Energy Academic Group Research Overview

ENERGY ACADEMIC GROUP

RESEARCH OVERVIEW

Secretary of the Navy Ray Mabus listens to LT Omari Buckley explain his thesis research while visiting the NPS Biofuels Testing Laboratory on 29 August 2011.

Energy research at the Naval Postgraduate School (NPS) is highly diverse, reflecting the diverse interests of our highly capable faculty and students. A wide range of subject areas are covered by NPS energy research, including basic sciences, engineering, operations and analysis, and business. There is also an increasing amount of work that is cross disciplinary, involving faculty and students from multiple subject areas in solving the Navy, Marine Corps and DoD critical energy needs. Although energy research at the NPS is focused on the needs of the US military, much of the on-going research is unclassified and has both military and civilian applications. NPS energy research is funded by both internal and external programs. For the 2011/2012 academic year, the NPS funded over $250,000 worth of energy seed research from internal R&D funds. Total funding for energy research at the NPS in the 2011/2012 academic year has exceeded $2M. External sponsors include the Office of Naval Research, the Office of the Secretary of Defense, the Department of Energy, and various Navy warfare centers such as NAWC and NSWC.

View NPS examples of energy research:

- Science and Technology (S&T)
- Policy and Analysis (P&A)

NPS Laboratories for Energy Research

The highly diverse nature of energy research at the Naval Postgraduate School (NPS) causes energy research to be distributed between a wide range of different laboratories in various different academic departments, research institutes, and academic (cross disciplinary) groups. Although these laboratories are concentrated in the Graduate School of Engineering and Applied Science (GSEAS), there is significant research being accomplished in laboratories in the Graduate School of Operational an information Sciences (GSOIS) and even in the Graduate School of Business and Public Policy (GSBPP). There is no single laboratory at the NPS devoted 100% to energy research but the combined productivity in energy research of the laboratories listed on this web site makes a truly significant contribution to DoD energy science, technology, policy, and analysis.

View NPS laboratories for energy research:

- ECE Department Power Systems Laboratory
- NPS Hastily Formed Networks (HFN) Lab

Research Seeding at NPS

The Naval Postgraduate School Dean of Research, in consultation with the NPS Research Board, will occasionally seed research at the NPS in key subject areas that are of high importance to the Navy and Marine Corps. Although internal R&D funding is severely limited, a total of $250K was allocated in the 2011/2012 academic year to initiate new faculty research programs in energy. Several of the seeded research programs have already yielded significant results and received follow-on external funding. Research projects listed on this website which have received seed funding from internal R&D funds are so indicated.

The following is a list of energy research that was seeded by the NPS research administration:

- Optimal Design of Piezoelectric Materials for Maximal Energy Harvest
- Optimization of Vertical Axis Wind Turbine Arrays
- Novel Metal Oxide Aerogel/Graphitic Hybrids for Supercapacitive Energy Storage
- Bimaterial MEMS Solar Generators
- Multi-Material Dielectrics: A New Paradigm for Achieving High Energy Density Capacitors
- Lead Acid Semi-Solid Flow Cells (LA-SSFC) for Medium- and Large-Scale Energy Storage
- Flexible Low-cost Solar Cells for Expeditionary Energy: New Tools for Optimizing Performance