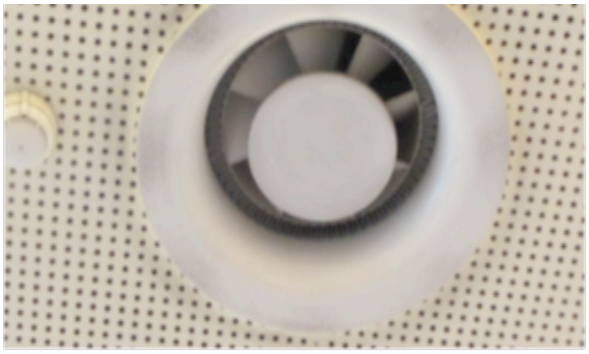
iSERVcmb Best Practice

Electricity savings of 25% per year by adjusting the operation of the A/C equipment.

UP-Porto 24

24 – PT



Introduction

This report summarizes the results of Alcochete 24 UP-Porto supermarket participation to the iSERVcmb project with regard to its HVAC system energy consumption. The report refers to the period from 2012 to 2013.

iSERV Achievements

Energy Savings
Electricity: 14 kWh/m^2.year

25%
HVAC electrical consumption reduction

Cost Savings
Electricity: 1.7 €/m^2.year

Emissions Reductions
Electricity: 0,2 kgCO2/m^2.year

Investment to achieve savings
1 €/m^2.year

	Key Figures
Location	Alcochete, Portugal
Sector	Retail
Construction Date	2007
Project Size	1319 m²
EPC	N/A
Sub-metering Level	Party Metered
Data Frequency	Hourly
Data Collection Protocol	Meters and sensors attached to BMS
Data Sending Protocol	Automatically extract data & manually send to an email address
Nature of Savings achieved	**Improved Operating Schedule** **Identified Oversized HVAC component(s)**
No. HVAC Systems	5
HVAC Components	☐ Heat Generators ☐ Cold Generators ☐ All-in-One Systems ☒ Heat Pumps ☒ Air Handling Units ☐ Pumps ☐ Terminal Units ☐ Heat Recovery ☐ Heat Rejection

Building Profile

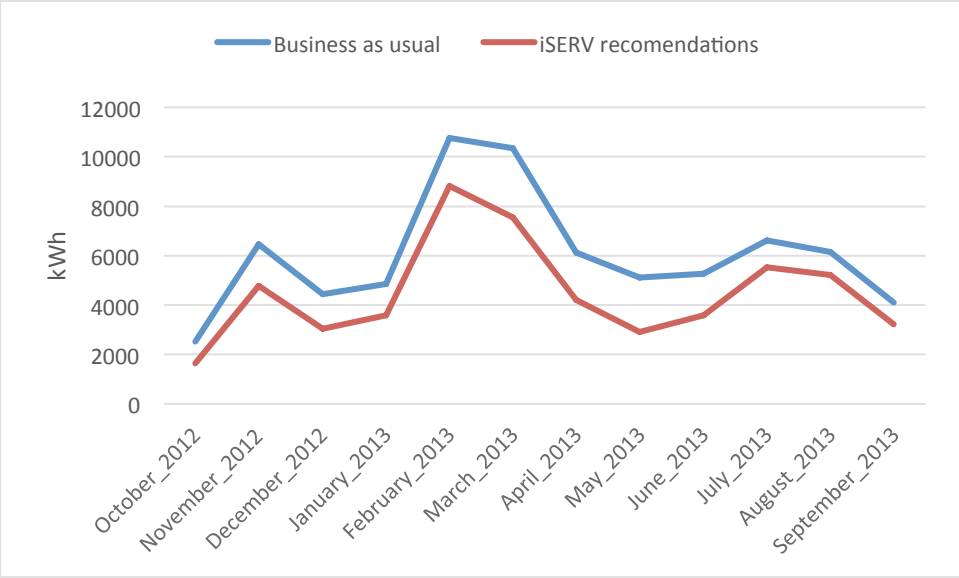
Alcochete 24 UP-Porto is a supermarket of 1319 m² conditioned gross internal area with a single floor located in Alcochete, PT.
The supermarket is mainly a single place served by 2 AHU with heating and cooling variants. The building has secondary activities like a small office, a warehouse and toilets which are served by other HVAC systems. Cooling and Heating is provided by two independent split systems, one for each AHU, with a total Nominal Cooling and Heating Capacity of 112 kW and 115 kW, respectively.

Building Management System installed

The building systems are controlled by a BMS. The consumptions monitoring is achieved by this BMS system. The building is occupied from 9am to 9pm, 7 days/week.

Savings of 19 MWh/y due to optimized HVAC control

The data provided starts at October 2012 and includes energy consumption electricity only of the HVAC components. Energy saving opportunities have been identified in the HVAC systems with a total estimated savings of 19 MWh on the analysed period.



This Energy conservation opportunities are mostly related to system control and oversizing of the HVAC equipment. This measures are represented in the figure on the right and include AHU control improvement, turn off equipment when not in use and adjust the cooling and heating demand for the real requirements of the building. The estimated result of this measures could represent a reduction of 27% in the HVAC systems and consequently in the electricity use, without major investments. The reduction of the total annual building energy use can be reduced to 14 kWh/m^2.year.

The annual electrical savings achieved in the building are estimated in 18,182 kWh/year on the HVAC systems. This translates to annual electricity savings from the HVAC alone of approximately EUR 2,726/year.

www.iSERVcmb.info

how energy efficient are you really?

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