

# The **HORIZON** solar folding roof for parking areas.



ENERGY FOR MANKIND

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## **Car parks can be transformed into solar power plants with the worldwide unique **HORIZON** solar folding roof.**

This is the first solar folding roof that enables a **double use of infrastructure areas for solar energy generation** without significantly restricting actual operations. This is thanks to its lightweight construction and the folding mechanism.

It enables the decentralised generation of your own electricity that's sustainable and makes you independent.

## Patent.

The solar folding roof protects itself with a patented folding and retracting mechanism. An algorithm automatically retracts **HORIZON** into a protected position in the event of a storm, hail or snowfall. That's a great advantage, especially for electricity generation in winter, because the solar modules always remain free of snow.





## Nice.

The elegant, appealing design of the **HORIZON** solar folding roof enhances any usable area. It leaves room for design and therefore tells its own local story. **Infrastructure-integrated photovoltaics at its best.**

The wide spacing between the columns ensures that **no parking spaces are lost**. The solar panels are installed at great height, which leaves the traffic areas free – including for larger vehicles.

## e-mobile.

Since electric cars are gaining in popularity, **HORIZON** comes with the charging infrastructure for **electric mobility**. There's no need for an additional supply line. This sensible use of synergies eliminates expensive development costs.





## P2G mobile.

Power-to-gas (P2G) uses electricity from renewable energies for transport. At **HORIZON**, P2G production supports the **increase in internal consumption**. In addition, the site appears in route planners, thus attracting additional parking customers.

## Shady.

The shade under **HORIZON** reduces the build-up of heat inside vehicles in the summer. This **increases comfort for car park users** and the energy efficiency of the cars themselves. It also reduces the heat-island effect in cities.





## Image.

Solar folding roof investors are in the public eye thanks to **HORIZON's** positive image transfer. They are considered **innovative, future-oriented and sustainable**. This binds stakeholders more closely to the company and helps find new ones.



# Your solar folding roof project.

## **How big is a solar folding roof?**

The project should comprise a minimum area of 1000 m<sup>2</sup> or approx. 120 kWp of installed PV power. Since it is a modular and scalable system, there are no limitation to its size.

## **What is an ideal layout for a solar folding roof project?**

A rectangular area is ideal, but it can also be constructed in a L-shaped layout. Curves, angles and arch shapes cannot be constructed.

## **How high are the electricity generation costs for a solar folding roof project?**

In the Central Plateau and the foothills of the Alps, you can expect generation costs of between 12–16 cents/kWh. This already includes the basic service contract and amortisation over 25 years, but not interest on capital (calculated with an IRR of 0 %).

## **How does retracting the roof during storms, hail or snow influence the yield?**

This value is precisely calculated in planning using local weather data. Average yield reduction is around 3 percent. A slight yield increase can be expected in snowy regions in winter because the modules are retracted when snow falls and thus remain free of snow.

## **How high are the investment costs?**

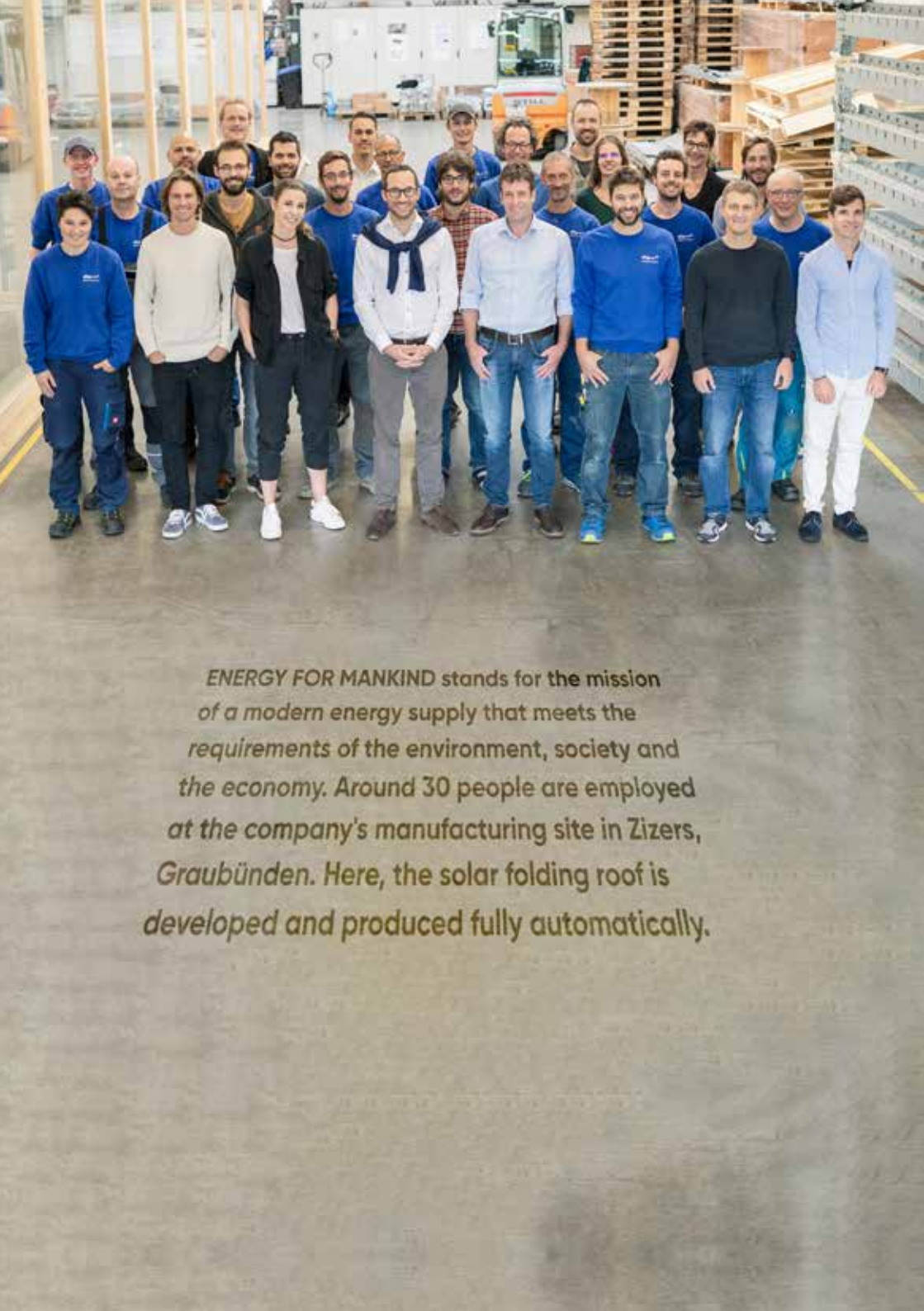
We estimate system costs of CHF 2400/kWp, including installation. In addition, there are location-specific costs for foundations and network connection..

## **What is the lifespan of a solar folding roof?**

The solar folding roof is designed for a service life of 25 years. A performance guarantee of 25 years is also given on the modules.

## **How do I start a solar folding roof project?**

Based on your location, we create an initial assessment and offer a preliminary study. This comprehensive document fully clarifies technical feasibility, authorisation as well as the economic efficiency. The preliminary study serves as a decision-making basis for the client. The fixed price it contains is binding and makes budgeting reliable.



*ENERGY FOR MANKIND stands for the mission of a modern energy supply that meets the requirements of the environment, society and the economy. Around 30 people are employed at the company's manufacturing site in Zizers, Graubünden. Here, the solar folding roof is developed and produced fully automatically.*

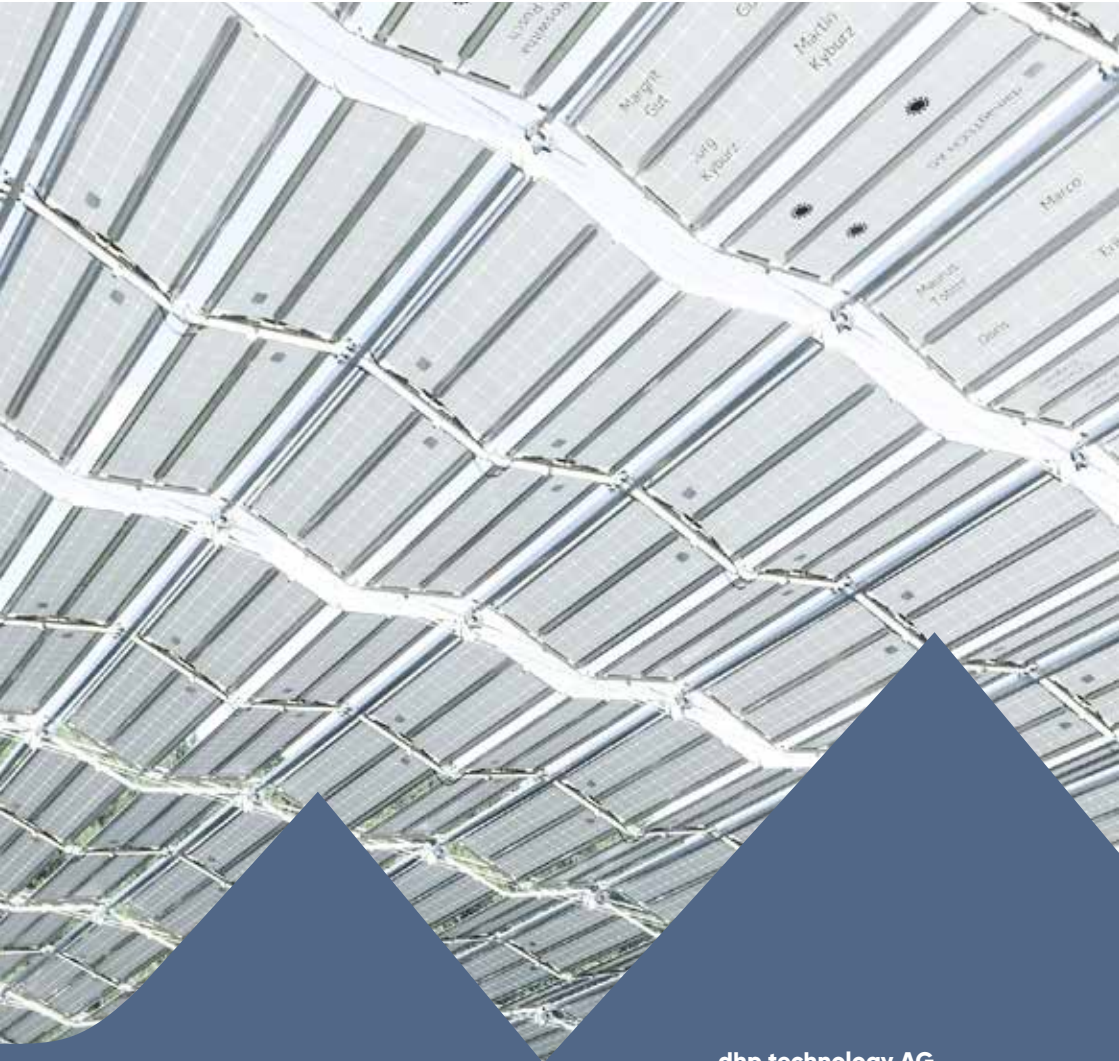
## About dhp technology.

The solar folding roof project was supported by the Swiss Federal Office of Energy, the Graubünden Foundation for Innovation, Development and Research, the "Horizon 2020" funding programme of the European Union, the Swiss Climate Foundation and IWB Basel. Various awards – including the **Swiss Solar Prize 2019** and the **Watt d'Or 2019** – attest to the lighthouse character of the solar folding roof.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 848271.

# Why not become a solar folding roof pioneer, too?



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