

Sustainable Energy



Mizzou Advantage
University of Missouri

Making it a Reality

Researchers at the University of Missouri are committed to making sustainable energy a reality through collaborative interdisciplinary research programs. MU is the state's largest public research university and land-grant institution.

To become the national leader in bio-based energy, MU is dedicated to advancing the quality and quantity of sustainable energy research and to increasing the entrepreneurial activity of the University related to sustainable energy.



Sustainable Energy addresses energy issues broadly, building on the work at MU's Research Reactor, educational programs in sustainable energy, and research in solar, wind, biofuels, biomass, energy logistics, policy and MU's biomass power plant. This initiative also examines business models, environmental impacts, and the cultural and social consequences of energy uses and production.

Who benefits and why is sustainable energy important?

Everyone benefits. MU will propose and develop solutions that will benefit the state, nation and world. By increasing U.S. energy independence, national and economic security is achieved as well as environmental stewardship and economic development growth through new technologies.

Why is energy economics and policy important?

If a renewable technology is not cost effective, or is not adaptable to policy changes, then it is not a viable solution. Once this is known, research can determine if an approach is transferable and marketable as a real renewable energy solution.

“Our competitive assets differentiate us from the biggest, best-resourced universities and allow us to do things they can't do.”

– MU Provost Brian Foster

Mizzou has Sustainable Energy expertise in:

Biomass – including conversion and utilization, production and logistics, algae, plant genomics, bio-gas, agroforestry, extension and policy

Solar – including solar cells, efficiency of solar cells, design, nanotechnology, storage, water issues

Wind – including design, transmission, storage, materials

Geothermal – optimizing system efficiency

Nuclear – largest university research reactor in U.S., conversion, low temperature physics, waste reprocessing

Energy Storage – including ceramic and carbon-nanotube capacitors, highly nanoporous activated carbon, Micro Electro-Mechanical Systems storage and pressurized storage

Energy Efficiency – DOE funded Industrial Assessment Center and - <http://iac.missouri.edu>, DOE funded MAESTRO (Missouri Agricultural Energy Savings Team, A Revolutionary Opportunity,) both funded by the Department of Energy

www.missouri.edu/mizzou-advantage

MU Facilities and Resources

- MU ranks seventh in the nation in plant sciences funding from the National Science Foundation
- Home to some of the world's top plant scientists and 21 research and Extension farms, centers and forests comprised of more than 14,500 acres; <http://www.cafnr.missouri.edu>
- College of Engineering, multi-disciplinary and interdisciplinary; <http://www.engineering.missouri.edu>
- Bond Life Sciences Center home of researchers from the Colleges of Agriculture, Food and Natural Resources; Arts & Science; Engineering; Human Environmental Sciences; Veterinary Medicine; and the School of Medicine; <http://bondlsc.missouri.edu/>
- Arts and Humanities and Social Sciences, including the Harry S. Truman School of Public Affairs, <http://truman.missouri.edu/>; the Food and Agricultural Policy Research Institute (FAPRI), <http://fapri.missouri.edu/>, and the Rural Policy Research Institute (RUPRI) which make objective contributions to state and national public policy; <http://www.rupri.org/>
- College of Human and Environmental Studies, including the Department of Architectural Studies and the Department of Textile and Apparel Management; <http://www.hes.missouri.edu>
- Center for Sustainable Energy, strives for continuous improvement dedicated to developing sustainable, affordable and renewable solutions to help meet the nation's increasing energy needs; <http://www.mucse.missouri.edu/>
- Missouri Water Resources Center, advanced technology solutions to water and other environmental problems; <http://www.engineering.missouri.edu/research/centers/water.php>

Photo by David G. Nickolaus

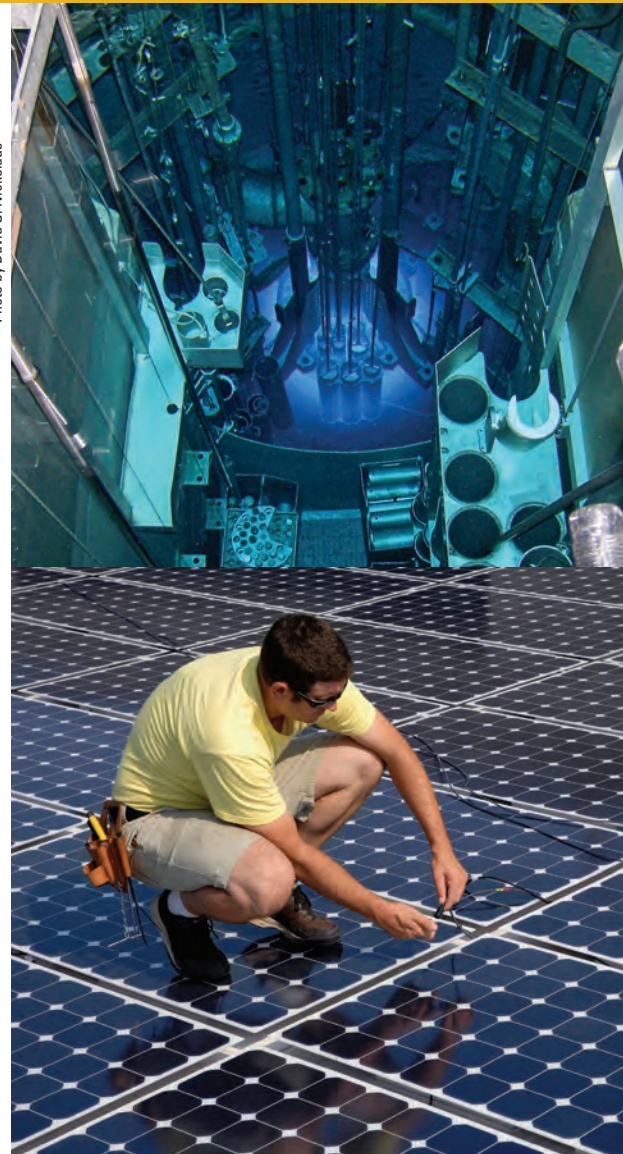


Photo by Nic Benner



Local energy systems

MU Power plant is one of only three plants to receive the 2010 Energy Star Combined Heat and Power Award and is currently in the process of installing a bubbling fluidized bed boiler which runs on 100 percent biomass.

<http://www.booneelectric.coop>

Boone Electric Cooperative is a not-for-profit electric utility providing electricity and other services to 24,000 homes, farms, businesses and industry.

<http://www.cf.missouri.edu/energy>

Educational Opportunities

The Nuclear Energy Technology Workforce Center focuses on the development of instructor-led, web-based curriculum. The course is designed to meet the need for well-trained technical specialists for current and next generation nuclear power plants, medical facilities, national laboratories and other research facilities.

MU offers study abroad opportunities to the continents of Africa, Asia, Australia, Europe, North America and South America.

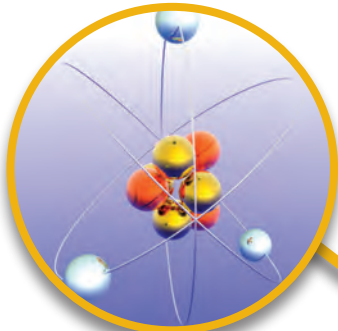
Photo by Rachel Coward



Superintendent Gregg Coffin gives students a tour of the MU Power Plant. The plant is expanding its use of renewable biomass fuels, such as wood chips; <http://www.cf.missouri.edu/energy>

Energy policy and the security of our energy sources influence all aspects of the energy cycle.

SOURCES



Nuclear



Wind



Biomass



Solar

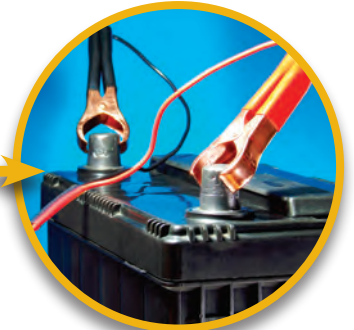
CONVERSION



OUTPUT



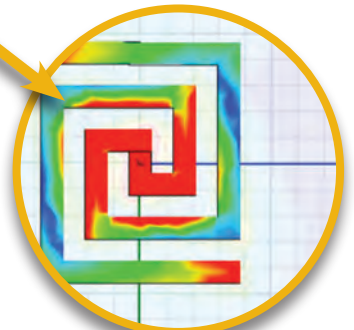
Consumption



Storage



Conservation



Energy Waste Harvesting

**ENERGY
CYCLE**



Mizzou Advantage

University of Missouri

University of Missouri faculty, students and alumni have identified the top five unique strengths that set MU apart from other universities. The Mizzou Advantage areas are:

Food for the Future

One Health – One Medicine

Disruptive and
Transformational Technologies

Media of the Future

● **Sustainable Energy**

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