ees
electrical energy storage

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MESSE MÜNCHEN, GERMANY

Europe's Largest and Most International Exhibition for Batteries and Energy Storage Systems

THE KEY TRENDS IN STORAGE TECHNOLOGY FOR 2025

Battery storage systems are the backbone of the energy transition. Without them – whether as large, grid-serving systems or electric vehicle traction batteries – green electricity from solar or wind cannot be seamlessly integrated into our energy system. Their ability to flexibly store energy and supply it when it is needed makes battery storage systems indispensable for a renewable 24/7 energy supply.

That is why we are optimistic about the sweeping rise in the number of grid energy storage systems: A study by the German Solar Association (BSW-Solar) forecasts the installed capacity of large battery storage systems in Germany to grow fivefold in the next two years. While the market is picking up pace, lenders remain reluctant. Storage system projects require a higher equity share than solar farms. The BSW-Solar study has found high ROI, the volatility of the electricity market and fluctuations at the power exchange to be the main drivers for expansion. Large-scale storage systems are already shifting excess solar power from times with high generation to times with higher demand – a business model which is increasingly viable without the need for subsidies.

In the automotive industry in particular, the battery market remains dynamic. Roland Berger, a management consultancy, and the Chair for Production Engineering of E-Mobility Components (PEM) at RWTH Aachen University have recently published the Battery Monitor 2024/2025, which paints three scenarios for the development of global demand for car batteries. The most optimistic of these scenarios is based on the electrification targets set by automobile manufacturers and predicts a rise in demand from 1.4 terawatt-hours (TWh) today to 4.6 TWh in 2030, and 8.8 TWh by 2040. The most pessimistic scenario still predicts strong growth, a demand of 4.0 TWh in 2030, and 8.1 TWh in 2040.

Even small battery storage systems make big market players: In the latest edition of The smarter E podcast, Andreas Piepenbrink, founder and managing director of E3/DC, discusses the current situation of the residential storage system market. Contrary to recent media reports, the demand for private electricity storage systems has been stable since 2022, Piepenbrink says. The war in Ukraine has highlighted the need for energy security. In response, manufacturers have ramped up production and new market players have appeared. To the delight of customers, this leads to lower prices, while manufacturers are facing challenges.

Listen to the full episode:

Whether you are interested in large-scale storage systems, home storage systems, system integration, or battery cell production: ees Europe is where you meet the international market leaders.

THE SMARTER E AWARD – SOME EXCITEMENT AND PLENTY OF INNOVATIONS

And the winner is... Once the videos presenting the nominated companies and their innovations have been shown, everyone holds their breath. Whose name will the host of The smarter E AWARD Ceremony read out? If you want to be part of the excitement and learn about the top innovations and projects in the Photovoltaics, Energy Storage, E-Mobility, Smart Integrated Energy and Outstanding Projects categories, the Award Ceremony is the place to be. It takes place on May 6, 2025 at the International Congress Center Messe München (ICM). Admission is free. The ceremony will be followed by a small reception where nominees and winners will answer questions about their developments.

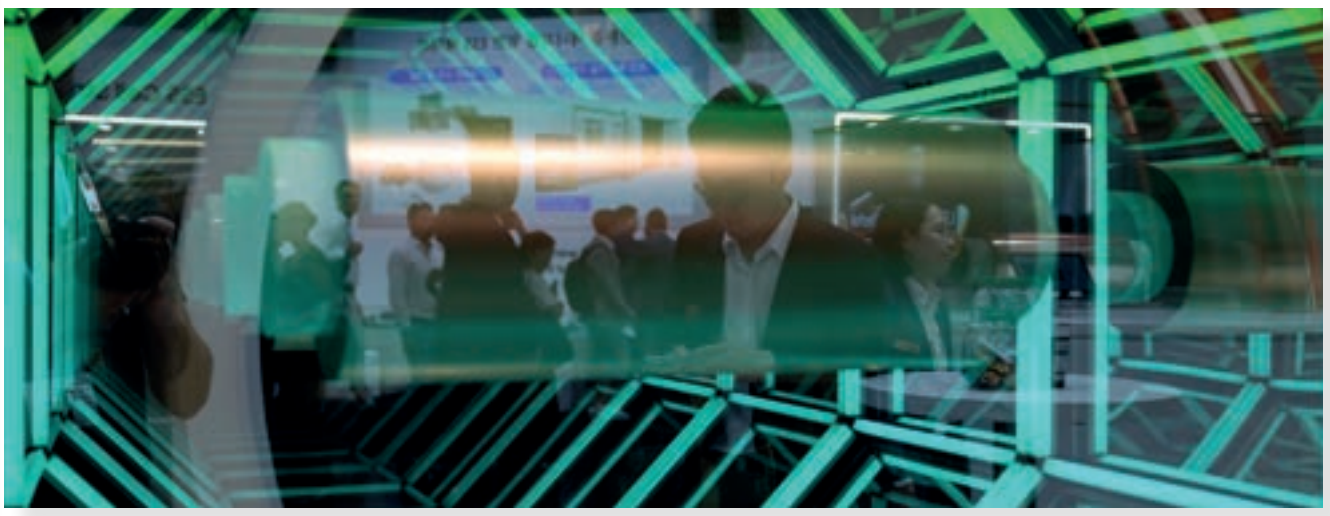
→ www.ees-europe.com → For visitors
→ Accompanying program

BATTERY RESEARCH – MADE IN EUROPE

To remain globally competitive, battery research and production has to build on the "Made in Europe" label. The 25 million euros provided by the German Federal Ministry of Education and Research (BMBF) for urgent battery research projects could not have come at a better time. Professor Heiner Heimes, Chair of Production Engineering of E-Mobility Components (PEM) at RWTH Aachen University, welcomes the funding: "This bridging funding for battery research is a positive – and much-needed – signal." He also stressed the necessity of continuity and long-term strategic thinking: "We must realize that to prevent the field being left open to Asian players, the new German government must return to a long-term subsidy strategy as soon as possible. Only a long-term strategy will enable strong research into high-performance battery technology and secure the future of the German industry. This will require much more than 25 million euros for individual projects."

At ees Europe 2025, RWTH Aachen University will provide insights into the latest developments in battery research. RWTH Aachen University is an event partner and their booth can be found at the ees Innovation Hub in hall B0 on all three exhibition days. Scientists at RWTH will also be giving presentations on research findings and industry trends at several sessions. Visitors can also look forward to lectures by scientists of Fraunhofer Institute for Solar Energy Systems ISE and Karlsruhe Institute of Technology (KIT).

Professor Heimes will be joined by Dr. Philipp Seidel from Arthur D. Little, a management consultancy. According to Dr. Seidel's analysis, state-of-the-art production processes and battery research in Europe are key to scaling economic success in this industry. In an interview with Battery-News.com, he mentioned three key areas: "Apart from the complete production ecosystem, research is also essential, as is specialized plant construction. We don't necessarily have to have everything in one place, but we do need strong players for each key area somewhere in Europe." Dr. Seidel is acutely aware of competition with Asia: "Automation is a good example, because we can see that in a region with high labor costs and high productivity, automation is key. If we do not manage to establish a high degree of automation, our battery industry is going to lose out. The same principle applies to cell production and recycling." It remains to be seen how fresh research grants, innovative products or political changes will play out as 2025 goes on.



LIKE GOOGLE MAPS FOR PROJECT DEVELOPERS: FINDING BETTER LOCATIONS FOR ENERGY PROJECTS

OLIVER SCHMIDT

CEO and Co-Founder
dvlp.energy

The start-up dvlp.energy wants to make it easier for planners of renewable energy projects to access information that was previously difficult to obtain. On the software-as-a-service platform of the same name, users can use a web-based geographic information system to retrieve data on all relevant selection criteria, especially on grid infrastructure and utilization, for example for PV projects, and to connect with owners of a property and other project developers. In our interview with Oliver Schmidt, co-founder of dvlp.energy, we learn more about the tool for PV, wind, and battery storage projects.

Why should project developers choose dvlp.energy?
On average, only one out of ten areas a project developer spends time evaluating ultimately becomes a site for a ground-mounted PV system. We want to increase the success rate by helping project developers evaluate areas faster and in more detail. With our Web GIS dvlp.energy, project developers have access to more than 70 data layers, similar to Google Maps. The only difference is that they can see protected areas, land values, electricity highways, grid capacities, municipal data and more. This allows our tool to evaluate the suitability of areas within seconds. On request, it also helps identify the owner of a property.

How does the tool help plan the construction of battery storage systems?
Battery storage systems require less space than PV systems, which makes it easier to search for suitable areas, but there are still important factors to consider. For example, developers need to check whether the area in question is protected or at risk of flooding. Rather than using various Web GIS applications for each federal state, battery storage developers can use our tool to validate projects across Germany more quickly and in more detail.

How would legislation need to change in Germany to better exploit the potential of energy storage technologies?
Legislation should make it easier to digitalize and access key planning data, such as land-use plans, and make it publicly available. In many other countries this is already possible. There also needs to be clearer rules on how storage systems are classified and treated by grid operators. In Germany, there is still a construction cost subsidy in place for storage projects – even though they can significantly relieve the burden on the power grid.

START-UPS@ THE SMARTER E EUROPE

The smarter E Europe 2025 will be presenting around 180 Start-ups across 4,000 sqm in hall C5. Next to the Start-up Stage, where young companies will be showcasing their innovative products and solutions, four mini lounges will provide participants with a more private space for holding productive meetings and forming strategic alliances. You can find even more promising young companies at the joint booth Young Innovators, funded by the German Federal Ministry for Economic Affairs and Climate Action (BMWK).

NEW: EES INNOVATION HUB FOR COMMUNITY, NETWORKING AND PRESENTATIONS

The ees Innovation Hub is our new exhibition format for young and innovative companies. Here, start-up companies, research institutes and international companies will be presenting their latest energy storage projects and products.

In addition, the ees Innovation Hub offers a diverse program on all three exhibition days. At the ees Innovation Hub Stage, researchers at RWTH Aachen University, Fraunhofer Institute for Solar Energy Systems ISE and Karlsruhe Institute of Technology (KIT) will present their findings in the focus areas of battery technology, AI in battery research and recycling.

Industry pitches by exhibitors, community and networking events will complete the ees Innovation Hub program. At the "4 o'clock beer" meetup, researchers, exhibitors and visitors will have the opportunity for an informal chat. Don't miss the Meet&Greet with The smarter E AWARD winners and finalists in the Energy Storage category on Wednesday and Thursday from 4:00pm, and on Friday from 12:30pm at the Energy Storage AWARD hall of fame at booth B0.150.

More information about the ees Innovation Hub:

THE EES EUROPE CONFERENCE 2025

The launch of The smarter E Europe, Europe's largest alliance of exhibitions for the energy industry, will be accompanied by specialist conferences, including the ees Europe Conference, from May 6–7, 2025. International industry experts will present their research findings and ideas for future energy storage solutions to an international audience of industry professionals. You can also attend our three other specialist conferences, the Intersolar Europe Conference, the Power2Drive Europe Conference and the EM-Power Europe Conference.

Conference topics
An exciting program with insights into current developments awaits you at the ees Europe Conference. Learn about the most innovative technologies in the storage industry at the session „Technology: What Happens in the Lab Does Not Stay in the Lab!". The session „Quality Characteristics of Large-Scale Storage Systems: What to Look out for" will highlight the rising demands on the security, reliability, and performance of large-scale grid energy storage systems. Visit our website for more information.
www.ees-europe.com → Conference

GREEN HYDROGEN FORUM

Partners

The future needs solutions for a renewable 24/7 energy supply – and green hydrogen, fuel cells, electrolyzers and power-to-gas will play a key role. To move the market forward, it is essential to discuss the latest developments in technology and markets. This is why the Green Hydrogen Forum will be offering a whole range of exciting presentations, such as:

- **Implementing the Hydrogen Economy in Europe:** How will the auctions at the Hydrogen Bank, the initiatives of the Important Projects of Common European Interest (IPCEI) and the innovation fund affect the hydrogen economy? This session will provide an overview of the advancements and challenges of moving towards energy security and decarbonization at EU level.

- **Integrating Renewable Energy Systems: Medium and Small-Scale Green Hydrogen Projects in Action:** Medium-sized and small projects excel with flexibility and agility – at the interface of mobility, industry and decentralized energy systems. These projects make a key contribution to implementing the hydrogen economy and show promising approaches.

- **Challenges and Support for Implementing Hydrogen Projects: How to Build an H2 Project:** This session will look at practical steps towards implementing hydrogen projects. Experts will be discussing the financial aspects, business models, certification systems and legal frameworks needed to make a project successful.

- **Deep Tech Dive Into Hydrogen and Beyond:** This session will showcase projects that contribute to overcoming existing barriers, boosting efficiency and lowering costs, strengthening the competitiveness of hydrogen technologies.

- **High-Impact Projects Driving the Deployment and Market of Green Hydrogen:** Large-scale hydrogen projects demonstrate that scalability is possible and present strategies for overcoming technological, financial and logistical challenges.

- **Collaborations That Bring Projects Together – Panel Discussion:** How do project developers, utilities, engineering firms and financial institutions work together to implement ambitious hydrogen projects? This panel discussion will explore the key role of collaboration in a successful project environment.

The Green Hydrogen Forum is part of ees Europe and will be located in hall B2. Visitors and exhibitors of The smarter E Europe can attend the presentations free of charge on all three exhibition days.

A NEW APPROACH TO BATTERY CIRCUITS

Circunomics, a start-up company, has based its business model on vehicle batteries. Rather than recycling them once they are no longer suitable for driving a car, Circunomics uses them for a second-life application as energy storage. Find out more in the interview with Marius Vogt, Head of Sales at Circunomics.

MARIUS VOGT

Head of Sales
Circunomics

What are the preconditions for a battery to be ready for a second-life application? Which industries and products use them?
Car manufacturers collect and store extensive data. We compile this data in our cloud-based software, so that our analysis tool can accurately determine the battery's state of health. We then use a digital twin to calculate how the used battery will behave during its second life. This allows us to give recommendations to our customers, such as a manufacturer of energy storage systems integrated in large photovoltaic installations, as to which batteries offered on the digital marketplace are best suited for their project. Depending on the area of application, this gives batteries an additional five to eight years of service life, a considerable extension, before they are sent to a qualified recycling process.

What technical steps are required to give a battery a second life?
We have to start by getting to know the battery through the data collected. This is done by an algorithm that understands battery aging and behavior. Our algorithm is based on an electrochemical model filled with data from the battery's first-life use. This is compared with data collected in our own laboratory, where we run a generic ageing process by subjecting the batteries to high strain, testing them under different C-rates and temperature conditions, and using that data to optimize our AI-supported software. Once we have done this, we turn to our platform for "battery matchmaking", forecasting for which second-life application a battery is suitable. This could be as storage in a wind or solar park.

What are the advantages of second-life batteries in energy storage systems?
Once a battery is no longer suitable for the demanding load cycle of a vehicle, alternative usages can be considered – and that is exactly where energy storage comes in. Vehicle batteries are designed for high C-rates. The C-rate during discharge is typically between 3 and 5 C, during charging between 1 and 2 C. In an energy storage system, such as in a solar farm, the situation is different. Energy charge and discharge is much more regular, and the C-rate is just 0.5 to 1 C, leading to considerably less wear than when a battery is used in a car. Vehicle batteries are designed for high performance, and that is why they are excellently suited for reuse as energy storage. That way, they can work reliably for several more years.

Circunomics is an exhibitor at ees Innovation Hub at Messe München, Hall B0, booth B0.155.

FULL SPEED AHEAD: ENERGY STORAGE AT THE SMARTER E EUROPE

ees Europe is Europe's largest and most international exhibition for batteries and energy storage systems. Under the motto "Innovating Energy Storage", ees Europe offers a wide range of topics, from commercial and residential storage systems, second use solutions, artificial intelligence in battery systems to innovative power-to-gas technologies. The exhibition provides a comprehensive overview of what has been happening in the energy storage industry. As an exhibition space and location for specialist presentations on green hydrogen, the Green Hydrogen Forum & Expo is an important part of ees Europe. Our industry-leading exhibitors, the varied conference program and numerous forum sessions on cutting-edge topics demonstrate that battery storage, green hydrogen and renewable energies go hand in hand. A future-proof world of energy and mobility requires renewable energy, decentralization, digitalization and innovative thinking. Together with the parallel events Intersolar Europe, Power2Drive Europe and EM-Power Europe, ees Europe bridges the gap between the industries and brings together relevant players – from international market leaders to start-ups. They serve as a platform to showcase solutions for a renewable 24/7 energy supply in the areas of electricity, heat and transportation.

ees Europe will take place from May 7–9, 2025, as part of The smarter E Europe, Europe's largest alliance of exhibitions for the energy industry, at Messe München. Be there or be square!

ees Europe Quick Facts

Date	May 7–9, 2025
Venue	Messe München, Germany
Exhibition Space	206,000 sqm
Exhibitors	(The smarter E Europe in total 3,000+, including 1,200+ providers of energy storage technologies and 100+ providers of green hydrogen solutions.

SPECIAL EXHIBIT BIDIRECTIONAL CHARGING

The first edition of the special exhibit Bidirectional Charging will be a special highlight of The smarter E Europe 2025. The special exhibit will shed light on the many options and the potential of vehicle-to-X solutions (V2X). From vehicle-to-grid (V2G) to vehicle-to-home (V2H), vehicle-to-building (V2B) and vehicle-to-load (V2L), this technology offers diverse applications that will transform both our energy supply and mobility.

In hall C6, right next to the Power2Drive Forum, exhibits, live demos, expert presentations and discussions as well as best practices will demonstrate how visions become reality.