



# Working with the power of the sun

Efficient energy solutions with photovoltaics, storage and energy management. A system that pays off for companies worldwide.

There is no need to convince anyone that the construction of a solar power plant is an investment in the future, allowing us to become independent from energy grids, and with the perspective of large savings.



In fact, companies must react to rising energy costs and at the same time reduce their carbon footprint for ecological reasons. This cannot be achieved by saving electricity alone. One option is the use of self-generated solar power, ideally in combination with intelligent energy management.

One thing is certain: energy will not become cheaper in the near future. This also applies to electricity used by businesses. Commercial electricity in Germany currently costs between 18 and 23 cents per kilowatt hour, and the trend is rising. This is a burden for small and medium-sized enterprises. One way out is solar electricity that a company generates itself and uses mainly for its own consumption. For a medium-sized company, it costs about 6 to 8 cents per kilowatt hour, which is significantly cheaper than conventionally generated electrical energy.

#### Green matters

But it is not just the financial side of things that matters. The continuing price increases for energy impacts long-term planning and cost security and thus also the general competitiveness of companies. Businesses should therefore invest into their energy independence and draw as little electricity as possible from the public grid. The more solar power self-consumption a company can make, the better.

For example, a solar system on a rooftop area of 1,000 m<sup>2</sup> generates up to 150,000 kilowatt hours of electricity per year. Another advantage of solar energy is that companies can reduce their carbon footprint through emission-free power generation.

Carbon footprint reduction as business missions have been introduced to more and more companies as customers are now increasingly pay attention to companies that show responsibility for the environment. In this respect, solar energy is well positioned.

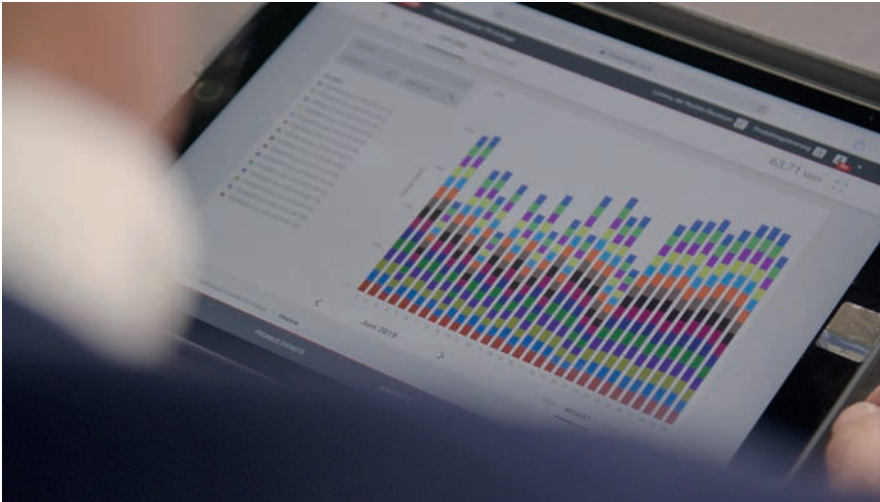
#### A perfect trio: photovoltaics, storage and energy management system

Installing a rooftop solar system on the roof of an office or factory building, and that's it? The idea is a very good starting-point, but there are ways to make PV power usage even more effective. The advantage for commercial enterprises that produce electricity during the day is that the electricity demand usually already corresponds to a very high degree to the electricity generated by a solar system.

Depending on the type of business, companies can achieve a 'natural' self-consumption rate of around 30 percent or more. If you add a storage solution from IBC SOLAR, you can reach 60 percent, depending on the yield and consumption time. Battery storage can also perform additional functions. In addition to optimising self-consumption and peak shaving, they can also take over the emergency power supply and







Analysis of energy system

therefore secure the power supply at all times, even in the event of a grid failure.

If the solar power system and storage unit are combined with an intelligent energy management system, companies can optimise and link a wide variety of processes in terms of energy. In this way, power generation and consumption are perfectly coordinated and regulated efficiently and according to demand: a component of Industry 4.0.

#### The big picture: sector coupling and energy transition

If the solar power system, storage system

and, if necessary, a combined heat and power plant are intelligently controlled via a central energy management system, companies operate sustainably and self-determined. And even more: the solar power generated can be used in the company's own operations not only for the offices or to power machinery, but also in other sectors of the company. This is known as sector coupling. In this way, companies can heat warehouses with solar power, cool Cold storage rooms or charge electric cars, the perfect coupling of the electricity, heating/cooling and transport sectors. Companies are demonstrating on a small scale how the energy transition can work on a large scale.

#### Green herbs with green energy: Herrmann Kräuter

The prerequisite for optimal use of solar power is a flexible energy solution that is perfectly matched to the business. This ensures that the exact amount of electricity the company needs is available at the right time. How well a complete PV system can turn out proofs Herrmann Kräuter, a German based nursery and confectionery company.

The company produces cut herbs on its own open land and in greenhouses. In this context, Herrmann Kräuter delivers 200 tons of freshly cut herbs each week to major customers in the gastronomy and food trade. The electricity consumption for cooling the fresh herbs, the packaging machines and for the lighting of the greenhouses is with 850,000 kWh per year enormous. Not only during the day, but also at night. Therefore, the company was looking for an integrated energy solution, with as little electricity consumption as possible from the public grid.

In context of the high energy consumption around the clock, a smart and reliable PV system is required to avoid peak loads as well as to cover the electricity demand largely via the solar energy. Therefore, IBC SOLAR installed a PV system with a capacity of 416 kWp and an additional storage system with a capacity of 207 kWh together with one of the company's specialist partners. Now the PV system produces in total 340,000 kWh of solar energy each year. Additionally, the system is controlled by an energy management system (EMS) managing the



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consumers, the PV system, the existing CHP as well as the e-mobility.

With its own PV system, the company Herrmann Kräuter is as independent as possible from ever-increasing electricity procurement costs and keeps it as competitive as possible. Moreover, the company saves around 170 tons of CO<sub>2</sub> per year. This is very good for the green footprint and thus for the environment.

#### Quality above all else

One of the most important factors in photovoltaics is a well-engineered PV installation design and the appropriate selection of high-quality components. PV modules and mounting systems are critical to the durability of a PV installation.

When choosing components for a project, it is thus worth paying attention to where individual parts are produced and how, if at all, their quality is checked. With a comprehensive portfolio of quality products, a nationwide network of specialist partners and almost 40 years of experience in the industry, IBC SOLAR is one of the world's leading specialists for photovoltaics, storage and energy solutions. As a result, the company offers a 15-year combined warranty for all combinations of its own brand modules and assembly structures.

At the same time, the use of high-quality products accounts for half of success. The other half is a thorough market scan and the selection of partners for the PV project who can boast experience, also in the implementation of non-standard

installations, and are properly trained. In this regard IBC SOLAR offers an extensive network of over 1,000 regional partners specializing in the design of tailor-made solar systems. They are experienced experts, whose help can also be counted on after the project is completed and who immediately respond to every service request.

A reliable partner, such as IBC SOLAR, supports companies in the professional planning of individual solar systems that are adapted to the consumption profile of the business. The provider enables businesses to intelligently reduce their electrical energy consumption, produce electricity sustainably and themselves, and significantly reduce costs and CO<sub>2</sub> emissions.

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