

Solar is a natural fit for remote power needs

Solar Skids Power Sensors in the Chilean Desert

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Justin Taylor

Connexa

Summary

- Antofagasta is between the Pacific coast and Northern Chile's Atacama Desert. Corrosive salt in the air and harsh desert extremes combined with dangerous gasses and liquids potentially present in industrial applications create a demanding environment for power electronics.
- A client sought a way of remotely powering sensor systems to monitor liquids in this challenging setting. Logistics posed yet another concern: any solution had to fit in a small pickup truck and be manageable with a two-person installation.
- Connexa's team constructed 54 container-loaded skid systems. Each included one solar module, a RELiON lithium battery, a Morningstar SunSaver SS-MPPT-15L charge controller, and a stainless steel enclosure. Connexa chose the SunSaver because it's approved for use in hazardous locations: Class 1, Division 2. Also, RELiON is a member of Morningstar's Energy Storage Partner Program, which ensured a reliable, seamless solution.

Situation

Antofagasta is a regional capital and copper mining area between the Pacific coast and Northern Chile's Atacama Desert. Known as the driest nonpolar desert in the world, conditions are so extreme that it was selected as a site for Mars expedition simulations. As the only true desert to receive less precipitation than those in the polar regions, Atacama's proximity to the ocean makes the area prone to fog. Corrosive salt in the air and harsh desert extremes combined with dangerous gasses and liquids potentially present in industrial operations create a uniquely demanding environment for power electronics.

"Solar is a natural fit for these remote power needs," notes Mike Postel, president of solar integrator and supplier Connexa. Postel started his company in 2006 in Comfort, Texas, just outside of San Antonio. Connexa specializes in commercial and industrial security and surveillance applications, making custom in-house solar structures in its UL and ETL-certified shop. "Solar is inherently independent," he said. "It's also more cost-effective and easier to deploy than ever."



Project

Connexa's experience installing plenty of rugged solar security systems around West Texas led to a call in 2020 about a possible solution for the even more rugged region of Antofagasta, a hemisphere away. A customer there sought a way to remotely power sensor systems needed to monitor liquid as part of its operations.

In addition to the harsh environmental challenges of corrosion risk near the water, the remoteness of the desert and the possible presence of harsh liquids and gasses, there was another challenge: logistics. "The shipping size was the biggest issue," Justin Taylor, sales manager at Connexa, said. "We had to design a system that could do the job yet be small enough so two people could lift it into a small pickup truck to transport it up to the remote sites."

Solution

Working with the given project parameters and size constraints, Connexa's team designed and built 54 container-loaded skid systems. Each included one 330W solar module, a 50Ah, 24V RELiON lithium battery, a Morningstar SunSaver SS-MPPT-15L charge controller and a stainless steel enclosure to resist corrosion.

Taylor said Connexa often turns to Morningstar solar charge controllers for demanding projects.

"We love Morningstar and generally use it in most applications," Taylor said. "It's very rugged and sturdy equipment, which is ideal because many of our projects aren't in the kindest environments. Also, when corrosion is a risk or gas is present, as in Antofagasta, the SunSaver is approved for use in hazardous locations: Class 1, Division 2."

Taylor and his team also appreciated the assurance of knowing that RELiON is a member of Morningstar's Energy Storage Partner Program (ESP). The program verifies, confirms and thoroughly documents recommended charge settings along with best practices to provide system designers and installers with a reliable and seamless solution.

"We can be assured the components will be compatible," Taylor said. "I've had choices for cheaper lithium batteries, but because they haven't gone through Morningstar's program, we don't use them."

The result: the Chilean project was a success, another proud win for Connexa and its partners.

"We're putting our name on our projects and accepting responsibility for the entire system," Taylor said. "It's important for us to have tested and proven reliable components, especially in another country where we can't be as physically available for service."