

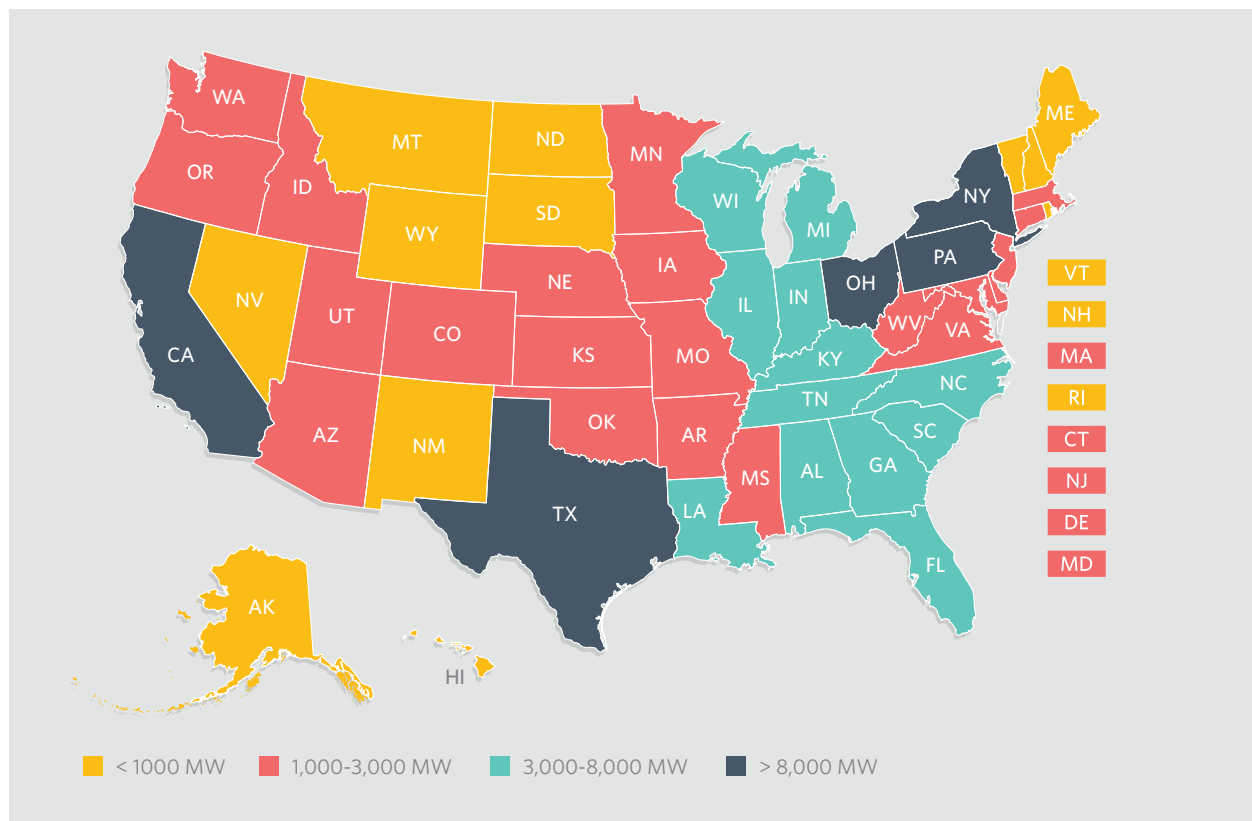


Industrial Energy Efficiency in Tennessee

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 tremendous potential to reduce energy consumption in Tennessee’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

Tennessee is a leader in manufacturing, with a strong and growing sector. Manufacturing accounts for almost 16 percent of the state's total gross product and employs 11.67 percent of the workforce. The industry in Tennessee was worth \$45.67 billion 2013.

Source: National Association of Manufacturers

Tennessee's industrial energy use ranks 14th nationwide. Industrial energy use accounts for 30.3 percent of the state's total energy consumption.

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

The state has the potential to increase its CHP capacity because of its large industrial output. The state could deploy 3 to 8 gigawatts of CHP—one of the highest rates in the country. However, Tennessee has not capitalized on this opportunity. From 2005 to 2010, it ranked 45th in new additions of CHP sites and in the total capacity of those CHP installations.

Source: American Council for an Energy-Efficient Economy

Support for industrial energy efficiency in Tennessee

PHG Energy of Nashville and GE Power & Water recently completed a WHP project in Covington. The system, which uses the city's wood waste and sewer sludge, is expected to save \$3.5 million. In addition, it will eliminate the release of more than 450 tons of carbon dioxide.

Source: The Tennessean

The Tennessee Valley Authority also recently put out a request for proposals for a WHP system. The project, which would generate 5 MW of electricity from WHP, is expected to be completed in the fall of 2017.

Source: Tennessee Valley Authority

CHP improves energy security

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

Source: U.S. Department of Energy

In 2014, Tennessee had 1,180 minutes of blackouts, nearly 20 hours, without power.

Source: Blackout Tracker

CHP can play a role in keeping Tennessee's critical infrastructure operating during a storm and its aftermath.

Examples of CHP Facilities in Tennessee

City	Facility	Application	Year operational	Capacity (kW)	Fuel type
Murfreesboro	Alvin C. York VA Medical Center	Hospital	2010	250	Natural gas
Nashville	Opryland Hotel	Hotels	1995	5,200	Natural gas
Nashville	Vanderbilt University	College/ university	1988	21,400	Coal
Crossville	MasterBrand Cabinets	Wood products	1991	825	Waste

Source: U.S. Department of Energy

© 2015 The Pew Charitable Trusts

For further information, please visit:

pewtrusts.org/industrialefficiency

Contact: Jessica Lubetsky, officer, clean energy
Email: jlubetsky@pewtrusts.org **Phone:** 202-540-6356
Project website: 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.