The State of CHP: Maryland

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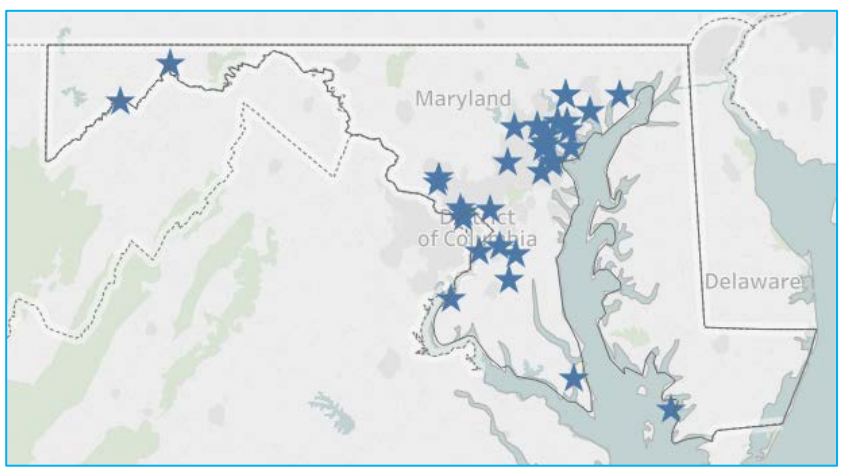
Installed CHP | CHP Technical Potential | CHP Economics | CHP Partners

Maryland Installed Base of CHP

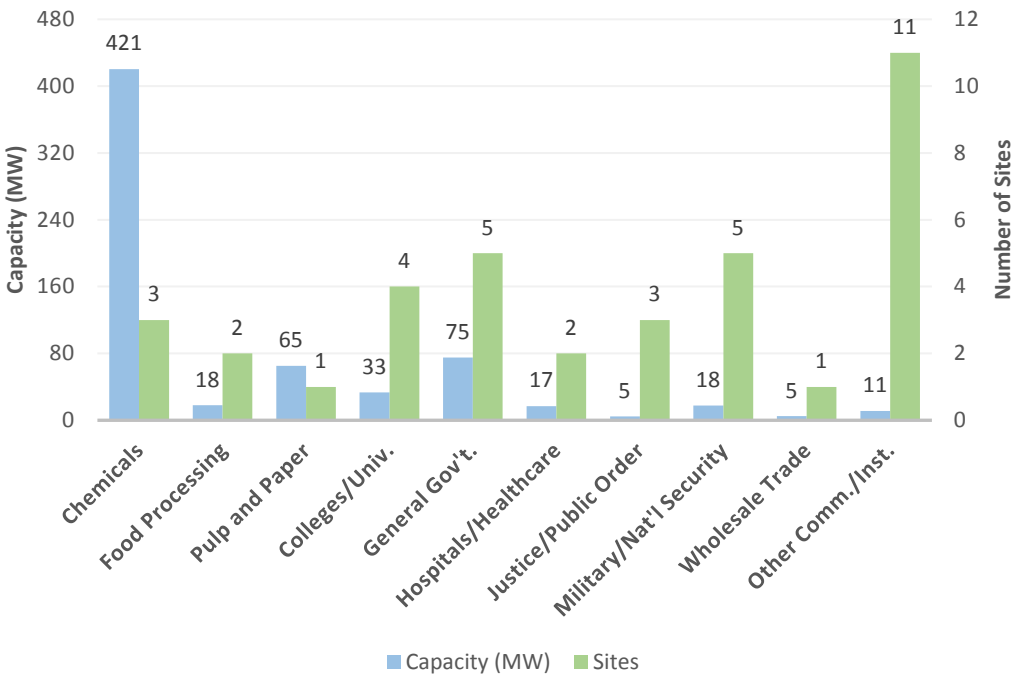
U.S. DOE Combined Heat and Power Installation Database

Sector	*Installations*	*Capacity (MW)*
Industrial	6	503
Commercial/Institutional	31	164
Other	0	0
Total	**37**	**668**

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

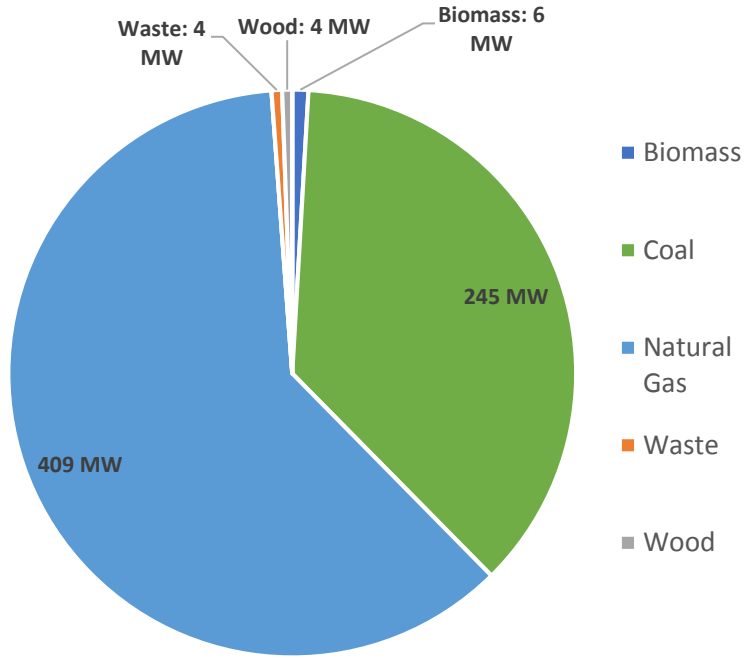


Maryland CHP by Application



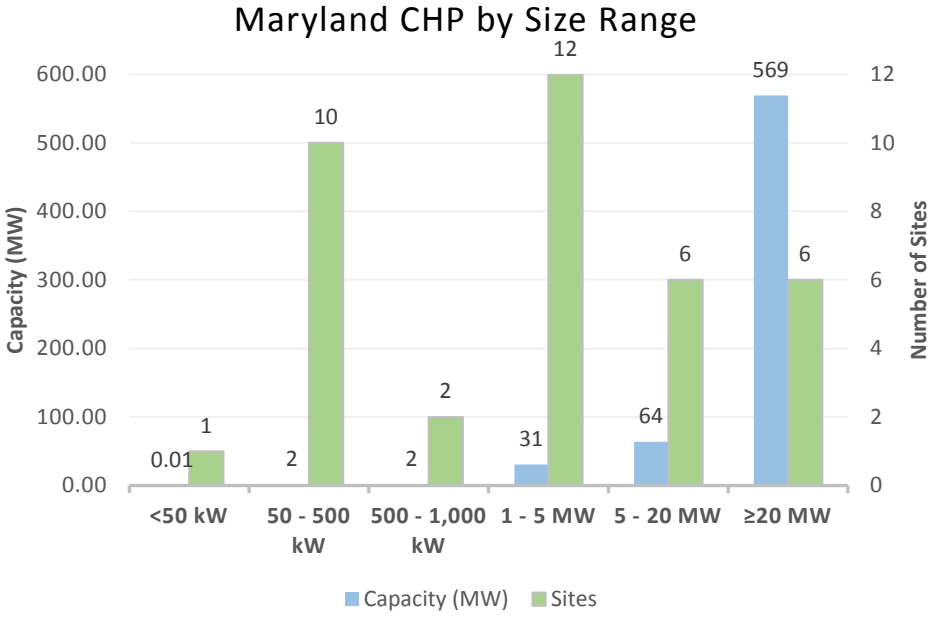
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Maryland CHP Capacity (MW) by Fuel Type



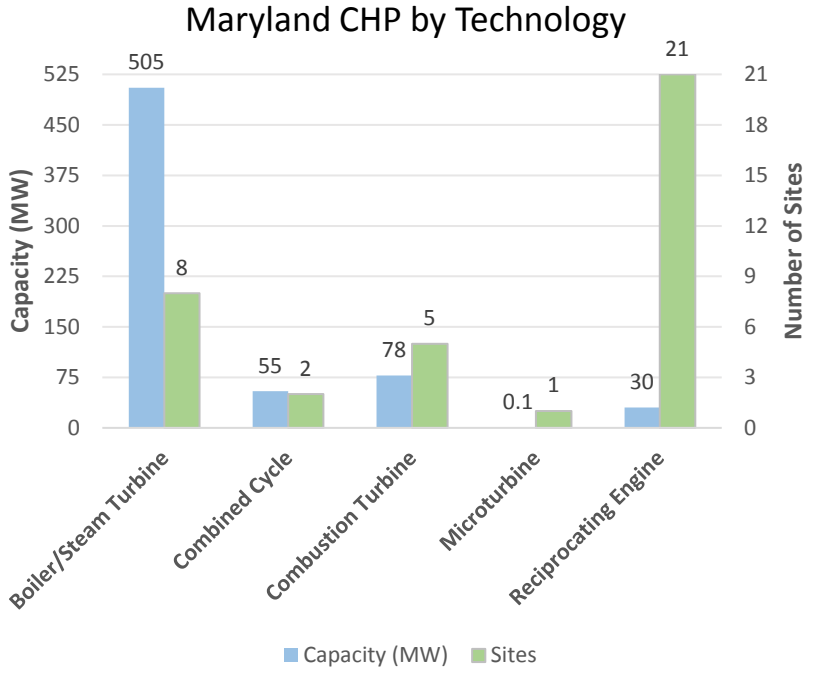
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Maryland CHP by Size Range



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

Maryland 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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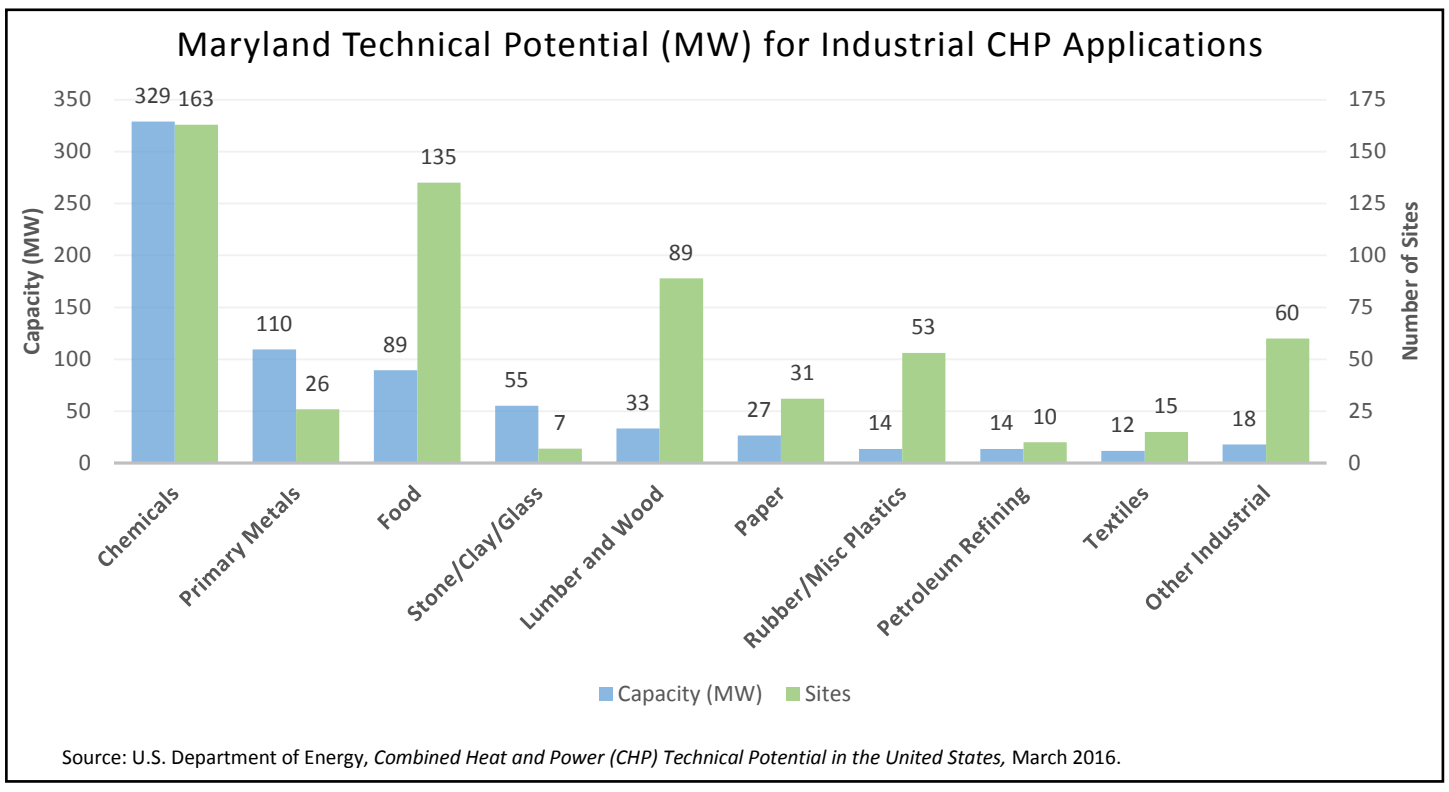
Maryland Technical Potential for New CHP Installations

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

Sector	*Potential Sites*	*Potential Capacity (MW)*
Industrial	589	701
Commercial/Institutional	4,331	1,944
Total	**4,920**	**2,645**

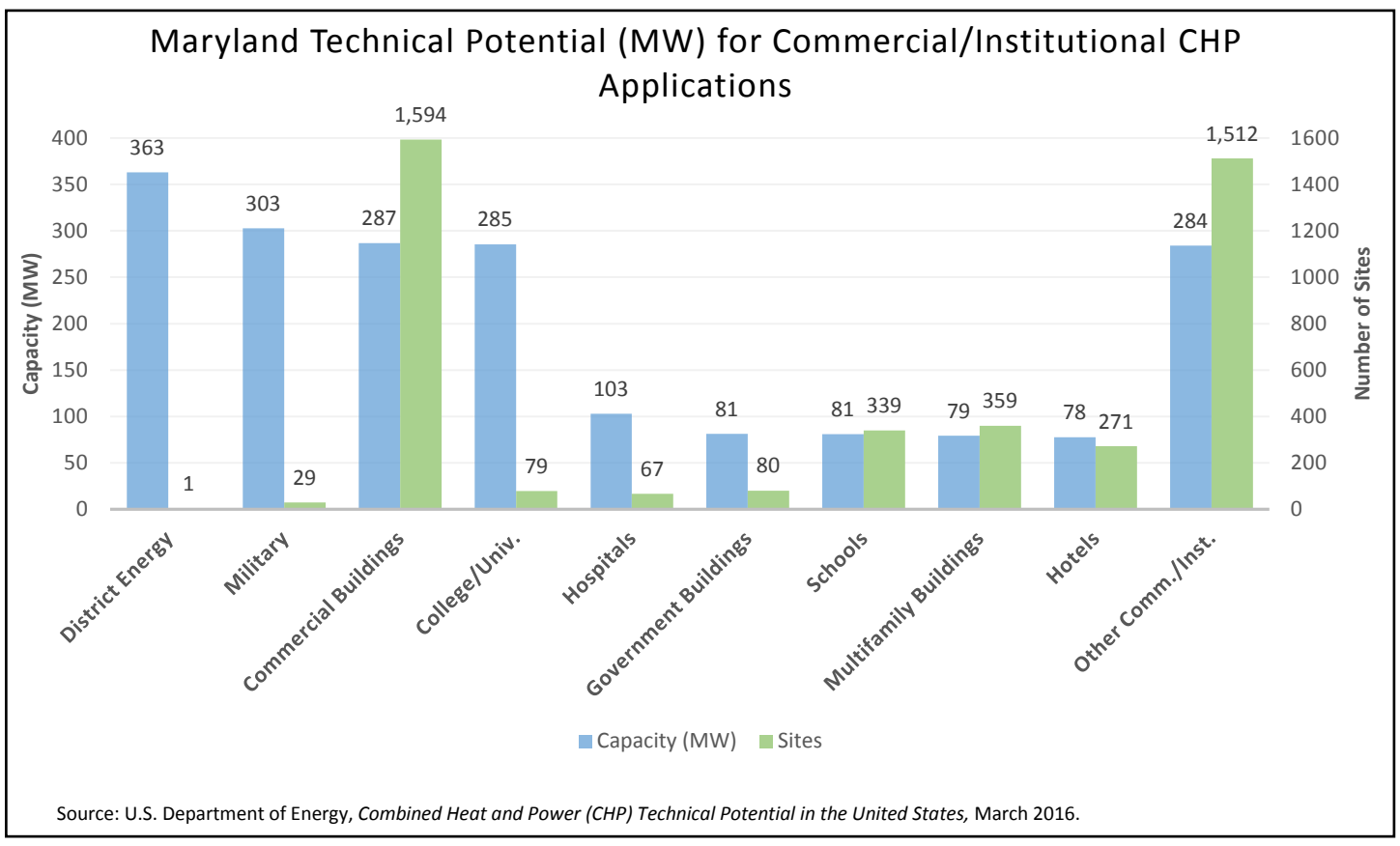


Source: U.S. Department of Energy, *Combined Heat and Power (CHP) Technical Potential in the United States,* March 2016.

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**
Chemicals	92	19	29	22	28	52	9	81	5	155	163	329
Primary Metals	13	3	7	5	3	3	1	6	2	93	26	110
Food	105	19	12	7	14	25	4	39	0	0	135	89
Stone/Clay/Glass	1	0.1	0	0	2	5	3	26	1	25	7	55
Lumber and Wood	70	12	12	8	7	13	0	0	0	0	89	33
Other Industrial	120	20	28	20	21	44	0	0	0	0	169	84
Total	401	72	88	63	75	142	17	151	8	273	589	701

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**
Military	10	2	3	2	10	23	5	54	1	222	29	303
Commercial Buildings	1,063	53	425	170	106	64	0	0	0	0	1,594	287
College/Univ.	34	7	6	4	22	53	13	103	4	119	79	285
Hospitals	12	4	16	11	38	82	1	6	0	0	67	103
Schools	317	67	22	13	0	0	0	0	0	0	339	81
Other Comm./Inst.	1,993	250	166	94	59	102	3	29	2	410	2,223	885
Total	3,429	384	638	295	235	323	22	191	7	750	4,331	1,944

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

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Maryland 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.

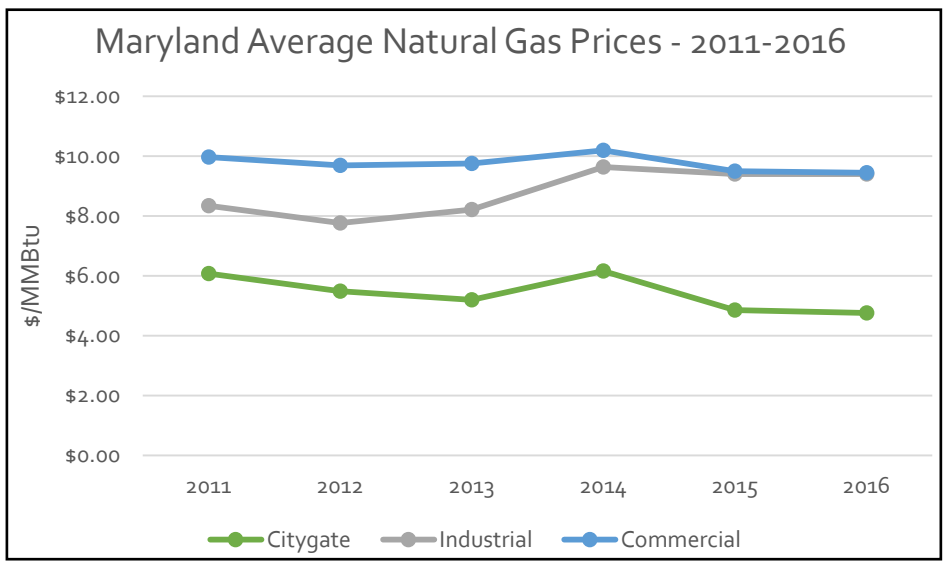
Maryland Natural Gas Prices

Maryland Average Gas Prices - 2016

Sector	*MD 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_SMD_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.



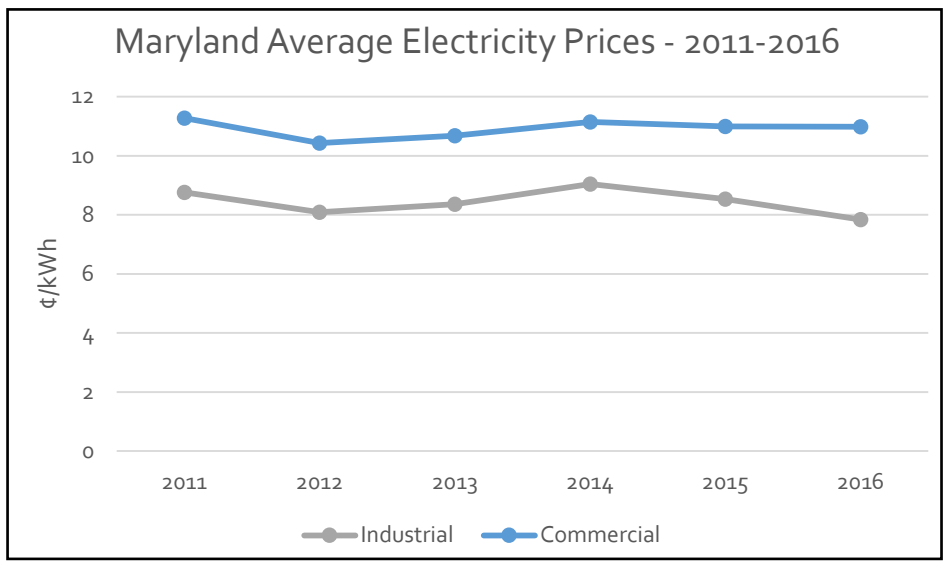
Maryland Electricity Prices

Maryland Average Electricity Prices - 2016

Sector	*MD Price (¢/kWh)*	*U.S. Price (¢/kWh)*
Industrial	7.84	6.75
Commercial	10.98	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.



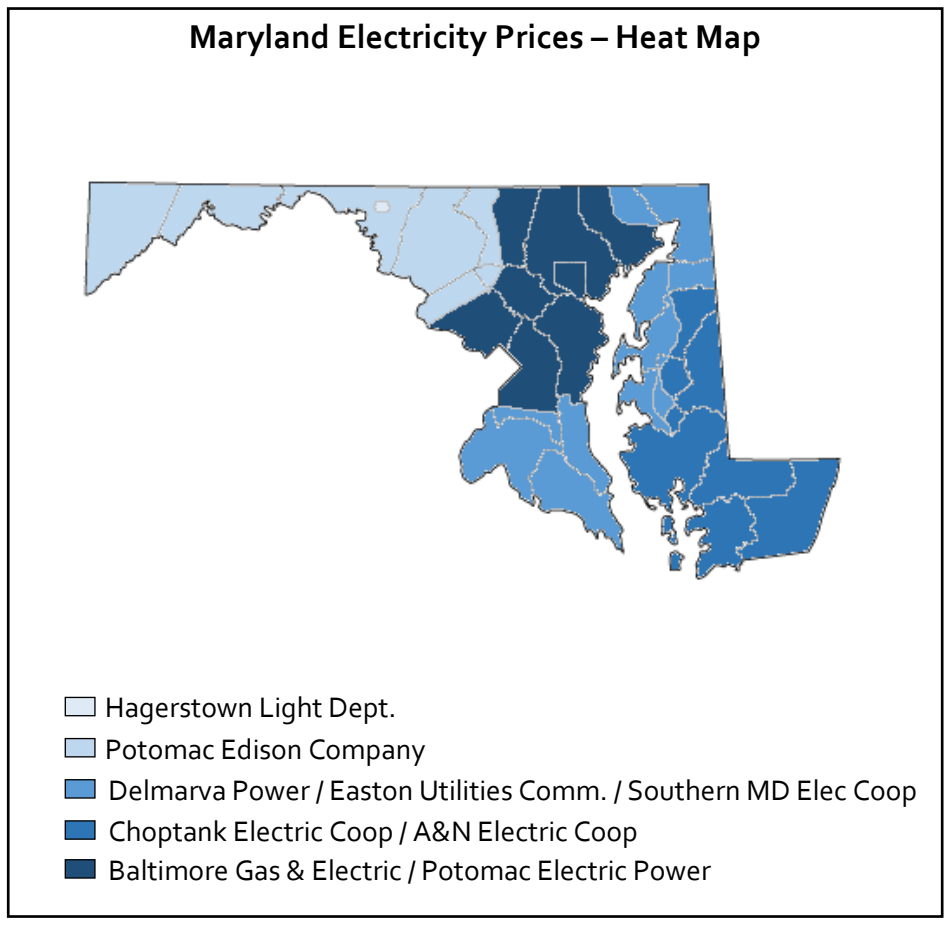
Maryland Average Delivered Electricity Prices by Utility

Utility	*Industrial Price (¢/kWh)*	*Commercial Price (¢/kWh)*	*Average Price** (¢/kWh)*
Baltimore Gas & Electric	11.71	12.99	12.35
Potomac Electric Power	-	12.28	12.28
Choptank Electric Coop	9.99	13.03	11.51
A&N Electric Coop	9.14	12.97	11.05
Delmarva Power	8.84	13.05	10.94
Easton Utilities Comm.	-	10.84	10.84
Southern MD Elec Coop	-	10.52	10.52
Potomac Edison Company	9.02	10.59	9.81
Hagerstown Light Dept.	6.73	8.01	7.37

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

Mid-Atlantic CHP Technical Assistance Partnership

U.S. Department of Energy
CHP Technical Assistance Partnerships
MID-ATLANTIC

Mid-Atlantic CHP TAP Director: Jim Freihaut
Phone: 814-863-0083
Email: jdf11@psu.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.

- Maryland Department of Commerce
- Montgomery County

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