

BEST PRACTICES – AUXILIARY TECHNOLOGY FACTSHEET



Consumption and emissions savings

A Spanish dairy company decides to carry out an energy efficiency study of the traditional hydraulic pumps that they use for their cold systems, heat systems and also for hot water.

After an energy audit, company realised its systems were obsolete. They decided to replace the old hydraulic plant with more efficient pumps in its engines, hydraulic systems and electronics. The benefits of this change are **less energy consumption** and emissions savings thanks to speed control of hydraulic pumps and thanks to the recognition of the own system to know when it is being used and when it is stopped.

In addition, the company have rented the whole system. It is a new concept for hydraulic pumps which you rent them during their life span (10 – 15 years) to have a Return on Investment (ROI) immediately, because you obtain more savings than rental price.

Description

The dairy company had used during several years 4 hydraulic pumps with 5 kW of nominal power each unit. After a comparative study, they became aware that they could

improve system's efficiency by 60 – 80% in 5 years.

These pumps worked 5,840 hours per year, approximately; with 95 percentage rate of charge.

'Double saving'

Spain

Dairy industry

Investment

Less than 22,500 €

Savings

9,000 €/year

69,000 kWh/year

Main NEBs (other benefits)

Reducing CO₂ emissions

New renting method

Maintenance included

After the change, the industry still uses 4 units of these new hydraulic pumps, however they reduce their nominal power to 4.5 kW each unit, with only 40 percentage rate of charge.

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What is the improvement focus?

The profitability parameters can be seen in almost two years. This is because the new hydraulic plant uses smart pumps, cloud connectivity and digital services. This reduces system stress, downtime, and maintenance and system complexity while reducing life cycle costs.

One of the most important points of change is the digitization of pumps within the industry. This allows hydraulic pumps to work autonomously, recognizing working hours and when they should stop working; achieving a huge

consumption saving and also economic saving.

Benefits

With this renovation you get an energy optimization of the pumping system.

Having an overview of the life cycle costs of a pump, the purchase price represents only 5%, service and maintenance, only 10% while 85% of the total refers to the energy costs used for the operation of the pump.

Two-thirds of all pumps installed today are inefficient and consume up to 60% more energy.

If inefficient pumps were replaced worldwide, global electricity

consumption could be reduced by 4 per cent - equivalent to the annual energy consumption of 1 billion consumers.

The new current pump presents a way in which you can immediately reduce energy consumption from 110,960 kWh to 42,048 kWh. Moreover, there is a reduction of carbon emissions: 20.67 tons per year.

Other important benefit is lower maintenance requirements of the new equipment thanks to being able to rent such equipment during its whole life span.

Calculations

The calculations show a quick idea of the costs and returns of this practice, as well as the economic impact after the implementation of the new equipment. In order to be clear, the initial situation is directly compared with the final situation and a table of differences is shown broken down into the different key points of savings, using an average price of electricity and emissions taking into account their expected evolution.

	Data
Productive capacity [t/year]	900
Annual energy consumption currently [kWh/year]	110,960
Annual improvement energy consumption [kWh/year]	42,048
Annual energy savings [€/year]	68,912
Annual economic savings [€/year]	8,958.56

Total investment (€)	22,396.40
Energy savings [kWh/year]	68,912
Average electricity price [€/kWh]	0,13
Average emission price [€/tCO ₂]	20
Emission reduction [tCO ₂ /year]	20,67
Energy economic saving (€)	8,958,56
Emission economic saving (€)	413,47
Total economic savings (€)	9,372.03
Return period (years)	2.39

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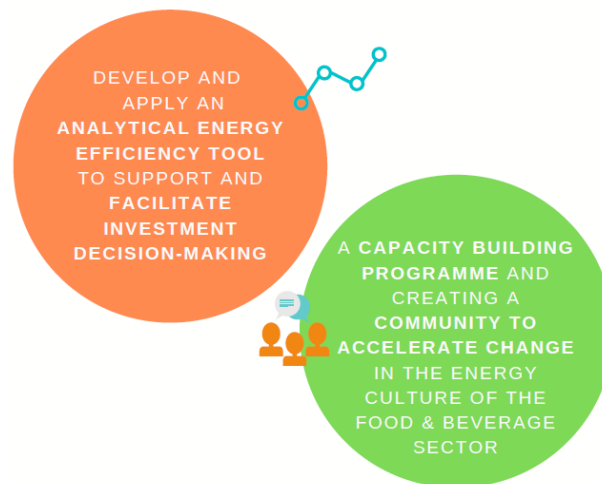


About ICCEE

The project ICCEE, www.iccee.eu, funded by the EU programme Horizon 2020, aims at improving energy efficiency in the cold chain of the food & beverage sector and making it easier for the sector:

- to undertake energy efficiency measures across the entire supply chain
- to accelerate the implementation of energy audit results

ICCEE follows a holistic approach that moves from a single company perspective to the assessment of the entire cold supply chain. Existing financing schemes for SMEs will be assessed: the optimal ones will support the implementation of energy efficiency measures. ICCEE objectives build on 2 pillars:



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