

Solar panels used to heat water for a retirement home

As elsewhere in the country, public buildings in Svishtov have a considerable potential for energy conservation. The department of "Territorial planning, construction and investment policy" is responsible for improving the level of energy consumption of the city of Svishtov's public buildings. To optimize its decisions and investments, it has established a method to track the energy consumption of its buildings. This tool has helped to target a building that had a particularly high consumption rate of hot water: the retirement home. It is here that the department has chosen to invest in water heaters powered by solar energy.

The goals : Reduce the energy bills of the building and improve the quality of life for its occupants

Increasing comfort and energetic sufficiency

The retirement home in the town of Svishtov is the residence of 120 elderly citizens. In this type of structure, there is a general high use of hot water, a fact confirmed when monitoring the building's energy consumption. The costs due to this level of consumption are very high and difficult to bear throughout the year. The use of an alternative and less expensive way to produce thermal energy was believed to be both necessary and profitable. This is how the idea of installing thermal solar panels on the roof of the building came about, especially since it is flat. Additionally, the elevation of the building lends itself well to this energy form.



The solar panels

A profitable investment

The city proceeded with the installation of 25 solar panels in June 2006. The investment, covered in full by the township, amounted to 16 000 € or 640 € per panel, which is not as expensive as in France for example. This was an integral part of the municipal investment program. The return on investment of this project is estimated at 5 years, while the lifetime of the sensors is at least 15 years. It is therefore financially advantageous.

The temperature of the water warmed by the panels, each with a maximum power capacity of 1 kW, is 67°C (152°F). They operate from March to October and the rest of the time electricity is used to heat the water.

Background: In Bulgaria, electricity is derived mainly from equal proportions of coal and nuclear power, even if the share varies from one year to the next. Emissions of greenhouse gases resulting from its production are rather high, primarily due to the burning of coal.

Savings that are favorable to future investment

Before the solar panels were installed, the retirement home's electricity costs amounted to 1 050 € per month on average. The use of panels permits a savings of 250 € per month, be it 3 000 € or 45 000 kWh per year. The 24% financial savings are used for investment in other energy efficiency projects that will contribute in further limiting consumption and, thus, the dependence on fossil fuels. At the retirement home, taking measures to improve insulation and changing electrical systems used for heating water could be future considerations.

Note: The price per kWh of electricity in Bulgaria amounts 0.068 € / kWh (2007 data). This price may seem very low price compared to other European Union countries but it is rather high in terms of local purchasing power.

A Brief Overview

Svishtov

32 municipal buildings
Annual energy consumption : 220 tep
230 Teq CO2 emitted/year

The retirement home

120 residents
25 solar panels installed
Power per unit: 1 kWc

Estimated effects

24 % savings in electricity
Approximately 5 Teq CO2 avoided

Financially speaking

16 000 € invested
100 % financed by the municipality
Initial energy bill: around 1050 € per month
Savings achieved : around 250 € each month

Dates

Installed in June 2006

Who's in charge?

Svishtov's municipal department of "Territorial planning, construction and investment policy"

" This project improves the building's energy performance while enhancing the quality of life of its residents, who benefit from a superior comfort all throughout the year"



Community buildings and the sustainable management of energy in Svishtov

Energy monitoring and the national center for energy efficiency

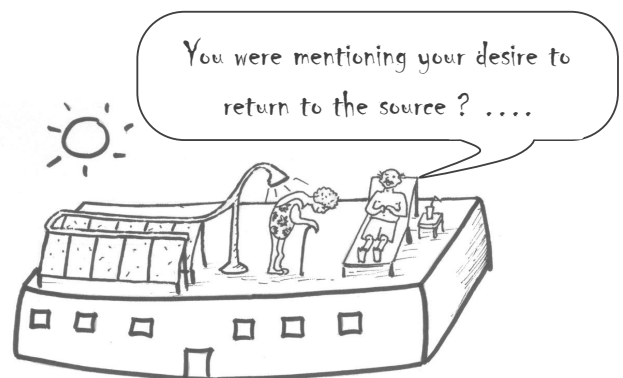
Tracking energy consumption, or monitoring, is at the origin of the concept of the project to install solar panels on the roof of Svishtov's retirement home. It has been carried out since 2002 with the assistance of computer software designed and delivered by EnEffect (the national center for energy efficiency) as well as the involvement of different actors (directors of retirement homes, schools, ...). They are the ones who keep records of the energy bill total, take readings off of counters, etc. So, it is a **communal database** which tracks the heat consumed, the number of days the building is used, its size, its date of construction, and so on. It is used to target priorities for action on municipal infrastructure and the type of intervention to achieve. It can also measure the effects of an action, which is one of the ways to evaluate if it is sufficient.

Heat renovation in municipal buildings

The work done on the thermal improvements in 4 day care centers, which care for children between the ages of 1 and 5, enables these establishments to provide a thermal comfort adapted to the 440 children who attend them while consuming less energy. An exterior insulation with a thickness of 5 to 8 cm now strengthens the lining and PVC windows replace the old wooden windows. The former heating systems, running on fuel oil, have been changed in favor of more efficient installations. The insulation has helped to **reduce the power required from on-site boilers**. Completed in September 2007, these works have not yet undergone an evaluation of their effects. The investment, also covered 100% by the city, is about 50 000 € for each nursery (for the insulation and windows). The project was conducted by the department "Territorial planning, construction and investment policy."

Communication

With participation in 2008 in the **Display campaign**, a poster campaign on the energy performance of public buildings, the city will have its first tools to inform and convince its population about the relevance and importance of the thermal renovations undertaken. This is also an opportunity to establish an awareness program for children directly affected by this construction centered around energy conservation.



Useful advice

"Setting up a system to monitor consumption is an essential first step towards energy efficiency", notes Ivan Mitev, the director of the department of "Territorial planning, construction and investment policy." Additionally, this type of project requires good cooperation between local actors (school principals, janitors of buildings where consumption is measured...) and municipal officials, since it is based on an exchange of information. Finally, the fact that the department of investment and planning of the city is responsible for such projects is a real asset mainly because the department is best placed to identify the technical and economic needs of municipal holdings and secondly for the weight that it holds within the administration..

Pour aller plus loin...

Website for the town of Svishtov :
<http://www.svishtov.bg/> (French version available)
 Articles about Svishtov on the ChallenGES Tour blog :
<http://challengestour.blogspot.com/>
 Website for the Display® campaign :
<http://www.display-campaign.org/>

Who to contact in Svishtov ?

Ivan Mitev (non anglophone)

« Territorial planning, construction and investment policy »

Head of office

2, Tsanko Tserkovski str. - 5250 SVISHTOV

Tel: +359 631/68 122 E-mail: mitev@svishtov.bg

Dimitrina Prodanova (anglophone)

Expert, Integration department

2, Tsanko Tserkovski str. - 5250 SVISHTOV

Tel: +359 631/68 119 E-mail: d_prodanova@abv.bg