ENERGY STORAGE GROUP

The Problem
A limiting factor of any electric vehicle is the battery’s performance. How far can the car go on one charge? How long will the battery last before it needs to be replaced? Can manufacturer claims be trusted?

The Solution
The Energy Storage Group within INL’s Advanced Transportation division uses the Battery Test Center to run the experiments that help improve battery performance.

What’s in your battery?
When cellphones ring, flashlights light up and cars start, it’s all because the electrolytes inside the battery allow ions to travel across, creating an electric charge. Everyday batteries might be charged by zinc and carbon, zinc and magnesium dioxide, lead-acid, lithium ions, or many other electrolyte combinations. But some electrolytes are more effective than others.

Energy Storage Group research seeks to determine which electrolyte combinations will be most effective in different types of batteries. First, teams synthesize electrolytes to form new combinations. Then, they perform comprehensive testing on each combination to measure various characteristics, including different thermal and physical properties.

The two main goals of the Energy Storage Group are to increase consumer confidence and to enhance market share for electric vehicles.

American consumers are the top priority, as the Energy Storage Group strives to ensure quality, independent testing at all times.

Electrolytes • Charge • Cathode • Anode • Energy

Zn Zinc
Li Lithium
Co Cobalt
Si Silicon
Pb Lead
C Carbon

Energy Storage Group researchers determine how batteries will age to help reduce costs and improve performance.

The large facility provides consistent, quality testing to help ensure batteries meet manufacturers’ standards and consumers’ needs.

With their extensive knowledge of energy storage systems, Energy Storage Group researchers can help manufacturers improve their batteries and lower costs.

Which is all why...
The Energy Storage Group serves as a Department of Energy core capability for independent, third-party battery testing.

TESTING BATTERIES IN R&D STAGES MAY TAKE ONLY MONTHS, WHILE TESTING COMMERCIAL BATTERIES CAN TAKE 10 YEARS OR MORE!

THAT’S THE NUMBER OF CHANNELS AVAILABLE TO TEST EVERYTHING FROM WATCH-SIZED BATTERIES TO FULL-SIZED VEHICLE BATTERY PACKS

www.at.inl.gov

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