Cantine Riunite & CIV

The Pro.Energy module for controlling energy efficiency

The Cantine Riunite & CIV technical department uses Pro. Energy to control energy consumptions in accordance with the directives of the Legislation Decree n. 102 of 4th July 2014

The importance of energy consumption in organizations reflects on the issues of world energy that is constantly growing in demand but diminishing in supply with steep costs and negative effects on the environment with global warming caused by pollution. It has therefore become essential for organizations to introduce energy management systems with the aim of reducing, through efficiency, energy consumptions that constitute a large part in production costs. In addition to this, the enforcement of increasingly stringent regulations are obliging companies to adopt new energy efficiency standards, such as those defined by the recent ISO 50001 standard introduced in June 2011 to replace the UNI EN 16001 standard, concerning Energy Management systems. It specifies which corrective measures organizations

need to implement in order establish energy management systems that are capable of achieving continual energy efficiency improvement. Once organizations implement the ISO 50001 within their facilities, they can monitor and improve energy performances by focusing on more efficient solutions to encourage energy recovery that, especially in the industry sector, can be numerous and important. For example, if greater attention is given to improve heat pump and boiler performances or production process energy recoveries, this will result in a reduction of energy consumption and therefore a significant save in terms of energy use and costs.

The ISO 50001 standard therefore represents an opportunity for every organization to confront the energy issue effectively and establish new policies that enable them to follow a systemic approach in improving energy efficiency through targeted investments with rapid returns and the consequent benefits.

This is what has led Cantine Riunite & CIV of Campegine, the excellence of Italian productivity in the Emilia Region, to develop monitoring systems of the various energy vectors. Cantine Riunite & CIV has already implemented the use of modern and cutting-edge tools in the wine making stage to align their processing techniques with the times and obtain excellent products. They have already installed an application in their Campegine nel Regianno production plant to manage the services and technical rooms that supervise and control the three production lines. This application was entirely developed by Gianluca Torelli, an expert electronic from the maintenance team, who used both Progea's Movicon Paltforms.

"Cantine Riunite & CIV pay great attention to the environment and energy waste", says Torrelli. "We have three photovoltaic systems that help us save money and respect the environment within which we work as much as possible".

"Thanks to the OPC UA communication protocol available in both the Movicon 11 and Movicon.NExT platforms it was easy to exchange information between one application and another".

Gianluca Torelli
Maintenance Team electronic expert
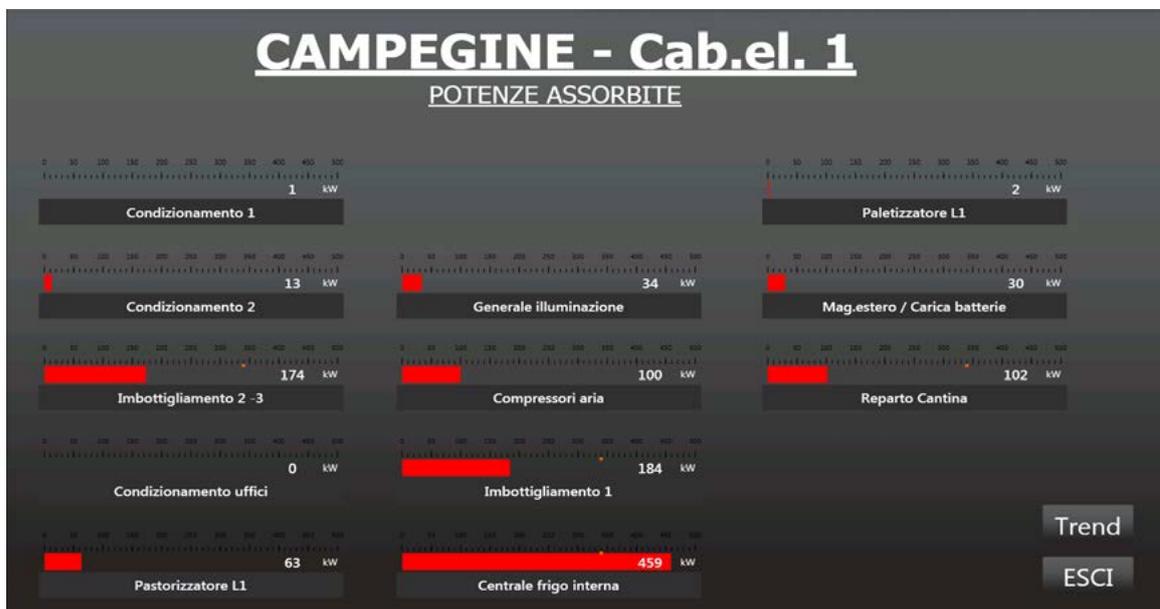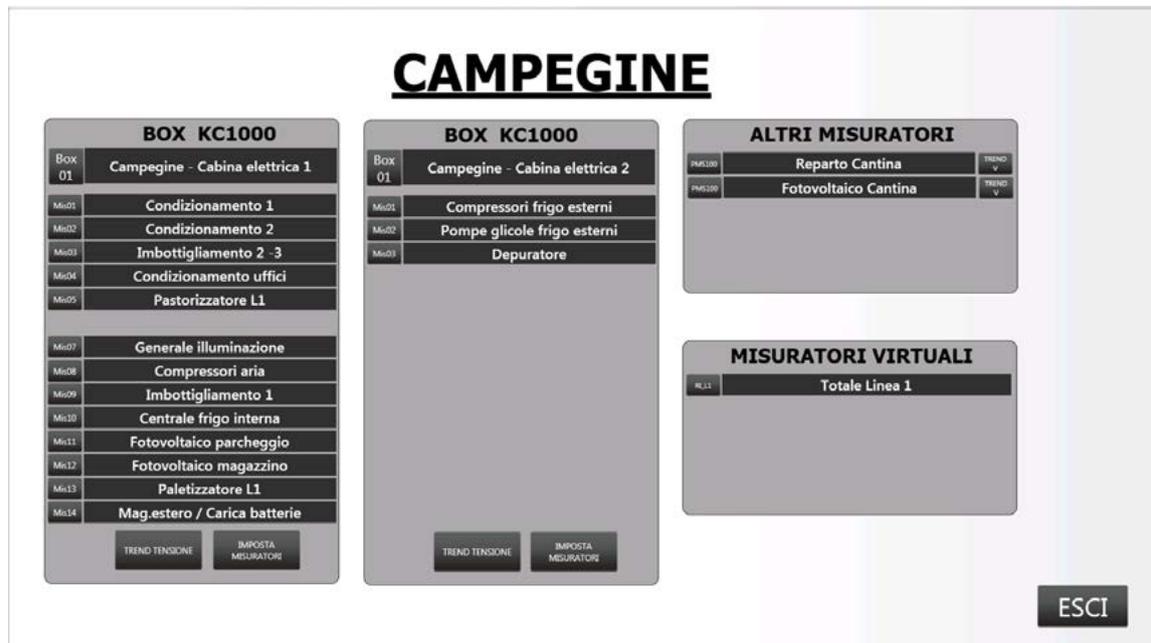
The project with Pro.Energy

IInstead, Torrelli has developed an energy consumption monitoring system for its two Campegine and Campagnola factories to monitor the various energy meters connected to the production lines, technical rooms, office lights and air conditioning using Movicon.NExT and the Pro.Energy module. In addition, the photovoltaic systems, installed throughout the structure, can now be connected to and monitored for the energy they produce to obtain more efficient use of electricity in the factories.

A screen page has been created for each utility or block of utilities to display electrical power and current absorbed in real-time while keeping daily running costs monitored on a dashboard, created with Pro.Energy, according to the different energy contract parameters.

The Web DashBoard permits various screens to be displayed containing different objects (Charts, Grids, Gauges...) that are connected to data sources. As a result, detailed analysis have been created graphically to show data according to the selected customized filter. This application has made it possible to obtain:

- Knowledge of consumption profiles of the different facilities.

- In depth analysis of energy consumptions.

- Production performance evaluation and regulation of machinery and factory systems.

- Identification and removal of waste, malfunctioning and hidden energy costs.

- Appropriate plans of action to reduce energy bills.
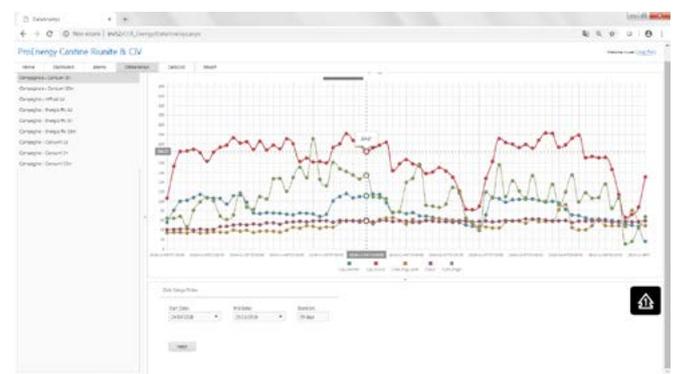
Pro.Energy's mission is to help create more efficient energy use and reduce energy bills which constitute a significant percentage of company running or building management costs.

Movicon Pro.Energy

Movicon Pro.Energy, software for monitoring and analyzing energy efficiency

Pro.Energy is a Movicon.NExT function module, thanks to which it is possible to measure energy consumptions, record and aggregate them on database for subsequent data analysis by period, vector or cost center.

The benefit of OPC UA

The OPC UA protocol present in both Movicon 11 and Movicon.NExT permits natural data exchange between two applications. In particular, Movicon 11 provides the production data of each line in order to calculate the ratio of consumption to quantity produced (kWh/ Hl produced) while Movicon.NExT transmits all alarms for displaying in Movicon 11 clients located in the maintenance office.
The generated alarms represent either connection errors, TA power transformer anomaly, critically low voltage rates or inefficient photovoltaic production.

Data usage

Data collected by Pro.Energy are used by Energy Way Srl, together with historical data from monthly bills and readings, to:

- Draw up Energy Audits according to the directives of the Legislative Decree n. 102 of July 2014 –enactment of the 2012/27/ UE Directive that establishes a common framework of measures to promote and improve energy efficiency in organizations and buildings.

- It proposes a roadmap of interventions targeted at saving energy by installing smart meters in particular (monitored by ProEnergy) that are capable of providing the important information needed to lower energy consumptions and take measures to obtain its more efficient use.

To be more precise, the collected and analyzed data permit:

- To know which are the machines/systems that consume more energy.
- To quantify the costs incurred due to carbon leakage in compressed air circuits.
- To evaluate the degree of production line energy loads.
- To evalute voltage trends.
- In addition, this data also allows the quantification of the results obtained with future interventions targeted at saving energy.

Pro.Energy functional module

The Pro.Energy function module
With the development of the Pro.Energy© Module Progea offers a solution to monitor and optimize energy efficiency which is easy to implement and customize. This tool allows organizations to reduce energy costs by analyzing consumptions and introducing energy efficiency concepts that will result in a significant return economically and a reduction in the impact on the environment by the adverse effects of air pollution. The Movicon.NExT function module allows you to connect to different types of meters applied to the various energy sectors, measure consumptions in real-time, record them on database to subsequently analyze the Energy Key Performance Indicators (EnKPI) by calculating each type of energy consumption.

This procedure is targeted at reducing energy waste and increasing its efficiency by optimizing performances where it is used and obtain a rapid return on investments as a consequence. The correct monitoring in real-time of energy consumption permits organizations to intervene where energy waste or overload have been detected. Pro.Energy© has been designed to be quick and simple to use. Once installed, the Wizard automatically creates the monitoring project included with SQL Server Database for calculations, dashboards and energy analysis reports. The configuration Wizard allows you to easily select field variables and create Databases automatically for collecting and logging data. Dashboards can also be created within a few clicks. The efficient configuration Wizard guides you through the procedures that help you associate data and create databases automatically in order to create an Energy Analysis project within less time than usual. The solution is, however, open to eventual customization for field communications, displaying measures and report analytics. Specific ODBC connectors can be used for bi-directionally connecting to managerial systems in order to create quick and simple MES solutions to cross reference energy consumption data with production data. In this way, energy consumption can be calculated in reference to specific production batches and as a result each single piece produced.

Gianluca Torelli
The Maintenance Team's Electronic Expert
Cantine Riunite & CIV