



Weekly E&P Update

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Gasland Revisited

By Steve Hendrickson
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It's hard to believe that it's been almost 14 years since the [Gasland](#) documentary movie was released and [spawned the "anti-fracking" movement](#). Although hydraulic fracturing had been in use for over 50 years when it was released, it succeeded, through the use of apocalyptic language and misleading imagery, in changing many attitudes from cautious skepticism to misguided outrage. Now, television station [KTBS](#) in Shreveport has looked back to see how the predictions in [Gasland](#) played out.

According to their reporting, [Gasland](#) claimed that hydraulic fracturing was "poisoning groundwater, killing wildlife and making people sick, while corrupt oil companies profited," claims that we now know to have been false. An [analysis](#) released in October 2023 by the Heartland Institute addressed the "four persistent myths" associated with hydraulic fracturing that [Gasland](#) helped propagate. Remember that, according to [data we analyzed](#) from [Frac Focus](#), nearly 200,000 frac jobs have been pumped since 2012, providing ample evidence to examine their claims. Here's a summary of the Heartland report's observations:

Water Pollution - Subsurface formations that contain drinking water (freshwater aquifers) are typically vertically separated from hydrocarbon zones by thousands of feet of rock layers, many of which are impermeable to fluid flow. "There is no evidence that seepage of fracking fluids, oil, or natural gas from fracking wells contaminate water sources."

Air Pollution - Several studies have been conducted to examine the potential health impacts on people living near hydraulic fracturing operations ([2017 Colorado Department of Public Health](#), [2016 University of Texas at Arlington](#), [2015 Drexel University](#), and many others). According to the Heartland report, these studies have repeatedly demonstrated no evidence for widespread health problems associated with air pollution.

Other Health Issues - Activists have claimed that fracturing causes numerous other health problems (such as cancer, infant mortality, and other birth defects). Since fracking became more prevalent, most of these problems have diminished, and "there is no evidence showing that fracturing causes health problems."

Earthquakes - While there have been instances where the underground disposal of produced water has led to increased seismic activity, these problems have been resolved through careful monitoring and regulation of injection volumes. Only three earthquakes strong enough to have been felt at the surface have been caused by fracturing operations in the United States, and these were "comparable to a passing truck."

After over a decade of increased fracturing operations, the fears raised by the [Gasland](#) movie are now known to have been misplaced. Even one of the most memorable scenes where a man in Colorado lights his tap water on fire has been debunked by the Colorado Oil and Gas Conservation Commission. Fortunately, in most places (New York state, notwithstanding), hydraulic fracturing has remained a critical, available technology that has allowed the United States to increase its oil and gas production and energy security vastly.

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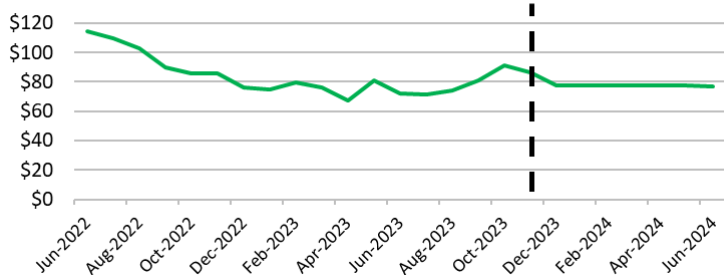
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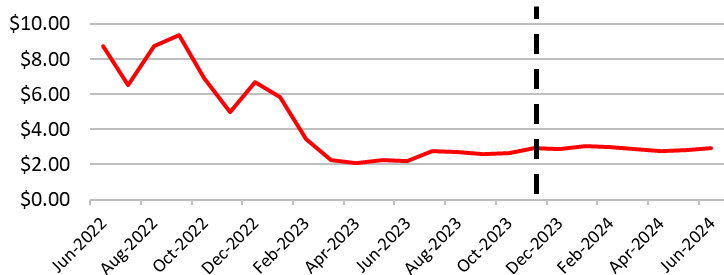


NYMEX FUTURE PRICING

WTI Spot Pricing



HH Spot Pricing



MONDAY'S MARKET CLOSE

NYMEX WTI CRUDE OIL FUTURES
as of November 20, 2023 Close (\$/bbl)

Period	Current	WoW Change	Last Week	1 Yr Ago
2023	\$77.60	(\$0.66)	\$78.26	\$78.64
2024	\$76.78	\$0.14	\$76.64	\$73.09
2025	\$72.66	\$0.11	\$72.55	\$69.75
2026	\$69.11	(\$0.09)	\$69.19	\$67.07
2027	\$66.43	(\$0.18)	\$66.61	\$64.77

NYMEX HH NATURAL GAS FUTURES
as of November 20, 2023 Close (\$/MMBtu)

Period	Current	WoW Change	Last Week	1 Yr Ago
2023	\$2.88	(\$0.32)	\$3.20	\$5.35
2024	\$3.13	(\$0.26)	\$3.39	\$4.70
2025	\$3.97	(\$0.14)	\$4.11	\$4.61
2026	\$4.10	(\$0.07)	\$4.17	\$4.55
2027	\$4.04	(\$0.04)	\$4.08	\$4.52

INDUSTRY METRICS—QUICK SNAPSHOT

	Current	Last Week	WoW Change	%Change
Crude Oil Near-Month Price (\$/bbl)	\$77.65	\$78.53	(\$0.88)	(1%)
Natural Gas Near-Month Price (\$/MMBtu)	\$2.89	\$3.23	(\$0.35)	(11%)
Weekly Upstream-Deal Transaction Value (\$MM)	\$774.00	\$932.50	(\$158.50)	(17%)
Weekly Number of Upstream-Deal Transactions	4	3	1	33%
Current Total US Rig Count	618	616	2	0.3%
US Field Crude Oil Production (MMbbl/day)	13.2	13.2	0	-
US Field Dry Natural Gas Production (Bcf/day)	111.1	110.0	1	1%
Commercial Crude Oil Stocks-Excluding SPR (MMbbl)	439	422	17	4%
Natural Gas Stocks-Working Gas Underground Storage (Bcf)	3,833	3,779	54	1%
Total Drilled But Uncompleted Wells (DUC-Last Month)	4,524	4,524	0	-

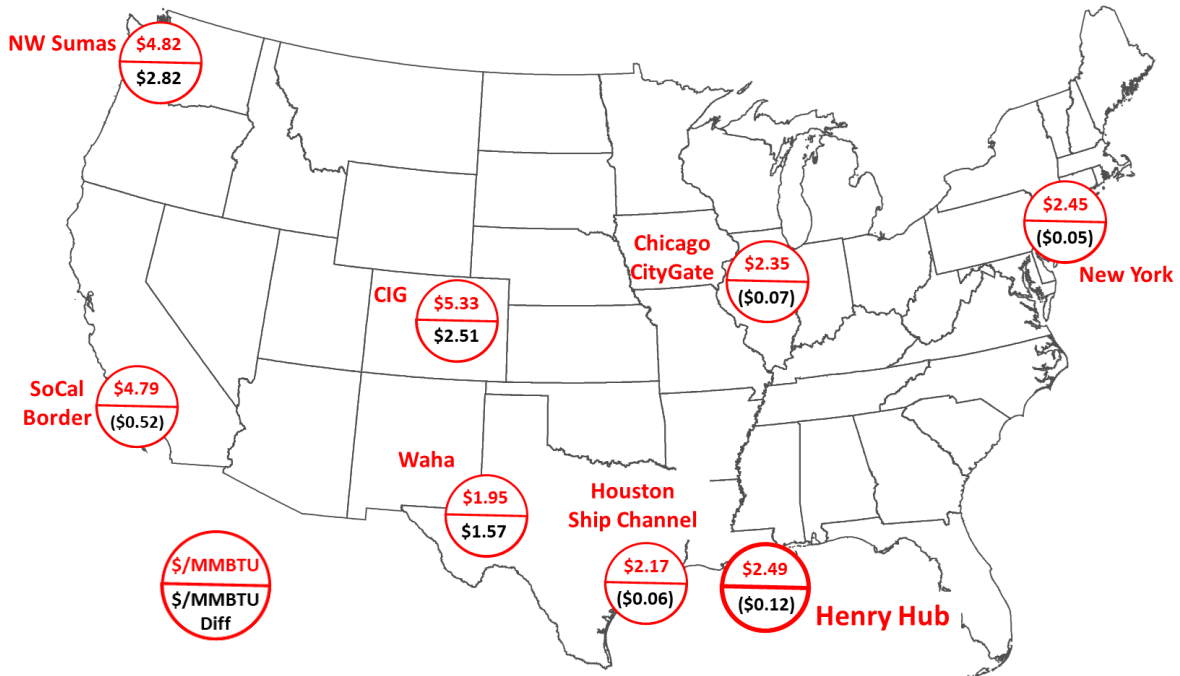
*Source—Energy Information Administration, United States (EIA)

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

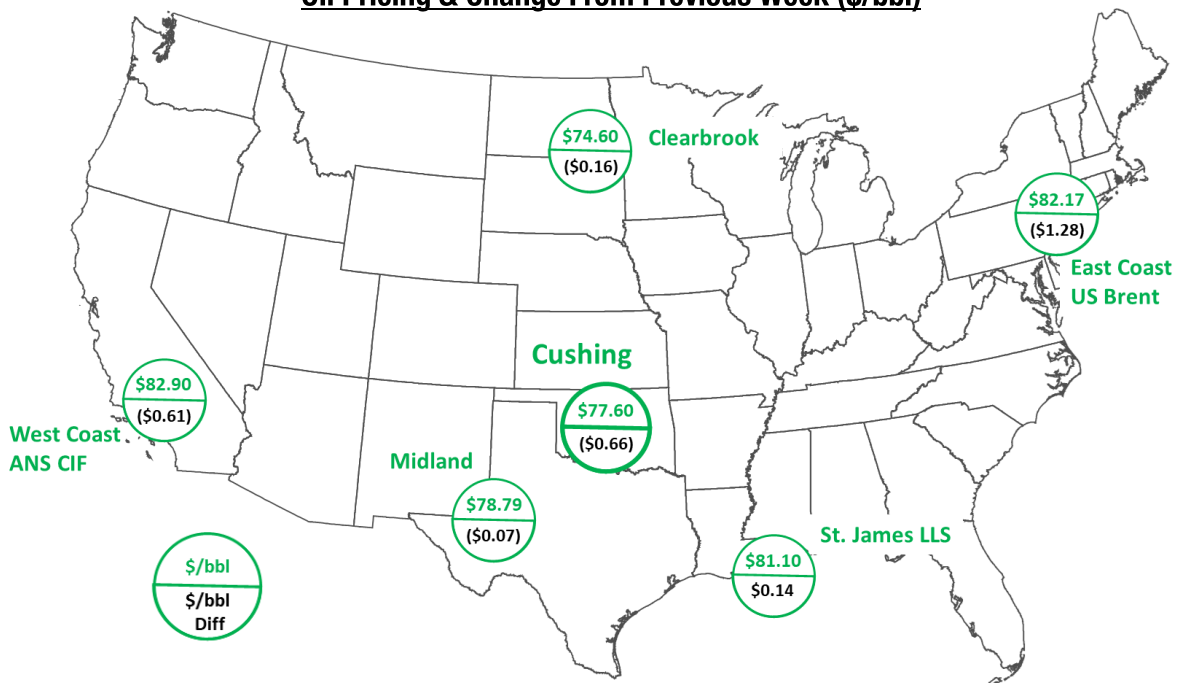


US COMMODITY PRICES CONTINUED

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



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



*Source—Bloomberg LP



SELECTED INDUSTRY HEADLINES

World Oil Demand Continues to Exceed Expectations

World oil demand continues to exceed expectations, the International Energy Agency (IEA) stated in its latest oil market report (OMR), which was released recently.

Permian Drillers Boost Oil Rigs in Latest Bid for Sustaining Growth

Drillers in the US shale patch are again trying to rebound from slumping activity, this time expanding the oil-rig count by the widest margin in nine months.

Private Equity Money is There - for the Right Teams

Private Equity executives agreed that the investment space is in a healthier state than at the height of the shale boom and funding is available for “really good teams.”

Brent, US crude futures climb over 2% as OPEC cuts expected

Brent and U.S. crude futures climbed more than 2.5%, gaining \$2 a barrel, on Monday as further supply cuts in OPEC+ production are expected to be announced following a meeting of member countries early next week.

Oil prices fall to four-month low as inflation slows

The recent slide in crude oil is yet another indication that the balance of power has swung toward sharply slowing inflation in the U.S. economy.

Oil Rebounds on Expectations OPEC Will Move to Support Prices

Oil rebounded as traders boosted bets that OPEC and its allies will work to counteract the plunge in prices over the past four weeks.

Global natural gas market well supplied for winter, but risks remain, EIA analysis finds

Relatively full natural gas inventories in the United States and Europe and expanded global liquefied natural gas (LNG) export and import capacity have improved the likelihood that global gas supply is sufficient to meet demand in the 2023–24 winter season

Natural Gas Futures Fall Sharply As Warm Weather Persists (LOGIN CREDENTIALS REQUIRED)

Natural gas futures for December post a second straight weekly loss as warmer than normal weather continued across much of the US and gas storage rose more than expected.

Natural Gas Futures Can't Stop the Bleeding as Models Shed Demand Over Weekend (LOGIN CREDENTIALS REQUIRED)

Milder trending forecasts, set against a backdrop of soaring supply estimates, saw natural gas futures continue to tumble lower in early trading recently.

Chinese Energy Firms Plan One of the World's Biggest Renewables Projects

Chinese power and energy investment companies plan to build one of the world's single biggest renewable projects with 11 gigawatts (GW) of total capacity.

Tracking the Energy Transition: Plans Fall Victim to Rising Project Costs

Several projects have been scrapped across the US as inflation causes project costs to soar, while projects in Costa Rica and Rotterdam move forward.

CCUS: From skepticism to solutions

The journey from CCUS skepticism to solutions is driven by the need to capture 5,635 megatons of CO₂ annually by 2050.



SELECTED RECENT TRANSACTIONS

Australia's Karoon Energy to Buy Stakes in US Offshore Assets For \$720 Million

Karoon Energy announced deals worth \$720 million recently to buy stakes in certain offshore oil and gas fields in the Gulf of Mexico from U.S.-based LLOG Exploration, in a move to diversify operations beyond Brazil and Australia.

WhiteHawk to Acquire Marcellus Assets For \$54 Million

WhiteHawk Energy, LLC is acquiring additional Marcellus Shale natural gas mineral and royalty assets for a total price of \$54.0 million.

Acacia Research Acquires Majority Stake in Benchmark Energy

Acacia Research Corporation today announced that it has acquired a majority interest in Benchmark Energy II, LLC.

Mach Natural Resources to Buy Anadarko Basin Assets For \$815 Million

Mach Natural Resources said on Monday said it will buy certain oil and gas assets in the Anadarko Basin in Oklahoma from privately-held Paloma Partners for \$815 million in cash.

Sitio Royalties to Exit Appalachia, Anadarko Basins

With 192 acquisitions under its belt, Sitio Royalties recently inked a deal to divest all of its assets in the Appalachia and Anadarko basins for \$117.5 million.

Phoenix Capital Acquires Mineral and Royalty Acreage in Colorado From Source Rock

Phoenix announced the completion of its purchase of 896 net royalty acres in Weld County, Colorado. The purchase encompasses mineral and royalty interests across a total of 96 permitted wells.

Earthstone Energy Sells Non-core Gulf Coast Assets in Texas

Earthstone recently agreed to sell certain non-core assets located in Karnes and Gonzales counties of Texas on approximately 2,800 net acres for a purchase price of \$66.5 million.

Chevron to Buy Hess Corp For \$53 Billion in All-Stock Deal

Chevron has agreed to buy Hess for \$53 billion in stock to gain a bigger U.S. oil footprint and a stake in rival Exxon Mobil's massive Guyana discoveries, the latest in a series of blockbuster U.S. oil combinations.

Trio Secures Option to Acquire Gas Prospect in Sacramento Basin

California-based Trio Petroleum Corp. has secured a four-month option with exclusivity to acquire a natural gas prospect in the Sacramento Basin, which has the potential to produce an estimated 40 billion cubic feet of gas.

Ellipsis U.S. Onshore Holdings Acquires Additional Assets Located in The Delaware Basin

Ellipsis U.S. Onshore Holdings LLC, a portfolio company of Westlawn Group LLC, recently announced the acquisition of additional assets located in the Delaware Basin of Texas and New Mexico

Exxon Mobil Agrees to Buy Pioneer Natural Resources For Nearly \$60 Billion in All-Stock Merger

Exxon Mobil said recently that it agreed to buy shale rival Pioneer Natural Resources for \$59.5 billion in an all-stock deal, or \$253 per share.

Kimmeridge Signs Deals For Eagle Ford Assets, Gas Transport

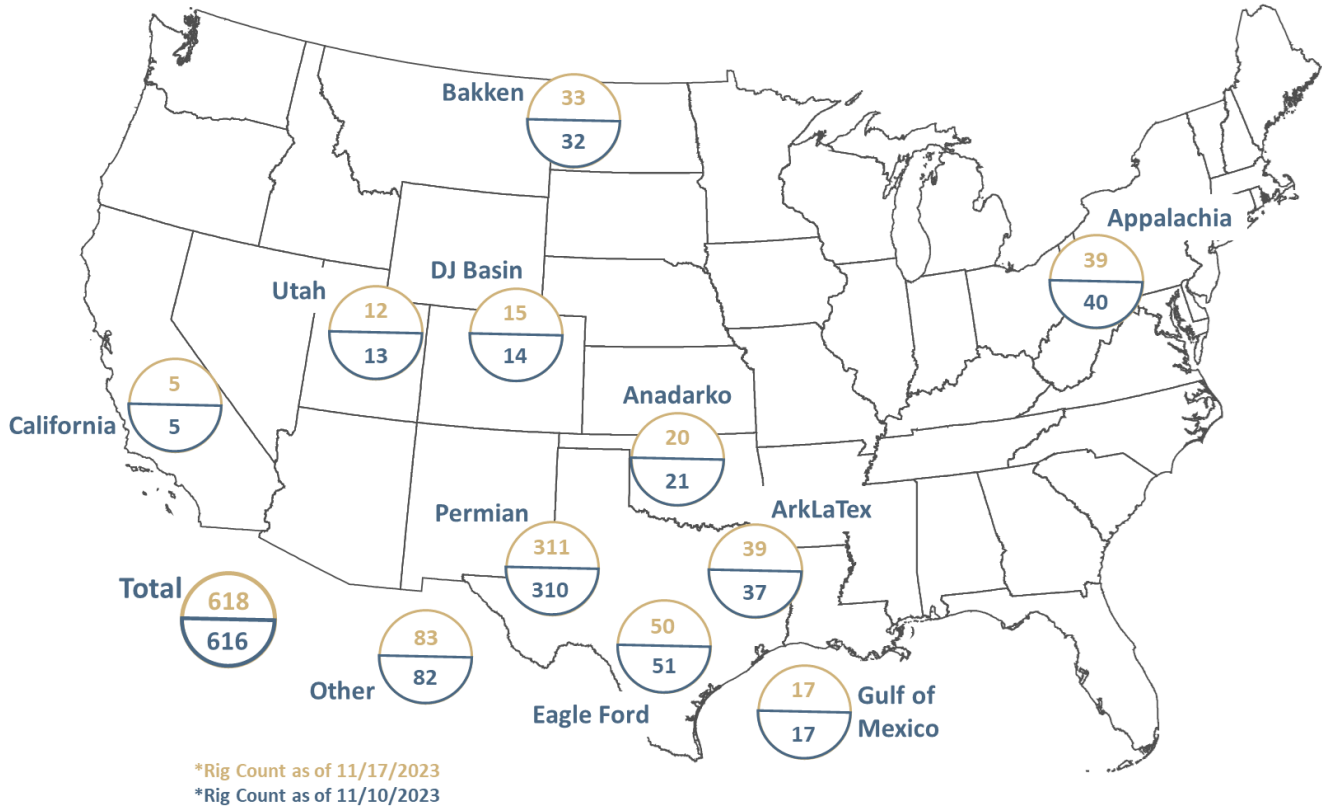
Kimmeridge Texas Gas, an affiliate of investment firm Kimmeridge, has signed a definitive agreement to acquire certain upstream assets from an undisclosed private seller in a bid to expand its footprint in the Eagle Ford shale play.

Vitesse Energy Acquires \$50 Million in Oil, Gas Interests in North Dakota's Williston Basin

Vitesse Energy has acquired additional oil and gas interests in the Williston basin of North Dakota that will result in approximately \$50 million of acquisition and related development capital expenditures, primarily in the third and fourth quarters of 2023, the company said recently.



RIG ACTIVITY BY US REGION

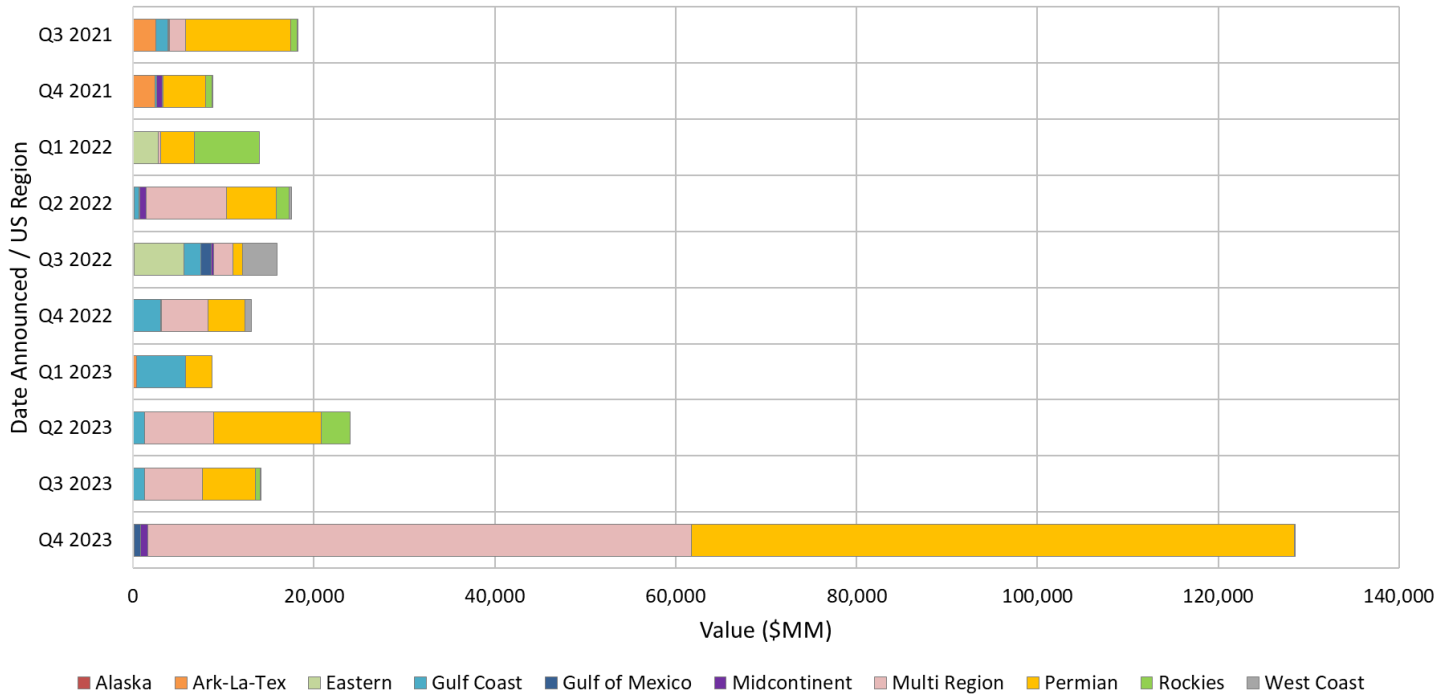


	Week Ending 11/17/2023			Week Ending 11/10/2023		Week Ending 11/18/2022
U.S. Rig Breakouts	Count	+/-	Count	+/-	Count	
Oil	500	6	494	(123)	623	
Gas	114	(4)	118	(43)	157	
Not Specified	4	0	4	2	2	
Directional	52	(1)	53	7	45	
Horizontal	553	2	551	(161)	714	
Vertical	13	1	12	(10)	23	
Land (Inc Others)	597	2	595	(165)	762	
Inland Waters	2	0	2	(1)	3	
Offshore	19	0	19	2	17	
US Total	618	2	616	(164)	782	

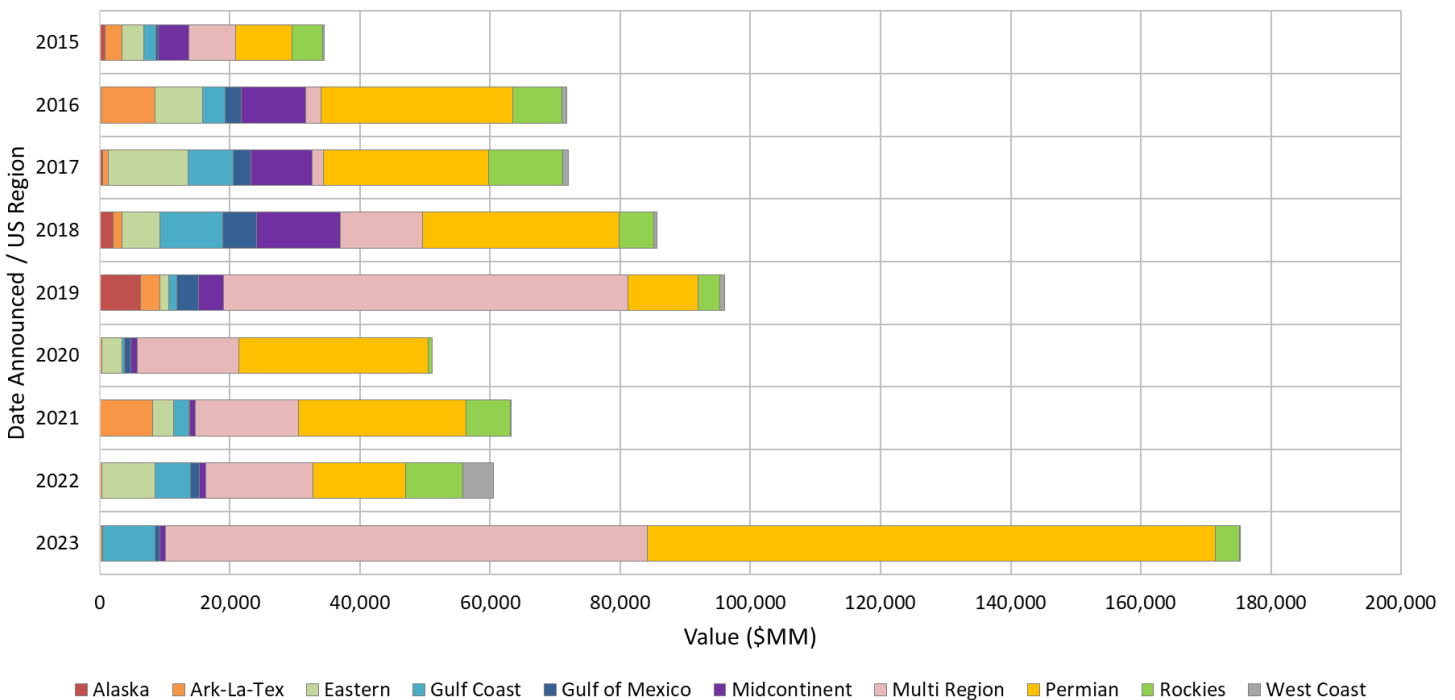
*Source—Baker Hughes Weekly Rig Counts



DEAL VALUE BY US REGION (BY QUARTER)



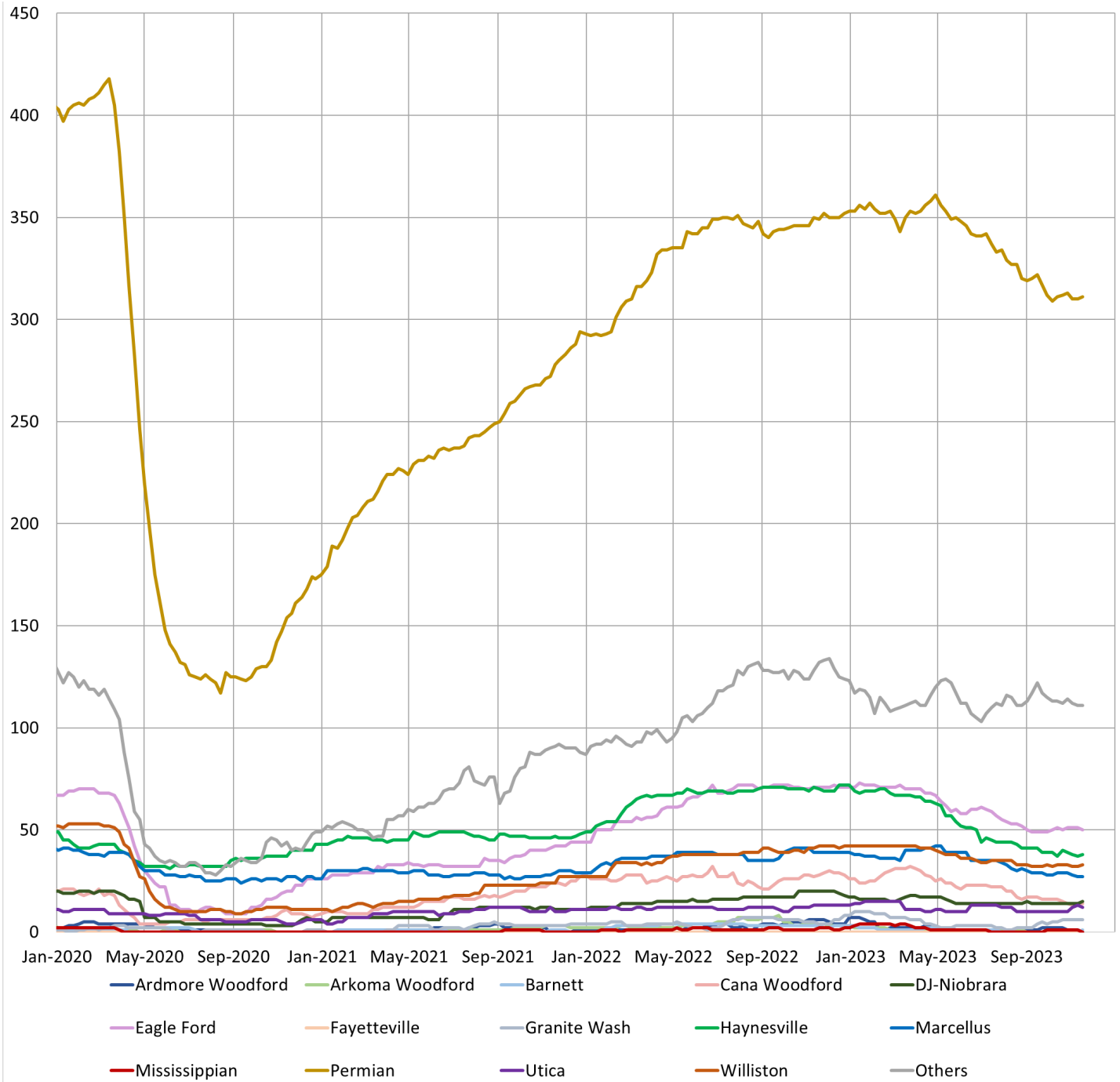
DEAL VALUE BY US REGION (BY YEAR)



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



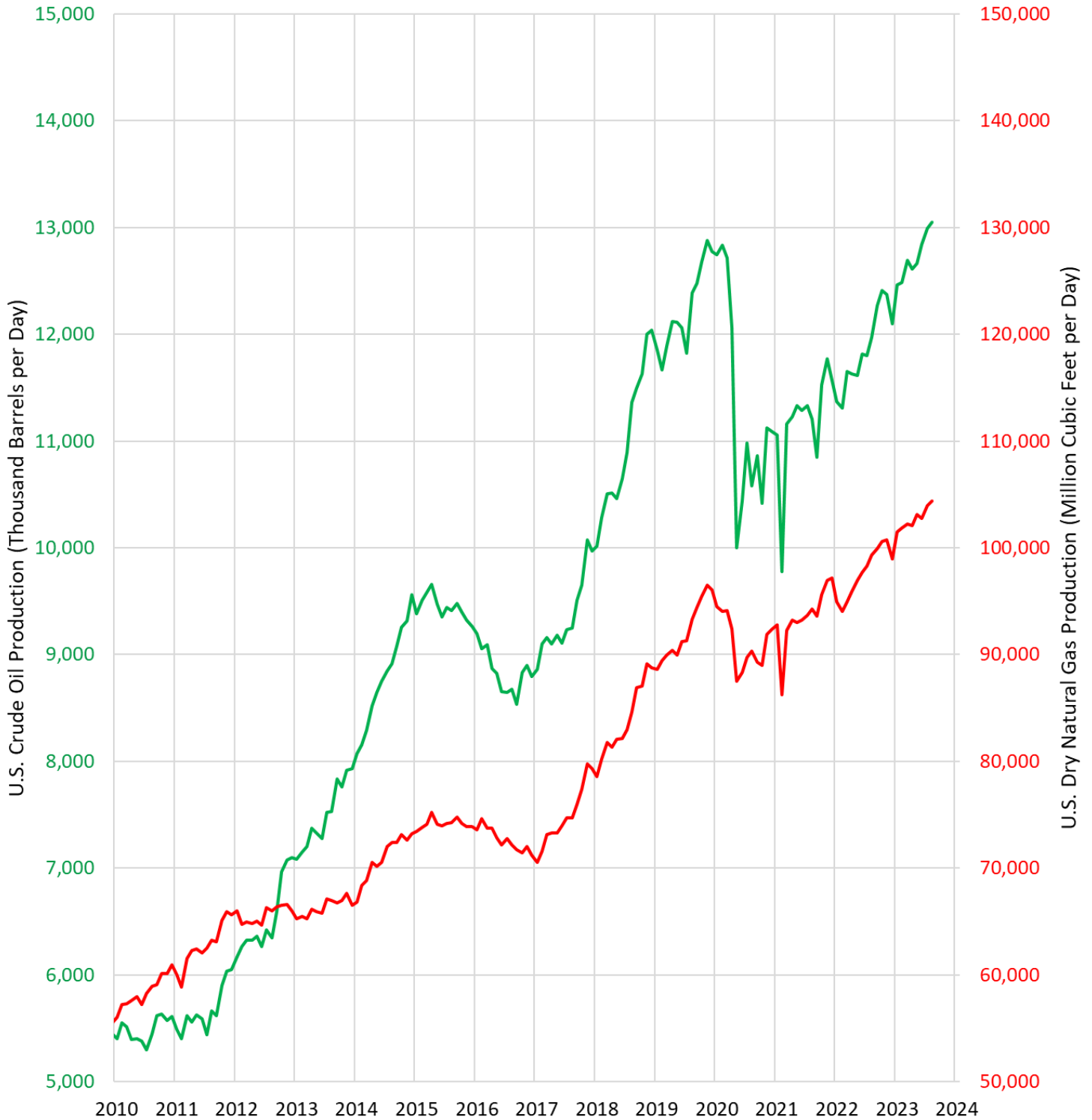
RIG ACTIVITY BY US REGION



*Source—Baker Hughes Weekly Rig Counts



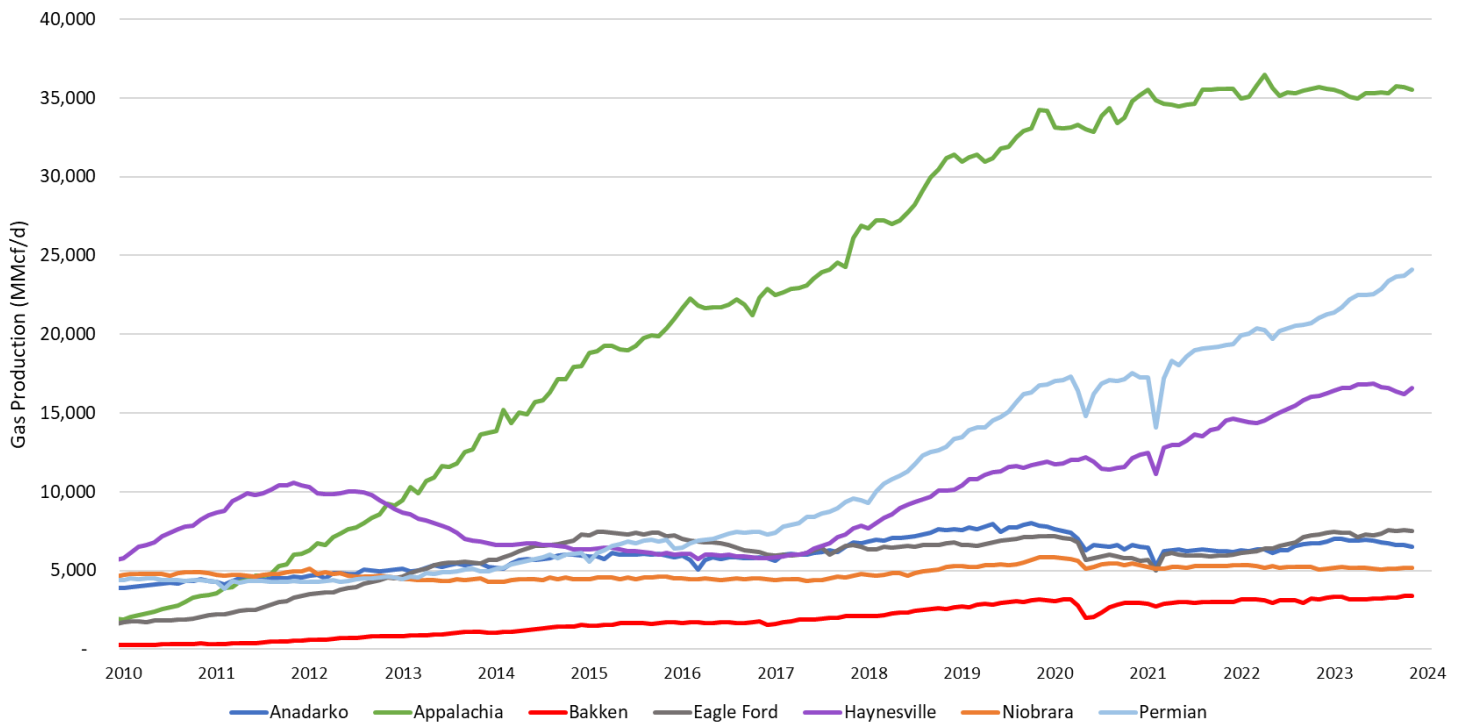
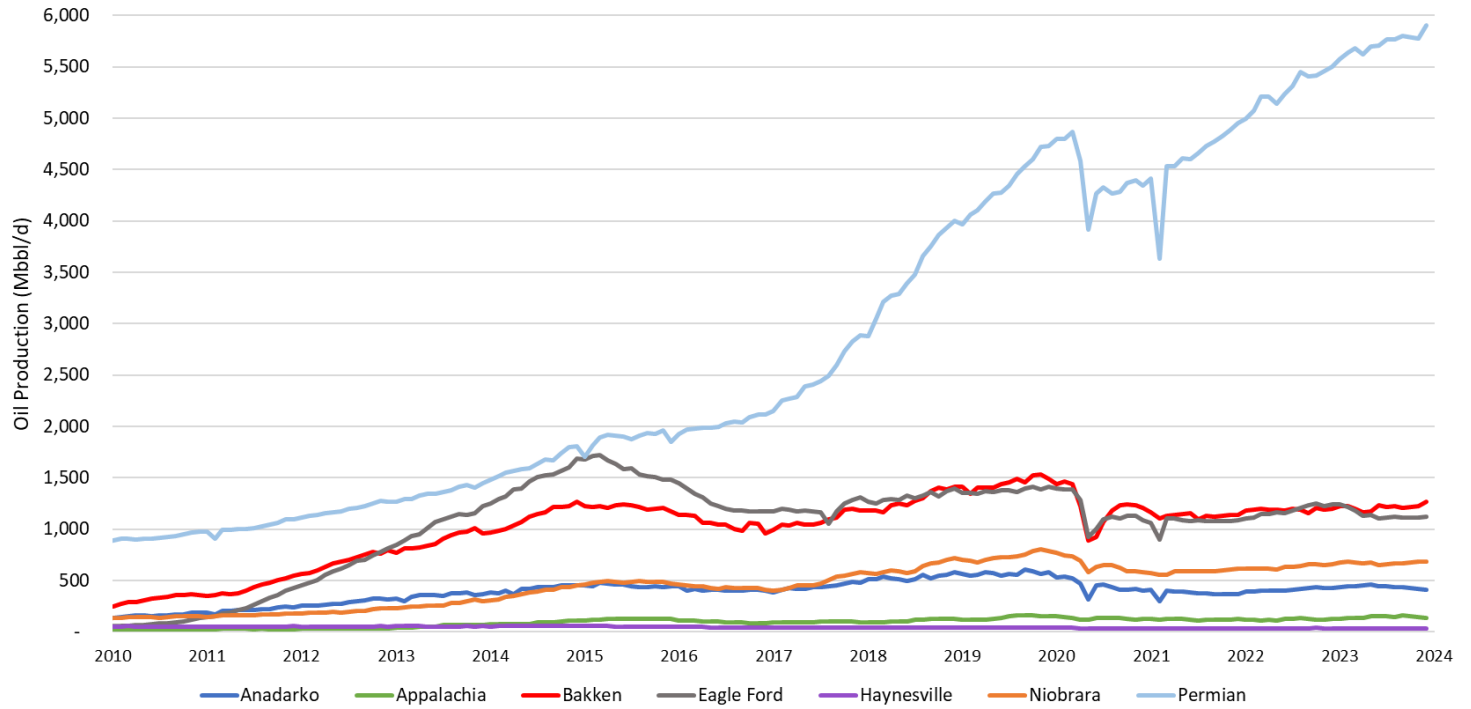
US DAILY CRUDE (MMbbl) & DRY NATURAL GAS PRODUCTION (MMcf)



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



HISTORICAL PRODUCTION OF SELECTED US SHALE REGIONS



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



UPCOMING EVENTS

November 2023

[SPE Denver - State of the Rockies](#)
[IPAA Texas Hold'Em Tournament](#)

November 28
November 30

Denver, CO
Houston, TX

December 2023

[Hart Energy—Hall of Fame Awards](#)
[SPE—Unpacking ESG and Its Drivers](#)

December 5
December 6

Houston, TX
Houston, TX

January 2024

[Paul “Bear” Bryant Awards](#)
[IPAA—Private Capital Conference](#)

January 10
January 17

Houston, TX
Houston, 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.

