



Seeo Inc

Solid State Batteries for Grid-Scale Energy Storage

Project Description

Seeo and its partners are demonstrating a large-scale prototype of a solid-state electrolyte lithium-ion rechargeable battery for use in Smart Grid energy storage applications. Seeo seeks to validate this technology to address the needs of Community Energy Storage Systems—small (less than 100 kW) distributed energy storage systems alongside pad-mounted and pole-mounted transformers. The 25kWh battery pack is more than a 50 percent improvement in weight and energy density; has 10-15+ year operating life with 3,000-5,000 or more cycles; has no volatile or flammable components; and will be 35 percent cheaper than existing lithium-ion batteries. This approach allows independent control over mechanical and electrical properties. Seeo's cell design couples a solid lithium metal anode with a conventional porous lithium iron phosphate cathode yielding a pouch cell energy density of 235 Wh/kg and 410 Wh/l. The cell can withstand temperatures as high as 150°C and voltages of 10 volts without incident. An independent analysis of the environmental and economic impact of battery improvement will also be conducted.

Goals/Objectives

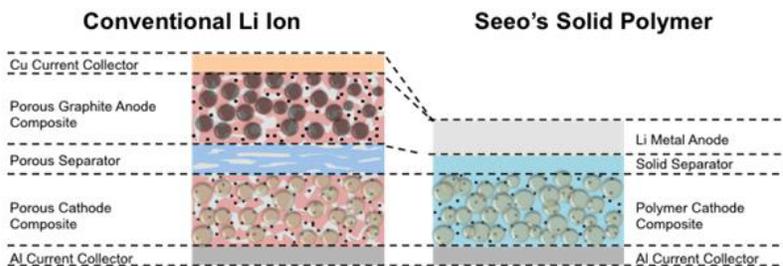
- Develop and deploy a prototype battery system that validates Seeo's technology
- Reduce the cost of battery cells by \$100-\$300/kWh
- Improve battery installation and maintenance
- Produce a plan for manufacturing and commercializing the technology at utility scale

Key Milestones

- Polymer temperature and voltage assessment complete (September 2011)
- Produce a total of 1,000 cells with optimized power and energy (December 2011)
- Finalize Pack Design (June 2012)
- Prototype pack assembly complete (January 2013)
- Complete prototype pack performance testing and validation (September 2013)

Benefits

- **Job creation**
- **Electricity reliability improved**
- Cost of electricity reduced
- Gasoline consumption decreased
- Greenhouse gas emissions reduced
- Global competitive edge gained by the U.S.



CONTACTS

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PARTNERS

University of California Berkeley

PROJECT DURATION

07/30/10–07/29/2014

BUDGET

Total Project Value
\$12,392,122

DOE/Non-DOE Share
\$6,196,060/\$6,196,062

EQUIPMENT

Modified Coating Line
Stacking Machine
Pouch Forming and Sealing
Cell Cycling

DEMONSTRATION STATES

California
CID: OE0000223

Managed by the National Energy Technology Laboratory for the Office of Electricity Delivery and Energy Reliability

