

Marines Test Alternative Energy System at AFRICAN LION

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TAN TAN, Morocco, May 25, 2010 — U.S. Marines at exercise African Lion tested a new environmentally-friendly energy system which will enable deployed troops to purify water, light their tents and power their equipment through solar energy and leverage technology.

"Basically, you can take water from any source, even waste water, put it in the SLMCO (water purifier), shoot it through the reverse osmosis process and put it right in your Camelback and drink it," said Captain Adorjan Ferenczy, the engineer analyst for the Expeditionary Forward Operating Base program, or ExFOB.

Ferenczy explained that the system can also provide LED lights for a medium-sized general purpose tent and power outlets for small electrical items.

A mechanical engineer by trade, Ferenczy came into the Marine Corps in 2005 after working for a major vehicle manufacturer in his home town of Detroit for several years.

According to Ferenczy, the commandant of the Marine Corps directed the Marine Corps Energy Assessment Team to go to Afghanistan in September 2009 to conduct an assessment of the energy used by deployed Marine units and report back with findings.

"The Commandant has said, 'Let's not only lighten the load, but let's reduce risk to Marines downrange by reducing our reliance,'" said Brigadier General Robert Hedelund, the commanding general of the Marine Corps Warfighting Lab and vice chief of Naval Research in a March 2010 interview.



TAN TAN, Morocco - U.S. Marine Corps Reserve Colonel Anthony Fernandez, commanding officer of Task Force African Lion, inspects the solar panel of an Expeditionary Forward Operating Base module during the testing phase of this sustainable energy initiative, May 19, 2010. This new environmentally-friendly energy system would enable deployed troops to purify water, light their tents and power their equipment through solar energy. It was tested in conjunction with African Lion 2010, a U.S. Africa Command (AFRICOM)-sponsored exercise focusing on various types of military training. (U.S. Marine Forces Africa photo)

If implemented, the ExFOB concept will significantly reduce troops' reliance on drinking water and generator fuel, which are transported from larger bases in Afghanistan to troops operating at remote sites by truck convoy.

These convoys are frequent targets for insurgents, so the premise is simple: reducing the number of convoys through the use of alternate energy sources for troops' daily sustenance will directly reduce the number of U.S. casualties in overseas contingency operations.

This need to find sustainable energy solutions has been echoed by leaders throughout the U.S. Department of Defense, and all branches of the U.S. Armed Forces are currently evaluating alternate energy capabilities.



TAN TAN, Morocco - Master Gunnery Sergeant Rowan Dickson locks down a solar panel in a power generating module for the Expeditionary Forward Operating Base system during a testing and evaluation phase of this sustainable energy initiative, May 19, 2010. This new environmentally-friendly energy system would enable deployed troops to purify water, light their tents and power their equipment through solar energy. It was tested in conjunction with African Lion 2010, a U.S. Africa Command (AFRICOM)-sponsored exercise focusing on various types of military training. (U.S. Marine Forces Africa photo)

"The Marine Corps has taken the lead on exploring the use of these energy sources for tactical, small-unit use," said Major Sean M. Sadlier, a logistics analyst with the U.S. Marine Corps Expeditionary Energy Office.

Sadlier, a logistics officer with 15 years in the Corps, came to Tan Tan with his team in mid-May to test the ExFOB equipment in the harsh climate of southern Morocco.

The ExFOB team is comprised of Marine Corps officers, staff non-commissioned officers, government service employees and contractors from Marine Corps Systems Command, the Marine Corps Warfighting Lab, Marine Corps Installations and Logistics office, Marine Corps Expeditionary Energy Office and the Marine Corps Power Surety Task Force.

In southern Morocco, the ExFOB team of experts is conducting a week-long assessment of their prospective piece of gear.

The test is being done in conjunction with about a thousand troops participating in African Lion 2010, a month-long theater security cooperation exercise led by Marine Forces Africa, with the preponderance of troops coming from Marine Forces Reserve units across the United States.

When the ExFOB team returns to their respective offices in Northern Virginia later this month, they will make their recommendations to the Executive Integrated Processing Team, which consists of high-ranking Marine Corps general officers and senior U.S. government service employees.

"If they determine that the juice is worth the squeeze, they approve the project and the concept becomes a reality," said Ferenczy.

The ExFOB is currently in the extended user-evaluation phase. At this year's African Lion, troops from Marine Wing Support Squadron 273, based out of Beaufort, South Carolina, assisted the ExFOB team in assembling and evaluating their system on a Spartan logistics support area.

It took 16 Marines three hours to assemble the unit, which the ExFOB team is actually using for billeting during their stay here.

"They did a fine job considering they hadn't seen the ExFOB before they took it out of the box," said Gunnery Sergeant Michael Polson, the MWSS-273 Utilities Platoon staff non-commissioned officer-in-charge.

The LSA where the Marines erected the ExFOB resembles a large, unpaved parking lot, and is about 800 meters by 400 meters.

The Marines and U.S. civilians living there are covered daily in the ubiquitous dirt and grit which the wind blows up from the surface that the Marines graded, leveled and compacted with heavy equipment shipped over from the States.

The Marines of MWSS-273 and their Navy SEABEE counterparts have lived, worked and sweated together for several weeks now, developing the logistics support area.

In this unique landscape, the Cap Draa Desert runs straight into the Atlantic Ocean. The climate is therefore ideal for testing the ExFOB, as the system is subject to the sand, dust and wide flux of temperatures that are found in the desert, as well as the strong winds that blow in from the Atlantic.

Additionally, the severe overcast weather May 18 to 20 challenged the solar-powered generation system, which is the main power source for the system.

"I think it's doing really well," said Sadlier. "Our plan is to start out small and increase the power load to see how it performs. So far, it's holding up pretty well and producing more energy than is being used."

The product will go through a second phase of testing this summer at Enhanced Mojave Viper in Twentynine Palms, California with 3rd Battalion, 5th Marine Regiment.

Sadlier said that the entire end-user evaluation, decision-making, and procurement process is expected to take about a year from this point.

If the ExFOB system is procured and fielded in 2011, small units in Afghanistan can mount the SLMCO water purifier unit to their vehicles, drive out to a water source such as a river or stream on a security patrol, purify a hundred gallons of water and bring it back to base.

They can also use the system on their remote positions to have a well-lit, medium-sized, weatherproof tent with electric outlets to power their computers, tactical radios, electric razors, IPODs and other small electronics items.

Sadlier added that the ExFOB will also be more tactically sound than traditional generators, as the solar panels silently transform sunlight to electricity, whereas traditional generators are noisy and can give away the position of a command operations center on an

expeditionary base.

In the end, the ExFOB is intended to not only cut down on consumption of fossil fuels and help protect the environment, it will also make overseas contingency operations safer for Marines; and a little more comfortable.

"This stuff isn't new; it's already being used by humanitarian relief agencies in austere environments. It's just new to the Marine Corps," said Sadlier. "The Commandant wants to focus on [Marine Corps] companies and platoons using this equipment at combat outposts and forward operating bases. We need to make sure that it works; and that it works in the kind of environment where our Marines are going to operate."

Exercise AFRICAN LION is a U.S. Africa Command (AFRICOM)-sponsored exercise that includes various types of military training including command post, live-fire training, peacekeeping operations, disaster response training, intelligence capacity building seminar, aerial refueling / low level flight training as well as a medical, dental, and veterinarian assistance projects and exercise related construction that runs concurrent with the training.

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