

Hybrid Power System

Repeater Site in Amarillo, TX



This is the site of a cellular repeater along a remote stretch of highway near Amarillo, TX.

At the time of installation there was no utility connection at this cellular repeater site, so Alpha designed a reliable Hybrid Power System (HPS) with dual generators. The large energy requirement of this site, about 24kWh per day, and a fixed budget meant that the system had to be highly dependent on generator power for increased reliability.

To provide the most efficient solution possible, Alpha installed alternating dual generators to reduce maintenance visits to about once per month and significantly reduce fuel consumption.

The HPS24-1050/1500-2GEN is extremely reliable due to its alternating generator topology. The system is sized and operated so that each generator will run every other day for about 6 hours and accumulate about 90 run hours each month. The combined liquid propane consumption per month is about 160 gallons and the 1,050W PV array contributes about 17% of the total load energy required. The 1,500Ah battery bank provides 1.5 days of load autonomy, while operation of the system is completely automatic.

System Specifications

System Voltage:	24VDC
Maximum Customer Load:	1200W DC, continuous
PV Array:	(6) SHARP NT-175U1 modules (1050W, 24VDC)
Generator:	Kohler COM-6 (6kW, 24VDC, variable speed 1800-3600RPM, propane)
Battery Bank:	(12) AIP OPzS-1500 (flooded, 1500Ah, 24VDC)
Weight:	6000lbs
Temperature Range:	-4 to 104°F
System Maintenance:	Once a month (generator and batteries)

System Configuration

