



**Title:** Experimental Platform for Novel Distributed Microgrids  
Control Solutions

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**Sponsor:** U.S. Department of Defense  
Office of Naval Research

**Summary:**

Microgrid can be defined as a cluster of Distributed Energy Resource Units and loads, serviced by a distribution system, and can operate autonomously without connecting to power grid. The microgrid concept is a big step toward solving the controllability problems of distributed resources. Research on microgrid is not only important for the Department of Energy but also for the Department of Defense, especially for the Navy and the Army. As special types of microgrids, naval shipboard power system and Army military microgrids have demanding requirements on survivability, reliability, and efficiency. To satisfy the ever increasing requirements, the DoD has been seeking advanced control solutions microgrids.

The primary objective of this project is to develop a state-of-the-art experimental platform that can benefit current and future research for the DoD. Secondary objectives include enhancing internal and international collaborations through the development of the platform, providing an open experimental platform for all researchers working in related areas, improving teaching and research on power electronics and motor drive, and upgrading the power system lab for teaching the large population of minority students at NMSU.