SUCCESS STORY

atvise®

SCADA Systems for Energy: Modernization and standardization of the control system of a biogas plant

Design of a **"plug & play" SCADA** system for biogas plants based on corporate graphic design standards with **atvise®**

PARTNER
CLIENT

norvento enerxía

Project

The project involves migrating an existing control system in a biogas plant. Seizing the opportunity, Norvento proposes standardization of the visualization system for their products based on corporate standards.

Solution

atvise® SCADA addresses the specific needs of this biogas plant, and the corporate graphic requirements of Norvento, and forms the foundation of the supply of their energy products geared towards Industry 4.0.

Client & Partner

norvento enerxía

Norvento is a renewable energy company whose main business is owning wind farms for energy generation. They also have mini hydropower plants and solar ports. And, as part of their recent business lines, they manufacture technology and integrate projects related to renewable energy.

Their mission is to empower individuals, communities, institutions, and industries with the ability to generate their own energy and meet their sustainability energy goals.

Objectives

- **Creating an appealing user visualization interface.**
- **Direct integration of historical data** and alarms from the PLCs into the SCADA.
- **Designing reusable graphic** objects for other projects.
- Accessing the SCADA screens from **any terminal:** PC or Smartphone.

Main challenges

- Acquiring or refreshing knowledge on web technologies such as **HTML5, CSS3, and Javascript.**
- Tackling the biogas plant project with a focus on corporate standardization.
- Providing a sustainable, affordable, and competitive commercial solution.

Results

- Fast, direct, and stable integration of historical data and alarms from PLCs to SCADA.
- Data is guaranteed even in case of communication interruptions with the PLCs.
- Visualization and control screens accessible from any terminal (PC or Smartphone).
- Corporate graphic design standards successfully applied.
- Finished plug & play "SCADA for biogas plants" product.
- First hurdles towards corporate standardization overcome.

Background

The project involves the complete modernization of a biogas plant, including its control system, on a dairy farm in Galicia, Spain. While the biogas plant is owned by Norvento, the previous control system was provided by an external company.

The project itself was straightforward. It involved updating the plant's automation and graphically representing:

- Loading of slurry and waste solids.
- Digester activity.
- Electric generation through a CHP generator.
- Reusing gas for burning in boilers.
- Thermal circuit with heat exchangers.
- Alarm management.
- Historical analysis charts.

The primary objective was to accomplish all the above with very specific guidelines regarding graphic design standards. Furthermore, the focus was on ensuring that the entire project could be easily replicated in other biogas plants.

“At **Norvento**, we have very clear image standards. A significant advantage of atvise® is that the design of its graphics is open and customizable, making it easier for us to create objects according to our standards.”

– **Manel Redondo**, Automation Manager at Norvento.

Solution

The chosen automated control solution was Phoenix Contact's PLCnext technology integrated with atvise® SCADA.

The PLCnext range allows both real-time data and historical data and alarms to be served via OPC UA, an ideal scenario for atvise® SCADA, as OPC UA is its native language.

By merely making this decision, the data integration from the PLCs into atvise® SCADA was quick, direct, and stable:

- There was no need to manually address variables, thanks to OPC UA browsing and atvise® mirroring.
- There was no need to reconfigure alarms in the SCADA, as atvise® directly interprets them from the PLCs.
- Historical data is always guaranteed, even if there are communication interruptions with the PLCs. Data originates and is stored in the PLCs, then natively synchronized with the atvise® Historian using the "synchronized" historization mode.

"What we mainly liked about atvise® was its pure web technology. We can use light clients anytime, open a browser, point to the server's URL, and it launches a client for you; there's no need to install anything, and this gives us a lot of versatility."

– Manel Redondo, Automation Manager at Norvento.

And regarding the user interface, atvise® SCADA meets the specific needs of this biogas plant along with Norvento's corporate graphic requirements:

- **Pure web technology to have a modern system with light clients, so that any terminal with access to the server is valid as a client.**
- **Open code for atvise®'s graphic components; all of these can be modified to apply the designated design standards.**
- **Javascript, both for applying process logic and for web design.**
- **Responsive technology so that users can access the screens from their mobile devices.**
- **Highcharts for data analysis graphics.**

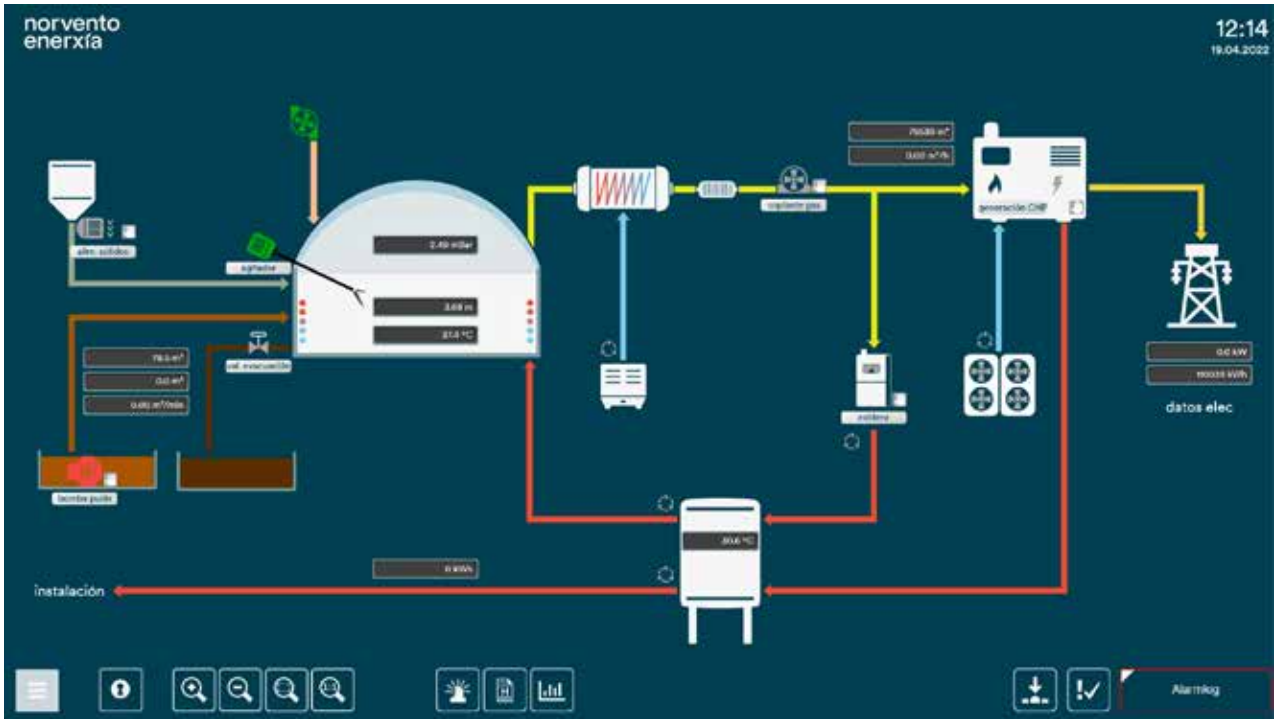
But Norvento's proposal goes beyond this project, which is one of the bricks in its solid technological fabric. Having previously conducted a study on the technologies to be applied, they have chosen atvise® SCADA as a fundamental piece.

Thus, they can always offer, and obviously capitalize on, energy solutions with the high added value of an embedded next-generation SCADA system geared towards Industry 4.0.

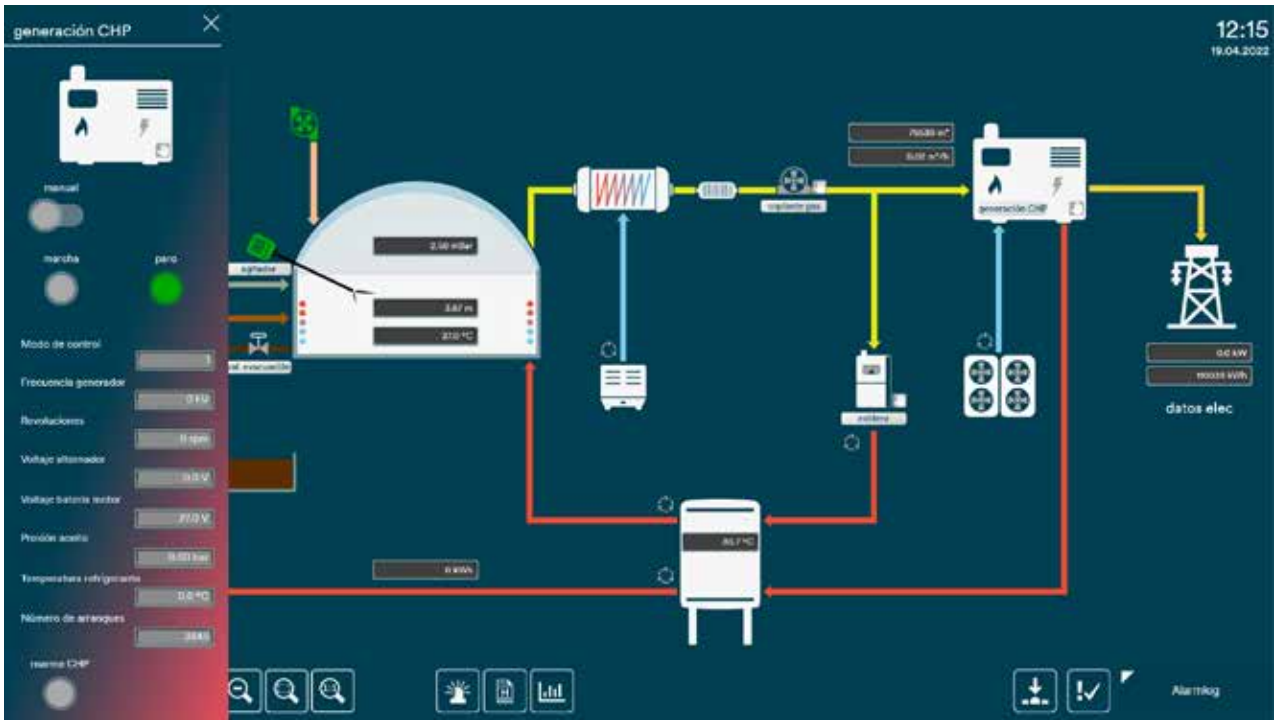
"We supply products for energy (small-scale wind turbines, converters for batteries, biogas plants, energy storage systems). To provide high added value to these products, we deliver them with an embedded and independent SCADA application based on atvise®."

– Manel Redondo, Automation Manager at Norvento.

General view

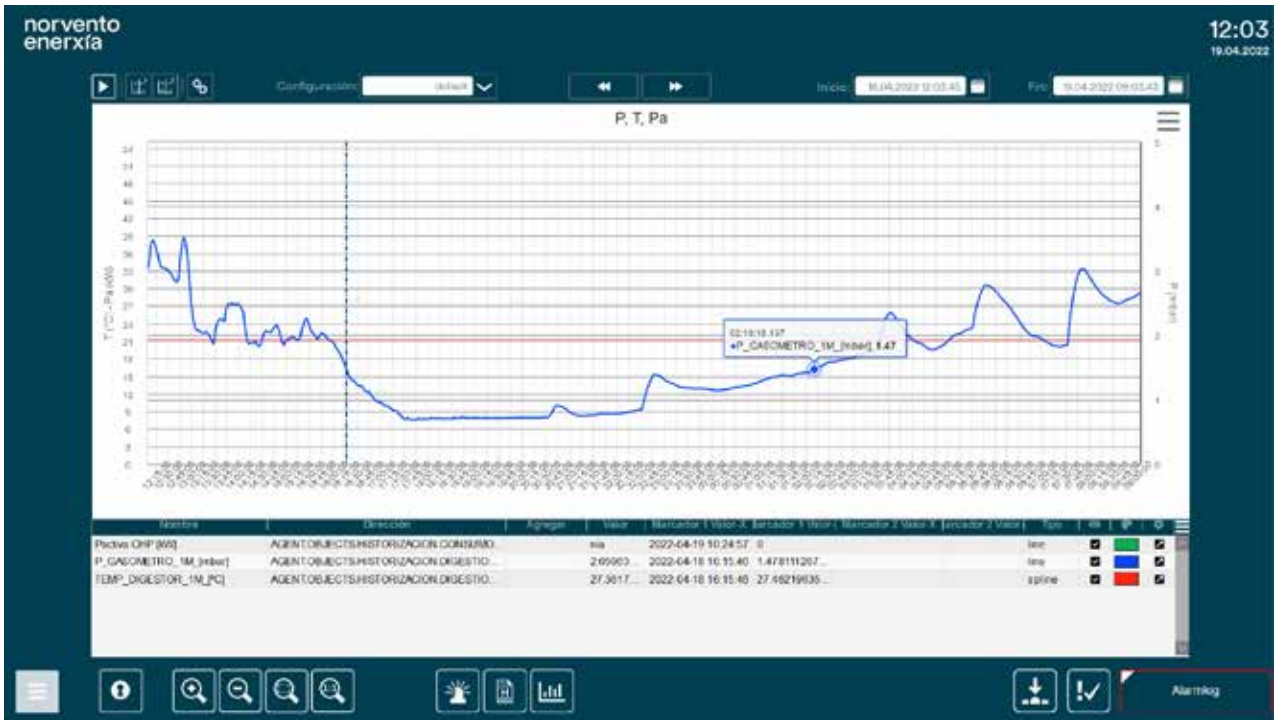


Generator

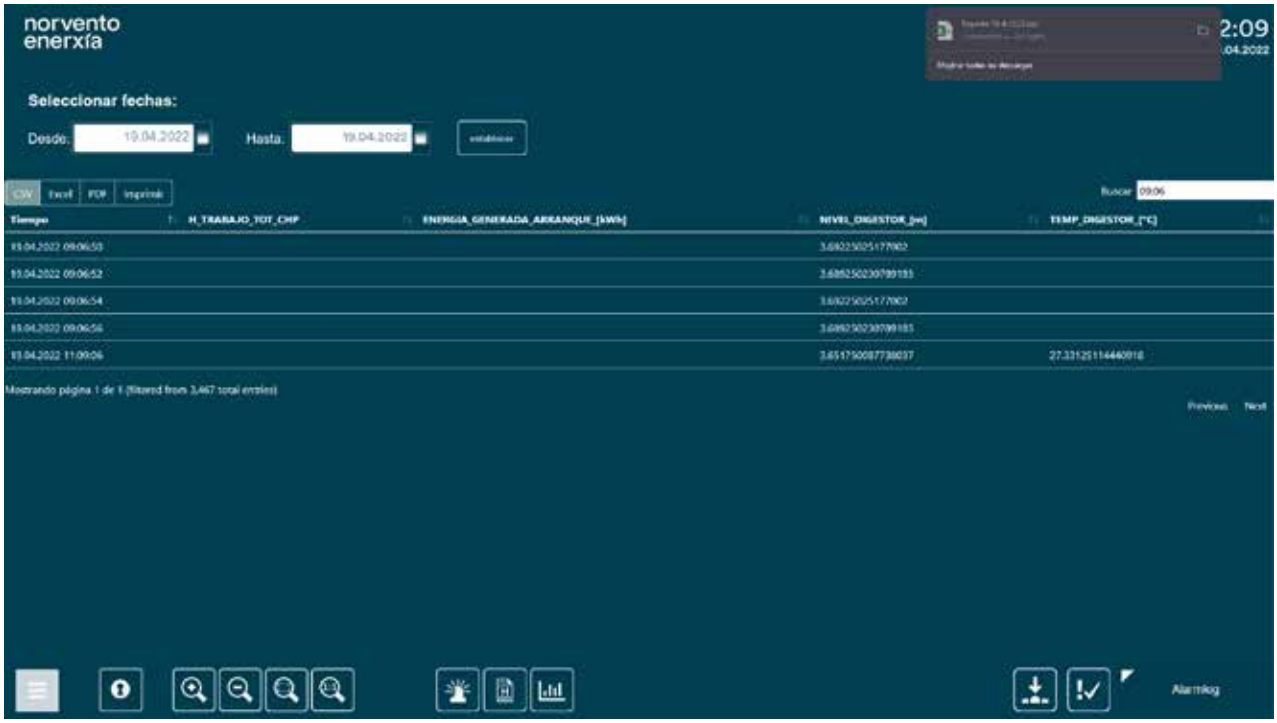


Set Points

Trend charts



Reports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SUCCESS STORY

atvise® SCADA

SCADA SOFTWARE FOR INDUSTRY 4.0

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