iSERVcmb Best Practice

Electricity savings of 22% per year through awareness measures and optimised control for the HVAC system.

Building number 7

GR

Introduction

This report summarizes the results of a supermarket store's participation to the iSERVcmb project with regard to its HVAC system energy consumption. The report refers to the period from 2012 to 2014.

iSERV Achievements

Energy Savings
Electricity: 19.6kWh/m^2

Cost Savings
Electricity: 1,67€/m^2

Emissions Reductions
Electricity: 22,87KgrCO2/m^2

Investment to achieve savings
N/A €/m^2

22%
Total HVAC system electrical consumption reduction since participation

	Key Figures
Location	Athens, Greece
Sector	Retail
Construction Date	2000
Project Size	1300m^2
EPC	N/A
Sub-metering Level	Party Metered
Data Frequency	15'
Data Collection Protocol	Stand Alone system
Data Sending Protocol	Automatically extract & send to an email address
Nature of Savings achieved	Improved HVAC Control
No. HVAC Systems	1
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 - HVAC System

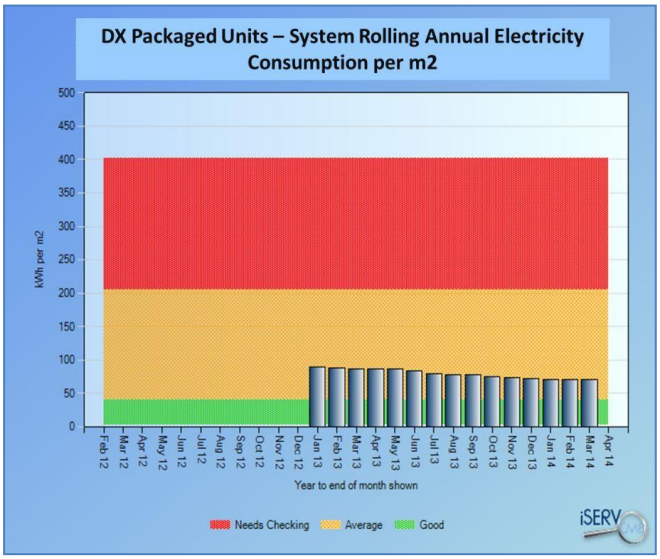
The supermarket store No1 is a retail store located in North East of Athens, GR.
The HVAC system serves 2 floors -the ground floor and the first floor. The ground floor area is 650m2 and the first floor area is 650m2. The total conditioned area is 1300 m².
The two floors are served by 11 outdoor DX Packaged Heat Pump Units in combination with 11 ceiling concealed ducted Indoor units (in horizontal installation). Each DX Packaged Heat Pump Unit has a nominal cooling/ heating capacity of 14.40KW/14.3KW with a total nominal cooling/heating capacity of 158.4KW/157.3KW. The manufacturer's design conditions are 35°C outdoor and 26°C indoor. The cooling requirement of this supermarket is typical of others insomuch as there is a lot of internal gain due to refrigeration compressors, lights, and other equipment heat loads. The HVAC system appeared to be in good condition, and well maintained. The maintenance of the building is once in a month or once in two months.

Building Management System

The HVAC system is controlled by a BMS, and the system operates on an optimized stop and start. The heat load in this area is mainly made up of fabric transmission gains and lighting, the units are operating at a set point of 26°C in cooling and operate between 07:00 and 21:00 Monday to Saturday. The units operate individually reacting to their own control set point but are under universal time clock control. The store also has a remote dial in facility so time clock, control set point can be altered and fault condition monitored.

Savings of 25.474 kWh/a due to optimized HVAC control

The data provided starts at February 2012 and includes energy consumption of electricity. From January 2013 the rolling annual electricity use starts to reduce. The initial reduction from a peak of 90kWh/m²a in January 2013 to around 70kWh/m²a in February 2014 is mainly due to additional control being exerted on the HVAC system. These electricity savings represent a reduction of about 22% from the initial electricity use peak. The annual electrical savings achieved in the building (till March 2014) are around 25.474 kWh per annum which are from the control of the HVAC system. This translates to annual electricity savings from the HVAC of approximately EUR 2.165.



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how energy efficient are you really?