TVP SOLAR

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Decarbonizing District Heating: 230 tons of CO2 and over 1 GWh thermal produced in 2 years at Geneva's SolarCAD II solar thermal plant

The renewable company TVP Solar and the Geneva utility SIG have just published the performance results of the SolarCAD II solar thermal district heating plant.
After 2 years of uninterrupted operation, this thermal plant has exceeded expectations by actually delivering 10% over the estimates. The results of this showcase plant are key to duplication across Switzerland and beyond.

100% CARBON-FREE THERMAL ENERGY ALL YEAR LONG

The real performance results of the SIG SolarCAD II thermal plant, 2 years after its installation on the SIG site in Le Lignon, are now published. These data testify to the excellent efficiency of the flat plate vacuum collector technology which exceeds the objectives set prior to installation in 2021.
Inaugurated on February 25, 2021 in the presence of Mrs. Simonetta Sommaruga (Former Head of the DETEC - Federal Department of the Environment, Transport, Energy and Communication - link to the article), the SIG SolarCADII plant is the result of a collaboration between the Geneva-based company TVP Solar SA and SIG.

SolarCAD II figures

Solar thermal power plant using flat plate vacuum collector technology

400 collectors

784 m² of panel surface

Heats water between 75° and 90° all year round

The TVP panels supplied 100% carbon-free thermal energy at more than 80°C year-round, even in winter, directly injecting heat into the largest district heating network in the canton, the CAD SIG, to which more than 60,000 households are connected.
At the time of its installation, the 800 m² plant was expected to have an injected solar production of more than 0.5 GWh per year.

PERFORMANCE OBJECTIVES EXCEEDED

This installation, a showcase for Switzerland, has been monitored for the last 2 years by the Laboratory of Solar Energy and BuildingPhysics (LESBAT) of the HEIG-VD.
At the beginning of 2023, the results of the solar heat delivered to the district heat network (“real production”) have shown that more than 1.1 GWh-th of renewable heat has been injected to the network, allowing reduction of more than 230 tons of CO2, substituting natural gas.

These measurements have shown that the annual target initially set via performance contract has been exceeded by 5-10% each year. This monitoring will continue through 2023 in order to keep measuring the real production, despite the fluctuations in ambient temperatures and radiance over the seasons in Switzerland.

A TECHNICAL AND OPERATIONAL SUCCESS

Initial planned production		Actual production recorded
516 MWh/year	+5-10% per year	1,1 GWh/ 2 years

CO2 displaced in 2 years	Solar plant maintenance / cleaning
230 tons	0 hours

Monitoring a pilot project like this allows TVP Solar to not only measure its system’s efficiency and performance, but also its ease of operation, a prerequisite for replication at a larger scale.
Here again, the results are positive, since thanks to fully automated and remotely accessible operation, the solar power plant has required very little human intervention and no cleaning since its installation, and still outperforming expectations.

Christian Brunier, General Manager of SIG, is delighted with these positive results and adds, "as an industrial player committed to the energy transition, we must promote this type of new generation installations, which, even if they are small, contribute to increasing the share of renewable energy in the network and to reducing CO2 emissions".

A LARGE-SCALE SOLUTION FOR RAPID DECARBONIZATION AND MOVING AWAY FROM FOSSIL FUELS

Piero Abbate, CEO of TVP Solar underlines that in view of these results, "the TVP Solar technology fits perfectly with the energy master plan (PDE) of the canton of Geneva, which foresees a production of 100 GWh of solar thermal energy by 2030. It offers locally produced and fully decarbonized energy while providing protection from the significant volatility in fossil fuel costs experienced in 2022."

Meanwhile abroad this solution is already being replicated on a megawatt scale, with the installation of a 7'000 m² (4.5MW) solar power plant in Germany and 48'000 m² (37MW) in the Netherlands. These 2 countries have subsidy programs for large-scale solar thermal installations that fully contribute to the energy transition and to the regaining of energy sovereignty that has become a strategic European issue since last year.

For the moment, there is no similar program in Switzerland, which is necessary to accelerate the adoption of such solutions. Mr. Abbate adds to this, saying that, "the potential in Switzerland is great, with more than 1000 CAD networks on the territory that could benefit from the very good summer solar availability. With TVP, Switzerland could preserve 100% of the wood resource largely used for CAD purposes by solar thermal energy and even cover the entire need during the winter."

ABOUT TVP SOLAR

TVP Solar is a Swiss company providing carbon-free solutions to one of the world's most pressing energy challenges: decarbonization of large-scale heat consumption. Established in 2008, TVP has received over CHF 100'000'000 investment to design, develop and manufacture its own high-vacuum solar thermal panels based on proprietary, patented technology.

ABOUT SIG

SIG is a Swiss provider of local services. It supplies 225,000 customers throughout the canton of Geneva with water, gas, electricity and thermal energy. It processes wastewater, recovers waste and offers services in the fields of energy and telecommunications. Its activities aim to promote efficient and optimised consumption, thus contributing to sustainable development.

PR Informations

Link to download the pictures
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