

Technical information

Solar cells

One part of the energy work has been to install a solar cell array measuring 131 square meters on the south side of the building roof. The maximum output is 18.3 kWh. The energy production is estimated to about 17 570 kWh/year. That is to say approximately 10 % of the estimated annual energy consumption. The solar cells are divided into five separate groups taking the shadow from the roof into consideration. The direct current from the solar cells is connected to five individual, 3-phase inverters used to convert to 400V AC that have been connected to the school's ordinary electrical power network. Any surplus of power also powers the one older building that is left, containing the gymnasium and the



Solar cells cover 131 square meters of the school roof.

dining room. That amounts to a reduction of the energy cost as well as a lower emission of carbon dioxide. The solar cells will generate energy that besides the investment

will not cost the municipality anything for the school's estimated lifetime of 35 years. The sun directly supplies the school roof with sunbeams in 8 minutes, completely for free. There is a display in the entrance that currently shows the following variables.
*The total effect of the absorbed solar energy in Kw.
* The produced energy a day in kWh.
*The produced energy since the start of the unit in kWh. The parameters will be shown on the school website and are also available in the school's educational unit. The solar cell unit has been financed through a state resource, "Off-rotbidraget", from LST/the National Housing Board with 70 percent of the investment.

The educational unit for solar- and wind energy

There is a smaller educational unit for solar and wind energy in Vargbroskolan. It includes a vacuum solar collector and an accumulator tank containing 500 liters. Diverse temperature sensors are installed for studies on the unit. The unit heats the so-called green room and hot tap water in certain class rooms, bathrooms and more. A smaller wind

generator on the school roof with the effect of 400 W charges a 12Volt battery bank (gel cells). Below the wind generator there is a bar with an indicator for wind direction and velocity. There is also a UVB sensor for measuring UVB-radiation. An alarm indicator will be activated on the occasion of high levels. Some of the variables that can be studied in the system are battery

voltage, capacitive current, wind velocity, temperature in/out of the solar collector and the temperature in the accumulator tank. The internal computer network will also show schematic images of the different variables. An experimental module for laboratory experiments will be installed sometime in the spring.



A smaller wind generator charges a battery bank in the educational unit.



The solar collectors on the school roof are a part of the educational unit.



The accumulator tank.