iSERVcmb Best Practice

Electricity savings of 6% per year was found with HERO (tool for automatic online ECO detection with use of long-term monitored data for specific HVAC system.

Kristalna palača

BTC City Ljubljana–**SI**

Introduction

This report summarizes the results of BTC city Ljubljana 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: 6528 kWh

6 %
Total HVAC electrical consumption reduction since participation

Cost Savings
Electricity: No data €/m²

Emissions Reductions
Electricity: No data CO2/m²

Investment to achieve savings
No data €/m²

	Key Figures
Location	Ljubljana, Slovenia
Sector	Retail
Construction Date	2011
Project Size	19493,54m²
EPC	N/A
Sub-metering Level	Fully Metered
Data Frequency	15'
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**
No. HVAC Systems	8
HVAC Components	☐ Heat Generators ☒ Cold Generators ☐ All-in-One Systems ☐ Heat Pumps ☒ Air Handling Units ☐ Humidifiers ☐ Dehumidifiers ☒ Pumps ☒ Storage Systems ☐ Terminal Units ☐ Heat Recovery ☐ Heat Rejection

Building Profile

Kristalna palača is an office block of 19493,54 m² conditioned gross internal area arranged over 20 stories, in Ljubljana, Slovenia. Building has six centralized full air-conditioning system plants with a constant air volume (CAV) and fan coil unit (FCU), respectively. Office sector is served from two water cooled vapor-compression liquid chiller and twelve ice-storage banks with cooling capacity 537 kW. The building has one another water cooled vapor-compression liquid chiller for IT room sector with cooling capacity 163 kW.

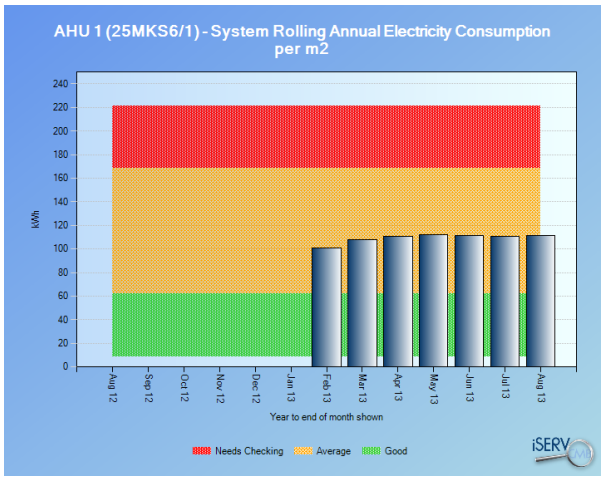
Building Management System installed

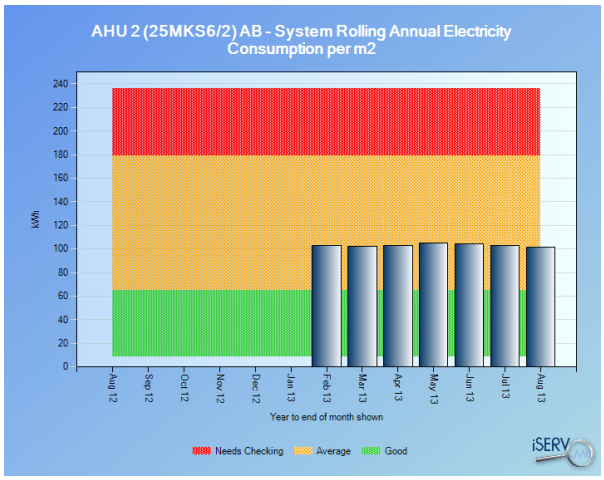
The building systems are controlled by a BMS, and the system operates on an optimized stop and start. The building owner carries out measurements on HVAC systems and provided it into HERO online database which were also used for this case study. The building is occupied 06:00 to 21:00, Monday to Sunday. Outside of these hours, setback points are used.

Savings of 6,53 MWh/a due to optimized HVAC control

The data provided starts at August 2012 and includes energy consumption of electricity. HERO tool was used to provide with the result about possible ECO`s to reduce electricity energy use on HVAC system.
ECO which was found on HVAC system was to improve operating schedule.

These electricity savings represent a reduction of 6 % from the initial electricity energy use on HVAC system.
The annual electrical savings achieved in the building are currently 6528 kWh achieved by optimized HVAC control.





Impact on lower electricity energy consumption has a cold storage system (the results are shown in pictures above) which is already installed on building. Cold storage is also useful for shifting some of peak load, particularly cooling requirement, to the late evening and early hours in the morning. It was found that cold generator load shifting using thermal cold store could reduce the peak building load by 15%.

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how energy efficient are you really?