The State of CHP: Maine

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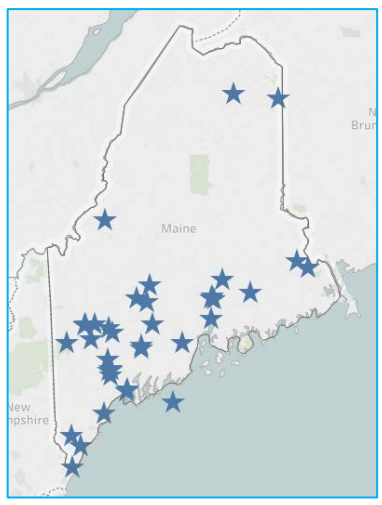
Maine Installed Base of CHP

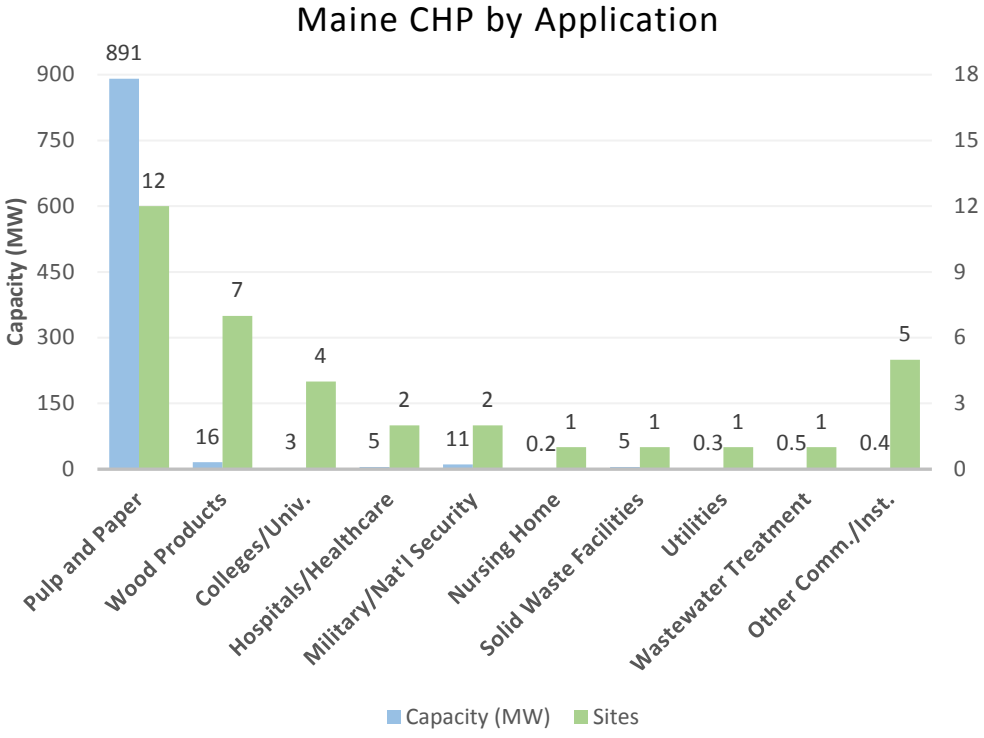
U.S. DOE Combined Heat and Power Installation Database

Sector	*Installations*	*Capacity (MW)*
Industrial	19	906
Commercial/Institutional	19	26
Other	0	0
Total	**38**	**933**



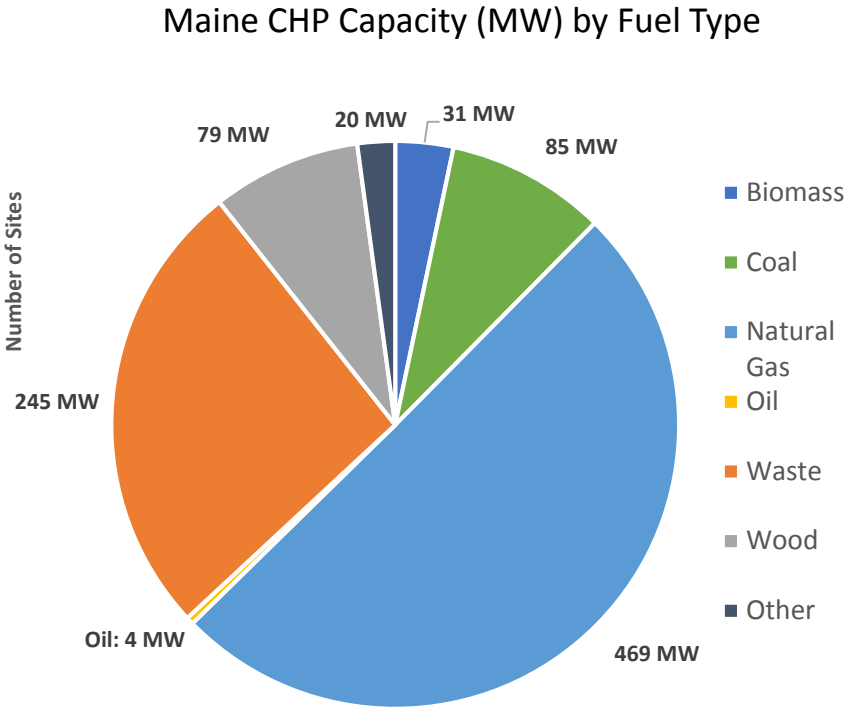
The Northeast CHP Technical Assistance Partnership has compiled information on certain illustrative CHP projects in Maine. You can access these by visiting the Department of Energy's CHP Project Profiles Database.

Maine CHP by Application



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

Maine CHP Capacity (MW) by Fuel Type

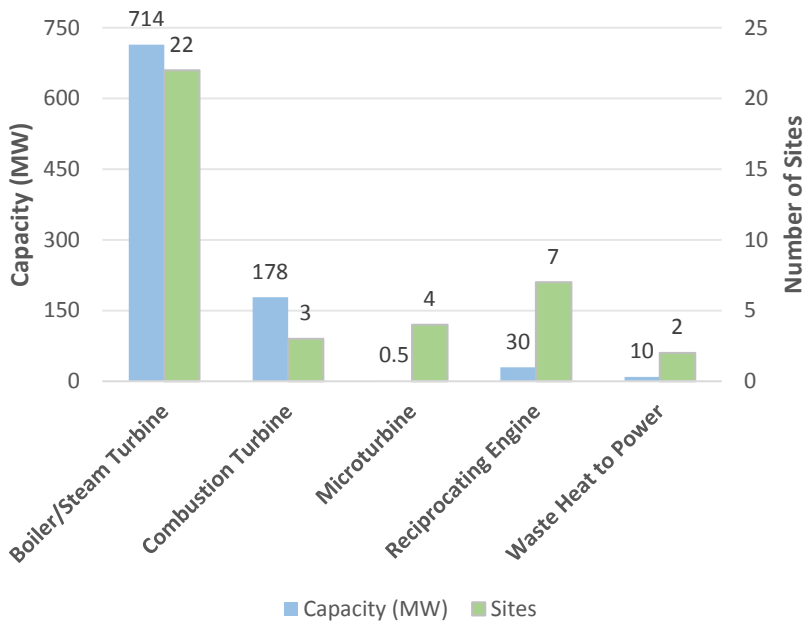


Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Maine CHP by Size Range

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

Maine 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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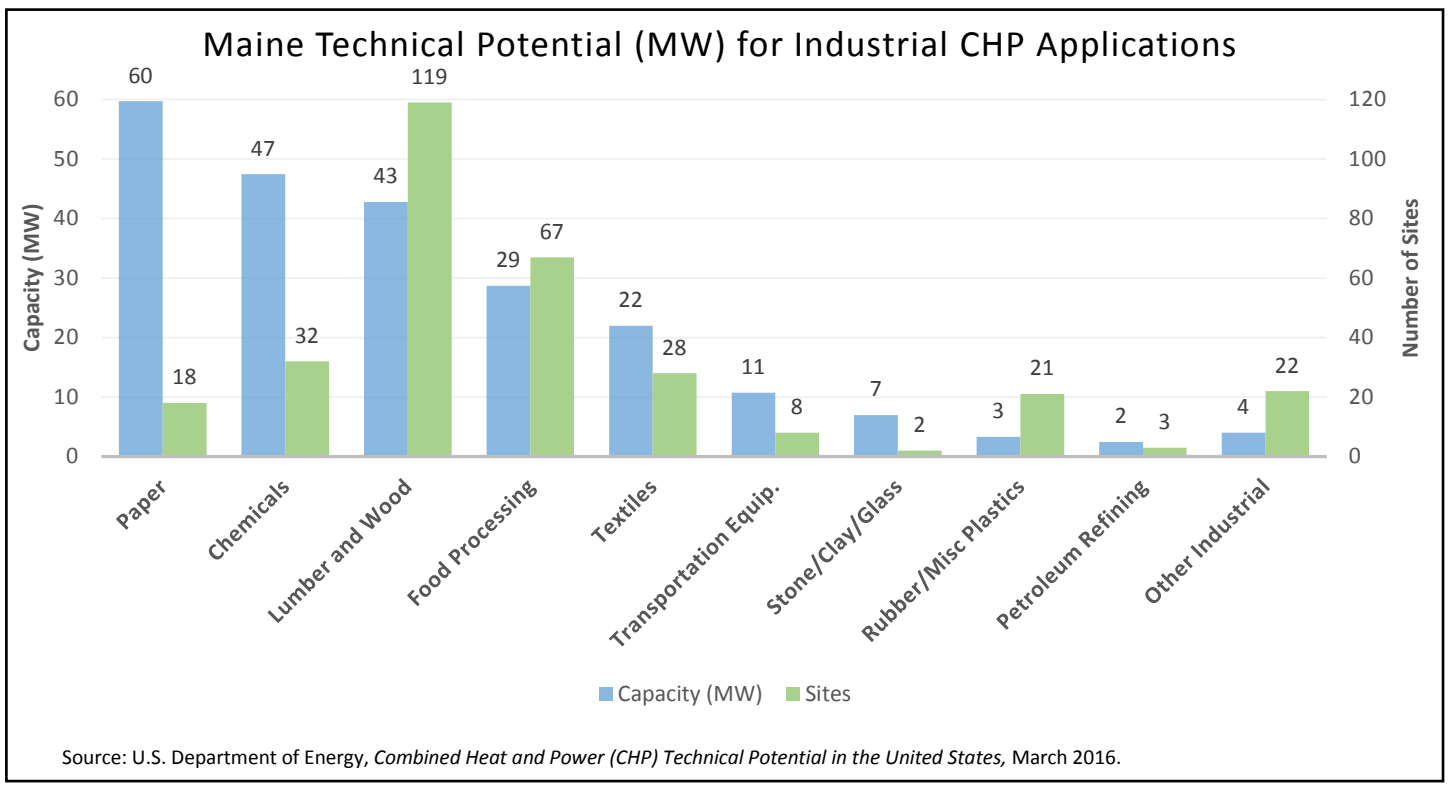
Maine Technical Potential for New CHP Installations

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

Sector	*Potential Sites*	*Potential Capacity (MW)*
Industrial	1,012	780
Commercial/Institutional	5,646	2,655
Total	**6,658**	**3,434**

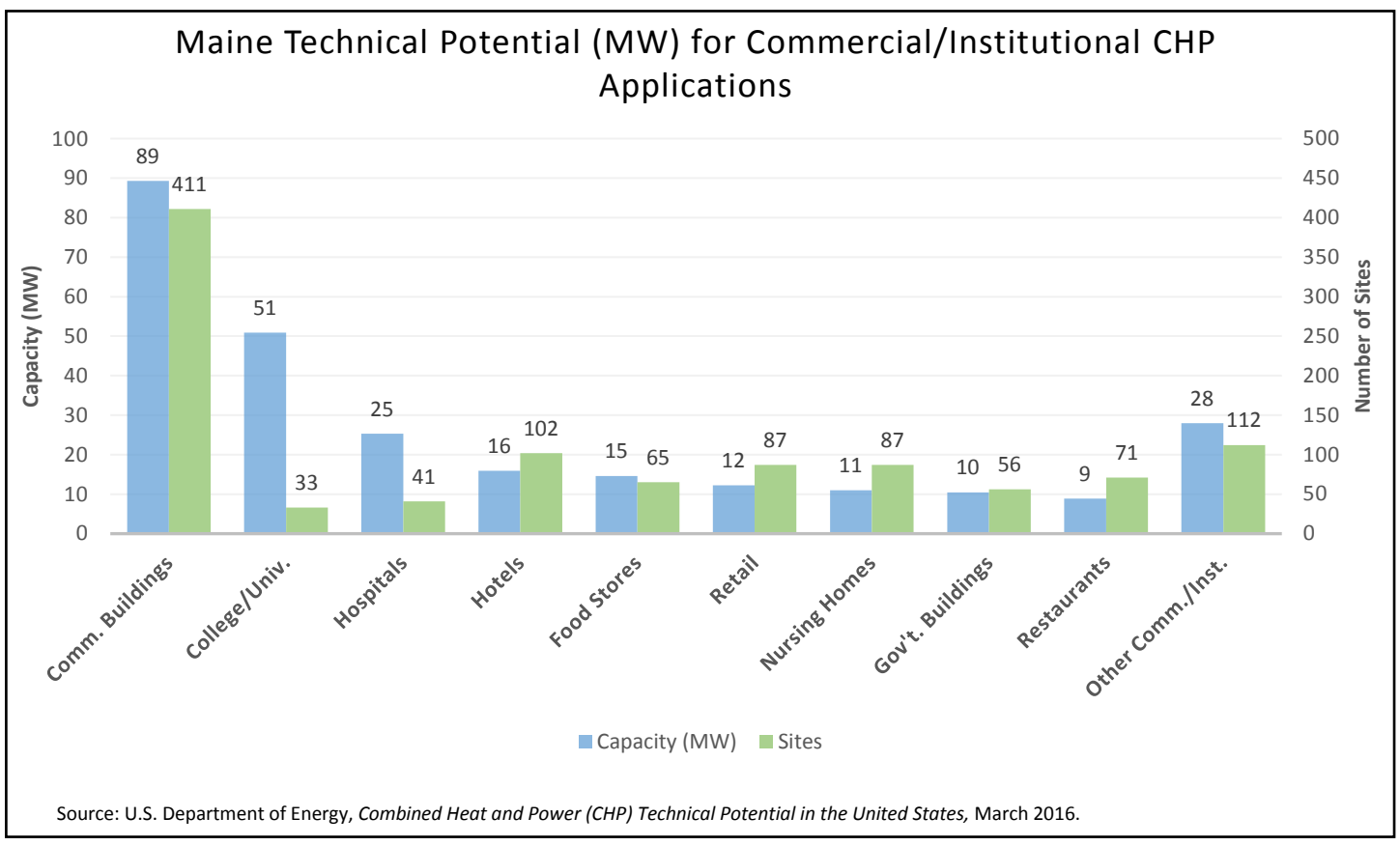


Source: U.S. Department of Energy, *Combined Heat and Power (CHP) Technical Potential in the United States,* March 2016.

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**
Paper	5	1	2	1	9	21	1	7	1	30	18	60
Chemicals	18	3	4	3	7	12	3	30	0	0	32	47
Lumber and Wood	101	17	10	7	8	19	0	0	0	0	119	43
Food Processing	50	8	10	8	7	12	0	0	0	0	67	29
Textiles	18	4	4	3	6	15	0	0	0	0	28	22
Other Industrial	48	7	4	3	3	10	1	7	0	0	56	27
Total	240	41	34	25	40	88	5	43	1	30	320	228

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	242	12	121	48	48	29	0	0	0	0	411	89
College/Univ.	18	3	4	3	8	19	3	25	0	0	33	51
Hospitals	24	6	9	6	8	14	0	0	0	0	41	25
Hotels	96	12	5	3	1	1	0	0	0	0	102	16
Food Stores	64	14	1	1	0	0	0	0	0	0	65	15
Other Comm./Inst.	388	43	17	11	6	10	1	5	0	0	413	70
Total	832	90	157	72	71	73	4	31	0	0	1,065	266

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

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Maine 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.

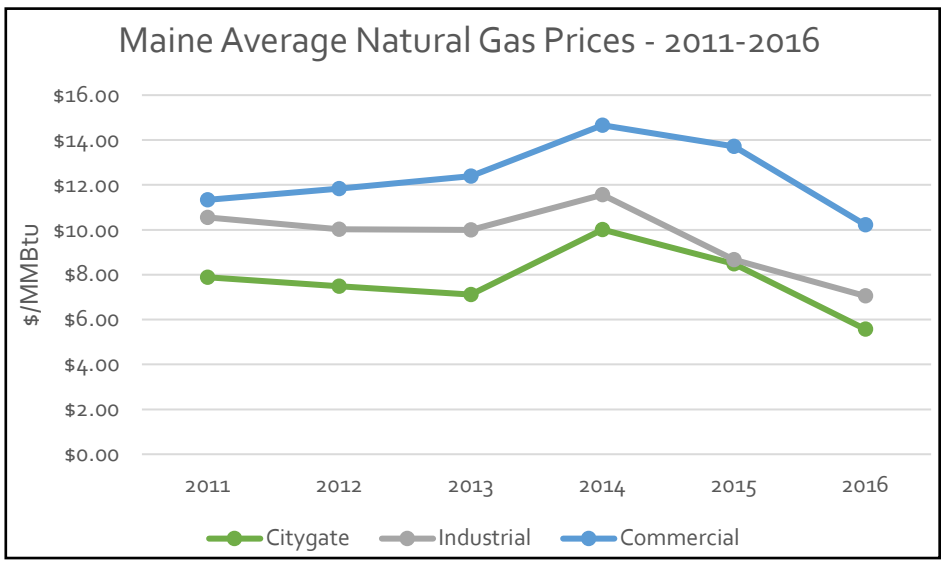
Maine Natural Gas Prices

Maine Average Gas Prices - 2016

Sector	*ME Price ($/MMBtu)*	*U.S. Price ($/MMBtu)*
Citygate*	5.57	3.75
Industrial	7.05	3.39
Commercial	10.22	7.22

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



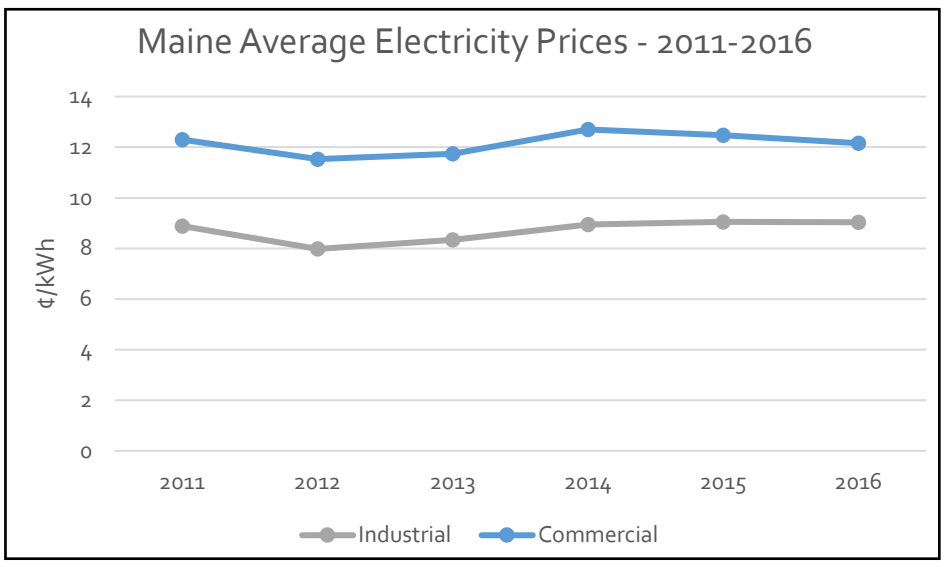
Maine Electricity Prices

Maine Average Electricity Prices - 2016

Sector	*ME Price (¢/kWh)*	*U.S. Price (¢/kWh)*
Industrial	5.73	6.75
Commercial	9.85	10.37

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

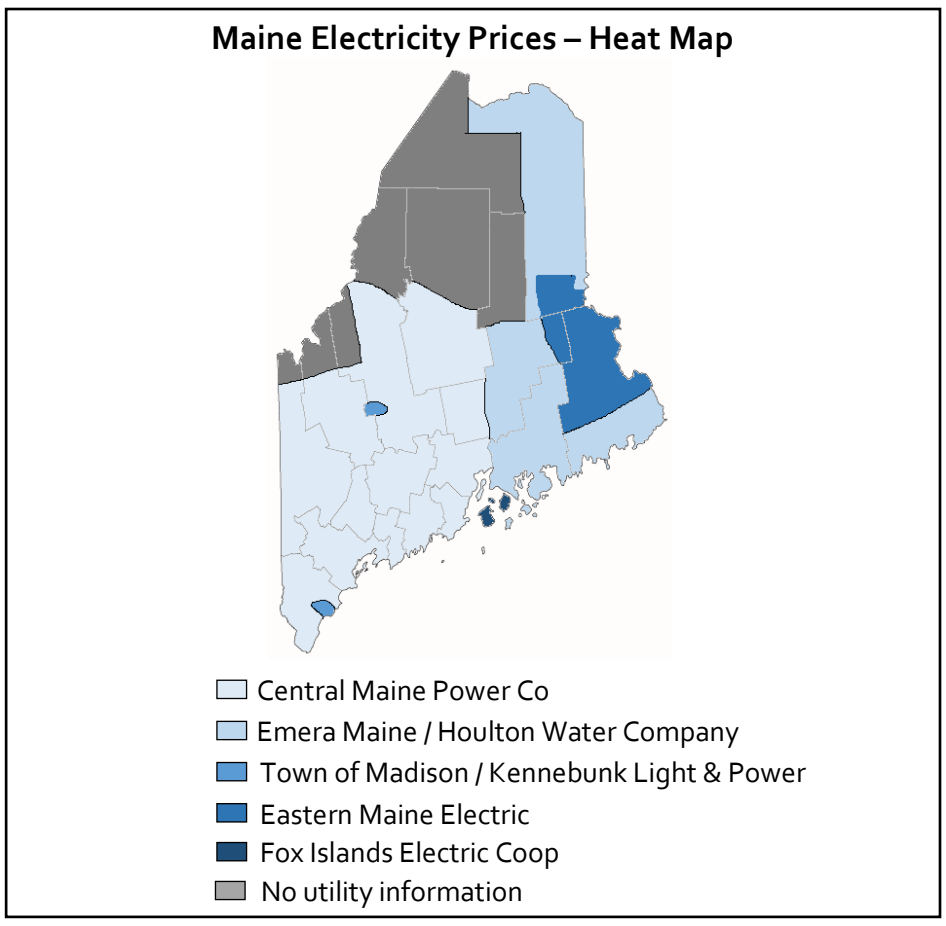
Electricity rates can vary greatly by utility and facility size range. The rates below from EIA represent general averages; individual facility rates may vary.



Maine Average Delivered Electricity Prices by Utility

Utility	*Industrial Price (¢/kWh)*	*Commercial Price (¢/kWh)*	*Average Price** (¢/kWh)*
Fox Islands Electric Coop	-	23.08	23.08
Eastern Maine Electric	13.69	15.22	14.45
Town of Madison	11.39	14.19	12.79
Kennebunk Light & Power	12.46	12.22	12.34
Emera Maine	10.52	13.05	11.79
Houlton Water Company	10.60	11.43	11.02
Central Maine Power Co	9.16	11.77	10.46

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

Northeast CHP Technical Assistance Partnership

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

Northeast CHP TAP Directors: Tom Bourgeois / Beka Kosanovic
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Email: tbourgeois@law.pace.edu / kosanovi@ecs.umass.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 Maine

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