

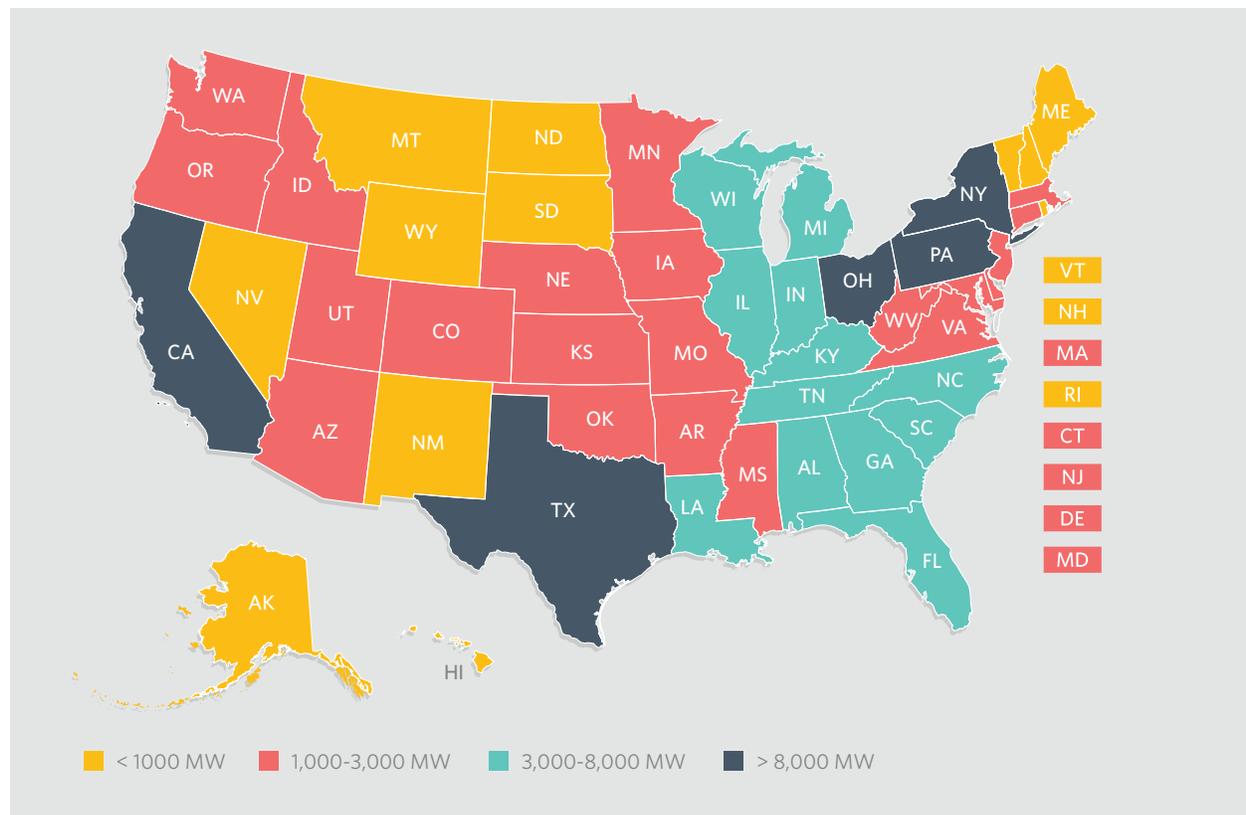


# Industrial Energy Efficiency in Michigan

## 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. More recently, a process called waste heat to power, or WHP, has been used to capture heat released during industrial processes that convert raw materials into products. These on-site technologies allow businesses to achieve energy efficiencies of up to 80 percent. Technologies such as CHP and WHP represent a tremendous potential to reduce energy consumption in Michigan’s industrial sector, saving manufacturers money and creating new energy businesses and jobs.

## CHP Technical Potential



Source: U.S. Department of Energy

© 2015 The Pew Charitable Trusts

## State and regional statistics

Michigan is a leader in manufacturing, with the sector employing 13.78 percent of the nonfarm workforce and \$51.78 billion in manufactured goods exports in 2014, 93% of total goods exports.

Source: National Association of Manufacturers

Michigan's industrial energy use ranks 12th nationwide and is responsible for 26.2 percent of Michigan's total energy consumption.

Sources: U.S. Energy Information Administration State Energy Data System Rankings and U.S. Energy Information Administration Michigan Profile

Michigan can do more to take full advantage of this potential. From 2005 to 2010, the state ranked 20th in new additions of CHP sites and 33rd in the total capacity of these new CHP installations, adding only four CHP sites over those five years, totaling 3.2 megawatts in capacity.

Source: American Council for an Energy-Efficient Economy

Of all regions of the United States, manufacturers in the Midwest generate the lowest percentage of their total electricity demand from on-site CHP (6 percent).

Source: U.S. Energy Information Administration, Manufacturing Energy Consumption Survey, 2010

Michigan is the leading state in the region for CHP technical potential, but its installed CHP capacity still represents less than half of the state's full potential of more than 8 GW.

Source: Midwestern Governors Association, 2012

## State policies support industrial energy efficiency

The Midwestern Governors Association set a goal in 2009 of doubling the installed CHP capacity in its region by 2030. The goal came about through the Energy Efficiency Advisory Group, an organization the governors association convened.

Source: Midwestern Governors Association, 2009

The governors association embraced this recommendation because of its economic importance, saying industrial energy efficiency would "make Midwestern manufacturing increasingly efficient and competitive."

Source: Midwestern Governors Association, 2011

Financial assistance is needed in the Midwest. As noted by a leading industry trade publication, "CHP developers in the Midwest say the region has been hard hit by the economic recession, and businesses are therefore hesitating to invest in new capital projects."

Source: *Cogeneration and Onsite Power* magazine, Guide to U.S. CHP Companies

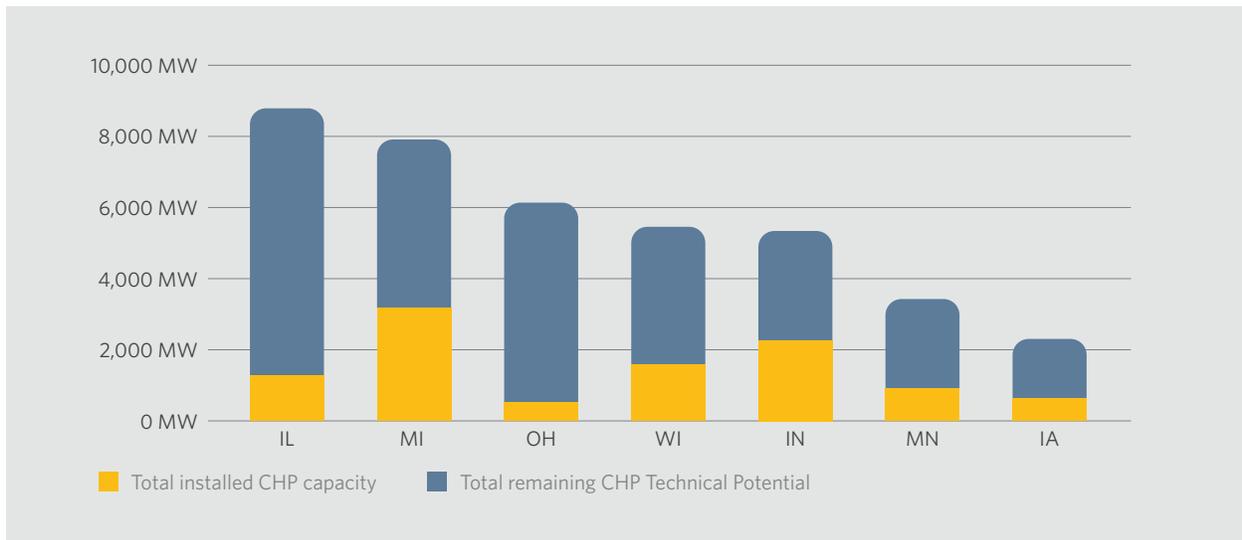
Technical fixes to the investment tax credit for industrial energy efficiency could help businesses invest in these money-saving technologies and create industries and jobs in Michigan.

## CHP improves energy security

Reducing strain on the electrical grid with energy-efficient technologies increases power reliability during electrical outages caused by extreme weather and other causes. Michigan experienced 164 electrical outages in 2014 affecting over 1.3 million customers and lasting for over 3 days.

Source: Blackout Tracker

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



Source: U.S. Department of Energy

© 2015 The Pew Charitable Trusts

## Examples of CHP Facilities in Michigan

City	Facility	Application	Year operational	Capacity (kW)	Fuel type
Lansing	Lansing Board of Water and Light	Utilities	2013	100,000	Natural gas
Marquette	Northern Michigan University	Colleges/universities	2013	645	Biomass
Ann Arbor	Veterans Affairs Hospital	Hospitals/health care	2012	1,000	Natural gas
Midland	Landfill	Solid-waste facilities	2011	1,600	Biomass

Source: U.S. Department of Energy

© 2015 The Pew Charitable Trusts

## For further information, please visit:

[pewtrusts.org/industrialefficiency](http://pewtrusts.org/industrialefficiency)

**Contact:** Jessica Lubetsky, officer, clean energy

**Email:** [jlubetsky@pewtrusts.org](mailto:jlubetsky@pewtrusts.org) **Phone:** 202-540-6356

**Project website:** [pewtrusts.org/industrialefficiency](http://pewtrusts.org/industrialefficiency)

The Pew Charitable Trusts is driven by the power of knowledge to solve today's most challenging problems. Pew applies a rigorous, analytical approach to improve public policy, inform the public, and invigorate civic life.