

# Battery Design for Disassembly in Support of Materials Reuse

## **The Need**

Design so that components can be manufactured for disassembly, recovery, and reuse. In the development of recycling processes impediments arise that could have been alleviated if the end of life was thought of at the onset. To optimize materials recovery and reuse (recycling) there is a need to design and manufacture components with the end of life in mind from the beginning. Recovery and reuse of material resources should not be an after thought, but the first step in design.

## **Impact**

Currently, recycling of used EV battery packs is possible but expensive. Extracting more value out of high-cost advanced battery packs would be beneficial in terms of both economics and the environment.

However, the ability for used EV battery packs to be remanufactured or reused economically after 1<sup>st</sup> life is not yet feasible on a large scale. Making recommendations for improved serviceability of used battery packs and demonstrating that these packs can be remanufactured and reused is beneficial to many industries.

## **Goals and Objectives**

The goal of this project was to demonstrate the feasibility of remanufacturing and reuse of electric vehicle (EV) batteries for second life applications. Our objective was to recommend a new paradigm for battery pack design in order to improve serviceability and disassembly after primary automotive use.

## **Deliverables**

- Find Potential applications for EV battery packs
- Make recommendations for improved serviceability of EV battery pack design
- Make recommendations for battery pack design for disassembly after use
- Report on trends in used battery pack states of health.