



Rural Farm Galley - Ecuwillens, Switzerland

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Roof integrated and coloured Photovoltaic modules

Solar

What is the solution?

The rural house pilot project in Ecuwillens/FR, dating back to 1859, uses colour modules terracotta developed specifically by the CSEM of Neuchâtel and Issol Switzerland for sites protected at the level of cultural heritage. The 27.2 kWp and 262 m² PV installation on the roof of the farm. The building generates, with reduced efficiency, 16'500 kWh/year or about 26% of the energy consumption of 62'500 kWh/year. By demonstrating that the energy transition does not take place to the detriment of architectural quality, this project is therefore breaking down the ultimate barriers to the widespread deployment of photovoltaics.

Why does the solution work in terms of compatibility with conservation and technical aspects?

The farm consumes 2'500 l heating oil or about 27'500 kWh/year fossil energy and emits about 7.5 t CO₂ per year. For the power supply was a 27.2 kW strong Solar system optimally integrated into the roof surface. It supplies about 26% of the total energy demand. The reddish-brown colour reduces the output by approx. 39%* or round 10,800 kWh/year to around 16,500 kWh/year from Total energy requirement covered by the solar system about 39%. With better insulation, the very high energy consumption could be massively reduced.

Description of the context:

For the owner of the farm of Ecuwillens - built in 1859 - it would hardly have been possible to produce his own electricity because the strict monument protection regulations of the canton of Fribourg prohibit the installation of terracotta-coloured solar modules in the village of Ecuwillens. Thanks to the

research work carried out since 2014 by the CSEM in Neuchâtel in collaboration with Issol Switzerland, it was nevertheless possible to install a solar plant.

Pros and cons of the solution:

After replacing the traditional roof tiles, the new solar modules serve as weather protection, produce renewable energy and ultimately contribute to the preservation of the environment and the local building culture. For this aesthetic innovation, the Galley farmhouse received the Swiss Solar Prize 2018.

Type of data available (level of information, simulation):

Solaragentur Prix Solaire Suisse, Swiss solar prize 2018, Maison rurale Galley, 1730 Ecuwillens/FR. Link (German and French):

https://www.solaragentur.ch/sites/default/files/solarpreispublikation2018_s.82_83.pdf

BIPV module: Product: Solrif® XL as laying system (the PV tile is no longer available) Cell technology: Mono-crystalline Front glass type/customization:

Layer of colour applied on the inner side of the textured front glass Cell colour:

Terracotta, semi-matt Dimensions: 1530×542 mm Power: 90 Wp Specific power: 120 Wp/m

Are there any related publications or pictures of the solution?



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