

MHEES will inform MEHPS-M

Navy Awards Contracts To Build Mobile Power Station For Remote Marines

The Navy last month awarded two contracts for the design, fabrication and delivery of the Medium Hybrid Expeditionary Energy System, a new energy-efficient power platform that will provide electricity to Marines in remote locations, according to a recent Federal Business Opportunities notice.

As part of the service's effort to reduce power consumption in order to save money and bolster energy independence, the Navy on Jan. 8 awarded UEC Electronics LLC and Earl Energy LLC two firm fixed price research and development contracts for \$1.4 million and \$898,868, respectively, to build the two MHEES.

MHEES will inform the Mobile Electric Hybrid Power Source-Medium (MEHPS-M), a medium sized hybrid system, Capt. Anthony Ripley, science and technology lead for headquarters marine corps expeditionary energy office, wrote in an email to *Inside the Navy*. Only a few MHEES will be built so MEHPS-M can be informed and further developed.

MEHPS-M will be mounted on a towable tactical trailer, a mobile trailer that can be hitched to a humvee or Mine Resistant Ambush Protected vehicle, Ripley wrote in an email to *Inside the Navy*.

MEHPS-M is a hybrid system able to receive power from both fuel (JP-5, JP-8 or diesel) and solar energy that solves a problem often found in the field, Ripley told *ITN*. Typically, generators in the field are under-loaded and not operating optimally. When generators are running constantly under-loaded, this subjects the generator to "wet stacking," where unburned fuel ends up in the exhaust system, and leads to fuel waste.

To solve this problem, Ripley wrote, MEHPS uses solar and battery storage alongside a generator in order to manage energy-producing devices by automatically turning them on and off as needed. It can power multiple items at once, for instance a coffee pot, computers and radios.

"When the battery state of charge reaches a set level (say 20 percent) the generator will automatically kick on and start providing power to the load with excess going to recharge the batteries," Ripley wrote in an email to *ITN*. "Once the batteries get to a certain state of charge and the load is low enough, the generator will kick off and the cycle repeats."

This process allows more efficient use of the generator, Ripley wrote, potentially reducing fuel use by 60 percent and generator run-time by 70 percent. Reducing the run-time on the generators potentially reduces the man hours and maintenance required and extends the life cycle of the generators, Ripley wrote.

The overall cost-savings are still being evaluated, Ripley wrote.

Originally, MEHPS was slated for integration in 2018, Ripley wrote. However, the Material Development Decision (MDD) is now being considered as a Joint MDD with the Army, so these dates are in flux.

The system is a follow-on to the Ground Renewable Expeditionary Energy System (GREENS), a portable, solar-powered generator. GREENS is a 300-watt , photovoltaic/battery power system that provides continuous power to Marines in the field, according to the Office of Naval Research website. GREENS has served well in Afghanistan, but the Marines are looking for a more powerful system.

"To increase energy independence and flexibility of deployment options, the Marine Corps has been fielding renewable and hybrid energy programs to include [GREENS]. Need for improvement exists with this type of system to meet future Marine Corps mission needs for mobility and power," according to a solicitation posted on FBO in October, 2012. "The goal of this improvement will be to address the next level of power capability above the GREENS type system, while developing the smallest, lightest and most cost effective system at this increased power level." -- *Lara Seligman*