



**Solar Prosumer Award  
Deutschland**

**Energy Storage  
Inspection 2023**

**Solar Prosumer Award  
Germany**

# Solar energy management begins at home

As part of the globally operating German KOSTAL group, with a turnover of 3.3 billion € in 2022, KOSTAL Solar Electric offers a lean but extremely flexible portfolio of photovoltaic devices that meets all needs, from home use to commercial applications. In addition to inverters, a wallbox and energy meters with numerous functions round off the product range. We talked with Thomas Vogel, Director Product Management, about current developments, awards and took a look into the future.

**PES:** It's great to catch up with you again Thomas. For this interview it would be good to focus on home management systems and where KOSTAL fits in with this sector of the market.

**Thomas Vogel:** Home energy management is hugely important in the complete system, as self-sufficiency using self-produced electricity must always be perfectly organised, even in times with less solar irradiation.

The KOSTAL product range consists of inverters, compatible storage units, smart energy meters, plus those culminating in wall boxes, always in combination with an intelligent and integrated energy management system.

**PES:** Why is a home energy management system essential?

**TV:** To be able to use the solar power generated in the networked home system, operators need to record and manage available capacities and consumption in energy flows. This task is solved by a home energy management system. This helps to use the greatest possible amount of self-produced electricity in the operator's own household. The effect is that self-consumption is high, as is independence from line current and the costs for electricity purchased from elsewhere are low.

The home energy management system makes optimum decisions about the successive use of the solar power delivered. Is it consumed directly, or is it better to store it for consumers to use at a later time? The sunshine duration and intensity are taken into account, as well as the current operation of all consumers.

**PES:** Can you tell us a little more about the KOSTAL home energy management system?

**TV:** Home energy management works on the basis of a simple principle in the solar system. Each component works for itself and one master unit works for them all. Therefore, solar modules are already optimized by the inverter's integrated energy manager, and the battery storage is brought into peak efficiency by its management system. If consumers are then connected to the system, KOSTAL offers control devices in the form of its smart energy meters, which implement home energy management in a safe, efficient manner with visuals.

As the brain and control centre, smart meters precisely display all essential parameters for the energy flows and enable them to be controlled and checked manually or automatically. With their help, not only does the power supply system run smoothly, but the purchase of line electricity is also minimised.

**PES:** The product line has recently been expanded to meet demand, is that right?

**TV:** KOSTAL is proving its strengths in this segment in terms of diversity and connectivity. In addition to the Smart Energy Meter, the product range has been expanded to include two energy meter variants for greater availability on the market. Even with newcomers to the range, KOSTAL remains true to itself: simple installation, simple commissioning, full functionality.

**PES:** In fact, the systems have been recognised with industry awards, haven't they?



Thomas Vogel

**TV:** Yes, solar system installers and system operators have decided, with their votes counted by the independent Bonn research institute EUPD. The result was that KOSTAL Solar Electric has won an award in two categories, Brand and Prosumer, for its Home Energy Management. The result is impressive because the award reflects both the experience of installers and the user perspective of system operators.

The Home Energy Management category is focused on the future and efficiency, as solar systems in conjunction with electricity consumers can be controlled and operated economically using clean, self-generated energy.

## Later this year, we will release our most powerful commercial inverter yet.

System operators, be they private or commercial, invest in solar systems to obtain energy more sustainably and more economically. The systems' compatibility with other sectors, such as heat and e-mobility, is of particular interest for homes and businesses. Networked in this way, solar power will ideally supply other consumers via the operator's system.

System owners and PV planners are in agreement when it comes to our inverters in combination with electricity storage, electric vehicles, heat pumps and an energy management system that also best serves smart-home applications. KOSTAL Solar Electric is considered one of the best-in-class companies in this field, by installers and system operators alike.

We are renowned as a brand that focuses not only on product quality, efficiency and service, but also uniquely manifests a systemic, holistic application.

**PES:** Your inverters have been just as well received haven't they?

**TV:** Yes, and in fact in this year's System Performance Index (SPI), determined by HTW Berlin, our inverters have now shown for the sixth time in a row that they are convincing in all classes, whether AC or DC coupled, single or three-phase. PLENTICORE plus, PLENTICORE BI and PIKO MP have all been recognised with awards.

**PES:** What is this success due to, do you think?

**TV:** In the case of the PLENTICORE plus, the PLENTICORE BI and the PIKO MP plus, they deliver strong performance as hybrid and battery inverters. In combination with the BYD storage system, the inverters ensure efficient system operation with high self-consumption shares and extensive self-sufficient power.

The auto-update function also allows existing customers with a PLENTICORE plus or PLENTICORE BI to benefit from the SPI award. It takes just a few clicks to activate the auto-update function. This means that the inverter is always automatically updated to the latest state of the art and ensures the best power yield.

**PES:** Can you explain a little more about each of the inverters and how they have advanced to meet demand?

**TV:** The KOSTAL hybrid inverter PLENTICORE plus 10 kW achieved a System Performance Index of 94.9% in combination with BYD's Premium HVS 12.8 Battery Box, a lithium high-voltage storage system. The control and dimensioning losses slightly affected the energy resources, while the usable storage capacity of 12.3 kWh creates large capacities that are available at speed.

High efficiency levels for the battery and conversion via PV2BAT and BAT2AC of around 96% each ensure strong charging and discharging performance. With this result, the PLENTICORE plus 10 achieved a place among the top five overall in its power class.

In the test for 5 kW devices, the PLENTICORE plus 5.5 and BYD's HVS 7.7 Battery Box excelled with their high efficiency levels and achieved an SPI of 92.2%. Therefore, the device achieved a strong third place in the overall field of participants and maintained its top ranking as a system/battery pairing for the sixth year in a row.

The top result was achieved by the latest software optimisation and the control dynamics were improved, also by eliminating the 70% active power cap. The high efficiency levels of the inverter and high-voltage battery led to a strong overall total output for the system, according to the HTW test result.

Overall, the PLENTICORE plus 5.5 kW ranks among the top three in its power class, once again confirming the position achieved in the previous year.

The AC battery inverter PLENTICORE BI was absolutely convincing in its 10 kW/26 amp version with a connected BYD Premium HVS 12.8 Battery Box, delivering an SPI of 94% and thereby confirming its very good efficiency. This sees the system increase its performance by 1.3% compared to the previous year and is therefore recommended as a top duo for fast charging and discharging cycles with effective management of large current reserves.

Last but not least, the single-phase PIKO MP plus 4.6-2 with BYD HVS 7.7 storage demonstrated what it is capable of in every respect, achieving high efficiency values with an SPI of 90.1% (AC) and 90.5% (DC), even in a lower power class.

In addition to the high efficiency levels, the inverter's great effectiveness and low control losses are impressive and ensure that the complete system exhibits lucrative performance.

The PIKO MP plus repeats its reliable profitability factor in the PV system, showing strong performance at 5 kW both when AC and DC coupled.

**PES:** What does this mean for your customers? What are the benefits of choosing KOSTAL as opposed to your competitors?

**TV:** KOSTAL is a German quality company with a long tradition that always focuses on innovation. Choosing KOSTAL means maximum flexibility due to the expansion possibilities of our products and a constantly growing network of partners in the sense of sector coupling. Expansion via code means that retailers only have to stock a few products, but at the same time they can cover a wide performance range.

In addition, our devices are able to update themselves automatically without the need for an installer or the owner to do anything. In addition, last year we extended the warranty options for a large part of our portfolio to 10 years.

**PES:** What's next for the brand? Can we expect more innovations and system upgrades to meet changing demands in the market?

**TV:** Of course. Later this year, we will release our most powerful commercial inverter yet. In addition, at the turn of the year we will release the latest generation of the PLENTICORE plus with the option of operating it in back-up power supply mode. In addition, there will be a model that can produce up to 20 kW. We are also continuing to expand our network of battery partners for even greater flexibility.

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