

CONNECTIVITY FOR ENERGY STORAGE SYSTEMS ACROSS AUSTRALIA

HIGHLIGHTS

- ✔ [RedEarth](#) is an Australian manufacturer of on and off-grid energy storage systems and batteries, providing electricity to residential and business clients throughout Australia.
- ✔ In order to ensure remote management and automated data tracking and analysis, its storage systems needed reliable connectivity. The problem was – reliable connectivity is scarce in rural Australia.
- ✔ RUT241 was chosen to enable this solution with uninterrupted 4G connectivity, alongside RMS Connect for remotely reaching and updating end devices easily and securely.

THE CHALLENGE – POWER TO THE PEOPLE

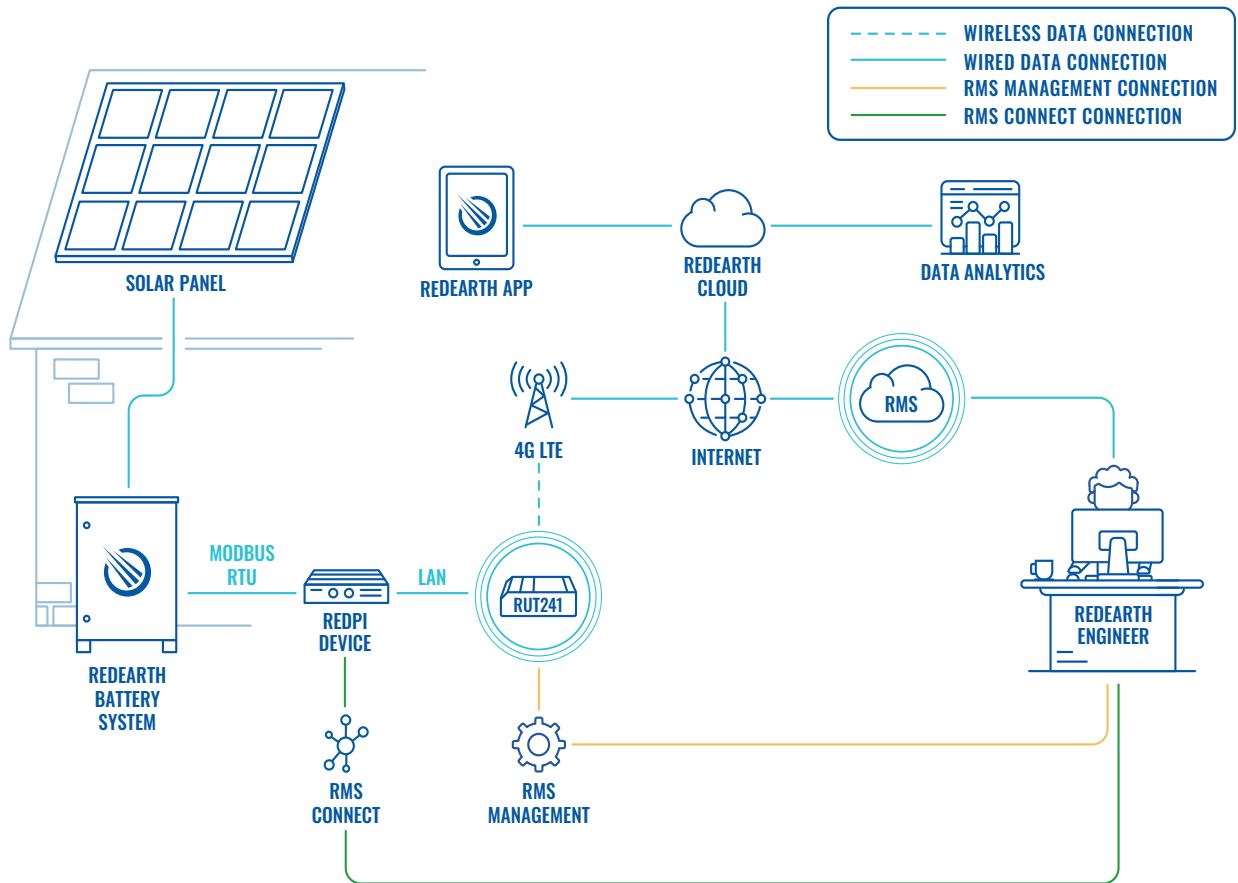
While most of Australia's population lives in urban areas on its eastern coast, millions also reside throughout vast rural regions, including remote agricultural regions and desert communities. Energy access for regular day-to-day life in rural areas of small countries requires some amount of infrastructure, but Australia is over 7.6 million km² in size, with nearly 20% of it being deserts.

To ensure communities and businesses in rural Australia have access to electricity, RedEarth provides energy storage systems and batteries used for powering homes, businesses, and communities with clean energy. In an Industry 4.0 world, this also means monitoring and accessing its storage systems remotely. Remote capabilities allow its engineers to perform troubleshooting and routine firmware updates, and enhance its customer support.

But there is one major roadblock: the storage system needed connectivity to communicate with the cloud server, and connectivity in rural Australia is far from guaranteed. Readily-available automated data tracking and analysis would ensure a reliable electricity supply and add value to its clients, optimize their electricity usage, reduce their bills, and even let them monetize their excess solar energy by selling it back to the grid.

The importance of improving its remote capabilities was clear. To enhance and improve its remote access and automation capabilities, it needed to supply its storage systems with its own connectivity. Naturally, it turned to Teltonika Networks for help!

TOPOLOGY



THE SOLUTION – RURAL, CONNECTED, AND POWERED

RedEarth chose our renowned connectivity device, the RUT241 industrial cellular router, to be installed in each of its energy storage systems. The router is connected via Ethernet to a RedPi – a custom device that connects to the storage system’s energy inverters via the Modbus RTU serial protocol.

The storage system is connected to solar panels that generate electricity when it’s sunny (i.e. most of the time), and the RedPi tracks energy generation and consumption data. The data is then transmitted to RedEarth’s cloud server in its Brisbane office via the secure and stable 4G network provided by the RUT241, with its WAN failover feature ensuring an uninterrupted connection. Lastly, the data is then analyzed and made available to the client via the dedicated EMU (energy monetization unit) mobile app.

Enabling the remote access itself is RMS Connect, via the SSH protocol. RMS Connect is one of the key IoT services of our [Remote Management System](#), allowing for a unified access system for remotely reaching and updating connected smart devices, like the RedPi and RUT241. Using this service, RedEarth’s engineers can access and directly manage these end devices as though they were physically next to them – without even needing a public IP address or additional VPN services.

Importantly, RUT241 is an industrial-grade device ready to weather the adverse and arid environmental conditions of Australia. Temperatures in the summer can exceed 50 °C in the summer and drop below 0 °C in the winter. Luckily, the device has sturdy aluminum housing with plastic panels, making it perfectly functional between -40 °C to 75 °C.

Teltonika Networks was chosen to ensure this solution can reliably meet RedEarth client needs and remain relevant for future upgrades and development. It was important for RedEarth to work with a local team that understands Australia’s unique conditions and challenges, and our Australian team was more than happy to provide their expertise.

