

Installation of a Centralised System for Monitoring and Control of Heat in 13 Schools and Kindergartens in the Town of Veliko Tarnovo

Sofia Energy Centre, Bulgaria

Summary

The material presents the results of a demonstration project for installation of a centralised system for energy management (monitoring and control of heat consumption) in 13 schools and kindergartens in the town of Veliko Tarnovo, Bulgaria. The aim was to show the benefits of energy management in public/municipal buildings as an option for energy savings and thus reduction of municipal energy costs in Bulgaria. Approximately 880 Gcal per year is saved which reduces the energy costs with € 12234. The pay back period is 2,61 years.

End-user area	Target Audience	Technical
<input type="checkbox"/> New buildings	<input type="checkbox"/> Citizens	<input checked="" type="checkbox"/> Energy efficiency
<input checked="" type="checkbox"/> Refurbishment of buildings	<input type="checkbox"/> Households	<input checked="" type="checkbox"/> Heating
<input type="checkbox"/> Transport and mobility	<input type="checkbox"/> Property owners	<input type="checkbox"/> Cooling
<input type="checkbox"/> Financial instruments	<input type="checkbox"/> Schools and universities	<input type="checkbox"/> Appliances
<input type="checkbox"/> Industry	<input type="checkbox"/> Decision makers	<input type="checkbox"/> Lighting
<input type="checkbox"/> Legal initiatives (municipal regulations, directives, etc)	<input checked="" type="checkbox"/> Local and regional authorities	<input type="checkbox"/> CHP
<input type="checkbox"/> Planning issues	<input type="checkbox"/> Transport companies	<input type="checkbox"/> District Heating
<input type="checkbox"/> Sustainable communities	<input type="checkbox"/> Utilities	<input type="checkbox"/> Solar energy
<input type="checkbox"/> User behaviour	<input type="checkbox"/> ESCOs	<input type="checkbox"/> Biomass
<input type="checkbox"/> Education	<input type="checkbox"/> Architects and engineers	<input type="checkbox"/> Wind
<input type="checkbox"/> Other	<input type="checkbox"/> Financial institutions	<input type="checkbox"/> Geothermal
	<input type="checkbox"/> Other	<input type="checkbox"/> Hydro power
		<input type="checkbox"/> Other

Context

In Bulgaria and in other CEE countries building energy management has, at present time, been applied to a very small extent while the estimates show potential savings of about 15 % of present energy costs from application of energy management systems in buildings.

Objectives

The aim of this demonstration project was to show the benefits of energy management in public/municipal buildings as an option for energy savings and thus reduction of municipal energy costs in Bulgaria.

The objectives were the installation of a Centralised System for Monitoring and Control of Heat in 13 Schools and Kindergartens in the Town of Veliko Tarnovo.

Process

The system consists of 13 local systems for automatic control and information collection supplied to a central dispatching station comprising of a PC with the respective software.

A system for automatic control of feed water to the inside heating installation has been mounted in each substation. The system is based on a programmable microprocessor control device, sensors for respective temperature measuring and regulating motor-valve mounted on the internal heating installation (IHI) loop. The system performs automatic control and the data collection and the communication with the central PC is done by additional communication controller and a modem.

Financial resources and partners

The total project costs amount to 31 955 Euro, 100 % funded by EU PHARE Programme. The partners were the Regional Energy Centre in Lovetch in Bulgaria and Veliko Tarnovo Municipality, Bulgaria.

Results

	Indicators	Unit	Preliminary results	Final results
1.	Heat Savings	Gcal/year	606,25	879,84
2.	Savings	%	15,00	21,8
3.	Heavy fuel oil savings	T/year	83,34	120,95
4.	Price of heavy fuel oil	Euro/ton	101,15	101,15
5.	Heavy fuel oil cost savings	Euro/year	8429.84	12234,00
6.	Investment	Euro	31955	31955
7.	Pay-back period	Year	3,79	2,61

Lessons learned and repeatability

The project has a big replication potential in Bulgaria and in other CEE countries as at present building energy management has been applied to a very small extent while the estimates show potential savings of about 15 % of present energy costs from application of energy management systems in buildings.

Contact for more information:

Organisation / Agency: Sofia Energy Centre
 Main contact: Violetta Groseva
 Address: 51, James Boucher Blvd., 1407 Sofia, Bulgaria
 Tel: (+359 2) 962 84 43
 Fax: (+359 2) 962 84 47
 E-mail: eccentre@enpro.bg
 Web Site: www.sec.bg

Host organisation: Municipality of Veliko Tarnovo
 Financial organisations: EC Phare Programme