# Industrial Energy Efficiency in **Illinois**

## **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 offer tremendous potential to reduce energy consumption in Illinois's industrial sector, saving manufacturers money and creating energy businesses and jobs.

## CHP Technical Potential



Source: U.S. Department of Energy © 2015 The Pew Charitable Trusts

# State and regional statistics

Illinois is a leader in manufacturing, which accounts for 14.05 percent of the state's total gross product and employs nearly 9.86 percent of its workforce.

Source: National Association of Manufacturers

Illinois' industrial energy use ranks fifth nationwide and is responsible for 36 percent of the state's total energy consumption.

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

Illinois has the potential to increase its CHP capacity. From 2005 to 2010, the state ranked 11th in the nation in additions of CHP sites and fourth in the total capacity of these new CHP installations. It added nine CHP sites over those five years, totaling 104.8 megawatts in capacity.

Source: American Council for an Energy-Efficient Economy

Among U.S. regions, manufacturers in the Midwest generate the lowest percentage of their total electricity demand from on-site CHP generation at 6 percent.

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

# States With Most Reported Power Outages

2011	2012	2013	2014
1. California	1. California	1. California	1. California
2. New York	2. New York	2. Texas	2. Texas
3. Texas	3. Texas	3. Michigan	3. Michigan
4. Michigan	4. Michigan	4. Pennslyvania	4. Pennsylvania (tie)
5. Pennslyvania	5. New Jersey	5. Ohio	4. New York (tie)
6. Illinois	6. Pennslyvania	6. New York	5. Ohio
7. Ohio	7. Ohio	7. Virginia	6. New Jersey
8. New Jersey	8. Washington	8. New Jersey	7. Washington
9. Washington	9. Illinois (tie)	9. Washington	8. Illinois
10. Wisconsin	9. Virginia (tie)	10. Massachusetts	9. North Carolina

Source: Blackout Tracker

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## State policies support industrial energy efficiency

Illinois has the greatest CHP potential of any state in the region, but its installed CHP capacity still represents less than a quarter of the state's full potential of more than 8 gigawatts.

Source: Midwestern Governors Association, 2012

Illinois has encouraged CHP technologies that use renewable biogas fuels. The Illinois Biogas and Biomass to Energy Grant Program will provide a 50 percent cost share for energy feasibility studies or for the installation of equipment for these purposes.

In 2009, the Midwestern Governors Association set a goal of doubling the installed CHP capacity in the Midwest by 2030 through a group it convened called the Energy Efficiency Advisory Group. The Midwestern Governors Association embraced this recommendation because of its economic importance, stating that industrial energy efficiency would "make Midwestern manufacturing increasingly efficient and competitive."

Sources: Midwestern Governors Association, 2009 and 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 On-Site Power Production, 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 Illinois.

#### **CHP** improves energy security

Reducing strain on the electrical grid with energy-efficient technologies increases power reliability during electrical outages that result from extreme weather and other causes.

From 2010 to 2012 and in 2014, Illinois was one of the top 10 of states for reported power outages. It had 70 reported power outages in 2013 and 102 in 2014, lasting more than 21 hours..

Source: Blackout Tracker

### Examples of Newly Installed CHP Facilities in Illinois

City	Facility	Application	Year operational	Capacity (kW)	Fuel type
Rochelle	Illinois River Energy	Utilities	2011	3,000	Natural gas
Charleston	Eastern Illinois University	Colleges/universities	2011	617	Wood
Granite City	U.S. Steel	Primary metals	2008	78,000	Waste
Aurora	Caterpillar	Machinery	2002	18,000	Natural gas

Source: U.S. Department of Energy © 2015 The Pew Charitable Trusts

## For further information, please visit:

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