

Natural Gas Quarterly Update



January to March 2023

This document uses data from the Pennsylvania Department of Environmental Protection (DEP), the U.S. Energy Information Administration and Bentek Energy to provide a quarterly update on natural gas production and prices. The table below shows recent trends in quarterly unconventional production volume, well counts and average spot prices for Pennsylvania.

	2022				2023
	Q1	Q2	Q3	Q4	Q1
Production Volume	1,852	1,852	1,880	1,857	1,838
Growth Rate	-0.8%	0.0%	-0.6%	-5.1%	-0.7%
Avg. Production per Well	0.177	0.175	0.175	0.170	0.168
Growth Rate	-5.2%	-4.6%	-5.1%	-10.0%	-5.6%
New Wells Spud	147	133	158	136	120
Annual Change	14	13	47	-18	-27
Average PA Price	\$4.10	\$6.66	\$6.89	\$4.46	\$2.23
Growth Rate	62.1%	221.8%	94.7%	12.0%	-45.7%

Note: Growth rates are year-over-year. Production in billion cubic feet, horizontal wells only. Average PA price (in \$/MMBtu), is a weighted average spot price at two major PA hubs.
Sources: Production volume and well counts are reported by DEP. Price data are from Bentek Energy.

Notable trends for 2023 Q1 include:

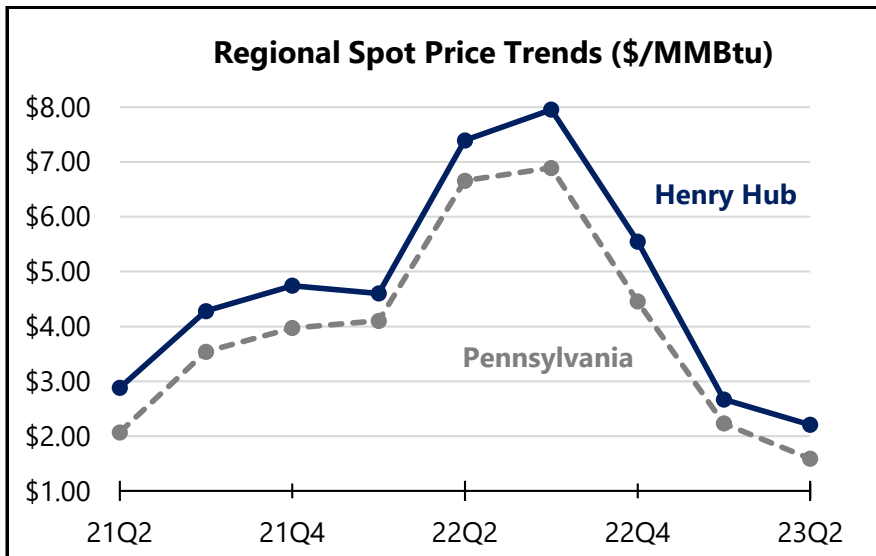
- **Production volume** totaled 1,838 billion cubic feet, a decrease of 0.7% from the prior year and the fifth consecutive quarter with no year-over-year increase in production.
- **Average production per well** was 0.168 billion cubic feet, a decrease of 5.6% from the prior year. This metric has steadily declined over the last five quarters and reached the lowest level since monthly production data became available (2015) in the first quarter.
- There were 120 **new horizontal wells spud**, a decrease of 27 new wells (-18.4%) from the prior year. After solid drilling gains in late 2021 and early 2022, there has been a significant slowdown. Preliminary data for April and May 2023 show that new wells spud declined 51.1% from the same period in 2022.
- The **average Pennsylvania spot price** was \$2.23. This represents a decrease of \$1.87 (-45.7%) from the prior year. National and regional natural gas prices have plummeted due to a mild winter and the commensurate increase in inventory throughout the country.

The table compares year-over-year (YOY) growth in quarterly production volume in Pennsylvania to seven other states. The states are listed in descending order based on total production volume in 2023 Q1. The eight states shown account for 86% of nationwide natural gas production. For Pennsylvania, these data differ from data on the prior page because they include natural gas production from all sources and well types (e.g., conventional). The data show that Pennsylvania was the only state to record a production decline in 2023 Q1 compared to the prior year. Pennsylvania and Ohio were the only states to record a decline in annual production for 2022.

State	2022				2023
	Q1	Q2	Q3	Q4	Q1
Texas	10.8%	4.8%	4.0%	5.5%	8.8%
Pennsylvania	-0.3	0.3	-1.0	-6.2	-0.8
Louisiana	16.2	18.7	18.6	15.2	19.9
Alaska	3.0	1.0	5.3	2.4	0.2
New Mexico	19.8	18.8	17.4	22.9	25.3
West Virginia	2.0	4.7	9.6	6.8	8.8
Oklahoma	3.5	6.1	8.3	8.8	11.9
Ohio	-1.1	-1.0	3.1	-2.4	2.9

Source: U.S. Energy Information Administration.

The figure displays recent trends in natural gas spot prices for the Henry Hub and the average Pennsylvania hub price. These data show that both prices recorded similar, significant declines over the last two quarters.



The Henry Hub peaked at \$7.96 per MMBtu in 2022 Q3 before falling by \$5.29 (-66.5%) over the next two quarters. The decline was largely due to mild winter weather, which limited demand for heating and increased natural gas inventory throughout the country. The price shown for 2023 Q2 is a projection based on April and May data. This price, \$1.59 for the Pennsylvania average, represents a further decline and the lowest quarterly price since 2020 Q4.

Staff Acknowledgements

This report was produced by Jesse Bushman and Rachel Flaugh. Questions regarding this report can be directed to jbushman@ifp.state.pa.us.