

The State of CHP: Iowa



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

Installed CHP

CHP Technical Potential

CHP Economics

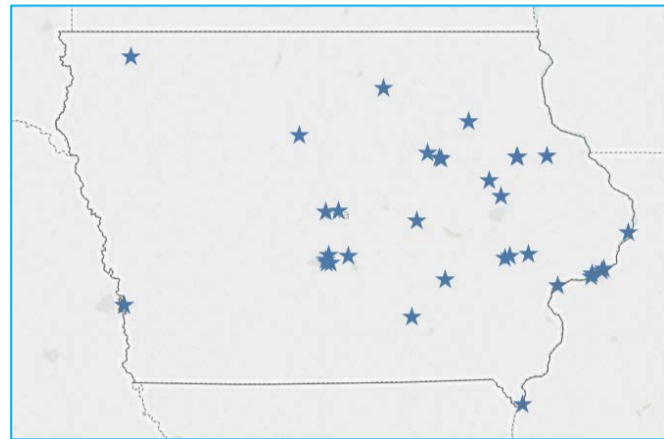
CHP Partners

Iowa Installed Base of CHP

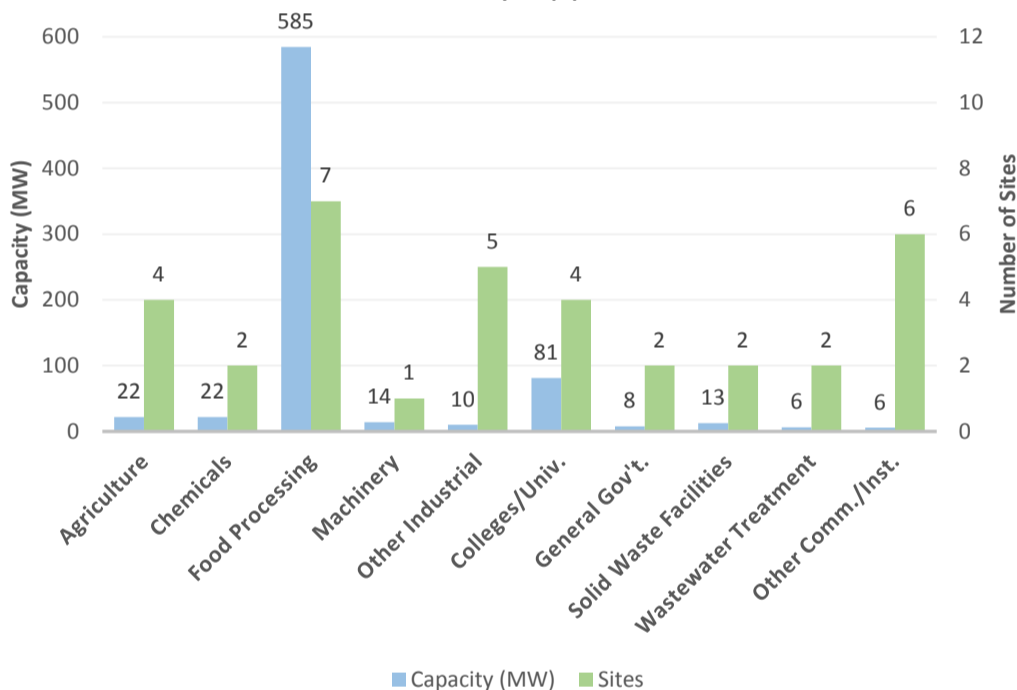
[U.S. DOE Combined Heat and Power Installation Database](#)

Sector	Installations	Capacity (MW)
Industrial	15	631
Commercial/Institutional	16	113
Other	4	22
Total	35	766

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

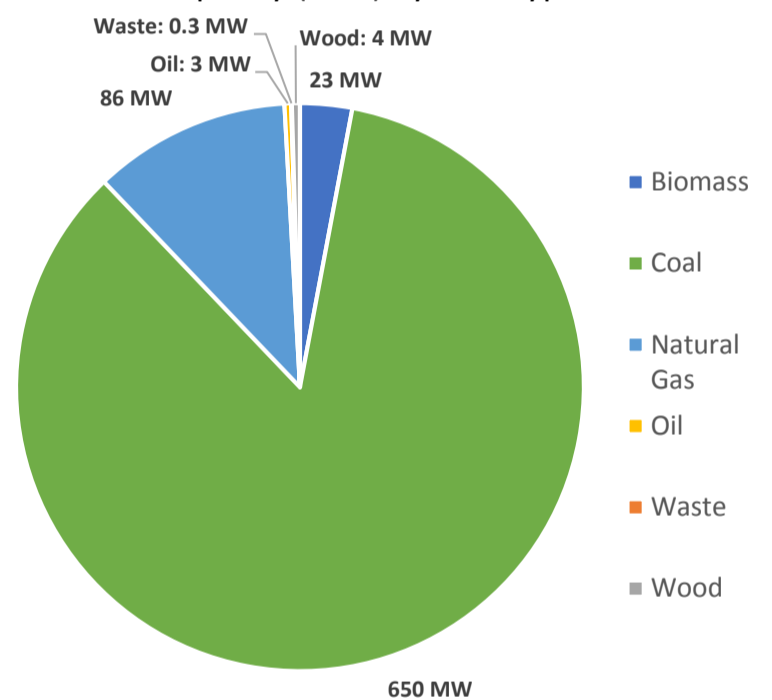


Iowa CHP by Application



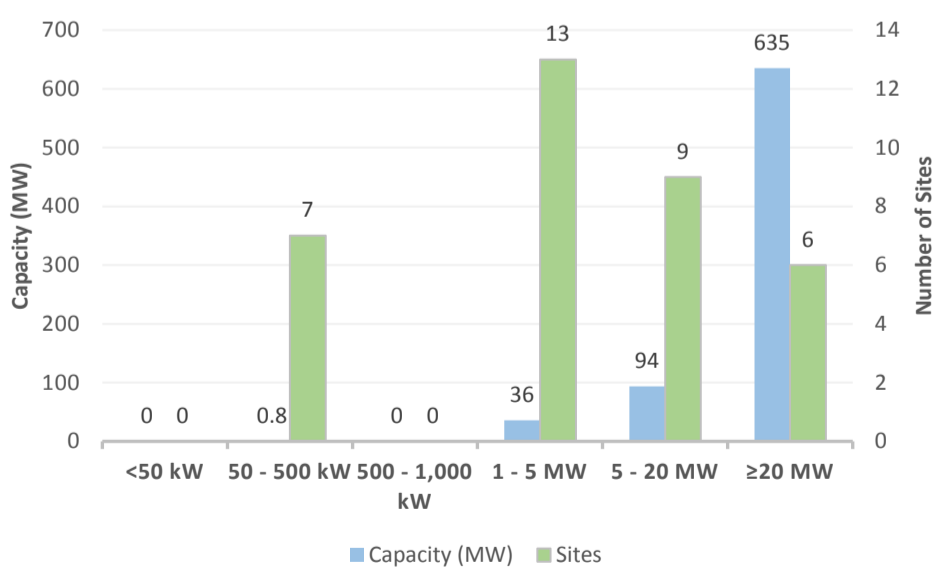
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Iowa CHP Capacity (MW) by Fuel Type



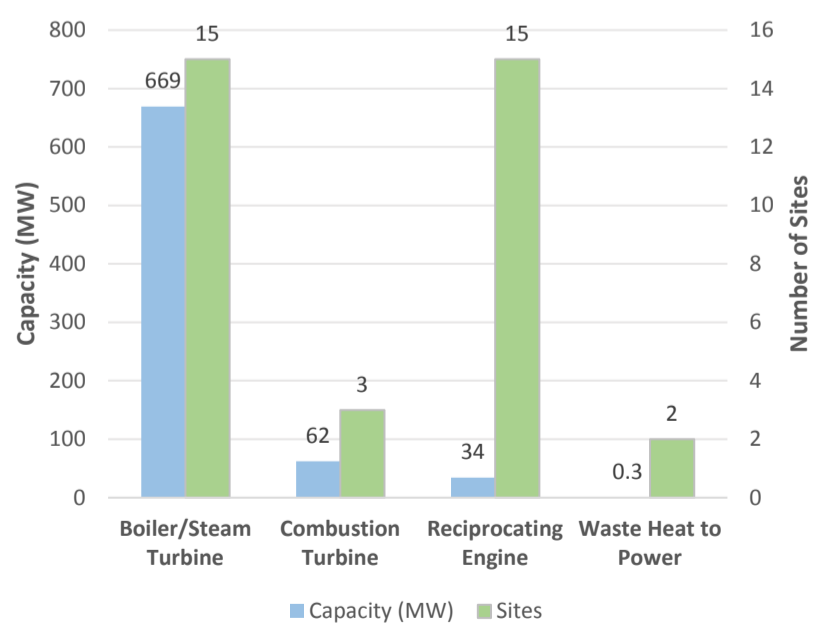
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Iowa CHP by Size Range



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

Iowa 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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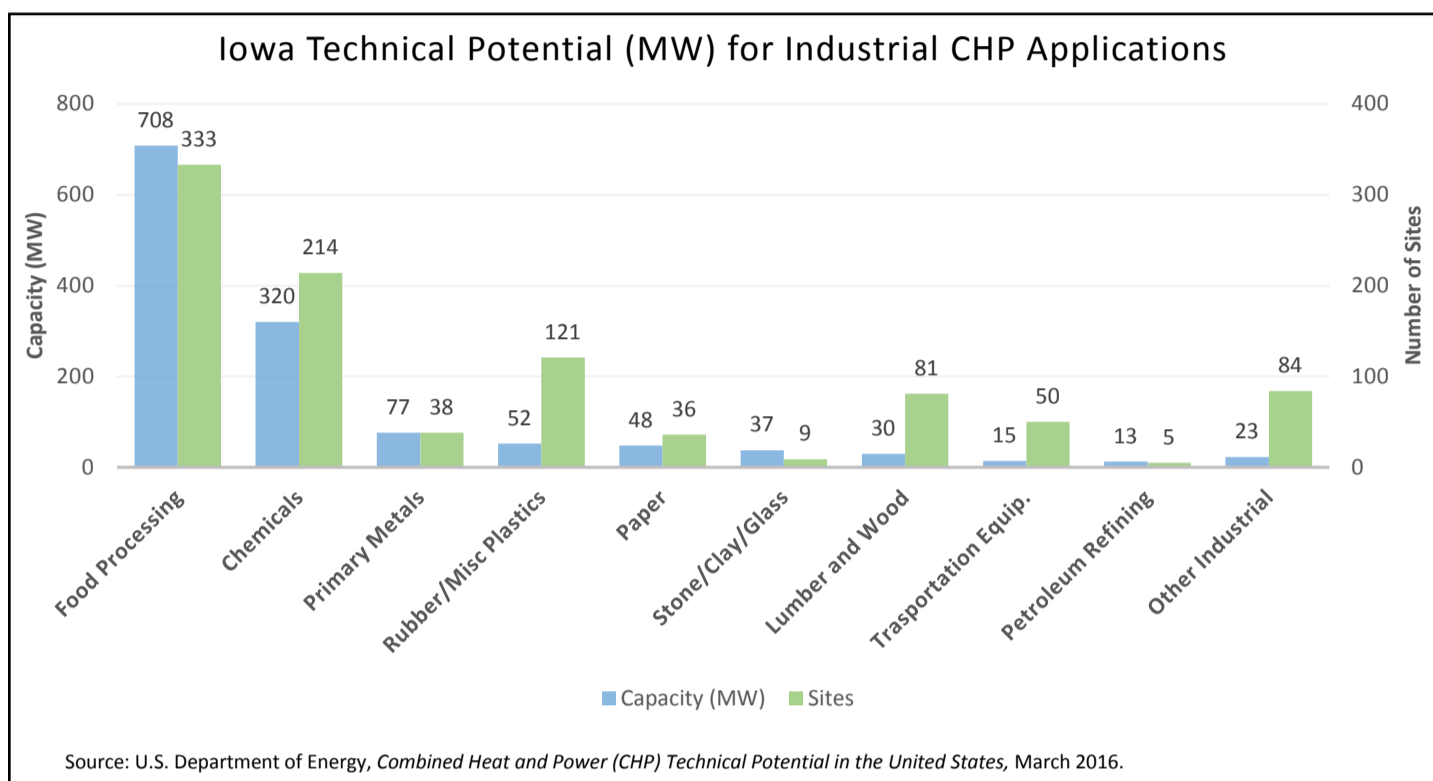
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Iowa Technical Potential for New CHP Installations

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

Sector	Potential Sites	Potential Capacity (MW)
Industrial	971	1,323
Commercial/Institutional	2,752	670
Total	3,723	1,993

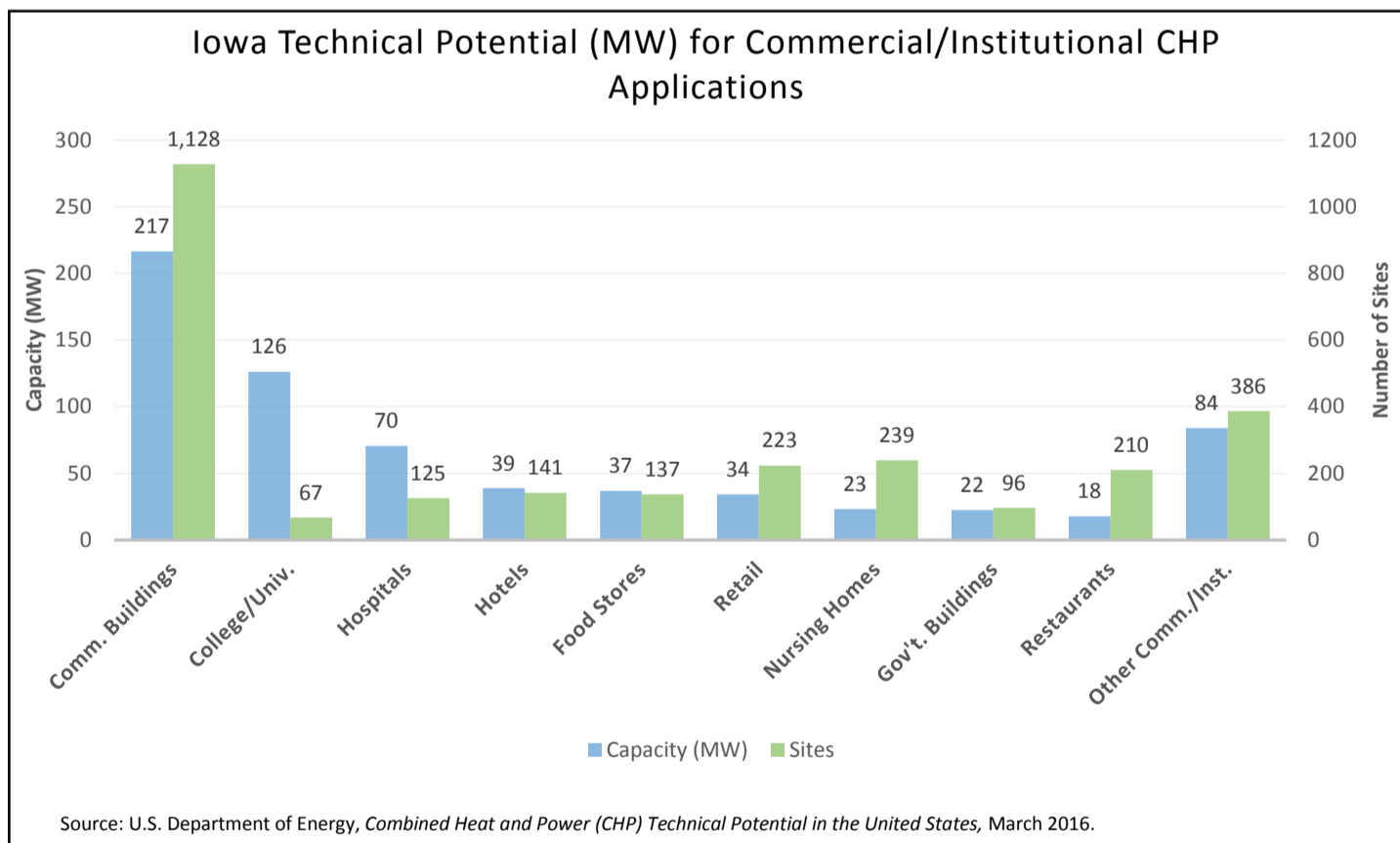


Source: U.S. Department of Energy, Combined Heat and Power (CHP) Technical Potential in the United States, March 2016.

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
Food Processing	201	44	47	36	70	149	9	91	6	390	333	708
Chemicals	121	20	17	12	58	140	17	126	1	21	214	320
Primary Metals	21	4	3	2	11	22	2	21	1	28	38	77
Rubber/Misc Plastics	107	18	8	5	4	6	2	22	0	0	121	52
Paper	21	5	6	4	7	15	2	24	0	0	36	48
Other Industrial	177	28	23	16	27	58	2	16	0	0	229	118
Total	648	119	104	76	177	391	34	299	8	439	971	1,323

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	722	36	316	126	90	54	0	0	0	0	1,128	217
College/Univ.	33	7	7	4	21	47	5	45	1	23	67	126
Hospitals	83	17	23	14	19	40	0	0	0	0	125	70
Hotels	127	15	5	3	9	21	0	0	0	0	141	39
Food Stores	125	29	12	8	0	0	0	0	0	0	137	37
Other Comm./Inst.	1,094	120	36	21	23	36	1	5	0	0	1,154	181
Total	2,184	224	399	176	162	197	6	50	1	23	2,752	670

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

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CHP Technical Potential

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CHP Partners

Iowa 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.

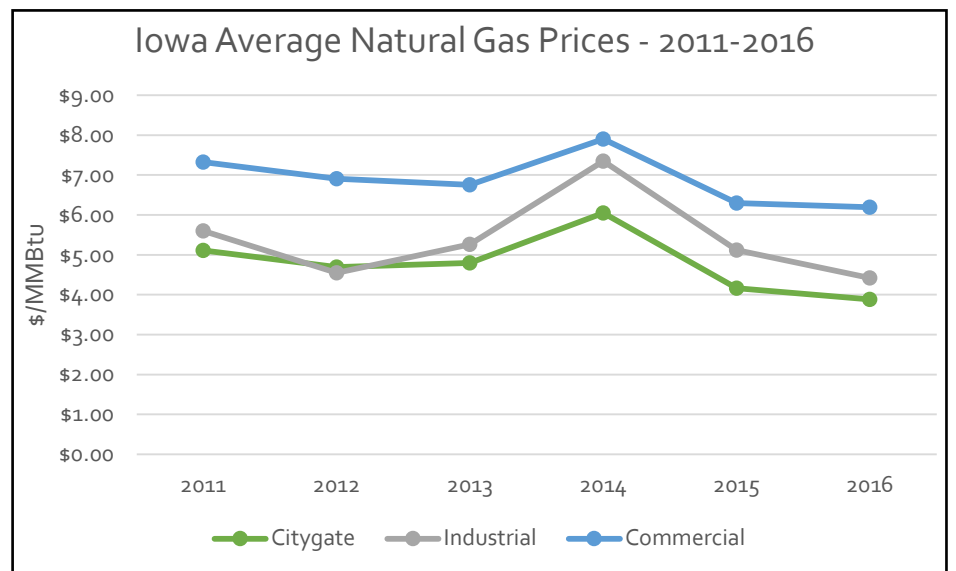
Iowa Natural Gas Prices

Iowa Average Gas Prices - 2016

Sector	IA Price (\$/MMBtu)	U.S. Price (\$/MMBtu)
Citygate*	3.88	3.75
Industrial	4.42	3.39
Commercial	6.19	7.22

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



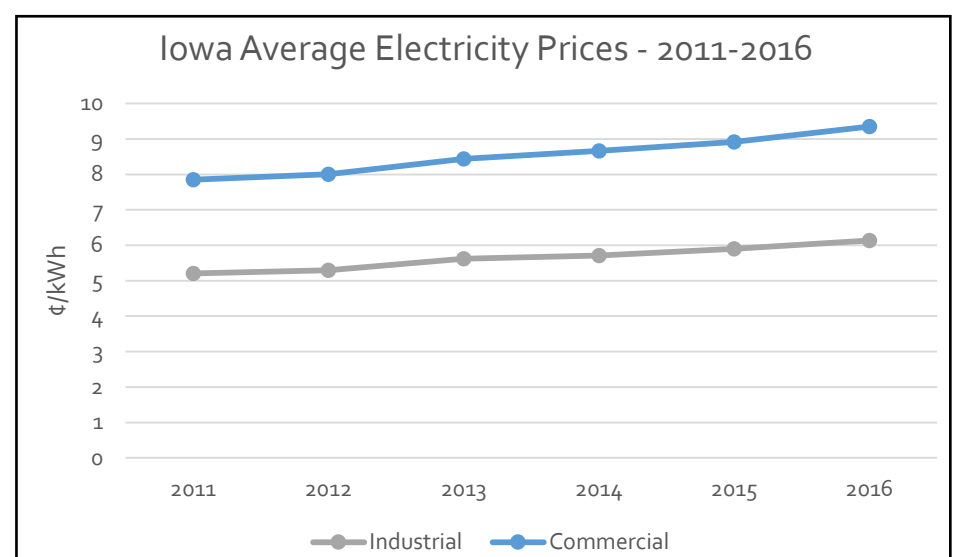
Iowa Electricity Prices

Iowa Average Electricity Prices - 2016

Sector	IA Price (¢/kWh)	U.S. Price (¢/kWh)
Industrial	6.14	6.75
Commercial	9.35	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.



Iowa Average Delivered Electricity Prices by Utility

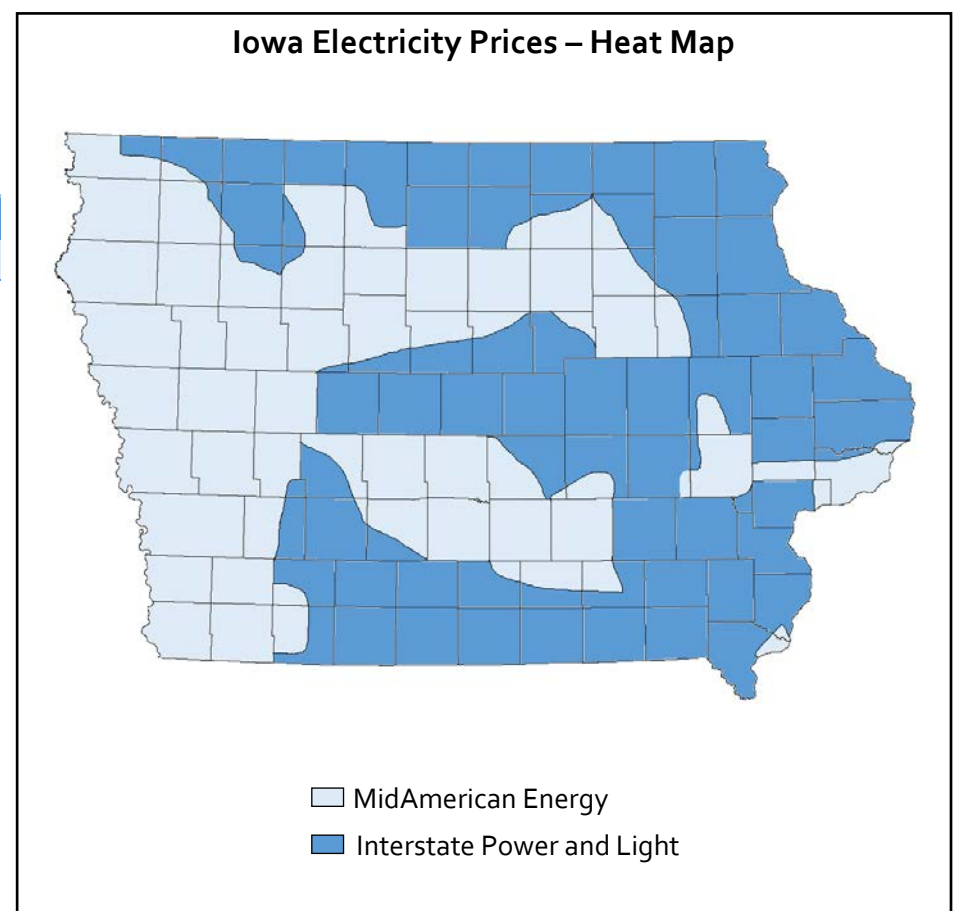
Utility	Industrial Price (¢/kWh)	Commercial Price (¢/kWh)	Average Price** (¢/kWh)
Interstate Power and Light	6.54	10.42	8.48
MidAmerican Energy	4.99	7.52	6.26

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.

Iowa Electricity Prices – Heat Map



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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 Iowa.

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U.S. DEPARTMENT OF ENERGY
CHP Technical Assistance Partnerships