

## The smarter E

# INNOVATIONS IN ACTION: THE WINNERS OF THE SMARTER E AWARD 2025 – IT IS ALL ABOUT A RENEWABLE 24/7 ENERGY SUPPLY

Munich/Pforzheim, May 6, 2025 – On the eve of the official start of The smarter E Europe, the continent's largest alliance of exhibitions for the energy industry, the winners of this year's The smarter E AWARD were honored at an official ceremony. Winners included visionary products, solutions and projects that pave the way for a renewable energy world with innovative technologies and smart concepts – pioneering, bold and relevant. Three equal winners were selected in each of the five categories, Photovoltaics, Energy Storage, E-Mobility, Smart Integrated Energy and Outstanding Projects – a strong indication of the industry's innovative breadth and depth. From May 7–9, 2025, the award-winning solutions will be presented at The smarter E Europe at Messe München, where the winners will also be available for in-depth conversations and exchange. With its four individual exhibitions – Intersolar Europe, ees Europe, Power2Drive Europe and EM-Power Europe – The smarter E Europe covers the key aspects of a renewable 24/7 energy supply across the electricity, heating and mobility sectors, turning Munich into the epicenter of the energy transition once again.

The renewable energy world is complex, multi-faceted – and ever-changing. And this is reflected by the 15 newly selected winners of the 2025 The smarter E AWARDS. The range they cover is truly impressive – from cloud-based planning software, optimized hardware components and novel storage technologies to projects of various sizes with an immediate social and ecological impact, both locally and globally. While their approaches vary widely, all prize winners have one thing in common: They offer a novel and sustainable perspective on the energy industry, delivering innovative products, applications and solutions that accelerate the energy transition while boldly pursuing new paths towards a climate-neutral future.

## Winners in the Photovoltaics category

### 7Secondsolar – AUTOPV

7Secondsolar is a Software-as-a-Service provider headquartered in Cape Town, South Africa. Their AUTOPV solution considerably cuts time, costs and effort for planning multi-megawatt-photovoltaic (PV) installations. The cloud-based engineering tool automates all technical aspects of the planning process, permitting real-time adjustments that allow a direct comparison of several planning variants. AUTOPV creates precise site layouts with optimal cable routes and positioning of inverters, DC & AC combiner boxes and solar modules. The tool also generates detailed technical documentation, CAD drawings, bills of materials and yield calculations. According to 7Secondsolar, the software cuts planning times by up to 50 percent and has already been used for large-scale PV installations with a total capacity 1.8 gigawatts and more. The panel of judges was impressed with the level of innovation, the attractive pricing model and the ability for quick comparison and optimization of system designs. AUTOPV offers solar companies an intelligent and cost-efficient solution to the growing market demand.

### Longi Solar Technology – Hi-MO X10

Longi Solar Technology's Hi-MO X10 solar module combines unique innovation with an attractive design. The back contact solar cell architecture comes with Longi Solar's proprietary TaiRay wafers and 0 busbar (OBB) technology. Another key feature is the Bipolar Hybrid Passivation Technology that reduces power loss on both electrodes (positive and negative) and protects against UV-based loss of performance. This innovation enables a 670-watt power output and an impressive module efficiency of 24.8 percent. The pioneering shading optimizer technology allows the Hi-MO X10 to boost its energy yield by allowing each cell to function as a bypass diode, reducing shading losses by up to 70 percent. As an added benefit, hotspot temperatures are lowered by 28 percent, reducing the risk of fire. The panel of judges stressed these impressive product features that allow Longi to create a new benchmark in terms of performance, reliability and safety.

#### **Weidmüller Interface – PV Inline**

Weidmüller, a family-owned business from Germany founded in 1850, was honored for their PV Inline, a space-saving surge protection device designed to protect PV systems against overvoltage, including lightning strike surges. The space for PV cables is often limited, particularly when it comes to roof-top installations. The minimalist design of PV Inline has the solution. According to Weidmüller, it is the smallest of its kind. The combiner box is available with SPD Type 1 and 2, and is certified according to protection class IP65. It can be mounted on either internal or external walls, in standard cable ducts or behind the solar modules. The plug and play design comprises ready-to-use PV cables and high-quality MC4 connectors. The judges were impressed with the PV Inline's practical design and the functionalities that offer an effective answer to growing technical challenges in PV installation.

### **Winners in the Energy Storage category**

#### **CMBlu Energy – Organic SolidFlow Battery**

The organic SolidFlow battery by German company CMBlu Energy combines high performance with low environmental impact. Series production is set to start in 2026. The long-term storage system can store 200 kilowatt hours of electricity and have an output of 40 kilowatts. The modular design means that the system is scalable up to the gigawatt hour range and can store energy for several days. The design follows circular economy principles by using no rare or problematic materials and by consisting of 100 percent recyclable components. The unique chemistry combines solid organic polymers with an organic, metal-free electrolyte. These electrolytes are widely available and reusable, which makes this a sustainable and cost-efficient solution. The system is also extremely safe, thanks to non-flammable and non-explosive materials that do not produce any hazardous fumes. The company claims that the battery has in excess of 20,000 charging cycles and a DC-DC efficiency up to 90 percent. The panel of judges highlighted the impressive energy density, the innovative chemical composition and the economical, scalable operating principle of the organic SolidFlow battery.

#### **Hydrostor – A-Compressed Air Energy Storage (A-CAES)**

Hydrostor is a Canadian company founded in 2010. The company's emission-free Advanced Compressed Air Energy Storage (A-CAES) technology provides compressed air storage for utility companies and municipalities. The system utilizes purpose-built hard-rock caverns by filling them with compressed air and water and – thanks to storage durations of between 8 and 24 hours – is suitable for regions with high grid demand. According to Hydrostor, the system uses up to ten times less land and twenty times less water than conventional pumped-storage power plants. The high energy density is achieved through hydrostatic compensation, in which a water column controls the air pressure. This technology is considerably different from other compressed-air energy storage systems and requires far less underground cavity

space. The A-CAES uses a thermal management system that retrieves and reuses waste heat from air compression without any need for fossil fuels. With a service life of up to 50 years and no performance loss, the A-CAES provides a safe and reliable energy storage option.

#### **Samsung SDI – U8A1 (5-minute backup solution for UPS)**

The Samsung SDI U8A1 is an ultra-high-output battery system for uninterruptible power supply (UPS) systems based on lithium-manganese-oxide (LMO) battery chemistry, which enables quick charging and discharging while maintaining a high level of thermal stability. The U8A1 can deliver power for five minutes at a discharge rate of 8C and an impressive 645 amperes, positioning it as a leader in its segment. Along with the integrated safety features of the active material, these exceptional features make the U8A1 the ideal solution for critical and sensitive environments such as hospitals, computer centers and refrigeration systems. The compact rack and the adapted temperature control make for an extremely small footprint – just 1.36 square meters for a 1-megawatt UPS system. Samsung SDI offers a ten-year warranty and a 15-year battery service life, which minimizes operating costs and the need for replacement parts. The judges were impressed with the U8A1's performance, reliability and safety, all of which help guarantee the long-term safety for commercial UPS systems.

#### **Winners in the E-Mobility category**

##### **Friedrich GmbH – URBANROOF**

Urbanroof is a solar carport that combines simplicity with sustainability. The design by the German company Friedrich GmbH maximizes the PV area to cover the entire parking space, producing up to 60 percent more energy than Y-shaped carports. The Urbanroof provides protection against the weather, is easy to clean and maintain and can be easily combined with charging infrastructure for electric vehicles. It has a headroom of 4.2 meters, which also makes it suitable for trucks and large vans. The focus is on sustainability, as is evidenced by the timber construction (minimizing the use of steel) and the option for a ground screw foundation instead of concrete. The prefabricated, modular design makes the Urbanroof quick and cheap to assemble, dismantle or relocate. It offers room for up to 40 parking spaces and has a solar capacity of 200 kilowatts. The panel of judges stressed the great combination of solar energy, electromobility and high sustainability in construction offered by Urbanroof.

##### **Samsung SDI – No Thermal Propagation technology**

The No Thermal Propagation technology by South Korean company Samsung SDI received unanimous approval by the panel of judges. This innovation considerably reduces the risk of thermal runaway and fires in EV battery modules. The battery modules are housed in a hard case with insulation between the cells, preventing thermal propagation in the case of damaged or overheated cells. An overpressure valve above the cells transmits hot gas from the insulated battery casing to the exterior, preventing further damage. In the event of a thermal runaway, a cooling plate underneath the battery pack immediately brings down the cell temperature. The judges saw Samsung SDI's submission as important technological progress that can boost the safety and reliability of traction batteries and contribute to the global adoption of electromobility.

##### **Shenzhen Kehua Hengsheng Technology (Kehua Tech) – 40 kW high-performance, high-efficiency SiC charging module**

The winning submission by Chinese company Kehua Tech is a 40-kilowatt charging module for EV fast charging stations. Thanks to its silicon carbide (SiC) technology, the module reaches an impressive peak efficiency of 97 percent with a standby power consumption of just 7.5 watts. The charging module boasts a stable performance under various conditions, with an output voltage range between 150 and 1,000 volt DC and an operating temperature range between -40°C and +75°C. The product holds global certifications and uses an intelligent fan algorithm which reduces noise in urban areas. The automated encapsulation technology protects the components against dust, humidity and corrosion, which minimizes maintenance and extends service life. This is an economical solution for integrating charging systems thanks to its favorable price-performance-ratio and low overhead. The panel of judges praised Kehua Tech for having made progress in the area of high-performance charging, an important step towards the adoption of electric trucks and fast charging of future electric vehicles.

### **Winners of the Smart Integrated Energy category**

#### **Fenecon – Fenecon energy management system: Time-of-use tariffs and EV charge control**

Fenecon has been developing innovations for making the use, generation and storage of electricity more efficient since 2011. The German company's winning submission is the Fenecon Energy Management System (FEMS). The FEMS provides a fully autonomous visualization and control of battery storage systems, solar inverters, heat pumps and EV charging stations for energy efficient and grid-serving operation. AI-supported forecasts and grid monitoring enable FEMS to perform a predictive analysis of energy consumption patterns and create optimized charge and discharge plans. The unique, modular architecture makes the FEMS quick to implement and adapt to any new legal requirements. To support the product, Fenecon offers life-long updates and open source software, which in turn supports the sustainable, long-term operation of energy systems. With its FEMS platform, Fenecon hails in a new generation of energy prosumers, and more flexible, greener power grids.

#### **Toscano – COMBI-PRO-MAX**

For more than 50 years, Spanish company Toscano has been developing and producing control and protection equipment for the electrical sector. Its award-winning innovation, the COMBI-PRO-MAX, is a compact backup control system for solar and battery systems that is small enough to be held in one hand. In the event of a power failure, the system will automatically switch to backup or off-grid operation, ensuring the supply of critical consumers. The device can be integrated into a top-hat rail housing, allowing easy installation in the meter cabinet with all required switches being part of the same module. Its miniature design means that the COMBI-PRO-MAX does not require much hardware or cabling, and costs less than conventional backup systems. It is compatible with a multitude of solar inverters, making it a practical solution for consumers looking for a more robust energy supply.

#### **Utiligize – Forecast & Investment**

Utiligize is a Software-as-a-Service company from Denmark that was founded in 2018. Its Forecast & Investment platform enhances power grid planning by efficiently managing a high volume of distributed energy sources. The cloud-based software assists grid operators in optimizing asset management and ensuring regulatory compliance. AI-based forecasting models use data from smart meters and geographical information systems as a basis for billions of calculations. The platform can forecast local capacity and voltage constraints through 2050 with hourly precision. These data allow grid operators to take sound planning and investment decisions and cut investment costs (CapEx) by up to

35 percent. The platform is scalable and able to integrate new technologies, such as vehicle-to-grid systems. The panel of judges praised Utiligize's practical approach, innovative power and market potential, which will enable the company to make a valuable contribution to a swift clean energy transition.

### Winners in the Outstanding Projects category

#### **Phaesun – BeCool: Clean cooling for markets in Kenya**

Phaesun is a German company specializing in the integration of off-grid PV systems. Their award-winning BeCool solution is a sustainable Cooling-as-a-Service model for small market traders in the region around Lake Victoria, Kenya, where conventional cooling methods are hard to come by. Not being able to store fresh produce causes considerable social and economic problems. Phaesun's solution provides traders with access to reliable cooling – without initial investment. The solar-powered cold stores consist of cold storage rooms and individual cooling boxes that can be booked via an app. The shaded cold storage rooms were manufactured on site in Kenya, reducing environmental impact, and a built-in photovoltaic installation powers a SelfChill ice-storage system. The cooling units are made of recycled and renewable local materials and come with pre-cooling via charcoal water evaporation. With this reliable and sustainable cooling solution, Phaesun is helping to strengthen resilient communities in rural Kenya.

#### **Longi Hydrogen – 3000 Nm<sup>3</sup>/h electrolyzer in hydrogen-rich blast furnace smelting**

Longi Hydrogen has received an award for a green hydrogen project in the Chinese steel making city of Qinhuangdao, replacing fossil fuels with zero-carbon energy for blast furnace smelting. The project uses two industrial electrolyzers operated with recovered gases and renewable energy. Each unit has a production capacity of 3,000 standard cubic meters of hydrogen per hour – making it the largest system in the world, according to Longi. Retrofitting existing facilities is inexpensive as it only requires minor changes to the infrastructure. The highly efficient furnace merely consumes 4.2 kilowatt hours per standard cubic meter of green hydrogen, which leads to an 8 to 11 percent reduction of carbon emissions – both an ecological and an economic benefit. The panel of judges praised this pioneering project for showing how even industries that struggle with decarbonization can switch to green energy.

#### **Karlsruhe Institute of Technology – BiFlow**

BiFlow is an innovative project of the Karlsruhe Institute of Technology (KIT) in cooperation with Fraunhofer ICT, 1st Flow Energy Solutions and Stage76. The project for a student dormitory in Bruchsal, Germany, combined a lithium-ion battery and a vanadium redox flow battery with an existing PV system to enable the storage of electricity and heat. The energy management system creates synergies between the two battery technologies used and optimizes efficiency. The key innovation here is the thermal coupling module which recovers waste heat from the redox flow battery's electrolyte tank. The battery is operated at 50 °C instead of the usual 40°C, and the waste heat is fed into the building's heating system, doing away with the need for conventional hot water storage. The BiFlow system is forecast to save more than 18,000 euros and 20 metric tons of CO<sub>2</sub> per year. The impressive project cuts rental costs for 150 students and serves as an excellent example of how the energy transition can be implemented in everyday life.

### The smarter E

Accelerating Integrated Energy Solutions – that is the goal of The smarter E, the world's leading alliance of exhibitions for the energy industry. The aim is to create a future-oriented energy world by shining a spotlight on renewable energies, decentralization and

digitalization as well as cross-industry solutions from the electricity, heat and transport sectors for a sustainable 24/7 energy supply. This global event series unites four exhibition brands: Intersolar, ees, Power2Drive and EM-Power. They all serve as platforms for presenting innovations that help move the energy industry forward.

Intersolar is the world's leading exhibition series for the solar industry and specializes in the fields of photovoltaics, solar thermal technologies and solar power plants. Since being founded more than 30 years ago, Intersolar has become the most important meeting point for manufacturers, suppliers, installers, distributors, service providers, project developers, project planners and start-ups in the solar industry.

ees is the international exhibition series for batteries and energy storage systems. It brings together manufacturers, distributors, project developers, system integrators, professional users and suppliers of innovative battery technologies and sustainable solutions for storing renewable energies such as green hydrogen and Power-to-Gas applications.

Power2Drive, the international exhibition series for charging infrastructure and e-mobility, is the ideal meeting point for e-mobility providers, charge point operators, manufacturers and distributors, installers and planners, fleet and energy managers, suppliers and start-ups. The exhibition series shines the spotlight on charging systems, electric vehicles, traction batteries and mobility services, as well as innovative solutions and technologies associated with renewable energies for sustainable mobility.

EM-Power is the international exhibition series for energy management and integrated energy solutions. It is focused on modernizing and digitalizing the power grid into a flexible smart grid, integrating prosumers, e-mobility and power-to-heat concepts into a holistic, renewable energy system, and promoting the efficient use of renewable energy sources. The exhibition series showcases innovative technologies and services that promote a renewable 24/7 energy supply.

Further information on The smarter E can be found at: [www.thesmartere.com](http://www.thesmartere.com)

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