

The State of CHP: Kansas



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

Installed CHP

CHP Technical Potential

CHP Economics

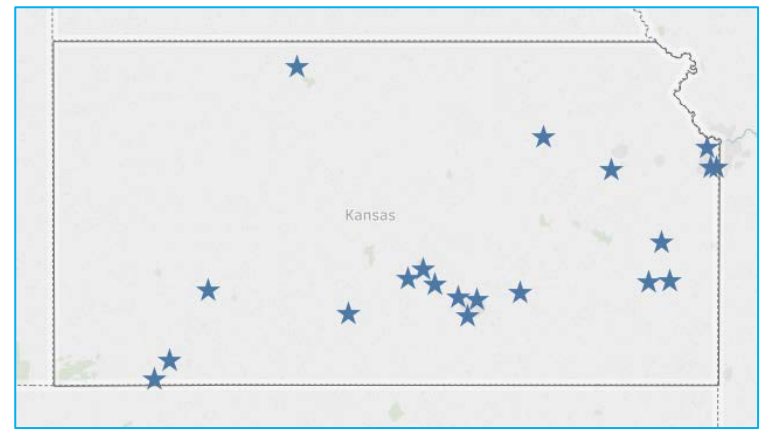
CHP Partners

Kansas Installed Base of CHP

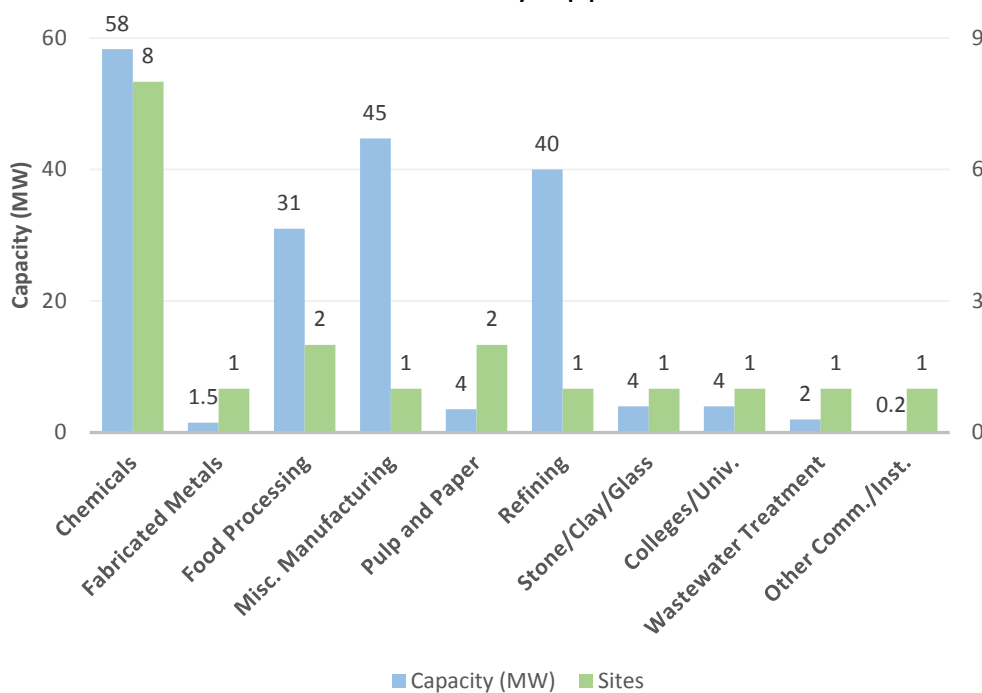
[U.S. DOE Combined Heat and Power Installation Database](#)

Sector	Installations	Capacity (MW)
Industrial	16	183
Commercial/Institutional	4	6
Other	0	0
Total	20	189

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

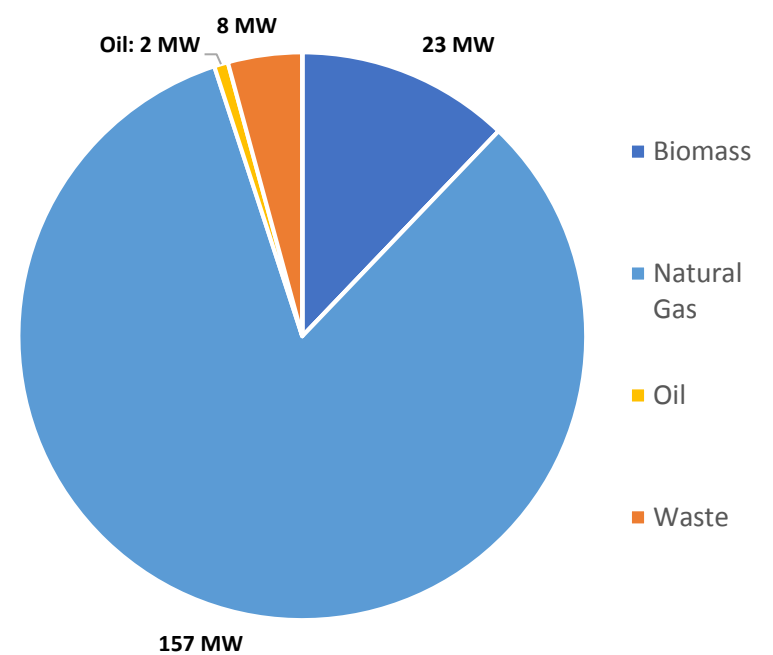


Kansas CHP by Application



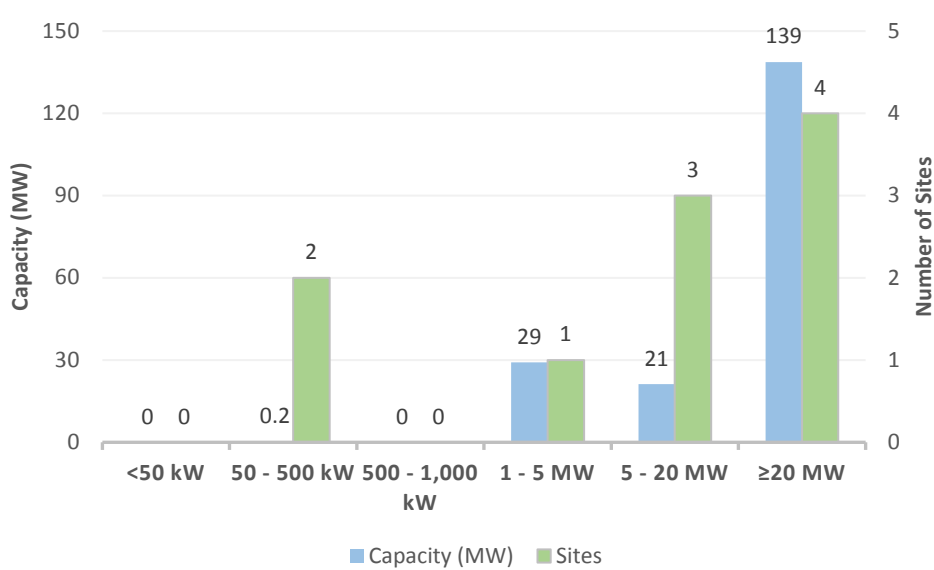
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Kansas CHP Capacity (MW) by Fuel Type



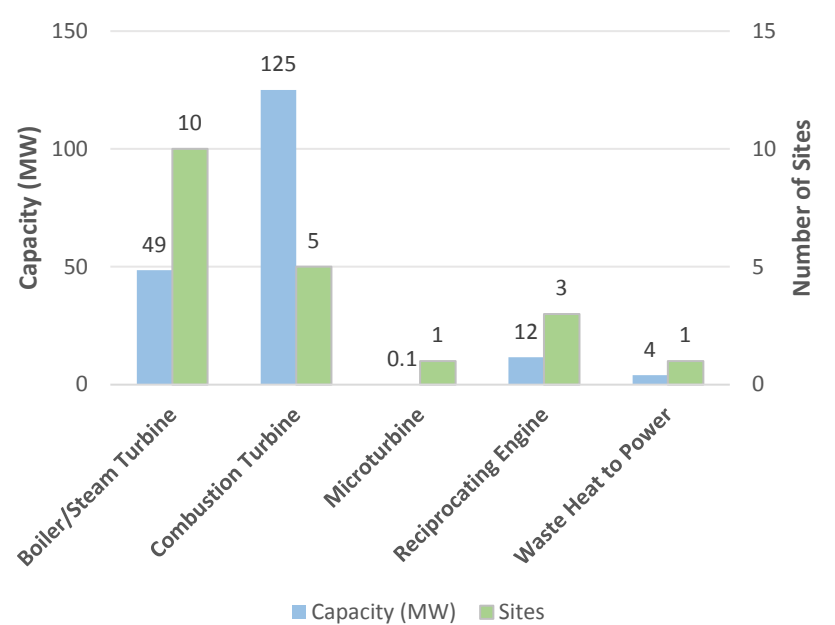
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Kansas CHP by Size Range



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

Kansas 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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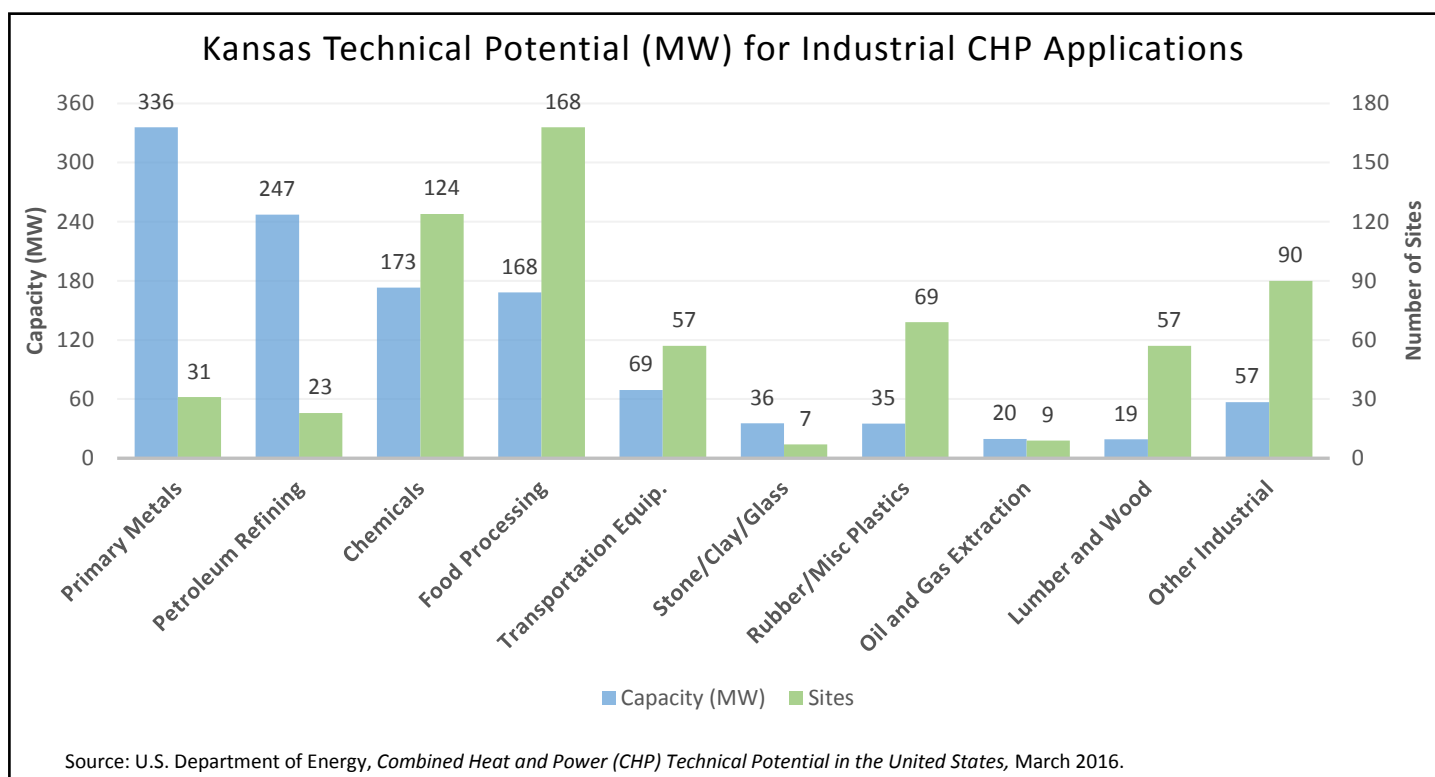
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Kansas Technical Potential for New CHP Installations

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

Sector	Potential Sites	Potential Capacity (MW)
Industrial	635	1,160
Commercial/Institutional	2,523	749
Total	3,158	1,909

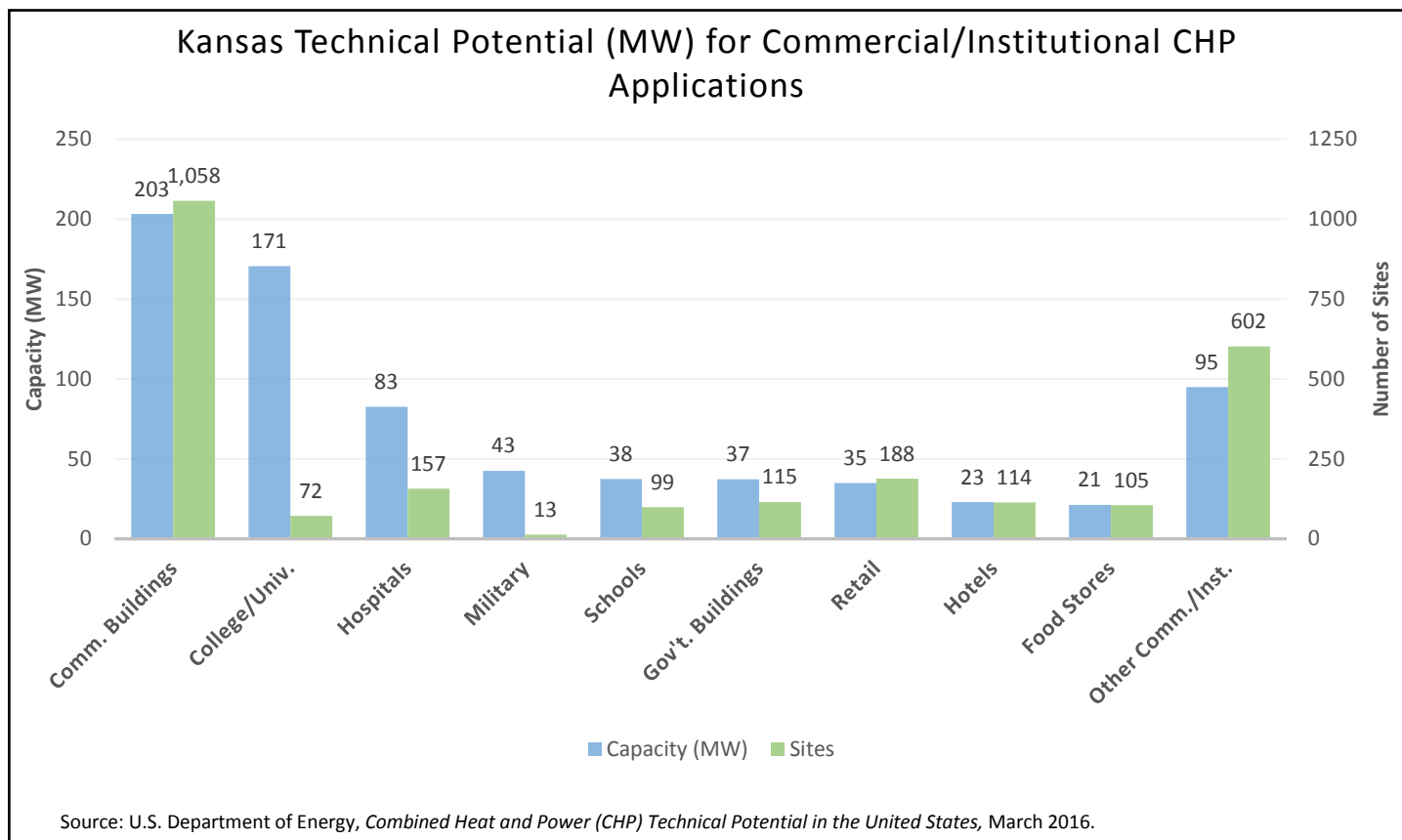


Source: U.S. Department of Energy, *Combined Heat and Power (CHP) Technical Potential in the United States*, March 2016.

Technical Potential by CHP Size Range for Top Five Industrial Sectors

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
Primary Metals	3	0.4	2	1	5	8	17	219	4	107	31	336
Petroleum Refining	1	0	5	3	9	22	4	51	4	171	23	247
Chemicals	71	14	14	10	28	60	11	89	0	0	124	173
Food Processing	107	23	17	12	39	80	5	53	0	0	168	168
Transportation Equip.	42	6	6	4	4	9	5	50	0	0	57	69
Other Industrial	181	33	18	12	25	61	8	59	0	0	232	166
Total	405	77	62	43	110	240	50	522	8	278	635	1,160

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

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
Commercial Buildings	677	34	296	118	85	51	0	0	0	0	1,058	203
College/Univ.	35	6	12	8	15	36	9	87	1	33	72	171
Hospitals	117	28	20	13	19	36	1	6	0	0	157	83
Military	7	1	1	1	2	6	3	35	0	0	13	43
Schools	73	20	26	17	0	0	0	0	0	0	99	38
Other Comm./Inst.	1,045	127	58	37	18	32	3	17	0	0	1,124	212
Total	1,954	216	413	194	139	161	16	144	1	33	2,523	749

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

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Kansas 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.

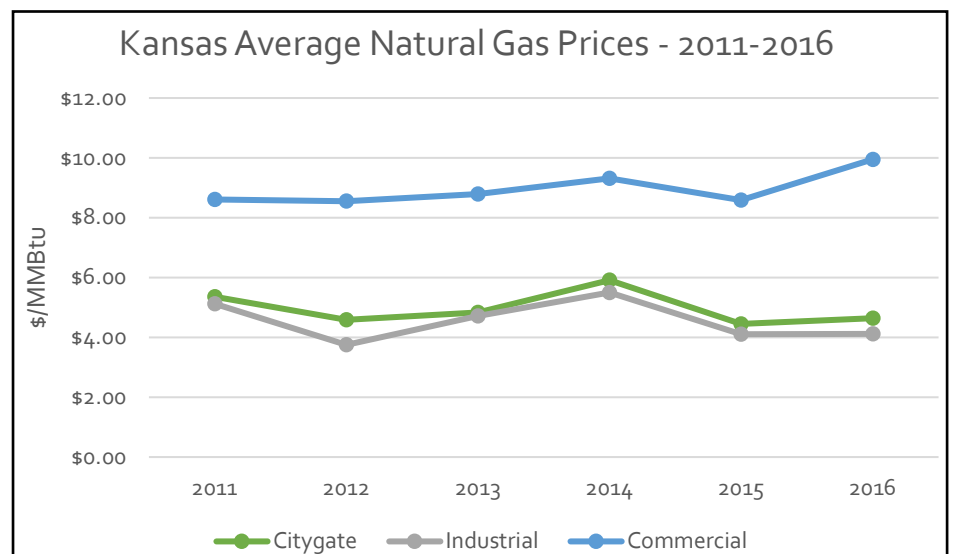
Kansas Natural Gas Prices

Kansas Average Gas Prices - 2016

Sector	KS Price (\$/MMBtu)	U.S. Price (\$/MMBtu)
Citygate*	4.64	3.75
Industrial	4.12	3.39
Commercial	9.95	7.22

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



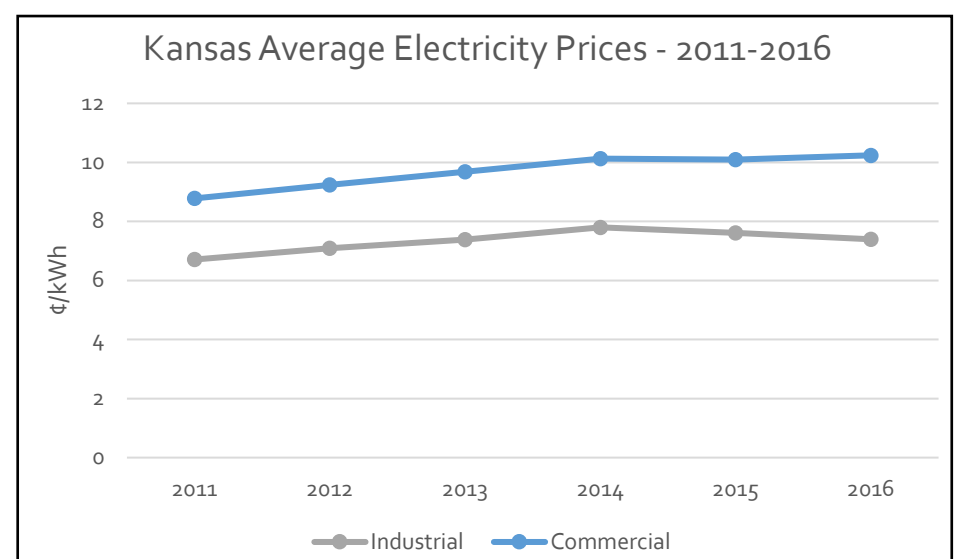
Kansas Electricity Prices

Kansas Average Electricity Prices - 2016

Sector	KS Price (¢/kWh)	U.S. Price (¢/kWh)
Industrial	7.20	6.75
Commercial	10.24	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.



Kansas Average Delivered Electricity Prices by Utility

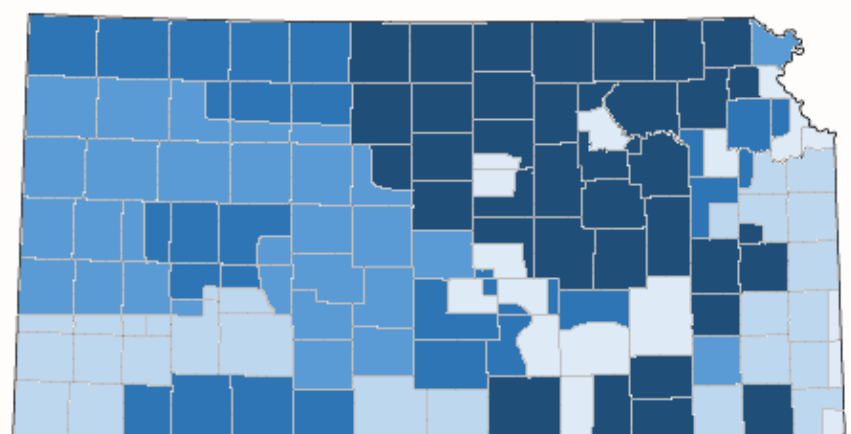
Utility	Industrial Price (¢/kWh)	Commercial Price (¢/kWh)	Average Price** (¢/kWh)
Eastern coops – average	14.11	13.88	13.88
Prairie Land Elec Coop	10.08	12.97	11.52
Western coops – average	9.01	11.85	10.43
Municipal system average	8.98	10.96	10.13
Kansas City Power & Light	9.30	10.05	9.68
Westar Energy	7.84	9.56	8.70
City of Kansas City	7.18	9.50	8.34
Kansas Gas & Electric	6.95	9.61	8.28

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.

Kansas Electricity Prices – Heat Map



- \$8.00 - \$9.00
- \$9.00 - \$10.00
- \$10.00 - \$11.00
- \$11.00 - \$12.00
- >\$12.00

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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 Kansas.

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U.S. DEPARTMENT OF ENERGY
CHP Technical Assistance Partnerships