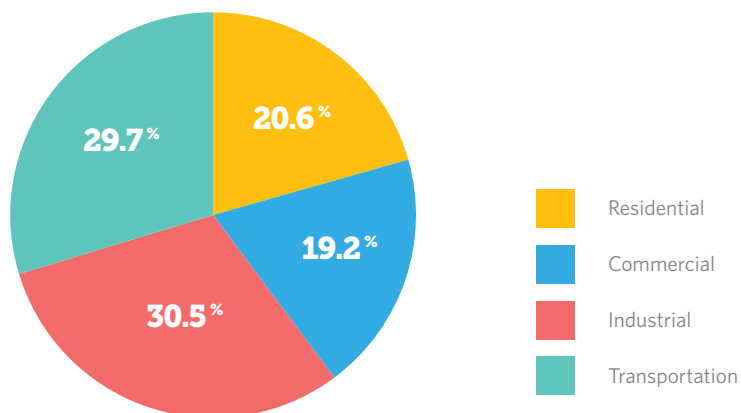


Industrial Energy Efficiency in Montana

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

Montana Energy Consumption by End-Use Sector, 2012



Source: U.S. Energy Information Administration

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State and regional statistics

Montana's healthy manufacturing sector accounts for 7 percent of the total gross state product and employs almost 4 percent of the nonfarm workforce.

Source: National Association of Manufacturers

Montana has 13 CHP sites across the state with a total generating capacity of 66 megawatts.

Source: U.S. Department of Energy

Montana's industrial sector used 119.5 trillion British thermal units of power in 2012. The industrial sector uses 30.7 percent of the total energy consumed statewide.

Source: U.S. Energy Information Administration Montana Profile

Manufacturing produces 81 percent of the state's total exports.

Source: National Association of Manufacturers

State policies support industrial energy efficiency

Montana supports industrial energy efficiency with the Montana Renewable Energy Systems Exemption, which covers 100 percent of the property taxes for 10 years on systems powered by renewable energy. Biomass, which can be used with CHP and WHP technologies, is included in this credit.

Source: American Council for an Energy-Efficient Economy

State and federal policies that incentivize and support energy-efficient technologies help states realize the full benefits of CHP and WHP. Compared with other states Montana does not provide as favorable an environment for installation of these technologies because of the limited policy opportunities. The state could employ a range of programs and incentives to encourage further deployment.

In 2005, Montana enacted a Renewable Portfolio Standard as part of the Montana Renewable Power Production and Rural Economic Development Act. The standard requires utilities with 50 or more customers to acquire 10 percent of the energy for their electricity sales from eligible sources through 2014 and 15 percent every year afterward. CHP and WHP are not considered eligible resources; including them in the standard would bring economic and resiliency benefits to the state.

Source: Database of State Incentives for Renewables and Efficiency

Pipelines use WHP technology

Pipelines that are outfitted with compressor stations to maintain pressure can take advantage of large amounts of wasted heat and recover it for on-site power production. In 2009, Ormat Technologies constructed a 5.5-megawatt WHP project on the Northern Border Pipeline in Culbertson, Montana. The system takes wasted heat generated from the exhaust of gas turbine-driven compressors on the pipeline and converts it into electricity.

Source: Montana Department of Commerce

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. 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, Montana experienced 56 outages that resulted in nearly 3 days of total blackout time affecting 55,838 people across the state.

Source: Blackout Tracker

Examples of CHP and WHP Facilities in Montana

City	Facility	Application	Year operational	Capacity (kW)	Fuel type
Billings	Billings Landfill	Solid waste facilities	2010	15	Biomass
Columbus	Stillwater Mine Recycling Plant	Wholesale trade	2010	5	Natural gas
Culbertson	Northern Border Pipeline Compressor Station No. 3	Utilities	2010	6,500	Waste heat
Kalispell	Flathead County Solid Waste District Central Landfill	Solid waste facilities	2010	1,600	Biomass

Source: U.S. Department of Energy

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For further information, please visit:

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