Argonne NATIONAL LABORATORY

ACCESS
Energy Storage at Argonne

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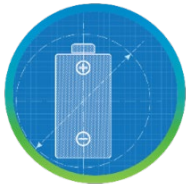
The ReCell Center: Advanced Battery Recycling

The center will establish cost-effective, flexible processing techniques to extract as much value as possible from current and future batteries chemistries to make recycling economically viable.

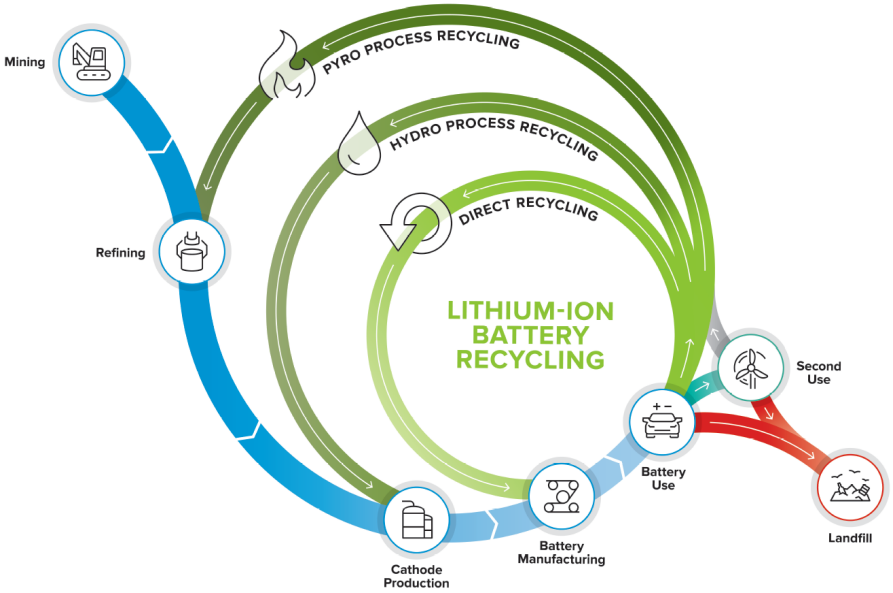
DIRECT CATHODE RECYCLING

OTHER MATERIAL RECOVERY



DESIGN FOR RECYCLING

MODELING AND ANALYSIS



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NREL NATIONAL RENEWABLE ENERGY LABORATORY

OAK RIDGE National Laboratory

Michigan Technological University

WPI

UC San Diego

Bringing together battery recycling expertise and bridging the gaps between them to efficiently address the many challenges that face a successful advanced battery recycling infrastructure.

JCESR'S FIRST FIVE YEARS…

Focus exclusively on beyond Li-ion batteries

Innovative tools

Materials Project

0101
1010

Electrolyte Genome

0101
1010

Multi-modal Characterization

X-ray, Raman, FTIR, LEIS, NMR, STEC

Techno-Economic Modeling

Frontier Science Advances

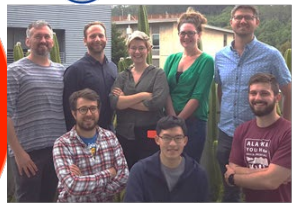
- Comprehensive simulation of multivalent cathodes and solid state electrolytes
- Stripping and plating mechanisms of multivalent electrolytes
- Versatile redox polymers (redoxmers) for flow battery design
- Machine learning for redoxmer discovery
- Polymer membranes for size and charge separation
- Li-S lean electrolytes and alternate reaction pathways

Three Startups

BLUE CURRENT

Solid State Electrolytes

SEPION TECHNOLOGIES



Size-selective polymer membranes

Air-Breathing Aqueous Sulfur

JCESR'S SECOND FIVE YEARS…

Vision

Design the battery for the application, not the application for the battery

Batteries satisfy all required performance metrics simultaneously

Mission

Transformative materials, chemistries and architectures for next generation batteries

Approach

Build materials and systems "from the bottom up"

atom-by-atom and molecule-by-molecule

Each atom or molecule plays a prescribed role in producing overall materials and systems behavior

Anodes, cathodes, electrolytes, interfaces, architectures