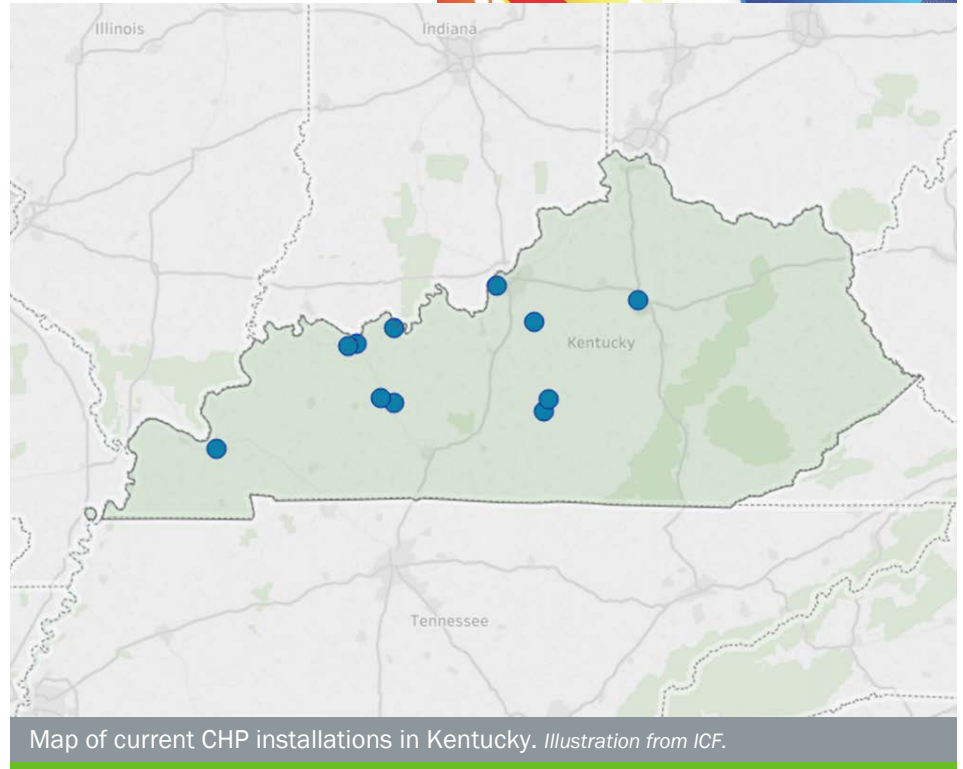


The State of CHP: Kentucky



Combined heat and power (CHP) – also 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. The information in this document provides a general overview of the state of CHP in Kentucky, with data on current installations, technical potential, and economics for CHP.



Kentucky: Installed CHP

U.S. DOE Combined Heat and Power Installation Database

The DOE CHP Installation Database is a data collection effort sponsored by the U.S. Department of Energy. The database contains a comprehensive listing of combined heat and power installations throughout the country, including those in Kentucky, and can be accessed by visiting <https://doe.icfwebservices.com/chp>.

CHP Project Profiles

The Southeast CHP TAP has compiled information on certain illustrative CHP projects in Kentucky. You can access these by visiting the Department of Energy’s CHP Project Profiles Database at <https://betterbuildingsolutioncenter.energy.gov/chp/chp-project-profiles-database>.

Southeast CHP Technical Assistance Partnership

For assistance with questions about specific CHP opportunities in Kentucky, please consult with the Southeast CHP TAP by visiting sechptap.org or contacting the CHP TAP director.

Kentucky Existing CHP

Sector	Sites	Capacity (MW)
Industrial	8	133
Commercial/Institutional	2	9
Other	1	0.5
Total	11	142

Southeast CHP TAP Director

Isaac Panzarella, P.E.

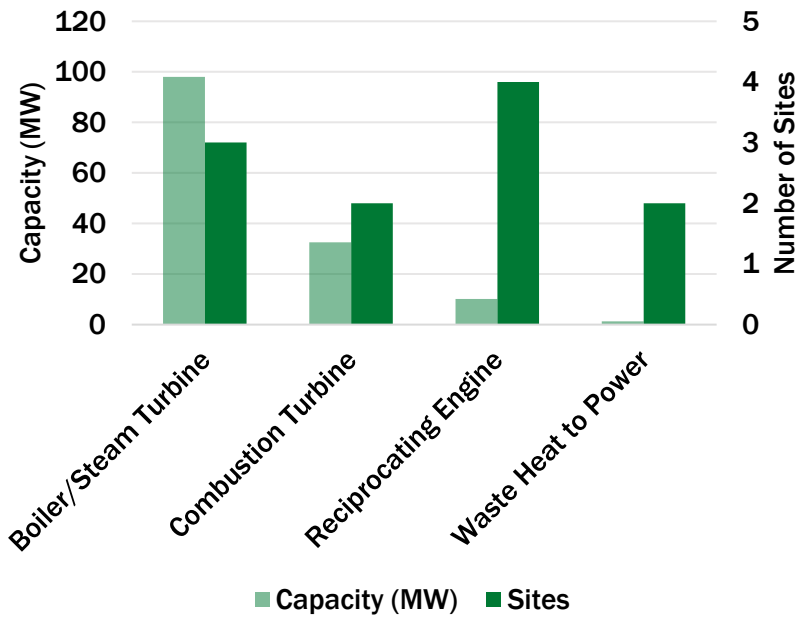
- North Carolina State University
- ipanzarella@ncsu.edu
- 919-515-0354

SOUTHEAST

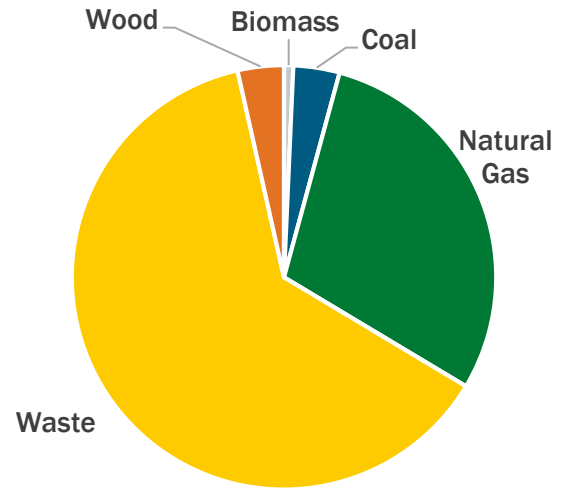


CHP
TECHNICAL ASSISTANCE
PARTNERSHIPS

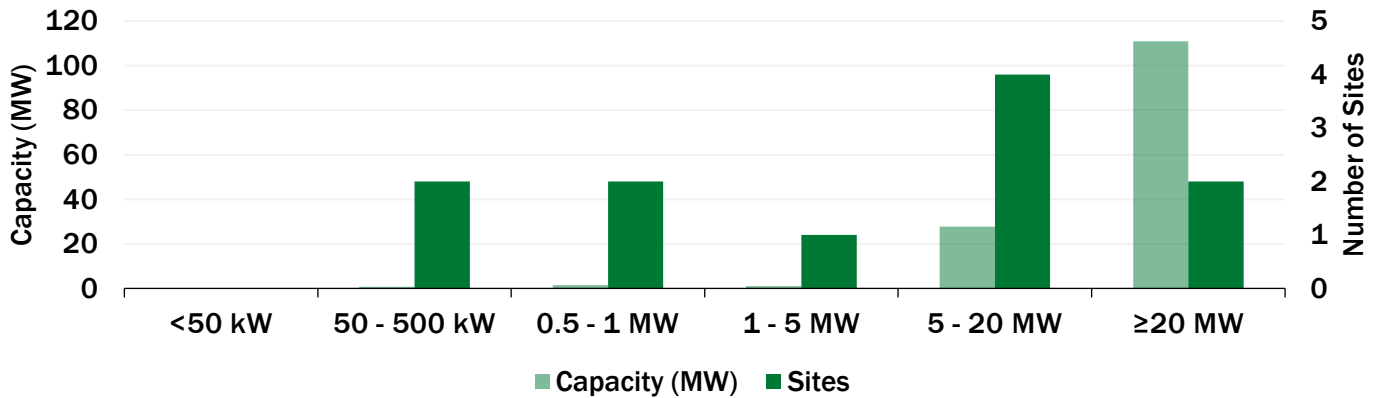
Kentucky CHP by Technology



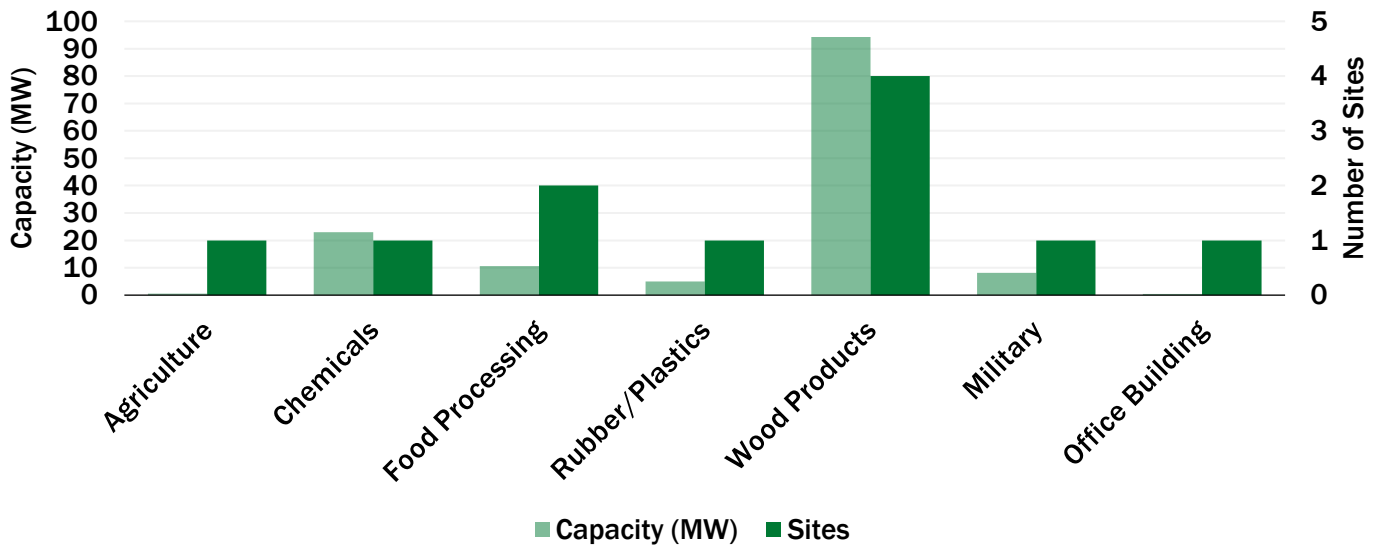
Kentucky CHP Capacity (MW) by Fuel



Kentucky CHP by Size Range



Kentucky CHP by Application



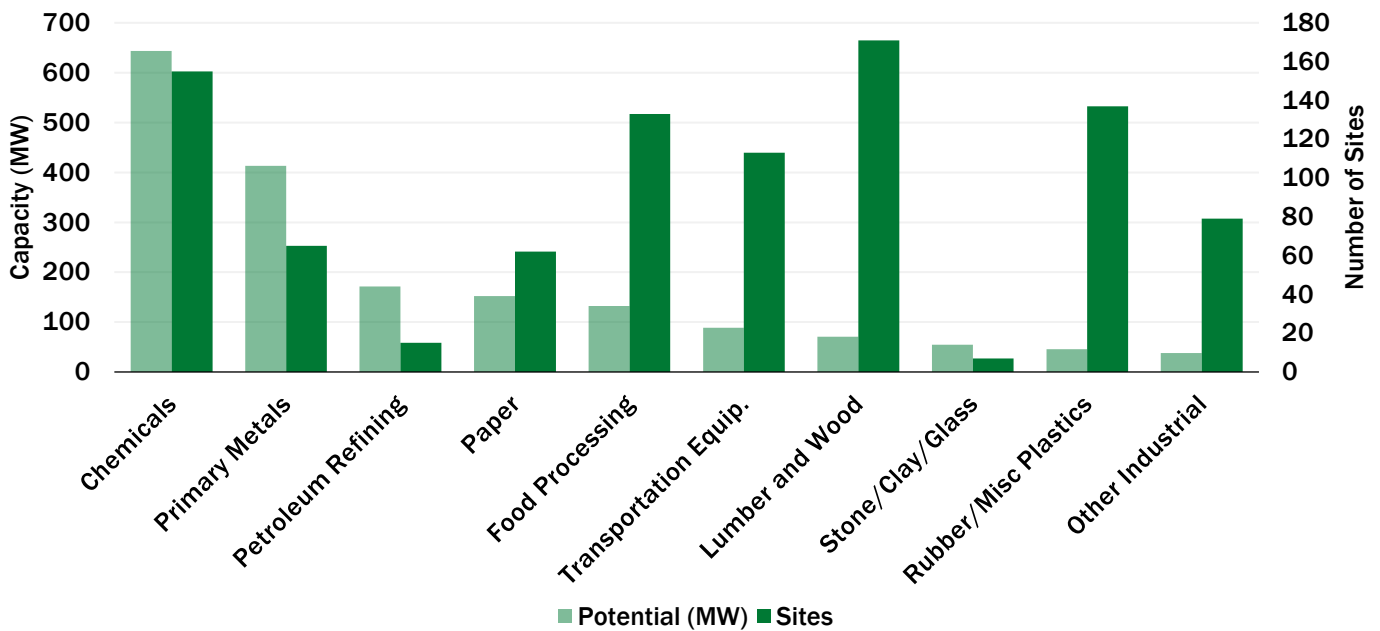
Kentucky: Technical Potential for New CHP Installations

The “Combined Heat and Power (CHP) Technical Potential in the United States” market analysis report provides data on the technical potential in industrial facilities and commercial buildings for “topping cycle” CHP, waste heat to power (WHP) CHP, and district energy CHP in the U.S. Read the report [here](#).

Kentucky CHP Technical Potential

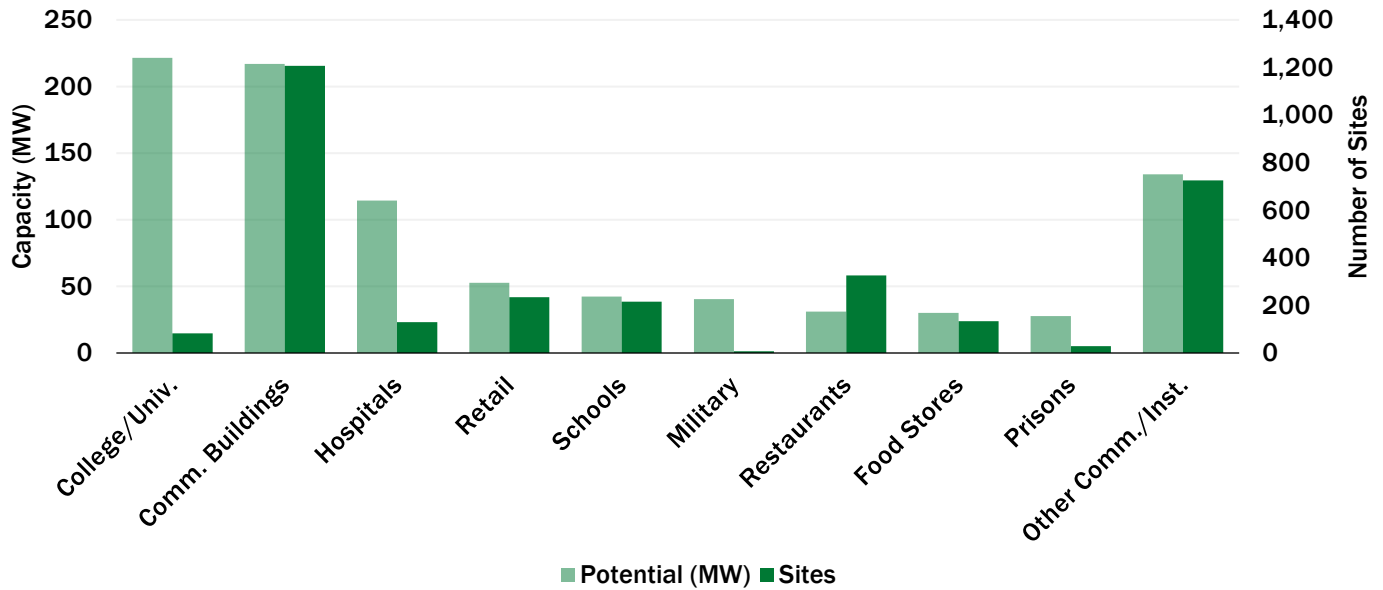
Sector	Potential Sites	Potential MW
Industrial	937	1,809
Commercial/Institutional	3,093	911
Total	4,030	2,721

Kentucky Technical Potential (MW) for Industrial CHP Applications



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	62	12	22	16	37	89	27	265	7	261	155	643
Primary Metals	27	7	9	6	8	18	14	157	7	225	65	414
Petroleum Refining	2	0.5	5	4	6	11	0	0	2	157	15	171
Paper	37	11	4	2	14	27	6	59	1	53	62	152
Food Processing	73	15	19	14	35	64	6	40	0	0	133	132
Other Industrial	373	70	72	52	54	100	8	76	0	0	507	297
Total	574	115	131	94	154	307	61	597	17	696	937	1,809

Kentucky Technical Potential (MW) for Commercial/Institutional CHP Applications



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.	45	10	3	2	27	67	5	61	3	82	83	222
Commercial Buildings	805	40	322	129	80	48	0	0	0	0	1,207	217
Hospitals	62	16	29	21	39	78	0	0	0	0	130	114
Retail	208	33	24	15	3	6	0	0	0	0	235	53
Military	4	1	0	0	0	0	3	40	0	0	7	40
Other Comm./Inst.	1,146	133	42	26	28	44	6	60	0	0	1,222	263
Total	2,479	273	423	194	177	242	11	121	3	82	3,093	911

Department of Energy CHP Accelerators

Packaged CHP Accelerator

Standardized packaged CHP systems can reduce risk for both CHP users and suppliers by reducing design errors, limiting uncertainty about performance, shortening project development time, and reducing overall costs. Accelerator partners will validate the installation, performance, and economic and resiliency benefits of packaged CHP systems, evaluate the integration of new technologies and packaged CHP, and identify R&D challenges. For more information, visit

<https://betterbuildingssolutioncenter.energy.gov/accelerators/packaged-chp>

CHP for Resiliency Accelerator

The U.S. DOE collaborated with cities, states, utilities, and other stakeholders who are actively pursuing CHP as a consideration in resiliency planning for critical infrastructure in their jurisdictions. This included defining resiliency, identifying critical infrastructure, and assessing CHP opportunities. This process was documented in the DG for Resilience Planning Guide and the CHP for Resilience Screening Tool. For more information, visit

<https://betterbuildingssolutioncenter.energy.gov/accelerators/combined-heat-and-power-resiliency>

Kentucky: 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.

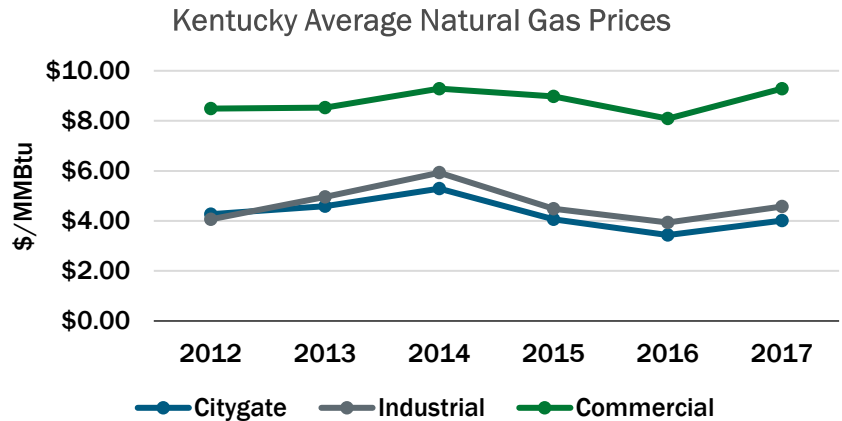
Kentucky Natural Gas Prices

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.

Kentucky Average Gas Prices (\$/MMBtu) - 2017

Sector	KY Price	U.S. Price
Citygate*	4.02	4.26
Industrial	4.57	4.20
Commercial	9.29	8.08

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

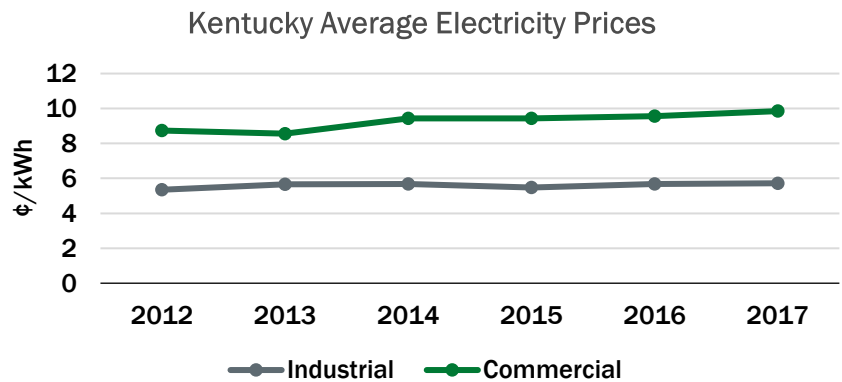


Kentucky Electricity Prices

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

Kentucky Average Electricity Prices (¢/kWh) - 2017

Sector	KY Price	U.S. Price
Industrial	5.72	6.88
Commercial	9.85	10.66



Kentucky Average Delivered Electricity Prices by Utility

Utility	Industrial Price (¢/kWh)	Commercial Price (¢/kWh)	Average Price (¢/kWh)
Meade County Rural ECC	-	12.41	12.41
Hickman-Fulton Counties	7.78	13.74	10.76
South Kentucky Rural ECC	8.02	12.40	10.21
Kentucky Power	6.56	12.15	9.35
State municipal average	7.82	10.86	9.34
State coop average	6.62	10.31	8.47
Louisville Gas & Electric	6.83	9.55	8.19
Kentucky Utilities	6.27	9.76	8.01
Duke Energy	6.30	7.37	6.83

