# Missouri Economy Indicators
## Energy Investment Trends

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Missouri uses a mixture of fuel sources, including coal, wind and solar, to generate electricity. Historically, electricity generated in Missouri was largely created from coal. A report from the U.S. Energy Information Administration (EIA) indicates that coal provided 74% of Missouri's electricity in 2021 — the second-highest share of any state, behind only West Virginia. However, the share of electricity generated from coal has trended downward. It reached a high of 83% of total electricity generated in 2010.

Renewable sources provided nearly 12% of Missouri's electricity in 2021 — exceeding 10% of the state's electricity fuel mix for the first time. Between 2020 and 2021, wind more than doubled its generation capacity, which was the most growth of any fuel source that year. Between 2010-2021, Non-hydro renewable's share of generation increased from 1% to 9% of total electricity generated, and natural gas rose from 5% to 9%.

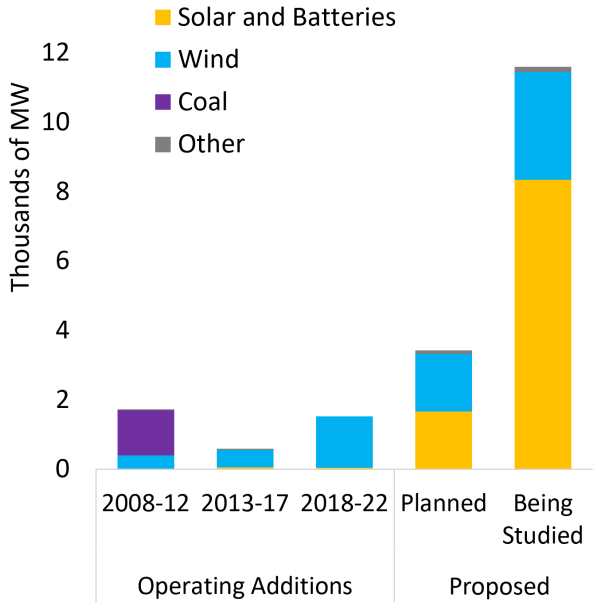
To send electricity across the state or multi-state region, Missouri has three large-scale transmission regions. The Southwest Power Pool (SPP) operates transmission in western Missouri, and the Midcontinent Independent System Operator (MISO) covers transmission in eastern Missouri. SPP and MISO are independent, nonprofit groups that manage the grid within their multistate footprints. They balance supply and demand and ensure transmission reliability. More than 40 rural electric cooperatives and 80 municipalities provide coverage for other parts of the state.

## Proposed Energy Capacity Investments with More Renewable Sources

Proposed large-scale generating capacity projects seeking connection with the grid fall into three categories: 1) projects that have an interconnection agreement but are not yet operating (planned), 2) projects currently being studied and 3) projects that are proposed but not yet studied.

Most proposed Missouri projects being studied would use wind or solar. These renewables projects represent 97% of planned capacity with an interconnection agreement (3,322 MW) and 99% of proposed capacity being studied (11,440 MW). Almost 3,000 MW of other proposed solar projects have not been studied.

### Missouri's Recent Electricity Capacity Additions and Proposed Additions by Energy Source




Sources: MU Extension graphic using data from Lawrence Berkeley Lab and the Energy Information Administration. "Other" includes natural gas, hydro, battery-only sources.

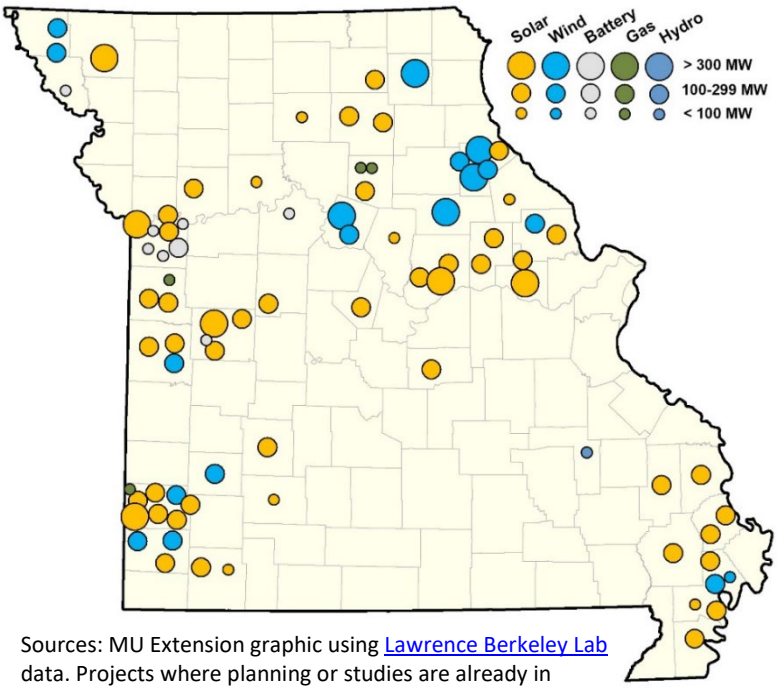
## Proposed Energy Investments Cluster in Several Missouri Regions

Proposed electricity capacity additions generally concentrate in three areas: the Kansas City, Joplin and Bootheel regions. Central and northeast Missouri also have many proposed projects.

Most proposed activities — 64% — are for solar projects. The median solar project has 200 MW capacity. Wind projects accounted for 21% of proposed investments and had a median capacity of 235 MW. Battery installations may collocate with solar or wind installations to mitigate variability in energy supply. Of planned projects, 9% have battery installations. Less than 6% of investments are proposed gas or hydro projects.

The EIA reports that the "break-even" cost of building and operating new capacity is comparable across energy sources. Costs for natural gas projects are estimated at $37.05 per MW, $36.09 per MW for solar projects, and $37.80 per MW for onshore wind projects. This means that investments in renewable energy facilities will likely continue as a source of new electricity generation. Although most projects on this map were proposed years ago, not all will be completed due to factors such as the risks involved with extended process completion times. The typical time for a project to go from connection request to commercial operation is approximately four years, but that timeline increased by two years from projects connecting between 2000 and 2010.

### Proposed Electricity Capacity Additions by Energy Source and Megawatt (MW) Range




Sources: MU Extension graphic using Lawrence Berkeley Lab data. Projects where planning or studies are already in progress. Circles represent capacity and type only, not the actual facility location within a county.

## Additional Resources and Notes

- The SPP and MISO territory maps show the multi-state regions for these transmission operators, and proposed capacity can be found on their generator interconnection queue dashboards. Projects are listed by fuel type.
- More information on leasing land for solar energy development and wind energy leases is available through the University of Missouri Extension's website.
- The USDA Rural Energy for America Program provides guaranteed loans and grants for renewable energy systems and energy efficiency improvements. Eligible borrowers include rural small businesses and agricultural producers in rural areas with populations of no more than 50,000 residents.

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*All Missouri Economy Indicators briefs in this series are available at tinyurl.com/ExceedEconomyIndicators*

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