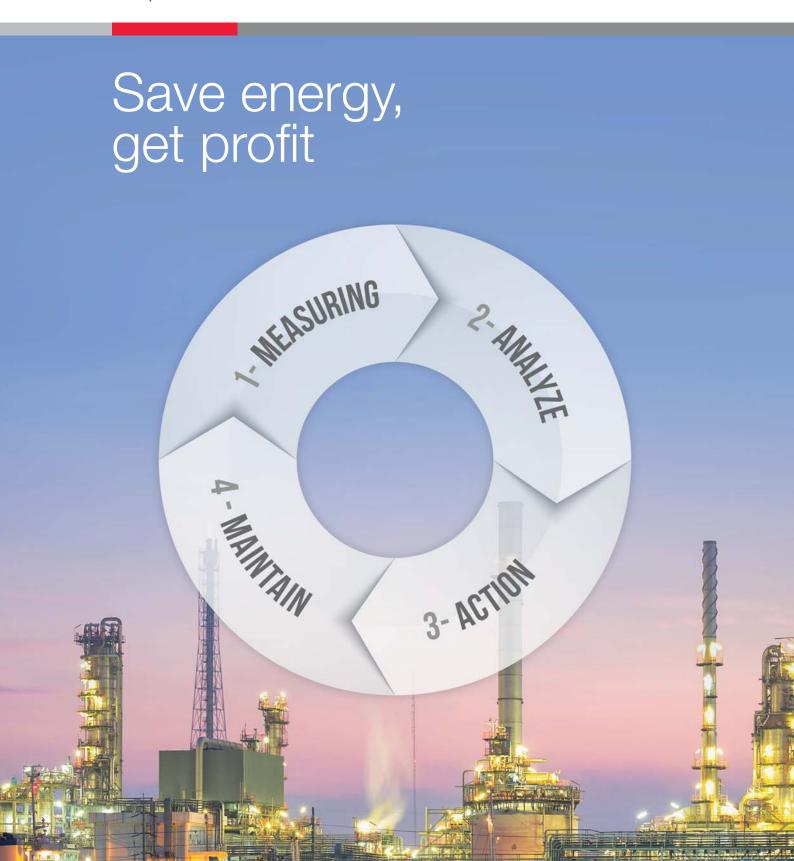


Energy Efficiency Division

Hospital







MEASUREMENT

Temperature - Refrigeration

What's first necessary in an Hospital Operating Room is to guarantee the aseptic ambient. The control of temperature is fundamental, so it's necessary to provide a refrigeration system. Plus, there are patients rooms. How do these system works in terms of efficiency, especially when these units are very big and their consumption is important?





DATA ANALYSIS

- Output temperature from the 3 refrigeration units: 9 °C.
- Minimum input temperature inside the operation rooms before the exchange point: 14.5 °C
- Difference lost: 5,5°C
- Electrical Efficiency: 48% (low)

Every 1°C of temperature lost for the entire circuit corresponds to 370 kWh/day.

Total losses cost to the Hospital more than 149.000 Euro/year.





ACTION

- Restructure some principal pipes
- Full open the radiator windows
- Change the polarity of radiator fans

Another action will be to change the cold water pumps. The electrical efficiency will be increased of about 6%.





MONITORING

The system is now supported by a continuous monitoring to prevent problems (specific alarms settled as per customer requirements) and at the same time to verify that the efficiency level reached is maintained.





RESULTS

The electrical consumption of this application has been reduced by about 23%.

RESULTS

BEFORE: AFTER: DIFFERENCE €:

3.244.700 kWh per year 2.498.400 kWh per year 149.256,20 Euro/year

ROI: 12 months

Hitachi Europe s.r.l. - Energy Efficiency Division