INDUSTRY: FACILITIES MANAGEMENT

Ciudad Agroalimentaria of Tudela

www.ciudadagroalimentaria.es

"Wonderware enables access to the information related to our energy consumption in a completely flexible way. In an installation like this, the correct automation and limitation of variables is a key aspect for guaranteeing the quality of production and compliance with environmental regulations."

Luis Monzón,
Operations Manager, Ciudad Agroalimentaria of Tudela

Economic and Energy Efficiency Guaranteed via Wonderware Controlled Infrastructures

by Wonderware Spain

Goals

- Monitoring and control of motors, boilers, compressors and electrical system that make up the General Infrastructure Centre of the Ciudad Agroalimentaria of Tudela;
- Monitoring and control of the regulating stations and traceability of user by user consumption.

Challenges

- Gain integral control with totally visible energy generation of conventional systems as well as auxiliary ones;
- Respond to environmental requirements set by Spanish legislation for this type of installation;
- Build a scalable system that allows necessary expansions of the system as new users are installed.

Solutions and Products

- Wonderware Historian Client;
- Wonderware InTouch HMI;
- Wonderware System Platform.

Results

- A guarantee is given to users at the Ciudad Agroalimentaria of Tudela, for a more efficient energy distribution that will significantly reduce costs of operations;
- Complete control of thermal and refrigerated equipment infrastructure as well as auxiliary services - gas, compressed air, electrical network, fire prevention… - depending on the different typologies of the users;
- Possibility of improving the infrastructure's control to cater to future growth as more companies join the Ciudad Agroalimentaria of Tudela.

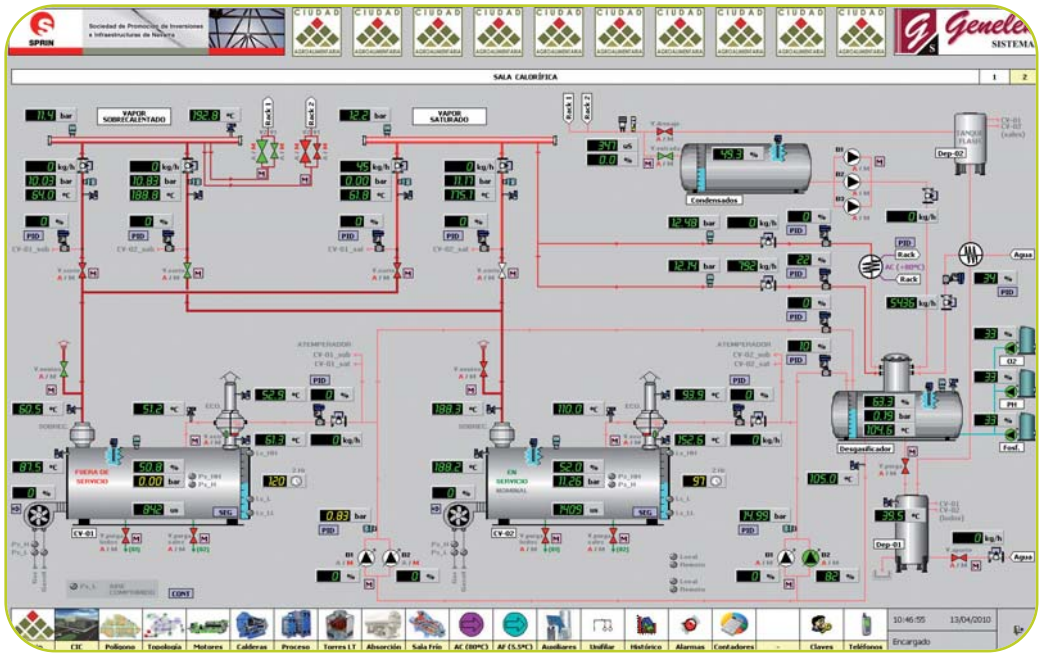
Tudela (Navarra), Spain – The Ciudad Agroalimentaria of Tudela (CAT) is a Navarre company for the Promotion and Investment in Infrastructures' initiatives, a concessionary set up to stimulate the economy of the local community. Built in 2007 and commissioned in 2008, this installation is part of a series of strategic projects for the promotion and development of manufacturing's infrastructures, in order to boost competitiveness of Navarren companies. CAT, through the General Infrastructure Centre (GIC), specifically offers a range of technically notable services and a high level of innovation to companies from the agroalimentary sector, allowing them to improve their production processes and fully respond to quality and environmental requirements with minimum costs' levels and complete guarantees.

Guaranteed Control from Today Onwards

CAT was conceived as an investment in the future, so that agroalimentary companies could develop activities using the GIC which offers a lower cost energy distribution and that fulfils the standing environmental regulations flawlessly.
"The control system needed for the plant has the set target of guaranteeing the monitoring of the inherent elements of the GIC - motors, boilers, compressors, electrical systems and auxiliary equipment - and also track the Regulating Stations situated at the user consumption points of CAT," explains Juan Diego Lazaro, Genelek technician, systems integrator responsable for project development. Upon its construction and commissioning, the Agroalimentary Centre is starting up with 3 companies and has committed to the installation of around 15 new companies, meaning the control system has been designed to give sufficient assurance of scalability for the future expansions with which the Centre has been entrusted as the estate's user businesses park is completed.
"The General Infrastructure Centre (GIC) of the CAT is one of a kind on a global level," explains Luis Monzon, chief of operations at the Ciudad Agroalimentaria of Tudela, "…apart from air conditioning, a common service in an installation like this, it offers a totally controlled distribution of industrial refrigeration and steam," he explains. The GIC supplies energy services and auxiliary ones via an exterior distribution rack catering for 8 bar (g) pressure steam, hot water at 80/50°C and 4 refrigerating temperatures- +5,5°C, -10°C, -33°C and -42°C- , water for the fire prevention system, telecommunications and surveillance. *"The challenge was to implement one architecture with a single point of control that could monitor different types of users, whilst guaranteeing complete adherence to environmental regulations and significantly reducing production costs for the user businesses. Wonderware had the answer to all of our demands,"* Lazaro points out.

One Infrastructure for Monitoring All Levels

As far as hardware is concerned, the GIC is made up of a multimode, fibre optic double ring which runs through the interior of the building with its corresponding connection boxes whilst two other fibre optic double rings which run independently through each of pipes' racks where there are different coupling torpedoes for future connections. The coordinating PLCs (Programmable Logic Controller) were coupled to this system which exchange dispatches and



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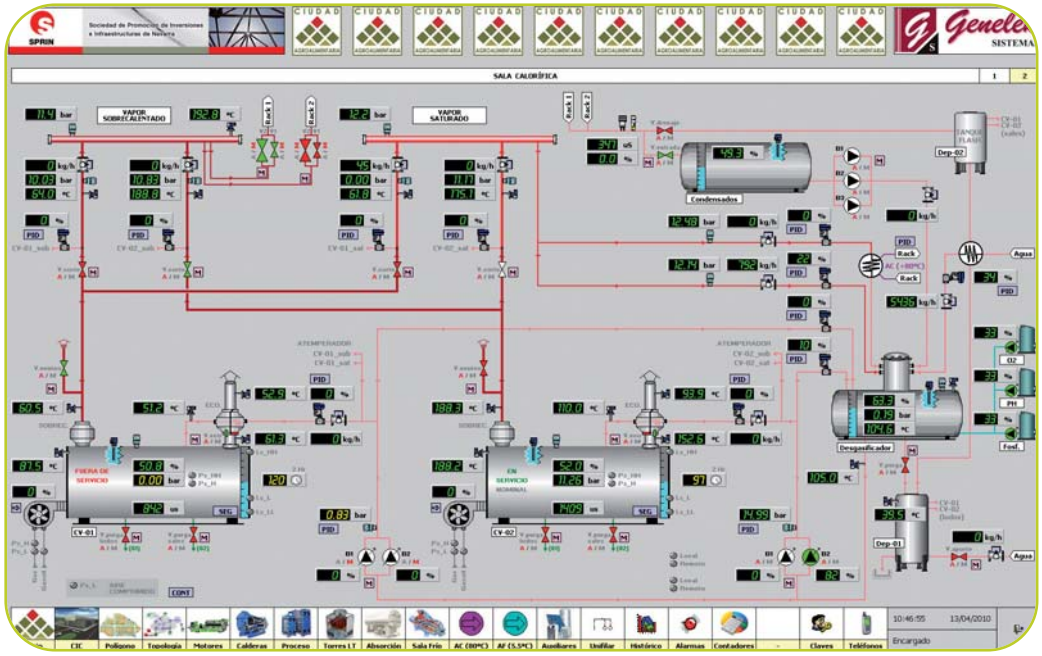
function demands between automations; the taylor made PLCs working as a communication runway between the inner network of the GIC and the rest of the estate; the CHP PLCs controlling the auxiliary equipment and the client's PLCs, stationed at user point to calculate the amount of energy produced by every company for later billing.
The control and monitoring system was developed on the Wonderware System Platform, the solution based on ArchestrA technology which offers a unique and scalable platform to cover all information and automation related needs with SCADA (Supervisory Control and Data Acquisition), HMI (Human Machine Interface), MES (Manufacturing Execution System) and EMI (Enterprise Manufacturing Intelligence) solutions.



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This is how the system is articulated in the following way: two redundant communications servers that communicate with the PLCs are installed and data acquisition is performed through the Wonderware Industrial Application Server (part of the Wonderware System Platform) enabling the possibility of storing data locally to later synchronize historic server, in case of any temporary offline. One data base server stores the information for subsequent analysis by Wonderware Historian Server (part of the Wonderware System Platform), allowing the system to commute automatically between servers in case one is ever down and one Wonderware Information Server (part of the Wonderware System Platform), a web server that allows simultaneous visualization for up to 3 clients, of the state of the installation, the consumption and billing over the internet.
Along with that, three Wonderware InTouch HMI monitoring stations, one in the office, one in maintenance and the other one in the control room, allowing remote tracking and control of all the installation's equipment.
Furthermore , the control points in the offices run with Wonderware Historian Client (formerly known as Wonderware ActiveFactory) to facilitate detailed information so decisions can be taken based on intuitive database consulting tools which enable tables and historic and real time trends' graphs taken directly from Microsoft Word or Microsoft Excel, also allowing this information to be used to generate client's bills.
"The system runs with 25,000 input/ output points and variables guaranteeing total control of the supplies offered by CAT" explains Juan Diego Lazaro from Genelek. *"Wonderware's response capacity for this complex system as well as the possibilities it gave us to design complex installations quickly, flexibly and simply, was the key to our decision to use its technology"*.

Results from the Wonderware Implementation

Wonderware technology has allowed the Navarre company for the Promotion and Investment in Infrastructures to offer agroalimentary companies in the community a one of a kind industrial estate, in which energy generated costs are reduced around 15% thanks to the better management of resources. *"The installation's user business have a guaranteed energy efficient distribution that significantly reduces operations costs,"* affirms Luis Monzon, who adds that, *"Wonderware helps the Centre's administrators to keep a tight control over energy processes ensuring, at all times, that users are offered services which respond both to the sector's quality standards as well as current environmental legislation"*.
For the system developed for Genelek, the key to

using Wonderware's technology was the scalability: *"We started out with a single user in the installations but we have been able to grow simply and effectively as the Agroalimentary Centre has received more companies. Being object-based work, development is repeated straight-forwardly and very important time and costs are reduced,"* states the integrator. In this sense, the infinite potential of ArchestrA technology for plants of this kind is clear, as it consolidates multiple information sources - in this case, gas, compressed air, electrical network, fire prevention… - to maintain total control of the infrastructure. Juan Diego Lazaro also points out that Wonderware possesses *"one of the best solutions on the market to control redundancy, better than other single point solutions"*, for a system where product quality standards and environmental issues are crucial.

At a user level, both Genelek and the directors of the Ciudad Agroalimentatio of Tudela highlight the easy access to the information and the part that Wonderware technology plays in this. *"The historics' management that Wonderware Historian Client offers gives the users access to information when they need it, in an intuitive manner without getting lost in the excessive data the system generates,"* they point out.

For the future, and as demand rises for companies in the community who are interested in pioneer installations like CAT, an expansion of the energy generation infrastructures offered is foreseen. When that occurs, Monzon concludes, *"Wonderware's technology is completely prepared to present optimum solutions to new demands"*.

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