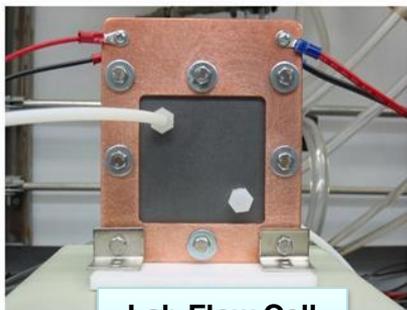


Soluble Lead Flow Battery Technology

Dr. David Keogh / General Atomics & Prof. Y. Shirley Meng / UCSD

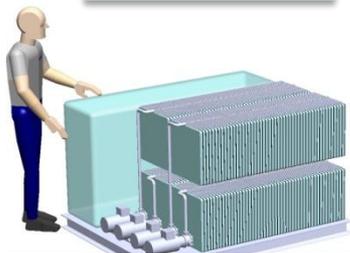
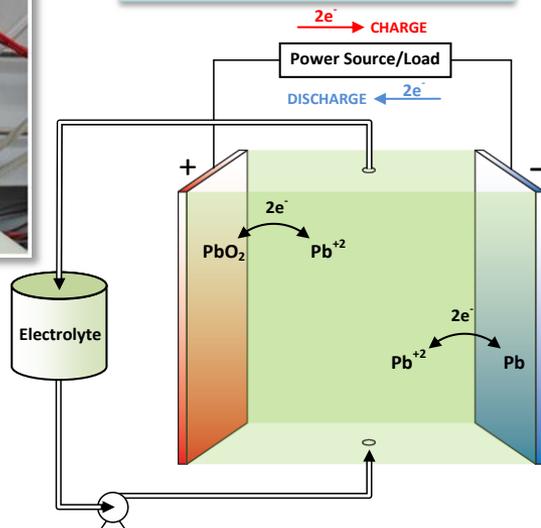
Technology Summary

General Atomics (GA) and the University of California, San Diego (UCSD) are developing a soluble lead flow battery where the active lead material is dissolved into the electrolyte, which allows for the use of a single electrolyte and eliminates the need for the separator or membrane material, greatly simplifying system design and cost. In addition, the use of carbon-based electrodes instead of lead-based electrodes eliminates significant amounts of excess lead, providing further cost reductions, and has the potential to extend the cycle life through improved resistance to sulfation and corrosion.



Lab Flow Cell

Electrochemical reaction



20kW Proof-of-Concept

Key Personnel

Dr. David Keogh, General Atomics

Dr. Shirley Meng, University of California, San Diego

Key Milestones & Deliverables

	Description
Year 1	<ul style="list-style-type: none">• Electrochemical Studies Complete• Flow Battery System Design and Fab Complete
Year 2	<ul style="list-style-type: none">• Single Cell Life Cycle Testing Complete• Flow Battery System Testing Complete• 20kW POC Design and Fab Complete
Year 3	<ul style="list-style-type: none">• 20kW POC Testing Complete

Technology Impact

Few technologies can match the combination of low-cost, high-efficiency, proven reliability, and safety that lead-acid technology offers. For grid-scale energy storage applications, reductions in cost of the technology and extended cycle life are still needed to enable widespread adoption. The primary focus of the research effort under this program will be to understand the mechanisms that currently limit soluble lead flow battery performance, and to provide an engineering solution that will ultimately meet the requirements for widespread deployment of grid-scale energy storage.

A Low-Cost Soluble Lead Flow Battery for Grid Energy Storage

