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MIDWEST MANUFACTURING SNAPSHOT: MISSOURI

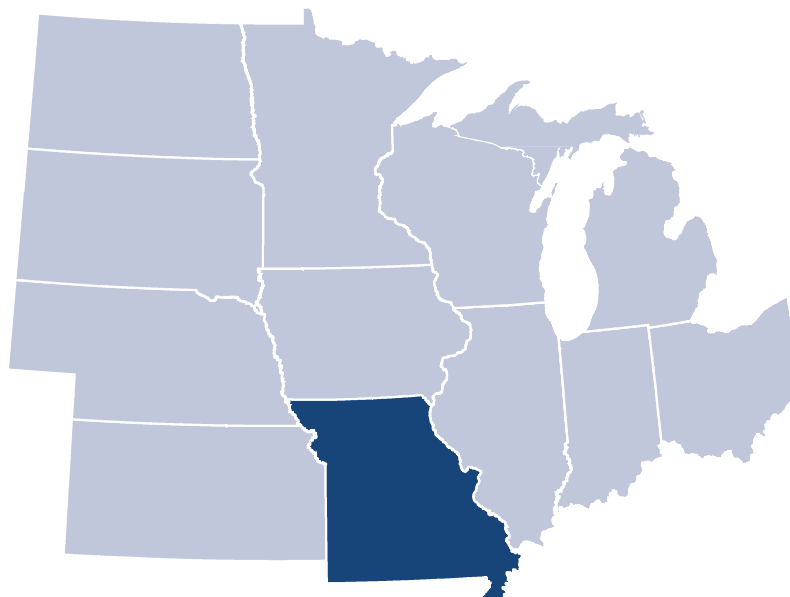
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This state handout is an excerpt from the WRI working paper entitled “Midwest Manufacturing Snapshot: Energy Use and Efficiency Policies”. The working paper presents comprehensive manufacturing energy-use and economic-activity data along with state-by-state policy summaries for the 10 member states of the Midwestern Governors Association (MGA).¹ For more information on Midwest region manufacturing, the methods used to derive the data, and policy background, please see the full working paper at: <http://www.wri.org/publication/midwest-manufacturing-snapshot>.

1. Member states of the MGA are Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Ohio, South Dakota, and Wisconsin.



MISSOURI



In 2006 Missouri consumed 1.9 Quads of energy. Industry plays a smaller role in Missouri energy use, economic activity, and employment than it does in other Midwestern states. Figure MO-1 shows the breakdown of state-wide energy used for fuel and feed-

stock in 2006. Industry consumed less than a quarter of total energy (including feedstocks) in Missouri—less than transportation and residential energy use. Within industry, manufacturing accounted for 65% of Missouri industry energy use in the same year.

Chemicals and food manufacturing accounted for the largest share of Missouri manufacturing energy use in 2006, followed by primary metals and paper.

Missouri has 227 MW of total installed CHP capacity^{MO-1}, which is equivalent to 1% of total installed electricity generation capacity, versus the national average of 8%. Within total CHP, the remaining technical potential for industry CHP in Missouri is estimated to be more than sixteen times as large as currently installed industrial capacity (Hedman, 2010).

MO-1 This number is higher than the installed CHP capacity number in Figure 9 because it includes all CHP installations (i.e., industrial, commercial, and institutional).

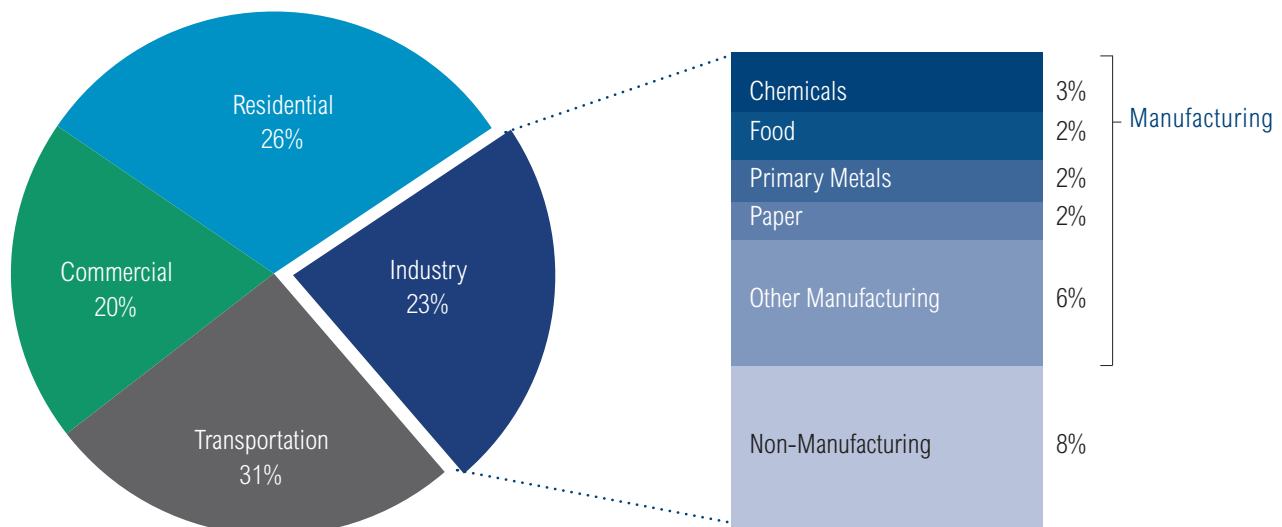
Missouri manufacturing energy expenditures (shown by “cost of fuels & electricity” in Figure MO-2) followed the national trend of peaking in 2008. Between 2000 and 2010, the index of manufacturing energy costs rose more quickly than the value of shipments index (Figure MO-2). The average difference between these two series over the period is 12%. By 2010 Missouri manufacturing energy expenditures had increased by 36%, while the total value of shipments rose by 12%, relative to year 2000 levels. Over the same 10-year period, Missouri manufacturing employment dropped by 31%—from 373,000 to 256,000, compared to the national manufacturing employment decline of 37% over the same period (Figure 1).

Table MO-1 | **Missouri Industry Delivered Energy Annual Average Prices (2010)**

	ELECTRICITY (cents/kWh)	NATURAL GAS (\$/1,000 ft ³)	COAL (\$/short ton)
Missouri	5.50	8.70	62.14
Midwest average	6.19	6.66	50.68
U.S. average	6.77	5.49	59.28

SOURCE: U.S. Energy Information Administration; for details see Appendix.

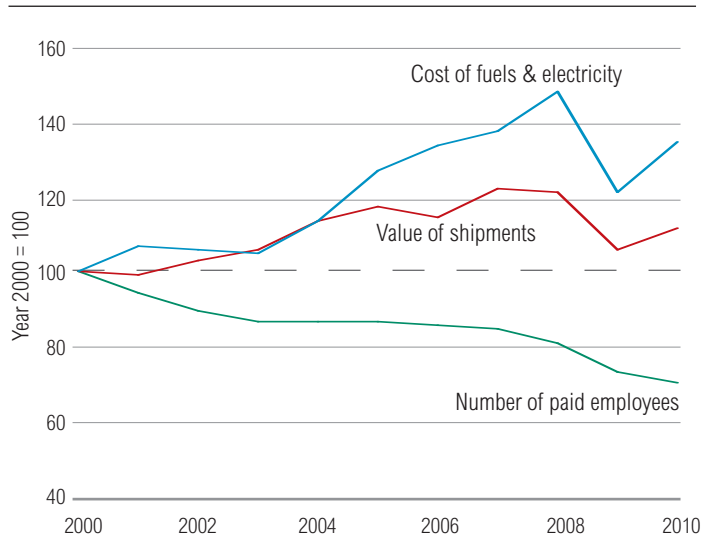
Figure MO-1 | **Missouri Total Energy Use, 2006**



Total Energy Use: 1.9 Quads

SOURCES: MECS; ASM; SEDS.

Figure MO-2 | **Index of Missouri Manufacturing Energy Cost, Value of Shipments, and Employment (2000-2010)**



SOURCE: ASM; BEA (employment)

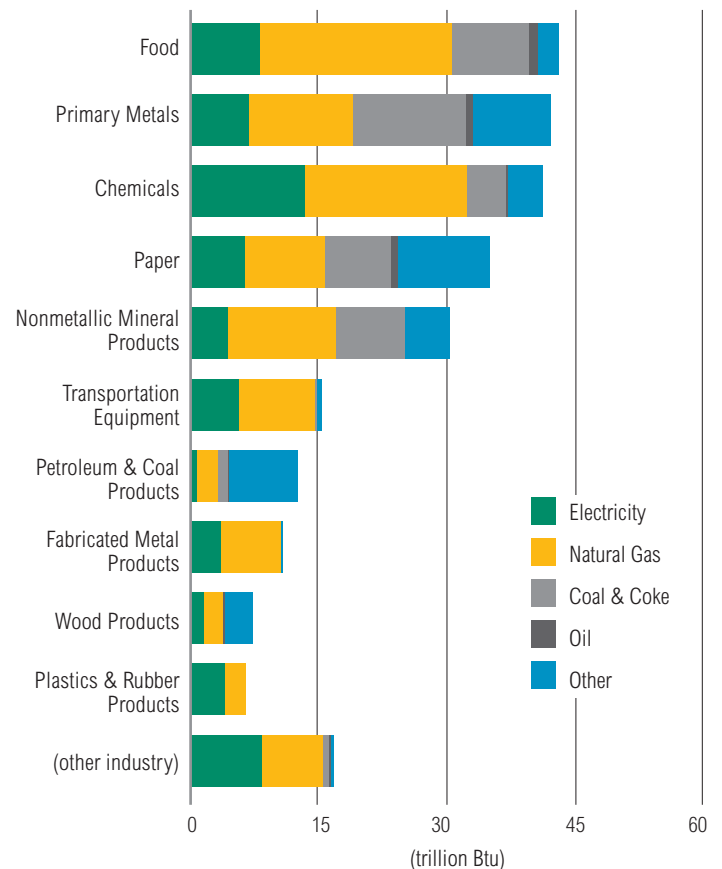
NOTE: 2002 ASM values were linearly interpolated due to a gap in the published data.

Energy prices (Table MO-1) influence demand and end-use efficiency. Whereas reported Missouri natural gas prices were 58% higher than the national average, delivered electricity was 19% cheaper than the national average. Prices vary by end user and time of use, but this snapshot of 2010 prices suggests that Missouri industry faces a mixed picture among different fuels.

In 2006 Missouri manufacturing consumed 260 trillion Btu^{MO-2} of energy for fuel use. Figure MO-3 shows the breakdown of Missouri manufacturing fuel use by subsector (not including energy used as feedstocks). Food, primary metals, and chemicals manufacturing accounted for 49% of Missouri manufacturing fuel use in 2006.

Missouri's 2009 Energy Efficiency Investment Act encouraged utilities to develop comprehensive programs with the goal of achieving all cost-effective, demand-side savings. Although several utilities offer incentives for industrial efficiency measures, large customers can opt out of these programs and interconnection standards are currently limited to small systems.

Figure MO-3 | **Missouri Manufacturing Fuel Use by Sector, 2006**



SOURCES: MECS; ASM.

MO-2 For energy unit conversion, 1,000 trillion Btu is equivalent to 1 Quad of energy.

Table MO-2 | **Missouri Key Policies**

MISSOURI	
REGULATORY ENVIRONMENT	
Renewable energy standard	CHP is not currently eligible for Missouri's renewable electricity standard (ACEEE).
Energy efficiency resource standard	Missouri's 2009 Energy Efficiency Investment Act permits the Public Utilities Commission to approve utility programs with a goal of achieving all cost-effective, demand-side savings. Cost recovery is available to programs that benefit all customer classes, and several utilities have rebates available for industrial efficiency measures (ACEEE; DSIRE).
Emissions control programs	Under its state implementation plan for the Clean Air Interstate Rule, Missouri included allowances for efficiency and for CHP based on the system's output. These rules are to be phased out in 2012. ^a
Alternative business models	Public Service Commission (PSC) rules allow utilities to request recovery of lost revenues and one gas utility has been granted a straight-fixed-variable rate structure, allowing utilities to recover lost revenues related to both fixed and variable costs (ACEEE).
Grid access	Missouri's interconnection standards only apply to systems up to 100kW that are fueled by renewable sources (ACEEE).
FINANCIAL AND TECHNICAL ASSISTANCE	
Grants, loans, or tax incentives	Missouri offers a no-interest Energy Revolving Loan program, which is available to reduce energy costs in public sector facilities (DSIRE). The state also exempts \$50,000 or 70% (whichever is greater) of the assessed value of renewable energy systems, including CHP fueled by renewable resources, from property taxes.
Technical assistance	The Department of Natural Resources' Division of Energy runs a commercial and industrial program that assists businesses in understanding their energy use and possible cost-saving efficiency measures; it also explores and promotes financial incentives. ^b The University of Missouri Environmental Assistance Center provides businesses with interns, resources, and training related to pollution prevention and energy efficiency. The University of Missouri also houses an Industrial Assessment Center, which provides qualified manufacturers with free assessments and recommendations to improve energy efficiency. ^c
UTILITY PROGRAMS	
Customer EE programs, with cost-recovery	Utilities recover costs for energy efficiency programs and may also propose performance incentives and recovery of lost revenues (ACEEE). Although S.B. 376 allows three categories of large customers to opt out of the efficiency program fees, no follow-up or ongoing monitoring of these large customers' efficiency savings currently takes place. ^d
EE as a resource	In addition to S.B. 376, which established a goal of achieving all cost-effective savings, the PSC integrated resource planning rules require evaluation of demand-side and supply-side measures on an equivalent basis (ACEEE).

SOURCE: "ACEEE" refers to the American Council for an Energy Efficient Economy website: <http://www.aceee.org/sector/state-policy> (February, 2012); "DSIRE" refers to the Database of State Incentives for Renewables and Energy Efficiency website: <http://www.dsireusa.org>. (February, 2012).

a The first compliance phase for CAIR's replacement, the Cross-State Air Pollution Rule (CSAPR), had been scheduled to go into effect in January 2012. In December 2011, the United States Court of Appeals for the D.C. Circuit stayed CSAPR and is scheduled to hear the case in April 2012. Meanwhile, EPA is facilitating a transition back to CAIR. <http://epa.gov/airtransport/>

b <http://www.dnr.mo.gov/energy/deprograms.htm>. (February, 2012).

c <http://iac.missouri.edu/>. (February, 2012).

d See more details on page 34 of the following report: <http://www.aceee.org/research-report/ie112> (February, 2012).