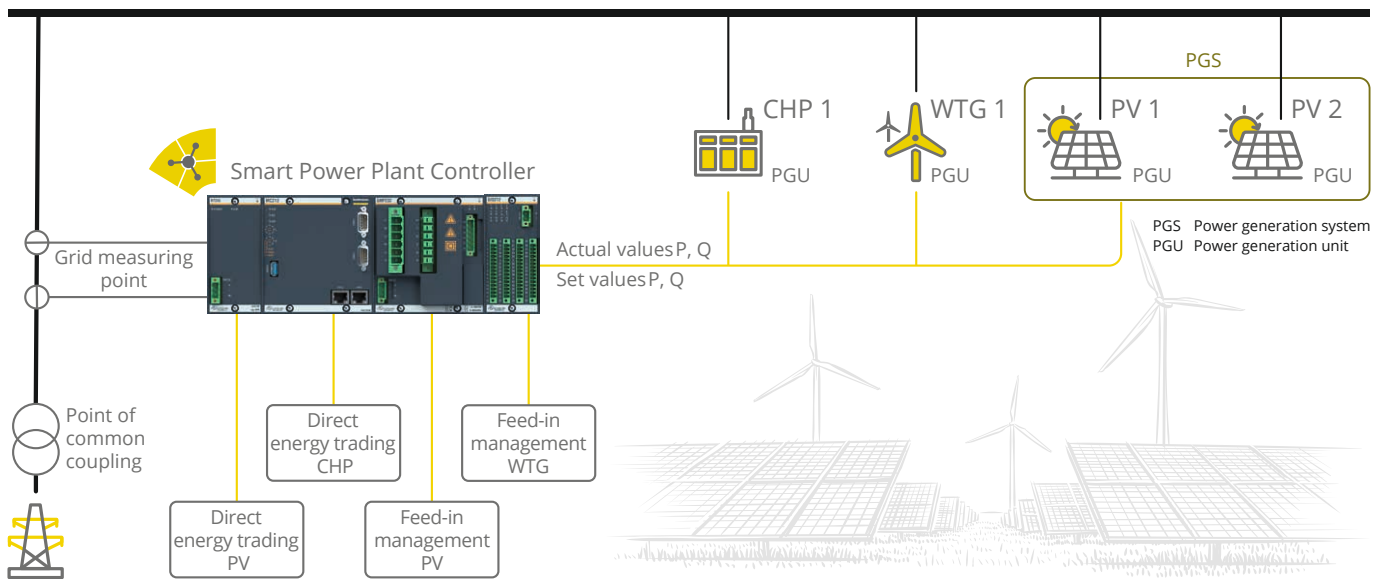




# One solution for all hybrid park producers

*Directly integrate into the Bachmann system without  
communicating with external devices / Process network information  
using your own applications*



▶ Bachmann's Smart Power Plant Controller connects wind, solar and CHP plants to the point of common coupling and communicates with direct energy trading and feed-in management.

Janine Buchwald-Nolte and Michael Backhaus from Bachmann electronic explain how a power plant controller can be used to optimize the networking of multiple hybrid power plant stakeholders.

*What is Bachmann's role in the field of renewable energy?*

**Michael Backhaus:** Bachmann has been an automation manufacturer and solution provider in the renewable energy market for more than 20 years. This includes wind, PV, CHP, storage and hydro power.

*Which solutions do you offer?*

**Michael Backhaus:** Bachmann offers OEMs in renewable energy sectors a complete toolkit of automation hardware, software and communication.

*What are Bachmann's strengths?*

**Michael Backhaus:** The continuous development of know-how at Bachmann is made possible by our close relationship with OEMs. We understand our customers' specific requirements and can respond to market demands with product-oriented implementation in hardware and software, including all necessary certifica-

tions. Bachmann's participation in numerous energy standards bodies is also very advantageous in this respect, allowing us to react promptly to market developments with relevant products.

*Can you give an example?*

**Michael Backhaus:** Bachmann's development of the certified Smart Power Plant Controller is one such example; we recognized the need for a certified power plant controller in Germany very early on and began development soon after. This meant we were one of the first manufacturers in the market able to offer a power plant controller, fully certified in accordance with VDE-AR-N 4110/4120.

*In today's world, is it sufficient to focus only on the plant itself?*

**Janine Buchwald-Nolte:** Due to the politically- and economically-driven expansion of renewable energy, factors such as grid expansion, secure infrastructure, generator and consumer flexibility, are becoming increasingly important, in addition to the power plants

themselves. The replacement of a small number of conventional large-scale power plants with many decentralized energy producers, with the according demand for grid stability and quality, necessitates the implementation of other solutions.

*What are these solutions?*

**Janine Buchwald-Nolte:** Bachmann has developed high-precision grid measurement modules that integrate into in our automation system. These modules are used for grid measurement, monitoring and synchronization. Direct integration with the Bachmann system eliminates the need for communication with external devices, and therefore grid information such as frequency, grid quality, voltage, current and power can be processed in the customer's own applications in real time, enabling them to react to conditions accordingly.

This integration is also used in our power plant controller. It communicates with the various decentralized energy generators (hybrid power plants) and regulates grid conditions at the point of common coupling (PCC).

*What exactly does the power plant controller do?*

**Janine Buchwald-Nolte:** The power plant controller is certified according to VDE-AR-N 4110/4120; in addition to active and reactive power control, the controller also offers higher-level functionalities such as primary control, clustering and prioritization.

*Can you elaborate on why a power plant controller is important?*

**Janine Buchwald-Nolte:** When numerous decentralized energy producers are in play, a central point of communication is required in order to meet grid stability objectives and grid service provider requirements. For this to function smoothly, the transfer point must be standardized – as defined by VDE-AR-N 4110/4120 certification.

For a better overview of the diverse topologies, the power plant controller contains a commissioning and operating visualization, which logs all important status values, events and historical data – even after commissioning. Integration into higher-level control systems (SCADA) is also an option.

*Does Bachmann support cybersecurity?*

**Michael Backhaus:** Unauthorized access to power plant controllers and energy management systems currently poses a major threat (from cyber-attacks), so Bachmann's automation system

supports access security and user rights management in full accordance with IEC 62443.

*Bachmann supports battery storage and hybrid power plants with open and standardized interfaces/protocols. What does this mean exactly?*

*»Bachmann offers a complete toolkit for automation and communication.«*

**Michael Backhaus**  
Manager Renewables, Bachmann

**Janine Buchwald-Nolte:** There are different requirements for communication and operating specifications, depending on the power generation unit manufacturer. This results in a variety of protocols that the power plant controller has to understand. These can be IEC protocols such as IEC 60870-5-101/103/104, as well as Modbus, Profinet or similar. Bachmann offers a portfolio of all common IEC and bus protocols for straightforward configuration and commissioning.

*What does Bachmann's modular system for hardware and software in hybrid power plants look like? Why does modularity make sense in this case?*

**Michael Backhaus:** The distribution of energy generators within a plant can mean that the hardware also has to be modular. If, for example, the PV plant and storage system are located one kilometer away from the grid connection point, then the modular design of the hardware can be used to mirror the topology of the plant.

The Bachmann controller's modular, multitasking software concept makes it possible to implement plant-specific requirements on the same hardware in parallel with the certified power plant controller, without violating the certification.

#### CONTACT & FURTHER INFORMATION



**Michael Backhaus**  
Manager  
Business Unit  
Renewables



**Janine Buchwald-Nolte**  
Product Manager  
Business Unit  
Wind/Renewables



T: +43 5522 3497-0  
[info@bachmann.info](mailto:info@bachmann.info)



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