



DECARBONIZING THE U.S. ECONOMY WITH SCIENTIFIC BREAKTHROUGHS

Argonne's unmatched expertise and facilities are helping the nation meet its decarbonization goals and combat climate change. The U.S. has committed to reducing our net emissions of greenhouse gases to the atmosphere, by cutting greenhouse gas emissions in half by 2030, removing carbon from—the electrical grid by 2035 and the entire economy by 2050.

Argonne has been at the forefront of the quest to decarbonize the economy for decades, with a research program that addresses both aspects of decarbonization: eliminating the emission of greenhouse gases into the environment, and using carbon capture technologies to remove carbon dioxide from the air.

Argonne scientists are developing new materials for batteries and researching energy efficient transportation and sustainable fuels. They are expanding carbon-free energy sources like nuclear and renewable power.



Scientists at Argonne shred used batteries to learn how to recycle batteries profitably.

CONTACT

Argonne National Laboratory
9700 South Cass Avenue
Lemont, Illinois 60439
Phone: 630-252-2000
www.anl.gov



STORING ENERGY

Our scientists are exploring every aspect of storing energy—from discovering and understanding materials to scaling up techniques and recycling minerals such as cobalt and lithium. We develop energy-storage materials to electrify transportation—the biggest source of greenhouse gas emissions—and to help balance renewable energy on the electrical grid.

Argonne scientists discovered the manganese-cobalt cathode material for lithium-ion batteries in the Chevy Volt and Bolt.



PRODUCING LOW-CARBON ELECTRICITY

Argonne expands the boundaries of carbon-free sources of energy such as nuclear and renewable power—wind, water, solar and geothermal. As an example, we partner with companies such as TerraPower to help design, build and demonstrate the future Natrium™ nuclear reactor.

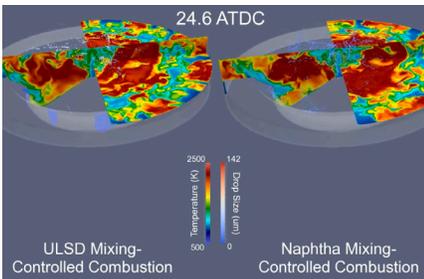
We peer into tiny flaws in wind turbines’ metal parts to help improve carbon-free wind energy. We do this with the Advanced Photon Source, which works like a giant X-ray microscope.



DISCOVERING ZERO-CARBON AND SUSTAINABLE FUELS

We are developing new zero-carbon and sustainable fuels and expanding the possibilities of existing ones. We are, for example, helping to lead the U.S. Department of Energy’s *H2@Scale* program to create, move, store and use clean, carbon-free and affordable hydrogen.

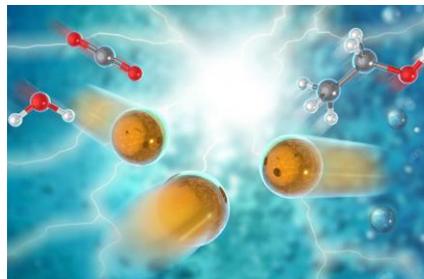
Our scientists also built groundbreaking tools to examine lifecycle greenhouse gas emissions. With those tools, we found sustainable fuels for aircraft that cut emissions, compared to today’s jet fuel, a method favored by the International Civil Aviation Organization.



BOOSTING ENERGY EFFICIENCY

We are pioneers in finding energy efficiencies from any area that relies on carbon: industry, transportation, buildings, and stationary power plants.

We discover materials that better conduct electricity and heat as well as tap one-of-a-kind high performance computing at the Argonne Leadership Computing Facility to find efficiencies hidden in internal combustion engines.



REMOVING CARBON FROM THE ATMOSPHERE

We are advancing technology to capture carbon directly from the air and from industrial sources. In addition, our scientists are exploring ways to use carbon in fuels and store carbon in soil or biomass.