

Department of the Navy SBIR/STTR Transition Program

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NAVAIR 2016-742

Topic # N142-110

A Solid State Bipolar Battery for High Power Sonobuoy Applications

Bettergy Corp.

WHO

SYSCOM: NAVAIR

Sponsoring Program: ASW

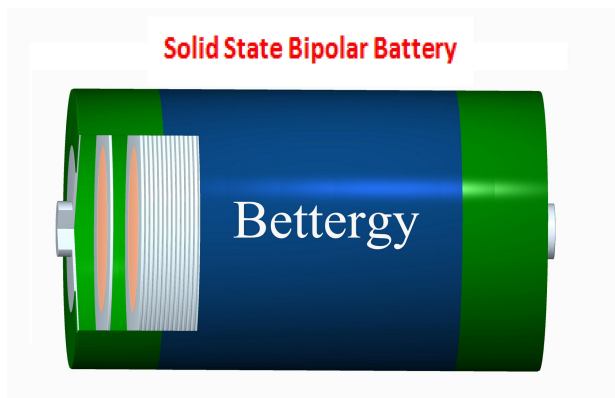
Transition Target: Sonobuoys, UUVs

TPOC:

(301)757-3695

Other transition opportunities:

USVs, UUVs for Naval, Coast Guard, Customs and Border Protection as well as other commercial maritime applications



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WHAT

Operational Need and Improvement: There is a need for high pulse power, long-duration batteries for "A" size sonobuoy applications in order to enable high power, long duration missions. A battery technology that is safe, low cost and can be integrated into the existing sonobuoy system within the design requirements and form factor required by the Navy is desired. Existing battery technologies cannot provide sufficient power for these operations and present safety and cost issues.

Specifications Required:

Battery Length: 7.15 inches
Battery Diameter: 4.55 inches
Battery Weight: 8.6 Kg
Watts: 6500

Technology Developed: Bettergy has developed a high power, high energy density battery that meets these operational requirements, enabling high power, long duration operations. The battery utilizes low-cost, earth-abundant and environmentally friendly materials that do not utilize flammable solvents and do not emit toxic fumes during discharge, setting a standard for performance, safety and cost.

Warfighter Value: Power increase - provides for longer missions
Safety - nonflammable and no toxic fumes venting
Cost savings - cheaper to produce, longer storage life
Environmentally friendly

WHEN

Contract Number: N68335-16-C-0105 **Ending on:** February 1, 2018

| Milestone | Risk Level | Measure of Success | Ending TRL | Date |
|---|------------|---|------------|----------------|
| Phase I-Concept Design, Research, Testing and Analysis | N/A | Demonstrated Performance on Full Cell Level | 4 | September 2015 |
| Bipolar Cell Stack Designed and Built | Low | Stack meets program requirements | 5 | October 2016 |
| Prototype Battery fabricated, evaluated and tested. | Low | Meeting program specifications | 6 | June 2017 |
| Batteries delivered to US Navy for Independent Validation | Low | Meeting Navy specifications | 6 | March 2018 |

HOW

Projected Business Model: Bettergy will manufacture the batteries, either directly or through a battery manufacturer with existing capability or via a strategic partnership. The batteries will be sold to sonobuoy producers, such as ERAPSCO.

Company Objectives: Bettergy's objective is to develop and commercialize innovative energy technologies for both military and civilian applications. The objective with respect to this battery technology is to further develop, optimize and commercialize the technology so that it can be deployed for use in sonobuoys in Naval operations.

Potential Commercial Applications: Applications requiring high power sonobuoys, including commercial and maritime applications such as:

USVs
UUVs
Survey vessels
Oil exploration
Salvage
Other applications include:
Coast Guard
US Customs and Border Protection

Contact: Guy A. Longobardo, Chief Operating Officer
galongobardo@bettergy.com 914-316-1508