

CAPTURING THE NORDIC SUMMER SUN IN GRÖVELSJÖN MOUNTAIN STATION – Sweden

SUMMARY

Project description: To explore the possibilities for production of solar energy in the Swedish mountain area, with the long term goal to produce our own renewable energy at all STF mountain stations.

Project type: Sun, Education in Sustainability

National Association: Svenska TuristFöreningen (STF)

Project location: STF Grövelsjön mountain station

Estimation of number of reduced tonnes of CO₂: 1.4 tonnes of CO₂ per year

Total funds requested: £10,000

Total project cost: £24,000

Annual £ saves and ROI (Return On Investment): The plan is to sell electricity back to the grid and one of the objectives of the project is to investigate the possibilities to save money over time by producing own solar energy in the mountain area. However, the main purpose of the project is not financial, rather to give our guests greater possibilities to discover the Swedish mountains in a sustainable way.

Why this project should be funded ahead of others: The nature is the main reason for traveling to the Swedish mountains and for many, the nature enables a greater awareness for problems such as climate change and environmental degradation. Grövelsjön mountain station is no exception. Many people visit the area for its surroundings and many guests are interested in the high environmental standards and the creative solutions developed at the station. Therefore, it is the right place to set up this project, both for the great environmental knowledge among the staff, but also for its suitability to communicate with guests about these issues. The use of solar energy in larger scale in the mountain area and in the STF network is still in its infancy, but can provide great potential. This project can help us with the first steps on the road to become self-sufficient on renewable energy in the future.



DETAILED PROJECT INFORMATION

STF Grövelsjön mountain station, with almost 22.000 overnight stays in 2015, is located in the North West corner of Dalecarlia in Sweden. Grövelsjön Mountain Station is a frontrunner when it comes to environmentally smart solutions, being one of the world's most environmentally certified facilities in its kind.

Grövelsjön has won a number of prizes for its high environmental standard. Examples of pioneer steps that Grövelsjön has taken during the years:

1985, they started to use heat from nearby mires for its heat and hot water. Today, they use geothermal heating.

2000, they were among the first hotels in Sweden receiving the Nordic Ecolabel

2002, they bought the first available environmentally sound four-stroke snowmobile, running on greener fuel technology and thereby saving CO₂.

2013, they installed a charging station for electric cars, all decorated in typical Dalecarlia "Kurbits" pattern, making it possible for everyone with electric cars to visit the area.

The dedicated staff at Grövelsjön also put a lot of effort in making it easy for guests to discover the nearby area and the facility in a sustainable way. All rooms have a recycling cupboard, the restaurant uses primarily local and ecological ingredients and all organic waste is composted. You can travel to the mountain station with public transport and they offer a range of ecotourism activities.

Now, it is time for the next step in Grövelsjöns green development. The plan for this project is to explore the possibilities for solar energy in the mountain area. The experiences from the project should be used at STF mountain stations in the whole mountain area. The project will also give us many opportunities to communicate about sustainable solutions, climate change and renewable energy.

In this project, we will cover part of the roof facing south on one of the stations buildings with solar panels. Our ambition is to double the amount that we receive grants for. The example below and what we calculate for in this project description is based on first price (£10.000).



Estimated roof space to be used is 100 m². The roof pitch is about 38 degrees and the roof is almost due south. Calculated after standard measurements from the Swedish Energy Authority, the 100 m² solar cells would produce about 14.000 kWh annually. The material cost is about £20.000. Swedish authorities offer 30% reduction on solar cell installations, which we will apply for if the project is selected.

Estimated CO₂ savings is based on the Nordic electricity market, which Sweden belongs to. The Nordic electricity generation produces on average 100 g CO₂ per kWh. Based on this, the electricity generated from the solar panels in Grövelsjön should save 1.4 tons of CO₂ annually.

At the time of application, the exact method or material is not decided. An important part of the project start is to investigate the best options for the current geographical location and climate.

A part of the project itself is also to install monitoring equipment, making it possible to measure the production and how much the facility can sell to the grid. This also includes to develop a monitoring plan.

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