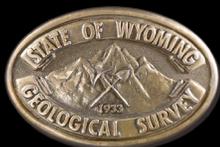


Oil & Natural Gas Resources in Wyoming



January 2023 Summary Report



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Other sources of oil & natural gas information:

[Wyoming Oil and Gas Conservation Commission](#)

[University of Wyoming School of Energy Resources](#)

[Enhanced Oil Recovery Institute](#)

[Wyoming Energy Authority](#)

[BLM Wyoming Oil and Gas](#)

[Petroleum Association of Wyoming](#)

[Consensus Revenue Estimating Group \(CREG\)](#)

[EIA Short-Term Outlook](#)

In many ways, 2022 was a return to normal for Wyoming's oil and gas industry. Crude oil and natural gas production returned to their pre-pandemic trends: year-over-year gains in oil volumes and a gradual decline in natural gas production. Also in 2022, the U.S. Bureau of Land Management (BLM) resumed sales of oil and gas leases, and a substantial number of new oil and gas wells were drilled and completed, particularly in the Powder River Basin.

In other ways, however, this past year was a volatile one, especially for market conditions.

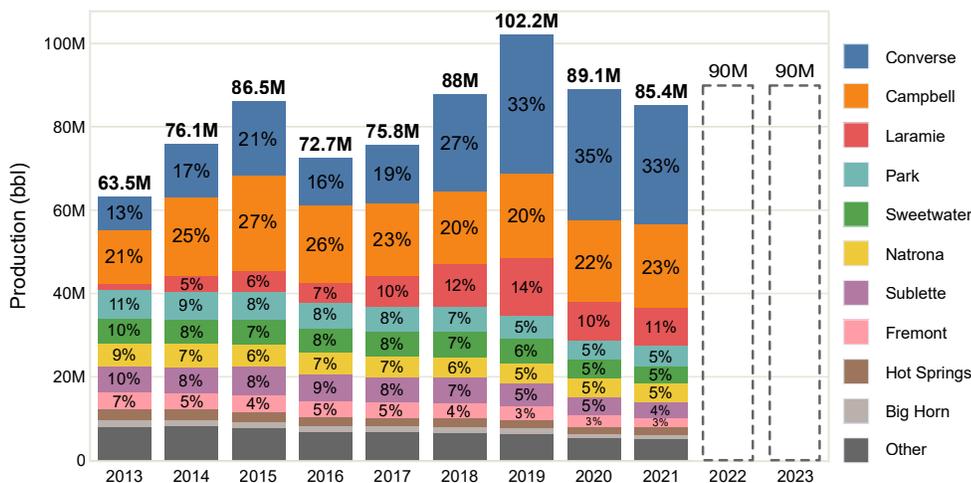
Oil production is up

This time last year, the Consensus Revenue Estimating Group (CREG) predicted that 85 million barrels of crude oil would be produced in Wyoming in 2022. This past fall, the group revised its estimates to 90 million barrels. This adjustment is

largely a result of 2022's unexpected climb in crude oil prices—from a WTI average of \$83 per barrel last January to nearly \$115 in June—which spurred increased production in Wyoming and nationwide. Preliminary production numbers (it can take a few months for production at the wellhead to be reported and incorporated into state totals) indicate that Wyoming operators are on track to produce about 90 million barrels of oil in 2022.

Eastern basins lead in oil

Over the past two years, Converse and Campbell counties, in the heart of the Powder River Basin, produced about 60 percent of all of Wyoming's crude oil. Laramie County has historically produced moderate volumes of oil from the northern part of the Denver Basin, but has become the state's number-three oil-producing county in recent years.

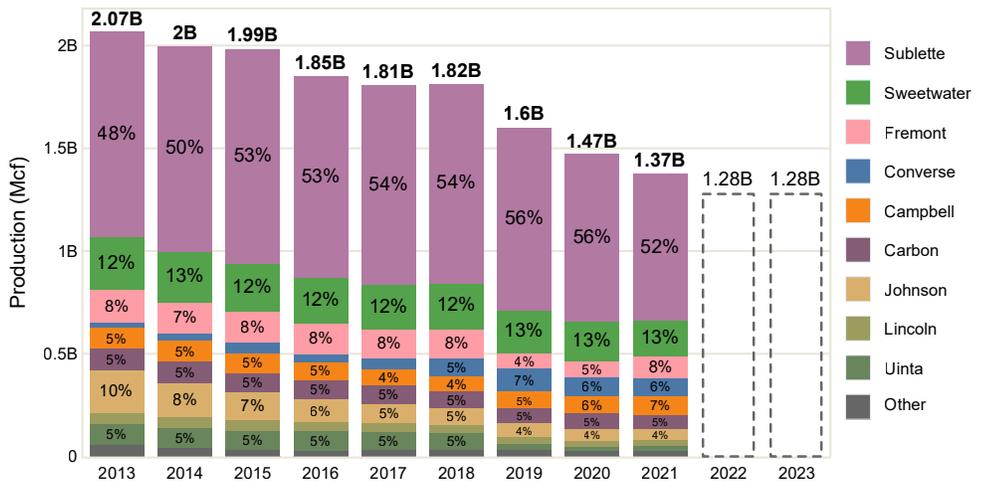


Crude oil production by county, with CREG forecast for 2022–23; bbl = barrels; M = million.

This is quite different from oil production in Wyoming just a decade ago. In the early 2010s, horizontal drilling for oil was just starting to ramp up in the Powder River and Denver basins. In 2013, Laramie County produced only 2 percent of Wyoming’s oil, Converse County was producing crude oil at just one-fourth its current rate, and Campbell County produced about 65 percent of the volume it does today. But from 2009 to 2019, Wyoming’s oil production doubled, largely due to development of burgeoning unconventional oil plays in just these three counties.

Such major shifts demonstrate how new discoveries—and new technologies paired with known but previously uneconomic resources—can quickly and drastically alter the energy landscape of Wyoming.

The Converse County oil and gas project, approved by the BLM in 2020, is expected to further boost production in the Powder River Basin in the coming years. Although the project currently faces legal challenges, some drilling has already started and can continue while the lawsuit is pending.



Natural gas production by county, with CREG forecast for 2022–23; Mcf = thousand cubic feet; B = billion.

Green River Basin leads in natural gas

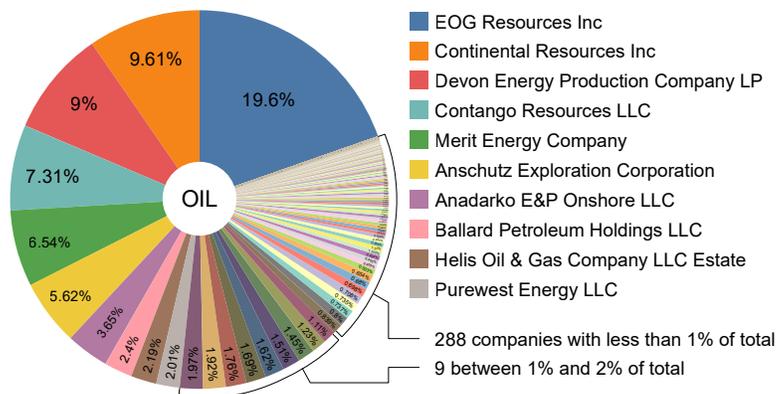
For more than a decade and into 2022, the large gas fields of Sublette County have reliably contributed roughly 50 percent of statewide natural gas production. Sweetwater and Fremont counties also continue to contribute considerable volumes of natural gas. In recent years, “associated gas” from the prolific oil plays in Converse and Campbell counties also made up a notable portion of Wyoming’s total.

Overall, natural gas production in the various basins of Wyoming is either holding steady or on the decline. Although increased global demand for liquefied natural gas and elevated natural gas prices bode well for the U.S. natural gas industry in general, it is uncertain how these developments might affect operations in Wyoming.

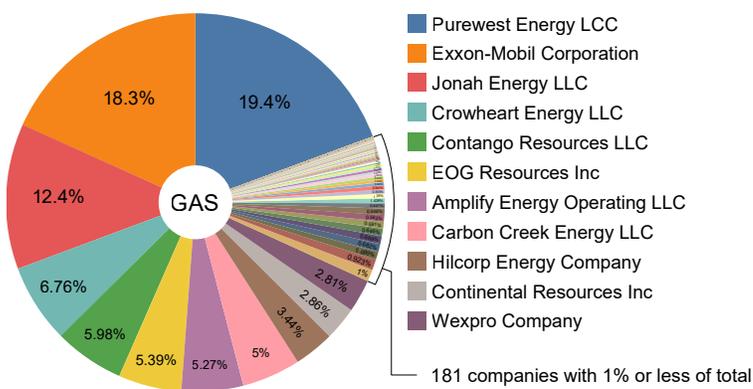
Operations, large and small

In 2021 and the first half of 2022, 288 companies each produced less than 1 percent of Wyoming’s crude oil, yet together these small operations accounted for 18 percent of the statewide total. EOG Resources was the top oil producer in this timespan; other large oil producers in 2021 and 2022 included Continental Resources, Devon Energy, Contango Resources, Merit Energy, and Anschutz Exploration.

As for natural gas, 181 companies each produced 1 percent or less of the state’s total, which all together accounted for 11 percent of Wyoming’s natural gas. PureWest Energy (formerly Ultra Petroleum) and Exxon-Mobil were the top producers of natural gas in Wyoming; other large natural gas producers included Jonah Energy, Crowheart Energy, Contango Resources, EOG Resources, Amplify Energy, and Carbon Creek Energy.



Crude oil production by company, 2021 and first part of 2022.



Natural gas production by company, 2021 and first part of 2022.

New wells throughout the state

More than 100 oil or gas wells were completed in Wyoming in the first half of 2022. There were 201 completions in 2021 and 224 in 2020. In both 2020 and 2021, many of these were previously drilled but uncompleted wells. Most of the wells completed this past year are located in the southern Powder River Basin or Denver Basin and target unconventional oil accumulations in Cretaceous-age “tight” reservoirs. Of these Cretaceous reservoirs, the Niobrara Formation in particular had increased activity in 2022. The majority of new natural gas well completions are in the Greater Green River Basin. In recent years, a small number of wells also have been completed in the Wind River and Bighorn basins.

BLM lease sales resume

In June, the Wyoming office of the BLM conducted its only oil and gas lease sale of 2022, offering 129 parcels—totaling about 130 thousand acres. Eighty-one parcels, totaling 67.6 thousand acres, were sold. In comparison, about 570 thousand federal acres were newly leased in Wyoming in federal fiscal year (FY)2020, and an all-time high of 1.2 million acres were leased in FY2019. No oil and gas lease sale was held in 2021.

The June 2022 lease sale was the first in Wyoming to take place at the new federal onshore royalty rate of 16.67 percent. This is an increase from the former rate of 12.5 percent, which had been in effect since the Mineral Leasing Act of 1920. The minimum bid amounts and parcel rental rates, set in 1987, were also raised.

The next BLM lease sale is scheduled for the second quarter of 2023. Pre-sale “scoping” acres, which are being considered for inclusion in the upcoming sale, were posted in October, and consist of 209 parcels totaling 251 thousand acres. A large number of these parcels are related to a potential development plan to add approximately 150 wells to federal oil and gas units in the Vermillion Basin, southeast of Rock Springs.

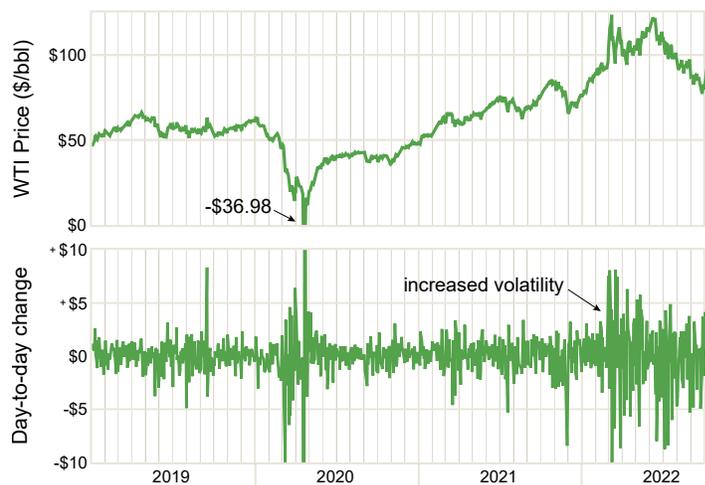
A volatile, global market

Even though oil and natural gas prices were overall high in 2022—a market condition that usually encourages industry activity—the global energy market has been unable to find a stable footing. Daily price swings for crude oil and natural gas were much greater in 2022 than in previous years. This day-to-day uncertainty can dissuade investors and delay increased capital expenditures. Without these funds, companies are unable to improve and expand operations, resulting in a market in which oil and gas supply is unable to keep pace with demand. In this way, short-term market volatility can grow into long-term uncertainty.

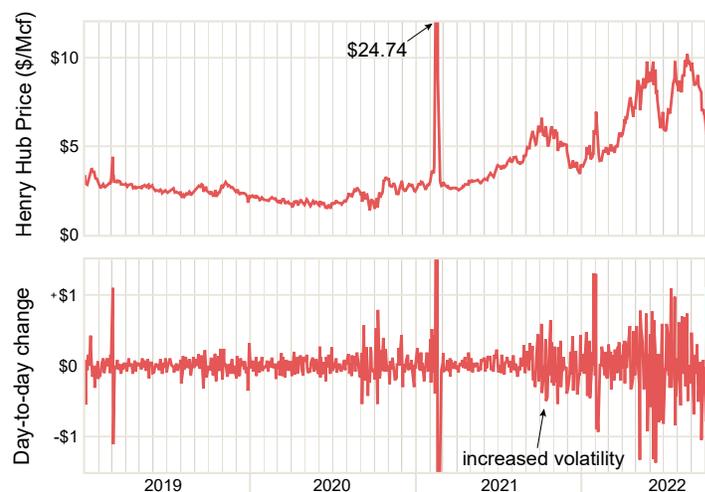
In Wyoming, state and local government tax revenue depends partly on what is happening in the oil and gas industry. This includes not only the state’s on-the-ground operations but also the value of the oil and gas being produced. The market value of produced oil or natural gas is in turn influenced by an array of national and global factors: geopolitical conflicts, financial crises, and global pandemics, to name a few. In other words, oil and gas prices, and therefore Wyoming production and associated tax revenue, are determined in large part by events beyond the state’s borders—events that can disrupt, or increase uncertainty about, the world’s energy supply.

Forecasting production

Despite a volatile global market, overall Wyoming’s oil and gas industry is expected to hold steady this coming year. CREG predicts that oil and gas production volumes will be about the same this year as in 2022. In the near term, many industry groups, including the U.S. Energy Information Administration, predict the global demand for petroleum will keep increasing. Growing demand,



Daily benchmark oil prices (top) and day-to-day price swings (bottom); bbl = barrels; WTI = West Texas Intermediate crude oil.



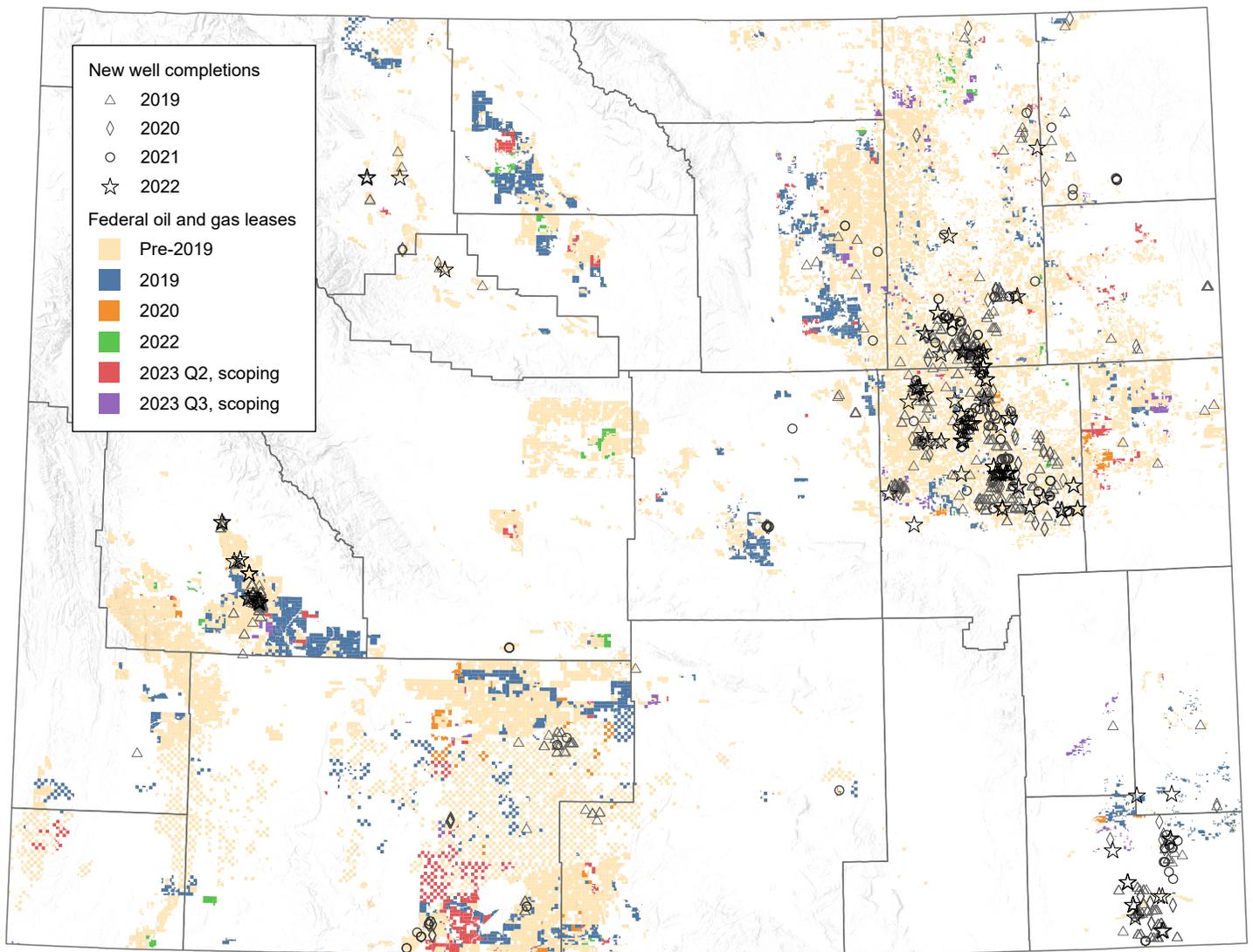
Daily benchmark natural gas prices (top) and day-to-day price swings (bottom); Mcf = thousand cubic feet.

along with anticipated higher prices, will likely help keep production numbers high both regionally and here in Wyoming.

Natural gas is expected to follow a slightly different trajectory than it has in the past. Although natural gas production in Wyoming has been in gradual decline since its peak in 2009, CREG predicts that in the near future, natural gas production will remain steady, and even increase slightly in response to high natural gas prices. However, the long-term outlook is a return to gradual production decline from 2026 onward.

Looking forward

Predictions for the future of the U.S. oil and gas industry vary greatly from organization to organization, and between reports from the same group drafted just a few months apart. Despite the general air of uncertainty, 2022 was an overall positive year for oil and gas in Wyoming, with relatively steady production, high prices, and the resumption of federal oil and gas lease sales. The short-term outlook for oil and gas in Wyoming is also generally positive, although the market remains uncertain. If anything is certain, it is that Wyoming's oil and gas industry will continue to adapt to an always changing, often unpredictable world.



New well completions and federal oil and gas leases in Wyoming, 2019–2023.

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