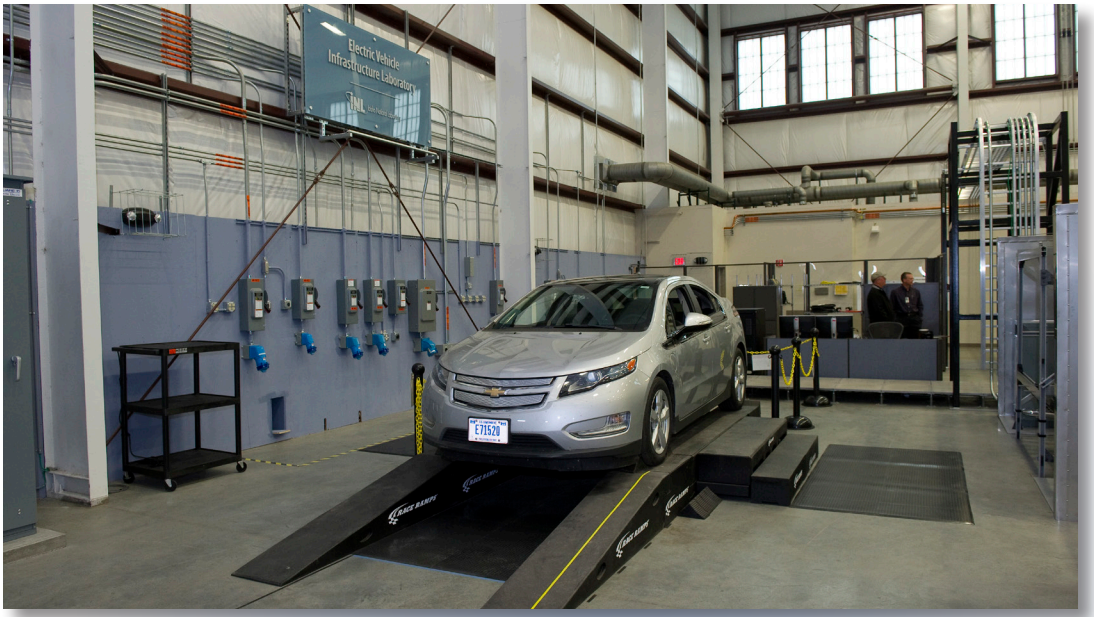

INL's Advanced Vehicle program provides unbiased, real-world testing for advanced vehicles such as plug-in electric cars.

Advanced Transportation

Where research meets the road

Transportation in the United States — and around the world — is in the midst of a major transformation.

From new fuels to new batteries to new charging systems and infrastructure, every aspect of how to get from point A to point B is becoming more energy efficient, sustainable and technologically advanced. The Advanced Transportation department at Idaho National Laboratory is at the forefront of these developments.

Transforming transportation fuels

Turning biomass into liquid fuel is a crucial step in keeping up with growing fuel demands. INL is finding ways to cost-effectively produce biofuels and other value-added products by embracing "Whole Crop Utilization" concepts that better utilize traditionally discarded plant biomass.

The Biomass Feedstock National User Facility at INL houses the Process Demonstration Unit, the Bioenergy Feedstock Library and the Characterization Laboratory. These capabilities are helping industry improve the process of transforming raw biomass from the field into liquid transportation fuels. INL researchers work closely with customers to turn biofuel concepts into economically and

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Work at the Battery Test Center will help electric vehicles transition from being "the cars of the future" to "the cars of now."

The Energy of Innovation

Idaho National Laboratory

Continued from previous page

commercially scalable processes.

Hydrogen fuel cells

Fuel cells offer the potential for cleaner and more efficient power production. Diverse energy resources such as wind, solar and nuclear could be used to generate hydrogen fuel for vehicles and power grids. By utilizing regional renewable energy resources, INL researchers seek a better way to leverage fuel cells. Scientists at INL are working in concert with researchers at Colorado's National Renewable Energy Laboratory to integrate fuel cells into the grid more efficiently. The ultimate goal: affordable hydrogen power.

Energy storage

The Battery Test Center (BTC) is a U.S. Department of Energy Core Capability for independent, third-party battery testing. The center houses more than 700 channels that can test everything from watch-sized batteries to full-sized vehicle battery packs. Scientists at the BTC also know the best way to improve battery efficiency and longevity is to do their own research into materials and electrolytes. Work at the BTC will help electric vehicles transition from being "the cars of the future" to "the cars of now."

Advanced vehicles

INL's Advanced Vehicle program provides unbiased, real-world testing for advanced vehicles such as plug-in electric cars. The group works with industry and government partners to ensure that an accurate, state-of-the art testing protocol is applied to vehicles by first evaluating them in a lab setting, and then in the real world as part of a fleet. The Electric Vehicle Infrastructure Laboratory at INL tests charging systems and helps establish benchmarks for future charging systems. All results are made available to the public.

Collaboration

It's the backbone of all work at the Advanced Transportation department. Researchers work together, using tools like Real-Time Digital Simulators, to understand how results from their tests impact other aspects of transportation. These simulations expand into power grids and other energy systems, as INL scientists work with external transportation groups in industry, government and academia. It's through collaboration that the Advanced Transportation department maximizes its research potential and contributes to the next generation of automotive ingenuity.

Scientists at INL are working to integrate fuel cells into the grid more efficiently.

Researchers work together to understand how results from their tests impact other aspects of transportation.

For more information

Kev Adjemian
Department Manager, Energy Storage and Transportation Systems
(208) 526-0121
kev.adjemian@inl.gov

Nicole Stricker
Communications
(208) 526-5955
nicole.stricker@inl.gov

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