

iSERVcmb Best Practice

Detailed and continuous monitoring of HVAC systems since participation in order to save energy

K3 Office

Allianz Hungária Zrt. - HU

Introduction

This report summarizes the results of Allianz Hungária Zrt.'s participation to the iSERVcmb project with regard to its HVAC system energy consumption since participation. The report refers to the period from January 2014 to April 2014.

iSERV Achievements

Energy Savings

Electricity: 0 kWh/m²

Gas: 0 kWh/m²

Cost Savings

Electricity: 0 €/m²

Gas: 0 €/m²

Emissions Reductions

Electricity: 0 tCO₂/m²

Gas: 0 tCO₂/m²

Investment to achieve savings

0,19 €/m²

0%

Total electrical consumption reduction per year of cooling and ventilation systems since participation



	Key Figures
Location	Budapest, Hungary
Sector	Office
Construction Date	2008
Project Size	17,203 m ²
EPC	C
Sub-metering Level	Party Metered
Data Frequency	15'
Data Collection Protocol	Stand Alone system
Data Sending Protocol	Manually extract & send data to an address
Nature of Savings achieved	-
No. HVAC Systems	4
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"/> Humidifiers <input type="checkbox"/> Dehumidifiers <input checked="" type="checkbox"/> Pumps <input type="checkbox"/> Storage Systems <input checked="" type="checkbox"/> Terminal Units <input type="checkbox"/> Heat Recovery <input type="checkbox"/> Heat Rejection

The building joined to the iSERVcmb project in January 2014, therefore the implementation of the measures is in progress based on the processing of the monitoring data. Usually **5-10%** reduction of total electrical consumption per year of cooling and ventilation systems can be achieved by improve the operating schedule. The impact of measures to reduce energy consumption can be assessed by further monitoring of the collected energy consumption data.

Building Profile

K3 Office Building is an office block of 17,203 m² conditioned gross internal area in Budapest, Hungary. The building is served by ventilation systems with heating, cooling, and 4-pipes fan-coil system. Cooling is provided by two packaged chillers, with a total Nominal Cooling Capacity of 1870 kW and a free cooler with a total Nominal Cooling Capacity of 470 kW. The boiler plant consists of a gas fired boiler and a gas fired condensing boiler with total heating capacity of 1275 kW.

Building Management System installed

The building systems are controlled by a BMS, and the system operates on an optimized stop and start. The building is occupied from 07:00 to 18:00, from Monday to Friday. Outside of these hours, setback points are used. Stand alone system was used for data collection in this case study.

The evaluation of detailed metering data is in progress

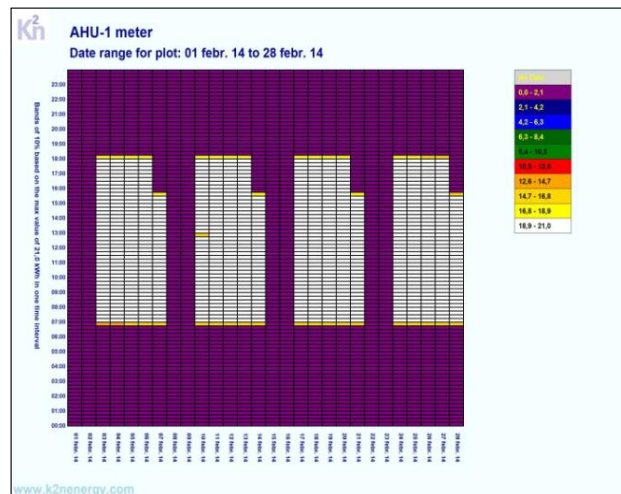
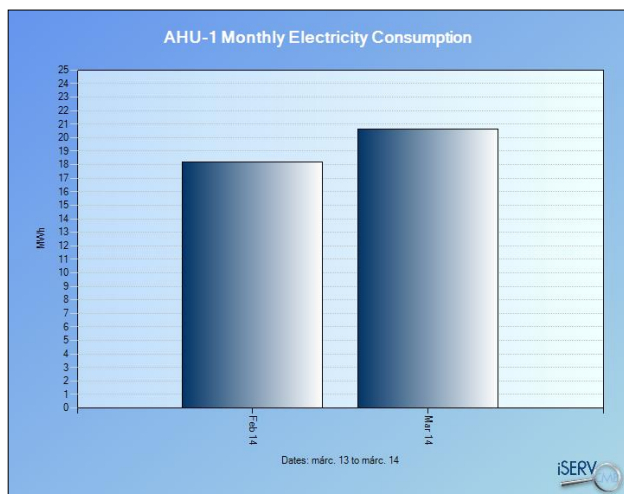
After the building is joined to the project they started to monitor the electrical consumption of liquid chillers, free cooler and AHUs with 15' frequency. They installed 6 pieces of new electricity meters for these equipment. They have been sending the meter data to the database since 23.01.2014 and the quality of data is excellent.

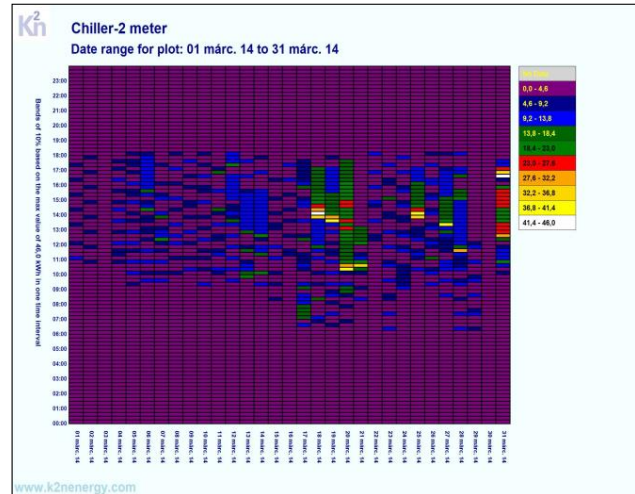
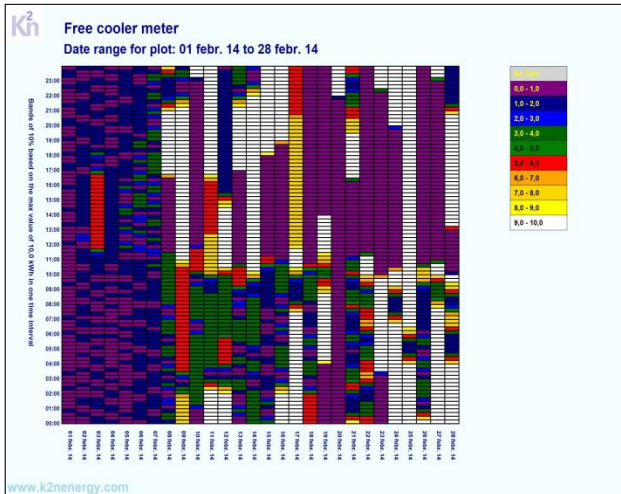
The continuous monitoring gives useful information about the chillers' and AHUs' electricity power and consumption demand. The operating schedule of AHUs and cooling system is under investigation by using the carpet plots. It will be analyzed whether the operating time of the chiller and AHUs, as well as the indoor temperature setpoints of the office and restaurant area can be changed. Based on the evaluation of data they can obtain information about energy efficiency of HVAC system and components.

On the other hand, within the framework of the iSERVcmb project the inspection of HVAC systems was carried out and the IAQ kit was placed in the building. Making the report of the inspection is in progress, the energy management of the building will be able to take into account it in order to save energy.

Usually 5-10% reduction of total electrical consumption per year of cooling and ventilation systems can be achieved by improving the operating schedule. The impact of measures to reduce energy consumption can be assessed by further monitoring of the energy consumption data, because so far only 3 months data is available.

The electricity consumption data and carpet plots of some HVAC equipment can be seen on the below figures.





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how energy efficient are you really?

