



# REVOLUTIONIZING LOGISTICS IN THE PACIFIC WITH US INDO-PACIFIC COMMAND AND HYBRID AIR VEHICLES

News / Manufacturer



**Hybrid Air Vehicles in collaboration with U.S. defense personnel is set to revolutionize maritime logistics and communication, transforming the way the U.S. Navy and Marine Corps conduct operations across the Pacific and other contested and distributed environments. In the latest development of this work, the Operational Energy Capability Improvement Fund in the DOD's Operational Energy Office recently announced funding for the Zero Carbon Logistics Support Via Hybrid Aircraft project. This ground-breaking collaboration between the U.S. Indo-Pacific Command and HAV can enhance logistics, Intelligence, Surveillance and Reconnaissance (ISR) operations, and communications in the Pacific.**

Marine Corps Captains Ben Cohen and John Schmaltz, while students at the Naval Postgraduate School, became interested in the defense applications of civilian hybrid aircraft like Airlander, the highly efficient aircraft currently under development by HAV, as a disruptive technology, and were introduced to HAV through the NPS alumni network. Their thesis, which serves as a guide to

interaction and engagement for Department of Defense personnel to navigate the innovation ecosystem while assessing commercially developed, large-capacity transportation platforms, has been instrumental in the current work with HAV.

Cohen, who currently serves as the director for the SoCal Tech Bridge and will serve as the U.S. lead for the project, said: "As a logistics officer, the challenges with Contested Logistics are at the forefront of my mind. After attending a highly productive working group with the INDOPACOM Logistics, Plans, and Exercises Division in November of 2022, we designed this research effort to be able to respond to many of the challenges identified by the cross-functional team. When we reach the second phase, we will be ready to support modeling, simulation, and analysis of the hybrid aircraft in use cases that are defined by any combatant commander, but with a particular eye to contested logistics challenges in INDOPACOM."

Tom Grundy, CEO Hybrid Air Vehicles commented: "Our Airlander hybrid aircraft represents a game-changing technology for ultra-low-emissions flight, that can also revolutionize the capabilities of the Department of Defense. Through our collaboration with Capt. Ben Cohen and through the research and development work with the Naval Postgraduate School, we are demonstrating how private investment and commercial innovation can be adapted to enhance logistics, intelligence, surveillance, and reconnaissance operations, and communications in the Pacific. The Zero Carbon Logistics Support Via Hybrid Aircraft project has the potential to transform the way the U.S. Navy and Marine Corps conduct operations in contested and distributed environments, providing them with an unparalleled advantage in the region."



The project leverages commercial innovation to adopt and adapt commercial sustainable aviation technology, change operational concepts, and address logistical capability gaps. The lack of existing infrastructure within INDOPACOM limits current asset flexibility for inter/intra-theater lift, where access to deep water ports and airfields to accommodate appropriate aircraft is limited. With no need for ports or runways, Airlander aircraft can land on any reasonably flat surface,

providing much-needed mobility resilience and flexibility in support of distributed maritime operations and expeditionary warfighting.

The students collaborated with HAV to gain a deeper understanding of hybrid aircraft technology and the commercialization process from prototype to production. Cohen and Schmaltz's research emphasized the importance of digital technology, particularly digital twins, and expanded the opportunities for DOD applications of hybrid aircraft technology.

NPS' Modeling Virtual Environments and Simulation (MOVES) Institute partnered with the Energy Academic Group to analyze the Airlander 10's potential for surface surveillance missions in the Arctic Ocean. The collaboration resulted in the development of a virtual reality view of defense-unique missions using hybrid aircraft.

The MOVES Institute is continuing this research, using the Airlander 10 concept for EABO and Littoral Operations in a Contested Environment (LOCE) modeling, which is crucial for ideating new concepts and examining how new technologies integrate with existing infrastructure. The MOVES Institute is planning to model other environments for HAV to showcase hybrid aircraft capabilities in both the civilian and defense sectors.

05 APRIL 2023

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