

# iSERVcmb Best Practice

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

## UP-Porto 30

### 30 PT

#### Introduction

This report summarizes the results of UP-Porto 30 participation to the iSERVcmb project with regard to its HVAC system energy consumption. The report refers to consumption from January 2013 to March 2014.



#### iSERV Achievements

##### Energy Savings

Electricity: 1.1 kWh/m<sup>2</sup>.year

**25%**

HVAC electrical consumption reduction

##### Cost Savings

Electricity: 0.7 €/m<sup>2</sup>.year



##### Emissions Reductions

Electricity: 0.6 kgCO<sub>2</sub>/m<sup>2</sup>.year

##### Investment to achieve savings

0.5 €/m<sup>2</sup>.year

	Key Figures
Location	Porto, PT
Sector	Office
Construction Date	2000
Project Size	2588 m <sup>2</sup>
EPC	C
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	<b>Improved Operating Schedule</b> <b>Improved HVAC Control</b>
No. HVAC Systems	6
HVAC Components	<input type="checkbox"/> Heat Generators <input checked="" type="checkbox"/> Cold Generators <input type="checkbox"/> All-in-One Systems <input type="checkbox"/> Heat Pumps <input checked="" type="checkbox"/> Air Handling Units <input type="checkbox"/> Splits <input checked="" type="checkbox"/> Terminal Units <input type="checkbox"/> Heat Recovery <input type="checkbox"/> Heat Rejection



### Building Profile

UP-Porto 30 is a building, which main activity is office. The total conditioned gross internal area is 2588 m<sup>2</sup>, with six stores, located in Porto, PT. The air distribution is provided by an AHU in each floor. Thermal energy for cooling and heating the spaces is provided by a chiller and a boiler. The total Nominal Cooling and Heating Capacity is of 142 kW and 230kW, respectively.

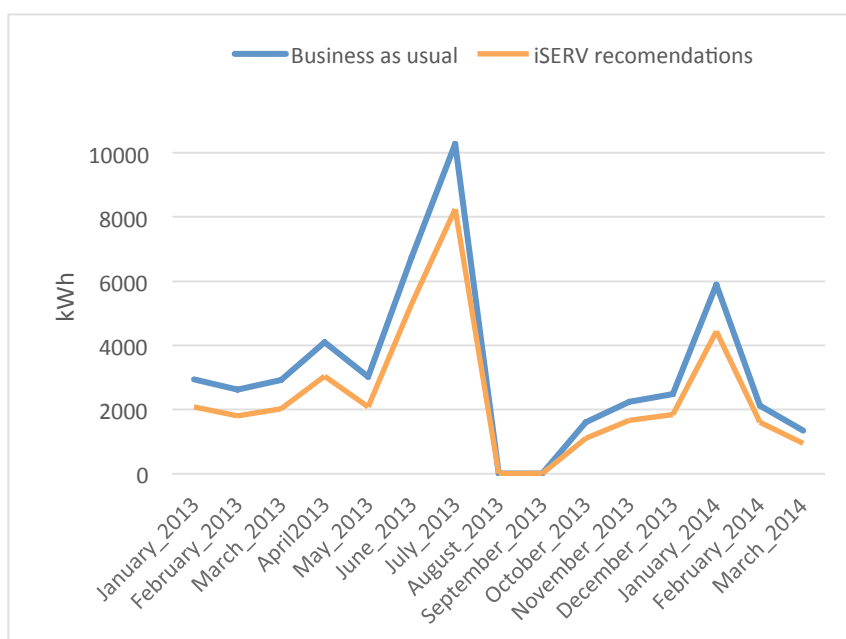
### Building Management System installed

The building systems are controlled by a BMS. The consumptions monitoring is achieved by an independent system. The building is occupied 11 hours/day from 8:00 to 19:00, 5 days/week.

### Savings of 11 MWh/year due optimized HVAC control

The data provided starts at January 2013 and includes onlu the HVAC systems consumption. Energy saving opportunities have been identified in several HVAC systems with a total estimated savings of 11 MWh on the analysed period. Due to a tecnical problem, the BMS was turned off on August an September 2013.

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 the split systems and the AHU control improvement and turning off equipment when not needed. The estimated result of this measures could represent a reduction of 25% in the HVAC systems consumptions, without major investments. The reduction of the HVAC annual building energy use can be reduced to 1.1 kWh/m<sup>2</sup>.year. It is not possible to know the total building savings, because the meter in the main electricity board was not giving consistent data.



The annual electrical savings achieved in the building are estimated in 11,400 kWh/year on the HVAC systems. This translates to annual electricity savings from the HVAC alone of approximately EUR 1,700/year.

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

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how energy efficient are you really?



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