



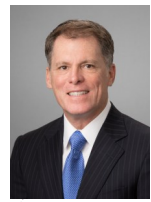
Weekly E&P Update

June 20, 2023

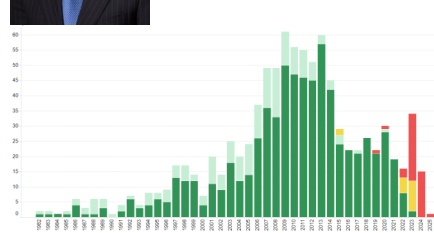
Vol. 24

Inflation Reduction Act Likely to Renew Interest in Landfill Gas Projects

By Steve Hendrickson
President of Ralph E. Davis Associates



The gradual decay of organic material in landfills results in the release of methane, carbon dioxide, and other gases, depending on the conditions of the landfill. The [concentration of landfill gas \(LFG\)](#) depends on the landfill conditions and the passage of time. [Systems to collect](#) and utilize the methane in LFG have been deployed for decades, but their development really took off in the early 2000s in response to high natural gas prices. Currently, there are about 700 active projects in the US.



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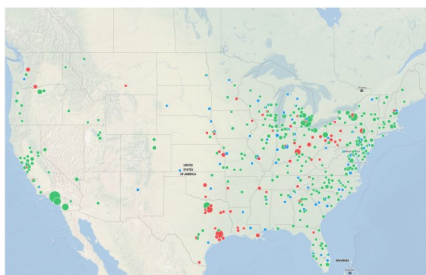
(Source: Environmental Protection Agency)

Development slowed down significantly following the decline of natural gas prices in 2014 but shows signs of ramping up again due to incentives in the Inflation Reduction Act to reduce greenhouse gas emissions. Since much of the LFG is often CO₂, some landfill operators are [investigating underground carbon storage projects](#) to take advantage of increased Section 45Q tax credits.

The EPA provides a database of LFG projects, although not all report the amount of gas they produce or the concentration. Nevertheless, adding up the reported

volumes of the operational and planned projects indicates gas production of over 1.3 bcfpd. Assuming half of this is methane, results in volume that, while only a small fraction of the 100 bcf of natural gas the US produces from oil and gas wells each day, is more than I would have guessed.

The location of projects closely follows the population distribution of the US: most projects are located in the eastern half of the country or along the west coast. In the EPA data, the [primary end uses of LFG](#) are categorized as "direct" (burned or used on-site), "electricity," and "renewable natural gas." In about 70% of the projects (based on landfill size), the gas is used to generate electricity, and 22% is used for RNG. The map shows that RNG projects tend to be in areas with existing natural gas production and gathering infrastructure.



[CLICK TO ENLARGE](#)

(Source: EPA)

The Inflation Reduction Act (IRA) includes provisions that will likely make LFG projects more attractive and have other impacts on how the waste industry addresses methane and CO₂ emissions. Examples identified in a [recent waste industry publication](#) by Patrick Serfass (executive director of the American Biogas Council) include, "1) longer-term certainty of [tax] credit[s] to help attract investors; 2) a new [tax] credit to address a sector that didn't have a credit before; and 3) the carbon sequestration credit will become more relevant to biogas systems."

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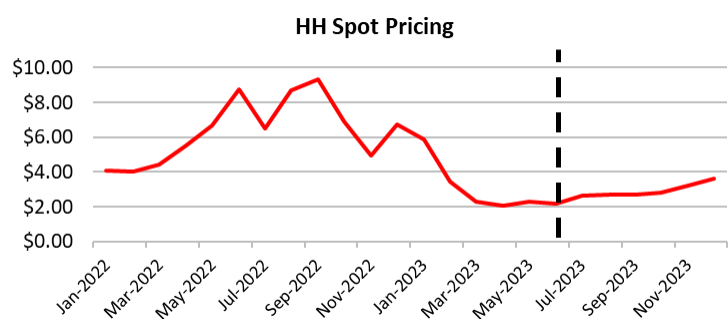
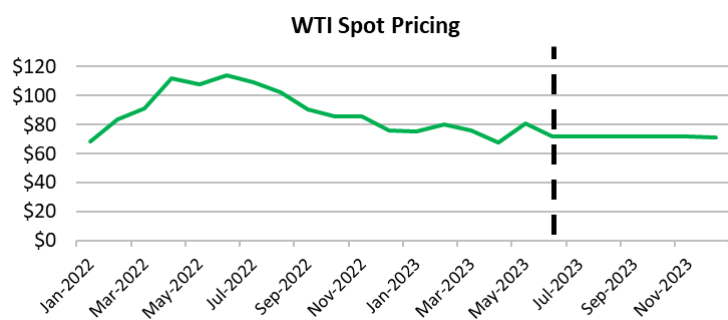
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NYMEX FUTURE PRICING



MONDAY'S MARKET CLOSE

NYMEX WTI CRUDE OIL FUTURES as of June 19, 2023 Close (\$/bbl)

Period	Current	WoW Change	Last Week	1 Yr Ago
2023	\$71.69	\$4.60	\$67.09	\$97.09
2024	\$69.32	\$4.13	\$65.19	\$86.32
2025	\$66.21	\$3.47	\$62.74	\$78.84
2026	\$63.75	\$3.06	\$60.69	\$73.49
2027	\$61.57	\$2.69	\$58.88	\$69.77

NYMEX HH NATURAL GAS FUTURES as of June 19, 2023 Close (\$/MMBtu)

Period	Current	WoW Change	Last Week	1 Yr Ago
2023	\$2.96	\$0.33	\$2.63	\$5.94
2024	\$3.52	\$0.12	\$3.40	\$5.09
2025	\$3.97	\$0.08	\$3.89	\$4.85
2026	\$3.95	\$0.04	\$3.91	\$4.77
2027	\$3.85	(\$0.03)	\$3.88	\$4.72

INDUSTRY METRICS—QUICK SNAPSHOT

	Current	Last Week	WoW Change	%Change
Crude Oil Near-Month Price (\$/bbl)	\$70.55	\$70.94	(\$0.39)	(0.5%)
Natural Gas Near-Month Price (\$/MMBtu)	\$2.55	\$2.32	\$0.23	10%
Weekly Upstream-Deal Transaction Value (\$MM)	\$1,604.60	\$0.00	\$1,604.60	-
Weekly Number of Upstream-Deal Transactions	4	1	3	300%
Current Total US Rig Count	687	695	(8)	(1%)
US Field Crude Oil Production (MMbbl/day)	12.4	12.4	0	-
US Field Dry Natural Gas Production (Bcf/day)	105.7	106.3	(0.6)	(0.6%)
Commercial Crude Oil Stocks-Excluding SPR (MMbbl)	467	459	8	2%
Natural Gas Stocks-Working Gas Underground Storage (Bcf)	2,634	2,550	84	3%
Total Drilled But Uncompleted Wells (DUC-Last Month)	4,834	4,863	(29)	(0.6%)

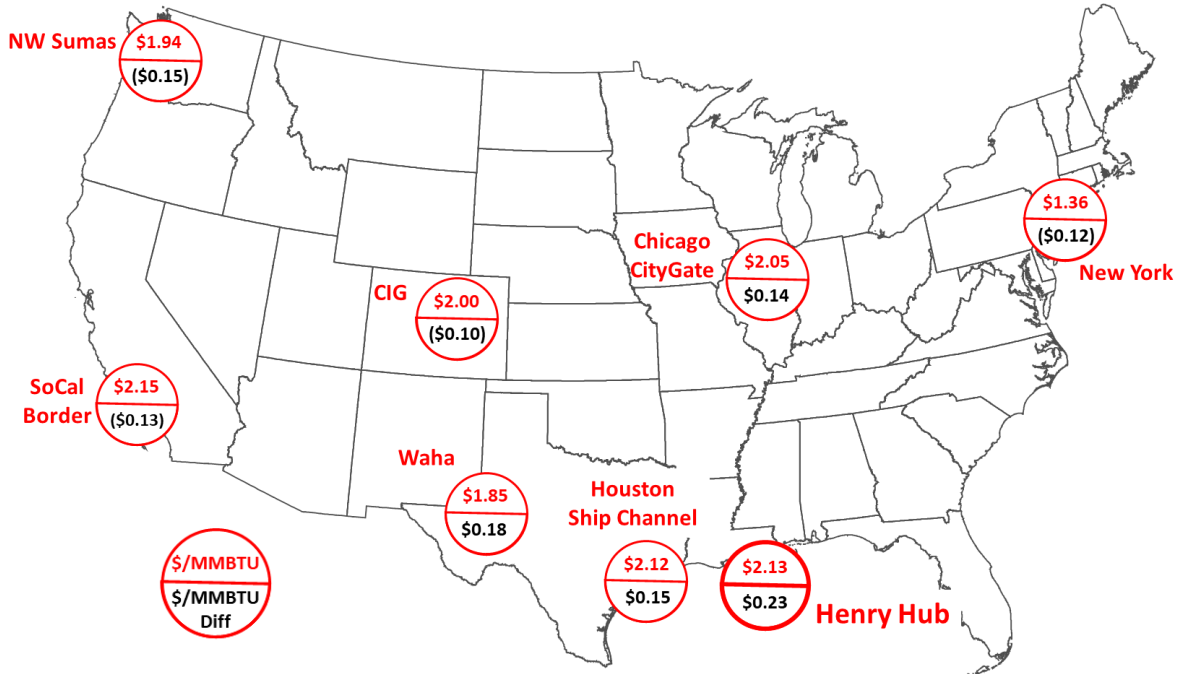
*Source—Energy Information Administration, United States (EIA)

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

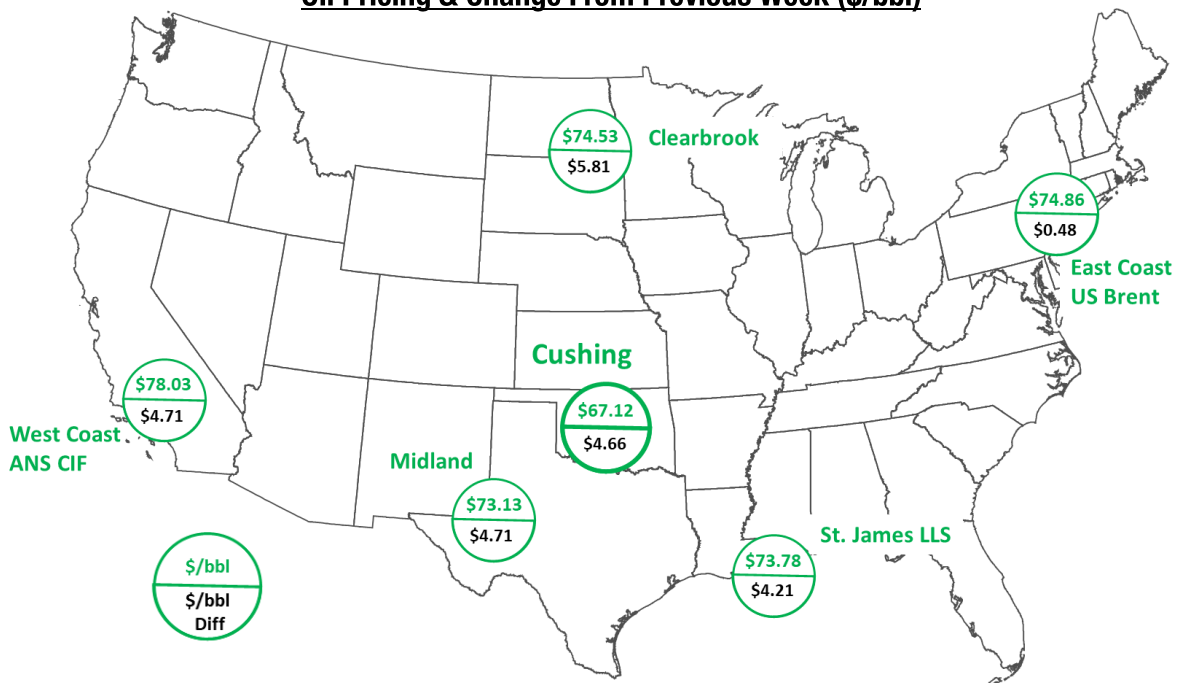


US COMMODITY PRICES CONTINUED

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



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



*Source—Bloomberg LP



SELECTED INDUSTRY HEADLINES

Oil Falls On Mixed Chinese Demand Picture

Oil prices fell in choppy trading recently as a clouded oil demand outlook outweighed the potential boost from a cut to China's benchmark lending rates.

Why Aren't Oil Prices Higher?

'Despite expectations of a looming oil market deficit, prices have remained surprisingly low'. Some people suggest a combination of non-fundamental factors, lagging demand, and stronger than expected supply are at play.

Russia's Crude Oil Exports Still Higher Than Before It Pledged To Cut

Russia's crude oil exports by sea fell slightly recently, dropping from 3.66 million bpd to 3.63 million bpd. Despite the drop, Russia's oil exports are still 250,000 barrels per day higher than they were in February when Russia was set to cut production.

U.S. Sweet, Sour Oil Price Spread Narrows On Strong Sour Demand

U.S. sweet and sour oil differentials narrowed significantly this month, pricing data showed, as demand for higher sulfur crudes climbed from refineries and exporters while supplies tightened.

U.S. To Purchase 12 MMbbl Of Oil For Depleted Emergency Reserve In 2023

The U.S. plans to purchase about 12 MMbbl of oil this year as it begins to refill its depleted emergency reserve amid falling crude prices, according to two people familiar with the matter.

Will China's Rumored Economic Stimulus Boost Oil Prices

Rumors are that new fiscal measures are to be taken to boost China's economic recovery, but these measures may not significantly boost crude prices.

A Look At South America's Top 5 Economies And Their Oil Potential

Peru's oil production is hampered by political and social instability, whereas Chile, with minimal oil reserves, heavily relies on copper and lithium production.

Iranian Oil Is Quietly Flooding into the Global Market Again

Iran is shipping the most crude in almost five years, fortifying its re-emergence on the geopolitical stage while posing risks for a fragile global crude market.

Texas Oil Producers Remain Upbeat About Crude Demand (LOGIN CREDENTIALS REQUIRED)

Those betting that momentum in the world's leading economies will drive oil prices higher may be disappointed, analysts said, though recent market volatility points to uncertain times.

New Mexico Is Driving Permian Oil Production Growth

The New Mexico part of the biggest U.S. shale play has seen larger growth than Texas in recent years. New Mexico saw the highest crude oil production growth of any U.S. state last year, with output gains of 300,000 barrels per day.

Oil Moves Lower After EIA Confirms Large Crude Build

Crude oil prices inched lower recently after the Energy Information Administration reported an estimated inventory build of 7.9 million barrels.

Employment Figures in Texas Upstream Sector Up in May

TIPRO, citing the latest CES report from the Bureau of Labor Statistics, has noted a significant gain in Texas upstream employment figures. According to the data, there were 13,779 active unique jobs postings for the Texas oil and natural gas industry in May, including 4,366 new job postings added during the month by companies.



SELECTED RECENT TRANSACTIONS

Earthstone Energy Announces \$1.0 Billion Delaware Basin Acquisition

Earthstone Energy, Inc. recently announced that it has entered into an agreement to acquire Novo Oil & Gas Holdings, LLC, a privately-held Delaware Basin focused E&P company backed by EnCap Investments L.P., for \$1.5 billion.

Westlawn Group Forms Ellipsis U.S. Onshore Holdings To Acquire Assets Located In The Delaware Basin

Westlawn Group, LLC announced the formation of Ellipsis U.S. Onshore Holdings, LLC. Headquartered in Dallas, Texas, Ellipsis is a private energy company formed to pursue the acquisition and development of large, producing oil and natural gas assets in the United States.

Lucero Energy Corp. Announces US\$104.6 Million Asset Disposition, Revised 2023 Guidance And Normal Course Issuer Bid

Lucero Energy Corp. announced the Company has executed and closed a definitive purchase and sale agreement with an arm's length purchaser, to divest of certain non-strategic, non-operated assets within Lucero's North Dakota Bakken/Three Forks play for cash consideration of C\$140.2 million before customary closing adjustments.

CNX Resources To Sell Various Non-Operated Producing Oil And Gas Assets Primarily Located In The Appalachian Basin

A subsidiary of CNX Resources Corporation entered into a definitive purchase sales agreement to sell various non-operated producing oil and gas assets primarily located in the Appalachian basin to a third party. The Company expects the transaction to close in the second quarter of 2023 and result in cash proceeds of approximately \$125 million.

Chord Energy Divests Permian Assets to Private E&P

Chord Energy is selling non-core acreage and wells, primarily in the Central Basin Platform, to private E&P BCP Resources, which is focused on developing and optimizing legacy assets.

Family Office-Led Private Consortium Acquires PureWest

PureWest Energy, LLC, a leading Rocky Mountain independent natural gas producer has completed an all-cash merger with a newly formed entity sponsored by a private consortium of family offices and financial institutions for a total consideration of \$1.84 billion.

PureWest Energy LLC Sells Producing Wellbores In Wyoming

As part of their recent transaction, PureWest Energy, LLC has closed on a divestiture of producing wellbores to investment vehicles managed by Wincoram Asset Management.

Chord Energy Announces Strategic Acquisition of Williston Basin Assets

Chord Energy Corporation today announced that a wholly owned subsidiary of Chord has entered into a definitive agreement to acquire assets in the Williston Basin from XTO Energy Inc. and affiliates, subsidiaries of Exxon Mobil Corporation, for total cash consideration of \$375MM, subject to customary purchase price adjustments.

Chevron Announces Agreement to Acquire PDC Energy

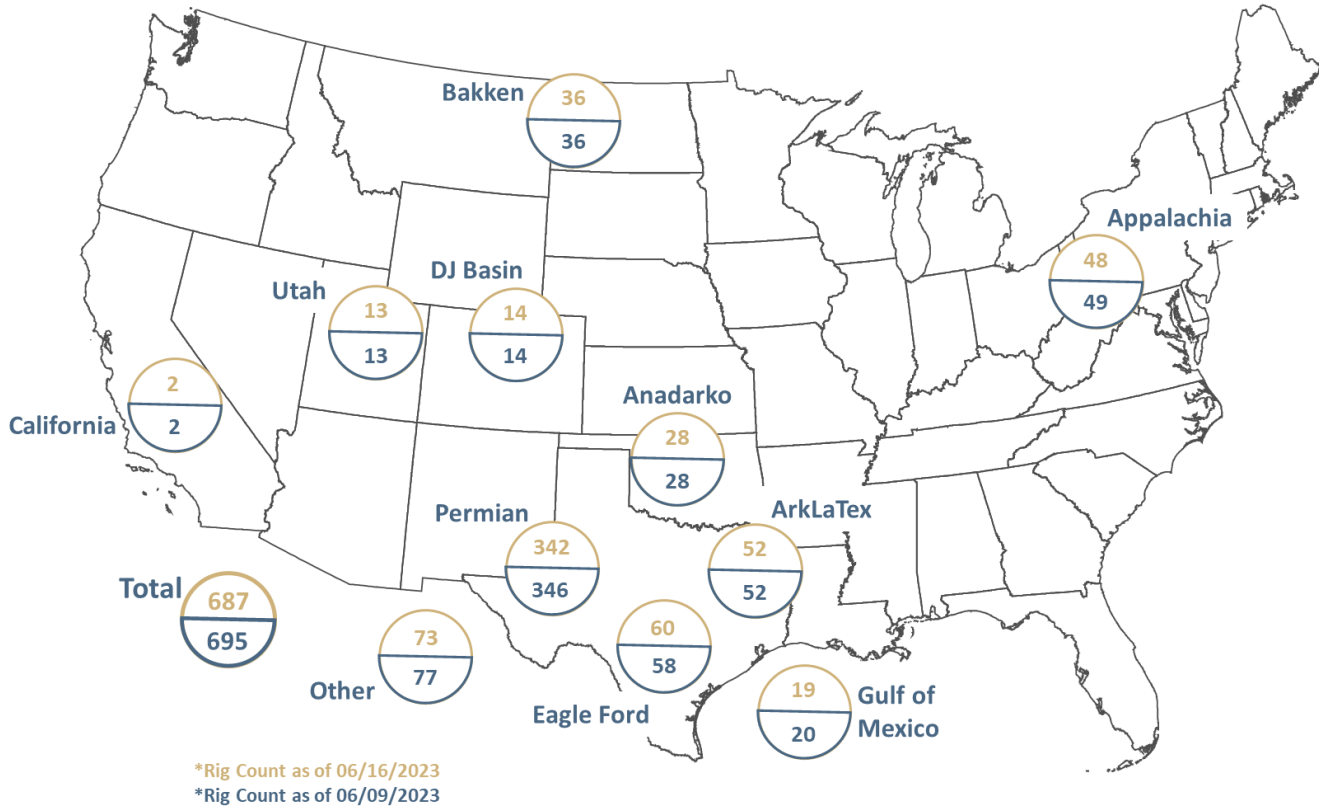
Chevron Corporation (NYSE: CVX) announced recently that it has entered into a definitive agreement with PDC Energy, Inc. (NASDAQ: PDCE) to acquire all of the outstanding shares of PDC in an all-stock transaction valued at \$6.3 billion, or \$72 per share.

Pompano Resource Transformation Acquires Gulf Coast Oil Field From Paloma Resources

Pompano Resource Transformation, a wholly-owned subsidiary of XMC Strategies, recently announced that it has acquired a Gulf Coast oil asset, including 33 operated oil wells, from Paloma Natural Gas, LLC, which is owned in part by Houston-based private equity firm EnCap Investments.



RIG ACTIVITY BY US REGION

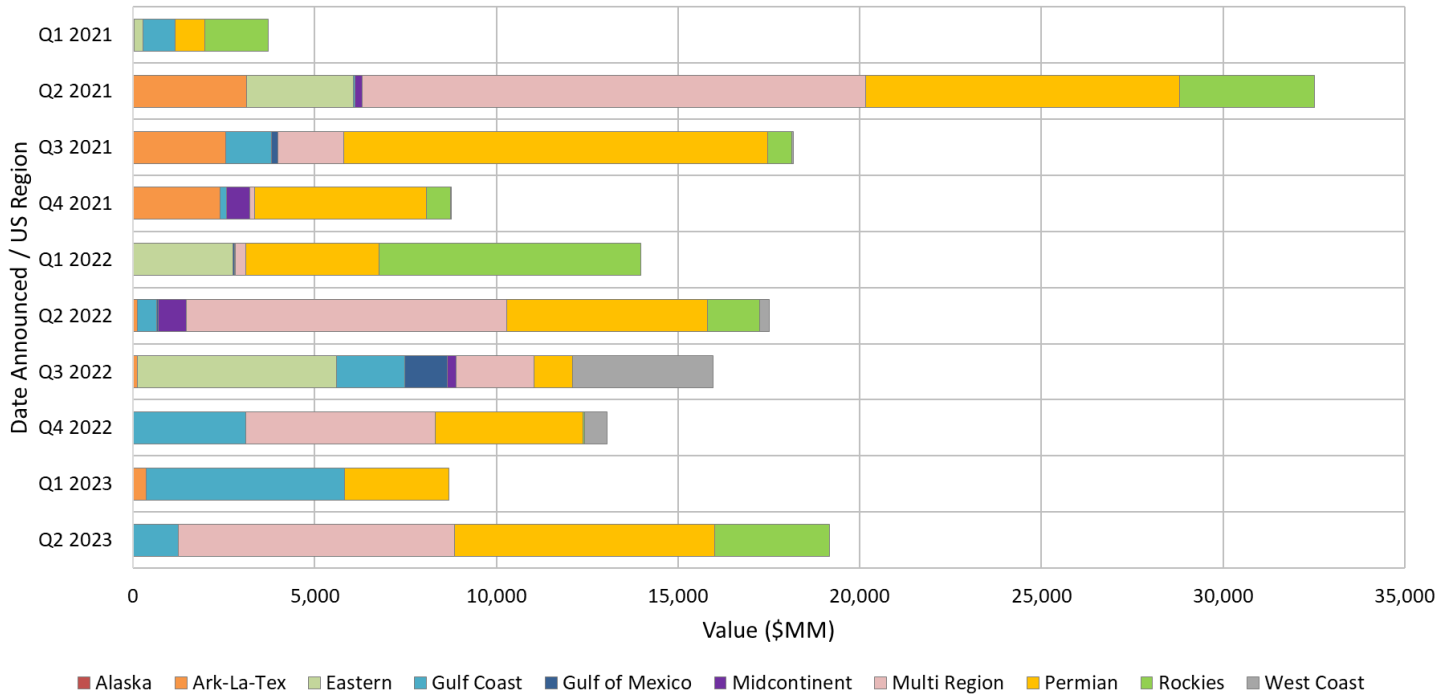


	Week Ending 06/16/2023			Week Ending 06/09/2023		Week Ending 06/17/2022
U.S. Rig Breakouts	Count	+/-	Count	+/-	Count	
Oil	552	(4)	556	(32)	584	
Gas	130	(5)	135	(24)	154	
Not Specified	5	1	4	3	2	
Directional	52	1	51	13	39	
Horizontal	615	(10)	625	(59)	674	
Vertical	20	1	19	(7)	27	
Land (Inc Others)	665	(8)	673	(56)	721	
Inland Waters	2	0	2	(1)	3	
Offshore	20	0	20	4	16	
US Total	687	(8)	695	(53)	740	

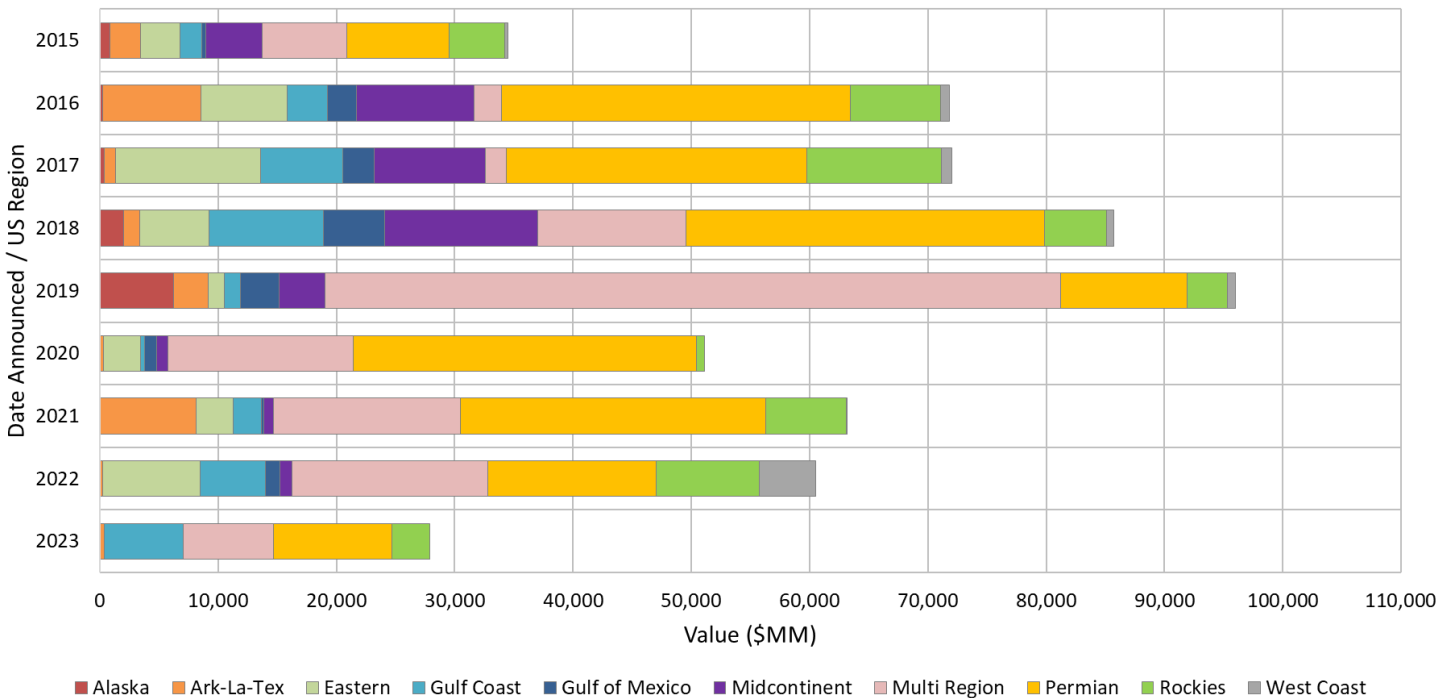
*Source—Baker Hughes Weekly Rig Counts



DEAL VALUE BY US REGION (BY QUARTER)



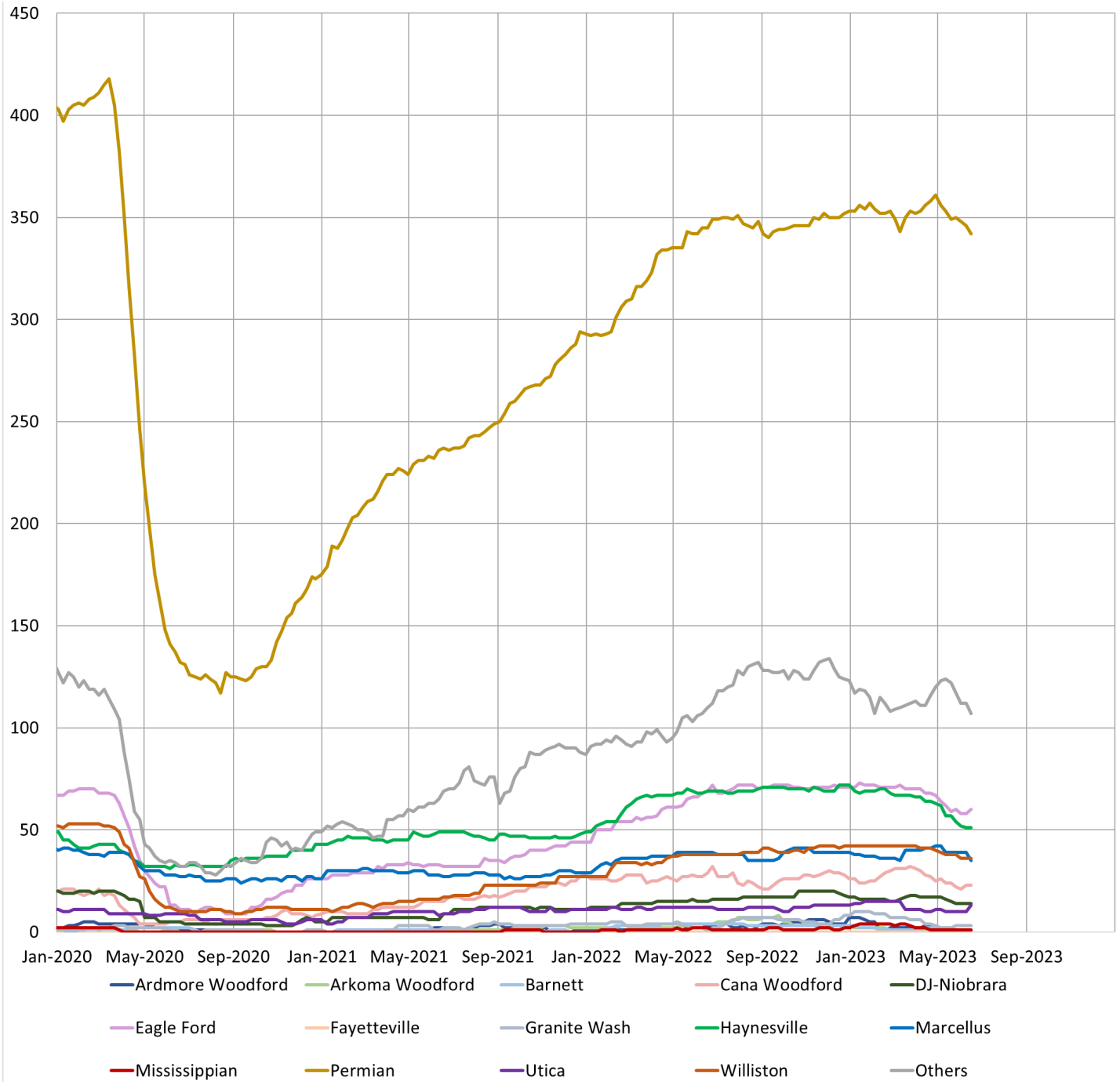
DEAL VALUE BY US REGION (BY YEAR)



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



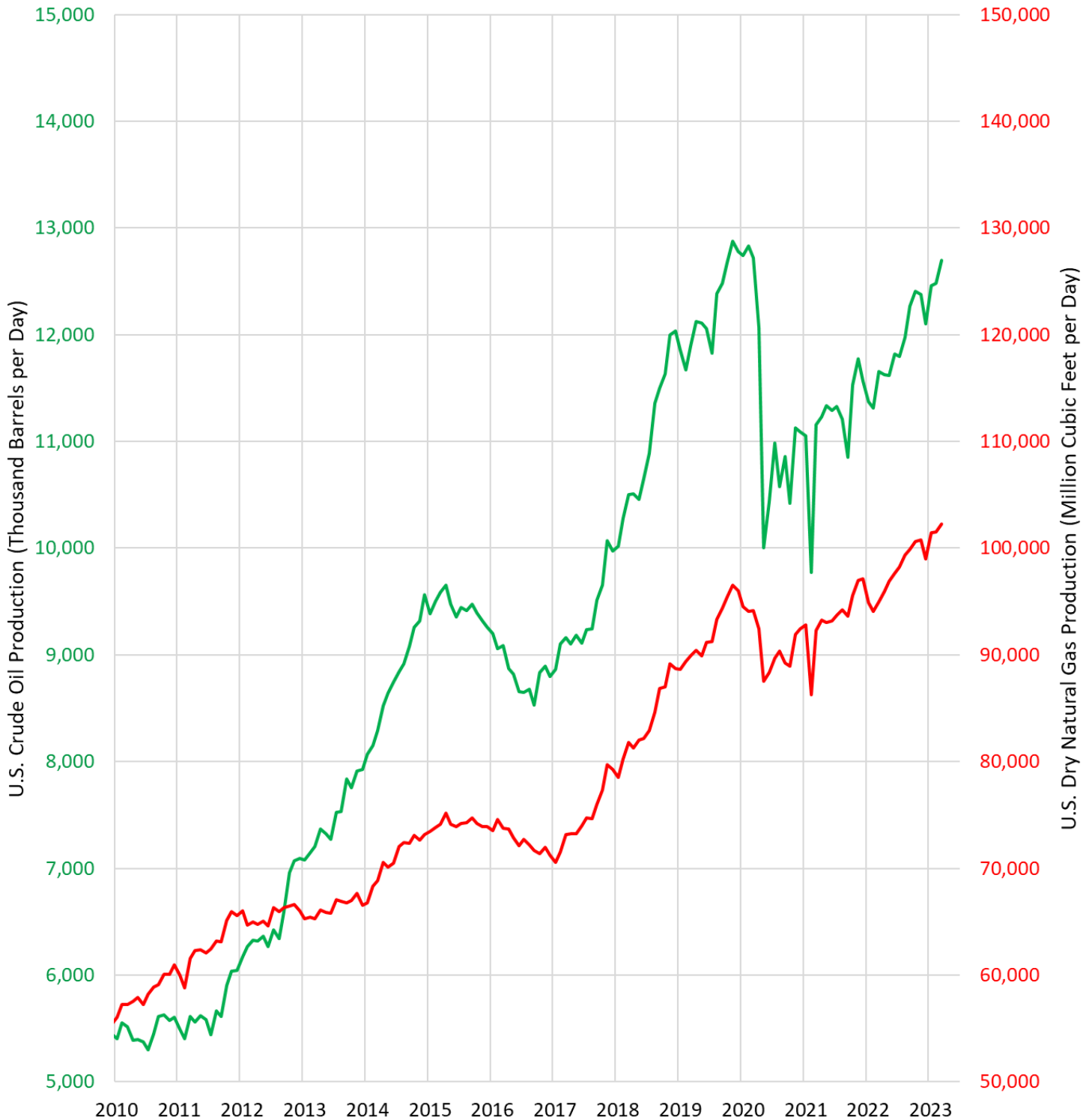
RIG ACTIVITY BY US REGION



*Source—Baker Hughes Weekly Rig Counts



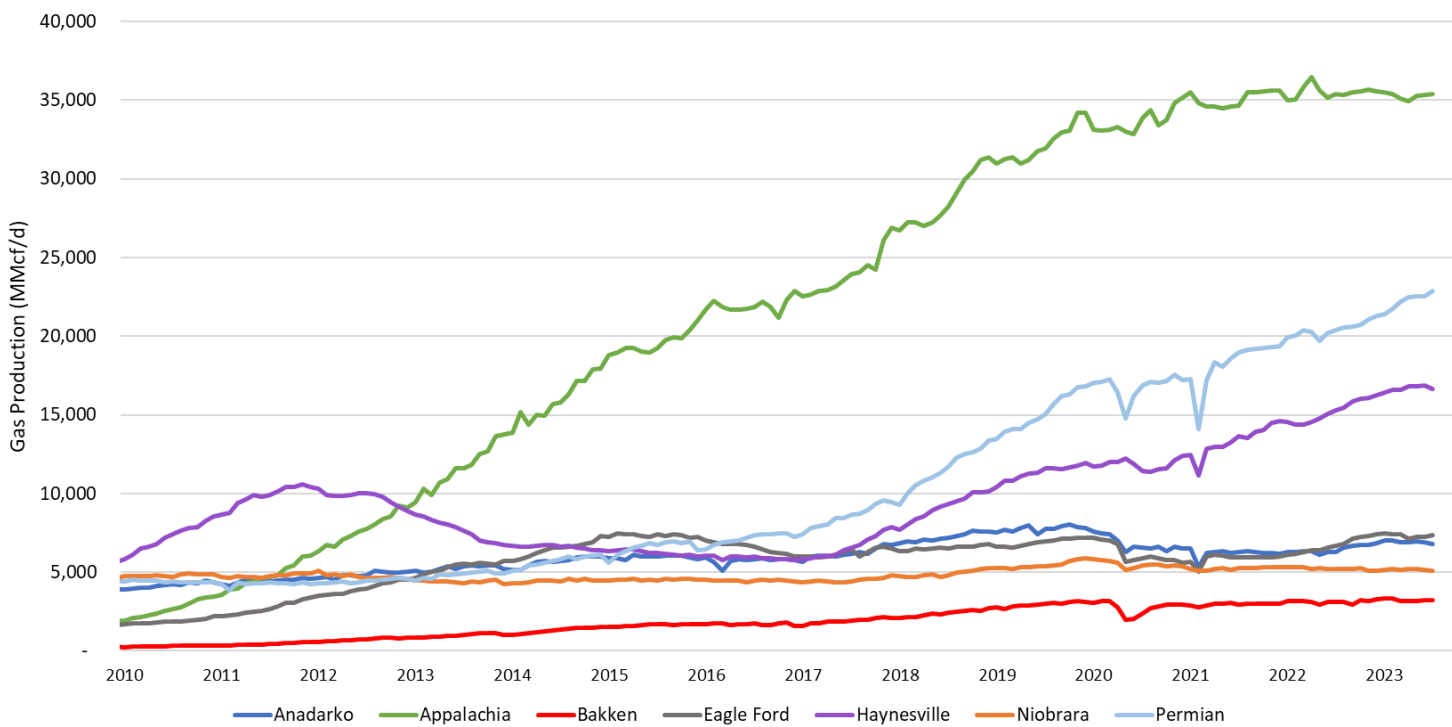
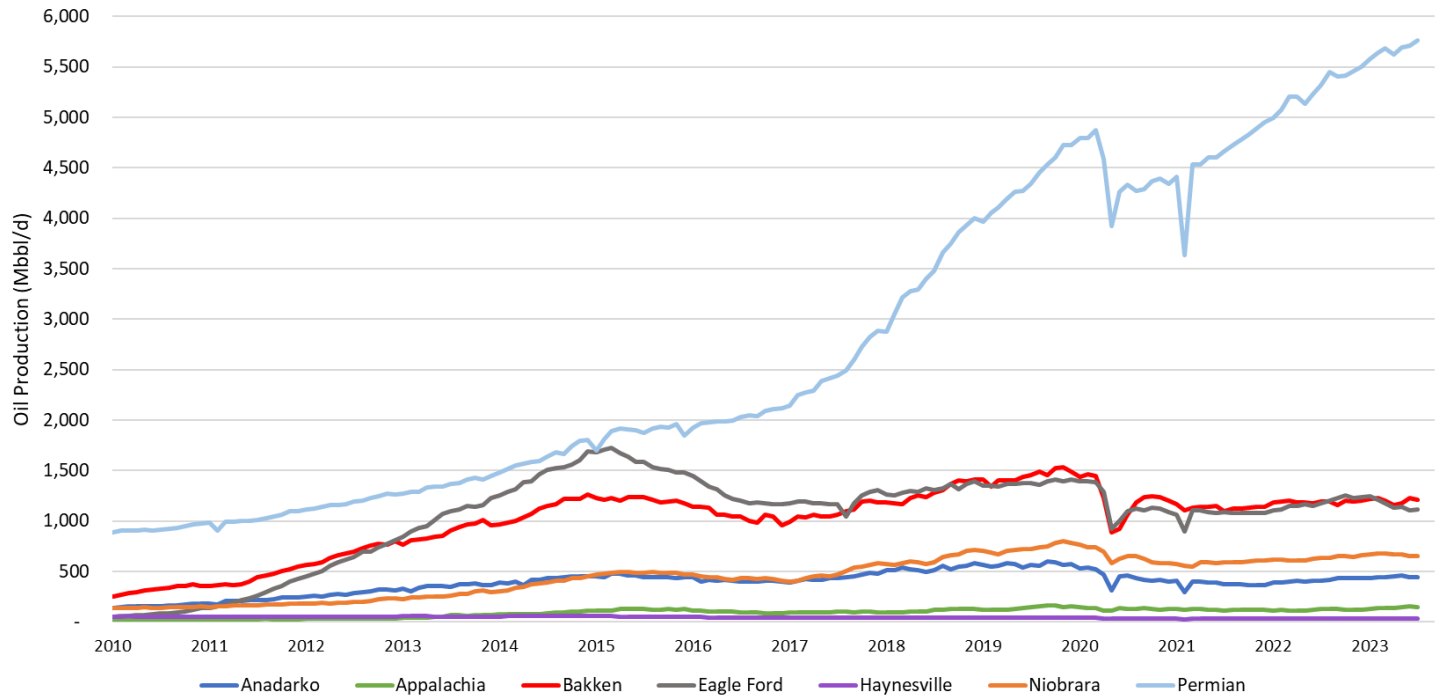
US DAILY CRUDE (MMbbl) & DRY NATURAL GAS PRODUCTION (MMcf)



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



HISTORICAL PRODUCTION OF SELECTED US SHALE REGIONS



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



UPCOMING EVENTS

June 2023

[Society Of Petroleum Evaluation Engineers \(SPE\) Annual Meeting](#)

June 17-20

Newport, RI

[Salesforce For Energy \(with Opportune\)](#)

June 22

Houston, TX

[Telluride Executive Series](#)

June 27-29

Telluride, CO

July 2023

Banff Energy Summit

July 12-14

Banff, Alberta, Canada

August 2023

[Enercom Denver](#)

August 14-16

Denver, CO

[TXCPA Energy Conference](#)

August 25

Houston, TX

September 2023

[Enertia User Conference](#)

September 21-22

Fort Lauderdale, FL

[HPF 29th Annual Golf Tournament](#)

September 25

Cypress, TX

[World Oilman's Overnight Poker Tournament \(WOOP\)](#)

September 28-29

Lake Charles, LA

*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.

