U.S. Energy Information Administration

Today in Energy

IN-BRIEF ANALYSIS

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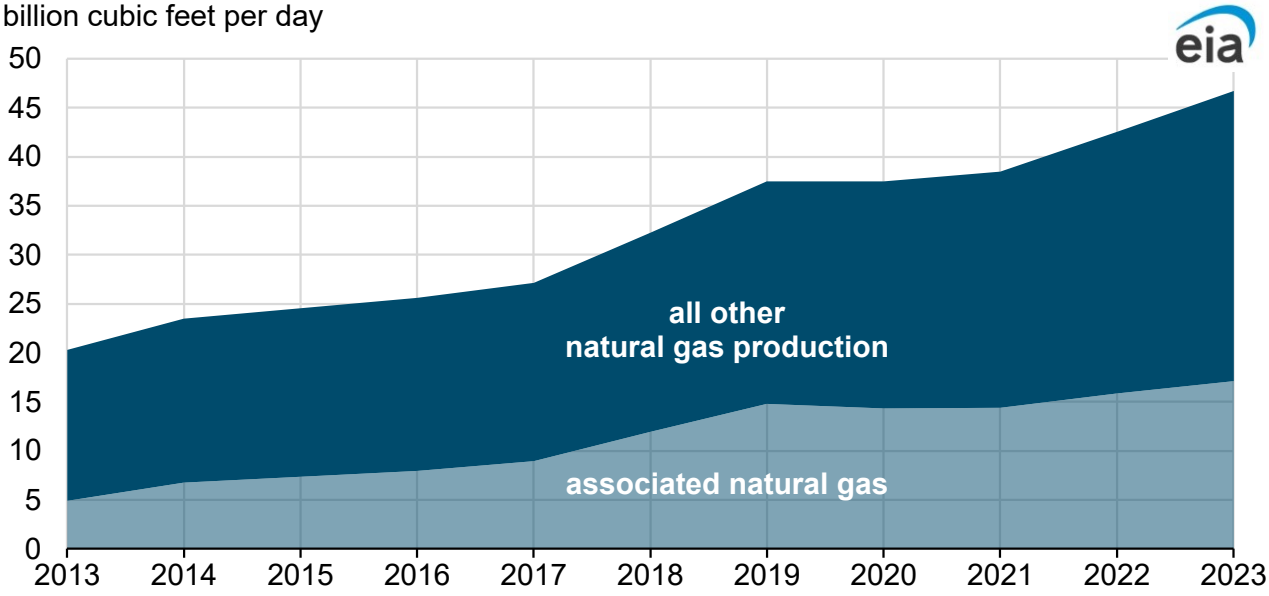
U.S. associated natural gas production increased nearly 8% in 2023



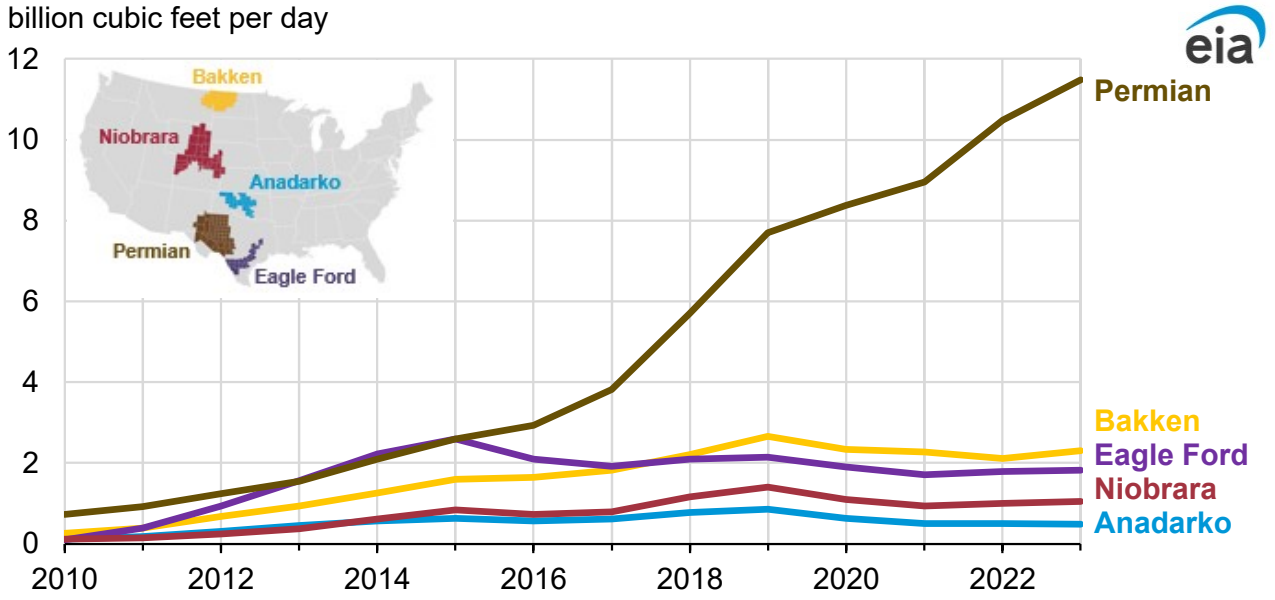
Data source: Enverus Drillinginfo
Note: For consistency, the various state pressure bases used to measure natural gas volumes have been converted to the federal pressure base of 14.73 pounds per square inch absolute (psia) and 60°F.

U.S. production of associated-dissolved natural gas, or associated natural gas, increased 7.9% in 2023 compared with 2022, averaging 17.1 billion cubic feet per day (Bcf/d) last year, according to data from Enverus Drillinginfo. Associated natural gas production, which is natural gas produced by wells that predominantly produce oil, comes mainly from five major oil-producing regions in the United States—the Permian, Bakken, Eagle Ford, Anadarko, and Niobrara.

Record U.S. crude oil production in 2023 generated large volumes of associated natural gas. The Permian Basin in West Texas and southeastern New Mexico accounted for 46% of U.S. crude oil production in 2023 and was the largest source of U.S. associated gas production last year at 11.5 Bcf/d. In 2023, around two-thirds of total U.S. associated natural gas production came from the Permian region, similar to 2022.

In 2023, 2.3 Bcf/d of associated gas was produced in North Dakota's Bakken region, which accounted for 70% of the region's total natural gas production—the largest share among the five oil-producing regions. The Eagle Ford region in southern Texas was the source of 1.8 Bcf/d of associated gas, while a combined 1.5 Bcf/d of associated gas was produced in the Niobrara and Anadarko regions in the midcontinent in 2023.

Associated natural gas production in major U.S. crude oil-producing regions (2010–2023)
billion cubic feet per day



Data source: Enverus Drillinginfo

Associated natural gas accounted for 36.7% of U.S. natural gas production in 2023, compared with 37.4% in 2022. Non-associated natural gas is natural gas produced from wells that predominantly produce natural gas. We define oil wells as those with a gas-to-oil ratio (GOR) of less than or equal to 6.0 thousand cubic feet of natural gas per barrel of oil produced (Mcf/b). We classify wells with a GOR of more than 6.0 Mcf/b as natural gas wells. Associated natural gas production has grown at a rate commensurate with dry natural gas production.

Associated gas contains natural gas plant liquids (NGPLs) such as ethane, butane, and propane. Associated gas is sometimes characterized as wet gas because it must be treated at gas processing plants to remove impurities and liquids before being marketed. The increase in associated gas has led to record ethane production, which is used as a feedstock to produce plastics, fibers, and other products.

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