



# Minnesota Combined Heat and Power (CHP) Fact Sheet

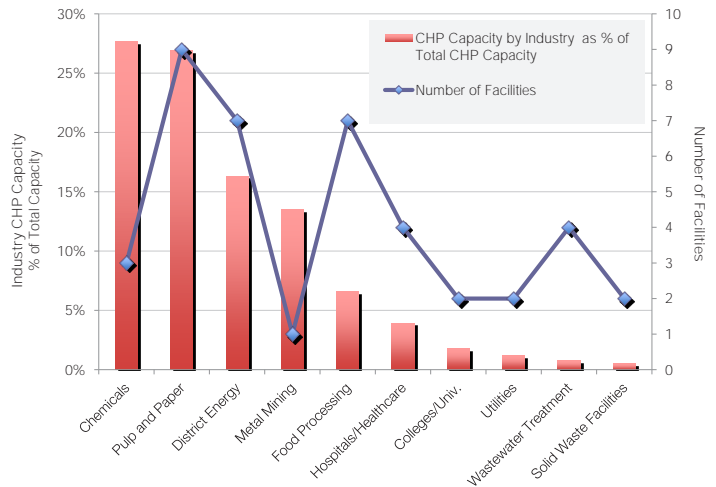
## State Energy Profile

Energy consumption per capita: **349 mmBtu (2011)**  
 Electric industry: **Regulated**  
 Total electric generation capacity: **17,169 MW (2011)**  
 Average retail electricity price:  
 All sectors: **8.67 cents/kWh**  
 Residential: **10.97 cents/kWh**  
 Commercial: **8.62 cents/kWh**  
 Industrial: **6.51 cents/kWh**  
 Average retail natural gas price:  
 Residential: **7.97 \$/MCF**  
 Commercial: **6.34 \$/MCF**  
 Industrial: **4.29 \$/MCF**  
 Population: **5,303,925 people (2010)**  
 State Real GDP: **\$252 billion**

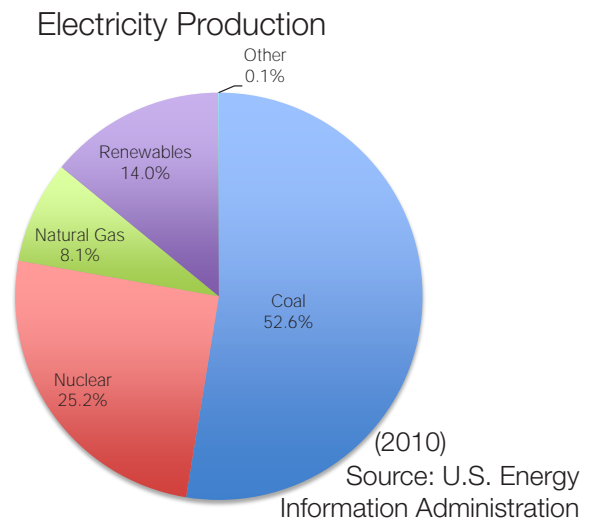
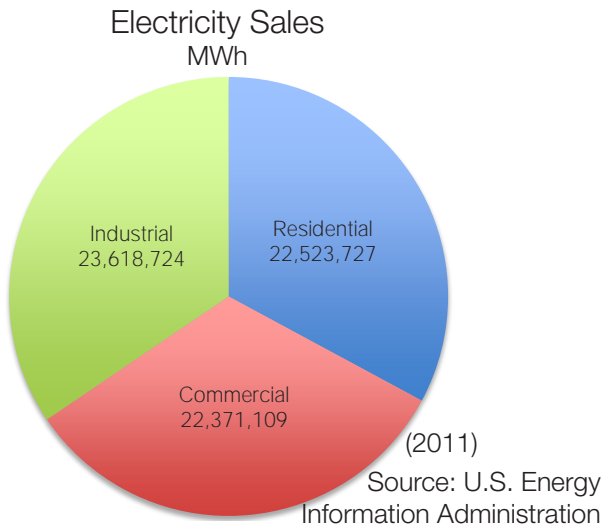
(Statistics for the year 2012 unless otherwise noted)

## CHP Snapshot

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



There are 55 CHP sites in Minnesota, representing a total installed capacity of 919 MW. The largest CHP site in the state is the 3M Plant in Cottage Grove (251 MW), and the smallest site is Fond du Lac Tribal and Community College in Cloquet (30 kW). 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 are spread evenly between the three sectors and together they represent 68,513,560 MWh in total sales. Electricity generation from coal and nuclear account for close to 80 percent of the state's electricity production while natural gas, renewables, and other energy sources make up the remaining 20 percent of generation.

## State CHP Policies

Business Models & Decoupling	Standby Rate Design	Net Metering
<p><b>Direct Cost Recovery</b> All utilities with approved conservation improvement programs are eligible for rate decoupling through rate cases and a tariff rider. The Public Utilities Commission (PUC) must consider conservation improvement programs when determining rates.</p> <p><b>Fixed Cost Recovery</b> In 2009, PUC set criteria and standards for revenue decoupling pilot proposals. Pilot proposals were due by December 30, 2011. CenterPoint Energy and Minnesota Energy Resources Corporation have decoupling in place for natural gas customers.</p> <p><b>Performance Incentives</b> Minnesota has a state-wide performance incentive. Electric utilities earn \$0.07/kWh for 1.5% retail sales savings. Natural gas utilities save \$9.00/1000 cubic feet. Performance incentives have a cap of 20% of net benefits on the incentive.</p>	<p>A 2013 docket proposes that projects that are 100 kW or under and in public utility service territory be not subject to standby rates.</p>	<p>All distributed generation technologies are eligible. Commercial, Industrial, Residential sectors eligible. 1 MW capacity limit for public utilities. The PUC may limit cumulative generation. Applies to all investor owned utilities (IOU), municipal utilities and electric cooperatives who must compensate customers (&lt; 40 kW in capacity) for their net excess generation at the "average retail utility energy rate." For systems 40 kW - 1 MW, net excess generation is credited at avoided cost rate, or customers may elect to be compensated through kWh credit. Excess credit reimbursed at the end of the calendar year at the avoided cost rate. Meter aggregation is allowed for IOU customers.</p>
	<p><b>Output Based Emissions Regulations</b></p> <p>None</p>	
	<p><b>Interconnection Standards</b></p> <ul style="list-style-type: none"> <li>• 10 MW system capacity limit.</li> <li>• Uniform procedures applicable to all IOUs, municipal utilities, and rural electric cooperatives.</li> <li>• Streamlined uniform interconnection applications and process addressing safety, economics, and reliability issues.</li> <li>• Technical requirements related to engineering studies</li> <li>• Mandatory minimum insurance requirements for different sized systems.</li> <li>• Equipment certification definitions</li> <li>• Dispute resolution process</li> <li>• Standard application fees.</li> </ul>	
	<p><b>Financial Incentives</b></p> <p><b>Production Incentive</b> Renewable Energy Production Incentive</p>	
<b>Portfolio Standards</b>		
<p><b>Energy Efficiency Resource Standard</b> CHP and waste heat recovery (WHR) eligible. WHR systems get credit for their electricity output. Sets savings targets for electric and gas utilities that apply to CHP: 1.5% annual electric savings starting in 2010; 0.75% annual gas savings from 2010-2012 and 1% from 2013 forward. Of the 1.5% savings for electricity, 1% must be met with direct energy efficiency savings. Up to 0.5% may be met with efficiency enhancements to generation, transmission, and distribution. Electricity utilities must spend 1.5% of their gross operating revenues on energy efficiency programs, and natural gas utilities must spend 0.5%.</p>	<p><b>Renewable Portfolio Standard</b> Eligible CHP must be powered by renewable fuels like biomass or landfill gas. Municipal and cooperative electric utilities are required to meet 25% of electric sales with renewable power by 2025. The standard is 30% by 2020 for Xcel Energy and 26.5% by 2025 for other investor owned utilities (IOUs). Minnesota has a state-wide goal of 10% solar energy by 2030. Of Xcel's 30% renewable energy requirement, 25% is set aside for solar and wind power (solar is capped at 1%). Xcel must also produce 825 MW wind energy and 110 MW biomass energy by 2020. Other IOUs must produce 1.5% of their energy from solar sources, 10% of which must be met with systems &lt; 20 kW.</p>	

## State CHP Technical Potential (MW)

Facility Size	50-1000 kW	1-5 MW	5-20 MW	>20 MW	Total
Industrial	247	324	332	172	1,075
Commercial	865	515	0	55	1,434
Total	1,112	839	332	227	2,509

Source: ICF International

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

Facilities	48
Coal Units	24
Biomass Units	16
Gas Units	99
Heavy Oil Units	10
Light Oil Units	11
Total Capacity (mmBtu/hr)	19,841

MACT: Maximum Achievable Control Technology standard

Application	Units	Facilities	Capacity (mmBTU/hr)
Food Manufacturing	34	10	4,252
Utilities	31	12	7,208
Petroleum and Coal Products Manufacturing	30	1	1,805
Mining (except Oil and Gas)	18	3	2,150
Air Transportation	14	1	346
Paper Manufacturing	12	4	2,804
Wood Product Manufacturing	7	5	207
Professional, Scientific, and Technical Services	6	1	939
Nonmetallic Mineral Product Manufacturing	3	2	97
Furniture and Related Product Manufacturing	2	1	10

For more information on data sources, see CHP Factsheet Appendix at [gpsid.net](http://gpsid.net)