

# SOLAR ENERGY MADE IN AUSTRIA

INNOVATIVE SOLAR SOLUTIONS FOR ALL TYPES OF ROOFS



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DID YOU KNOW...





# DAS ENERGY

SINCE 2010

## Innovative photovoltaic technology opens up new perspectives for sustainable energy generation

DAS Energy is an Austrian green tech company specialising in the development and production of lightweight and flexible photovoltaic modules. With a clear focus on development and innovation, state-of-the-art glass fibre materials from aircraft construction are combined with highly efficient monocrystalline silicon cells at the production site in Vienna Neustadt. With this patented technology, DAS Energy is a global pioneer in photovoltaic modules of a new generation: flexible, lightweight and durable.



## OUR VISION

DAS Energy is an Austrian green tech company specializing in the development and production of lightweight and flexible photovoltaic modules. With a clear focus on development and innovation, state-of-the-art glass fibre materials from aircraft construction are combined with highly efficient monocrystalline silicon cells at the production site in Vienna Neustadt. With this patented technology, DAS Energy is a global pioneer in photovoltaic modules of a new generation: flexible, lightweight and durable.

**CHRISTIAN DRIES**

FOUNDER OF DAS ENERGY



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# DAS ENERGY TECHNOLOGY

The patented technology was developed by DAS Energy in Austria and essentially consists of the proprietary fiber-reinforced plastic core (prepreg). This layer is located above – and below – the cell and is mainly responsible for the flexibility and stability of the photovoltaic module. It ensures that the solar panels are significantly lighter, thinner and more flexible than conventional solar modules.

At 3.3 kg/m<sup>2</sup>, they are preferred over the otherwise conventional heavy panels, and their flexibility allows them to be attached to curved surfaces. In addition, the low weight of the panels simplifies the requirements for the substructure – in fact, a substructure is not needed, as the solar panels are glued directly to the surface. This is a simple and quick application for all types of roofs, such as waterproof membranes, metal roofs and many other roof surfaces.

Our solar panels are non-reflective, as they do not require any glass. Therefore the installation is also possible in areas in the vicinity of airports. For the solar panels, conventional mono-crystalline cells are used.

In short – the lightweight & flexible solar panels for adhesive bonding are convincing in their high energy yield and quick & easy installation without substructures.



## GOOD TO KNOW

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Since the glass fibre materials we use come from the aircraft industry and have withstood enormous amounts of stress for over 25 years, we can ensure a 40-year performance guarantee (85%) for our PV modules that are permanently installed on buildings. Our solar panels have been tested in numerous environmental simulations (e.g. UV resistance, climate chamber, etc.).

# INSTALLATION



No substructure  
necessary



Minimal installation  
time



High-quality bonding with  
Innotec

## Installation without substructures.

## Without additional ballast. Reduced installation time.

For the installation on industrial and commercial buildings (PVC flat roof sealants, bitumen roofing membranes, metal roofing systems, glass surfaces), DAS Energy solar panels do not require a substructure or any further

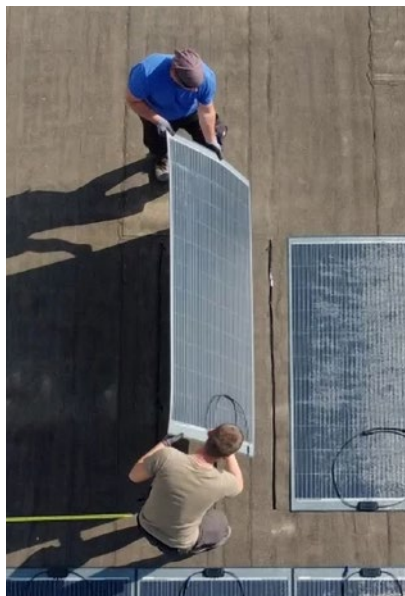
application of the Innotec adhesive. This method significantly reduces the installation time and does not cause any damage due to holes in the roof surface, which remains unaffected. Due to their low weight,

DAS Energy solar panels are also suitable for roofs and facades with difficult structural or physical conditions, or especially with low load-bearing capacity.

## High-quality bonding with Innotec



Applying Innotec adhesive



Attaching DAS Energy modules



DAS Energy modules installed on bitumen



# PV MODULES FOR BONDING FOR QUICK AND EASY INSTALLATION







## KLINGELE GMBH | GER

Installed capacity	445 kWp
Modules installed	1,777 pcs.
Type of roof	PVC film
Mounting system	Direct bonding





## TRUMPF GMBH | GER

Installed capacity	1.2 MW
Modules installed	10,000 pcs.
Type of roof	Industrial Roof, standing seam roof
Mounting system	Direct bonding

# STADIUM & INDUSTRIAL ROOF AREAS

From industrial roofs to energy roofs – DAS Energy offers the perfect solar solution for sustainable power production for companies and energy communities.

Since 2016, DAS Energy has been producing and selling innovative solar panels based on glass fibre-reinforced plastic. As a result, they weigh only a fraction (total 6.5 kg for a 11x6M project module) of conventional glass modules (at least 20 kg) and are particularly well-suited for installation on industrial roofs. The solar panels are glued directly to the underlying roof surface consisting of metal, bitumen or synthetic roof membranes. This quick and easy installation method does not require any substructure or fasteners.

**11x6M 330Wp Composite super light module** for bitumen und membrane roofing is specially designed for large photovoltaic projects. The 66 monocrystalline silicon cells provide an output of 330 Wp per module. The low glare surface of all DAS Energy

PV modules allows for installation on buildings near airports.

#### References:

Vöslauer GmbH, Klingele GmbH, Trumpf GmbH

**12x2M 120Wp Composite super light module** for metal and standing seam roofing was specially designed for standing seam systems and other metal surfaces. The 24 monocrystalline silicon cells provide an output of 120 Wp per module. During installation, the modules are glued directly to the roof profiles between the standing seams. This allows for the quick conversion of very large industrial surfaces and facades into solar power plants.

**References:** Trumpf GmbH





Lightweight



High efficiency  
silicon cell



Customized options  
available



Extremely weather  
resistant

## FROM INDUSTRIAL ROOF **TO AN ELECTRIC POWER PLANT**

### DAS ENERGY SOLAR PANELS FOR DIRECT BONDING ONTO THE ROOF SURFACE



#### SPORTS HALL BAD HONNEF | GER

Installed capacity	74 kWp
Modules installed	614 pcs.
Type of roof	Industrial Roof, Standing seam roof
Mounting system	Direct bonding



#### INTERQUELL GMBH | AT

Installed capacity	265 kWp
Modules installed	802 pcs.
Type of roof	Industrial roof, PVC film
Mounting system	Direct bonding



#### METALINE | GER

Installed capacity	65 kWp
Modules installed	588 pcs.
Type of roof	Industrial roof, Standing seam roof
Mounting system	Direct bonding



#### ICE SPORTS ARENA | AT

Installed capacity	320 kWp
Modules installed	968 pcs.
Type of roof	Industrial roof, PVC film
Mounting system	Direct bonding





# PHOTOVOLTAICS FOR FACADES

Power generation on facades offers a lot of potential. DAS Energy solar panels are lightweight ( $3.3 \text{ kg/m}^2$ ) and can be easily installed on horizontal and vertical surfaces by gluing the PV modules directly to the surface. This opens up a wide range of possibilities for generating additional solar energy.

## TRAPEZOIDAL AND STANDING SEAM ROOF SYSTEMS

### Composite super light PV module perfectly integrated

The modules are designed to be integrated into any aluminium roof and facade system. The reference project in Poland shows an example of a DAS Energy PV system integrated into a standing seam facade. The 12x2M project modules are installed onto straight, convex and concave aluminium surfaces of the south facade.







# SOLAR NOISE BARRIERS

The highway as a solar power plant – 1,400 km of noise barriers on Austria's roads could be used to supply electricity to the communities behind them.

CALMA-TEC &  
DAS ENERGY

DAS Energy solar panels can be perfectly integrated on noise barriers thanks to their light weight.

During a collaboration project, the noise barrier *ulmerwelle*® was further developed into a solar power plant by the Lower Austrian company Calma-Tec. The lightweight and flexible solar panels adapt perfectly to the undulating shape of the modern shape of the noise barrier. With an energy output of 370 Wp, it's suited for rough road conditions such as freeways.

In many countries, noise barriers offer a huge potential for generating sustainable energy.



Extremely  
weather resistant

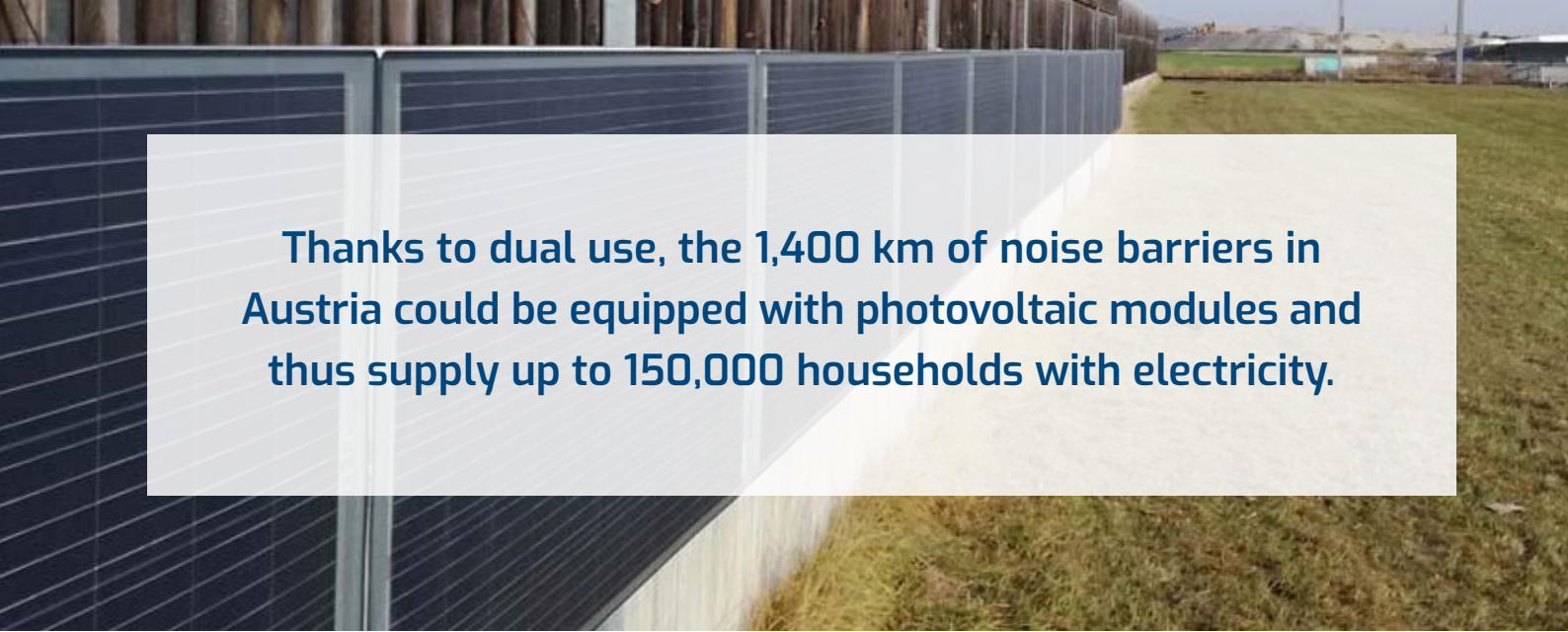


Non-reflective  
surface



Easy  
installation





**Thanks to dual use, the 1,400 km of noise barriers in Austria could be equipped with photovoltaic modules and thus supply up to 150,000 households with electricity.**

#### **DAS ENERGY PV NOISE PROTECTION WALL**

##### **HIMBERG | LAND LOWER AUSTRIA**

“The energy transition is a central component for a climate-friendly future. Noise barriers, that can produce solar power and thus enable us to use large areas in various ways are exactly that. A simple idea that we are now turning into reality. Together with ASFINAG, we are launching a pilot test today, and I hope that this innovation will soon be adopted throughout Austria,” Climate Protection Minister Leonore Gewessler



**“For the supply of electricity, we are increasingly relying on the generation of renewable energies along our network.”**

ASFINAG Board Member Hartwig Hufnagl



#### **DAS ENERGY PILOT PROJECT | ASFINAG**

Seven different PV systems were tested on the “photovoltaic test field” along the freeway S1 in 2021, among them DAS Energy PV modules with an installed capacity of 4.8 kWp. Various factors such as glare effect, impact on statics and the function of the noise barrier, as well as the power yield, were analysed over the course of the next few months.

Further solar noise barrier projects have been realised with DAS Energy PV modules in Himberg and Wiener Neustadt, Lower Austria.



# AGRI-PV APPLICATIONS



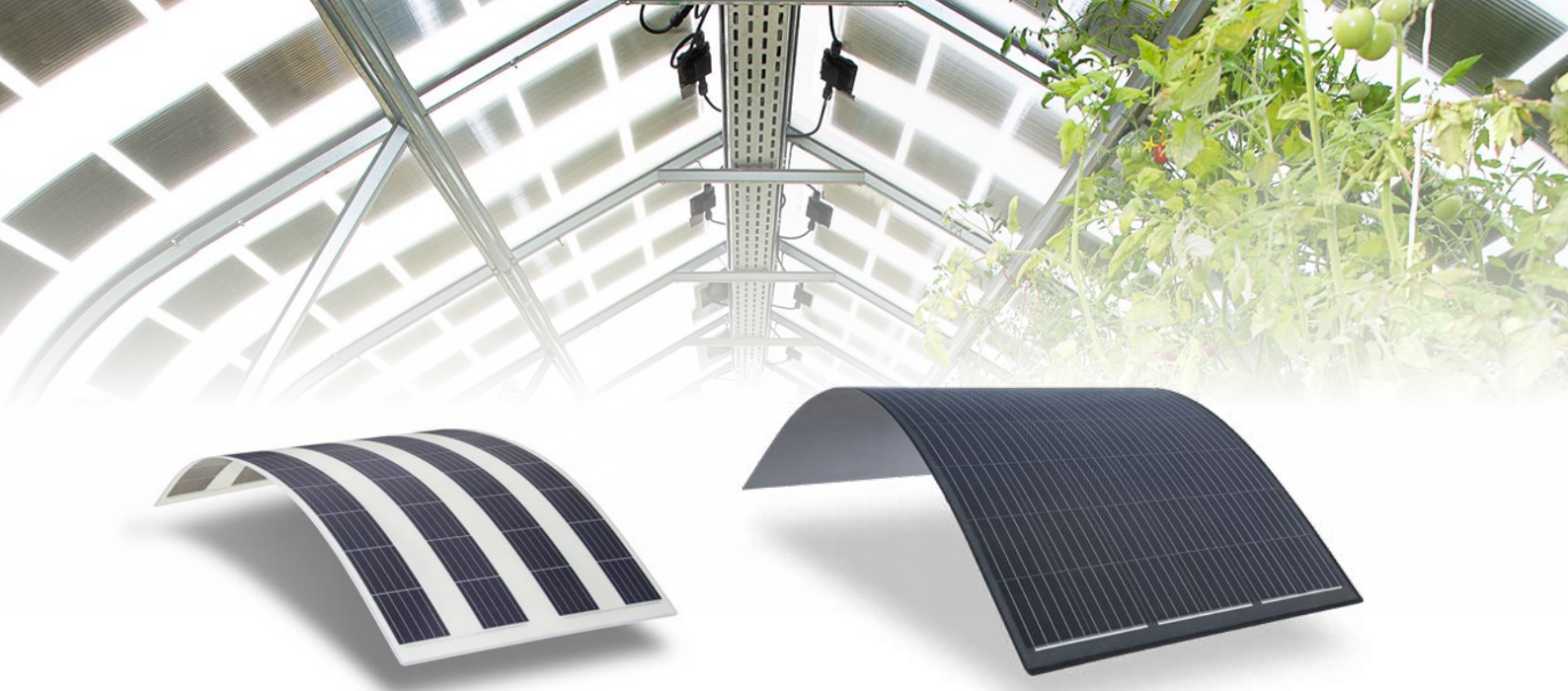
## SOLAR SOLUTION FOR GREENHOUSES

### Lightweight, flexible & semi-transparent

Agri photovoltaic modules are specially designed for applications where sunlight inside the building is an essential factor. Greenhouses offer the best example. The plants cultivated in them need heat – generated by the greenhouse effect – and sun

light in order to grow. In summer, however, it can quickly become too hot in a greenhouse, especially in southern regions. DAS Energy offers the perfect solution for this problem - a lightweight and semi-transparent solar panel that provides shade and generates electricity.





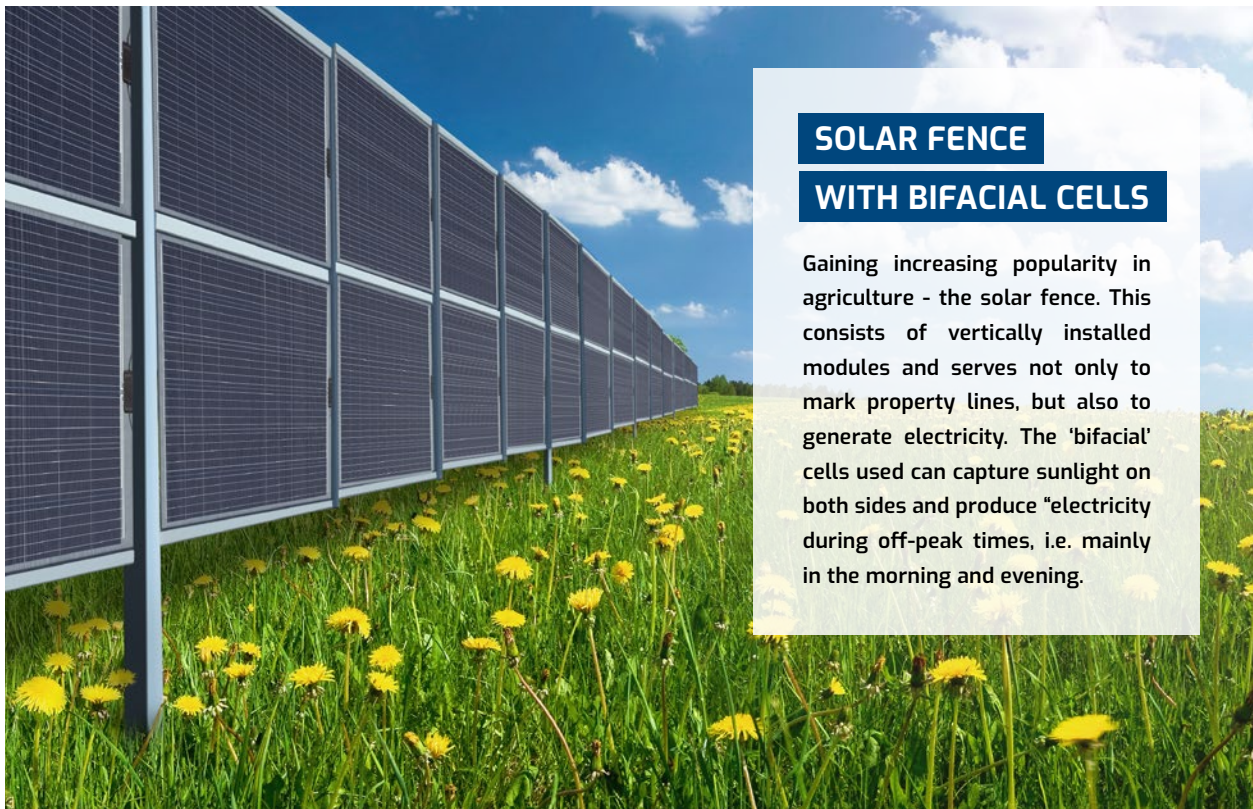
### GREENHOUSE PV MODULES

Semi-transparent and lightweight PV modules provide enough diffuse light for plants in greenhouses to grow and protect the plants from too much heat in summer. The sustainable energy produced on the roof can be used for charging electronic systems such as ventilation, irrigation and lighting.

### COMPOSITE SUPER LIGHT

#### PV-MODULE 11x6 M

The 11x6M Composite super light PV module enables almost limitless applications - e.g. on greenhouses or in the form of a solar fence - due to its low weight and simple bonding technology.



### SOLAR FENCE

#### WITH BIFACIAL CELLS

Gaining increasing popularity in agriculture - the solar fence. This consists of vertically installed modules and serves not only to mark property lines, but also to generate electricity. The 'bifacial' cells used can capture sunlight on both sides and produce "electricity during off-peak times, i.e. mainly in the morning and evening.



# CREATIVE PV INTEGRATION IN THE CITY



## SUSTAINABLE PUBLIC STATION

DAS Energy modules can be installed for energy generation in public infrastructure, e.g. at bus and tram stops with roofing.



## ILLUMINATED ADVERTISING

Epamedia's outdoor advertising is illuminated with sustainable and clean electricity – produced by DAS Energy PV modules.

[www.epamedia.at](http://www.epamedia.at)



## STREET LIGHTS

DAS Energy solar panels can be installed on street lights for a sustainable energy source.

[www.ecolights.at](http://www.ecolights.at)



## EBILLY SOLARBANK

Outdoor solar bench for hanging out, charging mobile phones or tablets, inductively or via USB cable. The bench is powered by the photovoltaic module; the integrated batteries ensure that the functions are available even in poor weather conditions.

[www.e-billy.eu](http://www.e-billy.eu)





## PV CAR PORT

The lightweight PV modules can be integrated on car ports and can thus produce sustainable electricity for e-cars. The 12x2M

PV modules can be integrated into various standing seam systems. The 11x6M can be installed on flat car port roofs.



## PRIMARY SCHOOL WRIEDEL

The innovative Kalzip AluPlusSolar roof system uses 12x2M modules to bond directly to aluminium roof profiles. This installed capacity in the example of the primary school amounts to 28 kWp and corresponds to a CO<sub>2</sub> savings of approx. 9 tonnes per year.

Installed capacity	28 kWp
Modules installed	246 pcs.
Type of roof	Aluminium roof
Mounting system	Direct bonding



An aerial photograph of a building's roof, showing a large array of dark blue solar panels installed in a grid pattern. The roof has a central ridge and a gabled section at the bottom. To the right of the building is a green lawn and a paved parking area with white lines. To the left is a dark green tree.

# BUILDING INTEGRATED PHOTOVOLTAICS FOR A GREEN CITY

## UNIVERSITY OF FREIBURG

In spring 2022, a DAS Energy PV solution was installed on the west building of the Institute of Physics at the University of Freiburg. With an output of 54 kWp, the system produces around 50,000 kWh of electricity per year and saves up to 17 tons of CO<sub>2</sub> annually.

Installed capacity	54 kWp
Modules installed	405 pcs.
Type of roof	Old building, Metallic standing seam roof
Mounting system	Direct bonding



# PV IN OLD BUILDINGS & HISTORICAL MONUMENTS

Photovoltaic technology is playing an increasingly important role in energy generation in urban areas. With the right solar technology, even listed buildings are being outfitted for the future.

The protection of historic buildings and monuments and ensembles is an important issue in cities around the world. Listed buildings are rarely used for electricity production, and far too often the protection of historical monuments stands in the way of the energy transition. However, with the right technology from DAS Energy, the lightweight and flexible PV modules can also be excellently integrated into sensitive protection zones.

In 2019, a PV system of almost 10 kWp was approved and installed on the green standing seam roof of a historic building in Vienna. The state-of-the-art PV system was installed within

2 days and now produces 10,400 kWh annually.

Innovative, lightweight and flexible 12x2M DAS Energy solar panels were used - designed specifically for standing seam roofs in old buildings. Since 2022, a privately constructed DAS Energy PV system has officially been a showcase roof for future photovoltaic projects in the listed buildings of the Augsburg old town. In the same year, a DAS Energy solar system was installed on the roof of a historic 400-year-old Dominican monastery in Belgium to create a successful synthesis of historic Belgian architecture and modern sustainable electricity generation.



## OLD BUILDING ENSEMBLE | AT

Installed capacity	10 kWp
Modules installed	87 pcs.
Type of roof	Listed Viennese roof, Standing seam roof
Mounting system	Direct bonding



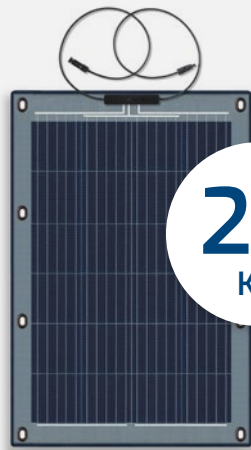
## MONASTERY "HET PREDIKHEREN"

Installed capacity	22 kWp
Modules installed	180 pcs.
Type of roof	Historic monastery, Kalzip AluPlusSolar roof
Mounting system	Direct bonding



# BALCONY POWER PLANT

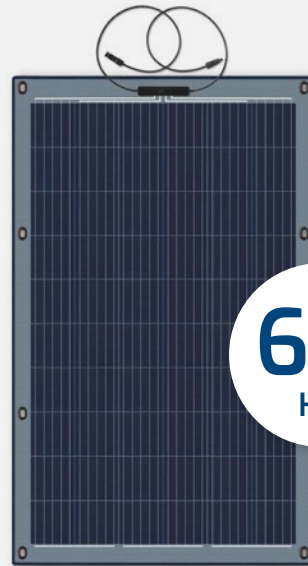
Permit-free and expandable mini solar systems for balconies - direct connection to a Schuko plug with up to 800 Watt feed-in



**2.7**  
KG

**6 x 4M 120 WP**

1113 x 699mm



**6.0**  
KG

**10 x 6M 300 WP**

1756 x 1020mm

- Inverter included
- Junction box available on the back or front
- With the flexible and lightweight solar innovation made in Austria, you can produce your own solar power directly on your balcony or terrace - cost-effective and uncomplicated



Available  
at our partner  
**DAS Kraftwerk** by  
summer 2023

[www.daskraftwerk-energy.com](http://www.daskraftwerk-energy.com)







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# GOLF CART SOLAR ROOF

## Self-sufficient at the golf course

DAS Energy has developed a perfect PV solution specifically for golf carts. It can be mounted on almost all golf carts available on the market. The lightweight, thin, flexible and simultaneously robust construction of the PV module allows for roof mounting with minimal effort. The PV roof extends the range of the cart by 15% and increases the battery life by up to 2 years compared to conventional golf carts.





# PV FOR BOATS AND YACHTS

ENERGY INDEPENDENT

ON BOARD

DAS Energy PV modules guarantee permanently high energy generation even for locations with high salt and ammonia gas concentrations.



# MOBILE PV SOLUTIONS FOR VEHICLES

MOTORHOMES AND CAMPERS

Harnessing solar energy in boats, tents, containers, golf carts and other vehicles is a major challenge. DAS Energy combines aesthetics and functionality: The size, shape and colour of the modules can be adapted to almost any contours and surfaces.





# PV MODULES FROM DAS ENERGY FOR GLUING

**40 years**  
Performance  
guarantee

**10 years**  
Product  
guarantee



**11x6 M 330 Wp**

Our 11x6 M project module was designed for large photovoltaic projects. The weight advantage (only 3.3 kg/m<sup>2</sup>) allows for easy handling during installation and the bonding technology significantly reduces the installation time. Thus, large industrial roof areas can be quickly and easily converted into energy roofs. The 11x6M project module is equipped with 66 monocrystalline silicon cells with an output of 330 Wp. The junction box can be mounted either on the back or on the front, but is generally located in the centre of the PV module. The 11x6M project module offers the perfect combination of economic value, power output and handling.



**12x2 M 120 Wp**

Our 12x2M project module was specially developed for roof-integrated PV solutions such as standing seam systems (e.g. Kalzip AluPlusSolar). The modules are equipped with 24 monocrystalline cells with an output of 120 Wp. The junction box can be mounted either on the back or on the front, but is generally located in the centre of the PV module. During installation the modules are glued onto the roof profiles between the metal seams. Due to its light weight (only 3.3 kg/m<sup>2</sup>) and the innovative bonding system, large industrial areas and facades can be easily transformed into solar power plants.





**AVAILABLE  
2024**  
360Wp 12x6M  
72 Cells  
275Wp 11x5M  
55 Cells

## Black Edition

11x6 M | 12x2 M

Black PV modules are designed to meet aesthetic requirements in the architectural field. The standard formats 11x6M and 12x2M offer more creative freedom due to the dark colour scheme and are used in the field of architecture and in the preservation of listed buildings.

## Composite-glass light module

11x5 M | 12x6 M

The best of two worlds - with 7 kg/m<sup>2</sup> the PV module is still light and can be installed on roofs with a lower load-bearing capacity and offers many application possibilities: direct bonding on trapezoidal sheet systems and on flat roofs (bitumen or membrane).



## Greenhouse PV module

11x4 M

Semi-transparent and lightweight PV modules provide enough diffuse light for plants in greenhouses to grow and protect the plants from too much heat in summer. The sustainable energy produced on the roof can be used for charging electronic systems such as ventilation, irrigation and lighting.



**5 years**  
Product  
guarantee

## The balcony module

6x4 M | 10x6 M

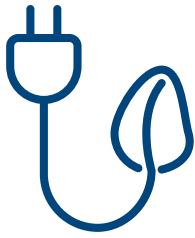
With the latest photovoltaic module from DAS Energy, it is possible for everyone to generate their own electricity. The balcony power system can be easily mounted on a balcony or a terrace railing. Your own electricity, produced directly at home.

Our balcony module is equipped with 40 monocrystalline cells and provides an installed capacity of 200 Wp. The mini solar plant can be expanded at any time.



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# DID YOU KNOW THAT PHOTOVOLTAIC SYSTEMS



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produce clean electricity, without noise, odour, or particulate emissions, and thus make a direct contribution to the fight against climate change?



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contribute to independence in crisis regions and thus secure peace?



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create regional value through construction and ongoing electricity production in worldwide?



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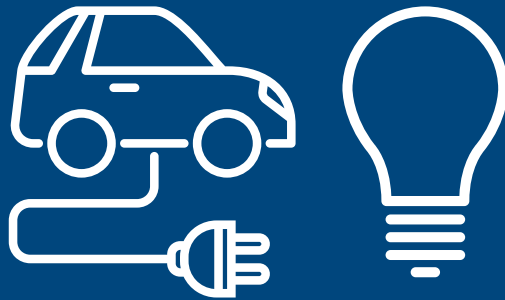
are the strongest sector in terms of growth and future potential and that it stimulates Austria as a business and technology location?



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can be used on almost all surfaces and are available without restriction on all continents of the world?

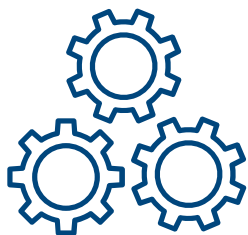




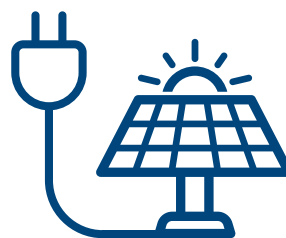
that you can even use the battery as a power storage unit for your PV system from the roof?

For this to work, the battery must not only be able to draw power from the car, but also deliver it. The technology of bidirectional charging, also known as vehicle-to grid (V2G) or vehicle-to home

(V2H), is already integrated into many new car models. Once your e-car is connected to the grid, the battery charges or the battery powers the home. E-cars usually have 50 kWh of storage and can thus ideally be used as power storage for PV - particularly practical in the event of a power outage.



provide a strong business sector, which is a powerful employment driver, strengthen small and medium-sized enterprises and the skilled trades, and create and secure new jobs in the areas of production, installation and operation & maintenance in Austria?



can be used directly where electricity is consumed, thus eliminating long transport distances?



## FOR MORE INFORMATION



[www.das-energy.com](http://www.das-energy.com)



download datasheets



**DAS Energy Ltd.**  
**Branch Austria**

Ferdinand Graf von Zeppelin Straße 18  
2700 Wiener Neustadt, Austria