

RECP Best Practice Catalogue

Improving efficiency of cooling tower by better regulation

*Developed within the framework
of MED TEST II*



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



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SECTOR:	Food & Beverage
SUBSECTOR:	Manufacture of dairy products
PRODUCTS	Processed cheese in portions, spread and sachets
CATEGORY	Process control or modification
APPLICABILITY	Utilities
COMPANY NAME	---
COMPANY SIZE	Medium

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Description of the problem (Base scenario):	The flash cooling water cycle is not running at standard temperatures (set point) and the flow rate of the inlet water to the cooling tower is too high, therefore the cooling tower cannot cool at the set point and the chillers have to do the job. This results in an increase in energy load for the chillers.
Description of the solution	In order to better regulate cooling process a frequency converter to reduce the flow shall be installed. Furthermore, it is advised to add a temperature regulator at the inlet of cooling tower which will adjust and control the inlet temperature.
Economic Benefits	Saving in electricity by about 770,823 kWh/y (29% from the baseline). Energy cost savings is about 29,677 Euro/year.
Environmental Benefits	Saving in electricity is 770,823 Kwh/y (29% from the baseline). CO ₂ emission reduction is 370 ton/y

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Capital investments & financial indicators	The inverter costs are about 5,000 Euro including the regulation for the temperature. Expected pay back period is 0.17 years.
Suppliers	Local subsidiaries of known brands could supply the inverter. Local electricians could install the monitoring equipment.
Other aspects	The chiller has to be checked also to make sure that it does not freeze too much if the inverter goes down with the flow rate.
Implementation	This measure is under implementation by the company

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Replicability sectors

The same concept can be replicated in:
Any industry that need cooling process.

Aspects to investigate for replicability

Energy consumed for the cooling towers & chillers.
The set point of cooling.
Flow rate of inlet water to the cooling tower.

Useful resources
