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Software for battery energy storage integration:   
Tech for BESS: Essential technology for smart grids

To support the integration of battery energy storage systems (BESS) onto energy grids, [automation software developer](https://www.copadata.com/en/?utm_source=Hard+news&utm_medium=Stone+Junction&utm_campaign=COP623&utm_id=COP623&utm_content=Earned), COPA-DATA has engineered its software platform zenon for use in BESS applications. If not monitored and controlled, BESS cannot effectively interact with the wider grid, making it challenging to integrate renewables and meet net-zero targets.

zenon is a software platform developed by COPA-DATA that provides a comprehensive solution for efficient control, visualization, and analysis of industrial operations. When used in an energy setting, zenon enables operators to monitor energy generation across a grid by exchanging data with multiple assets — be they classical power plants, renewable generation plants, substations or now, BESS.

Renewable energy sources are becoming more important than ever before as organizations strive toward net zero goals. BESS can help to mitigate the intermittency and variability of renewable energy sources on the grid. This means that excess energy can be stored when there is a surplus of power, and used when renewable sources are not producing enough.

However, integrating BESS is linked to significant challenges in terms of grid interaction, economic energy use, asset protection and cyber security. Due to the nature of large-scale BESS, controlling these systems in a proper way is quite sensitive, due to their direct interconnection with larger scale grid segments. A professional monitoring and control solution is essential to detect abnormalities and take appropriate measures to protect all involved assets, reduce maintenance costs and make most efficient use of the available storage capacity. COPA-DATA's software platform, zenon has been engineered to meet this need.

"With zenon, energy managers can easily monitor and track energy production across the entire grid – ensuring that BESS systems are properly integrated for peak efficiency and sustainability,” said Stefan Hufnagl, Energy Industry Specialist at COPA-DATA. “The software platform provides a user-friendly interface and intuitive dashboards, allowing operators to quickly access critical information. zenon also includes advanced analytics tools that help users identify trends and increase their BESS performance."

zenon’s monitoring and control features are enhanced by its top-notch security and dependability features for seamless integration with BESS. The software platform is designed to comply with the most stringent security standards, including protocol for authentication and encryption. This ensures that BESS data is protected from online threats and unauthorized access, providing the user with peace of mind.

zenon's standards and tools for swift project realization make it easy for companies to deploy BESS quickly and efficiently. The software platform supports a wide range of industry standards, including MODBUS, CAN, IEC 61850, IEC 60870, DNP3 or OPC-UA. This makes it easy for grid operators to integrate BESS into existing energy systems and grid infrastructures.

"Industries that can benefit from BESS typically fall into five key categories: energy trading, generation, transmission and distribution, consumers, and sales and marketing", said Hufnagl. "In order to optimize renewable energy systems, zenon’s monitoring and control capabilities can be highly advantageous. We encourage potential users to contact COPA-DATA's experts to find out more."

*For more information on integrating BESS with zenon, or to download the free whitepaper on the role of software technology in BESS, head to* [*www.copadata.com*](https://www.copadata.com/en/industries/energy-infrastructure/energy-solutions/zenon-energy-storage-system/?utm_source=Hard+news&utm_medium=Stone+Junction&utm_campaign=COP623&utm_id=COP623&utm_content=Earned)*. Also accessible there: a free on-demand webinar about* [*Driving the Energy Transition with BESS*](https://go.copadata.com/bess-webinar-on-demand)*.*

About COPA-DATA

COPA-DATA is an independent software manufacturer that specializes in digitalization for the manufacturing industry and energy sector. Its zenon® software platform enables users worldwide to automate, manage, monitor, integrate and optimize machines, equipment, buildings and power grids. COPA-DATA combines decades of experience in automation with the potential of digital transformation. In this way, the company supports its customers to achieve their objectives more easily, faster and more efficiently.  
The family-owned business was founded by Thomas Punzenberger in 1987 in Salzburg, Austria. In 2022, with more than 350 employees worldwide, it generated revenue of EUR 69 million.

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