



ENERGY SECURITY

Addressing Operational Energy and the Energy Transition

AT A GLANCE

WHAT IS IT?

Energy is an enabler of military capability and DOD is the world's largest institutional consumer of energy. Superiority relies on an understanding of the complex web of energy security and its relationship to climate change.

WHY DOES IT MATTER?

Energy is essential to every aspect of military operations. Investing in the energy transition can strengthen military capabilities and help meet climate goals.

WHAT IS NPS' ROLE?

NPS supports energy security through a multi-disciplinary approach of curriculum and faculty and student research. The Energy Academic Group serves as a central node for this work and supports the Climate and Security Network.

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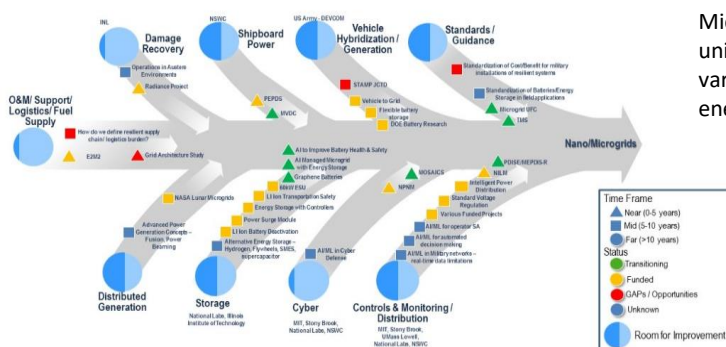
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NPS is conducting research and education to address energy security.

- **Pathways to Net Zero Emissions:** NPS researchers are answering the Navy's call to reduce emissions. Seventy percent of DoN emissions come from ships and aircraft which are particularly difficult to decarbonize. NPS researchers are analyzing a variety of pathways – including alternative fuels, hydrogen, batteries, efficiencies and unmanned systems.
- **Innovations in Operational Energy:** in the transition to low-carbon energy sources, research must address the DON's operational energy demands including advanced propulsion solutions and expeditionary energy capability. NPS research addresses hydrogen, hybridization, electrification, and climate impacts on energy sources.
- **Advancing Energy Resilience:** NPS is conducting cutting-edge research in distributed generation, smart grid and microgrids, and transformational technologies such as low-carbon and advanced batteries. This empowers installation and operational energy to meet the DON mission in the face of environmental change and the energy transition.
- **Geopolitics of the Energy Transition:** NPS researchers understand that the energy transition will create winners and losers. Managing these shifts requires analysis of how countries weather periods of diminished energy access, how they secure access to the raw materials required for green energy generation, and how the shift away from fossil fuels affects political stability. NPS researchers are also examining how countries use energy supply shutoffs and sanctions to advance their geopolitical agendas.

Microgrid Technological Roadmap



Microgrids are part of unique solutions to a variety of DOD and DON energy needs.