

iSERVcmb Best Practice

Electricity HVAC savings of 32% per year by adjusting the operation of the A/C equipment.

UP-Porto 26

26 – PT

Introduction

This report summarizes the results 26 UP-Porto office center participation to the iSERVcmb project with regard to its HVAC system energy consumption. The report refers to consumption between aug/2012 and aug/2013.



iSERV Achievements

Energy Savings

Electricity: 30.2 kWh/m².year

32%

HVAC electrical
consumption reduction

Cost Savings

Electricity: 4.5 €/m².year

Emissions Reductions

Electricity: 4.3 kgCO₂/m².year

Investment to achieve savings

2.5 €/m².year



	Key Figures
Location	Coimbra, PT
Sector	Office
Construction Date	2003
Project Size	4,300 m ²
EPC	B
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 Improved HVAC Control
No. HVAC Systems	7
HVAC Components	<input type="checkbox"/> Heat Generators <input checked="" type="checkbox"/> Cold Generators <input type="checkbox"/> All-in-One Systems <input checked="" type="checkbox"/> Heat Pumps <input checked="" type="checkbox"/> Air Handling Units <input checked="" type="checkbox"/> Pumps <input checked="" type="checkbox"/> Terminal Units <input type="checkbox"/> Heat Recovery <input type="checkbox"/> Heat Rejection

Building Profile

26UP-Porto Coimbra is a building, which main activity is office. The total conditioned gross internal area is 4300 m², with four stories, located in Arregaça, PT. The air distribution in the offices located in the top 3 floors is achieved by 3 AHU's with heating, cooling and filtration and local fan coils. The auditorium in the ground floor is served by a different AHU. Cooling is provided by a chiller and a heat pump and heating is provided by the same heat pump. The total Nominal Cooling and Heating Capacity is of 293 kW and 137 kW, respectively.

Building Management System installed

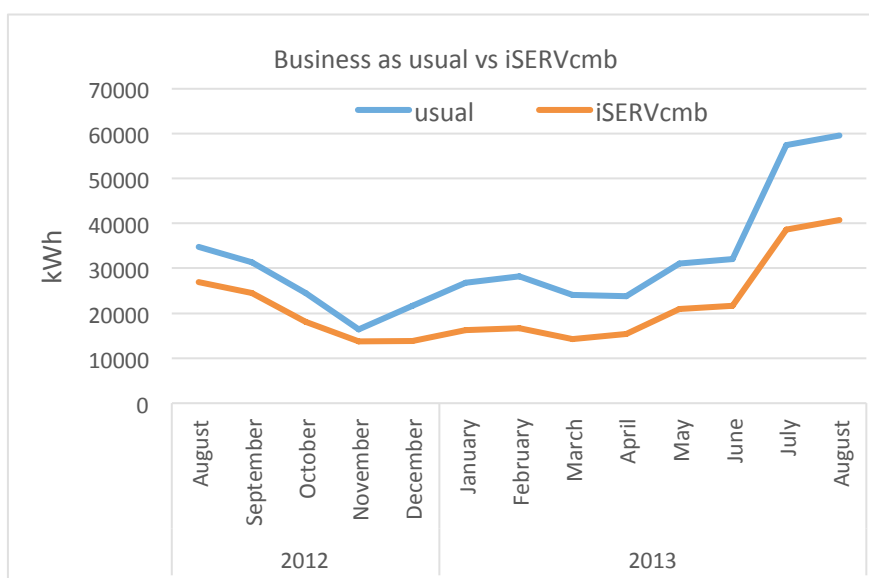
The building systems are controlled by a BMS. The consumptions monitoring is achieved by an independent system. The building is occupied 12 hours/day from 8:00 to 20:00, 5 days/week.

Savings of 130 MWh/year due optimized HVAC control

The data provided starts at August 2012 and includes electricity energy consumption. Energy saving opportunities have been identified in several HVAC systems with a total estimated savings of 130 MWh on the analysed period.

This Energy conservation opportunities are mostly related to system control. The difference in the annual consumption is represented in the figure on the right and include Chiller, Heat Pump and Water Pumps control improvement and turn off equipment when not needed. The estimated result of this measures could represent a reduction of 32%

in the HVAC systems, without major investments. The reduction of the HVAC annual building energy use can be reduced to 65.5 kWh/m².year. It is not possible to know the total building savings, because there is no meter in the main electricity board.



The annual electrical savings achieved in the building are estimated in 130,000 kWh/year on the HVAC systems. This translates to annual electricity savings from the HVAC alone of approximately EUR 18,700/year.

www.iSERVcmb.info

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how energy efficient are you really?



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