

# WASTED ENERGY COSTS

## BOILER FUEL CONSUMPTION RATES- NATURAL GAS (MMBtu/hr)

AVG OUTPUT	BOILER EFFICIENCY					
	86%		80%		76%	
BHP	COST		COST		COST	
100	3.89	\$ 29.95	4.18	\$ 32.19	4.41	\$ 33.96
200	7.78	\$ 59.91	8.36	\$ 64.37	8.82	\$ 67.91
300	11.67	\$ 89.86	12.54	\$ 96.56	13.23	\$ 101.87
400	15.56	\$ 119.81	16.72	\$ 128.74	17.64	\$ 135.83
500	19.45	\$ 149.77	20.9	\$ 160.93	22.05	\$ 169.79
600	23.34	\$ 179.72	25.08	\$ 193.12	26.46	\$ 203.74

SOURCE: <http://www.boilerspec.com>

### Rates as of Dec, 2022:

**Natural gas** is normally sold in ¢/Therm (100,000 Btu). Multiply this by 10 to get \$/MM Btu/hr  
 Piedmont Natural Gas average= .77 ¢/ Therm (range = \$.72 - \$.86)  
 \$0.77 Therm x 10 Therm/MMBtu/hr = \$7.70 /MM Btu/hr

Thickness of scale	% loss of efficiency	100 HP Annual usage costs	100 HP wasted \$	200 HP Annual usage costs	200 HP wasted \$
1/64" (.01562)	4%	\$100,433	\$4,017	\$200,834	\$8,033
1/32" (.03124)	7%	\$100,433	\$7,030	\$200,834	\$14,058
1/16" (.06248)	11%	\$100,433	\$11,048	\$200,834	\$22,092
1/8 " (.125)	18%	\$100,433	\$18,078	\$200,834	\$36,150
3/16 " (.1875)	27%	\$100,433	\$27,117	\$200,834	\$54,226
1/4 " (.250)	38%	\$100,433	\$38,164	\$200,834	\$76,317
3/8 " (.375)	48%	\$100,433	\$48,208	\$200,834	\$96,401
½" (.500)	60%	\$100,433	\$60,260	\$200,834	\$120,501
5/8 " (.625)	74%	\$100,433	\$74,320	\$200,834	\$148,617
¾" (.750)	80%	\$100,433	\$80,346	\$200,834	\$160,668

SOURCE: U.S. Bureau of Standards

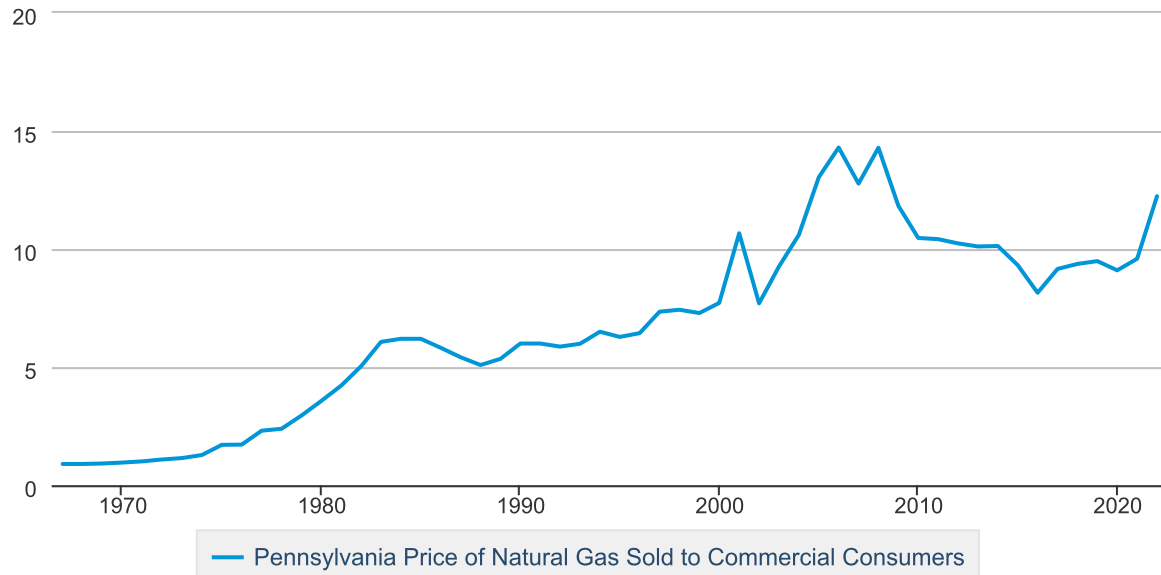
Note: Annual usage = 12 hrs/day x 5 days/wk x 52 wks = 3,120 hrs

Gas prices are near an all-time high. You can see in this chart. This is the gas consumption and related prices:

Yearly chart:

### Pennsylvania Price of Natural Gas Sold to Commercial Consumers

Dollars per Thousand Cubic Feet

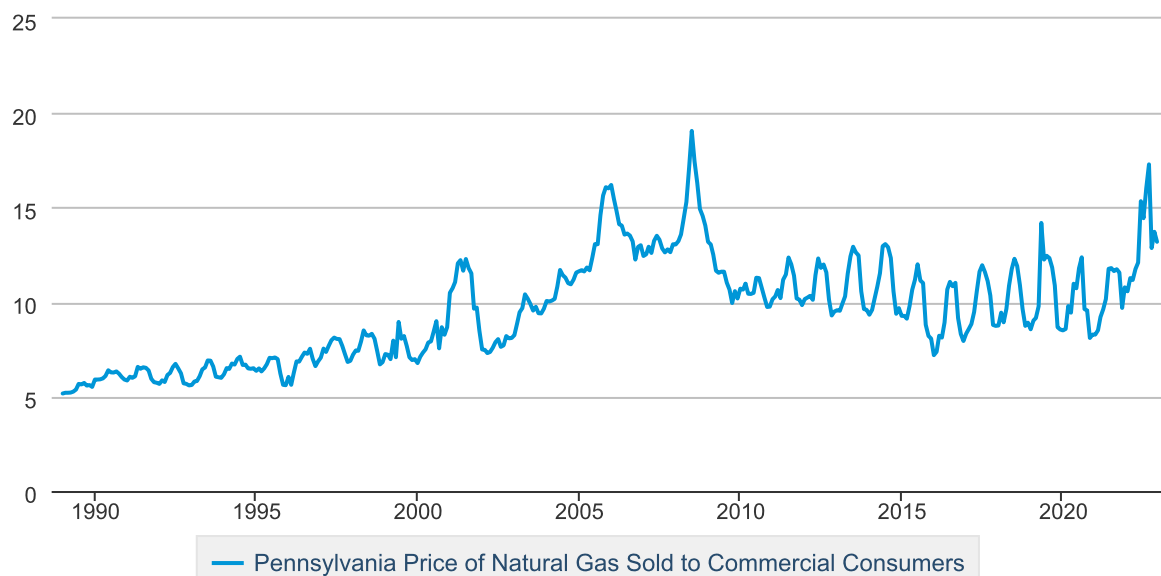


 Data source: U.S. Energy Information Administration

Monthly chart:

### Pennsylvania Price of Natural Gas Sold to Commercial Consumers

Dollars per Thousand Cubic Feet



 Data source: U.S. Energy Information Administration