Department of the Navy SBIR/STTR Transition Program

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NAVAIR SPR 2024-0592

Topic # N21B-T023
Next-Generation Lithium Battery Enabled by Holey Graphene-based Electrodes
Lynntech, Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program: NAVAIR

Transition Target: TBD - multiple options of technologies that could benefit from higher energy and longer lifetime batteries. We aim to work with the TPOC towards identifying the first transition target with closest alignment to our current form factor and the lowest barriers to entry.

TPOC: (301) 342-3728

Other Transition Opportunities: TBD - there is a recognized need for this technology within other DoD Services (Air Force, SOCOM, etc.). Identification of primary target platforms to replace with our batteries would be key to success. We aim to work with our TPOC to identify these additional transition opportunities outside of the US Navy.

Notes:

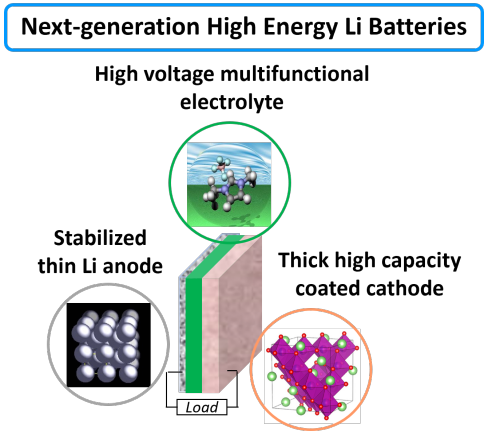

Image courtesy of Lynntech, Inc.

WHAT

Operational Need and Improvement: Current Li ion batteries have a limited energy and lifetime, which has an impact on mission duration, logistics and other factors that contribute to mission success.

Specifications Required: The objective is to identify battery composition and construct that affords double the energy density of current Li ion batteries.

Technology Developed: A next-generation high-energy, high-power, and long-life Li ion battery with zero-carbon emission affording prolonged operating times for current and future NAVAIR applications.

Warfighter Value: Our new formulations could result in higher energy batteries potentially allowing longer duration operation of equipment and resulting in improved mission outcomes.

WHEN

Contract Number: N68936-23-C-0005 **Ending on:** Aug 29, 2025

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Fabrication and testing of refined multilayer pouch cells	High	Rate capability of up to 3C and long-term cycling testing of > 300 cycles	4	3rd QTR FY26
Completed initial multilayer pouch cell fabrication and testing	High	Rate capability of up to 3C and long-term cycling testing of > 100 cycles	4	3rd QTR FY25
Completed the preparation of large cathodes and the fabrication and testing of pouch cells with these	Medium	Rate capability of up to 3C rate, and long-term cycling testing of > 300 cycles	4	1st QTR FY25
Increased loading of active cathode materials	N/A	Performed/passed rate capability (up to 3C) and long-term cycling testing (>300 cycles)	3	2nd QTR FY23

HOW

Projected Business Model: Direct sales to a customer or through a Prime/system integrator are both likely options. Initially the prime could integrate it after which the end customer could purchase replacement units. Integration first by the end customer is also possible, followed by a push to the Prime to include in future production units. Licensing IP is less likely be an option domestically, and for those products specifically designed for the US DoD. However, for commercialization to the international market and for non-military applications this could be a good option, subject to Lynntech obtaining an export license.

Company Objectives: Commercialize technologies developed from SBIR-funded efforts towards advancing the warfighter mission and improving civilian lives by making innovative products available to the DoD and civilian commercial markets.

Potential Commercial Applications: Extended duration batteries would have wide-spread applications such as consumer devices, portable scanners, data centers, smart metering systems, measuring equipment, and other situations where compactness, higher voltage, and enhanced energy capacity play vital roles..

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