OFF-GRID SCOUTING STATIONS FOR WIND ENERGY IN AUSTRALIA
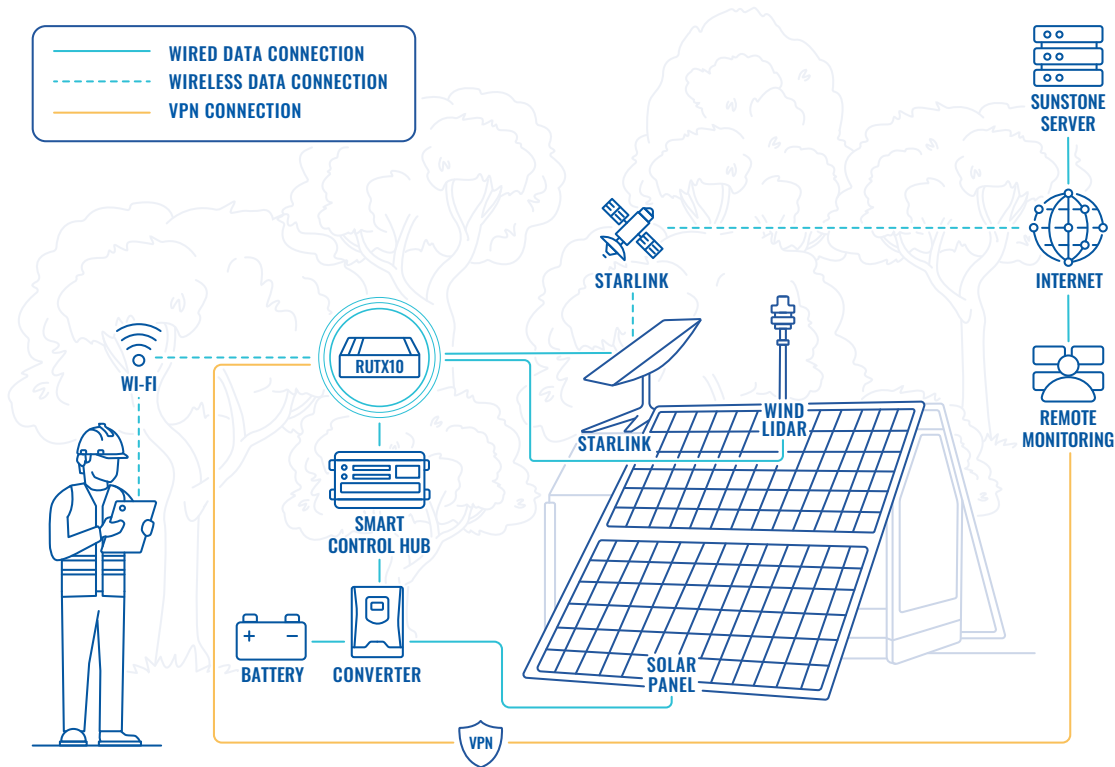
HIGHLIGHTS

- SunStore Australia has created off-grid scouting stations to meet the wind energy sector's need for accurate site evaluation in remote Australian locations.

- Teltonika's RUTX10 router was chosen for its reliability, security features, and seamless integration with Starlink satellite connectivity, ensuring remote operation.

- The RUTX10 supports firewall protection, Modbus integration, MQTT data transmission, and remote access through ZeroTier, creating a robust monitoring system.

- Outcome: A highly secure and reliable solution enabling wind data collection and remote trailer management in some of Australia's most remote regions.

THE CHALLENGE

SunStore Australia works with leading wind energy companies to scout and monitor remote sites for potential wind farm installations. These scouting stations are deployed in off-grid trailers, often in areas far beyond the reach of traditional cellular networks. The trailers must collect wind data over extended periods while ensuring data security and enabling remote monitoring.

SunStore needed an ultra-secure solution capable of supporting real-time data acquisition, secure communication, and remote management without requiring costly site visits. The challenge was to create a reliable and scalable connectivity setup that could operate autonomously in the extreme conditions of Australia's outback.

TOPOLOGY

WIRED DATA CONNECTION
WIRELESS DATA CONNECTION
VPN CONNECTION

SUNSTONE SERVER

INTERNET

REMOTE MONITORING

STARLINK

WIND LIDAR

STARLINK

WI-FI

RUTX10

SMART CONTROL HUB

BATTERY   CONVERTER

SOLAR PANEL

VPN

THE SOLUTION

To address the challenges faced by SunStore Australia, the company implemented a combined solution using Starlink satellite services and Teltonika's RUTX10 router. Together, these technologies ensure reliable connectivity, secure data transmission, and remote management capabilities for the off-grid scouting trailers.

Starlink was selected for its ability to provide consistent, high-speed internet in remote areas with no cellular coverage. Its dependable satellite connectivity serves as the backbone of the system, ensuring that data from the trailers can always reach centralised servers for analysis.

The Teltonika RUTX10 router enhances this system by serving as the key networking device within the trailers. It connects the Modbus wind sensors installed in the trailers to the internet, ensuring the collected data is securely transmitted to a central server via MQTT. This seamless data integration enables real-time monitoring of wind conditions at prospective wind farm locations.

Security is a top priority for SunStore, and the RUTX10 delivers robust protection through advanced firewall capabilities, ensuring all data transmissions remain secure. The router also provides remote access via ZeroTier, enabling SunStore's team to manage and troubleshoot the trailers without needing to visit these remote sites physically. This functionality significantly reduces operational costs and downtime.

In addition, the RUTX10 offers Wi-Fi hotspot capabilities, ensuring on-site technicians have connectivity for any maintenance work. Its stability, powered by the OpenWRT-based firmware, ensures uninterrupted operation even in harsh and remote conditions, minimising downtime and increasing efficiency for SunStore and its clients.

This innovative solution allows wind energy companies to conduct essential scouting activities in areas previously deemed inaccessible, empowering them to expand the reach of renewable energy projects.