

# Off-Grid Hybrid Power System

Endeavor Military Installation at Fort Bliss, TX



**Endeavor is the second off-grid site to provide wide area coverage for the Fort Bliss/Motorola P25 Trunking System. The 17 channel site enhances the simulcast cell portable and mobile coverage for first responders within the Fort Bliss post and their gunnery and missile ranges.**

Motorola Solutions, Inc. and the US military tasked Alpha Energy to design a robust power system in a remote location near the Fort Bliss, TX, Army post. The power system requirements included off-grid accommodations and a constant, uninterruptible power supply for the Motorola P25 Trunking network used to maintain cellular and mobile coverage for first responders on base. The parties also emphasized the need for an environmentally clean and user-friendly operation.

With these requirements in mind, Alpha Energy engineered and installed a state-of-the-art Hybrid Power System (HPS) at a site known as Endeavor. The HPS combines the Alpha DC power supply with OutBack Power's trusted charge controllers, resulting in a 24/7 power source that fits the unique, off-grid load requirements. The Endeavor installation facilitates solar arrays, power conversion, power storage, and generator backup to create a system offering exceptional

## System Specifications

System Voltage:	-48VDC
Solar Array:	63.45kW DC
Battery Bank:	16000Ah (C/8 discharge rate)
Alpha DC Power Plant:	1440A, -48VDC and 56kW
Load:	7338W continuous
PV Array:	(270) SHARP 235W modules
Rectifiers:	(15) 4.0kW Cordex-HP
Battery:	(8) 2000Ah Deka Unigy II 48VDC
Generator:	60kW AC, 120/240V

reliability and 63.45kW of renewable power. The HPS will provide the vast majority of power required by the site, generating 92,300kWhs per year, saving 73.4 metric tons of CO<sub>2</sub> emissions per year.

One of the nation's leading developers of turn-key photovoltaic systems for commercial, institutional and remote applications, Alpha Energy is recognized as a market innovator in packaging renewable energy technologies.



# Progression Photos

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Three Alpha PVPS and DC power plant in Alpha test



Complete Alpha PVPS and DC power plant with 56kW Cordex rectifiers



16,000Ah battery bank provides uninterrupted perfect power



OutBack Power MATE3 and HUB remote monitoring system



OutBack Power FLEXmax 80 charge controllers



Completely installed Alpha 63.45kW photovoltaic (PV) array



Alpha and OutBack Power engineers on-site



Remote off-grid installation



OutBack Power FWPV-12 combiner box and remote disconnect