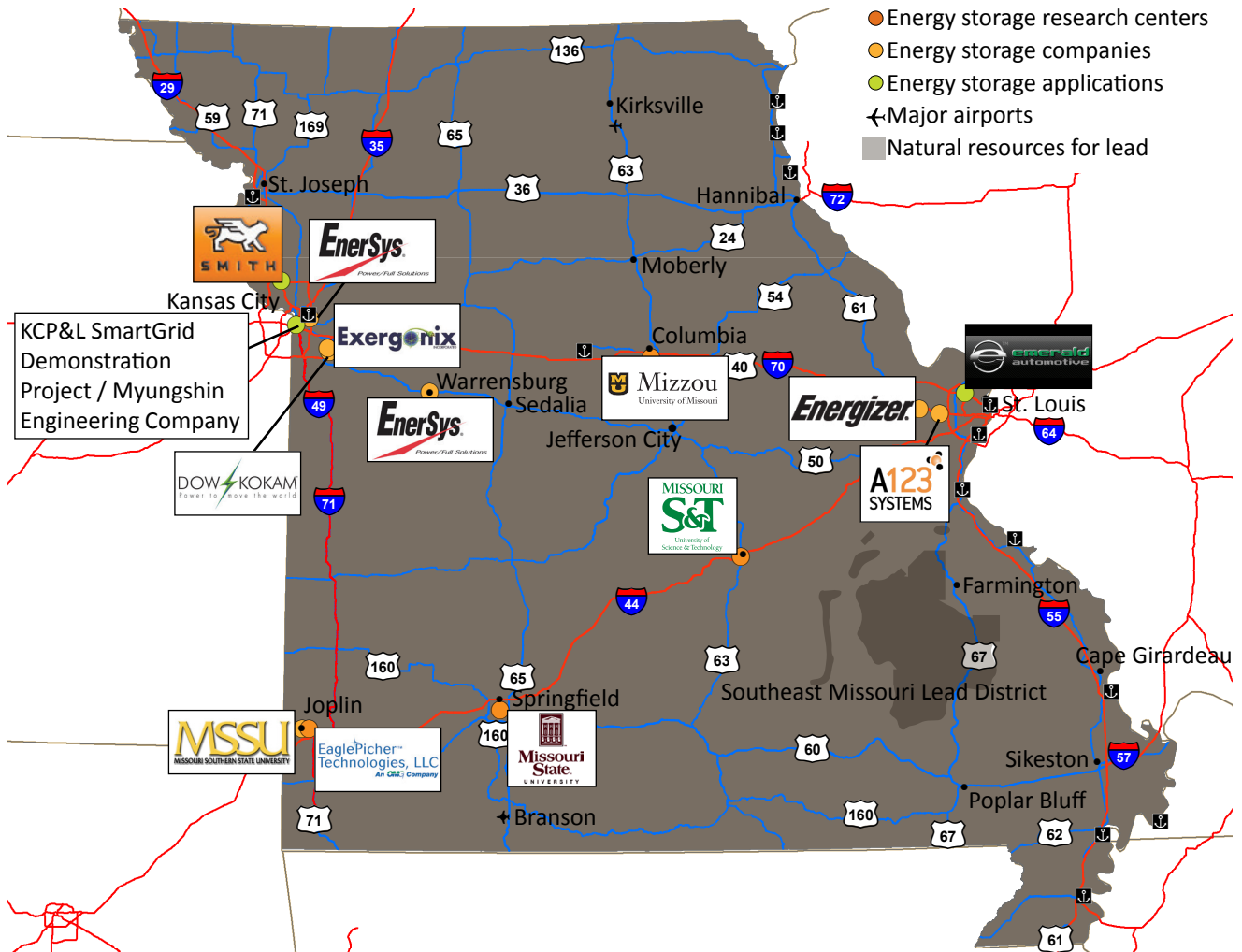


Missouri for energy storage



Missouri is the leading producer of lead for batteries in the U.S. and in the top three states of the nation for battery production based on value of shipments. The state is also home to many prestigious research centers that are leading the way for energy storage development, including applications for electric vehicles. Many energy storage manufacturers have already discovered the advantages of locating in Missouri, and the state's strong pro-business climate ensures the industry will continue to expand:

- Top 10 state for low taxes including property tax, corporate income tax, and unemployment insurance tax indices, according to the Tax Foundation in 2013
- Top 10 on Pollina Corporate's 2012 list of pro-business states for the fourth year in a row
- Top 10 of the states listed by Forbes for the best regulatory climate
- Top 10 state for low business energy costs in 2012, according to the Small Business and Entrepreneurship Council

Missouri Partnership is a public-private, non-profit focused on recruiting new business to the state. To find out how Missouri Partnership can assist at any stage of your project, contact us at:

*120 South Central Avenue, Suite 1150
St. Louis, Missouri 63105*

*12200 NW Ambassador Drive, Suite 234
Kansas City, Missouri 64163*

*314.725.0949 (phone)
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Visit our website: go to www.missouripartnership.com to learn more about living and doing business in Missouri.

Energy storage companies in Missouri

- **A123 Energy Solutions** (St. Louis) a division of A123 Systems LLC and a part of Wanxiang Group, designs and manufactures high performance, efficient, safe and reliable advanced battery systems for electric grid, backup power, and lead acid replacement applications. They have an office in Missouri.
- **EaglePicher Technologies** (Joplin) produces an array of specialty energy storage technologies, including alternative energy storage systems for utility grid enhancement, as well as batteries for missiles, submunitions, mines, sonobuoys, fuzes, and aerospace power backups. EaglePicher is the only manufacturer of nickel hydrogen batteries (used to power satellites) in the U.S.
- **Dow Kokam** (Lee's Summit) has approximately 33MWh capacity for battery manufacturing at the Lee's Summit Battery Park, where production is largely focused on defense and industrial applications. In addition to its state-of-the-art manufacturing facility, Dow Kokam will be adding a world class research and development laboratory with a dry room, pilot-scale coating line, and advanced processes in lithium-ion cell preparation.
- **Exergonix** (HQ Lee's Summit) located their \$90M headquarters in January 2011 to Lee's Summit. Exergonix's storage systems help bridge the gap between energy production and consumption by storing excess energy from utilities and wind and solar power generators, then distributing it when needed.
- **EnerSys** (Kansas City and Warrensburg) manufactures reserve power products that are used primarily for backup power applications, as well as for telecommunications, uninterruptible power systems, specialty power, and switchgear and electrical control systems. Their products are used in aircraft, submarines, ships, and tactical vehicles. The Warrensburg location, known as EnerSys Energy Products, operates as a subsidiary of EnerSys, and it is the largest EnerSys facility in the world.
- **Energizer Holdings** (HQ St. Louis) manufactures and markets a variety of battery types: lithium, alkaline, carbon zinc, miniature, specialty photo lithium, and rechargeable.
- **Myungshin Engineering Company** (Kansas City) is a South Korean company specializing in battery energy-storage systems (BESS) technology. Myungshin has partnered with Dow Kokam, Exergonix, and KCP&L to supply, install, and maintain various energy-monitoring hardware systems for a 1MW energy-storage system used in the KCP&L SmartGrid demonstration project.

Energy storage research in Missouri

- **The Energy Research and Development Center at Missouri University of Science & Technology (Missouri S&T)** researches electric energy conversion for high impact application in power and energy systems, next generation energy systems, vehicle-to-grid integration, hydrogen fuel cell analysis, and grid stabilization and storage. The Center also recently partnered with the city of Kansas City and Kokam to design a program for incorporating plug-in hybrid electric vehicles into the city's fleet.
- **Future Renewable Electric Energy Delivery and Management Systems Center (FREEDM)** is a collaborative effort between Missouri S&T and seven other U.S. and European universities to transform the nation's power grid into a distributed system. A major goal is to introduce distributed energy storage devices and distributed grid intelligence such as plug-in hybrid electric vehicles and other devices.
- **Missouri Center for Advanced Power Systems (MOCAP)** is a partnership between Missouri Southern State University, Missouri State University-Springfield, University of Missouri, Missouri S&T, EaglePicher Technologies, Joplin Area Chamber of Commerce, and the Joseph Newman Innovation Center. MOCAPS advances research and development of energy storage systems and offers students a minor in advanced power.
- **The Center for Physical and Power Electronics** at University of Missouri focuses on high-power electronic devices for defense, life sciences, environmental applications and alternative energy sources and storage. The Center is developing new dielectrics for energy storage using nanotechnology.

Energy storage applications in Missouri

- **Emerald Automotive** (Hazelwood) recently unveiled a prototype hybrid electric van, the t-001. The company plans to open their production facility in late 2014, with the goal of making 10,000 vehicles per year. Emerald will employ about 550 skilled workers.
- **Smith Electric Vehicles** (HQ Kansas City) produces the Smith Newton all-electric truck, which is used by companies such as Coca-Cola, Frito-Lay, AT&T, and Staples. The Newton, in Classes 3-7, has a top speed of 55 mph, a range of up to 100 miles on a single charge, and is powered by lithium-ion batteries. The Kansas City plant is currently SEV's only North American plant.
- **KCP&L** and its partners are demonstrating an end-to-end SmartGrid that includes advanced generation, distribution, and customer technologies. The project is integrating renewables for battery storage on their distribution system. The demonstration area consists of two square miles serving 14,000 commercial and residential customers.