MED TEST II Case Study

switchmed

As part of the SwitchMed programme, UNIDO supports industries in the Southern Mediterranean through the transfer of environmental sound technologies (MED TEST II) to become more resource efficient and to generate savings for improved competitiveness and environmental performance.

Lebanon

Bach Snacks s.a.l.

Food and beverage sector

Context

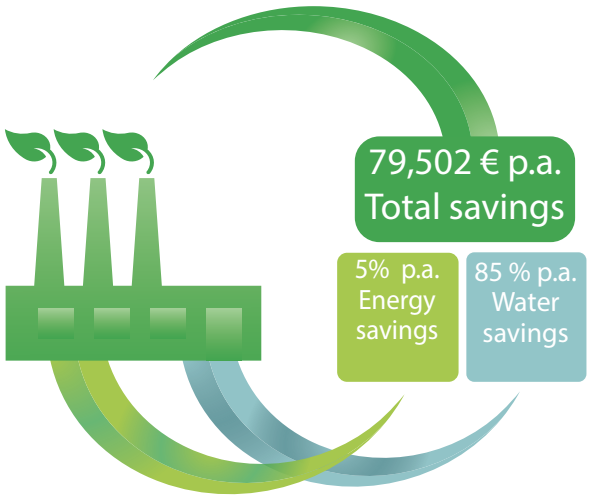
Number of full time employees:	150
Key products:	potatoes, corn and wheat pellets
Main markets:	Local, Middle East, North Africa and Far East regions

Bach Snacks s.a.l. is a large sized enterprise in the food sector. It produces 25 different products of semi-finished dried pellets from potatoes (8 million t/year), corn (2 million t/year) and wheat (1.5 million t/year). Production is mainly for export. The company joined the MED TEST II Project to identify opportunities to increase resource efficiency and solve existing problems, essentially high energy and water consumption.

"At the beginning of MED TEST II Program, we were aware about the importance of resource efficiency. We were trying to decrease our costs by adopting the traditional way of looking at production as raw material being transformed into finished product, with resulting waste. The MFCA tool of TEST provided us with a different approach to know where to look for inefficiencies and thus achieve improvements. We were also prompt to install a monitoring system in order to understand how and where we consume energy and water in the objective of reducing resource use."

Rida Soubra,
CEO

Benefits



Graphic: UNIDO

The MED TEST II Project identified total annual savings of 79,502 euros in water, raw material, and energy, with an estimated investment of 22,000 euros. The average pay back period is 0.28 years. All identified measures were accepted by the top management and some of them have been implemented.

Water and energy savings will amount to 85% and 5% respectively, whereas CO_2 emissions will decrease by 8.7%. The monitoring system installed as a result of the project is comprised of 36 meters and the costs were 13,983 euros. This system will enable the company to obtain real time data on energy and water from different key consumers of the factory and to achieve business and environmental savings.

In addition to installing a resource monitoring system, the formulation of a resource efficiency and cleaner production policy as part of the MED TEST II project will guide the company on the path to integrating environmental/energy management systems in the future.

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Saving opportunities[1]

Action	Economic key figures			Resource savings & environmental impacts per year		
	Investment euros	Savings euros / yr.	PBP years	Water and raw materials	Energy MWh	Pollution reduction
Hot water boiler system	2,508	13,102	0.2		464	Total:
Installing a cooling tower	19,500	66,400	0.3	24,200 m^3 water	177	178 t CO_2
TOTAL	**22,008**	**79,502**	**0.3**	**24,200 m^3 water**	**641 MWh**	24,200 m^3 waste water

1 Numbers based on production value from 2016

Increasing the efficiency of the hot water boiler system

The efficiency of the hot water boiler system will be improved by adjusting the air fuel mix of burners which would reduce heavy fuel use by 7 % or 24,500 liters of fuel per year. In addition, boiler heat transfer surfaces should be regularly cleaned as part of the preventive maintenance program as the accumulation of carbon residues resulting from the incomplete combustion of fuel (soots) in gas exhaust pathways reduces efficiency. This measure could bring a saving of 3% or 10,500 liters of heavy fuel a year. Finally, the insulation of the hot water boiler pipes and of return pipes will be improved and this will bring additional saving of approximately 2% or 7,000 liters of fuel per year

Installing a cooling tower

The cooling demand is fulfilled by a chilled water system, while the vacuum pumps are cooled with an open water flow drawn from wells. The total annual water consumption is approximately 28,000 m^3; of which 24,000 m^3 have been used for the cooling of process system and then went down the drains. The installation of a cooling tower providing more than 90% of cooling load along with closing the circuit for cooling the vacuum pumps is expected to reduce the electricity consumption by 55 MWh/year and the water consumption by 24,200 m^3/year.

"The most important lesson learned was not to take what we think we know for granted and always question and measure in order to validate our assumptions. We should never undertake any project related to efficiency, especially an energy one, without first having the baseline measurements."

Rida Soubra,
CEO

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