

Smart Power fuels precision agriculture boom in Ningxia's greenhouse economy

20 April 2026 | News

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In the heart of Ningxia's Hongsibu District, a new model of precision agriculture is taking root—powered as much by data and automation as by a stable and intelligent energy backbone. Inside the sprawling 22,464-square-meter glass greenhouses of the Modern Agricultural Industrial Park, rows of vibrant cherry tomatoes flourish under meticulously controlled conditions, signaling a shift from traditional farming to high-efficiency, technology-driven cultivation.

At the center of this transformation is the seamless integration of advanced greenhouse systems with reliable, round-the-clock power supply. Equipped with a Dutch Knight fully automated control system, the facility leverages real-time data to regulate temperature, humidity, irrigation, and nutrient delivery with precision. This fully digitized environment enables continuous, optimized crop growth, eliminating dependence on weather variability and ensuring consistent output.

Such high-performance agriculture, however, hinges on uninterrupted energy. Recognizing this, State Grid Wuzhong Power Supply Company has implemented a specialized agricultural power service model tailored to the unique demands of smart greenhouses. Facing challenges such as fluctuating power loads, seasonal transformer re-commissioning, and high operational sensitivity, the company deployed dedicated service teams to assess energy requirements, map load patterns, and design customized supply solutions.

This proactive approach has significantly streamlined operations. Transformer commissioning processes that once delayed production have been reduced to a single working day, aligning energy availability with critical planting cycles. At the same

time, comprehensive grid inspections and advanced monitoring technologies—including infrared diagnostics and load tracking—have strengthened infrastructure reliability, mitigating risks such as equipment faults and line disruptions.

The results are tangible. Tomato plants in the facility now reach heights exceeding two meters, producing uniform clusters of 12 to 14 fruits each. With 236 planting rows and 120 plants per row, the greenhouses are projected to generate an annual output value surpassing 5 million yuan. Beyond productivity gains, the initiative is delivering socioeconomic impact—creating stable employment for over 30 local households and increasing annual incomes, while establishing a benchmark for agricultural modernization in the region.

As demand grows for sustainable, high-quality food production, the convergence of smart agriculture and resilient energy systems is emerging as a critical enabler. In Hongsibu, this synergy is not only enhancing yields but also redefining rural development—demonstrating how infrastructure innovation can unlock new pathways for economic growth and community prosperity.

Looking ahead, State Grid Wuzhong Power Supply Company plans to deepen its engagement with the agricultural sector, offering ongoing technical support, safety guidance, and responsive services. By ensuring consistent power for intelligent farming systems, the company is helping to secure year-round productivity and reinforcing the foundation for long-term rural revitalization.