



Ohio Combined Heat and Power Fact Sheet

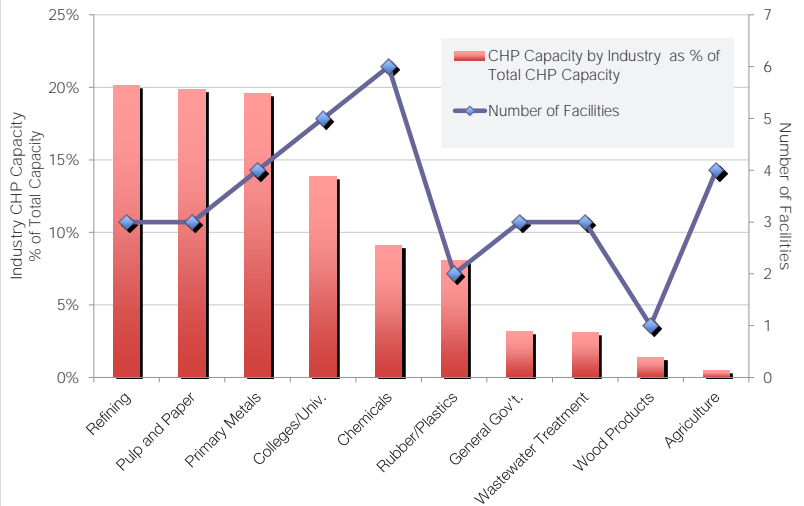
State Energy Profile

Energy consumption per capita: **332 mmBtu (2011)**
 Electric industry: **Deregulated**
 Total electric generation capacity: **36,305 MW (2011)**
 Average retail electricity price:
 All sectors: **8.68 cents/kWh**
 Residential: **11.25 cents/kWh**
 Commercial: **9.48 cents/kWh**
 Industrial: **5.89 cents/kWh**
 Average retail natural gas price:
 Residential: **9.84 \$/MCF**
 Commercial: **7.14 \$/MCF**
 Industrial: **6.77 \$/MCF (2011)**
 Population: **11,536,504 people (2010)**
 State Real GDP: **\$435 billion**

(Statistics for the year 2012 unless otherwise noted)

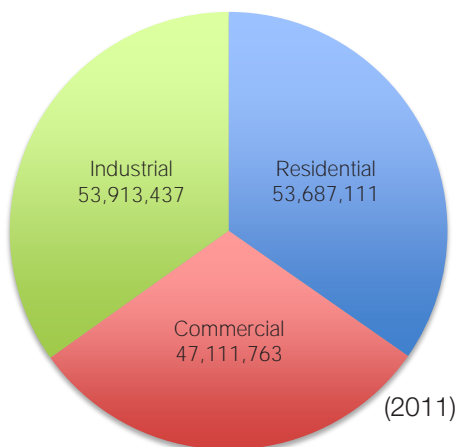
CHP Snapshot

Number of CHP facilities and capacity by industry as a percentage of total state CHP capacity



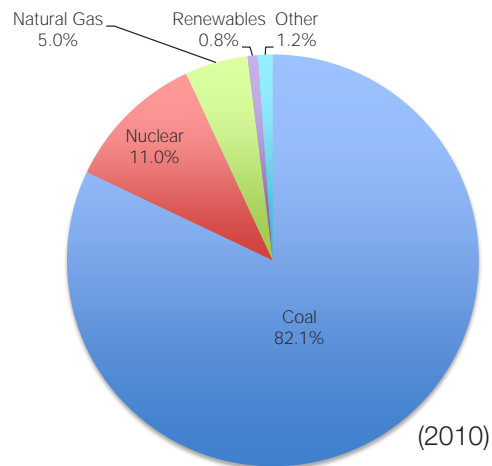
There are 45 CHP sites in Ohio, representing a total installed capacity of 521 MW. The largest CHP site in the state is Glatfelter Research in Chillicothe (81 MW), and the smallest site is International Cogeneration Corporation Clarke Gm Diesel in Cincinnati (75 kW). There are two CHP sites (99 MW total capacity) that use waste heat recovery as a primary mover. As the graph above illustrates, the number of CHP facilities by industry is not necessarily correlated to an industry's share of total CHP capacity. Nationally, according to ICF International, 87 percent of current Installed CHP generation capacity is found at industrial facilities with high electric and steam demands such as chemical, paper, refining, food processing and metal manufacturing. Natural gas has been the preferred fuel for CHP systems in the U.S., accounting for around 70 percent of existing CHP capacity.

Electricity Sales MWh



Source: EIA

Electricity Production



Source: EIA

Electricity sales are spread evenly between the three sectors and together they represent 154,712,311 MWh in total sales. Electricity generation from coal accounts for approximately 82 percent of the state's electricity production while nuclear, natural gas, renewables, and other energy sources make up the remaining 18 percent of generation.

State CHP Policies

Standby Rate Design	Interconnection Standards	Output-Based Emissions Regulations
<p>Ohio Power Company Schd OAC-SBS Standby rate for CHP entirely demand-based, and actual energy supplied by third party vendor.</p> <p>Cincinnati Gas & Electric Company Rate DP Charges CHP customers for backup power primarily based upon a peak demand.</p> <p>Impact on CHP Development Ohio Power Company's rate is slightly more favorable than Cincinnati Gas & Electric's.</p>	<ul style="list-style-type: none"> • 20 MW system capacity limit. • Applicable to customers of IOUs. • 3 levels of review based on capacity. • Systems must meet IEEE 1547 and UL 1741 standards. • Technical screens, fees, and timelines detailed in the rules. • Simplified review process for lower levels of interconnection. • Provision for alternative dispute resolution and formal complaints. 	<p>Ohio Administrative Code 3745-14 Under Ohio's NOx Budget Trading Program, CHP allowed to count as allowances for EE and renewable energy NOx set-asides. Program dormant; there has been little to no subscription to the program.</p> <p>Note: The EPA is developing new cross-state air pollution rules, and states will likely have to implement new plans that will replace the CAIR requirements outlined above.</p>
	Net Metering:	CHP not listed as eligible technology
Decoupling Utility Revenues	Portfolio Standards	
Ohio's EERS includes energy savings goals for electric utilities and allows for cost recovery and decoupling approved through the Public Utilities Commission of Ohio. All of Ohio's electric utilities (except Duke) recover EE program costs and lost revenues through DSM rider. Duke operates the Save-A-Watt program through which it recovers lost revenues. Duke and AEP agreed in 2011 to provisionally forgo collecting lost revenues and create a decoupling mechanism for total rate recovery for residential and small commercial customers (the agreements must be approved by PUCO). Electric utilities can request revenue decoupling mechanism from PUCO. Rather than full decoupling, gas utilities have all been allowed to implement Straight-Fixed-Variable rate designs.	<p>EERS In 2009, electric utilities required to achieve a minimum of 0.3% savings from baseline (the average of total kWh's sold in previous 3 years). Savings requirements increase to 1%/yr in 2014 and 2%/yr by 2019 onward. Cumulative annual energy savings in excess of 22% by 2025. Waste-heat-to-power and gas line pressure drop qualify as energy efficiency. Also, any conventional CHP (fossil-fuel fired permitted) can qualify as energy efficiency, but CHP system must achieve 60% thermal efficiency with 20% of energy generated as useful thermal energy.</p>	<p>RPS Waste-heat-to-power and gas line pressure drop technologies qualify as renewable under the RES if no "incremental fuel" is used. Fossil fuel fired CHP does not qualify. DSM and EE improvements qualify for compliance as advanced energy resources. By 2025, IOUs must provide 25% of their electricity from "alternative energy resources" (50% from renewable energy and 50% from advanced energy resources). Half of the standard can be met with "any new, retrofitted, refueled, or repowered generating facility located in Ohio."</p>
	Financial Incentives	
	<p>Bond</p> <ul style="list-style-type: none"> • Advanced Energy Job Stimulus Program <p>Rebates</p> <ul style="list-style-type: none"> • AEP Commercial Custom Project Rebate & Self Direct Rebate Program <p>Loan</p> <ul style="list-style-type: none"> • Energy Loan Fund 	<p>Taxes</p> <ul style="list-style-type: none"> • Air-Quality Improvement Tax Incentives • Energy Conversion and Thermal Efficiency Sales Tax Exemption • Qualified Energy Project Tax Exemption

State CHP Technical Potential (MW)

Facility Size	50-1000 kW	1-5 MW	5-20 MW	>20 MW	Total
Industrial	586	873	1,092	901	3,384
Commercial	1,219	826	186	0	2,231
Total	1,805	1,699	1,278	901	5,615

Technical potential is defined as the CHP electrical capacity that could be installed at existing industrial and commercial sites based on their electric and thermal needs (under the assumption that the facilities would utilize thermally loaded CHP systems sized to meet their electric demand).

Boiler MACT Affected Boilers

Source: ICF

Facilities	127
Coal Units	52
Biomass Units	7
Gas Units	247
Heavy Oil Units	7
Light Oil Units	27
Total Capacity (mmBtu/hr)	35,974

Application	Units	Facilities	Capacity (mmBTU/hr)
Transportation Equipment Manufacturing	79	20	3,758
Chemical Manufacturing	51	21	4,869
Petroleum and Coal Products Manufacturing	44	4	5,031
Utilities	37	16	9,264
Food Manufacturing	22	7	2,120
Primary Metal Manufacturing	20	3	4,649
Educational Services	18	4	2,009
Electrical Equipment, Appliance, and Component Manufacturing	18	6	358
Paper Manufacturing	15	11	3,112
Plastics and Rubber Products Manufacturing	14	9	561

For more information on data sources, see CHP Factsheet Appendix at gpscd.net