

The State of CHP: South Dakota



The information in this document provides a general overview of the state of CHP in South Dakota, with data on current installations, technical potential, and economics for CHP. For help with questions about specific CHP opportunities in South Dakota, please consult with the [Midwest CHP Technical Assistance Partnership](#).

Installed CHP

CHP Technical Potential

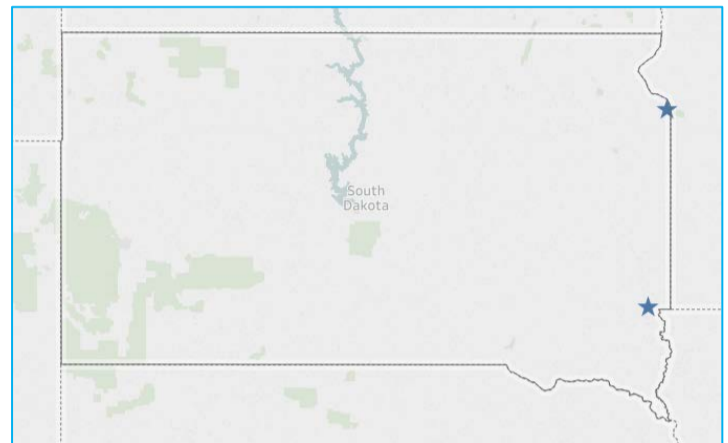
CHP Economics

CHP Partners

South Dakota Installed Base of CHP

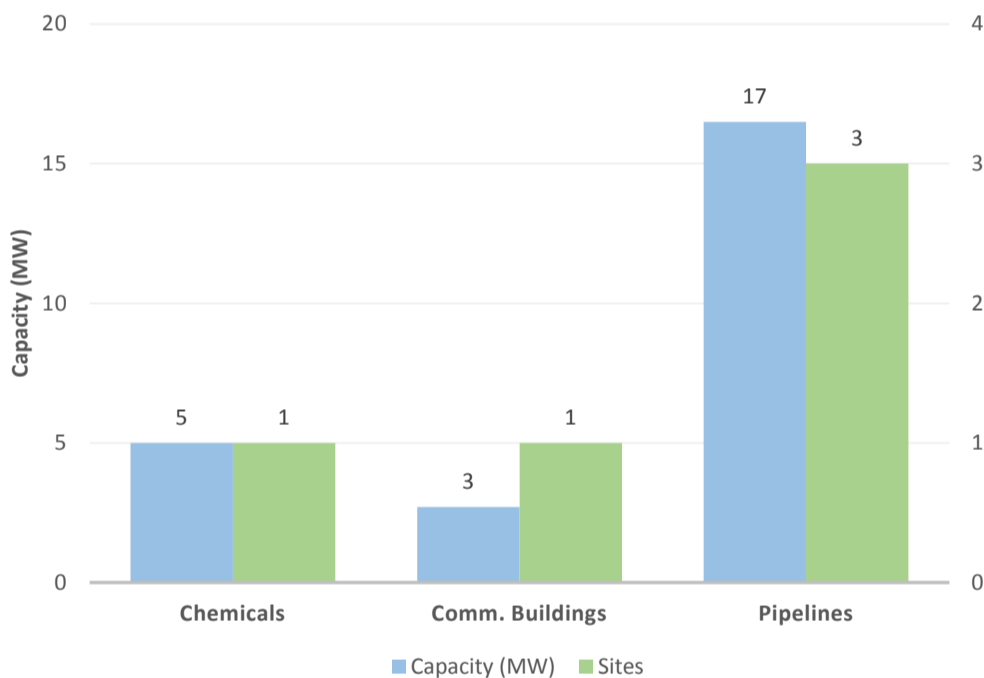
[U.S. DOE Combined Heat and Power Installation Database](#)

Sector	Installations	Capacity (MW)
Industrial	1	5
Commercial/Institutional	4	19
Other	0	0
Total	5	24



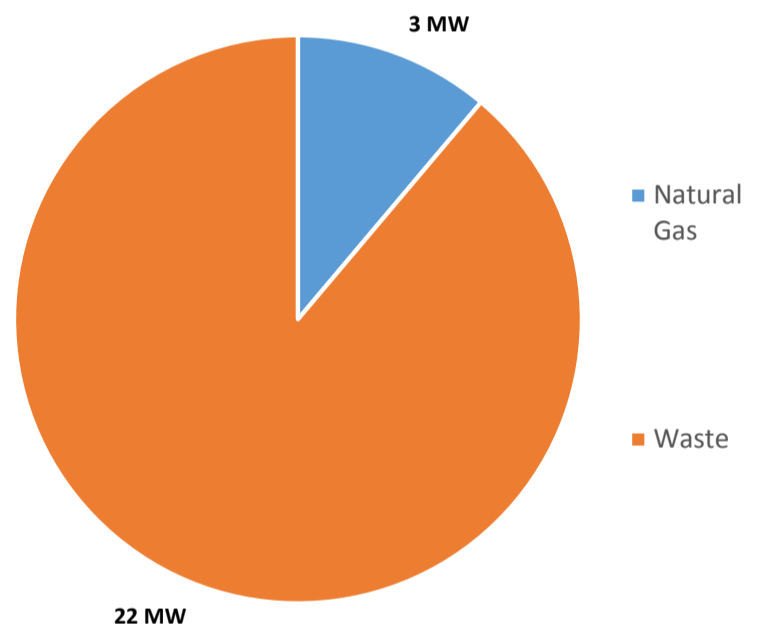
The Midwest CHP Technical Assistance Partnership has compiled information on certain illustrative CHP projects in South Dakota. You can access these by visiting the Department of Energy's [CHP Project Profiles Database](#).

South Dakota CHP by Application



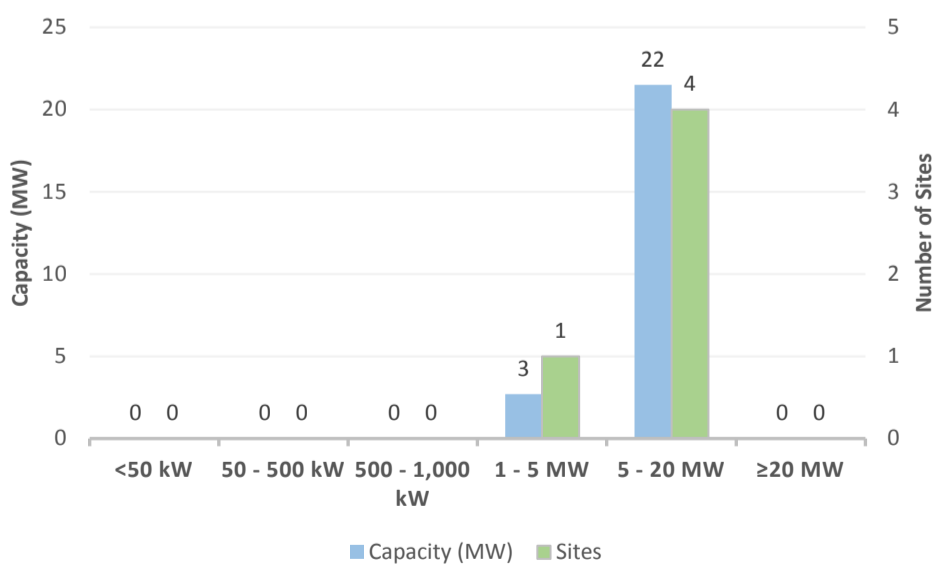
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

South Dakota CHP Capacity (MW) by Fuel Type



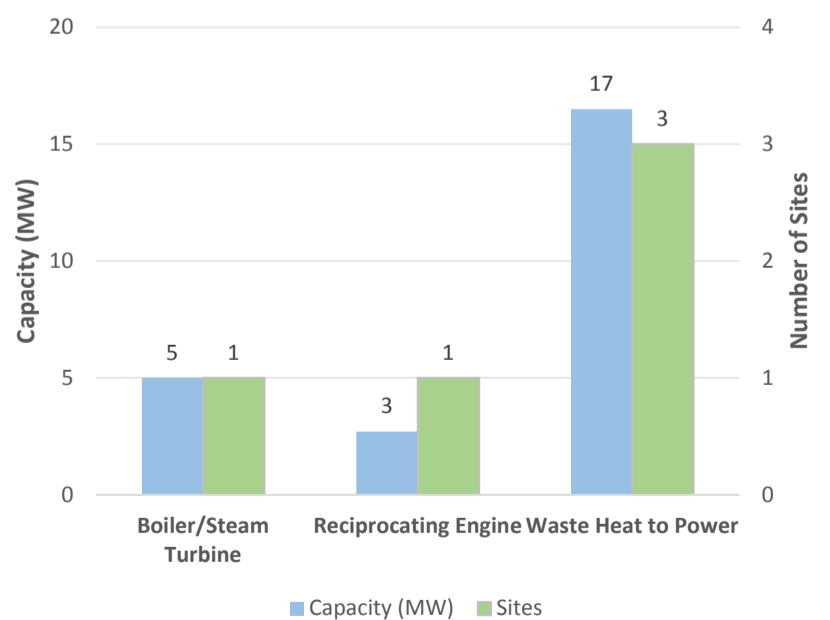
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

South Dakota CHP by Size Range



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

South Dakota 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.





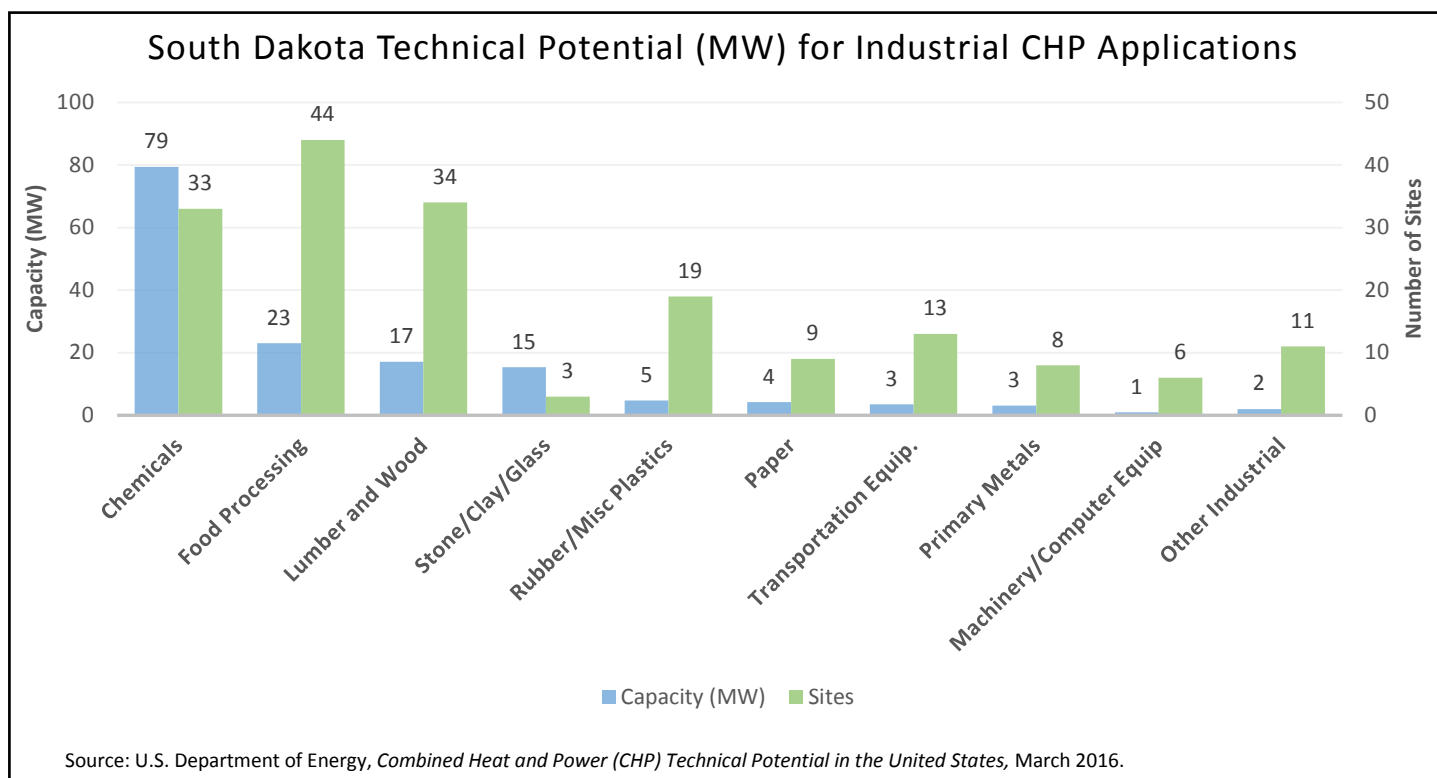
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South Dakota Technical Potential for New CHP Installations

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

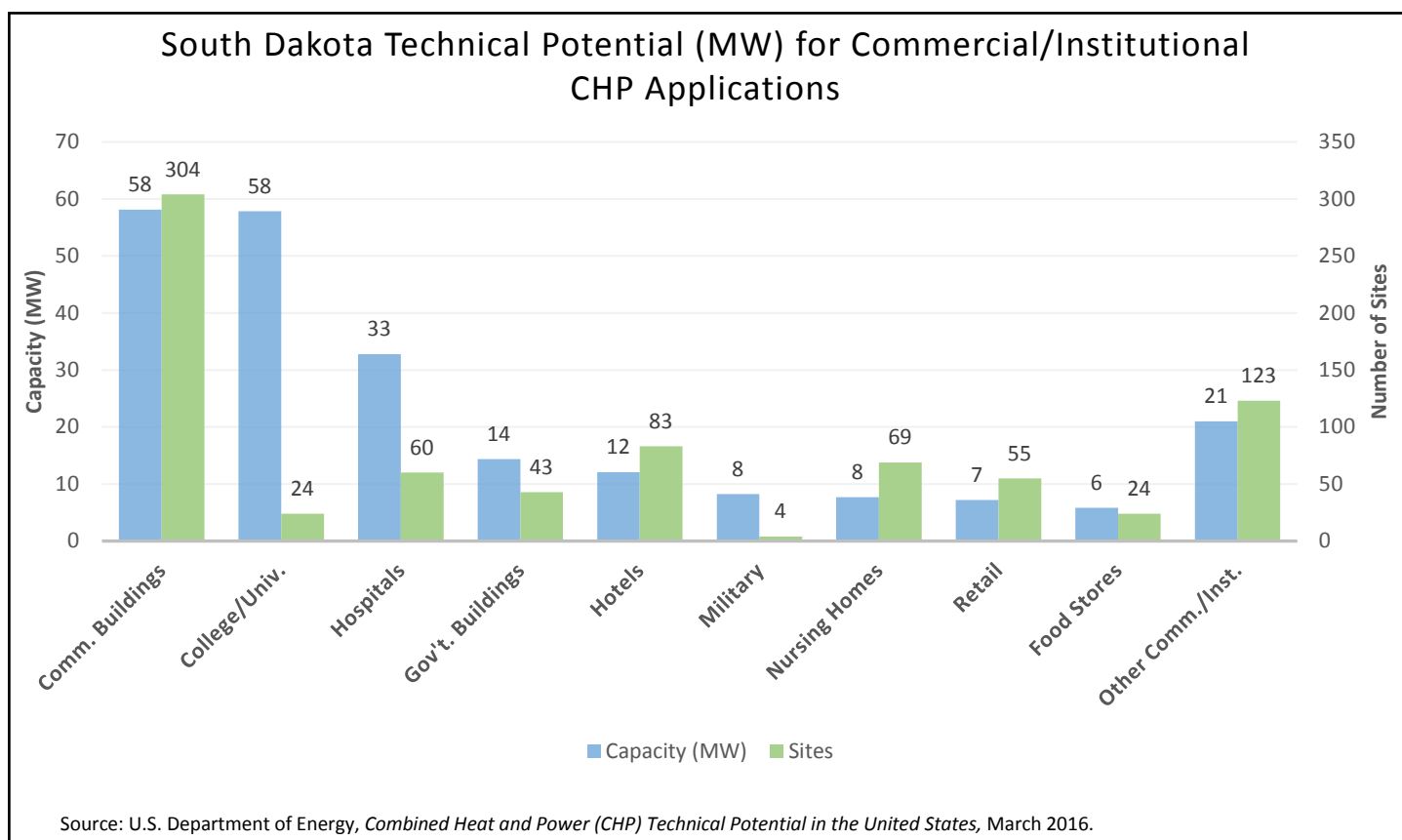
Sector	Potential Sites	Potential Capacity (MW)
Industrial	180	153
Commercial/Institutional	789	225
Total	969	378



Technical Potential by CHP Size Range for Top Five Industrial Sectors

Application	50-500 kW		0.5 - 1 MW		1 - 5 MW		5 - 20 MW		>20 MW		Total	
	Sites	MW	Sites	MW	Sites	MW	Sites	MW	Sites	MW	Total Sites	Total MW
Chemicals	11	2	1	1	18	46	3	31	0	0	33	79
Food Processing	32	6	5	3	7	14	0	0	0	0	44	23
Lumber and Wood	25	4	5	4	4	9	0	0	0	0	34	17
Stone/Clay/Glass	0	0	0	0	2	6	1	9	0	0	3	15
Rubber/Misc Plastics	16	2	2	1	1	1	0	0	0	0	19	5
Other Industrial	39	7	5	3	3	3	0	0	0	0	47	14
Total	123	21	18	12	35	80	4	40	0	0	180	153

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

Application	50-500 kW		0.5 - 1 MW		1 - 5 MW		5 - 20 MW		>20 MW		Total	
	Sites	MW	Sites	MW	Sites	MW	Sites	MW	Sites	MW	Total Sites	Total MW
College/Univ.	11	3	3	2	6	14	4	39	0	0	24	58
Commercial Buildings	195	10	85	34	24	14	0	0	0	0	304	58
Hospitals	42	8	10	7	8	18	0	0	0	0	60	33
Government Buildings	38	4	4	3	0	0	1	7	0	0	43	14
Hotels	79	9	3	2	1	1	0	0	0	0	83	12
Other Comm./Inst.	257	29	13	8	4	6	1	7	0	0	275	50
Total	622	63	118	56	43	53	6	53	0	0	789	225

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

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South Dakota 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.

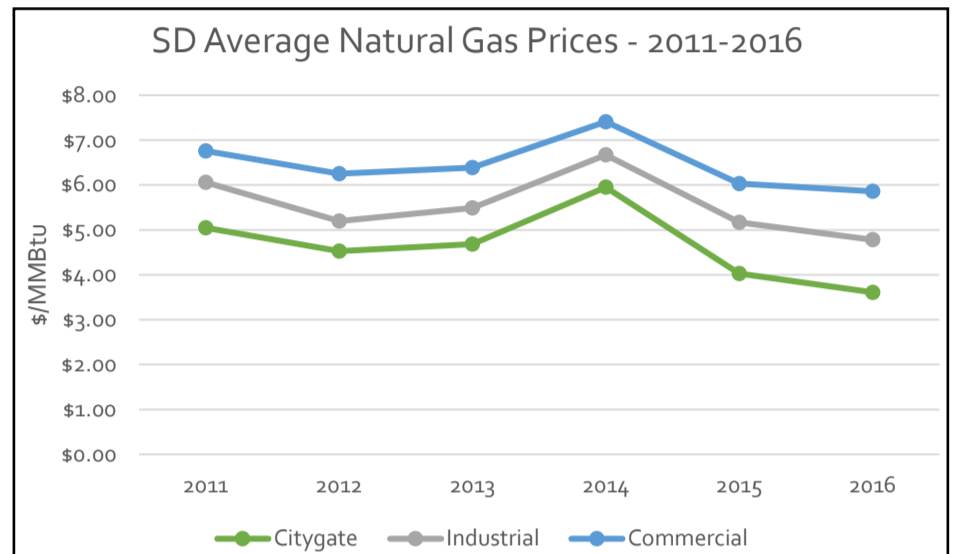
South Dakota Natural Gas Prices

South Dakota Average Gas Prices - 2016

Sector	SD Price (\$/MMBtu)	U.S. Price (\$/MMBtu)
Citygate*	3.61	3.75
Industrial	4.78	3.39
Commercial	5.86	7.22

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



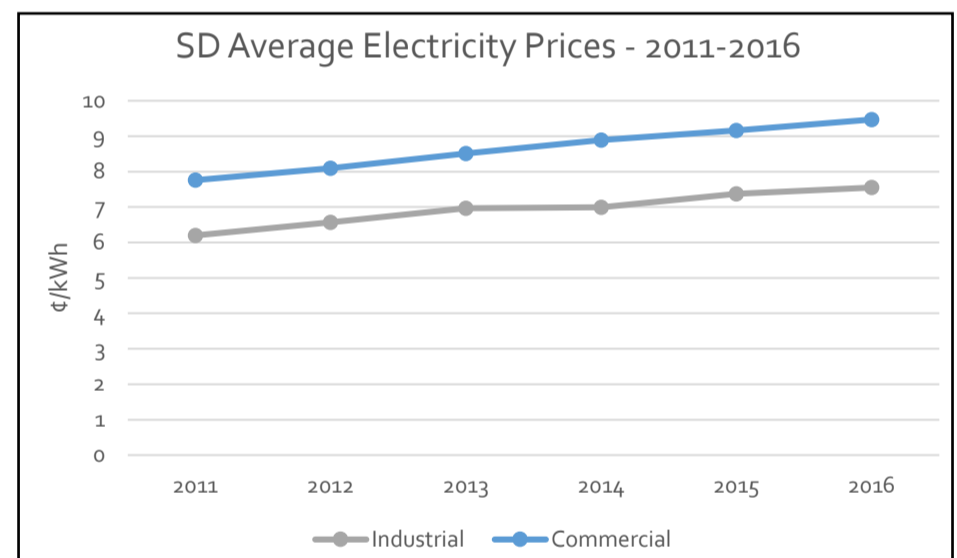
South Dakota Electricity Prices

South Dakota Average Electricity Prices - 2016

Sector	SD Price (¢/kWh)	U.S. Price (¢/kWh)
Industrial	7.55	6.75
Commercial	9.47	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.



South Dakota Average Delivered Electricity Prices by Utility

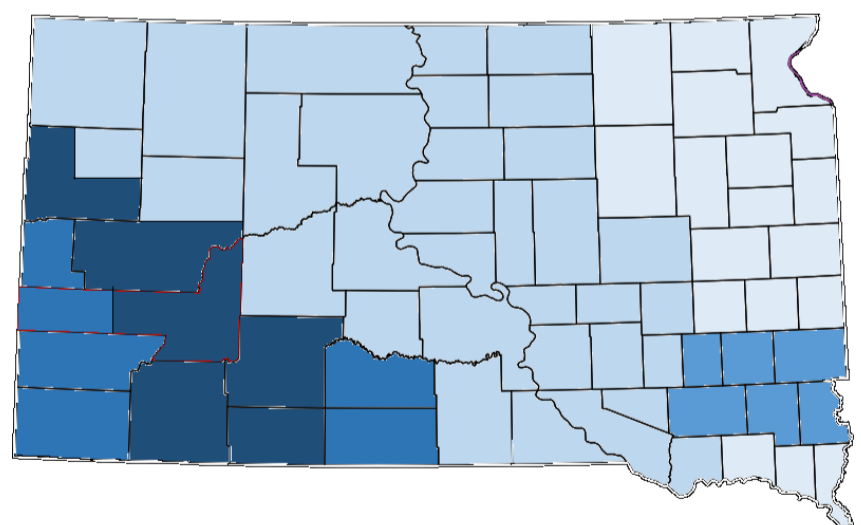
Utility	Industrial Price (¢/kWh)	Commercial Price (¢/kWh)	Average Price** (¢/kWh)
West River Electric Assn	9.67	11.22	10.45
LaCreek Electric Assn	11.39	9.23	10.31
Black Hills Power	6.28	12.63	9.46
Xcel Energy	7.46	9.20	8.33
Grand Electric Coop	-	7.82	7.82
NorthWestern Energy	6.44	8.38	7.41
Montana-Dakota Utilities	5.67	8.33	7.00
Otter Tail Power Co	5.66	7.10	6.38
MidAmerican Energy	4.99	7.49	6.24

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.

South Dakota Electricity Prices – Heat Map



- MidAmerican Energy / Otter Tail Power
- Grand Electric Coop / NorthWestern Energy / Montana-Dakota
- Xcel Energy
- Black Hills Power
- West River Electric Assn / LaCreek Electric Assn

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CHP Technical
Potential

CHP Economics

CHP Partners

Department of Energy CHP Partnerships

Midwest CHP Technical Assistance Partnership



U.S. DEPARTMENT OF ENERGY
CHP Technical Assistance Partnerships
MIDWEST

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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 South Dakota.

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U.S. DEPARTMENT OF ENERGY
CHP Technical Assistance Partnerships