

The State of CHP: Alaska



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

Installed CHP

CHP Technical Potential

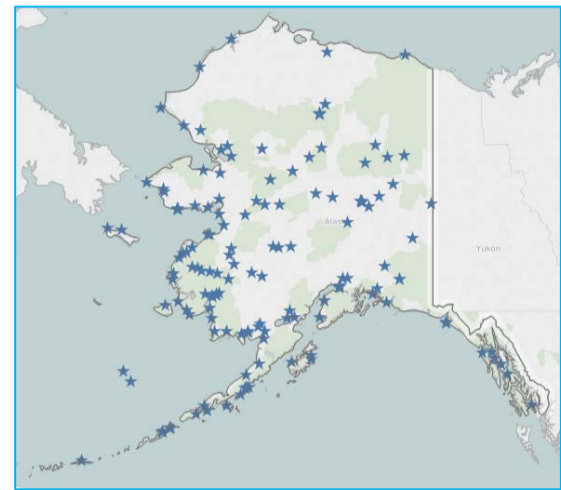
CHP Economics

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Alaska Installed Base of CHP

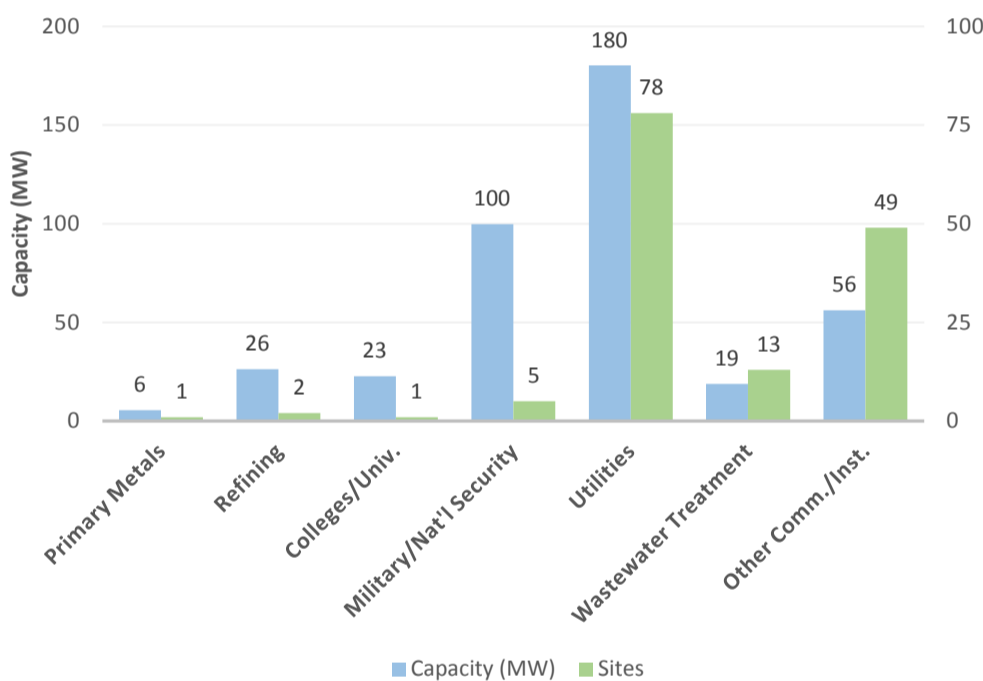
[U.S. DOE Combined Heat and Power Installation Database](#)

Sector	Installations	Capacity (MW)
Industrial	12	128
Commercial/Institutional	145	375
Other	1	3
Total	158	505



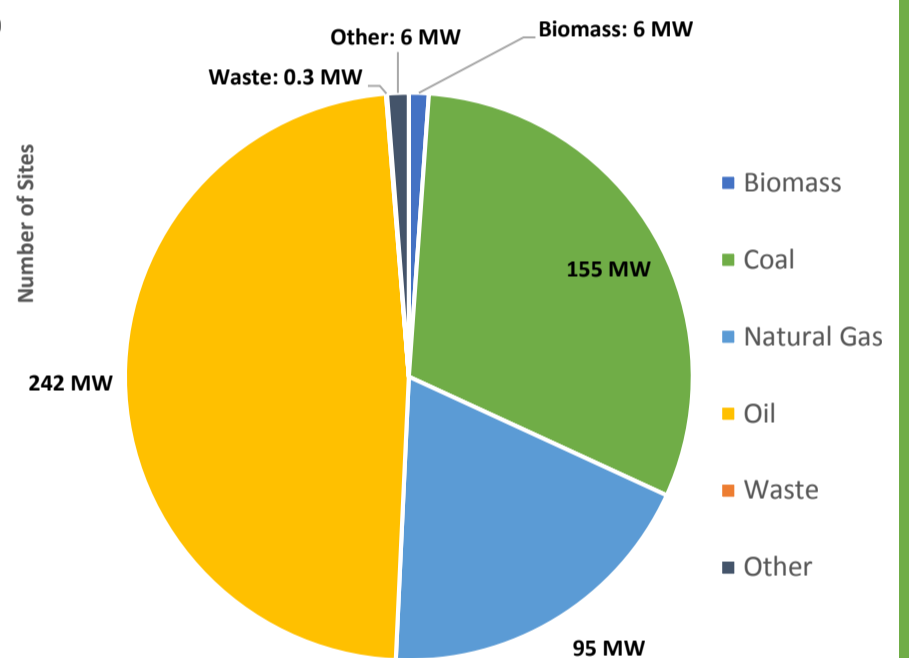
The Northwest CHP Technical Assistance Partnership has compiled information on certain illustrative CHP projects in Alaska. You can access these by visiting the Department of Energy's [CHP Project Profiles Database](#).

Alaska CHP by Application



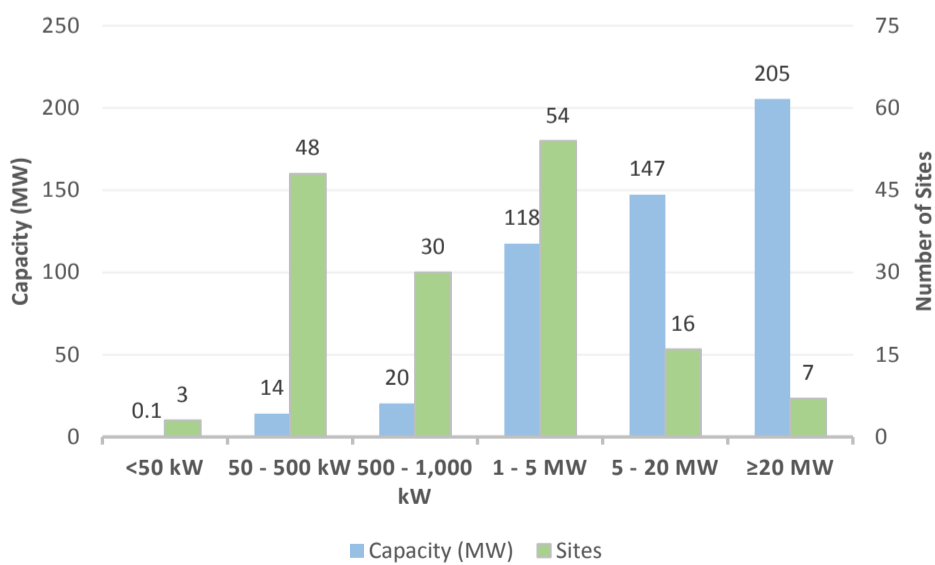
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Alaska CHP Capacity (MW) by Fuel Type



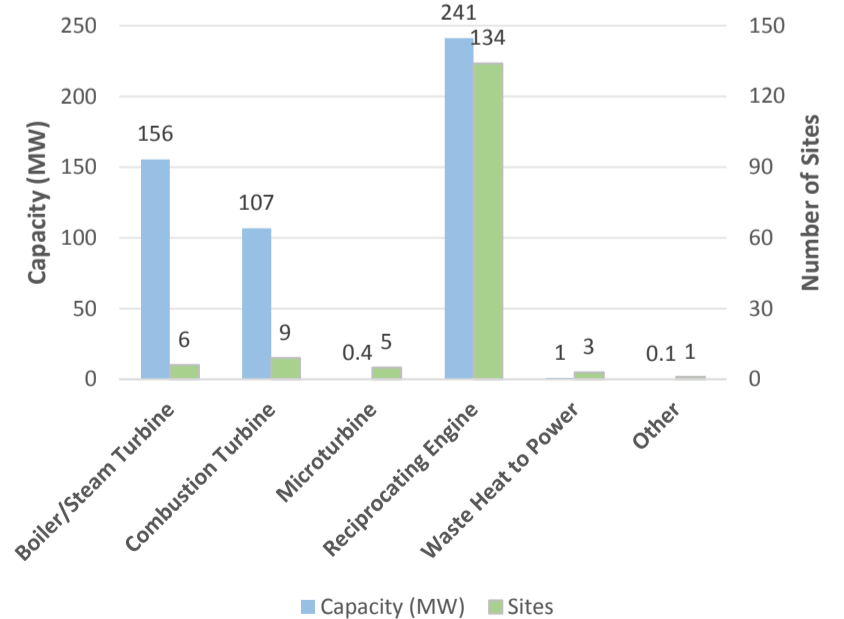
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Alaska CHP by Size Range



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

Alaska 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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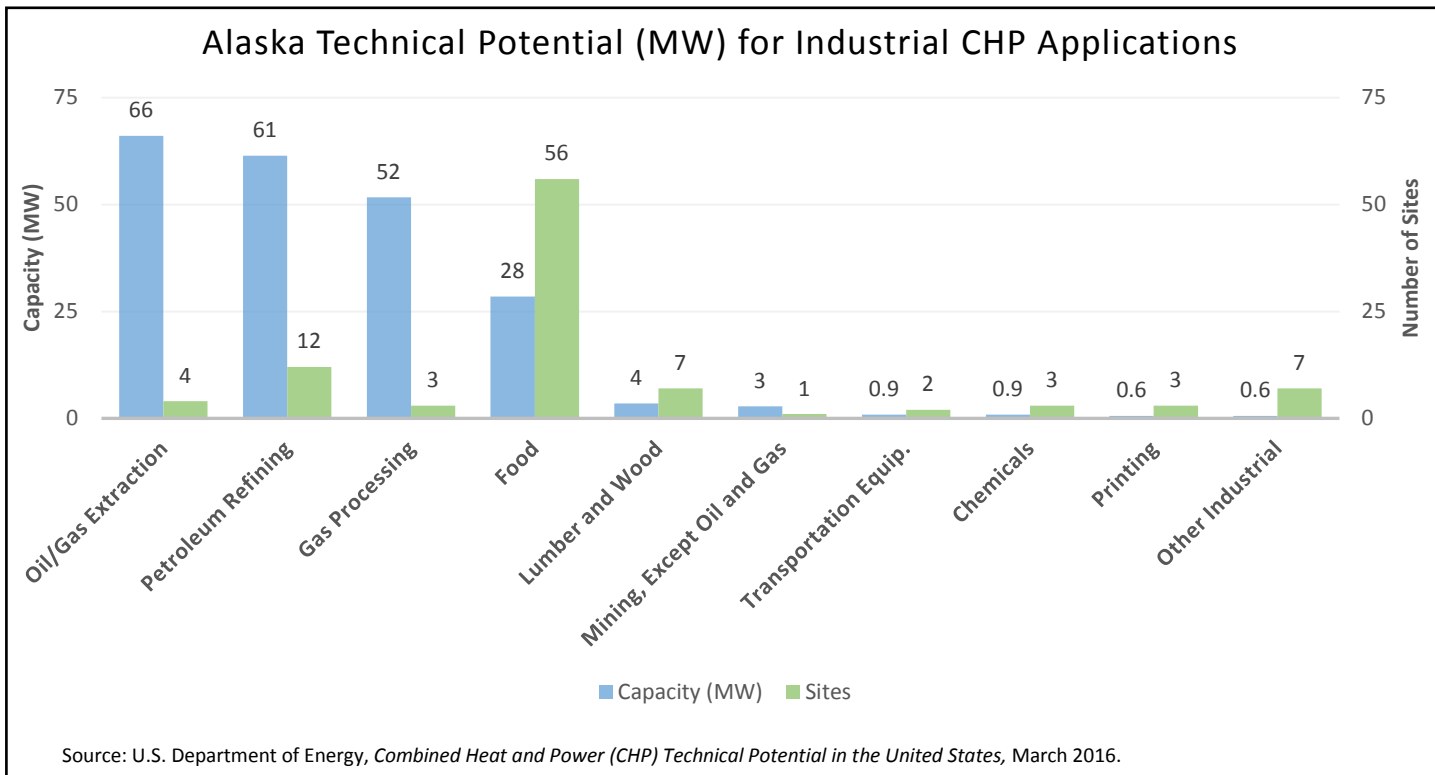
CHP Economics

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Alaska 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	98	217
Commercial/Institutional	534	191
Total	632	408

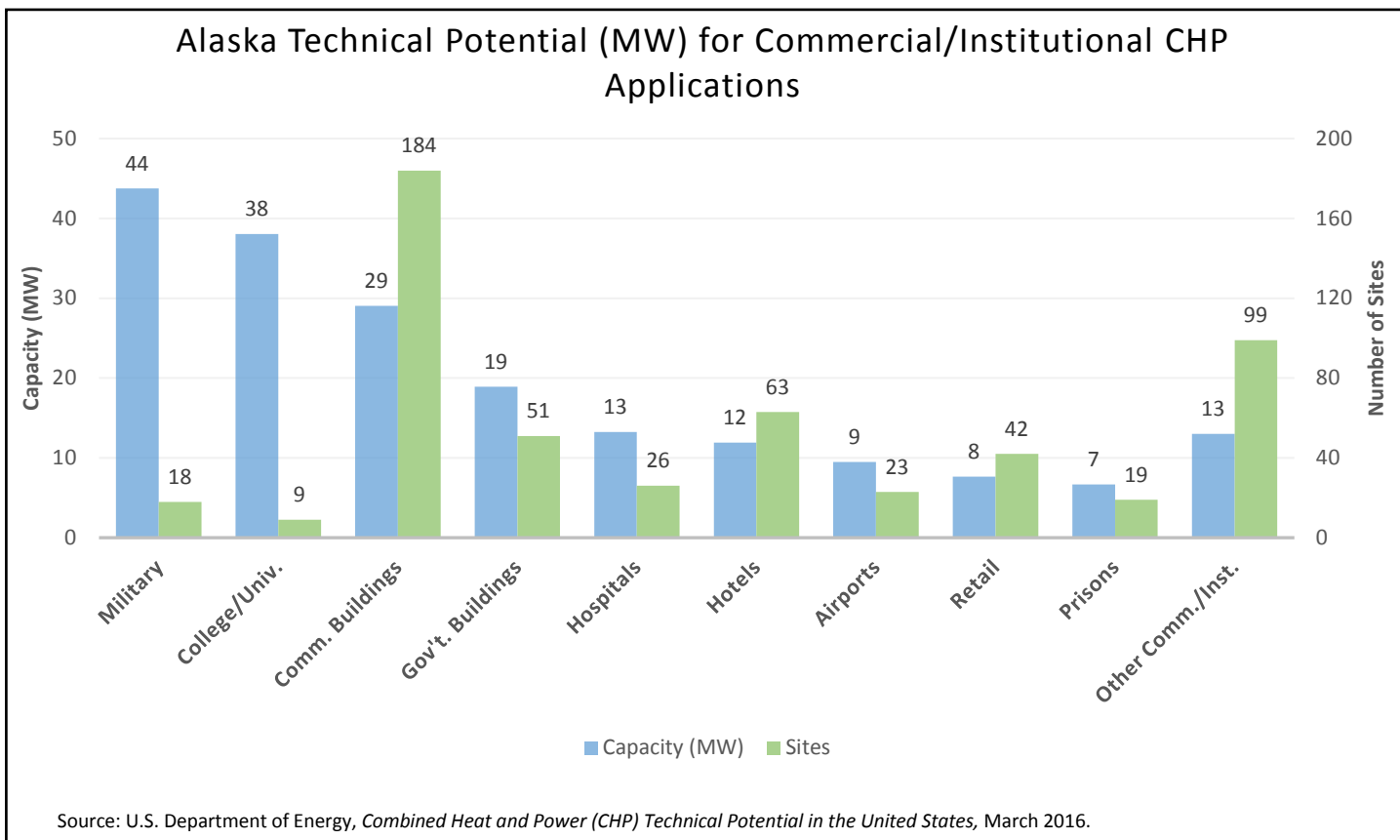


Source: U.S. Department of Energy, *Combined Heat and Power (CHP) Technical Potential in the United States*, March 2016.

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
Oil and Gas Extraction	1	0.1	0	0	2	6	0	0	1	60	4	66
Petroleum Refining	1	0	0	0	7	22	4	40	0	0	12	61
Gas Processing	0	0	0	0	2	4	0	0	1	47	3	52
Food	36	7	10	6	10	16	0	0	0	0	56	28
Lumber and Wood	5	1	1	1	1	2	0	0	0	0	7	4
Other Industrial	13	2	2	1	1	3	0	0	0	0	16	6
Total	56	9	13	8	23	52	4	40	2	107	98	217

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
Military	11	2	0	0	3	4	4	38	0	0	18	44
College/Univ.	5	1	2	1	0	0	1	7	1	29	9	38
Commercial Buildings	133	7	41	16	10	6	0	0	0	0	184	29
Government Buildings	44	6	4	3	2	3	1	8	0	0	51	19
Hospitals	19	4	3	2	4	7	0	0	0	0	26	13
Other Comm./Inst.	228	29	8	5	10	15	0	0	0	0	246	48
Total	440	48	58	27	29	35	6	53	1	29	534	191

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

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Alaska 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.

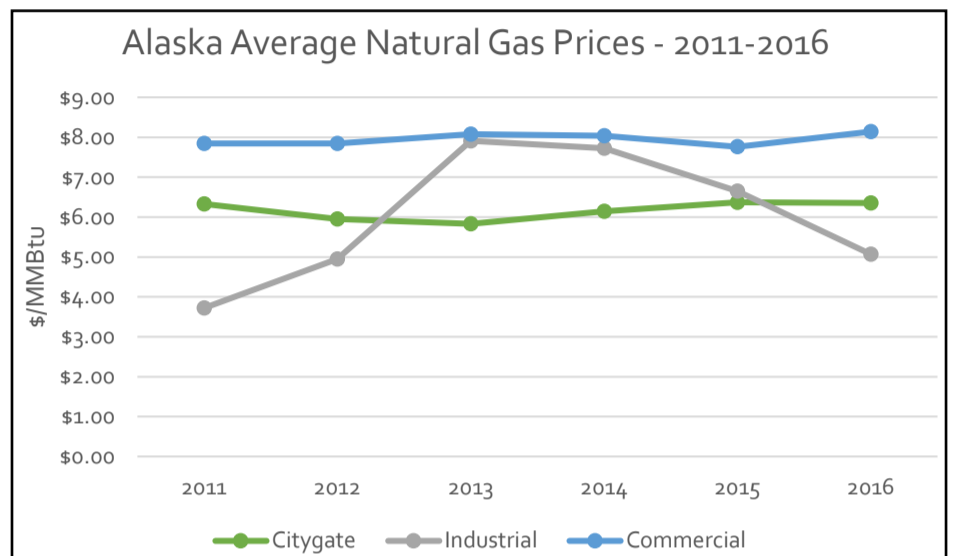
Alaska Natural Gas Prices

Alaska Average Gas Prices - 2016

Sector	AK Price (\$/MMBtu)	U.S. Price (\$/MMBtu)
Citygate*	6.35	3.75
Industrial	5.07	3.39
Commercial	8.14	7.22

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



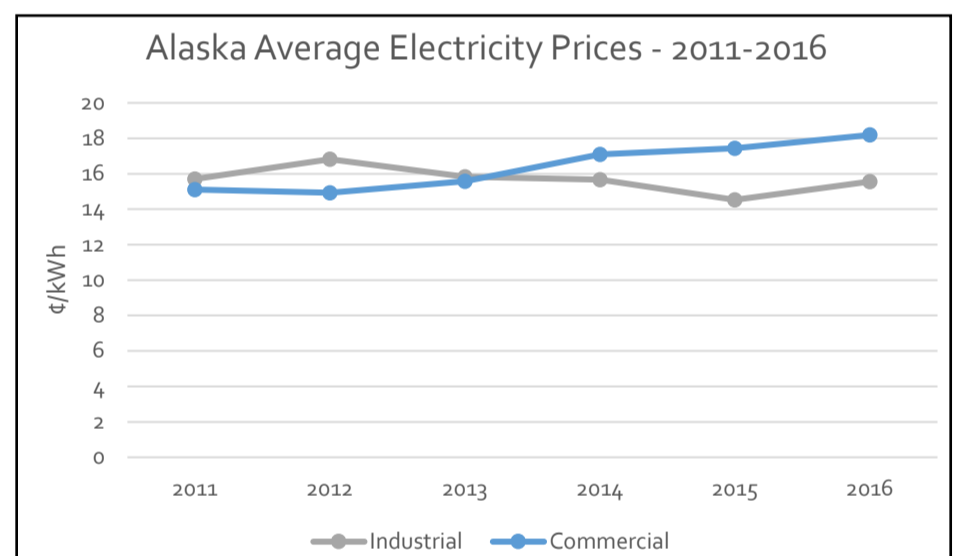
Alaska Electricity Prices

Alaska Average Electricity Prices - 2016

Sector	AK Price (¢/kWh)	U.S. Price (¢/kWh)
Industrial	15.56	6.75
Commercial	18.19	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.



Alaska Average Delivered Electricity Prices by Utility

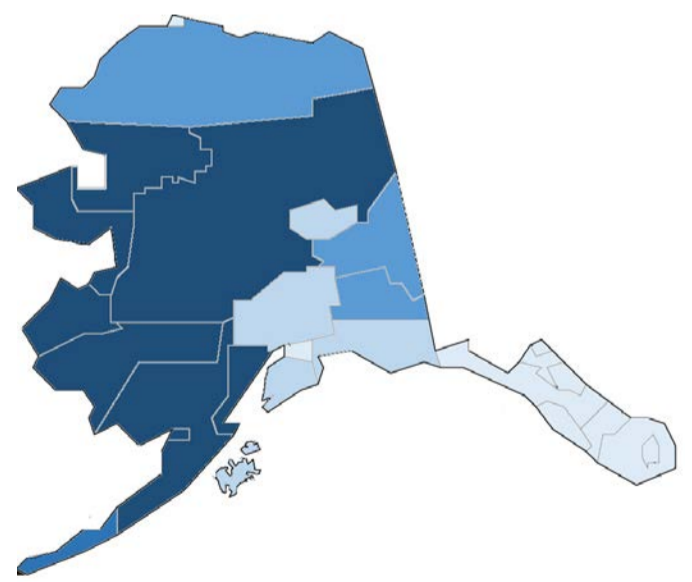
Utility	Industrial Price (¢/kWh)	Commercial Price (¢/kWh)	Average Price** (¢/kWh)
Alaska Village Elec Coop	-	48.55	48.55
City of Unalaska	31.48	35.69	33.58
North Slope Power & Light	-	28.02	28.02
Alaska Power & Telephone	-	25.47	25.47
Copper Valley Elec Assn	-	20.46	20.46
Golden Valley Elec Assn	15.06	19.39	17.22
Matanuska Electric Assn	-	16.90	16.90
Homer Electric Assn	11.19	22.17	16.68
Kodiak Electric Assn	15.50	16.58	16.04
Anchorage Light & Power	-	13.59	13.59
Chugach Electric Assn	12.29	13.64	12.96
Barrow Utils & Elec Assn	31.48	35.69	33.58
Southeast AK Munic Utils	10.22	12.02	11.28
Alaska Elec Light & Power	9.45	9.75	9.60

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.

Alaska Electricity Prices – Heat Map



- Lightest Blue: Anchorage / Chugach / Barrow / Southeast / Alaska Elec Light
- Light Blue: Copper Valley / Golden Valley / Matanuska / Homer / Kodiak
- Medium Blue: North Slope Power & Light / Alaska Power & Telephone
- Dark Blue: City of Unalaska
- Darkest Blue: Alaska Village Elec Coop

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CHP Technical
Potential

CHP Economics

CHP Partners

Department of Energy CHP Partnerships

Northwest CHP Technical Assistance Partnership



U.S. DEPARTMENT OF ENERGY
CHP Technical Assistance Partnerships
NORTHWEST

Northwest CHP TAP Director: David Van Holde
Phone: 360-956-2071
Email: vanholded@energy.wsu.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 Alaska.

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U.S. DEPARTMENT OF ENERGY
CHP Technical Assistance Partnerships