

Solar Energy Delivers Mobile Connectivity to the Paraguayan Chaco



A Vertiv Case Study



Background

A major telecommunications company with a presence in the vast Pilcomayo River Valley of the Paraguayan Chaco, commissioned Siemi S.R.L. to provide, install, and commission 12 mobile radio base stations in the region.

Access to this sparsely populated area of Paraguay is difficult and utility service is limited. Therefore, a solar energy solution seemed like the best way to provide mobile phone service and Internet access to this small rural community.

Vertiv joined forces with Siemi and other parties to deliver reliable connectivity, powered by renewable solar energy. Siemi S.R.L. is a Vertiv Diamond Service Partner providing power and cooling solutions, including generators, compressors, and uninterruptible power supply (UPS) systems for data centers.

Challenge

The new sites were situated in a semi-arid high flood plain without existing access to utility power. With commercial power sources being few and far between and road closures common during heavy rains, a traditional diesel generator backup solution requiring constant refueling and service was not a viable option. In order to deliver reliable service to the area, the network infrastructure needed to operate without constant attention.

Utilizing solar energy became a likely solution but needed to be fully vetted based on a variety of factors including site load, weather patterns, terrain, available space, and access.



"The solution obtains 100% of its energy from renewable sources, minimizing the environmental impact and generating significant operational cost savings."

Cancio Colemán Ratti,
Commercial Manager,
Siemi S.R.L.

Solution

With a working knowledge of the need (load and service commitments) and constraints (access and weather), a coordinated effort to design, plan, deliver and install a telecom solar energy solution with lithium-ion batteries was established. This included:

- Operational simulation of load against batteries and solar energy, while accounting for weather, to ensure reliable service could be delivered.
- Implementing best practices for site acquisition, preparation and layout.
- International coordinated delivery and installation from building concrete solar panel footings remotely to assembling the cell tower at the site.

On-site infrastructure specified and supplied by Vertiv included:

- [Vertiv™ NetSure™ 5100 hybrid DC power system](#) with 2,000-watt DC-to-DC [Vertiv™ eSure™ solar converters](#) and a [Vertiv™ NetSure™ control unit](#) for remote access
- [Vertiv™ EPC 48300/2900 outdoor cabinet](#) with lithium-ion batteries
- [Vertiv™ NetSure™ solar arrays, panels, protection and cabling](#)
- Solar panel support structures



Vertiv™ EPC 48300/2900 outdoor cabinet with lithium-ion batteries

Results

Approximately two thousand families in nine different communities in the Paraguayan Chaco region now have reliable mobile service where telephone lines did not previously exist.

All 12 sites have the added benefit of being powered exclusively with 100% renewable energy from the sun. This not only provides great ecological benefit to the region, but also decreases the overall operating expenses for the operator by eliminating frequent service calls and costly refueling of diesel generators.



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