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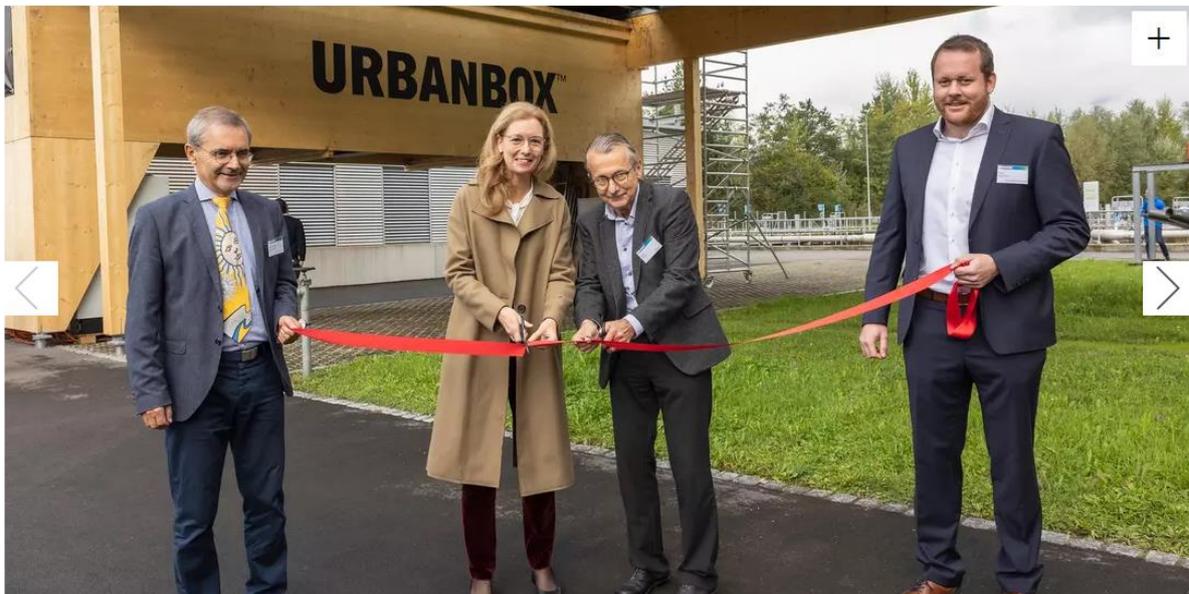
Producing solar power without a roof: the Urbanbox in Bendern



With a retractable photovoltaic roof over sewage treatment plants, parking lots or roads to produce electricity: That's the idea behind the Urbanbox. Yesterday of the lightweight photovoltaic system at the ARA wastewater treatment plant in Bendern. Photo by Daniel Schwendener

First lightweight photovoltaic system opened at the ARA Bendern wastewater treatment plant

A patent from Liechtenstein aims to revolutionize solar power production in urban areas: the Urbanbox.



Opened the Urbanbox: Franz Baumgartner from ZHAW Winterthur, Minister of Economics Sabine Monauni, Urbanbox founder Arthur Büchel and Peter Segmüller from the Climate Foundation Switzerland (from left). Image: Daniel Schwendener

"Photovoltaics on the roofs alone is not enough, there also needs to be photovoltaics next to the roofs." With these words, Liechtenstein entrepreneur Arthur Büchel explained the basic idea of his Urbanbox yesterday morning. In his opinion, there are countless unused areas in urban areas that could be used for solar power generation: Parking lots, sewage treatment plants or even roads and highways. Büchel plans to cover all of these areas with photovoltaic roofs. Two years ago, Büchel presented his idea for solar power production at the "Investor Summit" and won second place. However: "An idea is not enough, you need a proof of concept," says Büchel. Now Büchel and his company Iworks AG have been able to open the first Urbanbox at the ARA Bendern wastewater treatment plant.

Demo plant produces electricity for twelve houses

The demonstration plant is equipped with a retractable photovoltaic sunroof consisting of several solar module supports. This allows the roof to be retracted in the event of a storm or snowfall, reducing the load on the substructure by more than 70 percent. This makes it possible to manufacture the frame of the Urbanbox in lightweight wood. And the box itself could be completely prefabricated and tested in the factory. The demonstration system's electricity production is about 50 kilowatt-peak. "This can supply about 12 single-family homes," Büchel said. But for the future standard model, the entrepreneur plans to increase the output to 80 kilowatt-peak.

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Monauni stresses importance of "pioneering spirit"

The implementation of the Urbanbox was supported, among others, by the State of Liechtenstein, the Swiss Climate Foundation and Innosuisse, the Swiss Agency for Innovation Promotion. Accordingly, Liechtenstein's Minister of Economic Affairs, Sabine Monauni, was allowed to cut the ribbon to open the facility. For Monauni, the Urbanbox is an "expression of the strength and innovative power of our business location." And she emphasized how crucial such innovative approaches are to finally say goodbye to fossil fuels. Because government resolutions alone would not be enough to achieve the energy turnaround. "We also need the pioneering spirit of our entrepreneurs," said the Economics Minister.

Test in Megacity Second System planned in Singapore

Some may be surprised that a plant intended primarily for use in urban areas is undergoing its first test in village-like Liechtenstein. But the second plant is already in the planning stage - in the megacity of Singapore. Thomas Reindl, professor at the "Solar Energy Research Institute" (Seris) in Singapore, explained what significance the Urbanbox could gain in the city state.

In an input presentation, the professor explained what Singapore's biggest problem is in terms of energy transition: "Where do we find the space for photovoltaic plants?" That's because unused land is scarce in the city-state and correspondingly expensive. "You have to imagine that Singapore's area is only four times larger than Liechtenstein, but its population is 150 times larger," Reindl said, illustrating the crowded conditions. However, the researcher sees a solution in the urban box: With these systems, solar technology could be applied cost-effectively in the city of millions by stretching photovoltaic roofs over streets, parking lots and canals. "Singapore will one day be known as the place with the highest solar density," Reindl stated confidently.

But the first step will be a plant. Thus, Arthur Büchel, on behalf of Iworks AG, and Thomas Reindl, representing his institute, signed a letter of intent for the second Urbanbox to be built in Singapore.

From the solar ski lift and the solar luxury watch

For 15 years, Arthur Büchel has been tinkering with ways to advance solar power production beyond rooftops. Together with Franz Baumgartner, a professor at the Zurich University of Applied Sciences (ZHAW), he implemented several lightweight photovoltaic projects - including the first so-called solar ski lift in the Grisons village of Tenna. "I met many thousands of people with big ideas. But only very few brought them to the ground," Baumgartner said. "Arthur, you are one of them."

Another capacity solar technology was also in Bünden yesterday to congratulate Buechel: Christophe Ballif, head of the photovoltaic laboratory at the EPFL in Neuchâtel. In his input speech, he pointed out, among other things, the importance of Arthur Buechel's work for solar research. He was also able to give a concrete example: A watch recently produced by the luxury brand Tissot with integrated solar modules is based on technologies advanced by the Liechtenstein entrepreneur.