

Education campaign reduces energy consumption in playschool

Summary

Educating staff, parents and caretakers at a Swedish playschool on energy conservation measures has reduced the school's annual energy consumption by 10 %.

This project carried out at the Lagrårdsgatan playschool shows that edu-

cation is an effective way of achieving energy savings through simple measures which have a short payback period.

Due to the success of this project in the Eskilstuna municipality, advice on energy conservation will be given to all playschools in the area.

Highlights

- Annual energy saving of 57 MWh
- Payback period of two years
- Increased awareness of energy conservation



Aim of the Project

Advice on energy conservation was given to playschool staff, caretakers and parents. The aim was to increase awareness of factors influencing energy consumption and to establish energy efficient habits and routines.

The long term objective was to provide advice on saving energy to all playschools in Eskilstuna.

This project was carried out in cooperation with the Municipality of Eskilstuna and the Swedish Energy Development Corporation.

The Principle

The education campaign at the Lagrädsgatan Playschool began with an explanation of the

project to staff, caretakers and parents. After this introduction an energy audit was carried out.

Energy education sessions were held for the three groups. The purpose of these sessions was to change "bad" habits and routines and to motivate the staff and caretakers.

By studying the energy consumption for different applications more knowledge about energy usage was gained. Advice was given on simple energy efficiency measures such as using set-back room temperature, optimising the use of drying cupboards and controlling lighting manually. Tips on changing routines and habits were also given in the move towards reducing energy consumption without any capital investment. The staff

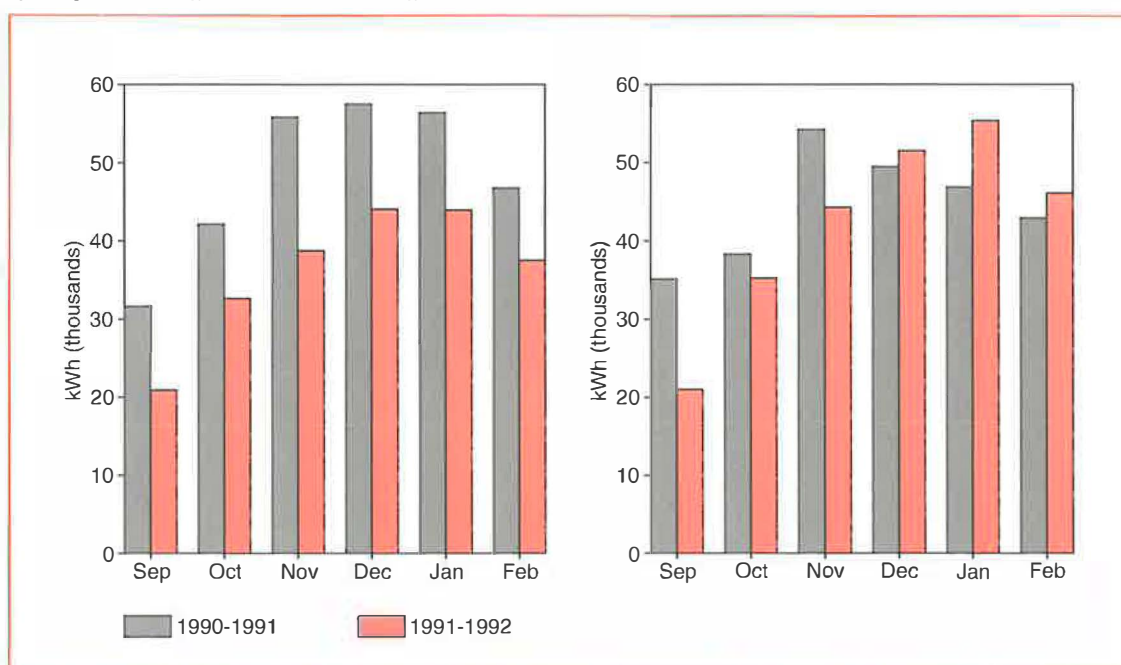
and caretakers showed great interest in the project and were keen to receive monthly energy statistics from the energy supplier to check on electricity consumption. The children were made responsible for reading the indoor temperature each day and this task was carried out with much enthusiasm.

The Situation

Lagrädsgatan playschool was selected due to its design and usage. It contains six classrooms and had an annual electricity consumption of 550 MWh when the project started.

An energy survey of Lagrädsgatan Playschool showed that the indoor temperature was too high and regulated by opening the win-

Figure 1: Total energy consumption for a six month period 1990-91 and 1991-92. a) Without correction of temperature differences. b) With differences corrected.



Item	Project start [kWh]	Project end [kWh]	Savings [kWh]	Difference [%]
Kitchen appliances	352	242	110	-31
Lighting	216	123	93	-43
Domestic hot water	452	446	6	-1
Drying cupboards	53	22	31	-58

Table 1: Examples of achieved energy savings.

dows. The survey also revealed that the hot water was not hot enough so that staff let the tap run in the hope that it might get warmer. The timer for the extraction hood over the cooker in the kitchen did not work which meant that the extractor was on all day. Drying cupboards were used inefficiently and the lighting was poorly controlled. Operating and maintenance routines were also judged to be not good enough.

The energy consumption was monitored from May 1990 to May 1992 by using statistical electricity readers connected to a central station for data storage. The playschool had 30 substations monitoring, for example, heating and cooling, domestic hot water, energy used in the kitchen, the general electricity consumption and temperature.

Subsequent recordings have shown reduced consumption for virtually every item selected. Consumption relating to lighting and drying cupboards has been halved.

An energy survey carried out at the end of the project showed that the information given to

the staff was effective. The staff's knowledge of energy conservation has increased. This is shown by well thought-out proposals made by the staff to make the playschool even more energy efficient.

The participants in the project met in spring 1992 to evaluate the results. As shown in

Figure 1, using simple measures only, such as providing information, it was possible to decrease energy consumption by 10 %, giving the playschool a yearly consumption of 493 MWh. Savings are shown in Table 1.

The Organisation

Eskilstuna Energi & Miljö AB is a utilities company owned by the Municipality of Eskilstuna. The company supplies electricity, district heating and water, and manages sewage and waste disposal.

The company has 280 employees and an annual turnover of around SEK 600 million, 80 % of which comes from the sale of energy. It also offers advisory services on energy and the environment. Energy efficient and environ-

Table 2: Electricity consumption and cost before and after the education campaign.

	Power [kW]	Energy [MWh]	Cost [SEK]
Before measures			
Maximum power	144	-	13,000
Peak load cost	144	-	34,600
Energy consumption	-	550	141,100
Energy tax	-	550	39,600
Total	144	550	228,300
After measures			
Maximum power	144	-	13,000
Peak load cost	144	-	34,600
Energy consumption	-	493	126,700
Energy tax	-	493	35,500
Total	144	493	209,800

mental products are sold in its business centre.

Economics

Annual electricity consumption was reduced by 10 % (57 MWh), with an average price of SEK 0.32 per kWh this is equivalent to a saving of SEK 18,000 as shown in Table 2. The cost of the education campaign amounted to SEK 36,000, but this can be carried out much more economically in future. This gives a simple payback period of two years.

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* IEA: International Energy Agency
OECD: Organisation for Economic
Co-operation and Development

IEA

The IEA was established in 1974 within the framework of the OECD to implement an International Energy Programme. A basic aim of the IEA is to foster co-operation among the 23 IEA Participating Countries to increase energy security through energy conservation, development of alternative energy sources, new energy technology, and research and development (R&D).

This is achieved, in part, through a programme of energy technology and R&D collaboration currently within the framework of 35 Implementing Agreements, containing a total of more than 60 separate collaboration projects.

The Scheme

CADET functions as the IEA Centre for Analysis and Dissemination Demonstrated Energy Technologies for all IEA CADEET member countries.

This project can now be repeated in CADEET member countries. Parties interested in adopting this process can contact their National Team or CADEET.

Demonstrations are a vital link between R&D or pilot studies and the end-use market. Projects are published as a CADEET 'Demo' or 'Result' respectively, for on-going and finalised projects.

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