

Topic: N142-092

MaxPower, Inc.

High Power Battery for Long-Range Air-to-Surface Missile

MaxPower has developed a reserve lithium/vanadium oxide battery for long-range missile applications. MaxPower Incorporated is a special purpose battery development company with a focus on rapid prototyping and low volume production. This battery technology is well suited to extended range missile platforms where projected future electrical requirements cannot be met by thermal batteries. The high energy density and long run time capability of this system provides an advantage over currently fielded options. Prototype testing has shown the ability of the battery technology to meet the power and run time requirements with a projected energy density exceeding 200 W-s/g. MaxPower is seeking to transition this technology to applicable missile platforms, with a focus on the Joint Standoff Weapon (JSOW).

Technology Category Alignment:

Power Generation/Energy Conversion

Energy storage

Power and Energy

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<http://maxpowerinc.com>

SYSCOM: NAVAIR

Contract: N68936-16-C-0026

 Corporate Brochure: https://navystp.com/vtm/open_file?type=brochure&id=N68936-16-C-0026

Department of the Navy SBIR/STTR Transition Program

Distribution Statement A: Approved for public release, distribution is unlimited.

NAVAIR 2016-748

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High Power Battery for Long-Range Air-to-Surface Missile

MaxPower, Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program:

Transition Target: Joint Standoff Weapon, AARGM, Tomahawk

TPOC:
(760)939-1738

Other transition opportunities: A similar battery was developed for an ICBM reentry vehicle for the Air Force



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WHAT

Operational Need and Improvement: Greater ranges and higher electrical needs from onboard components place increasing demands on tactical missile batteries. With restrictions on the available weight and space, batteries with increased power densities and long run times are needed to meet projected requirements for Air-to-Surface missiles.

Specifications Required: Batteries with power densities greater than 200 Watts-second/gram are being sought. Batteries shall be less than 6.3 liters (2.1 liter goal) and weigh less than 13 pounds. The price goal is \$2,000-\$3,000 per unit with an annual production quantity of 400-700.

Technology Developed: MaxPower has developed a reserve organic lithium vanadium oxide battery for missile applications with high power capability, long run time, proven missile environment survivability and a scalable configuration.

Warfighter Value: With the priority placed on achieving greater ranges with tactical missiles and other weapons platforms, MaxPower's high power reserve battery with functionally unlimited run time provides a key capability to U.S. defense systems.

WHEN

Contract Number: N68936-16-C-0026 **Ending on:** January 27, 2018

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Battery technology passes electrical and environmental tests in ICBM battery configuration	N/A	Battery met electrical requirements after being subjected to missile simulated environments (spin, acceleration, vibration)	TRL 6	May 2012
Technology configured to ASM application design	N/A	Battery design projects acceptable performance based on cell test data and scaled weight/size data	TRL 4	March 2015
Battery component tests	Med	Components demonstrate projected performance (heating system, activation system)	TRL 5	September 2016

HOW

Projected Business Model: MaxPower, Inc. will manufacture the target annual production of 400-700 units. A battery production facility is currently under construction on the MaxPower campus, with a move in date of Q4 2016. This facility will provide the needed infrastructure to comfortably support the annual production quantities.

Company Objectives: MaxPower, Inc. is actively developing their lithium vanadium oxide battery technology in various reserve and active primary configurations for defense applications. This technology is targeting applications that require high power density and extended run time, such as long-range missiles and munitions. Other applications currently being pursued are high power primary platforms, including UAVs and Sonobuoys.

Potential Commercial Applications: While reserve batteries are a niche product, the battery under development could be a direct fit for the commercial space exploration market. Other potential uses for the reserve technology include applications where power on demand is required after long shelf storage, such as wall cabinet defibrillators.

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