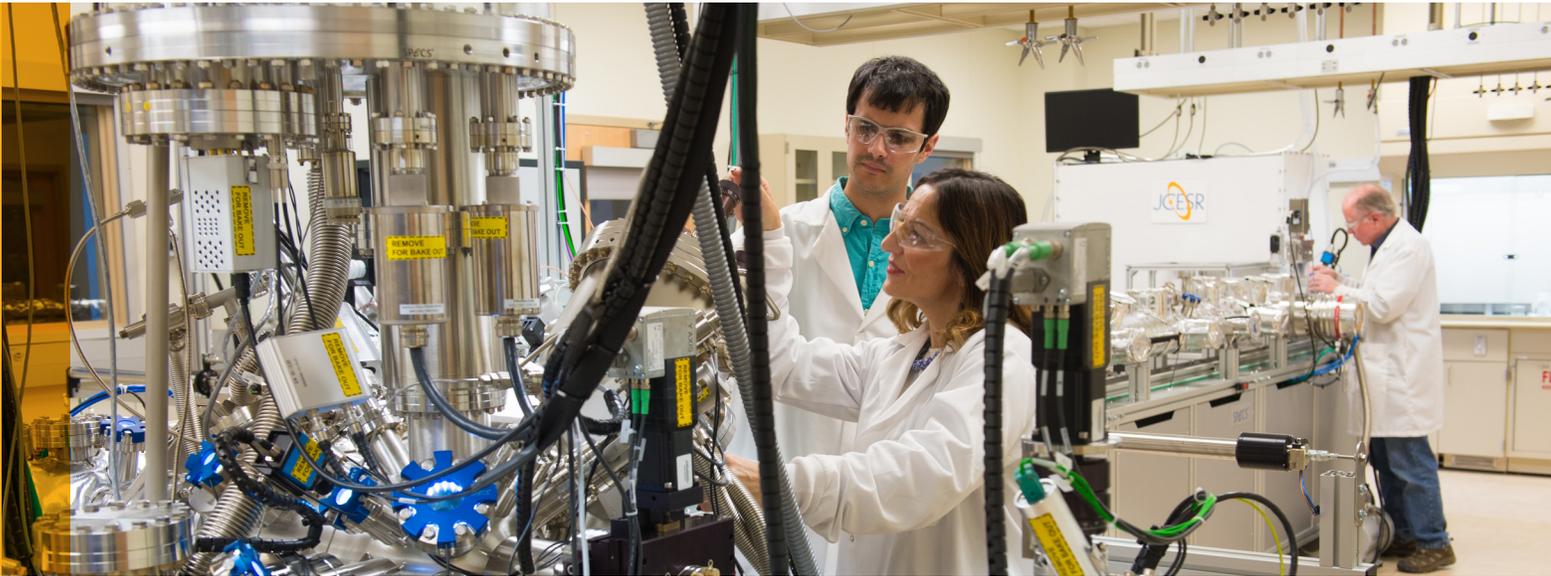


JCESR: LEADING THE WAY TO TRANSFORMATIVE CHANGE IN ENERGY STORAGE



JCESR's Electrochemical Discovery Laboratory, a state-of-the-art facility for preparing novel battery materials and characterizing their properties

Advances in energy storage are critical to modernizing the nation's aging electrical grid—and integrating clean, renewable energy sources such as wind and solar power into our electricity supply. Breakthroughs in battery technology are also critical to reduce our dependence on petroleum through expanded electrification of vehicles.

The Joint Center for Energy Storage Research (JCESR) is a public/private partnership of national laboratories, universities, and industry that brings together world-leading scientists, engineers, and manufacturers to develop clean energy storage technologies for transportation and the electricity grid. With up to \$120 million in funding for an initial five-year period, the Center was established by the Department of Energy as an Energy Innovation Hub in 2012 and is led by Argonne National Laboratory. Success in its mission will leave three legacies.

The first legacy is a library of fundamental knowledge of the materials and phenomena of electrical energy storage at atomic and

molecular levels for beyond-lithium-ion batteries. This library will be freely available through the scientific literature and open-source software, and will inform, inspire, and accelerate the work of the broader battery community.

The second legacy is two prototypes—one for the car and one for the grid—that, when scaled to commercial production, are capable of delivering five times the energy density at one-fifth the cost of commercial batteries in 2012. The prototyping effort is being led by a multidisciplinary team of discovery scientists, battery designers, prototyping specialists, and manufacturing consultants.



“In the same way that telephones had a rotary dial for most of their existence, the electricity grid and cars have mostly existed in a single, unchanged format. But as we move beyond lithium-ion technology, a new generation of cheaper and more powerful batteries will completely rejig the power grid and usher in an age of electrically powered transportation.”

George Crabtree, JCESR Director



The JCESR team: five national labs, ten universities, and five industrial firms

The third legacy is a new paradigm for battery research and development (R&D), which is already in place. This model integrates discovery science, battery design, research prototyping, and manufacturing collaboration in a single, highly interactive organization. In the conventional battery R&D community, these efforts are separated, communication among them is slow, and they operate largely independently. JCESR's new paradigm closes this loop and is accelerating the pace of discovery and innovation

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