

RECAPPING

HIGH ENERGY DENSITY CAPACITORS

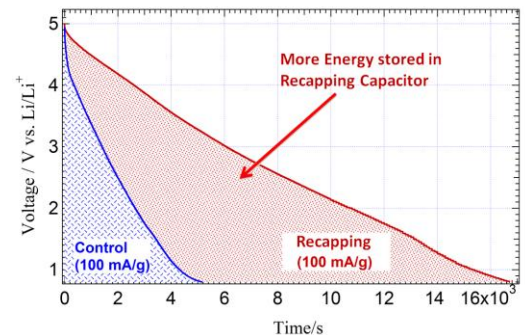
PROJECT TITLE:	High Energy Density Capacitors		
ORGANIZATION:	Recapping, Inc.	LOCATION:	Menlo Park, CA
PROGRAM:	BEEST	ARPA-E AWARD:	\$1,000,000
TECH TOPIC:	Energy Storage: Portable	PROJECT TERM:	7/1/10 – 6/30/12
WEBSITE:	www.arpa-e.energy.gov/ProgramsProjects/BEEST.aspx		

CRITICAL NEED

Most of today’s electric vehicles (EVs) are powered by lithium-ion (Li-Ion) batteries—the same kind of batteries used in cell phones and laptop computers. Currently, Li-Ion batteries have a driving range limited to 100 miles on a single charge and account for nearly 65% of the total cost of EVs. To compete in the market with gasoline-based vehicles, EVs must cost less and drive farther. An EV that is cost-competitive with gasoline would require a battery with twice the energy storage of today’s state-of-the-art Li-Ion battery at 30% of the cost.

PROJECT INNOVATION + ADVANTAGES

Recapping is developing a capacitor that could rival the energy storage potential and price of today’s best EV batteries. When power is needed, the capacitor rapidly releases its stored energy, similar to lightning being discharged from a cloud. Capacitors are an ideal substitute for batteries if their energy storage capacity can be improved. Recapping is addressing storage capacity by experimenting with the material that separates the positive and negative electrodes of its capacitors. These separators could significantly improve the energy density of electrochemical devices.



IMPACT

If successful, Recapping’s project would improve the energy storage in capacitors for use in EVs, making them competitive with existing EV battery technologies.

- **SECURITY:** Cost-competitive capacitors with energy storage comparable to existing battery technology would enable the widespread use of EVs and renewable energy storage facilities. This would greatly reduce our dependence on foreign oil.
- **ENVIRONMENT:** Greater use of EVs would reduce greenhouse gas emissions, 28% of which come from the transportation sector.
- **ECONOMY:** Diversifying our fuel supply for transportation and electricity production would help stabilize electricity rates for consumers and businesses.
- **JOBS:** Advancements in capacitor technology could create jobs in the engineering and manufacturing sectors.

CONTACTS

ARPA-E Program Director:
Dr. Dane Boysen,
dane.boysen@hq.doe.gov

Project Contact:
Dr. Niall Donnelly,
n.donnelly@recappinginc.com

Partner Organization:
Pennsylvania State University