



Weekly E&P Update

February 20, 2024

Vol. 8

Does Anyone Drill Vertical Wells Anymore?

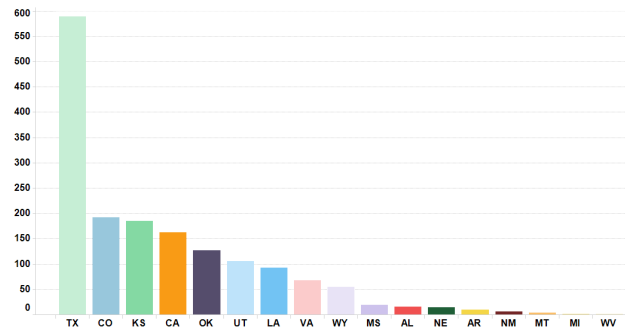
By Steve Hendrickson
President of Ralph E. Davis Associates



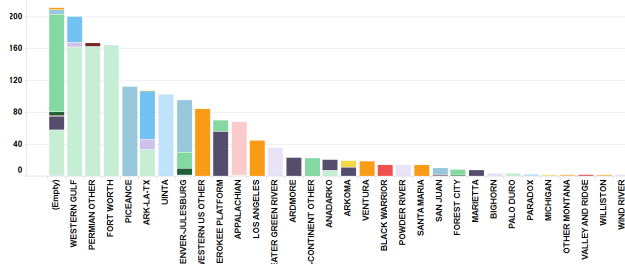
According to data from Enverus, almost 11,000 wells were placed on production in the onshore Lower 48 in 2023. This value will likely increase by a thousand or so since November and December still need to be fully reflected in the data. Nevertheless, it's a useful dataset to examine activity trends in 2023.

As expected, most of these wells were horizontal wells drilled in unconventional plays. Eighty-four percent were identified as horizontal, but when we look a little closer at the well names and the measured depths versus the true vertical depths we see that some wells are misclassified. After a bit more screening, we're left with about 1650 wells reported as placed on production in 2023 that were either vertical or directionally drilled. Seventy-five percent of these wells targeted oil reservoirs.

Over a third of these wells were drilled in Texas - unsurprising, considering the size of the state and that it has consistently had the most wells and production. In the next tier are Colorado, Kansas and California. Virginia is an interesting entry - approximately 70 coalbed methane wells were drilled there.



[CLICK TO ENLARGE](#)
(Source: Enverus)



[CLICK TO ENLARGE](#)
(Source: Enverus)

Looking at the producing basins, we see that most are in the western Gulf, Permian and Fort Worth Basins. The wells without a basin identified are primarily in Kansas or the Texas Panhandle field. Other active vertical/directional drilling areas include the Piceance/Uintah and the DJ, where Chevron was very active in the Wattenberg Field.

Other than Chevron, almost all of the vertical drilling last year was conducted by private independents. Some operators with the largest well counts in the data were Blackbeard Operating, Koda Resources, Terra Energy Partners, Caerus Oil and Gas and California Resources. Over 400 operators placed at least one new well on production, and half of the wells were drilled by operators that drilled ten or fewer. Some of these operators are relatively large and well-known, but a long list of small regional operators continue to develop their fields and test new concepts.

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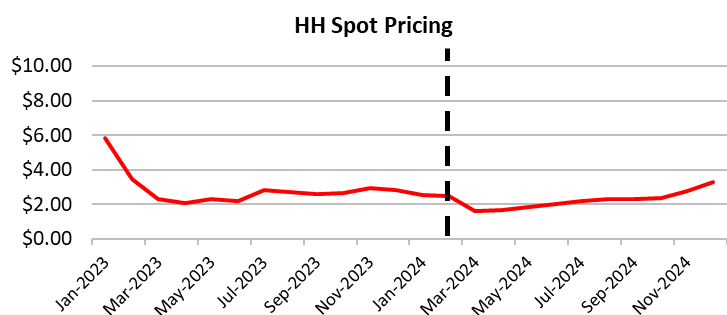
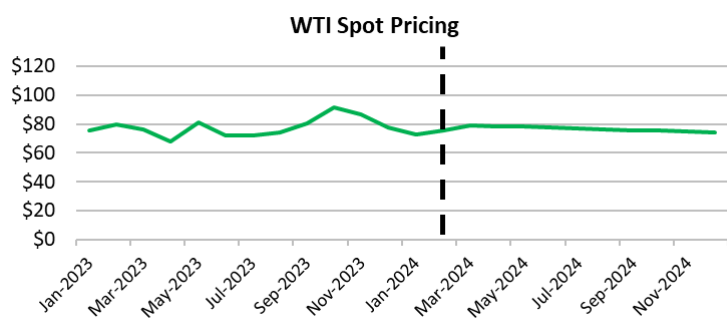
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NYMEX FUTURE PRICING



FRIDAY'S MARKET CLOSE

NYMEX WTI CRUDE OIL FUTURES as of February 16, 2024 Close (\$/bbl)

Period	Current	WoW Change	Last Week	1 Yr Ago
2024	\$76.63	\$1.00	\$75.63	\$73.91
2025	\$71.56	\$0.28	\$71.28	\$69.96
2026	\$68.07	\$0.20	\$67.87	\$66.65
2027	\$65.97	\$0.15	\$65.82	\$63.76
2028	\$64.93	\$0.11	\$64.82	\$61.11

NYMEX HH NATURAL GAS FUTURES as of February 16, 2024 Close (\$/MMBtu)

Period	Current	WoW Change	Last Week	1 Yr Ago
2024	\$2.22	(\$0.12)	\$2.34	\$3.61
2025	\$3.28	(\$0.15)	\$3.43	\$3.86
2026	\$3.63	(\$0.13)	\$3.76	\$3.91
2027	\$3.71	(\$0.03)	\$3.74	\$3.92
2028	\$3.68	(\$0.03)	\$3.71	\$3.97

INDUSTRY METRICS—QUICK SNAPSHOT

	Current	Last Week	WoW Change	%Change
Crude Oil Near-Month Price (\$/bbl)	\$78.98	\$76.60	\$2.38	3%
Natural Gas Near-Month Price (\$/MMBtu)	\$1.53	\$1.81	(\$0.28)	(15%)
Weekly Upstream-Deal Transaction Value (\$MM)	\$26,000.00	\$2,178.90	\$23,821.10	1,093%
Weekly Number of Upstream-Deal Transactions	2	4	(2)	(50%)
Current Total US Rig Count	621	623	(2)	(0.3%)
US Field Crude Oil Production (MMbbl/day)	13.3	13.3	0	-
US Field Dry Natural Gas Production (Bcf/day)	109.9	110.2	(0.3)	(0.3%)
Commercial Crude Oil Stocks-Excluding SPR (MMbbl)	439	427	12	3%
Natural Gas Stocks-Working Gas Underground Storage (Bcf)	2,636	2,584	52	2%
Total Drilled But Uncompleted Wells (DUC-Last Month)	4,386	4,374	12	0.3%

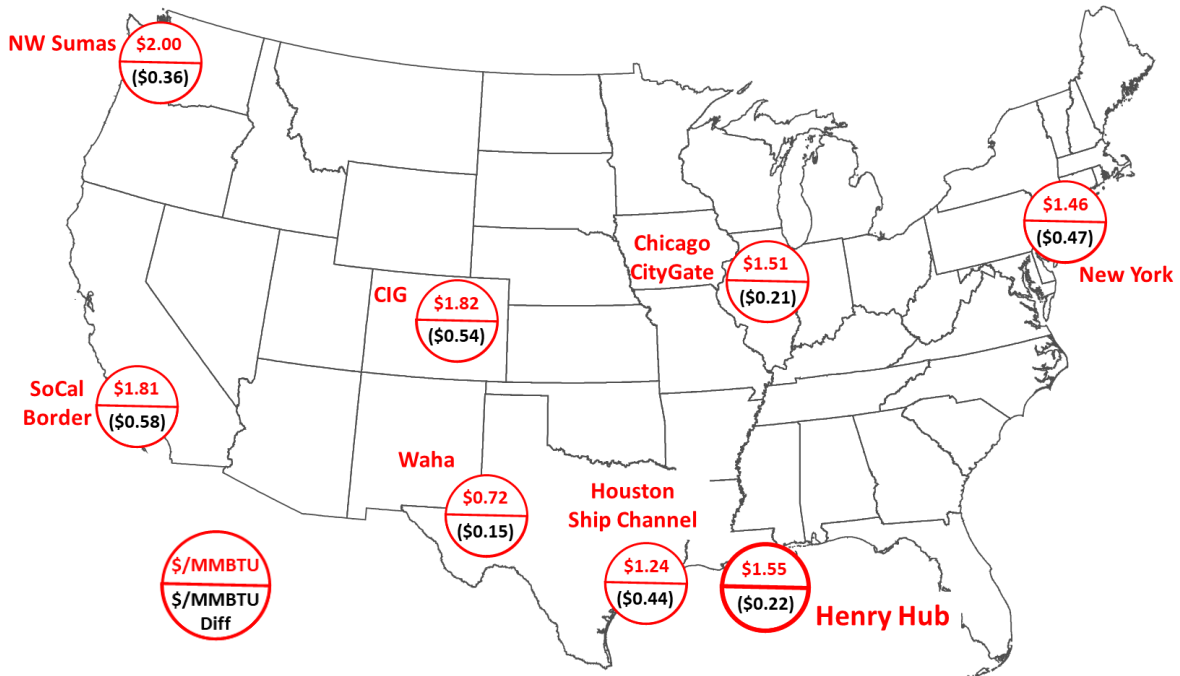
*Source—Energy Information Administration, United States (EIA)

*Source—Baker Hughes North America Rotary Rig Count & PLS M&A Database

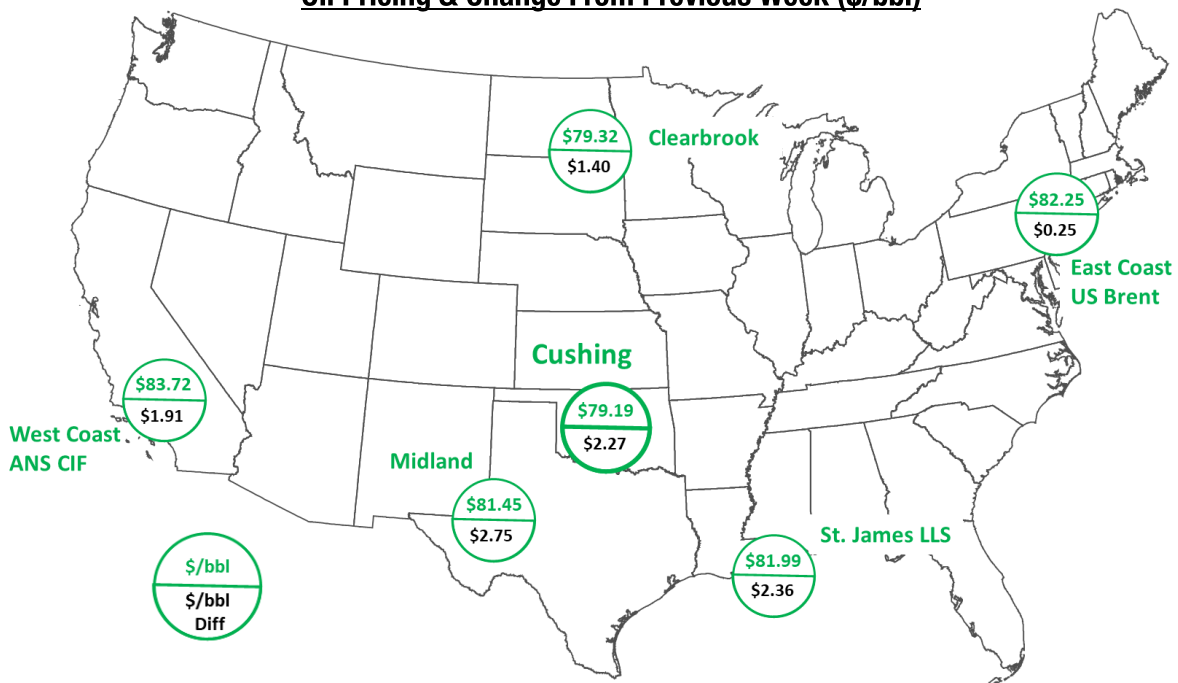


US COMMODITY PRICES CONTINUED

Natural Gas Pricing & Change From Previous Week (\$/MMBTu)



Oil Pricing & Change From Previous Week (\$/bbl)



*Source—Bloomberg LP



SELECTED INDUSTRY HEADLINES

IEA: Global Oil Market Tightens in January on Supply Disruptions

Global oil market balances tightened in January despite apparent demand weakness, the International Energy Agency (IEA) said in the 2024 February issue of the Oil Market Report.

Rystad Forecasts Net Production of Top Permian Producers in 2024

The combined company of ExxonMobil and Pioneer Natural Resources will have the highest amount of total net production in the Permian this year, Rystad Energy projected in a market update sent to Rigzone recently.

US SPR Refill Continues With DOE Purchase of 2.95 Million Barrels of Crude for June Delivery

The US Department of Energy has purchased a total of 2.95 million barrels of crude from four companies to replenish the Strategic Petroleum Reserve as part of a solicitation issued last month, the agency said Feb. 15.

Oil Gains Marginally as Demand Jitters Counter Middle East Conflict

Brent crude oil prices settled slightly higher in an abbreviated session on Monday, as lingering supply concerns from tensions in the Middle East were offset by signs of weakening demand.

Oil Prices Dip on Demand Concerns; Middle East Tensions Provide Support

Oil prices retreated slightly Monday amid persistent concerns over a looming demand slowdown, which largely offset fears of potential supply disruptions from new attacks in the Red Sea.

House Votes to Overturn Biden's Natural Gas Export Approval Freeze

The House voted Thursday to pass legislation that would effectively undo the Biden administration's freeze on new liquefied natural gas export approvals.

Traders Eye 'Spring-Like Weather' as Natural Gas Futures Slip Again (LOGIN CREDENTIALS REQUIRED)

As forecasts advertised unseasonably mild temperatures across key heating demand markets into early March, bargain-priced natural gas futures conceded ground in early trading Tuesday.

El Niño Pushes Real US Gas Prices to Multi-Decade Low

Inflation-adjusted U.S. gas prices have fallen to the lowest level for over 30 years as a mild winter and continued production growth leave the market carrying a growing surplus of inventories.
Other energy sources

Shell Forecasts 50% Rise in Global LNG Demand by 2040

Supermajor Shell is forecasting that global demand for liquefied natural gas will rise by more than 50% by 2040, driven by China's transition away from coal and rising demand in other Asian nations.

DOE Urges Industry to Hit 20 GW of Community Solar by End of 2025

At the U.S. DOE's National Community Solar Partnership Annual Summit, Assistant Secretary Jeff Marootian challenged the community solar industry to commit to meeting the NCSP target of 20 GW of community solar by 2025, up from seven GW today.

Oil and Gas Producer to Pay Millions to US and New Mexico to Remedy Pollution Concerns

A Texas company has reached a multimillion-dollar settlement with the federal government and the state of New Mexico to address air pollution concerns in the largest oil and gas producing region in the United States

A Ban on LNG Exports Could Boost Carbon Emissions

Critics argue the pause might prolong coal dependence in other countries, potentially increasing carbon emissions.



SELECTED RECENT TRANSACTIONS

Bayswater Acquires New Oil and Gas Production, Drilling Assets in DJ Basin

Bayswater Exploration & Production, a Denver-based oil and natural gas development company, recently acquired assets that will continue to expand its operations in the Denver Julesburg Basin in Weld County, Colorado.

Diamondback Agrees to \$26 Billion Deal to Buy Endeavor Energy in Growing Permian Push

Shale producer Diamondback Energy said on Monday it would buy the largest privately held oil and gas producer in the Permian Basin, Endeavor Energy Partners, in a cash-and-stock deal valued at about \$26 billion, including debt.

California Resources Corporation to Combine With Aera Energy

California Resources Corporation announced the signing of a definitive merger agreement to combine with Aera Energy, LLC in an all-stock transaction valued at approximately \$2.1 billion.

Vital Energy Closes Deal to Acquire Additional Interests in Permian Basin Assets

The \$78-million deal gives Vital Energy additional working interests in producing assets associated with the recent asset acquisition from Henry Energy LP, Moriah Henry Partners LLC, and Henry Resources LLC.

Silver Hill Energy Partners to Buy Liberty Resources' North Dakota Assets

Silver Hill Energy Partners said it would acquire Liberty Resources II's interests in oil and gas properties and all of Liberty Midstream Solutions in North Dakota for an undisclosed amount.

Permian Resources Unveils Two Bolt-on Acquisitions For \$175 Million

Permian Resources announced a series of deals consisting of two bolt-on acquisitions, an acreage swap, a sale of non-core assets and additional grassroots acquisitions.

W&T Offshore to Increase Oil and Gas Production With \$72 Million U.S. Gulf of Mexico Acquisitions

W&T Offshore, Inc. has completed the accretive acquisition of six fields in shallow waters of the U.S. Gulf of Mexico.

Talos Energy to Acquire QuarterNorth Energy For \$1.29 Billion

Oil and gas company Talos Energy, said it will acquire privately held QuarterNorth Energy in a \$1.29 billion cash-and-stock deal to bolster its presence in the Gulf of Mexico.

Prairie Operating Expands With \$94.5 Million Asset Acquisition

Prairie Operating Co., an oil and gas company, has announced a definitive agreement to acquire the assets of Nickel Road Operating LLC for a total consideration of \$94.5 million.

Chesapeake Energy Merges With Southwestern For \$7.4 Billion—Becomes Largest Natural Gas Producer In U.S.

Chesapeake Energy will merge with Southwestern Energy in an all-stock deal valued at \$7.4 billion, both companies announced Thursday, the latest transaction in the energy industry that would make Chesapeake the largest natural gas producer in the U.S.

U.S. Energy Corp. Announces Completion of Asset Divestitures and Provides Liquidity Update

U.S. Energy Corp, a growth-focused energy company engaged in the operation of high-quality producing oil and natural gas assets, today announced it had completed a series of non-core asset divestitures.

Evolution Petroleum Announces Acquisition of Non-operated Oil and Gas Assets

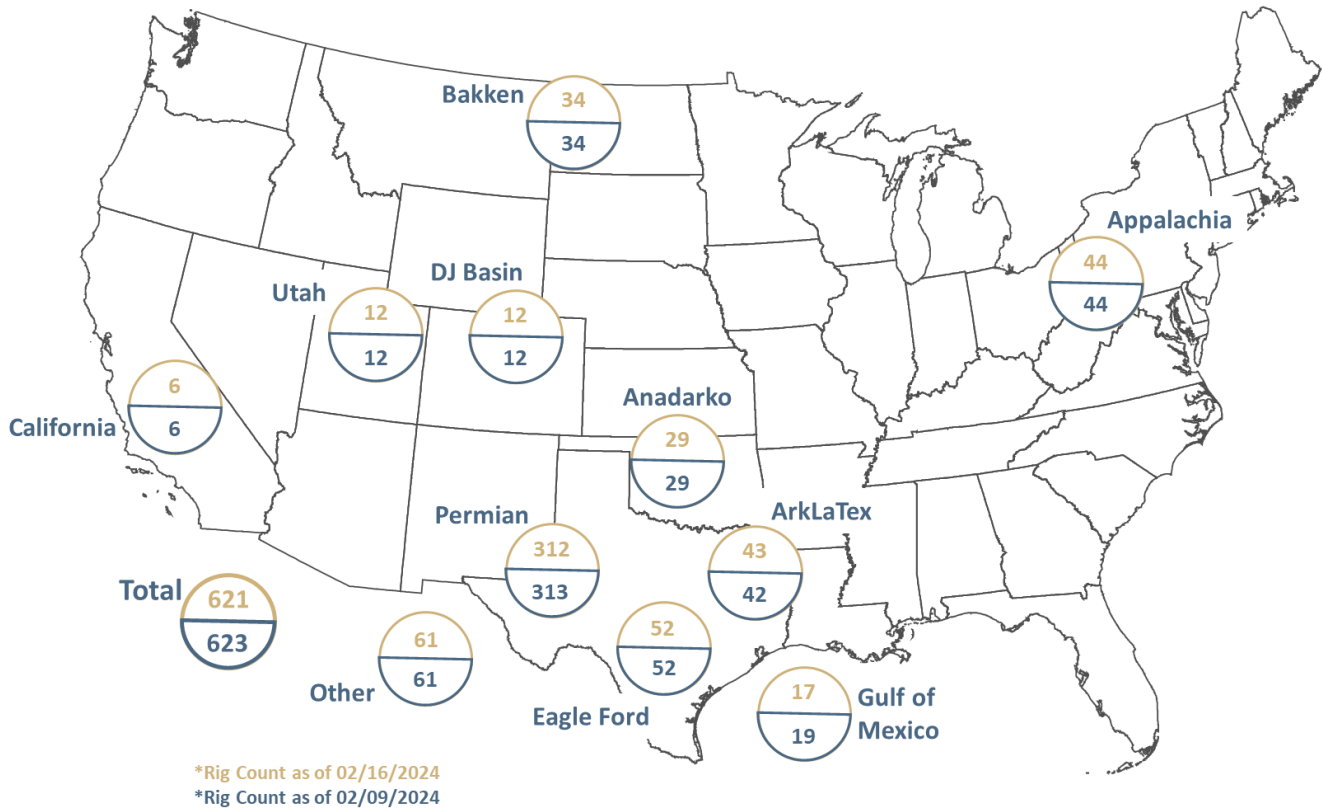
Evolution Petroleum Corporation announced that it has entered into definitive agreements to acquire non-operated oil and natural gas assets in the SCOOP and STACK plays in central Oklahoma for \$43.5 million in cash.

Trio Petroleum Announces an Option to Acquire a 20% Interest in the Asphalt Ridge Development Project in Utah

Trio Petroleum Corp, a California-based oil and gas company, announced that it has secured an option to acquire a 20% interest in a sweet, heavy-oil development project at Asphalt Ridge, located near the town of Vernal in Uinta County in northeastern Utah.



RIG ACTIVITY BY US REGION

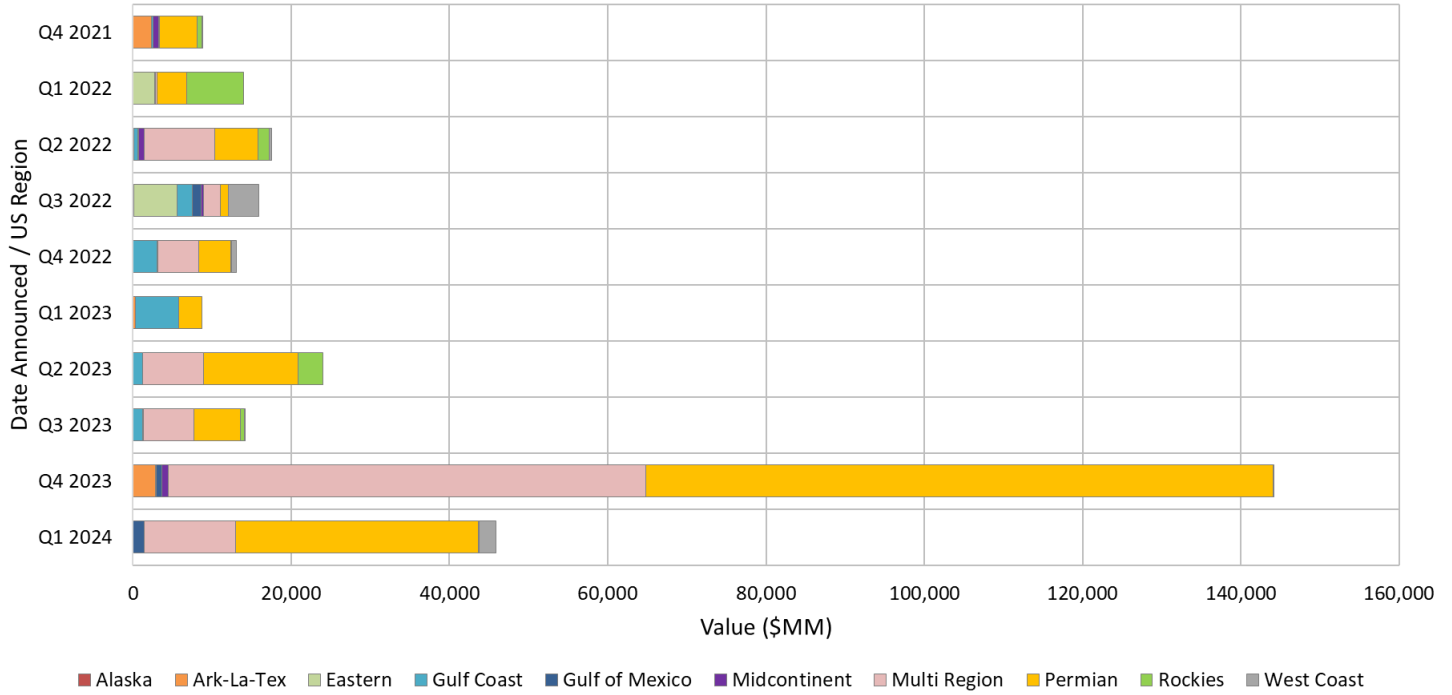


U.S. Rig Breakouts	Week Ending 02/16/2024		Week Ending 02/09/2024		Week Ending 02/17/2023
	Count	+/-	Count	+/-	Count
Oil	497	(2)	499	(110)	607
Gas	121	0	121	(30)	151
Not Specified	3	0	3	1	2
Directional	48	(3)	51	6	42
Horizontal	560	0	560	(140)	700
Vertical	13	1	12	(5)	18
Land (Inc Others)	602	0	602	(139)	741
Inland Waters	0	0	0	(2)	2
Offshore	19	(2)	21	2	17
US Total	621	(2)	623	(139)	760

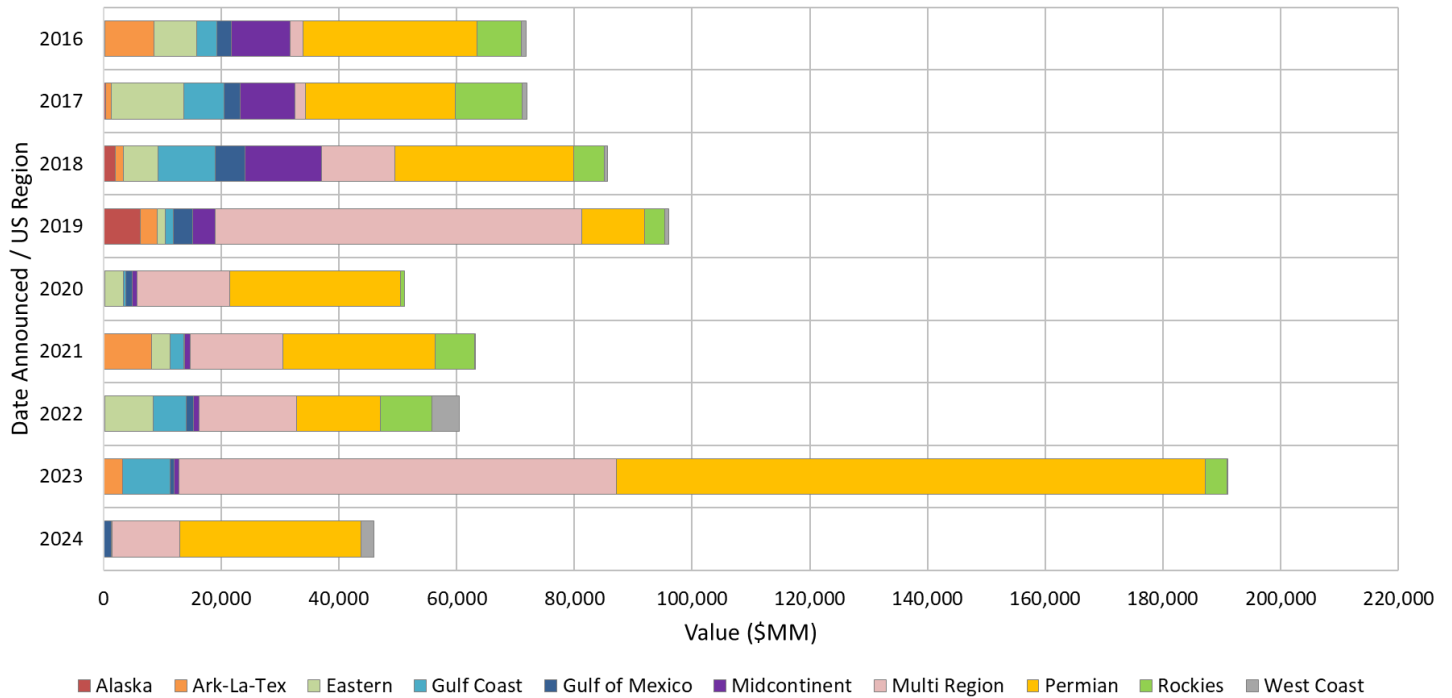
*Source—Baker Hughes Weekly Rig Counts



DEAL VALUE BY US REGION (BY QUARTER)



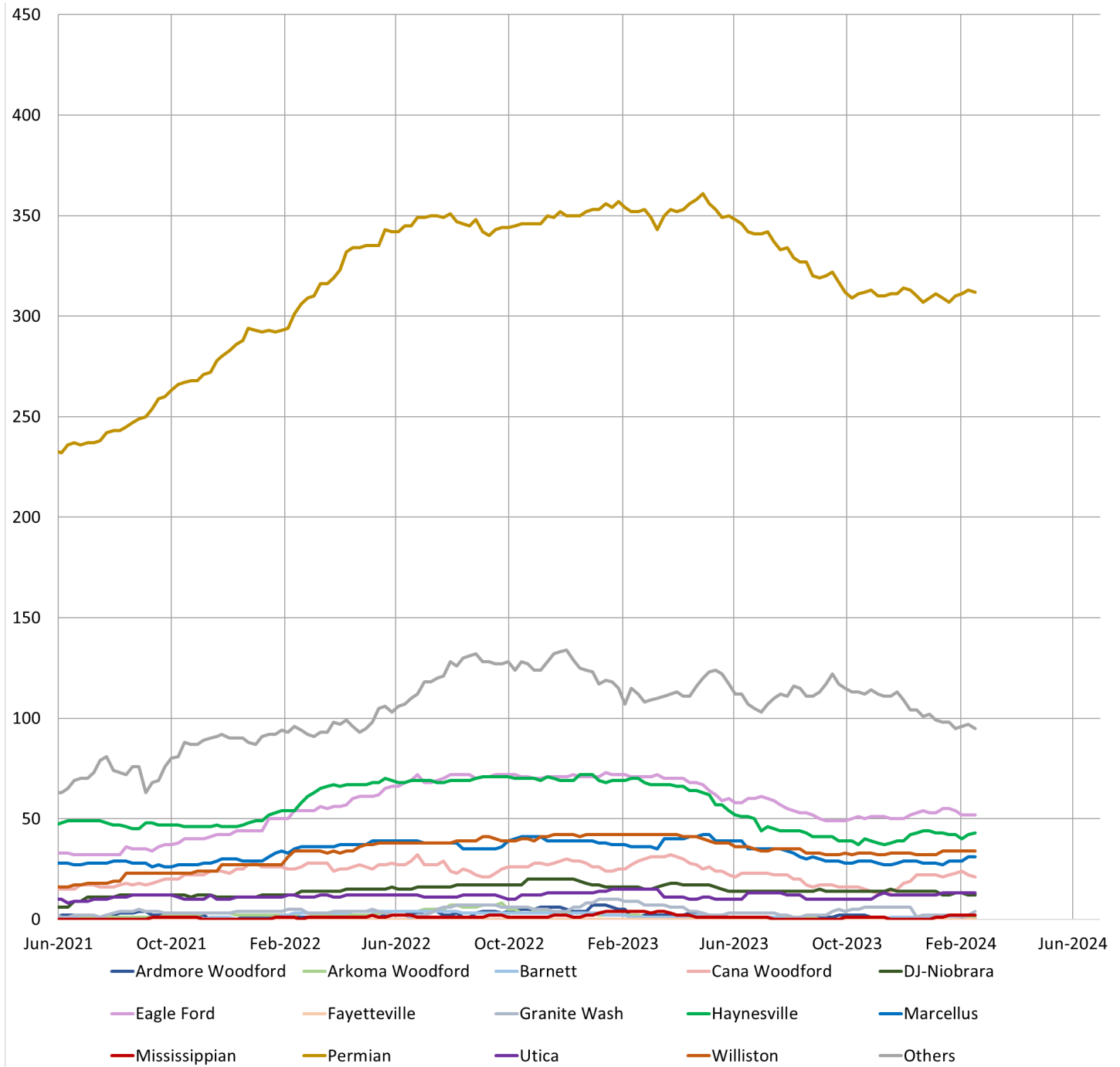
DEAL VALUE BY US REGION (BY YEAR)



*Source—PLS M&A Database (Charts exclude terminated deals)



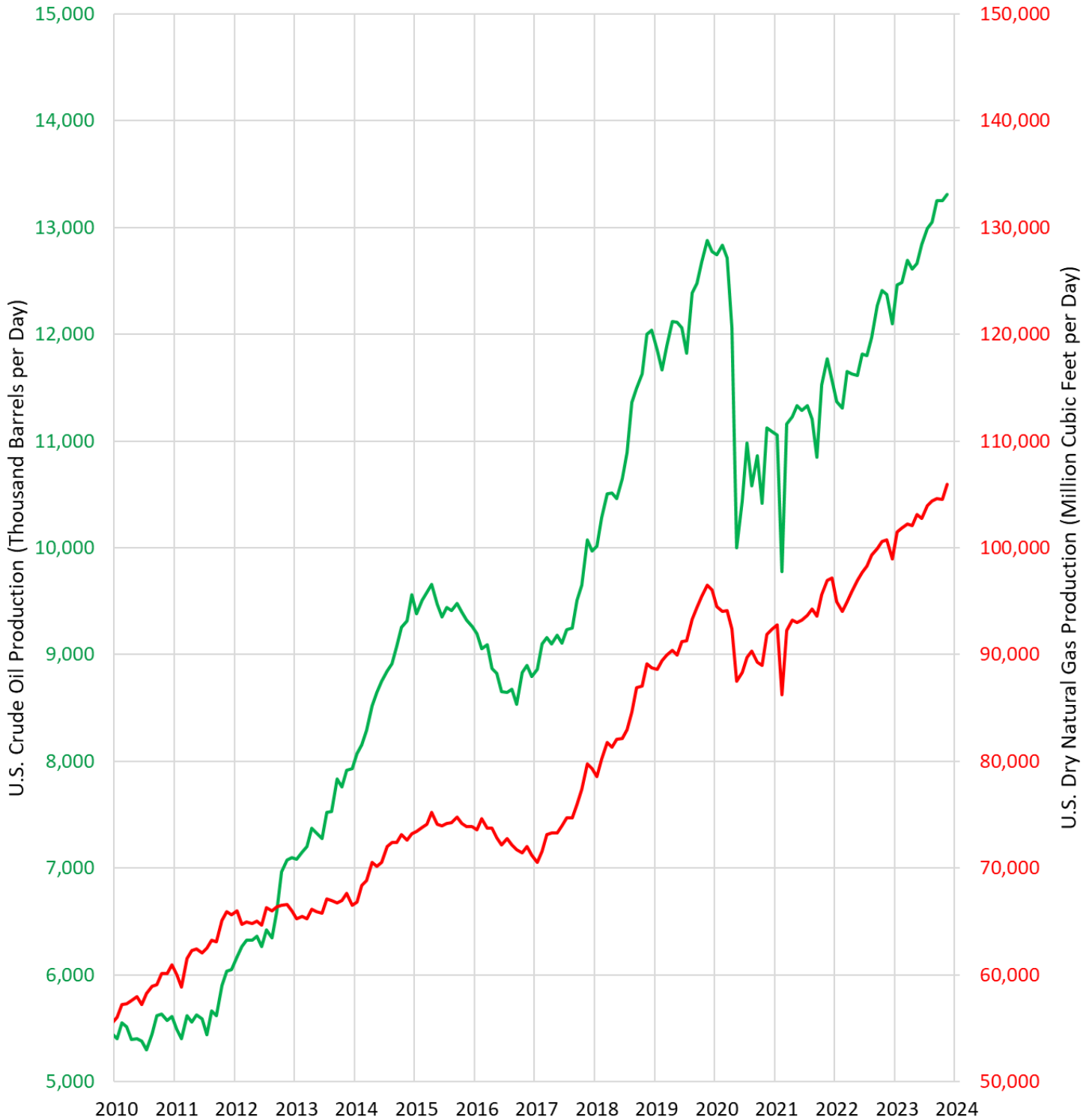
RIG ACTIVITY BY US REGION



*Source—Baker Hughes Weekly Rig Counts



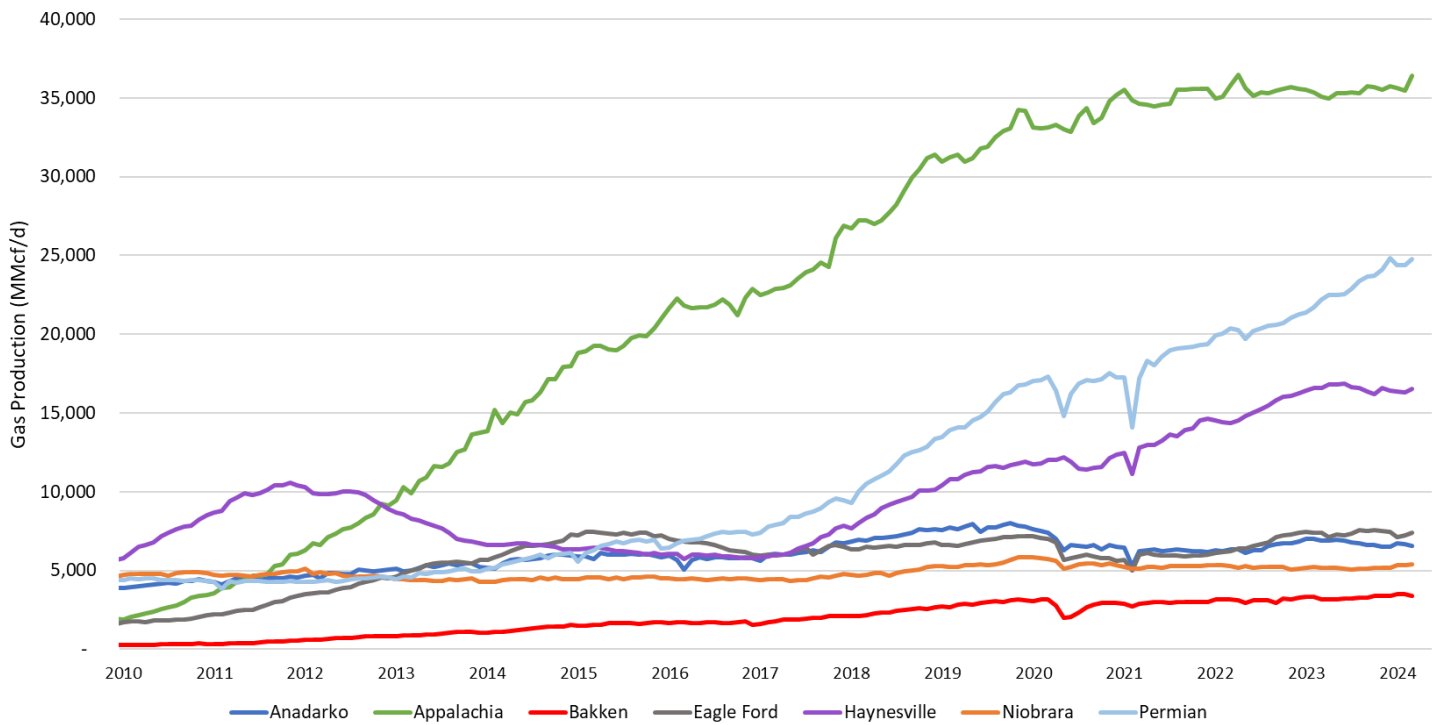
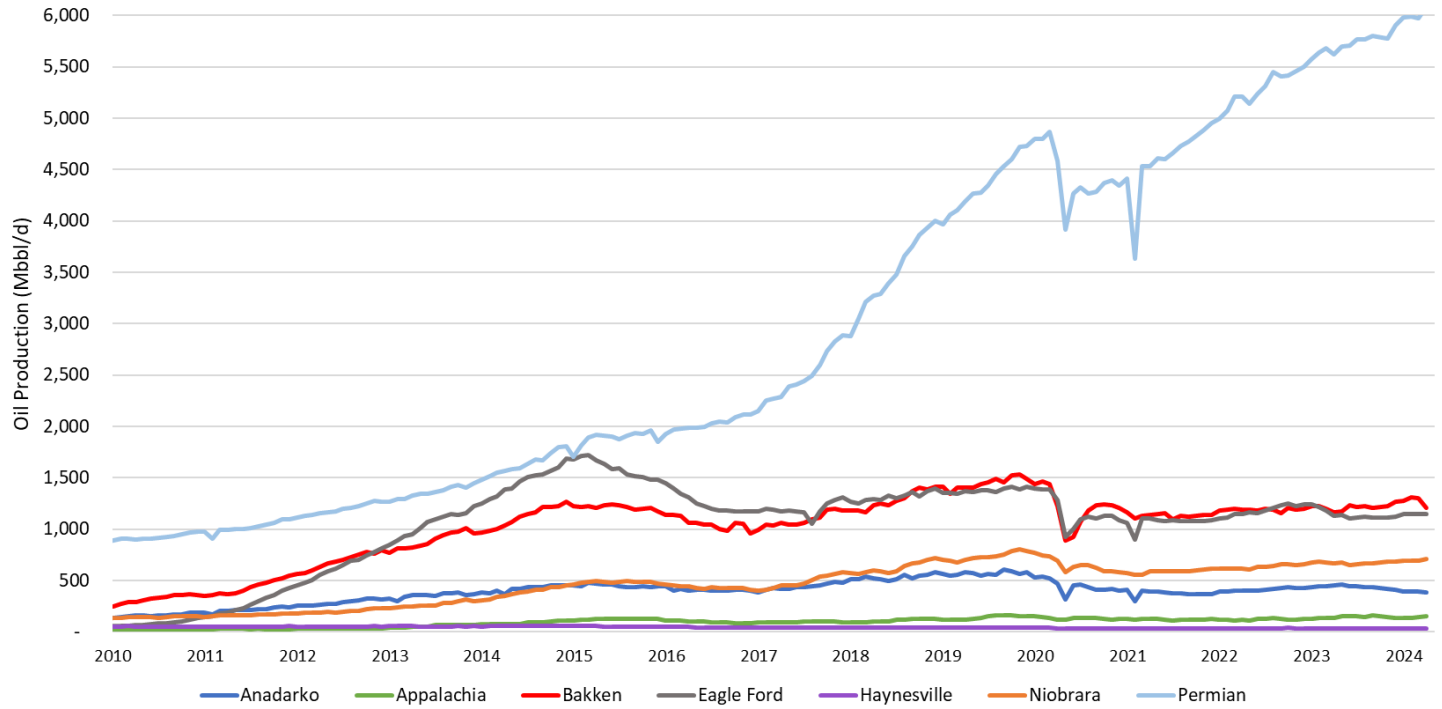
US DAILY CRUDE (MMbbl) & DRY NATURAL GAS PRODUCTION (MMcf)



*Source—Energy Information Administration, United States (EIA)



HISTORICAL PRODUCTION OF SELECTED US SHALE REGIONS



*Source—Energy Information Administration, United States (EIA)



UPCOMING EVENTS

February 2024

SPE Business Development A&D Symposium	February 28	Houston, TX
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March 2024

Big Energy! Gala 2024	March 2	Houston, TX
5th Circuit Bankruptcy Bench-Bar Conference	March 6-8	New Orleans, LA
Tulsa Irish Festival	March 8-10	Tulsa, OK
OneGoal Pathways of Promise Luncheon	March 20	Houston, TX
ROCC US Men's Clay Court Championship	March 30 - April 7	Houston, TX

April 2024

World Oilman's Poker Tournament (WOPT)	April 3-5	Las Vegas, NV
The Leukemia & Lymphoma Society (LLS) Big Climb	April 6	Houston, TX
HBA & HPF Spring Social	April 11	Houston, TX
World Oilman's Mineral & Royalty Conference (MARC)	April 15-16	Houston, TX
Quorum Qnections Conference	April 23-25	Las Vegas, NV
HPF/SPE Fifth Annual Crawfish Boil	April 24	Houston, TX
World Oilman's Tennis Tournament (WOTT)	April 24-27	Houston, TX
ADAM Energy Golf Tournament	April 29	Frisco, TX

*Denotes an Opportune Sponsored Event



ABOUT RALPH E. DAVIS ASSOCIATES

Ralph E. Davis Associates LLC (RED) is an industry-leading petroleum engineering and geosciences firm committed to satisfying the individual needs of clients. We accomplish this by holding ourselves to the highest standards of integrity and professionalism to deliver honest, direct and actionable insights to help clients achieve their strategic objectives. We distinguish ourselves by combining reservoir engineering, geoscience evaluation techniques and advanced data analytics with economic analyses to provide our clients with individual, customized solutions.

Banks, bondholders, private equity firms, financial institutions and law firms around the world trust in RED's diverse services and unrivaled upstream oil and gas expertise to deliver comprehensive solutions that help clients make informed decisions. We add value to every engagement by employing a team approach, leveraging Opportune LLP's experienced bench of experts in transactional due diligence, tax advisory, investment banking, restructuring and valuation.

We offer technical and economic analyses to deliver our clients a complete, independent, accurate and detailed assessment of the value of their assets. We apply a robust set of technical capabilities to assist our clients. Our capabilities include:

- Reservoir engineering and geosciences
- Economic forecasting and reporting
- Data analytics and geospatial analysis

KEY CONTACTS



Steve Hendrickson is the President of Ralph E. Davis Associates, an Opportune LLP company. Steve has over 35 years of professional leadership experience in the energy industry with a proven track record of adding value through acquisitions, development and operations. Steve is a licensed professional engineer in the state of Texas, and holds an M.S. in Finance from the University of Houston and a B.S. in Chemical Engineering from The University of Texas at Austin. He recently served as a board member of the Society of Petroleum Evaluation Engineers (SPEE) and is a registered FINRA representative.



John Beaird is Vice President of Ralph E. Davis Associates, an Opportune LLP company. John has 39 years of oil and gas management, reservoir engineering, and petroleum economics evaluation experience. Recent relevant experience includes the Permian, Western Gulf, Tx-La-Miss Salt, Mid-Continent, Denver-Julesburg, Wind River, Williston Basin, and Appalachian Basins. John is a registered Petroleum Engineer in the State of Texas and holds a B.S. in Petroleum Engineering from Louisiana Tech University. He is also an active member of the Society of Petroleum Evaluation Engineers (SPEE).



Yvonne Trujillo is a Senior Petroleum Engineer at Ralph E. Davis Associates, an Opportune LLP company. Yvonne has over 25 years experience in the oil and gas industry with extensive expertise in reserves engineering, SEC and PRMS/SPE reporting and economics and asset evaluation in conventional and unconventional reservoirs in the U.S. Lower 48. Yvonne earned a B.S. in Mechanical Engineering at Simon Bolivar University in Caracas, Venezuela and an M.S. in Petroleum Engineering at the University of Houston.



David Edwards is a Petroleum Engineer at Ralph E. Davis Associates, an Opportune LLP company. David has over three years of reserves engineering experience in conventional and unconventional reservoirs. Before RED, David was a Petroleum Engineer at a lower middle market A&D advisory firm where he handled the technical processes for marketed assets. He began his career with an operator in Dallas, where he contributed to its engineering, operations, and A&D teams. David holds an M.B.A. from The University of Texas Permian Basin and a B.S. in Petroleum Engineering from The University of Oklahoma.

