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Swiss solar energy's growth curve is as steep as the Alps

At its current rate, photovoltaic solar energy is on course to meet its objectives for 2050. The price of solar panels is falling, and their effectiveness has doubled. Wind farms are emerging as an ad hoc winter energy source.

Around three terawatt hours (TWh) of solar energy is produced in Switzerland, a little over the electricity produced annually by the former nuclear power plant at Mühleberg (BE).

This figure represents approximately six percent of the electricity consumed in Switzerland, a pretty mediocre share by European standards. In future, the roofs and facades of Swiss houses could produce 67 terawatt hours of solar energy a year, Swissolar estimates. Some 700 megawatts' (MW) worth of photovoltaic panels were fitted in 2021. This figure is set to reach a record power rating of 1,000 MW in 2022, in the estimation of Jean-Louis Scartezzini, professor at EPFL. If this trend continues, the Swiss Confederation's objective of producing 34 terawatt hours of photovoltaic power by 2050 could be met, he believes.

Total electricity consumption is currently 58 TWh, with 18 TWh coming from nuclear power and 10 TWh

from hydroelectric dams in Valais. The determining factors in the expansion of solar power are the efficiency and the price of solar panels. Their price has fallen by over 90 percent in the past 12 years and their energy yield has doubled in 30 years. An EPFL study showed that simply making use of all south-facing roofs in the country could meet more than 40 percent of Swiss electricity demand. The first step in extending solar power will be to set up large-scale solar power stations. "The bigger it is, the cheaper it becomes," says Valais engineer Arnaud Zufferey. The cost price of one kWh produced on a large roof ranges from three to five centimes. This price triples for a villa.

A panel of differing opinions

Ever since the second amendment to the Federal Act on Spatial Planning in 2018, the only formality required

In Switzerland, enough sunlight falls on the south-facing roofs alone to cover 40% of the country's energy requirements. Facades are also increasingly being used, such as here in Winterthur.

Photo: Keystone

when fitting solar panels is to fill out a registration form. On the other hand, the process of installing solar panels in locations other than buildable areas and buildings is long and drawn out, because there is no clear legal basis for it. It is precisely these rules that the parliament decided to relax (see main text on page 4). Yvan Laterza, who runs a solar panel installation firm in Martigny, allows for 20 hours in order to get all the legal paperwork done before beginning an installation. "The fire brigade or chimney sweeps sometimes demand certain documents, which have to be in paper form, so that takes time," he says. In Geneva, independent engineer François Guisan highlights the obstacles that can arise with regard to protecting national heritage. These restrictions can even apply to buildings that were built in the 1960s.

Wind: solar's cousin

Alongside solar energy, there is wind energy. More wind energy is generated in the winter, at a time when photovoltaic energy production drops. "Austria has over 1,400 wind turbines and Switzerland has around 40; however, our national geography is very similar to theirs, and the Austrians are not renowned for destroying their natural environment," remarks Scartezzini. Switzerland's potential for wind energy production was estimated at 5 TWh per annum in a study carried out by the Swiss Federal Office of Energy in 2012. "However, under the current legal framework, where wind turbines could potentially also be set up in forested areas, this estimate has been increased." This potential is now rated at 30 TWh. (SH)

