



Case Study: ReGenerator and the United States Marine Corps

SITUATION: Direct fuel costs, fuel cost volatility, vulnerability to the fuel logistics tail, and fragile power grids are all issues which the military must contend with on a daily basis, which is why it is also common knowledge that those inside the Pentagon are working to reduce risk to deployed forces due to availability and distribution demands of energy, reduce risk of loss of critical functions due to extended commercial grid power disruptions at fixed installations, and increase use of renewable energy sources and microgrids.

The U.S. Marine Corps is leading the way when it comes to applying distributed renewable energy technologies. In April 2010, the Marines chose the ReGenerator for deployment in live overseas operations in North Africa and Central Asia. The ReGenerator powers critical communication and water filtration equipment and reduces the Marines Corps' reliance on regular fuel deliveries.

REQUIREMENTS:

- All-in one unit that sets up and is operational quickly
- Uses robust technologies that have been proven in the field
- Is mobile and ruggedized for deployment in harsh environments
- Easy to set up, operate and service by non-technical personnel
- Can support a steady-state load with digital-quality power
- Can operate without fossil-fuels, but can also store power from standard military generators
- Will power a wide range of equipment with AC and DC voltages

TACTICAL RENEWABLE POWER

Marines using the ReGenerator to harness the desert's abundant solar resources



ReGenerator H6000 unit shown deployed with the Marines to Operation African Lion in 2010. Photo courtesy of the US Marine Corps.

POWER REQUIREMENTS

Sample Loads	Watts
Laptop	200
Water Filtration	350
Radio Batteries	50
Power Required	
Steady-state load	300

Case Study: ReGenerator and the United States Marine Corps (continued)

SOLUTION: THE REGENERATOR H3000

After evaluating a number of products, the Marines selected the ReGenerator for their deployment. In addition to 1,200 Watts of solar and a full complement of batteries, a ruggedized desert sand outer coating and 24V NATO outlets were added to the standard H-3000.

The ReGenerators units were quickly deployed to a joint exercise in Africa to be tested in the harsh desert. They were set up by Marines with no prior training and put to work powering water filtration equipment. The ReGenerator units were able to power a 300 Watt load 24/7 using only renewable energy sources.

Following this successful exercise, training on the ReGenerator began for Marines headed for Afghanistan. There the ReGenerator products will be used primarily to provide the power for clean water and other applications including charging mobile communication equipment.

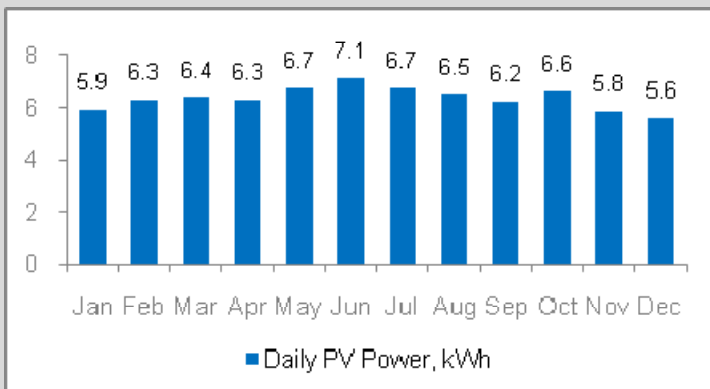


Recommended Configuration	ReGenerator H3000
Power Rating	3,000 VA of digital-quality AC power 6,000 Watts of peak power
Integrated Solar	1,200 W of rated Solar
External Solar	Option to quick-connect to 1.2 kW of Solar or connect up to 1.8 kW of Solar through 120V AC input
Wind Generation	Option to connect a wind turbine up to 1.2 kW
AC Power Output	120V / 240 V AC at 60 hz 8 x 110V AC GFCI Outlets
DC Power Output	4 x 12V DC Outlets
Generator Support	Generator Auto-start, up to 12 kW
Storage	12 x 180 Ahr AGM batteries 25.9 kWh of storage
Control & Monitoring	Window desktop client Wireless web monitoring using GSM / GPRS
Weight	2,490 lbs. / 1,129 kg
Transport	Two ReGenerators can fit on a standard military 463L palette

REGENERATOR POWER PRODUCTION

The graph below shows the average power this ReGenerator configuration can deliver each day.

Kandahar, Afghanistan		31 37' N 65 43' E		
Daily Power, kWh	AVG	MIN	MAX	ANN
Internal Solar	6.35	5.59	7.10	2311



H-Series Avg Daily Power Generation Kandahar, Afghanistan

For more information:
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