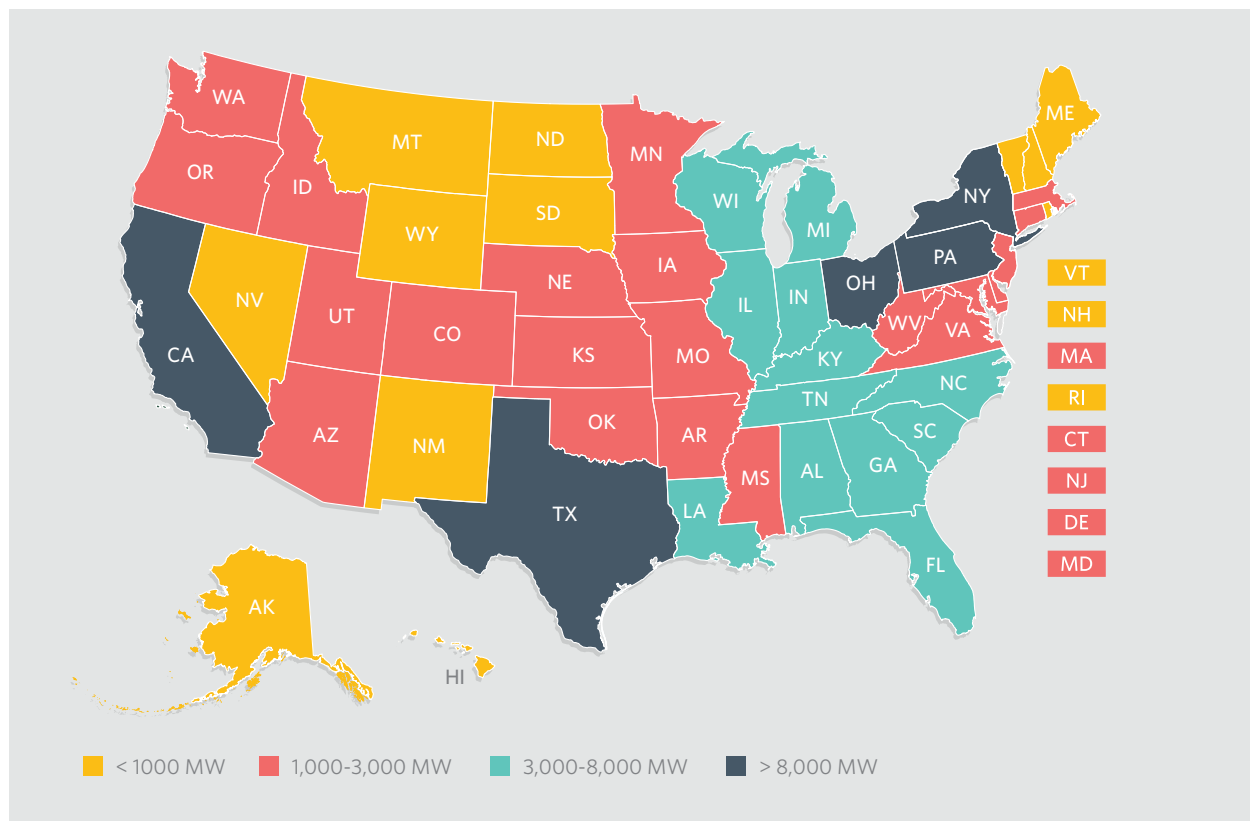


Industrial Energy Efficiency in Washington

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 Washington's industrial sector, saving manufacturers money and creating energy businesses and jobs.

CHP Technical Potential



Source: U.S. Department of Energy

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State and regional statistics

Washington has a strong and growing manufacturing sector. Manufacturing accounts for 14.4 percent of the state's total gross product, and employs 9.3 percent of the nonfarm workforce.

Source: National Association of Manufacturers

Washington ranked 15th in the nation in industrial energy use in 2012 (582.1 trillion British thermal units). The industrial sector represents over a quarter (28.4 percent) of the total energy consumed statewide.

Source: U.S. Energy Information Administration Washington Profile

Washington ranked sixth in the nation for new CHP capacity between 2005 and 2010. The state added eight new facilities totaling 97.6 megawatts during that period.

Source: American Council for an Energy-Efficient Economy

Cities and companies in Washington are generating efficient electricity

Manufacturers such as Simpson Tacoma Kraft Co. recognize the ability of CHP to reduce energy consumption and save money. In 2009, the company completed a 55-MW CHP facility in Tacoma, WA. The CHP facility at the mill generates electricity that is sold to Iberdrola Renewables in Portland, OR.

Source: U.S. Department of Energy

District energy can also help to reduce energy consumption in Washington. In Seattle, the Seattle Steam Co. uses district energy to provide heat to approximately 200 buildings in the central business district and First Hill neighborhoods.

Source: Enwave Seattle

State policies support industrial energy efficiency

In 2006, Washington became the second state to pass a renewable energy standard by ballot initiative. Initiative 937 calls for electric utilities that serve more than 25,000 customers in the state to obtain 15 percent of their electricity from new renewable resources by 2020 and to undertake cost-effective energy conservation. Investor-owned utilities, municipal utilities, rural electric cooperatives, and public utility districts are subject to this standard.

Source: Washington Initiative 937

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 can play a role in keeping Washington's critical infrastructure running during a storm and its aftermath. From 2011 to 2014, Washington ranked in the top 10 of states with the highest number of reported power outages. In 2014 the state experienced 104 blackouts, lasting over four and a half days and affecting 501,980 residents.

Source: Blackout Tracker

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. Pennsylvania	4. Pennsylvania (tie)
5. Pennsylvania	5. New Jersey	5. Ohio	4. New York (tie)
6. Illinois	6. Pennsylvania	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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Examples of CHP Facilities in Washington

City	Facility	Application	Year operational	Capacity (kW)	Fuel type
Burlington	Sierra Pacific	Wood products	2007	28,000	Wood
Ferndale	Phillips 66	Refining	1994	270,000	Oil
Lynden	Edaleen Cow Power	Agriculture	2012	750	Biomass
Seattle	University of Washington	College/ university	1969	5,000	Natural gas

Source: U.S. Department of Energy

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For further information, please visit:

pewtrusts.org/industrialefficiency

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