



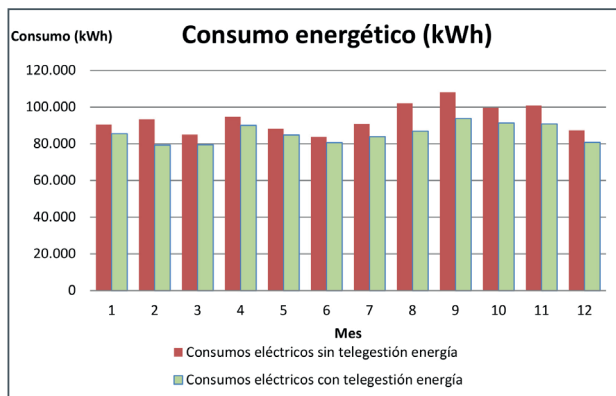
Waste water treatment plant

Case study

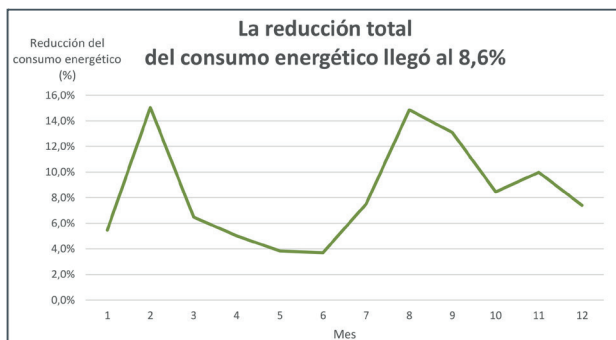
› Table with a description of the energy saving lines applied:

ENERGY SAVING	SANEAMIENTO MARTORELL	ENERGY SAVING	
		kWh/year	€/year
ENERGY SAVING	WWTP header pumps	4,560	491
	Anoia Pumping Station Pumps	3,825	412
	Aeration blowers	61,360	6,615
OTHERS SAVINGS FOR THE PROJECT	Dehydration during period P3	0	2,120
	Optimum tariff 6.1	0	6,320
	Excess reactive power	0	8,227
	Power excess contracted	0	1,227
	Improvement of predictive maintenance (unscheduled stoppages)	0	1,617*
	Total	69,745	27,030

*estimated



› Comparison of the energy consumption before and after the implementation of the improvement



› Graph showing the energy saving over the last 12 months

20-25% of the total operation and maintenance costs, which is why it is so important to reduce this cost. This objective was subdivided as follows:

- Improve energy management and its efficiency.
- Achieve economic savings as a result of a correct electric energy management approach.
- Reduce service outages in installations.
- Obtain an electric supply quality diagnosis.
- Make available preventive maintenance procedures in lines and electrical installations.
- Allocate electricity costs to production processes.
- Optimise the modification of contracted tariffs, shifting consumption loads to cheaper periods, etc.

More information about the solution

The solution consisted of the installation of a series of **CVMK2** power analyzers at strategic points to collect the installation's necessary electric data values. **CBS4** multipoint earth leakage systems, a computer with SCADA management software and a fibre optic communications network were also installed to collect data and coordinate all the operations.

The main units and their implementation are detailed below:

CVMK2 power analyzers for the different areas of the plant, logging values for voltage, current, power and other electrical parameters.

CBS-4 multipoint earth leakage systems each with 4 channels, logging the current and leakage values to anticipate possible service stoppages in:

- › Pre-treatment (dirty water pumps)
- › Activated sludge process (primary decanting, aeration, agitation, internal and external recirculation and secondary decanting)
- › Each of the aeration blowers for the biological reactors
- › Dehydration units (centrifuges and sludge transportation),
- › Capacitor bank
- › Leakage current of the four aeration blowers.

Roll-out of a fibre optic communications network with four devices to reliably collect all field data and control the units remotely.

Implementation of CIRCUTOR SCADA Powerstudio energy management software to improve the electric energy management, efficiency and control of the installation.

The data can be integrated thanks to the installation of these units and telemanagement, improving the electric energy management and thus achieving the project objectives.

Savings 
€27,029
 a YEAR

Results

With the implementation of a measuring, control and telemanagement system for Martorell's Waste Water Treatment Plant, the installation's electric energy management was improved, with energy ratio (EnPI) kWh/m³ savings of 8.6% and annual cost savings of €28,029, allowing payback on the investment in under 12 months.

The punctual control of the energy consumption of the electromechanical units and the detection of deviations in the specific electrical parameters measured (mainly current and voltage) enabled the adoption of a predictive maintenance program based on the early detection of breakdowns, which reduced the number of potential breakdowns and lengthened the useful life of units. »

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