Creare®
ENGINEERING
RESEARCH & DEVELOPMENT SERVICES

We have experimental facilities to support the development and characterization of new power systems.

POWER SYSTEMS

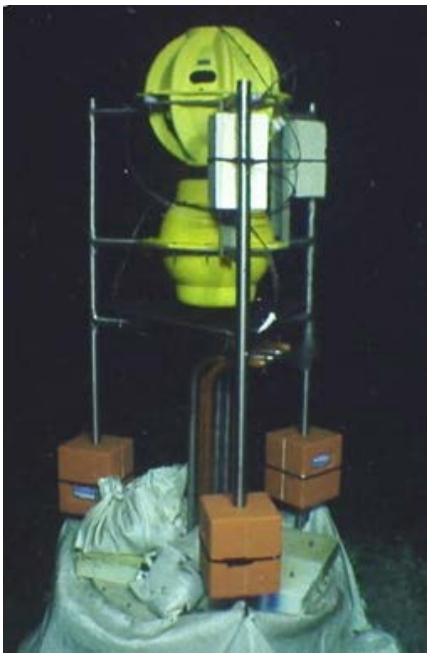
CREARE ADDRESSES CRITICAL ISSUES ACROSS A BREADTH OF POWER SYSTEMS.

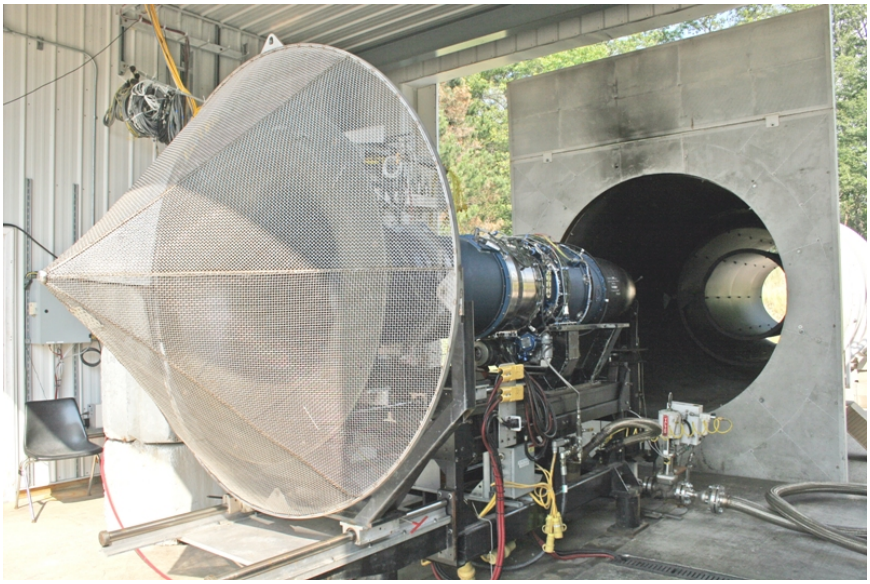
Our experience encompasses scales ranging from large power plants to compact portable units, and applications from the seafloor to outer space. We develop advanced technologies for power generation as well as its efficient transmission, storage and ultimate usage. Most of our innovations culminate in the construction and testing of laboratory or fieldable prototypes. Examples of our work include:

- Turbo-Brayton systems fueled by combustion and nuclear heat sources
- Turbo-Rankine systems for bottoming cycles and standalone power generation
- Performance enhancements for military diesel-cycle generators
- Advanced turbomachines, alternators and electric motors
- Compressors, expanders and heat exchangers for compressed air energy storage
- Heat exchangers for gas turbine engine bottoming cycles
- Burner designs for gas turbine engines
- Power dense converter electronics for grid energy storage
- Plasma gasification systems for waste-to-energy conversion

Developing new technologies and solving challenging customer problems in the generation, storage and transport of power

POWER SYSTEMS





Testing of a Creare-designed inter-turbine burner for a gas turbine engine.

Power on the Seafloor

One of Creare's more novel efforts has been to devise a power generation system that takes its input energy from hydrothermal vents on the seafloor. Development of a power system for this application is challenging because the environment is extremely corrosive, and mineral precipitation and biological activity can obstruct critical surfaces. Our turbo-Rankine system produces power to enable remote sea sensors and recharge autonomous underwater vehicles.

Combustion Instabilities

Combustion stability is critical to the operational performance of jet engines. Through a series of projects, Creare engineers developed predictive software tools to help engine designers avoid unstable regimes. Our work focused on an advanced heat release model to more accurately represent the physics of these challenging conditions. We have also developed fueling systems for improved augmenter combustion stability.

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