Department of the Navy SBIR/STTR Transition Program

Topic # N192-052
Electrical Load Management System (ELMS)
Cornerstone Research Group, Inc.

WHO

SYSCOM: NAVAIR
Sponsoring Program: PMA-275
Transition Target: V-22
TPOC:
301-342-0839
Other transition opportunities: Other military aircraft (e.g. Army Future Vertical Lift and commercial aircraft (e.g. electric vertical take-off and landing and urban air mobility platforms)
Notes: Underlying hardware is already used in other military applications
Future Vertical Lift (FVL)
Electric Vertical Take-Off and Landing (eVTOL)
Urban Air Mobility (UAM)
Common Configuration – Readiness and Modernization (CC-RAM)
Graphical User Interface (GUI)
Naval Air Warfare Center Aircraft Division (NAWCAD)

Image Courtesy of U.S. Navy

WHAT

Operational Need and Improvement: Maximize use of existing power source capacity to support growing power demand
Provide protection to aircraft power distribution wiring
Specifications Required: Monitor power bus quality and excess capacity
Enable smart load shedding and crew alerts
Collect fault data to reduce troubleshooting time
Technology Developed: Replace legacy electromechanical breakers with digitally controlled solid-state devices
Permits a single hardware configuration to address a wide range of aircraft variants

Warfighter Value: Provides significant improvements over baseline electromechanical breakers:
Digital control and programmable trip settings
Real-time load monitoring
Automated load shedding and crew alerts
Diagnostics/fault data for troubleshooting

WHEN

Contract Number: N68335-21-C-0134 **Ending on:** December 2, 2022

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Phase I Hardware Feasibility Demonstration	N/A	Demonstrated programmable trip settings	3	January 2020
Phase II GUI and Hardware Demonstration	N/A	Demonstrated GUI for V-22 with functional hardware	4	July 2021
Phase II V-22 Fit Check at NAWCAD Cargo Lab	Low	Demonstrate drop-in replacement	4	January 2022
Phase II Lab Demonstration	Med	Full-power testing in lab environment	4	May 2022

HOW

Projected Business Model: Transition to via CC-RAM through hardware sales to V-22 prime (Bell/Boeing)
Company Objectives: Raise awareness for V-22 ELMS technology within PMA-275 and NAVAIR to identify Phase II.5 and Phase III follow-on funding
Develop relationships with prime contractors for transition to other military aircraft
Potential Commercial Applications: This technology is being commercialized through Lectratek, LLC, a new CRG spinoff providing electric powertrain and propulsion solutions to eVTOL and UAM developers.

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