

# iSERVcmb Best Practice

Electricity HVAC savings of 38% per year by adjusting the operation of the A/C equipment.

## UP-Porto 29

### 29 – PT

#### Introduction

This report summarizes the results UP-Porto 29 Setubal office center participation to the iSERVcmb project with regard to its HVAC system energy consumption. The report refers to consumption from 2013 year.



#### iSERV Achievements

##### Energy Savings

Electricity: 40.5 kWh/m<sup>2</sup>.year

**38%**

HVAC electrical consumption reduction

##### Cost Savings

Electricity: 6.1 €/m<sup>2</sup>.year

##### Emissions Reductions

Electricity: 5.8 kgCO<sub>2</sub>/m<sup>2</sup>.year

##### Investment to achieve savings

2.5 €/m<sup>2</sup>.year



	Key Figures
Location	Setubal, PT
Sector	Office
Construction Date	2007
Project Size	3,100 m <sup>2</sup>
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	16
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

UP-Porto 29 Setubal is a building, which main activity is office. The total conditioned gross internal area is 3100 m<sup>2</sup>, with six stories, located in Setubal, PT. The air distribution in all floors of the building is provided by 3 AHU. Thermal energy for cooling and heating the spaces is provided by a chiller/heat pump (CH/HP) system. There are 3 independent CH/HP systems, working in backup. There is installed a 4 pipe circuit with 4 pumps, 2 for chilled water and 2 for heated water. The total Nominal Cooling and Heating Capacity is of 318 kW and 348 kW, respectively.

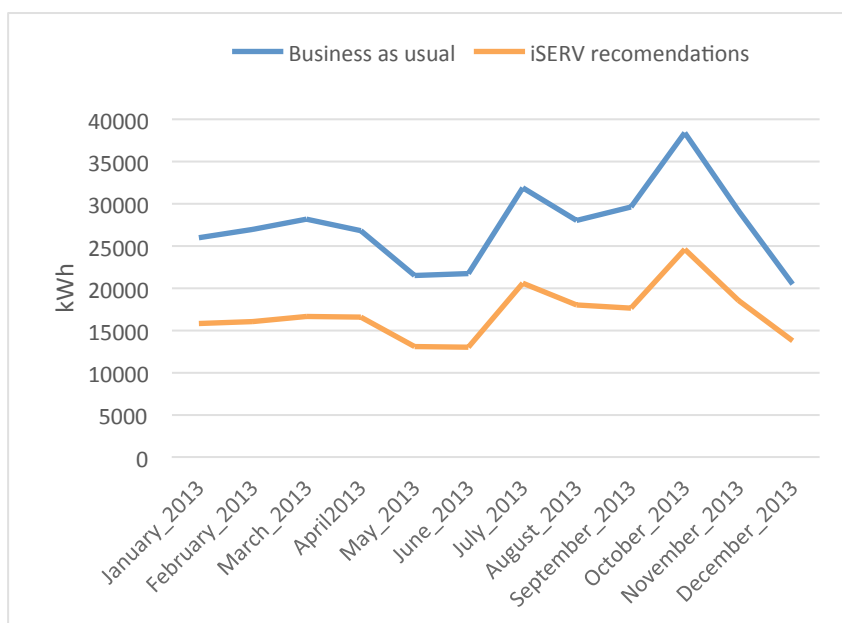
### Building Management System installed

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 125 MWh/year due optimized HVAC control

The data provided starts at January 2013 and includes electricity energy consumption. Energy saving opportunities have been identified in several HVAC systems with a total estimated savings of 125 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 CH/HP, Water Pumps and AHU control improvement and turning off equipment when not needed. The estimated result of this measures could represent a reduction of 38% in the HVAC systems consumptions, without major investments. The



reduction of the HVAC annual building energy use can be reduced to 40.5 kWh/m<sup>2</sup>.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 125,000 kWh/year on the HVAC systems. This translates to annual electricity savings from the HVAC alone of approximately EUR 18,600/year.

[www.iSERVcmb.info](http://www.iSERVcmb.info)

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how energy efficient are you really?