iSERVcmb Best Practice

Electricity savings of 28% per year was found with HERO (tool for automatic online ECO detection with use of long-term monitored data for specific HVAC system.

Hala A

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: 212506 kWh

28%
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	1998
Project Size	25857,86m²
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 HVAC Control 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

Hala A is a shopping center with conditioned gross internal area (CGIA) of 25376,86 m^2. There are six full air-conditioning (CAV) systems for shop sales area. Office sector is served from water cooled vapor-compression liquid chiller and seven ice-storage banks with cooling capacity 714 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 08:00 to 21:00, Monday to Saturday. Outside of these hours, setback points are used.

Savings of 212,51 MWh/a due to optimized HVAC control and upgrade of HVAC system

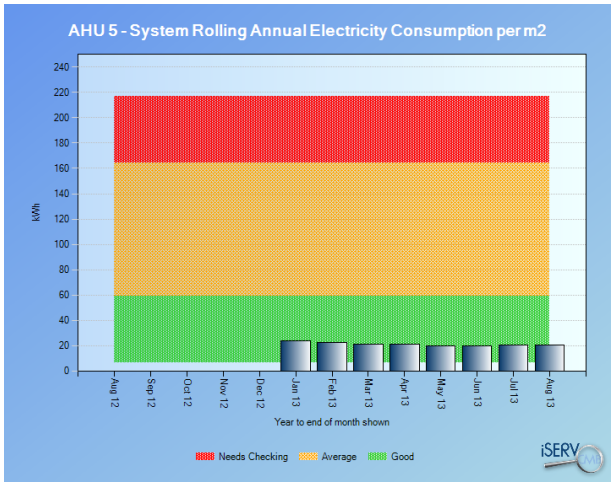
The data provided starts at August 2012 and includes energy consumption of electricity. HERO tool was used to provide with the result about possible ECO`s to reduce electricity energy use on HVAC system.

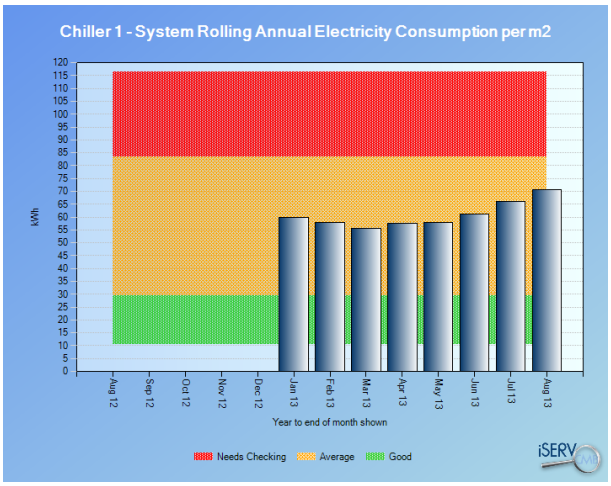
ECO`s which were found on HVAC system were next:

- To improve operating schedule
- To reduce electricity energy use in standby mode (cold generator)

These electricity savings represent a reduction of 28 % from the initial electricity energy use on HVAC system.

The annual electrical savings achieved in the building are currently 212506 kWh achieved by optimized HVAC control and upgrade of HVAC system.





Impact on lower electricity energy consumption has a cold storage system 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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