

FLUIDIC ENERGY

HIGH-POWER ZINC-AIR ENERGY STORAGE

PROJECT TITLE:	Enhanced Metal-Air Energy Storage System with Advanced Grid-Interoperable Power Electronics Enabling Scalability and Ultra-Low Cost		
ORGANIZATION:	Fluidic Energy	LOCATION:	Scottsdale, AZ
PROGRAM:	GRIDS	ARPA-E AWARD:	\$2,993,128
TECH TOPIC:	Energy Storage: Stationary	PROJECT TERM:	10/1/10 – 10/1/12
WEBSITE:	www.fluidicenergy.com		

CRITICAL NEED

Our national electric grid has limited ability to store excess energy, so electricity must constantly be generated to perfectly match demand. Though wind and solar power are promising clean alternatives to fossil fuels, their natural unpredictability and intermittency present major challenges to delivery of the consistent power that is necessary to operate today's grid. The U.S. needs technologies that can store renewable energy for future grid-use at any location. Flexible, large-scale storage would create a stronger and more robust electric grid by enabling renewables to contribute to reliable power generation.

PROJECT INNOVATION + ADVANTAGES

Fluidic is developing a low-cost, rechargeable, high-power module for Zinc-air batteries that will be used to store renewable energy. Zinc-air batteries are traditionally found in small, non-rechargeable devices like hearing aids because they are well-suited to delivering low levels of power for long periods of time. Historically, Zinc-air batteries have not been as useful for applications which require periodic bursts of power, like on the electrical grid. Fluidic hopes to fill this need by combining the high energy, low cost, and long run-time of a Zinc-air battery with new chemistry providing high power, high efficiency, and fast response. The battery module could allow large grid-storage batteries to provide much more power on very short demand—the most costly kind of power for utilities—and with much more versatile performance.



IMPACT

If successful, Fluidic's Zinc-air battery could last up to 5,000 charge and discharge cycles and would enable a grid-scale energy storage solution with the capacity to support the use of renewable power.

- **SECURITY:** A more efficient and reliable grid would be more resilient to potential disruptions.
- **ENVIRONMENT:** Electricity generation accounts for over 40% of U.S. carbon dioxide (CO₂) emissions. Enabling large-scale contributions of wind and solar power for our electricity generation would result in a substantial decrease in CO₂ emissions.
- **ECONOMY:** Increases in the availability of wind and solar power would reduce fossil fuel demand, resulting in reduced fuel prices and more stable electricity rates.
- **JOB:** Advances in energy storage would result in new high-paying jobs in supporting sectors such as manufacturing, engineering, construction, transportation, and finance.

CONTACTS

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