SPIC Shandong Completes Smart Upgrade of Aishan Wind Farm

Recently, Aishan Wind Farm in Jiaozhou officially completed its smart upgrade and was put into operation. The introduction of intelligent equipment and advanced technologies, such as automated inspection systems, has injected new vitality into the wind farm and given it a refreshed, modern profile.

▲ Data acquisition camera in 35 kV HV switchgear room

The upgrade fully incorporated lessons learned from previous projects, with rigorous review and implementation of the renovation plan and key technical solutions. The resulting improvements further advance technological innovation across the site. The farm's intelligent monitoring system includes six modules, including thermal imaging temperature measurement, voiceprint recognition, and partial discharge monitoring. Coupled with devices like smart helmets and mobile surveillance cameras, the system enables precise equipment alerts, standardized operating procedures, and intelligent safety management, shifting safety management from passive response to proactive defense.

▲ Smart monitoring system of Aishan Wind Farm

Currently, SPIC Shandong's smart energy stations have successfully transitioned from "extensive operation" to "precision management". The defect alert capabilities of the production and operation center ensures timely response to anomalies, increasing the station's availability by 0.6% year-on-year. Predictive maintenance and intelligent defense work in tandem, significantly enhancing the station's intrinsic safety.

Further Reading: Aishan Wind Farm is located in Yanghe Town, Jiaozhou City, Qingdao, Shandong Province. With a total investment of approximately RMB 394.53 million and an installed capacity of 35 MW, it comprises 14 wind turbines each with a capacity of 2.5 MW. The project includes one 110 kV step-up substation and two 35 kV collection lines. It was temporarily connected to the Shandong grid via a 35 kV line on December 25, 2020, and subsequently completed 110 kV grid connection on March 24, 2023. In 2025, its annual energy production exceeded 100 GWh for the first time, with a turbine availability rate of 99.87% and an average annual settlement electricity price ranking second among SPIC's wind farms in Shandong.