RECP Best Practice Catalogue

Installing solar water heating system for make-up water

Developed within the framework of MED TEST II

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

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Best Practice - Installing solar water heating system for make-up water

SECTOR:	**Food & Beverage**
SUBSECTOR:	Processing and preserving of fruit and vegetables
PRODUCTS	Canned food
CATEGORY	Technology upgrade/Eco-innovation
APPLICABILITY	Utilities

COMPANY NAME	----
COMPANY SIZE	Medium

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Description of the problem (Base scenario):	High costs of the fuel utilized to heat water needed in the production process.
Description of the solution	Installing 6,000 l/day Solar heating system to heat the make-up water for the steam boilers will reduce the fuel consumed in the boiler for water heating. The make-up water used to compensate the reduction in the condensate steam has a temperature that equals the ambient temperature. This means that the boiler is needed to rise its temperature about 60°C above the ambient temperature. And since some production lines use live steam, this means that there will be consumed a good amount of the make-up water (around 6000Liter/day). This creates a good potential to find another renewable source of heat to pre-heat the make up water.

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Economic Benefits	Amount of make-up water per year: 2,253 m^3 Energy needed to rise 1 kg of water 60 °C: 251 kJ/kg Annual thermal energy needed to heat the make-up water: 157,084 kWh/yr Annual input energy saving: 157,084/ boiler eff (92%) Thermal Energy Saving : 170,910 kWh/year Diesel fuel saving: 17,091 Liter/year Annual Saving: € 9,900 /year
Environmental Benefits	Energy Saving = 170,910 kWh/year (8.56% of the thermal energy) Reduced CO_2 emission = 46.1 ton/year
Health and safety impact	Improve the workers safety.

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Capital investments & financial indicators	Investment= €20,000 Payback period= 2.0 years
Suppliers	Local Company
Other aspects	Energy consumptions will be monitored by the company.
Implementation	Under implementation