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Complete Retrofit

TAILWIND FOR FUTURE PROFIT

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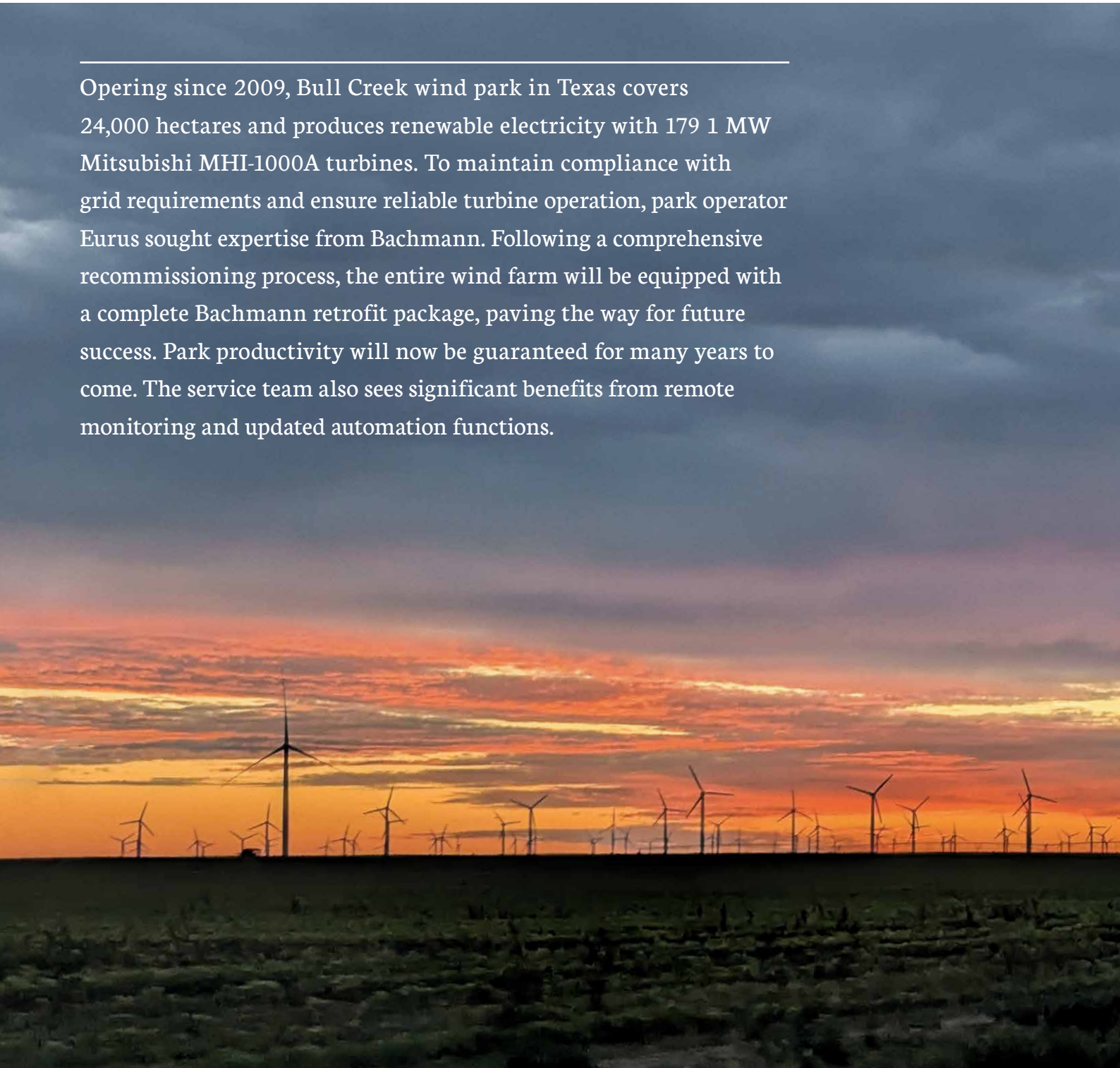
Complete Retrofit

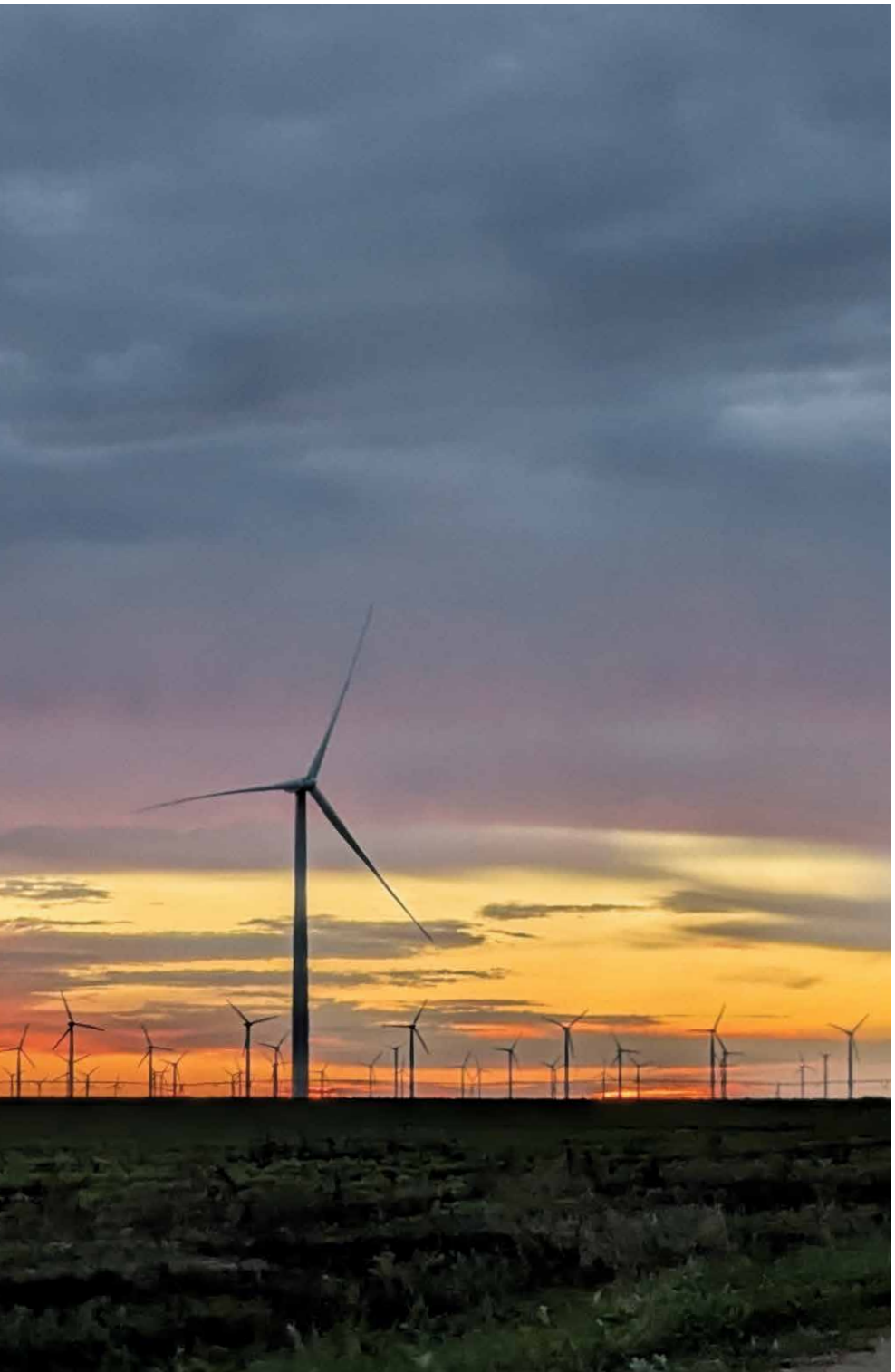
TAILWIND FOR FUTURE PROFIT

Opering since 2009, Bull Creek wind park in Texas covers 24,000 hectares and produces renewable electricity with 179 1 MW Mitsubishi MHI-1000A turbines. To maintain compliance with grid requirements and ensure reliable turbine operation, park operator Eurus sought expertise from Bachmann. Following a comprehensive recommissioning process, the entire wind farm will be equipped with a complete Bachmann retrofit package, paving the way for future success. Park productivity will now be guaranteed for many years to come. The service team also sees significant benefits from remote monitoring and updated automation functions.



The challenge: guaranteeing safe operation

Eurus faced mounting challenges from its existing turbine control systems. Acquiring spare parts for outdated systems was proving difficult, resulting in extended downtime and expensive repairs. Furthermore, the original SCADA system failed to meet current reporting requirements and lacked adequate monitoring functionality, but system development had come to an end. Eurus needed a future-proof solution to ensure the safe operation of its wind park.



The solution: a complete package for the future

Eurus found what it needed in Bachmann's modern and scalable complete retrofit solution. By combining controls retrofitting with remote visualization and operation, as well as condition monitoring, Eurus will be able to keep track of every detail in the entire park. This comprehensive solution establishes a foundation of proactive maintenance planning, which will boost electricity production. At the same time, it meets the owners' requirements for site reliability.

Constant control, from anywhere

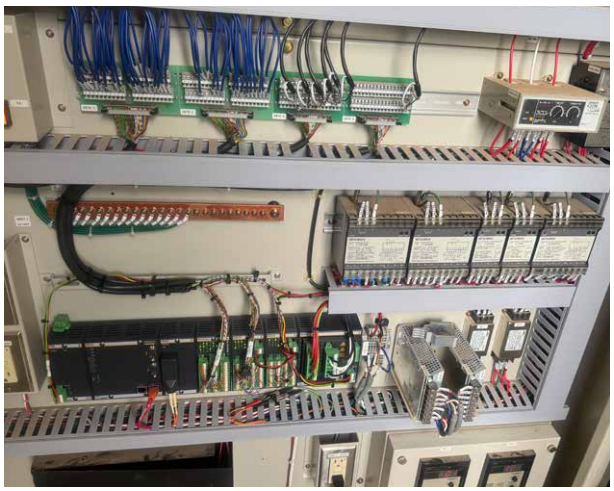
With Bachmann's web-based forsiteSCADA, Eurus can effectively monitor the entire wind park from its central control center. The visualization and control solution aggregates live data on to individually configured dashboards, which can be easily compared with historical data.

Bachmann's M1 WebMI pro enables Eurus technicians to perform detailed fault diagnostics with ease. These diagnostics can be performed either directly in the nacelle via Ethernet, or remotely via smartphone, tablet, or PC.

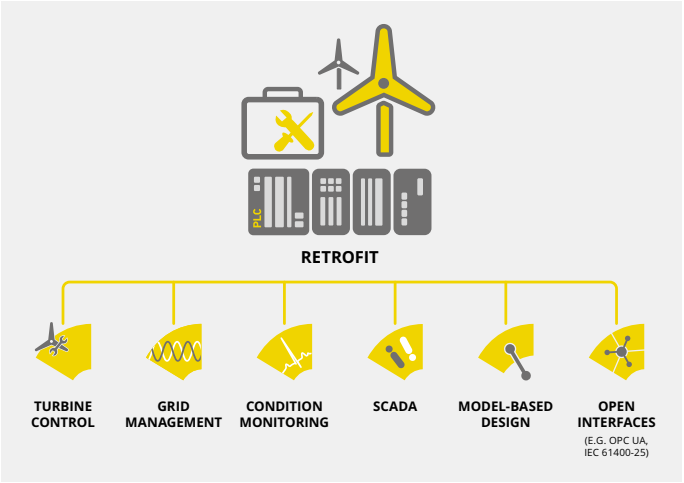
Each turbine's mechanical drivetrain is also continuously monitored by Bachmann's monitoring experts in the Remote Control Center. Damage can be detected at an early stage based on regular status reports. This feature enables Eurus to schedule targeted on-site maintenance, which prolongs the service life of the turbines.

Open to individual functions

The new SCADA system was required to meet a fundamental standard: the mandatory reporting mandated by NERC (North American Electric Reliability Corporation) in accordance with



Quick retrofit: With pre-prepared stations and plug-and-play adapter sets, a controls retrofit can be completed in less than two days. This approach also minimizes installation errors. Pictured: The control system in the tower base, which also includes grid measurement.



Ready for the future: Bachmann's retrofit solution is based on six pillars, ranging from the turbine to grid management and open interfaces.

the "GADS" guidelines (Generating Availability Data System). With forsiteSCADA, Bachmann experts can precisely customize and implement these and other individual reports and visualization tools in order to meet Eurus' specific requirements.

Cybersecurity in parallel

The risk of cyberattacks in critical infrastructure has increased significantly over recent years – and continues to rise rapidly. Compliance with the latest cybersecurity measures is essential for modern control solutions. With its robust access control feature, Bachmann's Wind Turbine Template provides a reliable solution. Even during retrofitting, individual user profiles enableparameter change tracking and alarm acknowledgement. The new control solution also significantly reduces the number of potential attack points by combining the original controller and a separate SCADA gateway module into one, single address per turbine.

Precise preparation = rapid installation

Eurus initiated the retrofitting process for the 179 turbines in July 2025. Thanks to Bachmann's forward-thinking preparation, including pre-assembled cable harnesses and pre-measured mounting rails, technicians were able to retrofit the turbine control system in less than two days on average. All modules were subjected to a 48-hour installation test under extreme conditions to ensure long, safe operation.

Prepared for tomorrow

Bachmann's modular design and transparent data access help prepare Eurus for the future requirements of the American energy landscape. Additionally, the control solution provides a scalable basis for future site expansion, including the integration of additional wind turbines, solar power generation, battery storage systems, and other renewable energies. These can be seamlessly integrated into the new park control system at any time, thanks to Bachmann's Smart Power Plant Controller.

EURUS ENERGY AMERICA

- Operates various wind parks, photovoltaic systems, and battery storage systems in North and South America.
- Over 600 MW of installed capacity
- Part of Eurus Energy Holdings Corporation, which operates facilities with a total capacity of 5 GW of renewable electricity worldwide (www.eurus-energy.com/en/).

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