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**Power  
Generation**



# Military Generator

## Case History

### Where:

United States and Afghanistan

### What:

5–60 kW military kW generators

### Primary choice factors:

- Substantially improved fuel efficiency
- Increased reliability and durability
- Long-term relationship with Cummins Power Generation



**AMMPS military generators from Cummins Power Generation prove their performance and value with U.S. Army**

### Designing, developing and fielding reliable mobile power

Napoleon said that an army marches on its stomach. Roughly translated, an army's success depends on food and other vital logistics. Today, a key part of military logistics involves providing mobile electric power when and where an army needs it.

For the United States Department of Defense (DoD) and the U.S. Army, that responsibility belongs to Project Manager for Mobile Electric Power (PM MEP), located at Fort Belvoir, Virginia, outside Washington, D.C.

The mission of PM MEP is to establish, maintain and provide a DoD standard family of mobile electric power generating sources, in addition to developing the best mobile generators for the military. PM MEP also provides advice and consultation on how to improve and expand the standardization of these power sources across the armed forces.

PM MEP recently developed and deployed operational energy solutions to our nation's warfighting commanders in Afghanistan, including the Advanced Medium Mobile Power Sources (AMMPS) generators from Cummins Power Generation. This case history tells the story of how AMMPS generators came about.

## Increasing needs, demanding criteria

Unlike Napoleon's forces, today's U.S. Army relies on mobile electric power. Power is the lifeblood of the networked systems that modern soldiers rely on to communicate critical information across the battlefield. As those systems multiply in number and capability, the demand for power follows, increasing the need for more efficient ways of generating, storing and distributing energy.

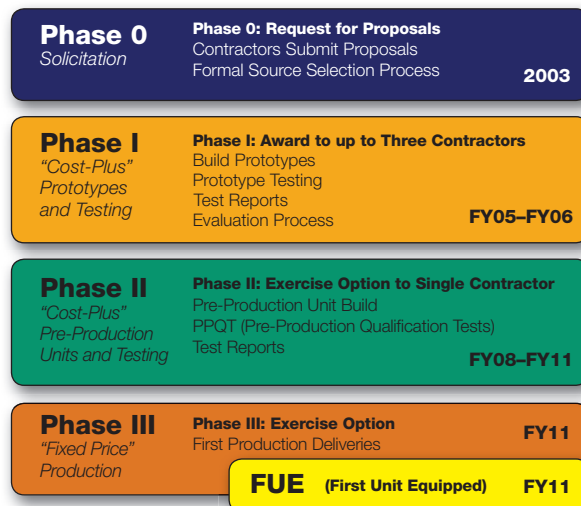
In 2003, the U.S. Army recognized a need to replace its Tactical Quiet Generator (TQG), which had been in service since 1993, as well as some older MIL-STD generators still in use. The Army wanted a new range of more efficient generators from 5–60 kW that would be significantly better than the existing units. Specifically the criteria for the replacement generators were:

- Enhanced power generation capability
- Improved fuel efficiency
- Increased system reliability
- Reduced system size and weight
- Increased survivability for military applications
- Reduced total cost of ownership

The new generators would be known as AMMPS.

## Competitive bidding process

To realize these ambitious goals, the Army set up a competitive bidding process with multiple phases. In Phase 0 the Army sent out requests for proposals (RFPs). Phase 0 was open to all manufacturers, and several companies submitted proposals. Of those companies, Cummins Power Generation and one other bidder were selected to perform Phase I — Building and Testing Prototypes.



After completion of Phase I, the Army selected Cummins Power Generation to continue to Phase II, based on the successful testing of 10 AMMPS prototype units. Phase II included building and testing 130 pre-production units. The main factors for selecting Cummins Power Generation were the successful completion of Phase I, as well as proven design and production capabilities.

Bob Lewis, AMMPS Program Manager for Cummins Power Generation, said, "We designed the AMMPS from the ground up as a rugged military generator. We did not take a standard commercial generator and simply try to adapt it for military use."



Photo credit: U.S. Army.  
Two AMMPS units mounted on a trailer. Paralleling them is easy.

Phase III, the final phase, involves mass production, and in July 2011 Cummins Power Generation received the go-ahead to proceed with Full Rate Production. AMMPS units have been delivered to military bases around the U.S., where troops are being trained in their operation, and PM MEP is deploying up to 379 of the units to Afghanistan.



Photo credit: U.S. Army.  
AMMPS units being readied for fielding to Afghanistan.

## The AMMPS advantages

AMMPS generators are delivering a number of important advantages that increase reliability and reduce total cost of ownership for the DoD and the U.S. Army.

**Reduced size and increased fuel efficiency.** Across the product line, AMMPS generators are 10% smaller and lighter than their TQG counterparts, offering greater battlefield mobility. They are also 21% more fuel-efficient.

This efficiency saves lives as well as dollars, by reducing the number of fuel supply trips through hostile territory. As MG Price noted, “The most important factor [in the selection of military generators] is the number of soldiers who will not be placed in harm’s way having to transport fuel.”

**Rugged reliability.** Another key advantage: AMMPS units are 50% more reliable than their predecessors. Part of the reliability comes from a system design that eliminates “wet stacking,” a common problem with diesel generators in which unburned fuel passes into the exhaust system.

The AMMPS units are also able to operate in high or low ambient temperatures and at high altitudes, and have enhanced capabilities to survive nuclear, biological and chemical (NBC) attacks, as well as infrared, aural, and electromagnetic pulse (EMP) attacks. They can also be dropped out of planes by parachute into targeted locations.

**Ease of operation.** In addition, they can be “organically supported.” That’s military-speak for the ability of trained soldiers to operate and maintain the generators, which also reduces total cost of ownership. The custom-designed Digital Control Station contributes to simplicity of operation; it offers automatic paralleling and provides an easy-to-read 6.5-inch LCD display.

**Parts commonality.** Another cost-reducing advantage is the use of the same parts across the product line. The Digital Control Station is the same across all units, and overall there is 52% parts commonality.

**Reduced emissions.** The AMMPS generator engines are EPA-certified and can run on either diesel or JP-8 fuel.

## What’s next?

The honored Cummins tradition of service to the military builds on a 70-year legacy extending all the way back to World War II. Onan Corporation — now part of Cummins — was the leading supplier of generator sets to U.S. and Allied forces, and Cummins Inc. supplied engines for military vehicles and generators. Today AMMPS units are being deployed where they can benefit troops on active duty in Afghanistan.



U.S. Army troops in Afghanistan receiving training on a trailer-mounted AMMPS unit.



The current DoD contract with Cummins Power Generation runs through September 2014, and planners for the armed services anticipate that AMMPS systems will be procured through 2022. As befits our heritage, Cummins Power Generation is committed to continuing to help the DoD achieve its energy goals now and in the future by providing reliable, fuel-efficient power to our military.

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NACH-5685-EN (5/13)