Naval Enterprise Partnership Teaming with Universities for National Excellence (NEPTUNE)

AT A GLANCE

WHAT IS IT?

NEPTUNE is a program providing funding to five universities, the U.S. Naval Academy and the Naval Postgraduate School. Its goals are to help the Navy and Marine Corps discover ways to improve energy conservation, generate renewable energy and implement energy-efficient technologies—while giving active duty military students and veterans the chance to immerse themselves in university-level research.

HOW DOES IT WORK?

Program participants will engage in interdisciplinary research across multiple energy-related areas of study. This collaborative approach accelerates progress by identifying upstream or downstream roadblocks, and potential solutions in rapid timeframes.

WHAT WILL IT ACCOMPLISH?

The program will break new ground in alternative energy, and increase educational opportunities for the military community.

The program will help meet Naval energy objectives, enhance energy awareness and improve operations by:

-Leverging technological advances to increase mission capability; and –

-Mitigating supply chain risks by diversifying energy sources, reducing logistical burdens and bolstering operational effectiveness and flexibility

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Attendees at the NEPTUNE Meeting held at UC Davis

The program was established to enhance partnership with academic institutions to address Department of the Navy (DoN) energy challenges aligned with SECNAV goals and objectives.

The program is funding five universities – Purdue University, Arizona State University, the University of California at Davis, Stanford University, and the Massachusetts Institute of Technology – as well as the U.S. Naval Academy and the Naval Postgraduate School.

The program's goals are to advance Department of the Navy personnel and energy objectives by supporting university research activities that directly incorporate participation and education of naval personnel across active duty and reserve military, NROTC and veterans.

How does it work?

Participants and their advisors select research topics and/or projects to pursue that address emerging naval needs (e.g. research on undersea applications, future surface ships and materials).

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Research Area Examples:

- Access to wearable, flexible, and lightweight electronics, such as solar cells, batteries and sensors, is likely to have a major impact on various aspects of Navy mission
- Improvements in DoD electronic systems, including radars, communication, navigation, and munitions' electronics.
- Fundamental studies on composition/performance correlations for aviation fuels
- Development of low cost catalyst materials for portable hydrogen generation and on-demand power.
- Heterogeneous surface wettability for manipulation of dryout hydrodynamics and bubble departure during high-heat-flux boiling processes
- Development of low-cost, high-performance electrode materials for Na-ion batteries

Program Participants:

ASU MIT Purdue UC Davis NPS USNA Stanford