ENERinTOWN Case Study

Internet based Energy Controlling System in Mechernich, Germany

Client

City of Mechernich

Initial situation

The energy costs of ten selected buildings were about 470.000 Euro per year. To lower these consumption costs an energy management via Internet realised by a modern energy controlling system has been implemented.
Besides financial aspects ecological reasons (reduction of CO_2 emissions, etc.) were important.

Object data

The building pool consists of ten buildings of the City Mechernich, which is located near to Cologne.

The building pool includes:

1 grammar school:		8.157 m²
1 school for hadicapped children:		3.568 m²
2 secondary modern schools:	Mechernich	4.895 m²
	Satzvey	4.454 m²
3 primary schools:	Mechernich	5.279 m²
	Lückerath	1.341 m²
	Kommern	3.516 m²
2 adminstrations:		1.134 m²
		674 m²
1 indoor swimming pool:		1.635 m²

The effective area of these ten buildings is totally 34.653 m².

Realisation model

Johnson Controls offered a Performance Contracting project which includes the evaluation of the energy saving potential, the planning and realisation of the energetic measures, service, maintenance and operation of the heating system, and a financial model.

The City of Mechernich got a guarantee about the agreed energy- and cost savings. In case the agreed savings will not be achieved the contractor has to take over the additional costs. Should the savings be more than 10% higher than the agreed baseline the client will get 50% of the additional saved energy costs. The contractor will get, additional to the agreed contracting rate, the other 50%.

This proceeding assures that the contractor will operate the facility in a highly efficient and economic way to achieve the maximum of saving. Furthermore, the contractor is engaged to hold an annual audit to inform the client about the project performance.

Measures implemented

- Energy management via internet realised by a modern energy controlling system
- User motivation
- Investment for the replacement of the window facade of the grammar school
- Improvement of the building envelope
- Partial replacement of heat generation and heat distribution system
- Heating control optimisation
- Single room control
- Partial replacement of lightning system

Results

Investment costs:

Technical measures	280.000 Euro
Redevelopment of building envelope grammar school	410.000 Euro

Annual energy costs before:	470.000 Euro	(10.500 MWh)
Annual energy costs after:	410.000 Euro	(9.300 MWh)
Savings per year:	57.500 Euro	(12,3 %)

The CO_2 emissions can be reduced by about 3.600 t per year (530 t because of the technical measures) and 40.000 t during the 11-year-period of contract.

Benefits for the clients

- The investment costs of the technical measures are financed through energy savings
- Guaranteed cost reductions for 11 years
- If the contractor is not able to achieve the savings, the contractor has to pay the additional costs
- Quality of investments is ensured by a contract
- Competent service and maintenance lead to improved comfort

Assistance provided

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