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Regional Activity Centre for Cleaner Production

MINISTERIO DE MEDIO AMBIENTE

Generalitat de Catalunya
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Department of the Environment and Housing

No. 47 Examples of waste and emission minimisation initiatives

Optimisation of a steam production system

Company background	Fromageries BEL (Evron, France), with 750 employees.
Industrial sector	Foodstuffs – cheesemaking.
Environmental considerations	Fromageries BEL uses steam in several stages of its cheese production process —pasteurisation, curdling, concentration of whey and hot water—with the consequent energy costs involved in its generation.
Background	Until 1997, the company produced most of its steam using a 10 t/h gas boiler. A second, fuel-oil boiler with capacity of 13 t/h was by then outdated and operated only occasionally. After a series of problems in its steam distribution system such as pressure drops and priming problems (the presence of water droplets in the steam), the company decided to carry out a study to diagnose problems and identify solutions.
Summary of actions	The study raised a number of alternatives for improving the steam distribution system and its findings were used as the basis for a renovation programme involving: • Purchase of a new boiler, with capacity suited to the needs of the plant, as a replacement for the outdated fuel-oil boiler. The company planned to keep it and to buy another small generator. • Leak elimination: repair of the valves through which steam was escaping even when the installation was idle. • Redimensioning of the choke circuit and improvement of the regulation system. With the application of these modifications to its operations, the company has achieved energy savings of 13.5% in the production of steam using its gas-powered boiler. The payback period was 2.5 years, all actions included. Leak elimination alone enabled recovery in just one year of the costs incurred in the study.

Boiler in the cheese production process

Balances	Old process	New process
Material balance		
Energy consumed in steam generation (MWh/y)	53,327	46,104
Savings (MWh/y)		7,223
Economic balance		
Energy savings (€/y)		97,500
Savings in maintenance costs and treatment of wastewater (€/y)		Not quantified
Total savings (€/y)		97,500
Investment (€)		240,000
Payback period		2.5 years

Conclusions

Thanks to the study carried out, the company detected possible opportunities for pollution prevention, improved operating safety and brought its installations into compliance with safety standards.

This case study has been extracted from the ADEME's publication: *Bonnes pratiques énergétiques dans l'industrie*.

NOTE: This case study seeks only to illustrate a pollution prevention example and should not be taken as a general recommendation.

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