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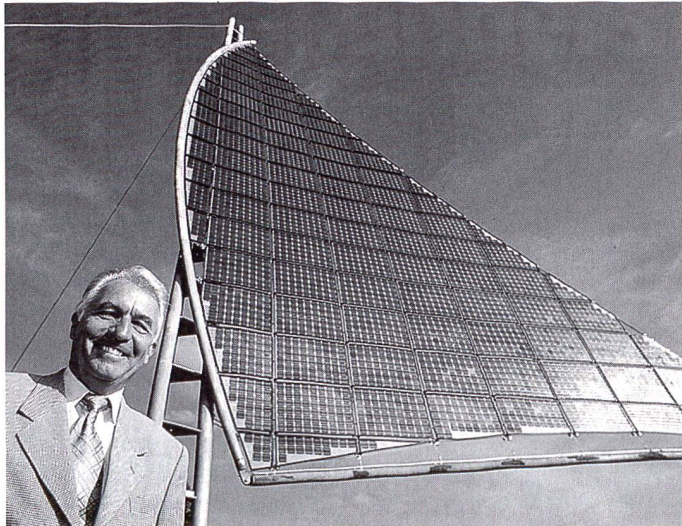
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PHOTOVOLTAICS

The power of art



Roland Kormann and the solar sail

In the municipality of Münsingen near Berne, a giant solar sail is producing solar energy.

Passengers on the train from Berne to Thun rub their eyes in amazement at the sight of the Münsingen psychiatric clinic. In the middle of a green meadow, a giant sail reaches towards the sky, though there is no sign of a ship and Lake Thun is miles away. The thing that amazes passengers is the Münsingen Solarsail, a 22-metre high photovoltaic power plant.

A symbol. "This combination of a power plant and a work of art is intended to highlight the benefits of renewable energy to residents and those passing through," says Roland Kormann, president of Münsingen's Solarsail Society. The idea came from Kormann's son Stephan and Bernese architect Peter Schürch. "The elegant shape of the sail is a metaphor for movement and lightness. It stands as a symbol for the sympathetic treatment of the fundamentals of our lives."

The initiator of the project is the Münsingen psychiatric clinic, whose administrative director was Roland Kormann until his retirement at the end of 2003. Since 1998, the clinic has had an environmental concept for all areas, such as care, sheltered workshops and agriculture. The municipality of Münsingen supported the project with a generous grant. The regional centre in the Aare valley is very active in the areas of energy and the environment. In 1997 it received the *Veloville* (bicycle town) award and has been designated an *Energy Town* (see box). The Swiss Federal Office of Energy, the canton of Berne and 80 companies, organisations and individuals also contributed to the costs of CHF 300,000.

A spectacle. The Solarsail consists of hundreds of solar cells. They collect the sunlight and produce about 6500 kWh of electricity per year. At midday the glass panels are a shimmering silver and at sunset they reflect the dark blue of the evening sky: a breathtaking spectacle!

The mast consists of three steel tubes held together by plates. The sail has a surface area of 90 m². It is secured to a curved tube attached to the mast and a horizontal boom at the bottom, with flexible steel cables supporting the photo-

voltaic elements. This gives the sail a curved shape capable of withstanding any storm.

No charge. The panels are fibreglass laminates. The solar cells are bonded to the glass panels using a special laminating process. The monocrystalline cells have a comparatively high efficiency. The modules are connected in series; two DC/AC inverters convert the DC current which is generated as alternating current. The output of the plant is 8.2 kW.

The plant is operated by the Solarsail Society. "Thanks to the 100% financing we haven't had any capital costs," says Stephan Kormann. The solar electricity is virtually free, though upkeep, maintenance and insurance still have to be financed. "This is why we sell the electricity to the Münsingen municipality's eco-power network." Since 1999 well over 30,000 kWh have been generated.

The awards. The Solarsail has won a number of awards, including the *special eta prize* from the Swiss electricity industry and the *Design Award* from the International Energy Agency (IEA). The plant also bears the Swiss eco-power label *naturemade star*.

"The electricity produced is important because even the production of small amounts of electricity makes a contribution to sustainable energy production," says Stephan Kormann. The symbolic effect is key. "This beautiful plant demonstrates that forward-looking technologies can be integrated attractively everywhere – even in works of art."

Swiss Energy Towns

The Energy Towns programme supports the Confederation's energy goals and stimulates investment.

The focal point is the reduction of fossil fuel consumption and the use of renewable energy in the public sector. Every municipality can become a member of the *Energy Towns* association. External consultants work with the municipal authorities to highlight possible actions, for example in the areas of transport or energy use in buildings. Subsequently, any measures which have been decided upon or implemented are evaluated using a standardised inventory. If a community scores at least 50% of the maximum number of points, it can apply for the label. The progress of the measures is checked periodically. More than 110 communities have been awarded the label and one in four inhabi-

tants of Switzerland now lives in an Energy Town. Every year electricity consumption is being reduced by 615 million kWh and CO₂ emissions are down by 238,000 tonnes. With a total budget of CHF 2.5 million, the programme stimulates investment of CHF 40 million and secures 400 jobs.

110 members:
Energy Towns

