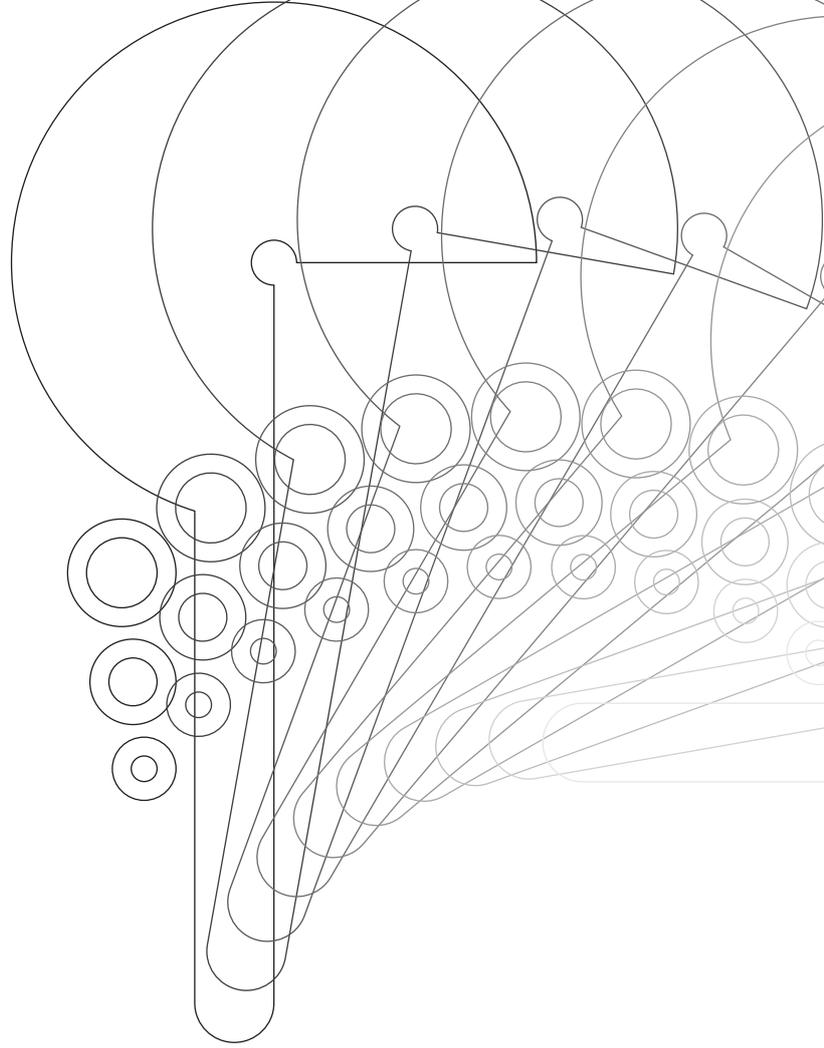
Performance indices calculation and generation of reports up to 2010 required by the Authority were done by hand: "We had to use the paper printout of the remote monitoring tables and classify each interruption by hand, using normal computer equipment for the necessary calculations," recalls Roberto

Baldo. One can easily imagine the difficulty and poor use of time connected with these tasks.

Therefore, when STET decided to invest in the renovation of its remote monitoring system the best solutions for its specific requirements were sought.

## AN OPEN SOLUTION

After a careful market analysis, STET turned to Impel Systems, a specialized systems integrator and COPA-DATA partner. Impel Systems was entrusted with the upgrading of the power grid supervision software with zenon, COPA-DATA's SCADA system. The solution identified also enabled replacement of all external field peripherals (RTUs) with equipment that was not only non-proprietary, but also reliable, technologically advanced as well as supported by open communications protocols – all this whilst still remaining within the anticipated budget limits. "The previously installed RTUs did not support the IEC 60870-5-104 protocol (TCP/IP) which is of vital importance for electricity suppliers because it enables "spontaneous" communication between substation supervisors and the grid master any time



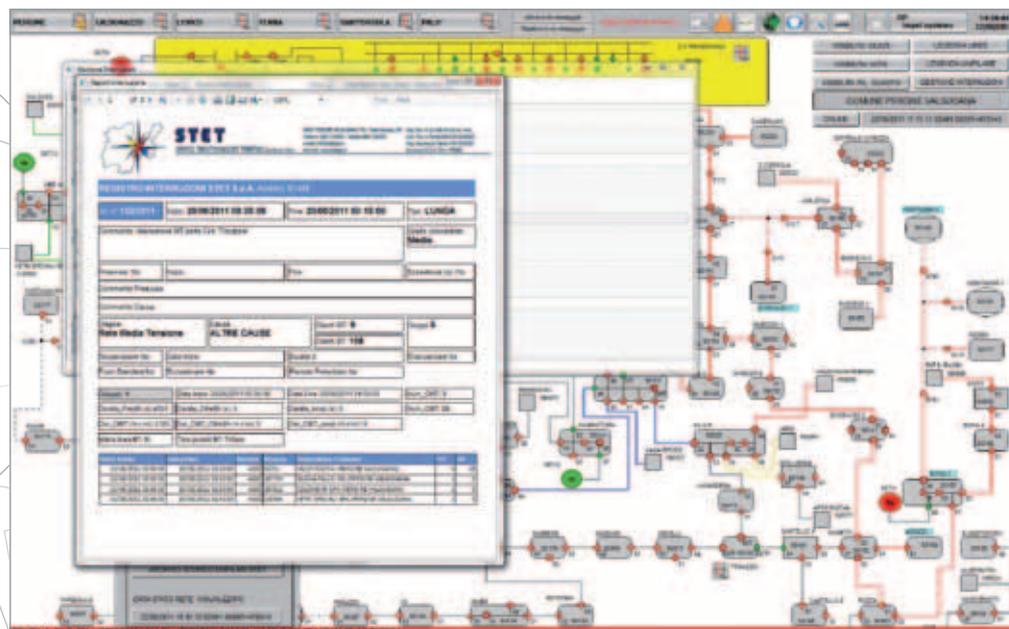
supervised variables change,” explains STET Remote Monitoring Manager, Giorgio Pallaoro. It was also important to use normal “market” peripherals programmable with standard languages such as IEC 61131-3. Because of the adoption of a system such as zenon, which integrates the IEC 61131-3 PLC environment and is open to all communication standards and which is also independent of hardware suppliers, STET was able to purchase its peripherals, being commonly obtainable from market suppliers, at accessible prices. “As we are no longer forced to purchase specific components from a particular manufacturer, we have chosen products that are easy to find and replace, thereby achieving immediate savings on purchase costs. This, of course, will also be an advantage when maintenance and repairs are required,” added Pallaoro.

In the remotely-supervised substations, the system automatically detects and catalogues unprogrammed interruptions, whilst it is possible, using simple commands, to include activation of secondary switching equipment not yet under remote supervision, during programmed interruptions or in the case of progressive reconnection of power after malfunctions. This way, the system may be left to automatically perform indices calculation procedures along with compilation of records for the Authority.

## REDUCED DOWNTIME

The Authority requires an economic incentive and penalty mechanism based on the quality of the services provided to customers: the fewer the interruptions with a shorter duration, the greater the premium given to the utilities supplier. The introduction of an advanced remote monitoring system such as zenon, has not only simplified compliance connected with reporting requirements, but it has also truly contributed to the improvement of services, helping to reduce malfunction repair times and, therefore, sustaining the improvement of performance indices.

“One of the reasons we invested in the remote monitoring system upgrade was the need to improve our service quality. This was because we believed we could reduce interruption down times through proper system supervision,” explained Baldo. “Our control room does not need to be manned 24/7. In case of a malfunction the previous system notified the technician on call, who needed the time to get to the power station before resolving the problem. Even when the problem was easy to identify, the time between notification and solution was in any case more than half an hour”. STET hereby seized a new opportunity: “Installation of zenon enabled us to make an agreement with ACSM Primiero, another utility provider, with a constantly



manned remote monitoring system. With the new remote monitoring system technology we were able to give our partner the “keys” for remote access and management of our grid. This way, even at those times when there are no technicians in our control room, in case of a malfunction we can simply call ACSM Primiero technicians on the phone and have them perform the procedure in just a few minutes. This has enabled us to notably reduce reaction times and downtime.”

In addition, since 2011, in case of a malfunction with a power outage, the Electric Power and Gas Authority requires that utility suppliers provide the precise number of customers left without power, rather than, as was previously required, giving an estimate of the number based on the average number of users per transformer affected. “We received proposals for various solutions, which however called for installation of new programs based on cartography; zenon offered us a unique solution enabling us to integrate all of the functions we needed without resorting to many new computer and software systems, which we would not have been able to afford. Indeed, with the help of zenon, we were able to integrate the cartography system we already had with our SAP database within the supervision system. This way, we successfully managed compliance with the new regulations imposed by the Authority directly in the SCADA.”

## A RECORDING DEVICE IN THE FIELD

Because zenon was chosen, STET was also able to save on time and system programming costs: “Working with zenon is fairly simple because it is based on easily configurable functions whilst also being very well known in the industry,” explained Baldo. And that is not all: data and trend analyses were simplified and the interface is much more user-friendly overall. “During malfunction management, SCADA handles the automatic switching, enables the inclusion of manual switching and provides a complete overall view of the procedures performed.” With the functionality implemented in zenon by Impel Systems the technicians gain a clear and comprehensive view of the fault. “It’s a wonderful recording device to have in the field because it allows us to review everything that has happened. We can clearly see what has happened and what has been done to resume operation,” concluded Pallaoro. ■■■