

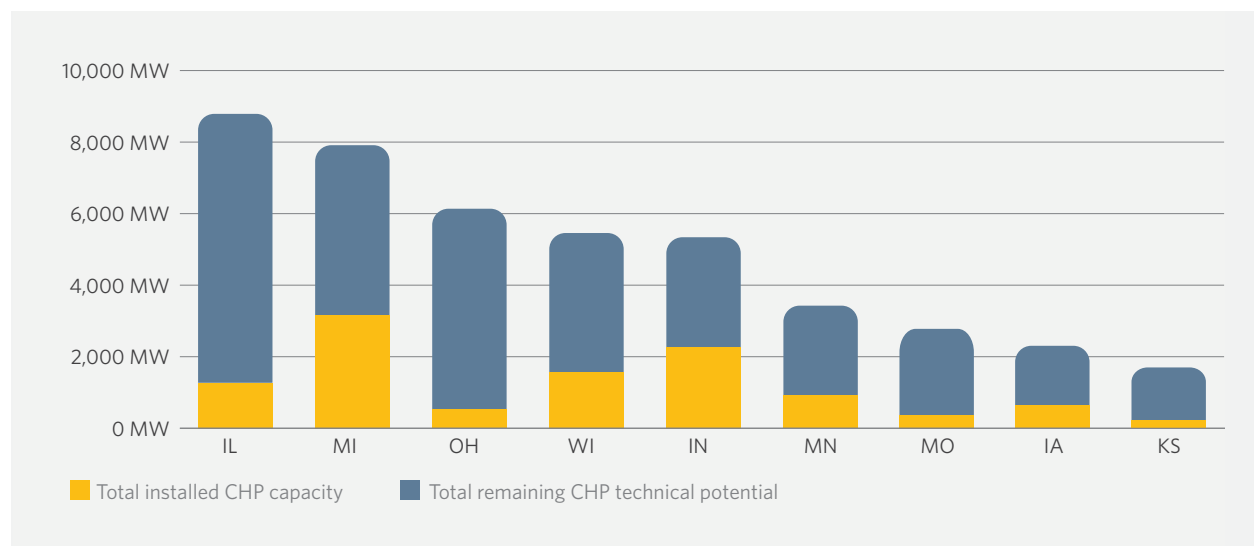


# Industrial Energy Efficiency in Missouri

## Overview

Combined heat and power, or CHP, technologies provide reliable electricity, mechanical power, or thermal energy by capturing heat that is wasted during electricity generation. District energy takes heat from a CHP system to heat or cool entire complexes such as a university campus, office park, or downtown area. Waste heat to power, or WHP, has been used to capture heat released during industrial processes and turn it into electricity. These on-site technologies allow businesses to achieve energy efficiencies of up to 80 percent. Technologies such as CHP and WHP represent tremendous potential to reduce energy consumption in Missouri’s industrial sector, saving manufacturers money and creating businesses and jobs.

## Midwestern Installed CHP and Technical Potential CHP per State, 2010



Source: U.S. Department of Energy and ICF International

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## State and regional statistics

Missouri is home to 21 CHP sites with a total generating capacity of 233 megawatts.

Source: U.S. Department of Energy

Missouri's strong manufacturing sector makes up 13 percent of the total gross state product and employs more than 9 percent of the nonfarm workforce.

Source: National Association of Manufacturers

Manufacturing accounts for 90.8 percent of the state's total goods exports.

Source: National Association of Manufacturers

Missouri ranked 27th in the nation in industrial energy use in 2012 (372.1 trillion British thermal units). The industrial sector represents 19.7 percent of the total energy consumed statewide.

Source: U.S. Energy Information Administration State Energy Data System Rankings and U.S. Energy Information Administration Missouri Profile

Still, Missouri can do more to take advantage of this potential. The state has installed only three new CHP facilities since 2005, with a total capacity of 18.9 MW.

Source: U.S. Department of Energy

In the Midwest region (Illinois, Iowa, Indiana, Kansas, Michigan, Minnesota, Missouri, Ohio, and Wisconsin), Missouri has the second-fewest CHP sites, only two more than Kansas.

Source: U.S. Department of Energy's CHP Technical Assistance Partnerships: Midwest

## State policies support industrial energy efficiency

In 2009, Missouri passed a voluntary energy efficiency resource standard, the Missouri Energy Efficiency Investment Act, and guidelines to achieve demand-side savings. The act set goals for electricity sales and peak energy efficiency to be met through management of consumer demand. In 2010, the Public Service Commission released yearly targets starting at a 0.3 percent reduction in 2012 and ramping up to 1.9 percent by 2020.

Sources: Database of State Incentives for Renewables & Efficiency and Midwest Energy Efficiency Alliance

Low rates for electricity at commercial and industrial facilities, combined with a lack of incentives and policy uncertainty, make Missouri a tough market for CHP.

Source: American Council for an Energy-Efficient Economy

## CHP improves energy security

Reducing strain on the electrical grid with energy-efficient technologies increases power reliability during electrical outages due to extreme weather and other causes. CHP is the cornerstone of a resilient energy infrastructure. CHP enables critical infrastructure such as hospitals, fire stations, police stations, and similar facilities to continue operations when the electrical grid goes down during a disaster.

Source: U.S. Department of Energy

Missouri experienced 67 blackouts in 2014. The outages resulted in more than eight days of total blackout time affecting 12,130 people across the state.

Source: Eaton Corp.

# Examples of CHP Facilities in Missouri

City	Facility	Application	Year operational	Capacity (kW)	Fuel type
<b>Kansas City</b>	Veolia Energy Kansas City	District energy	2012	5,000	Biomass
<b>Ladsonia</b>	POET Biorefining — Missouri Ethanol	Chemicals	2007	10,700	Natural gas
<b>Macon</b>	Northeast Missouri Grain	Chemicals	2000	10,000	Natural gas
<b>Mountain View</b>	Smith Flooring Inc.	Wood products	1989	500	Wood/wood waste

Source: U.S. Department of Energy  
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**For further information, please visit:**  
[pewtrusts.org/industrialefficiency](http://pewtrusts.org/industrialefficiency)

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