The State of CHP: Montana

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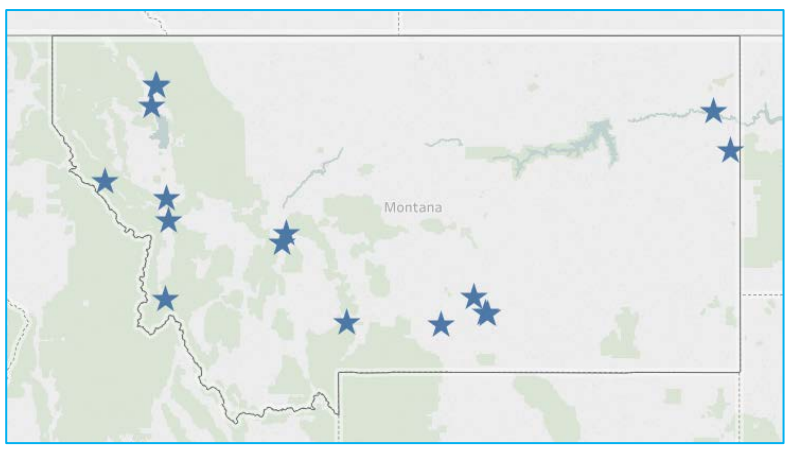
Installed CHP | CHP Technical Potential | CHP Economics | CHP Partners

Montana Installed Base of CHP

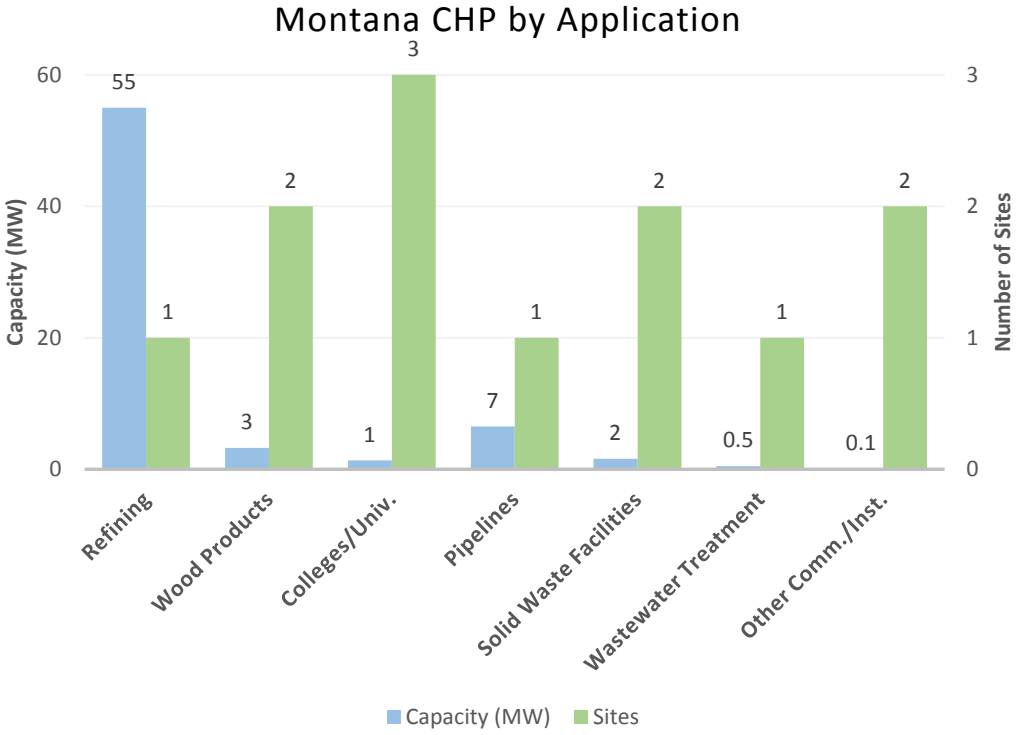
U.S. DOE Combined Heat and Power Installation Database

Sector	*Installations*	*Capacity (MW)*
Industrial	5	63
Commercial/Institutional	9	10
Other	2	0.1
Total	**16**	**73**

The Northwest CHP Technical Assistance Partnership has compiled information on certain illustrative CHP projects in Montana. You can access these by visiting the Department of Energy's CHP Project Profiles Database.

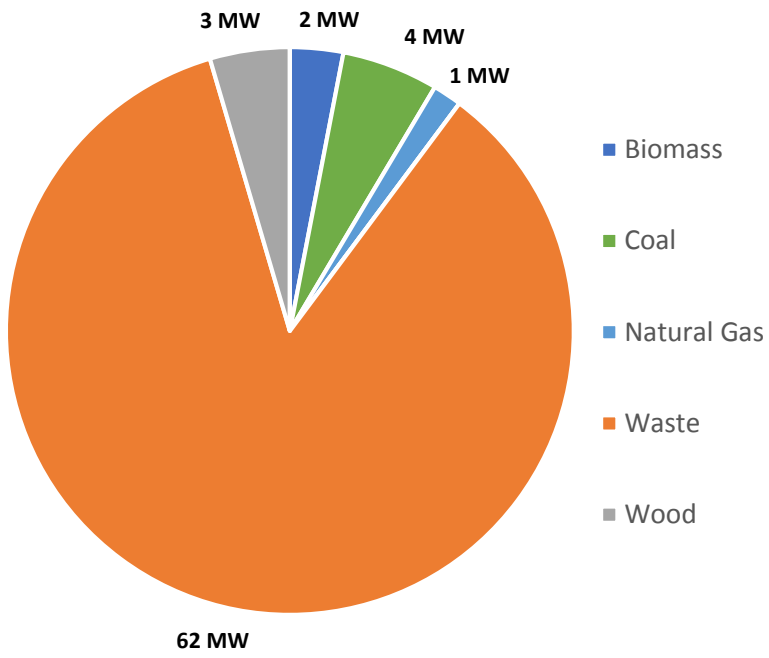


Montana CHP by Application



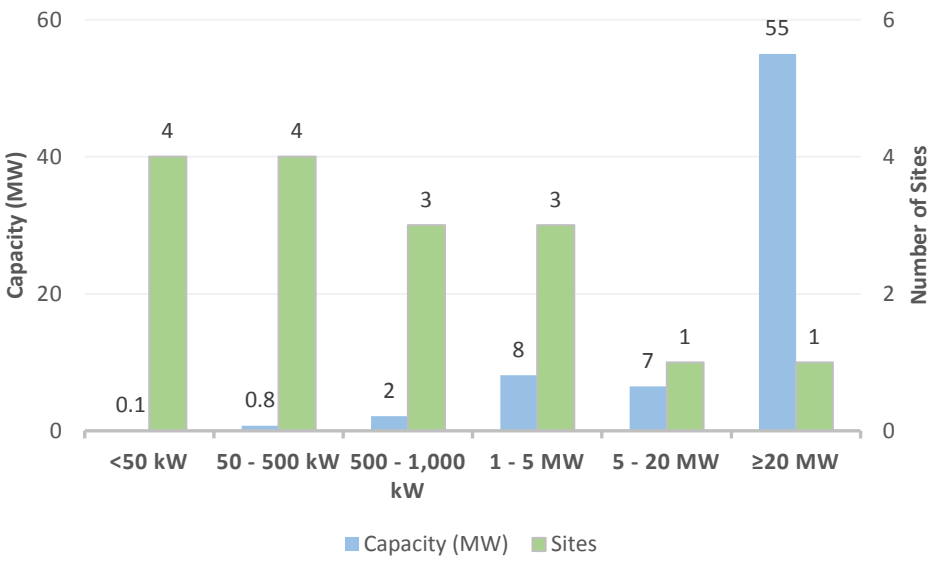
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Montana CHP Capacity (MW) by Fuel Type



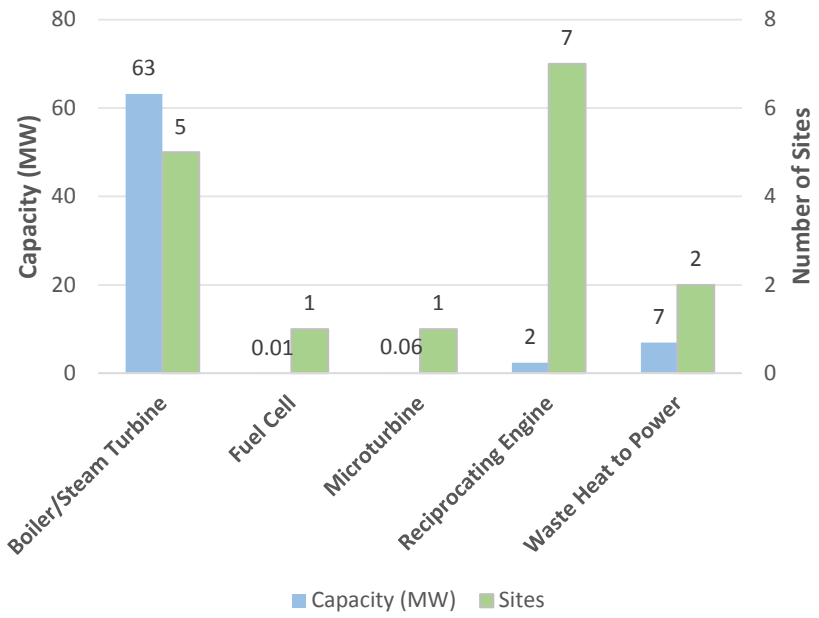
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Montana CHP by Size Range



Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Montana CHP by Technology



Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Combined Heat and Power (CHP) – sometimes referred to as cogeneration – is an efficient and clean approach to generating on-site electric power and useful thermal energy from a single fuel source.

U.S. Department of Energy
CHP Technical Assistance Partnerships

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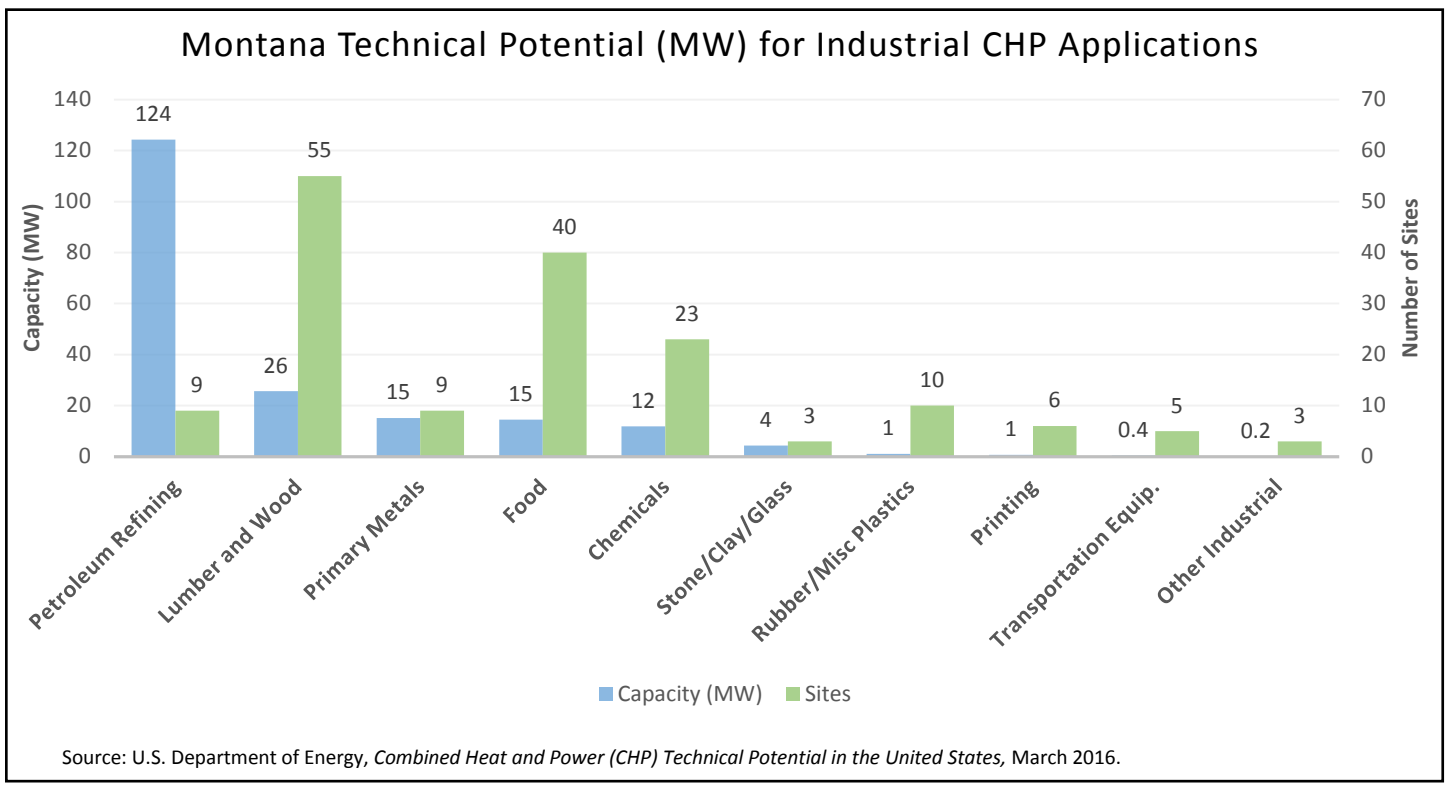
Montana Technical Potential for New CHP Installations

U.S. DOE Analysis: Combined Heat and Power (CHP) Technical Potential in the United States

Sector	*Potential Sites*	*Potential Capacity (MW)*
Industrial	163	198
Commercial/Institutional	779	179
Total	**942**	**377**

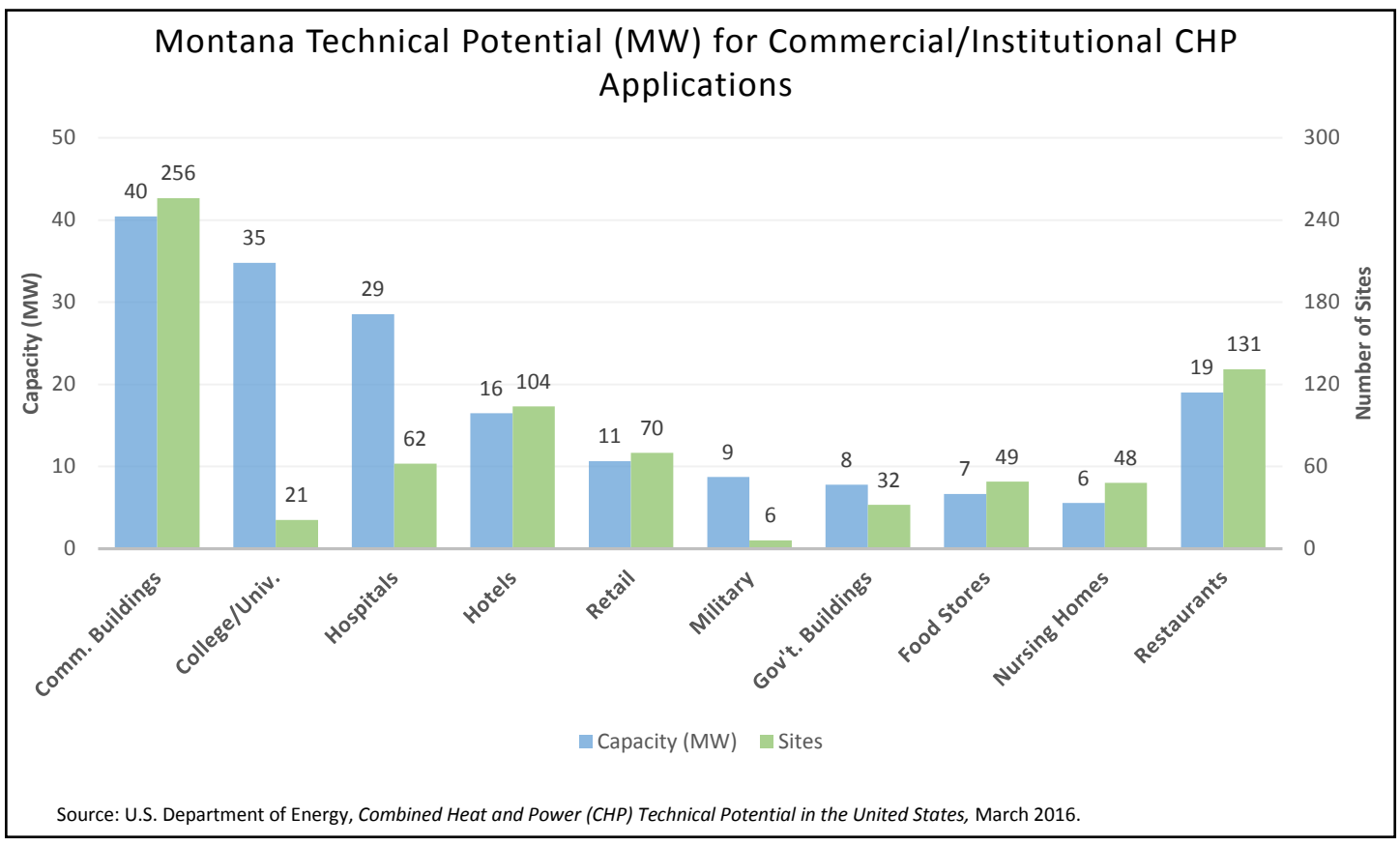


Source: U.S. Department of Energy, *Combined Heat and Power (CHP) Technical Potential in the United States,* March 2016.

Technical Potential by CHP Size Range for Top Five Industrial Sectors

	50-500 kW		0.5 - 1 MW		1 - 5 MW		5 - 20 MW		>20 MW		Total	
Application	**Sites**	**MW**	**Sites**	**MW**	**Sites**	**MW**	**Sites**	**MW**	**Sites**	**MW**	**Total Sites**	**Total MW**
Petroleum Refining	0	0	1	1	3	6	2	25	3	92	9	124
Lumber and Wood	44	8	1	1	9	12	1	5	0	0	55	26
Primary Metals	5	1	1	1	2	5	1	8	0	0	9	15
Food	33	6	3	2	4	6	0	0	0	0	40	15
Chemicals	17	2	4	3	1	2	1	5	0	0	23	12
Other Industrial	25	3	0	0	2	4	0	0	0	0	27	7
Total	124	20	10	7	21	35	5	44	3	92	163	198

Source: U.S. Department of Energy, *Combined Heat and Power (CHP) Technical Potential in the United States,* March 2016.



Source: U.S. Department of Energy, *Combined Heat and Power (CHP) Technical Potential in the United States,* March 2016.

Technical Potential by CHP Size Range for Top Five Commercial/Institutional Sectors

	50-500 kW		0.5 - 1 MW		1 - 5 MW		5 - 20 MW		>20 MW		Total	
Application	**Sites**	**MW**	**Sites**	**MW**	**Sites**	**MW**	**Sites**	**MW**	**Sites**	**MW**	**Total Sites**	**Total MW**
Commercial Buildings	185	9	57	23	14	8	0	0	0	0	256	40
College/Univ.	12	2	0	0	7	14	2	19	0	0	21	35
Hospitals	43	9	14	10	5	10	0	0	0	0	62	29
Hotels	102	10	0	0	1	1	1	5	0	0	104	16
Retail	68	9	2	1	0	0	0	0	0	0	70	11
Other Comm./Inst.	249	29	13	9	3	4	1	7	0	0	266	48
Total	659	69	86	43	30	36	4	31	0	0	779	179

Source: U.S. Department of Energy, *Combined Heat and Power (CHP) Technical Potential in the United States,* March 2016.

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Montana CHP Economics

The most important indicators for CHP economics are electricity and gas prices. For most potential CHP installations, natural gas and electricity rates for host facilities will fall within the range of average commercial and industrial prices. Lower energy prices may be possible for large CHP applications.

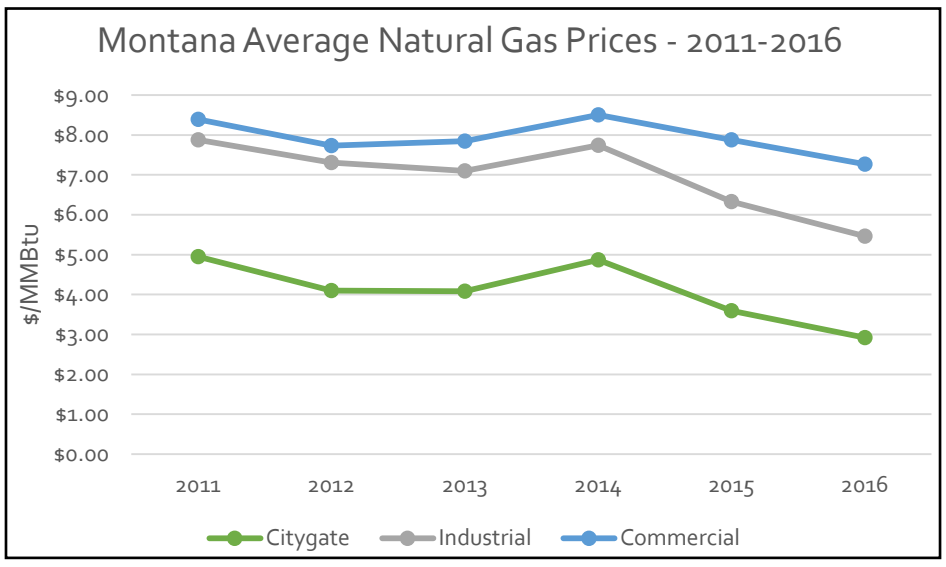
Montana Natural Gas Prices

Montana Average Gas Prices - 2016

Sector	*MT Price ($/MMBtu)*	*U.S. Price ($/MMBtu)*
Citygate*	2.92	3.75
Industrial	5.46	3.39
Commercial	7.27	7.22

Source: U.S. Energy Information Administration, "Natural Gas Prices", https://www.eia.gov/dnav/ng/ng_pri_sum_dcu_SMT_a.htm

The EIA industrial natural gas price is a full tariff rate, and most large consumers are purchasing gas commodities from marketers at a lower rate.



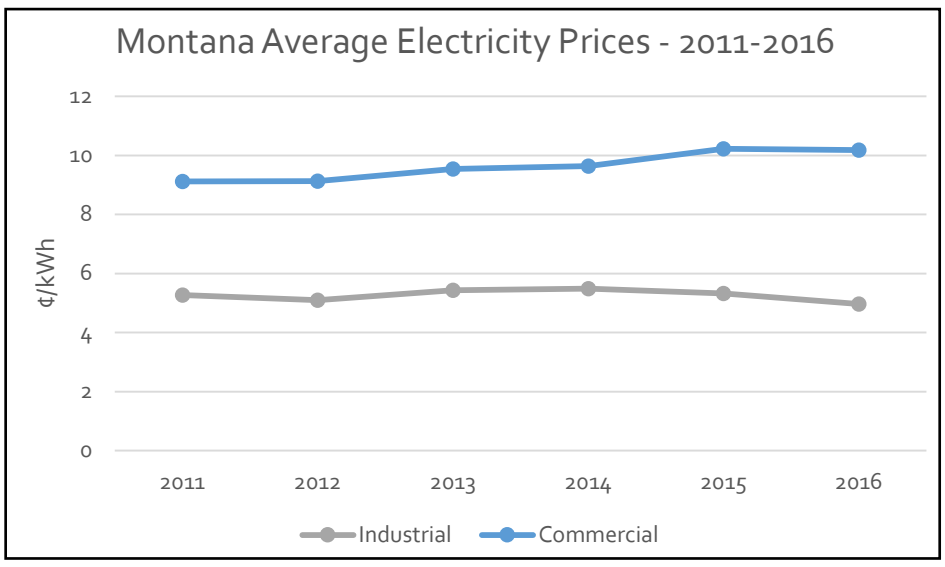
Montana Electricity Prices

Montana Average Electricity Prices - 2016

Sector	*MT Price (¢/kWh)*	*U.S. Price (¢/kWh)*
Industrial	4.97	6.75
Commercial	10.18	10.37

Source: U.S. Energy Information Administration, "Electricity Data Browser", https://www.eia.gov/electricity/data.cfm

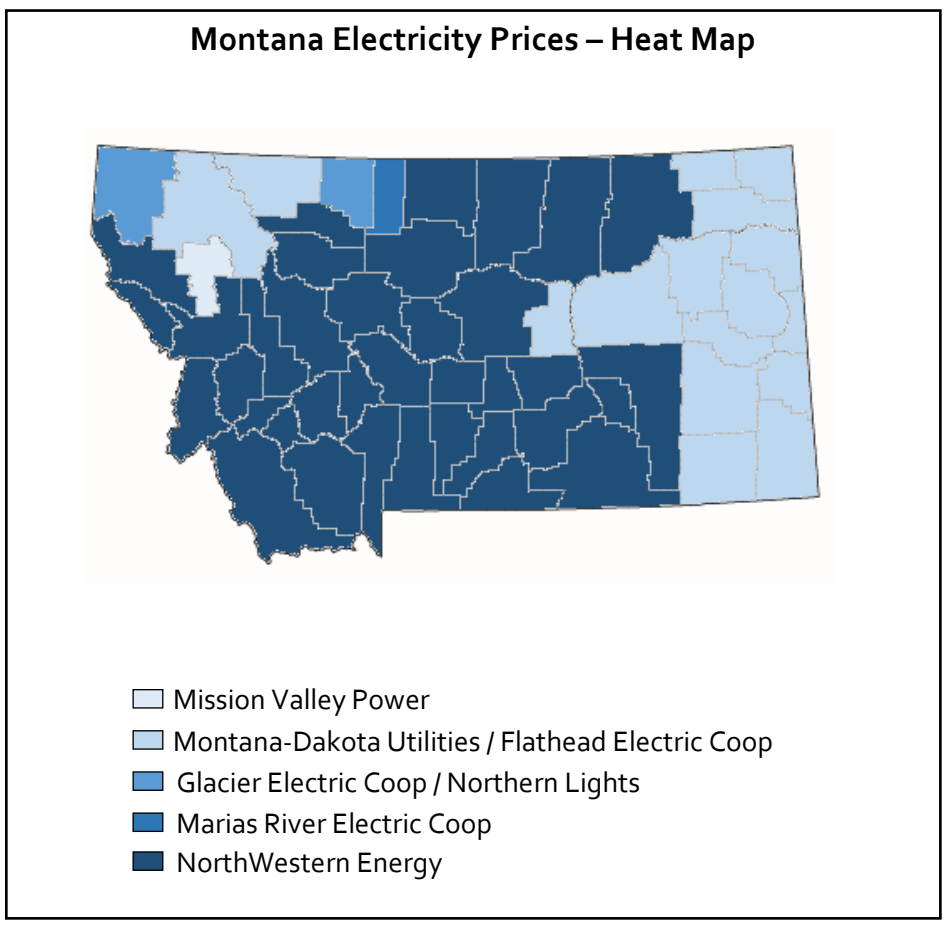
Electricity rates can vary greatly by utility and facility size range. The rates below from EIA represent general averages; individual facility rates may vary.



Montana Average Delivered Electricity Prices by Utility

Utility	*Industrial Price (¢/kWh)*	*Commercial Price (¢/kWh)*	*Average Price** (¢/kWh)*
NorthWestern Energy	9.17	11.51	10.34
Marias River Electric Coop	-	8.23	8.23
Glacier Electric Coop	7.33	8.25	7.79
Northern Lights	3.66	10.82	7.24
Montana-Dakota Utilities	5.67	7.23	6.45
Flathead Electric Coop	5.24	6.84	6.04
Mission Valley Power	4.74	5.69	5.21

Source: U.S. Energy Information Administration, "Annual retail price of electricity by utility", https://www.eia.gov/electricity/data.cfm



*Citygate is a point or measuring station at which a distributing gas utility receives gas from a NG pipeline company or transmission system.

**Average of commercial and industrial electricity prices as reported by EIA.

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Department of Energy CHP Partnerships

Northwest CHP Technical Assistance Partnership

U.S. Department of Energy
CHP Technical Assistance Partnerships
NORTHWEST

Northwest CHP TAP Director: David Van Holde
Phone: 360-956-2071
Email: vanholded@energy.wsu.edu

CHP for Resiliency Accelerator

The U.S. DOE is collaborating with a group of cities, states, and utilities who are actively pursuing CHP as a consideration in resiliency planning for critical infrastructure in their jurisdictions. This has included defining resiliency, identifying critical infrastructure, and assessing CHP opportunities. This process is being documented in a Resiliency Planning Tool. For more information: CHP for Resiliency Accelerator Website.

- Currently, there are no CHP for Resiliency Accelerator partners in Montana.

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