U.S. Department of Energy
LITHIUM-ION BATTERY RECYCLING PRIZE

PHASE II
PROTOTYPING AND PARTNERING

The Lithium-Ion Battery Recycling Prize is a $5.5-million phase prize competition focused on identifying innovative solutions for collecting, sorting, storing, and transporting spent and discarded lithium-ion batteries — from electric vehicles (EV), consumer electronics, industrial, and stationary applications — for eventual recycling and materials recovery. The Prize is designed to incentivize American entrepreneurs to develop and demonstrate processes that, when scaled, have the potential to profitably capture 90% of all discarded or spent lithium-based batteries in the United States for eventual recovery of key materials for re-introduction into the U.S. supply chain.

PROTOTYPING AND PARTNERING WITH INDUSTRY EXPERTS

In Phase II, the 15 winning teams from the Phase I Contest will advance their winning concepts into end-to-end solutions that demonstrate a viable business model that can be scaled. An end-to-end solution, for the purposes of this contest, collects lithium-ion batteries at the end of their useful life and delivers them to a facility where they can be recycled. The proposed solution may or may not include an intermediate step for secondary use.

An emphasis in Phase II is to develop partnerships between winning teams and industry experts to provide a comprehensive solution.

GET INVOLVED

PHASE I
Concept Development and Incubation
COMPLETE
- Regis[illegible]mplete!
- [illegible] due April 30, 2019
- Form teams and incubate and improve concepts

Up to 25 winners (at least $40,000 each)

PHASE II
Prototype and Partnering
- Simulate, verify, and validate concepts and processes
- Partner with stakeholders
- Up to 10 winners

Up to 10 winners (at least $250,000 each)

PHASE III
Pilot Validation
- Build your battery recycling business model and demonstrate process
- Up to 4 winners
- Visit by DOE, industry, and stakeholder at the end of Phase III

Up to 4 winners (at least $500,000 each)

Learn how to get involved, visit batteryrecyclingprize.org/partners

PHASE II PARTICIPANTS

Admiral Instruments: Battery Sorting with Voltammetry & Impedance Data

contact@admiralinstruments.com
480-256-8706

The Electrochemical Battery Sorting System™ will sort batteries by three categories: 1) Elemental Formulation, 2) State of Health, and 3) State of Charge in under one second per cell/pack by using automated analysis algorithms based on unique Cyclic Voltammetry and Impedance Spectroscopy measurement methods.

Conductive Media: Composite Discharge Media

info@conductive-media.com
256-542-7396

Conductive Media will simplify and reduce the hazards associated with sorting, storing, shipping, and recycling of Li-ion batteries by using engineered materials to conduct a safe discharge.

EEDD: Battery Self Cooling for Safe Recycling

gz0002@uah.edu | 480-256-8706

EEDD aims to harvest unused energy in lithium-ion batteries for self-cooling to prevent fires during recycling.

Holman Parts Reverse Logistics Recycling Solution

Holman Parts Distribution is the reverse logistics solution for Lithium-Ion battery collection, and will provide sustainable solutions for both consumer and automotive batteries to be recycled appropriately.

Li Industries: Smart Battery Sorting System

david.young@li-ind.com

Li Industries will develop a machine learning-based, automated Smart Battery Sorting System that is capable of accurately and efficiently sorting and separating batteries by a number of characteristics, including chemical composition, size, weight, and/or packaging type.

LIB-IoT: Innovative Battery Collection System by Lithium-Ion Battery Internet-of-Things

dgrivas@lib-iot.com | 518-813-9269

LIB-IoT seeks to create a secure cloud-based battery collection, tracking, and monitoring system to support the lifecycle and recycling of lithium-ion batteries, through the implementation of IoT methodologies.

OnTo Technology: Li-Ion Identification

lcandon@onto-technology.com
541-389-7897

OnTo's comprehensive approach will significantly improve efficiency, safety, and value in recycling through battery deactivation, automated sorting by cathode chemistry, high recovery harvesting, and cathode-healing™.

Powering the Future: Banking Today's Materials to Power Tomorrow

Clarios will be the infrastructure for the American lithium-ion battery recycling and closed-loop economy; by establishing partnerships and collaborations among recycling technology and innovation providers, thereby becoming the best provider of sustainable life-cycle management for a complete portfolio of batteries.

Renewance: Reverse Logistics Marketplace

jamal.burki@renewance.net
312-834-9050

Renewance Connect will provide efficient end-to-end reverse logistics and reuse-recycling through optimized on-demand services, maximizing recovery rates in a fully traceable, environmentally sound and cost effective manner.

Smartville: Distributed Battery Conditioning HUB

mdferry@ucsd.edu | 510-305-2944

Smartville will deploy distributed battery conditioning "HUBs" to reduce costs and create value in the reverse logistics supply chain.

Store Packs Umicore: Development of Four U.S. Collection & Storage Sites for Lithium-Ion Automotive Battery Packs

mark.caffarey@am.umicore.com
819-874-7175

Store Packs Umicore is a new collation that will provide material flow solutions for end of life EV battery packs.

Team EVBs: A Circular Economy for Electric Vehicle Batteries

lauren@everledger.io | 973-224-7632

Team EVBs will demonstrate how a digital identity can be applied to EV batteries and critical components for tracking throughout lifecycles and supporting the sharing of data among stakeholders to optimize safe and sustainable management.

Team Portables: Reward to Recycle – Closing the Loop on Portables

matthew@everledger.io | 203-312-3783

The team proposes a demonstration whereby portable lithium-ion batteries and the products they power will be given a digital identity to support final recycling.

Titan Advanced Energy Solutions: IonView-Ultrasonic LIB Automated State of Health 1-Second Test

sean@titanaes.com | 561-654-5558

Titan Advanced Energy Solutions proposes the integration and use of Titan's ultrasonic lithium-ion battery testing device for the rapid sorting of second-life batteries by integrating into recycling facilities, second-life integrators, and global tracking platforms to increase the cradle to cradle life-cycle of lithium ion batteries and those recycled materials.

JOIN THE AMERICAN-MADE NETWORK

Companies may also get involved by joining the American-Made Network as an official voucher service provider. In addition to a cash prize of up to $2,500,000 distributed equally among the winning teams, Phase II winners will also receive $100,000 in non-cash vouchers to be redeemed within the American-Made Network or at any of the 17 DOE national laboratories. Voucher funds can be used to validate or support the demonstration of a full end-to-end solution during the Phase III contest. **Find out more at americanmadechallenges.org/connect.**

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VEHICLE TECHNOLOGIES OFFICE
ADVANCED MANUFACTURING OFFICE

NREL Transforming ENERGY

Learn how to get involved, visit batteryrecyclingprize.org/partners