



Case study

Philip Morris International



PHILIP MORRIS INTERNATIONAL

SUMMARY OF RESULTS

For Philip Morris International (PMI) cooling equipment in the Intertaba factory, Italy (Via Fratelli Rosselli, 4 40069 Zola Predosa (BO)):

- The average reduction of electrical energy consumption amounted to 37%
- The produced cooling capacity increased by 35%
- The return on investment (ROI) period of equipment = for up to 5 months of operation.

CUSTOMER

Philip Morris International is one of the leading tobacco manufacturers in the world.

Since the production capacity of the company is very large, an essential part of energy consumption is constituted by the electrical energy that is consumed by air cooling and conditioning equipment to ensure the climate.

Strategically the company "Philip Morris International" aims at the reduction of energy consumption, which primarily relates to the reduction of expenditure as well as the facilitation of environmentally friendly entrepreneurship.



PROJECT DATA

The factory works 6 days a week, 24 hours a day.

Cooling equipment: York YCAS 0835EB and YAES 0785SA

Installation year: 2013.

Monitoring: 2013.07.25 - 2013.08.30.

Blue Energy equipment: adiabatic panels "Smart cooling" BY 70-140.

Energy saving: 37%.

The increase in cooling capacity by 35%.



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PROBLEM

Large energy consumption of cooling equipment. Electrical energy consumption of cooling equipment has also risen due to hot summers. Upon the increase of maximum air temperatures cooling equipment operates to the utmost, which considerably affects its efficiency.

AIM

To reduce the electrical energy consumption of cooling equipment by using environmentally friendly technologies. To boost the efficiency of cooling equipment, to facilitate the operation of compressors and to diminish the operational hours of compressors.

SOLUTION

To install Blue Energy adiabatic panels "Smart cooling™" BY 70-140 on cooling equipment. All PMI factories have the electrical energy consumption monitoring installed in order to assess in an even-handed manner the acquired effect - the economy of energy consumption and the increase in produced cooling capacity (the increase in equipment efficiency). The particular case study deals with the instance of PMI factory Intertaba in Italy, Via Fratelli Rosselli, 4 40069 Zola Predosa (BO). The following cooling equipment has been installed in the factory: York YCAS 0835EB and York YAES 0785SA.

PROCESS

Adiabatic panels BY 70-140 were installed on the cooling equipment of factory: York YCAS 0835EB and York YAES 0785SA. Cooling equipment is installed on the sunny side. By installing Blue Energy adiabatic panels BY 70 – 140, the pre-cooling of inflowing air in the condenser was ensured. At the outdoor air temperature + 36°C and day-time relative air humidity 45 - 55%, the temperature of the inflowing air in the condenser was ensured + 24°C. The control unit of Blue Energy equipment was connected to the Energy Monitoring System and, for the purposes of summarizing results, the data which were recorded at 3-minute intervals were used.



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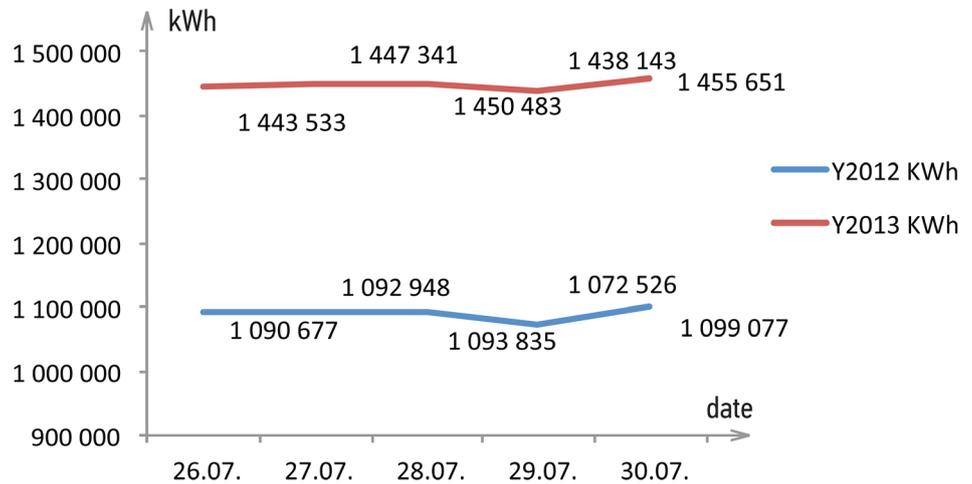


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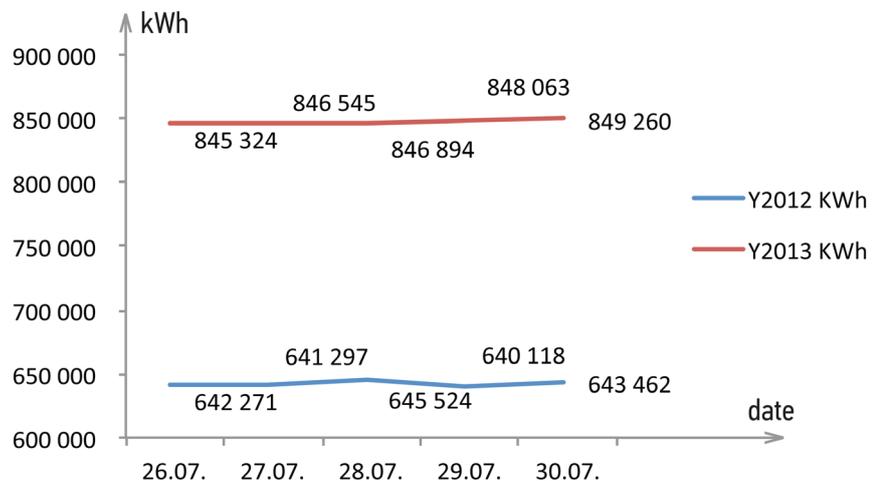
RESULTS

The data on year 2012 when the equipment was not installed yet have been compared with year 2013 when Blue-Energy equipment was already functioning. Having compared the information obtained about these periods, the conclusion was made that the cooling equipment consumed on average by 37% less electrical energy and was able to produce on average by 35% more cooling capacity at the time when it was equipped with Blue-Energy adiabatic panels "Smart cooling" BY 70-140. The current measurement results about the seasonal period are given below.

Chiller York YCAS 0835EB produced cooling capacity in KWh over an identical period and T, °C in regime Y2012/13 (measurements done over five days)



Chiller York YAES 0785SA produced cooling capacity in KWh over an identical period and T, °C regime Y2012/13 (measurements done over five days)



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