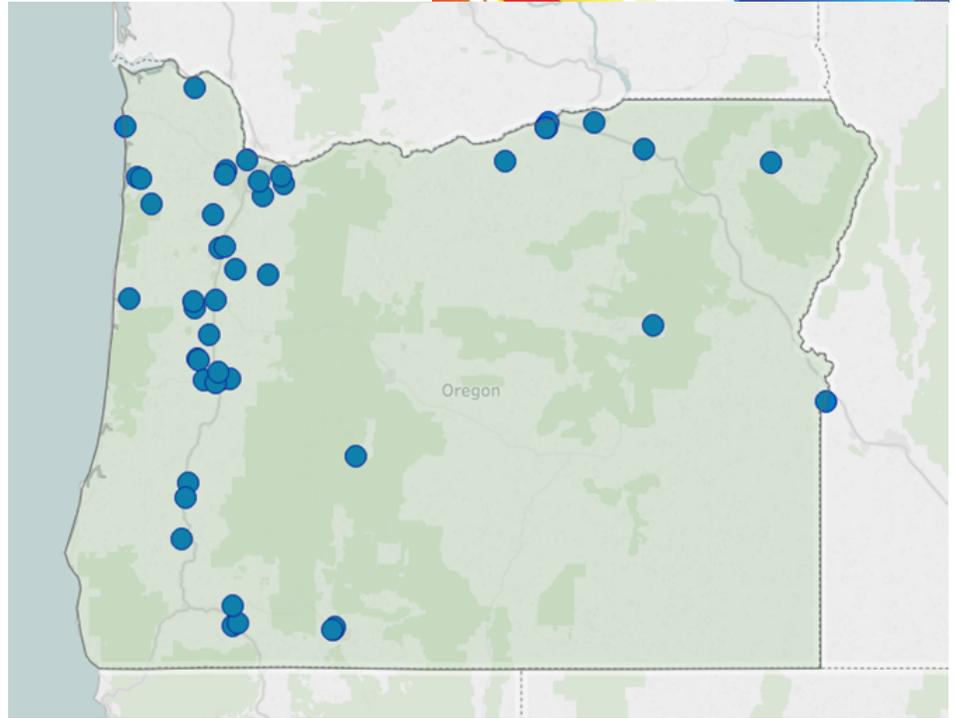


The State of CHP: Oregon



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 Oregon, with data on current installations, technical potential, and economics for CHP.



Map of current CHP installations in Oregon. Illustration from ICF.

Oregon: 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 Oregon, and can be accessed by visiting energy.gov/chp-installs.

CHP Project Profiles

The Northwest CHP TAP 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 at energy.gov/chp-projects.

Northwest CHP Technical Assistance Partnership

For assistance with questions about specific CHP opportunities in Oregon, please consult with the Northwest CHP TAP by visiting nwchptap.org or contacting the CHP TAP director.

Oregon Existing CHP

Sector	Sites	Capacity (MW)
Industrial	22	1,688
Commercial/Institutional	19	343
Other	8	11
Total	49	2,042

Northwest CHP TAP Director

David Van Holde, P.E.

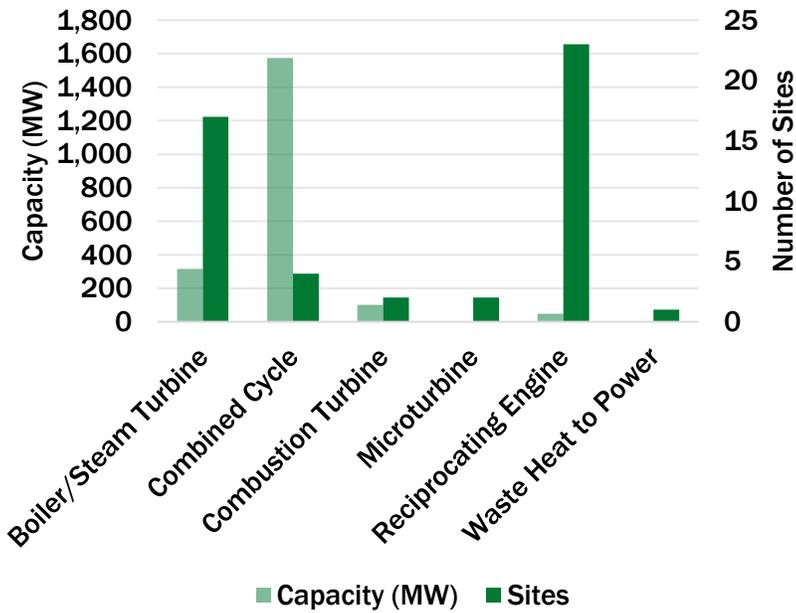
- Washington State University
- vanholded@energy.wsu.edu
- 360-956-2071

NORTHWEST

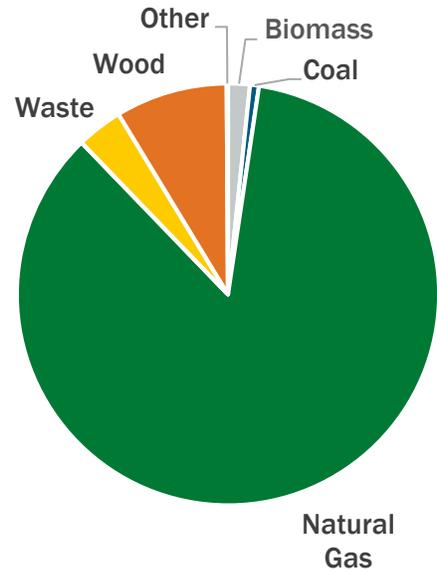


CHP
TECHNICAL ASSISTANCE
PARTNERSHIPS

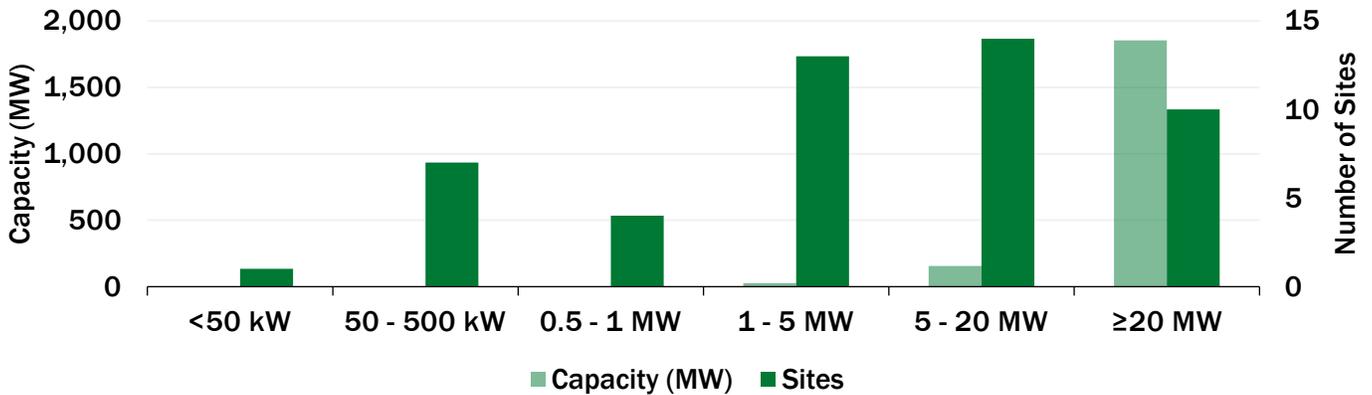
Oregon CHP by Technology



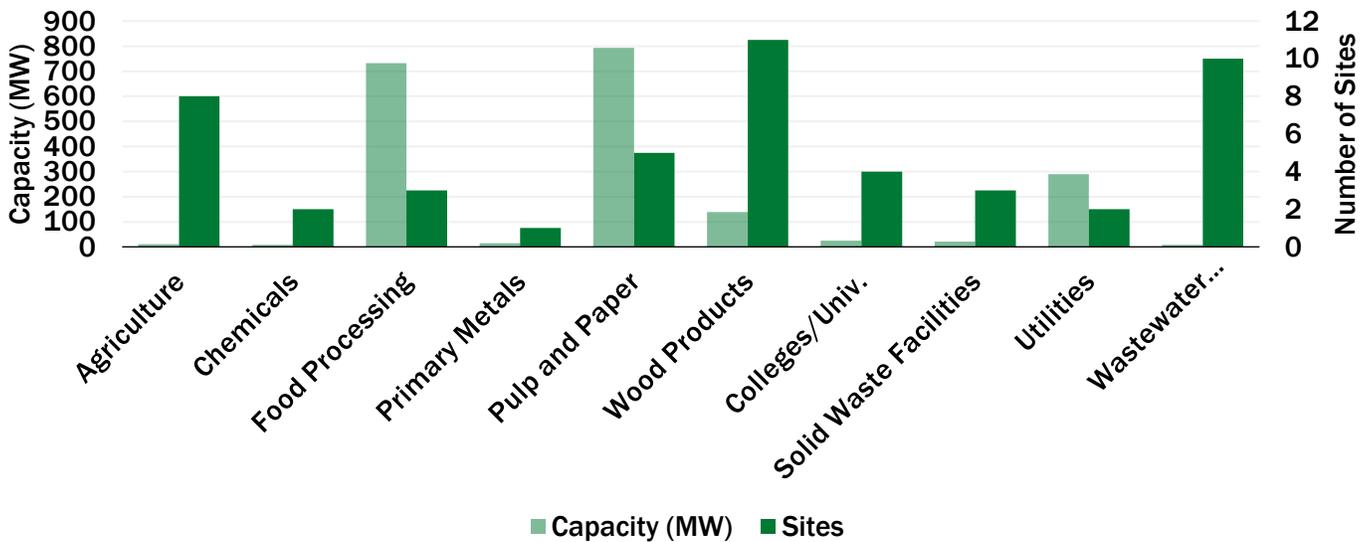
Oregon CHP Capacity (MW) by Fuel



Oregon CHP by Size Range



Oregon CHP by Application



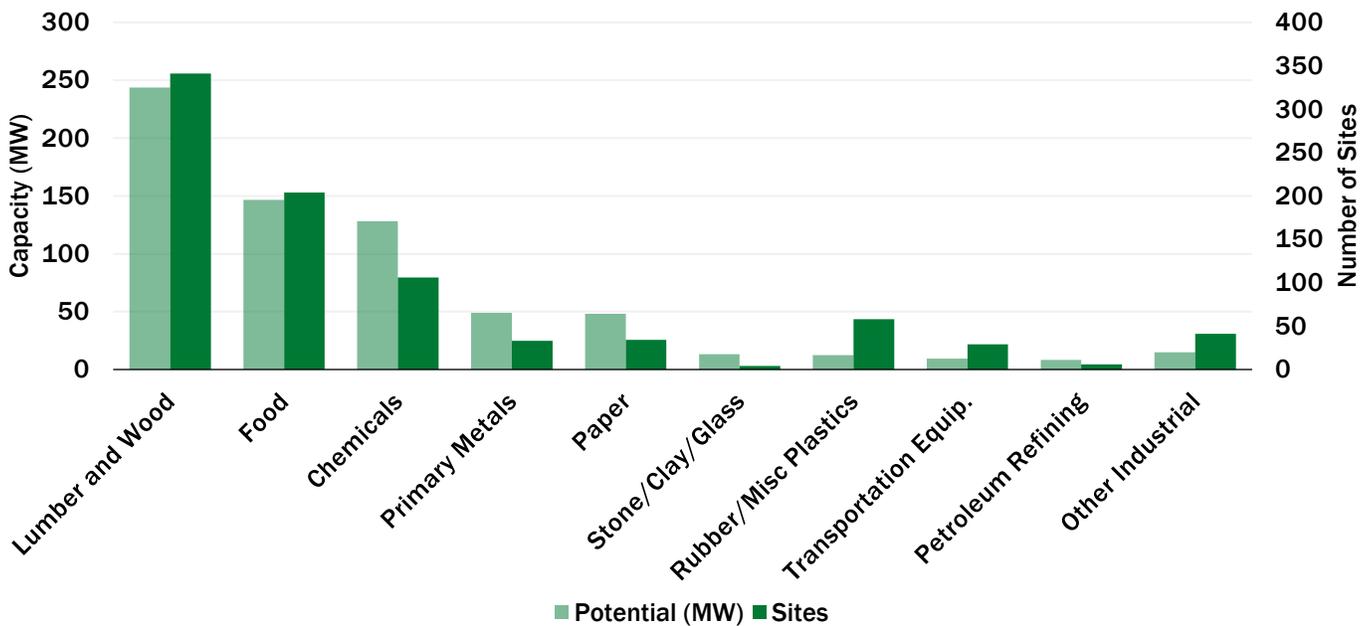
Oregon: Technical Potential for New CHP Installations

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. This report can be accessed at energy.gov/chp-potential.

Oregon CHP Technical Potential

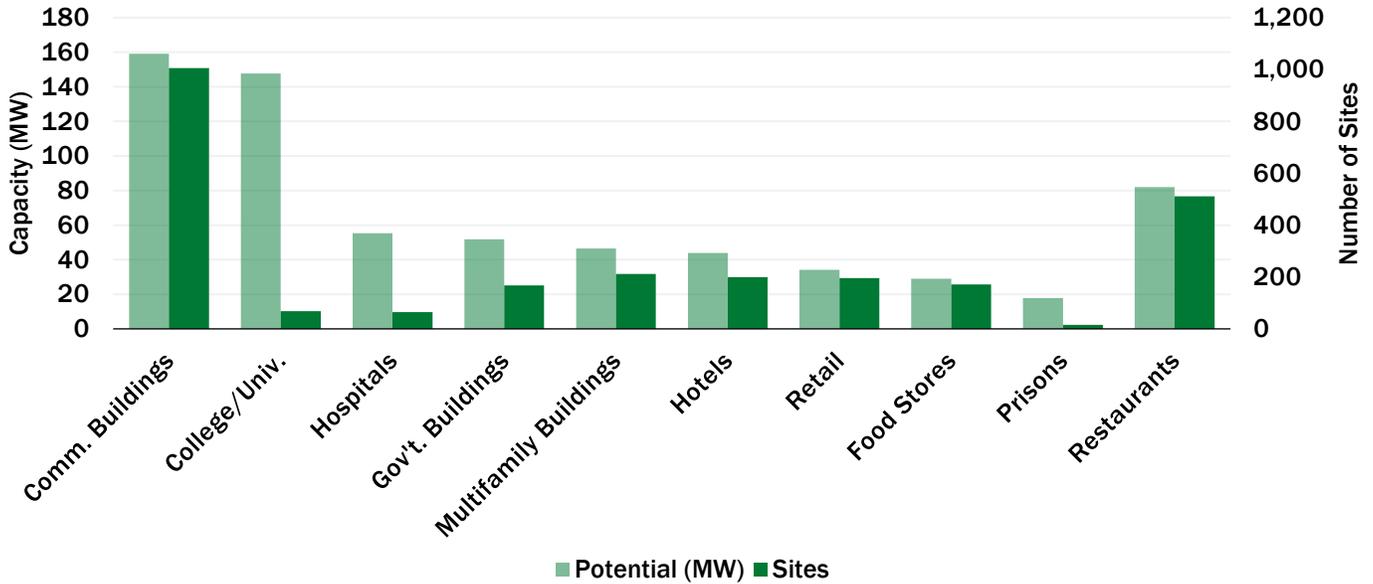
Sector	Potential Sites	Potential MW
Industrial	856	674
Commercial/Institutional	2,610	667
Total	3,466	1,342

Oregon 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
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

Oregon 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
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

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://betterbuildingsinitiative.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://betterbuildingsinitiative.energy.gov/accelerators/combined-heat-and-power-resiliency>

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

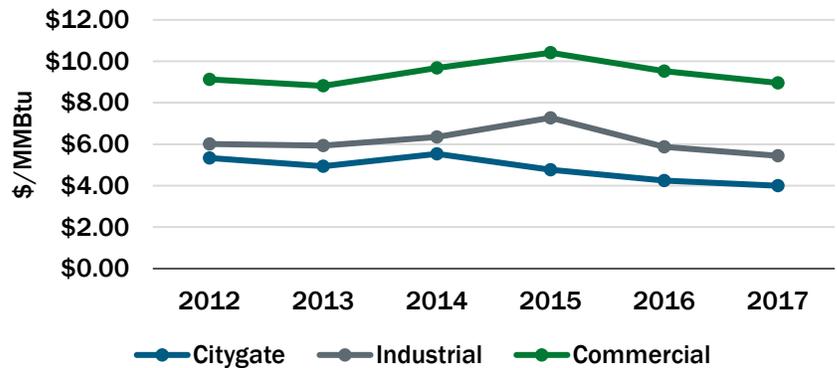
The EIA industrial natural gas price is a full tariff rate, and most large consumers are purchasing gas commodities from marketers at a lower rate.

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

Sector	OR Price	U.S. Price
Citygate*	4.00	4.26
Industrial	5.44	4.20
Commercial	8.96	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.

Oregon Average Natural Gas Prices



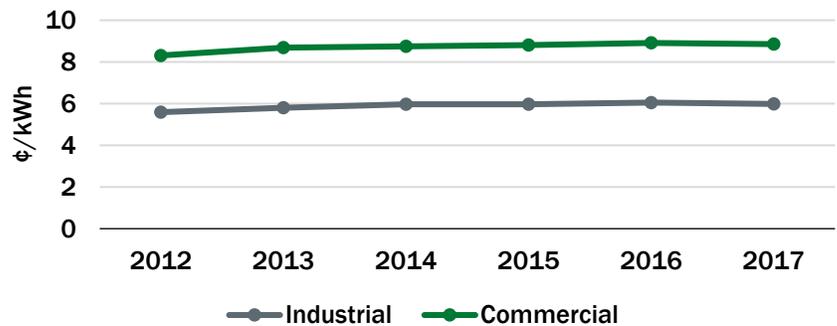
Oregon Electricity Prices

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

Oregon Average Electricity Prices (¢/kWh) - 2017

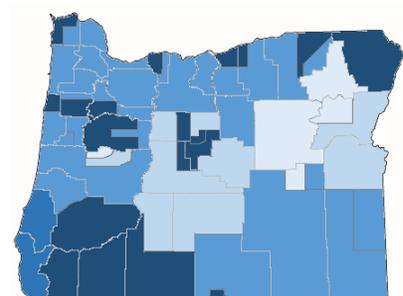
Sector	OR Price	U.S. Price
Industrial	5.98	6.88
Commercial	8.86	10.66

Oregon Average Electricity Prices



Oregon Average Delivered Electricity Prices by Utility

Utility	Industrial Price (¢/kWh)	Commercial Price (¢/kWh)	Average Price (¢/kWh)
Pacific Power	13.49	14.97	14.23
Coos-Curry Electric Coop	8.07	10.19	9.13
Portland General Electric	6.70	9.26	7.98
Idaho Power	6.76	7.78	7.27
Midstate Electric Coop	7.16	7.33	7.25
Central Electric Coop	6.44	7.65	7.04
City of Eugene	5.07	8.97	7.02
Oregon Trail El Cons Coop	5.44	7.56	6.50
City of Springfield	5.88	6.42	6.15



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