

The State of CHP: Oregon



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

Installed CHP

CHP Technical Potential

CHP Economics

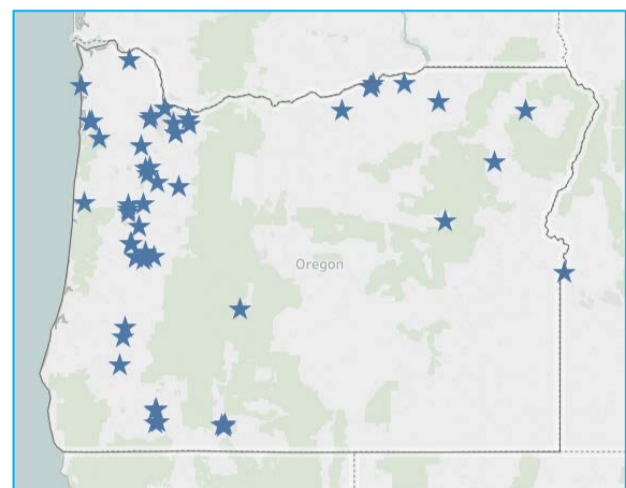
CHP Partners

Oregon Installed Base of CHP

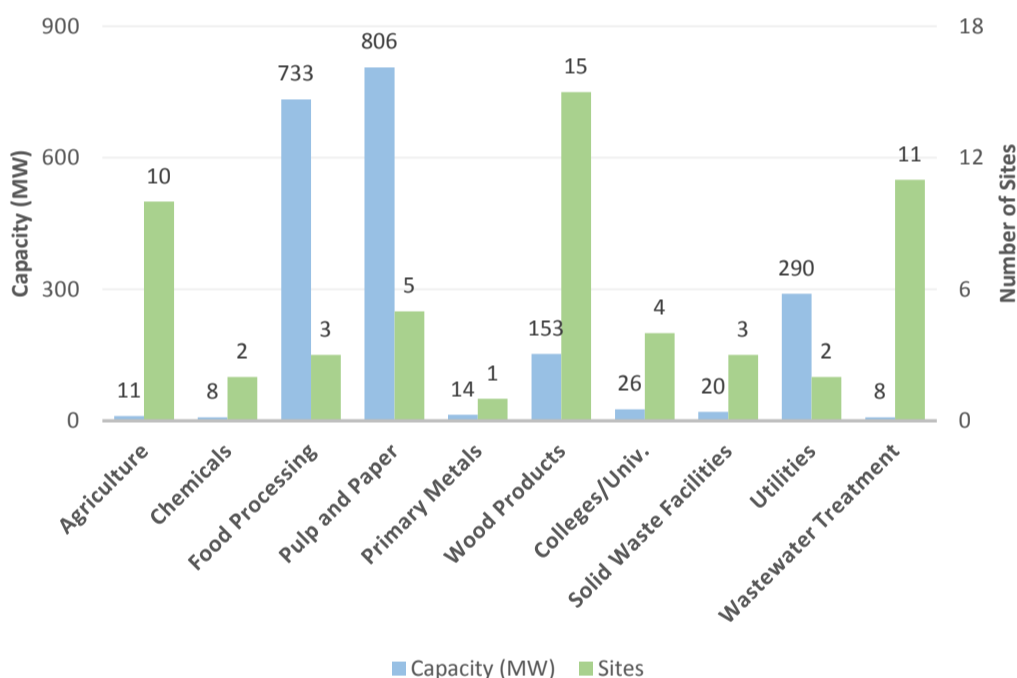
[U.S. DOE Combined Heat and Power Installation Database](#)

Sector	Installations	Capacity (MW)
Industrial	26	1,714
Commercial/Institutional	20	345
Other	10	11
Total	56	2,070

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

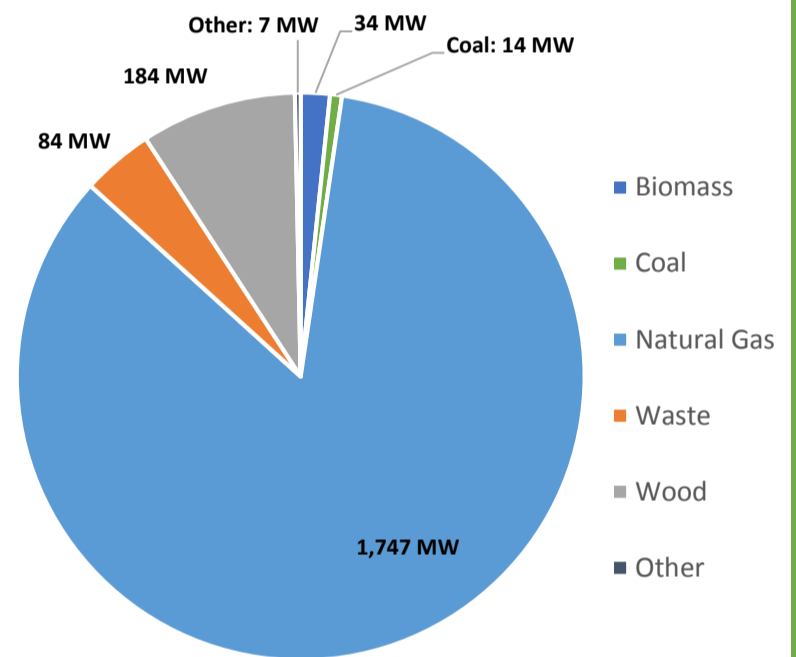


Oregon CHP by Application



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

Oregon CHP Capacity (MW) by Fuel Type



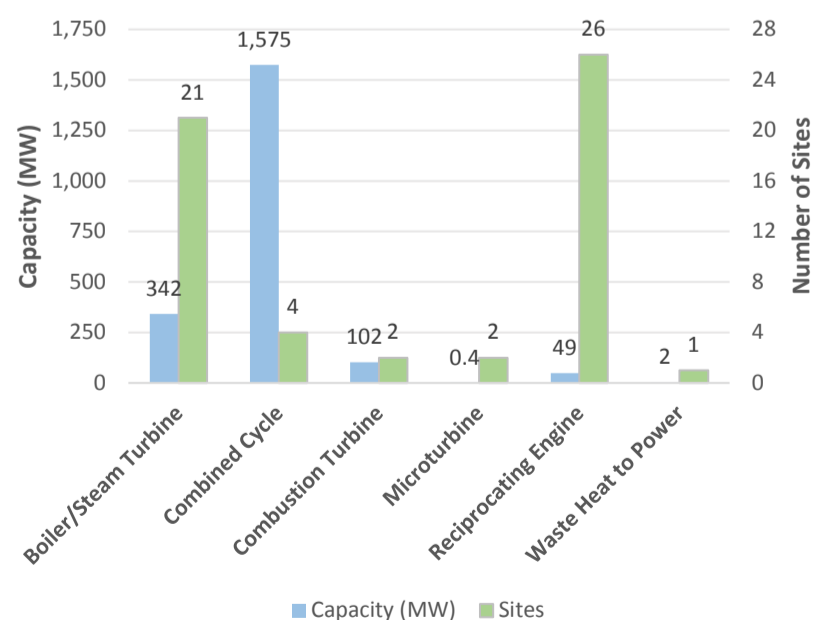
Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2016)

Oregon CHP by Size Range



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

Oregon 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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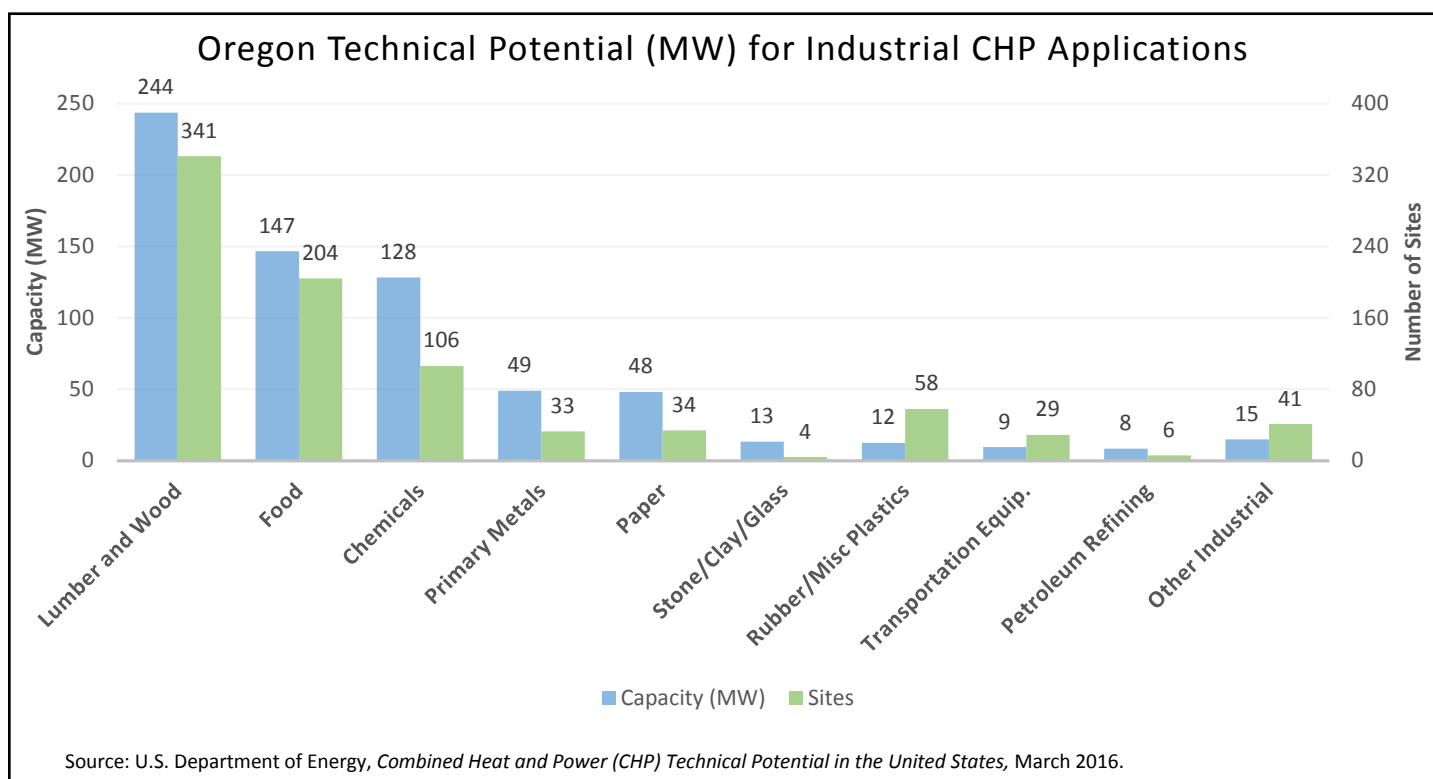
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Oregon Technical Potential for New CHP Installations

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

Sector	Potential Sites	Potential Capacity (MW)
Industrial	856	674
Commercial/Institutional	2,610	667
Total	3,466	1,342

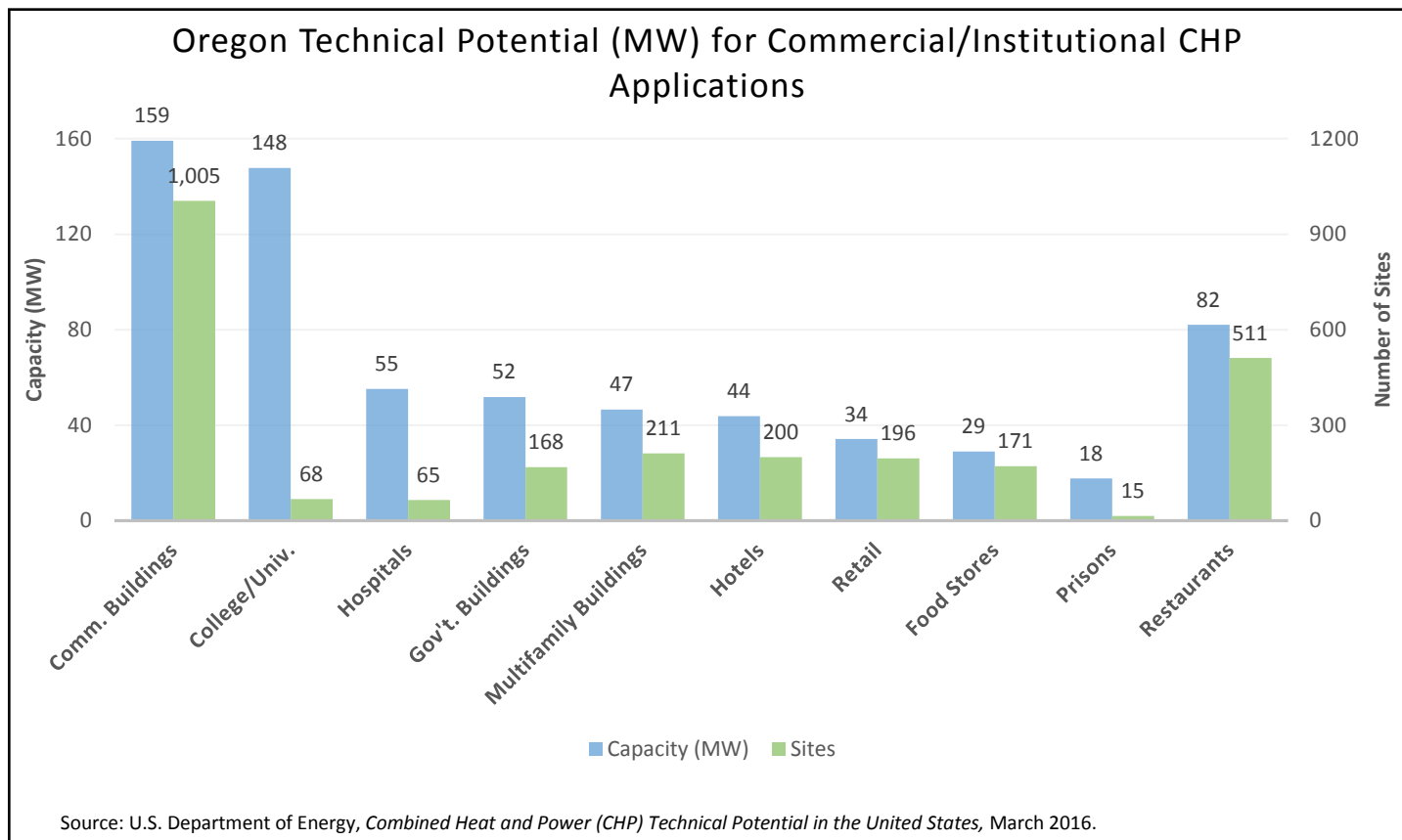


Source: U.S. Department of Energy, *Combined Heat and Power (CHP) Technical Potential in the United States*, March 2016.

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
Lumber and Wood	240	43	48	33	43	92	10	75	0	0	341	244
Food	146	30	19	15	34	59	5	44	0	0	204	147
Chemicals	69	11	14	10	19	46	3	23	1	39	106	128
Primary Metals	20	5	4	3	7	16	2	25	0	0	33	49
Paper	18	5	3	2	11	24	2	18	0	0	34	48
Other Industrial	116	18	6	4	16	37	0	0	0	0	138	59
Total	609	111	94	66	130	273	22	185	1	39	856	674

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	726	36	223	89	56	34	0	0	0	0	1,005	159
College/Univ.	34	6	5	3	21	60	7	55	1	23	68	148
Hospitals	37	9	12	8	16	38	0	0	0	0	65	55
Government Buildings	132	17	27	20	9	15	0	0	0	0	168	52
Multifamily Buildings	149	11	54	27	8	8	0	0	0	0	211	47
Other Comm./Inst.	1,044	131	26	17	21	46	2	12	0	0	1,093	207
Total	2,122	211	347	164	131	202	9	67	1	23	2,610	667

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

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Oregon 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.

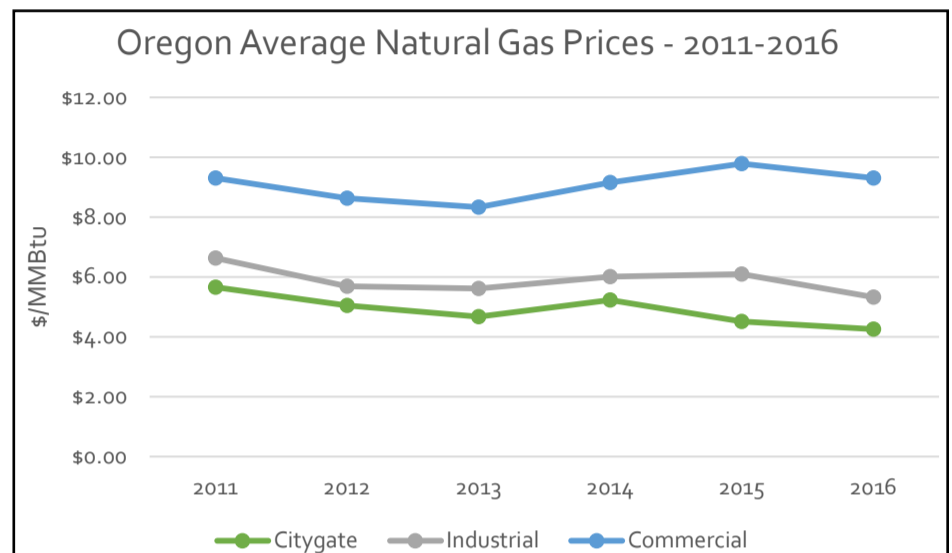
Oregon Natural Gas Prices

Oregon Average Gas Prices - 2016

Sector	OR Price (\$/MMBtu)	U.S. Price (\$/MMBtu)
Citygate*	4.25	3.75
Industrial	5.33	3.39
Commercial	9.30	7.22

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



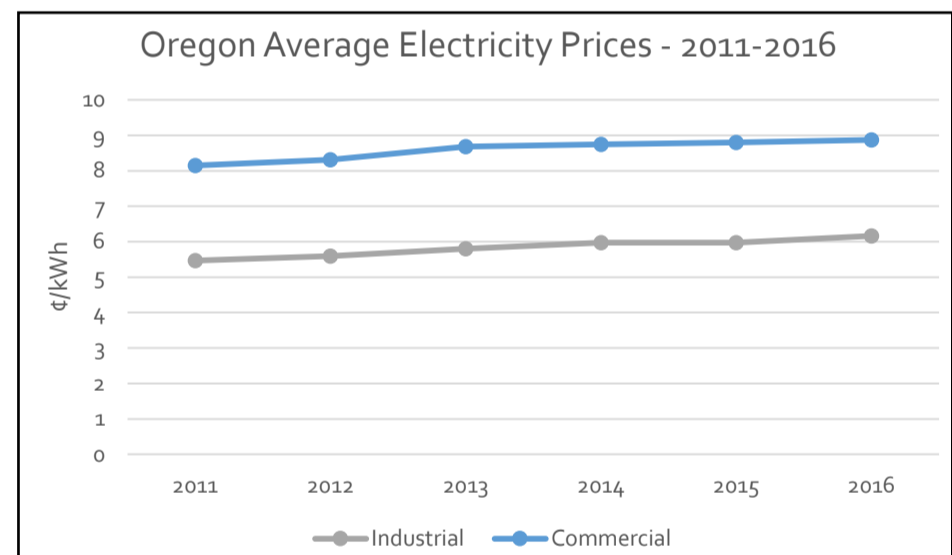
Oregon Electricity Prices

Oregon Average Electricity Prices - 2016

Sector	OR Price (¢/kWh)	U.S. Price (¢/kWh)
Industrial	6.16	6.75
Commercial	8.87	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.



Oregon Average Delivered Electricity Prices by Utility

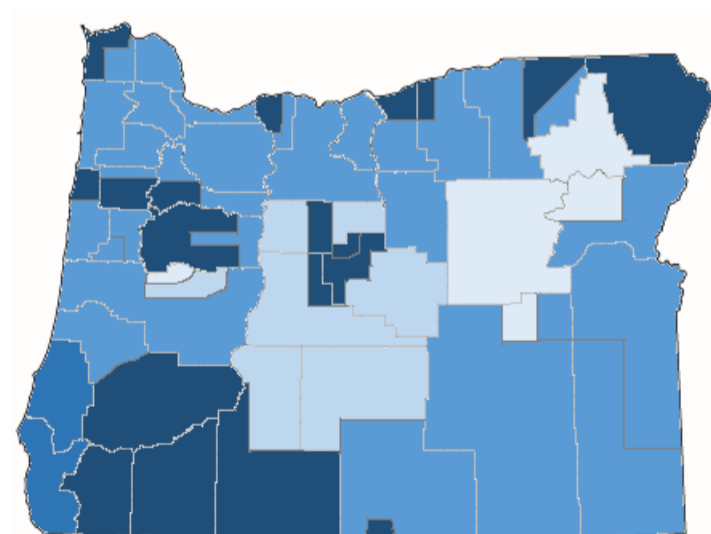
Utility	Industrial Price (¢/kWh)	Commercial Price (¢/kWh)	Average Price** (¢/kWh)
PacifiCorp	14.00	9.10	11.55
Coos-Curry Electric Coop	8.18	10.29	9.23
Portland General Electric	6.46	9.24	7.85
Idaho Power Co	6.60	8.12	7.36
City of Eugene	5.10	8.87	6.98
Midstate Electric Coop	6.70	7.03	6.86
Central Electric Coop	6.06	7.45	6.75
Oregon Trail El Cons Coop	5.22	7.08	6.15
City of Springfield	5.39	6.08	5.74

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.

Oregon Electricity Prices – Heat Map



- Oregon Trail El Cons Coop / City of Springfield
- City of Eugene / Midstate Electric Coop / Central Electric Coop
- Portland General Electric / Idaho Power Co / Other utilities
- Coos-Curry Electric Coop
- PacifiCorp

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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

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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](#).

- Amity School District

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U.S. DEPARTMENT OF ENERGY
CHP Technical Assistance Partnerships