

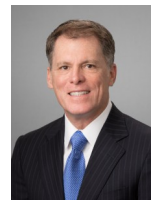
Weekly E&P Update

April 15, 2025

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The Trouble with Beautiful, Clean Coal

By Steve Hendrickson
President of Ralph E. Davis Associates



For decades, “clean coal” has been used to soften the image of coal-fired power, suggesting that its harms could be engineered away. But what exactly does it mean? The definition tends to shift depending on who’s using it. Sometimes it refers to technologies that reduce emissions of sulfur dioxide and particulates. Sometimes it’s about handling coal ash more responsibly. Increasingly, it’s used to describe carbon capture and storage (CCUS). And often, it means all the above - yet none convincingly deliver on the promise of making coal “clean.”

Clean Coal Technology: Progress with Caveats

To be fair, environmental controls on coal plants have made a difference. Scrubbers and selective catalytic reduction systems have significantly cut sulfur dioxide and nitrogen oxide emissions, improving air quality and reducing acid rain. Mercury capture and ash handling systems have helped as well. But these systems don’t eliminate waste - they shift it. Coal ash, often stored in large ponds, remains a risk to groundwater, especially where impoundments are aging or unlined.

Then there’s carbon capture. Projects like Petra Nova in Texas and Boundary Dam in Canada have demonstrated that it is technically possible to extract CO2 from power plant emissions and inject it underground. But these efforts come with hefty price tags. Petra Nova, which retrofitted one unit of the Parish Generating Station, cost nearly \$1 billion and required high oil prices to be viable because the captured CO2 was sold for use in enhanced oil recovery (EOR). When oil prices dropped, so did the project. It was idled for three years and only recently restarted.

Even with tax incentives like 45Q, CCUS for coal remains commercially unattractive without a secondary revenue stream. Outside of EOR contexts, storing CO2 in saline aquifers offers no return on investment - only cost - a hard sell in a competitive power market.

Coal’s Steady Decline

While chatter over “clean coal” continues, the market has already moved on. Coal’s share of U.S. electricity generation fell to just 16.2% in 2023, down from nearly 50% two decades ago. And it’s not just generation that’s declining: capacity factors are dropping, meaning plants are running less frequently, while plant retirements are accelerating – “doing less with less”. The Institute for Energy Economics and Financial Analysis (IEEFA) projects that by 2030, two-thirds of U.S. coal-fired capacity will be offline.

Jobs have followed the same trajectory. The U.S. coal mining workforce, which once numbered in the hundreds of thousands, now stands at around 43,000. Most of the coal we still produce - 63% in 2022 - comes from strip mining. These operations are more efficient than underground mines but cause hefty environmental impacts, including disrupted landscapes and polluted waterways. Even before combustion, coal is a dirty fuel.

Cut Through the Distraction

The path forward is clearer than it’s often made out to be. Natural gas has already filled much of the gap left by coal, offering lower emissions, baseload capacity and operational flexibility. Renewables - especially wind and solar - continue to grow, and advances in battery storage are improving the reliability of these variable sources.

What’s needed isn’t another costly fix for coal or a rebranding effort that downplays its shortcomings – it’s a long-term commitment to modernizing the transmission grid to support the growth of natural gas and renewable energy. That’s where public policy should focus – building the infrastructure for a more resilient, lower-carbon future, not repackaging a fading fuel.

Sources and further reading

[“Capturing Progress: The State of CCS in the Power Sector,” Power Magazine](#)
[“Carbon Capture and Storage Project Track Record,” July 2024](#)
[“Petra Nova,” Wikipedia](#)
[“Petra Nova Carbon Capture Facility,”— NRG Energy](#)
[“Parish Generating Station,” Global Energy Monitor](#)
[“Nowhere to Go But Down for U.S. Coal,” IEEFA](#)
[“Coal Power Plunged Again in 2023,” Inside Climate News](#)
[“The Rise and Decline of Coal Mining Jobs,” ACOEL](#)
[“How Coal Mining Harms the Environment,” Environment America](#)
[“Where Our Coal Comes From,” U.S. Energy Information Administration](#)

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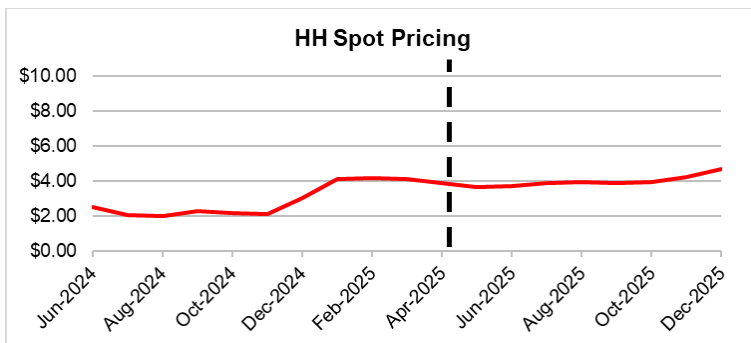
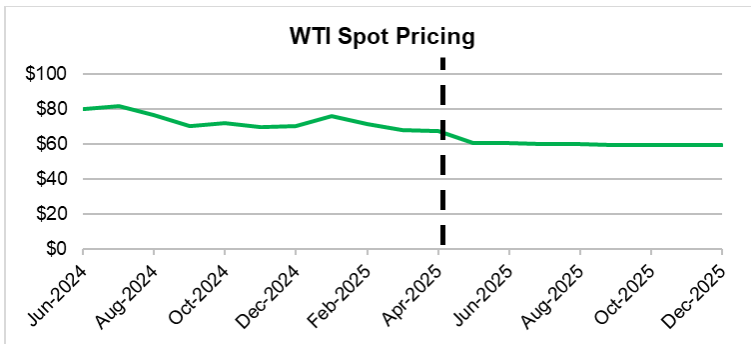
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NYMEX FUTURE PRICING



MONDAY'S MARKET CLOSE

NYMEX WTI CRUDE OIL FUTURES as of April 14, 2025 Close (\$/bbl)

Period	Current	WoW Change	Last Week	1 Yr Ago
2025	\$59.89	(\$9.51)	\$59.89	\$76.06
2026	\$59.27	(\$6.51)	\$59.27	\$70.96
2027	\$59.65	(\$4.66)	\$59.65	\$67.66
2028	\$60.36	(\$3.40)	\$60.36	\$65.55
2029	\$61.03	(\$2.44)	\$61.03	\$64.30

NYMEX HH NATURAL GAS FUTURES as of April 14, 2025 Close (\$/MMBtu)

Period	Current	WoW Change	Last Week	1 Yr Ago
2025	\$4.01	(\$0.54)	\$4.01	\$3.46
2026	\$4.09	(\$0.35)	\$4.09	\$3.82
2027	\$3.73	(\$0.14)	\$3.73	\$3.86
2028	\$3.55	(\$0.04)	\$3.55	\$3.80
2029	\$3.43	\$0.03	\$3.43	\$3.77

INDUSTRY METRICS—QUICK SNAPSHOT

	Current	Last Week	WoW Change	%Change
Crude Oil Near-Month Price (\$/bbl)	\$	\$61.12	(\$.)	(%)
Natural Gas Near-Month Price (\$/MMBtu)	\$	\$3.81	(\$.)	(%)
Weekly Upstream-Deal Transaction Value (\$MM)	\$0.00	\$673.00	(\$673.00)	(100%)
Weekly Number of Upstream-Deal Transactions	1	4	(3)	(75%)
Current Total US Rig Count	583	590	(7)	(1%)
US Field Crude Oil Production (MMbbl/day)	13.5	13.6	(0.1)	(0.9%)
US Field Dry Natural Gas Production (Bcf/day)	112.4	110.1	2	2%
Commercial Crude Oil Stocks-Excluding SPR (MMbbl)	442	440	2	0.6%
Natural Gas Stocks-Working Gas Underground Storage (Bcf)	1,830	1,773	57	3%
All Basin Drilled But Uncompleted Wells (DUC-Last Quarter)	5,284	5,238	46	0.9%

*Source—Energy Information Administration (EIA), Bloomberg LP

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

COMMODITY FUTURES - MONDAY'S MARKET CLOSE

	Current	1-Month Change	3-Month Change	6-Month Change	Year Ago Change
WTI					
Prompt	\$61.53	-6.05 [-8.95%]	-18.51 [-23.13%]	-9.05 [-12.82%]	-23.88 [-27.96%]
Bal25	\$60.16	-6.00 [-9.07%]	-14.53 [-19.45%]	-10.13 [-14.41%]	-22.80 [-27.48%]
Cal26	\$59.44	-4.26 [-6.69%]	-9.36 [-13.61%]	-8.97 [-13.12%]	-17.03 [-22.27%]
Cal27	\$60.16	-2.65 [-4.23%]	-6.33 [-9.51%]	-6.54 [-9.80%]	-11.53 [-16.08%]
Cal28	\$60.96	-1.51 [-2.42%]	-4.23 [-6.48%]	-4.86 [-7.39%]	-7.46 [-10.90%]
Cal29	\$61.61	-0.66 [-1.06%]	-2.72 [-4.23%]	-3.81 [-5.83%]	-4.58 [-6.92%]
Brent					
Prompt	\$64.88	-16.19 [-8.71%]	-17.15 [-20.19%]	-9.37 [-12.62%]	-25.22 [-27.99%]
Bal25	\$63.60	-5.97 [-8.58%]	-14.15 [-18.20%]	-10.65 [-14.53%]	-24.07 [-27.45%]
Cal26	\$63.13	-4.25 [-6.30%]	-9.64 [-13.25%]	-9.62 [-13.23%]	-18.53 [-22.70%]
Cal27	\$64.14	-2.56 [-3.84%]	-6.54 [-9.25%]	-7.16 [-10.04%]	-12.88 [-16.72%]
Cal28	\$65.52	-1.21 [-1.81%]	-4.12 [-5.92%]	-5.21 [-7.37%]	-8.37 [-11.33%]
Cal29	\$66.59	-0.26 [-0.39%]	-2.40 [-3.47%]	-3.88 [-5.51%]	-5.20 [-7.24%]
Henry Hub					
Prompt	\$3.33	-0.69 [-17.25%]	-0.76 [-18.56%]	+0.83 [33.11%]	+1.63 [96.63%]
Bal25	\$3.77	-0.72 [-15.96%]	-0.12 [-3.04%]	+1.05 [38.67%]	+1.34 [54.82%]
Cal26	\$4.00	-0.44 [-9.97%]	-0.00 [-0.08%]	+0.82 [25.86%]	+0.50 [14.22%]
Cal27	\$3.75	-0.11 [-2.86%]	-0.05 [-1.34%]	+0.17 [4.77%]	-0.22 [-5.46%]
Cal28	\$3.63	+0.01 [0.19%]	-0.05 [-1.35%]	-0.02 [-0.57%]	-0.43 [-10.64%]
Cal29	\$3.53	+0.04 [1.24%]	-0.02 [-0.60%]	-0.08 [-2.19%]	-0.46 [-11.56%]
Heating Oil					
Prompt	\$2.09	-0.16 [-7.29%]	-0.14 [-6.33%]	-0.02 [-0.76%]	-0.76 [-27.36%]
Bal25	\$2.05	-0.16 [-7.56%]	-0.32 [-14.55%]	-0.12 [-5.81%]	-0.66 [-25.74%]
Cal26	\$2.05	-0.09 [-4.44%]	-0.21 [-10.40%]	-0.21 [-10.28%]	-0.45 [-19.60%]
Cal27	\$2.08	-0.06 [-3.12%]	-0.17 [-8.53%]	-0.15 [-7.61%]	-0.35 [-15.94%]
Cal28	\$2.09	-0.05 [-2.54%]	-0.16 [-7.81%]	-0.12 [-6.17%]	-0.30 [-13.82%]
RBOB					
Prompt	\$2.02	-0.11 [-5.09%]	-0.52 [-19.97%]	-0.10 [-4.39%]	-0.56 [-21.19%]
Bal25	\$1.91	-0.11 [-5.09%]	-0.39 [-16.09%]	-0.14 [-6.51%]	-0.61 [-22.93%]
Cal26	\$1.84	-0.09 [-4.17%]	-0.25 [-10.75%]	-0.16 [-7.42%]	-0.51 [-19.95%]
Cal27	\$1.84	-0.04 [-1.89%]	-0.16 [-7.04%]	-0.15 [-6.74%]	-0.37 [-14.99%]
Cal28	\$1.85	-0.01 [-0.38%]	-0.11 [-5.05%]	-0.11 [-4.99%]	-0.28 [-11.76%]

*Source—Bloomberg LP

SELECTED INDUSTRY HEADLINES

U.S. Energy Secretary Chris Wright Embarks on Middle East Tour

U.S. Energy Secretary Chris Wright will tomorrow begin a nearly two-week tour of three Middle East countries, including Saudi Arabia, marking his first visit as a U.S. official to the de facto leader of the OPEC+ oil producer group.

U.S. Crude Oil Exports Reached a New Record in 2024

U.S. crude oil exports in 2024 surpassed the previous record set in 2023, exceeding an annual average of 4.1 million barrels per day (b/d).

US EIA Predicts Reduced Global Oil Demand From Trade Tariffs and Market Uncertainties

This forecast is detailed in the EIA's April STEO, which highlights significant uncertainties in energy supply, demand and prices.

Trump Trade War Uncertainty Threatens U.S. Oil Production

President Donald Trump's trade war has thrown the oil market into deep uncertainty, triggering wild swings in crude prices, undermining investor confidence and jeopardizing domestic production.

Natural Gas Searching for 'Near Term Equilibrium'

In an EBW Analytics Group report sent to Rigzone by the EBW team today, Eli Rubin, an energy analyst at the company, noted that natural gas is searching for "near term equilibrium".

Powering the Future: How AI is Driving the Next Wave of Energy Innovation

Energy sector faces challenges and opportunities, evidence-based decisions crucial for responsible AI scaling amidst hype.

Trump Order Sets New Expiration Dates on Existing Energy Rules, White House Says

U.S. President Donald Trump on Wednesday signed an executive order that aims to boost energy production by automatically cutting "outdated regulations," the White House said.

SELECTED RECENT TRANSACTIONS

Matador Resources Sells Remaining Eagle Ford Shale Assets for \$30 Million

Matador Resources has completed the sale of its remaining acreage and production positions in the Eagle Ford shale, located in La Salle, Karnes and Atascosa counties in south Texas, US.

WhiteHawk Energy Acquires Natural Gas Assets in Marcellus Shale For \$118 Million

The transaction enhances WhiteHawk's position across 475,000 gross unit acres, primarily in Washington and Greene counties, Pennsylvania.

TG Natural Resources Wins Chevron's Haynesville Assets for \$525 Million

Marketed by Chevron Corp. for more than a year, the 71,000-contiguous-net-undeveloped-acreage sold to TG Natural Resources is valued by the supermajor at \$1.2 billion at current Henry Hub futures.

Mentor Buys Diamondback-Operated Royalty Acres in Permian

Plano, Texas-based Mentor Capital Inc. has acquired a 25.127 net royalty acre stake in a producing 71-well pooled project in the Permian Basin, the firm said March 27.

Validus Pays \$850 Million for 89 Energy as Midcon M&A Heats Up

Elliott Investment Management-backed Validus Energy continues to roll up Midcontinent assets, closing an \$850 million acquisition of 89 Energy III.

Elk Range Royalties Closes \$905 Million Acquisition of DJ Basin Assets

Elk Range Royalties has announced a landmark acquisition of a significant mineral and royalty position spanning approximately 250,000 net royalty acres in the DJ Basin from affiliates of Occidental Petroleum.

Citadel Buys Haynesville E&P Paloma Natural Gas for \$1.2 Billion

Hedge fund giant Citadel has acquired Haynesville Shale E&P Paloma Natural Gas for \$1.2 billion, Hart Energy has learned.

Evolution Petroleum Announces Acquisition of Non-Operated Oil and Natural Gas Assets

Evolution Petroleum Corporation announced that it has entered into a definitive agreement to acquire non-operated oil and natural gas assets in New Mexico, Texas, and Louisiana.

Ring Energy Bolts On Lime Rock's Central Basin Assets for \$100 Million

Ring Energy Inc. is bolting on Lime Rock Resources IV LP's Central Basin Platform assets for \$100 million, the E&P announced Feb. 26.

Civitas Makes \$300 Million Midland Bolt-On, Plans to Sell D-J Assets

Civitas Resources is buying Midland Basin locations in a \$300 million bolt-on acquisition from an undisclosed seller, deepening its Permian inventory by about a year.

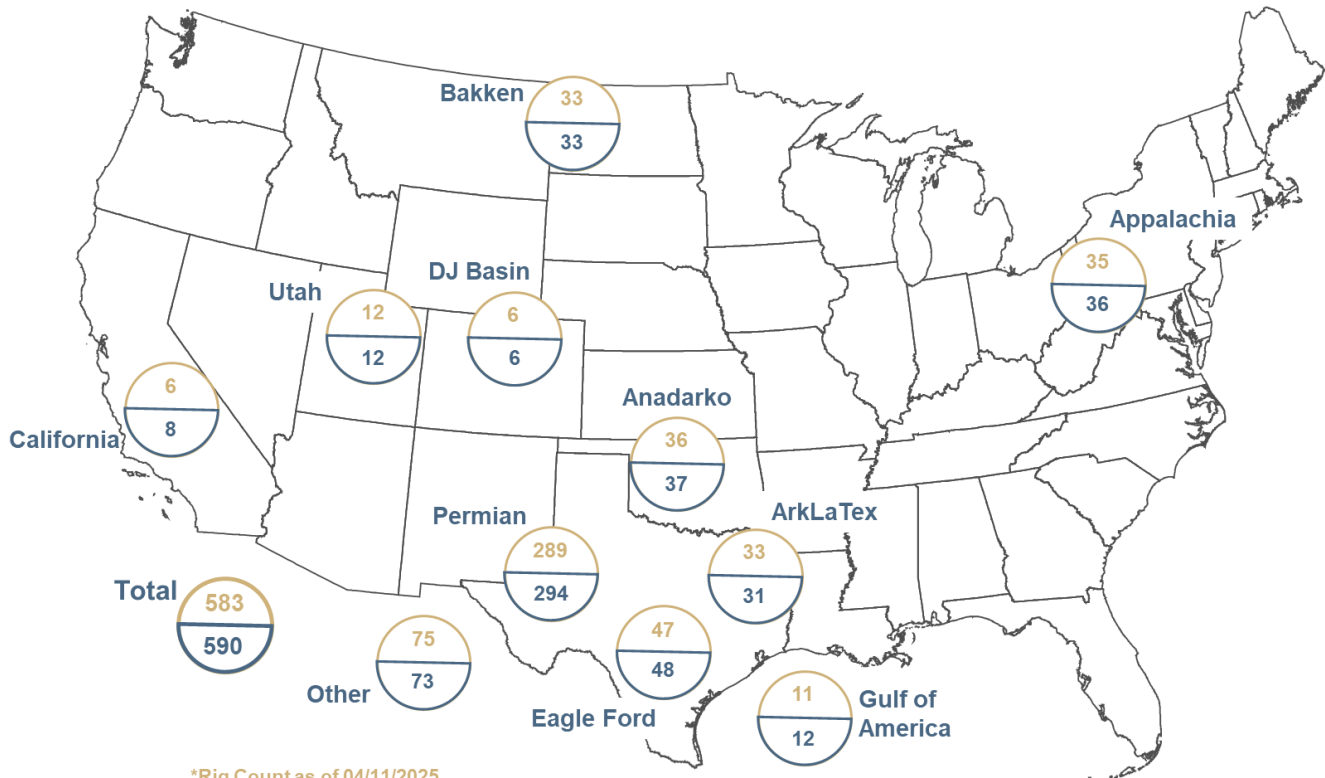
Tokyo Gas Announces Sale of Eagle Ford Shale Gas Assets

Tokyo Gas Co. has announced that its wholly-owned subsidiary, Tokyo Gas America, through its subsidiary TG Eagle Ford Resources LP, signed Heads of Agreement with Shizuoka Gas Co, to sell its Eagle Ford shale gas assets.

ConocoPhillips to Sell Interests in Ursa and Europa Fields to Shell for \$735 Million

ConocoPhillips said on Friday it would sell its interests in the Ursa and Europa Fields to Shell for \$735 million, as part of the shale producer's plan to streamline its portfolio.

RIG ACTIVITY BY US REGION

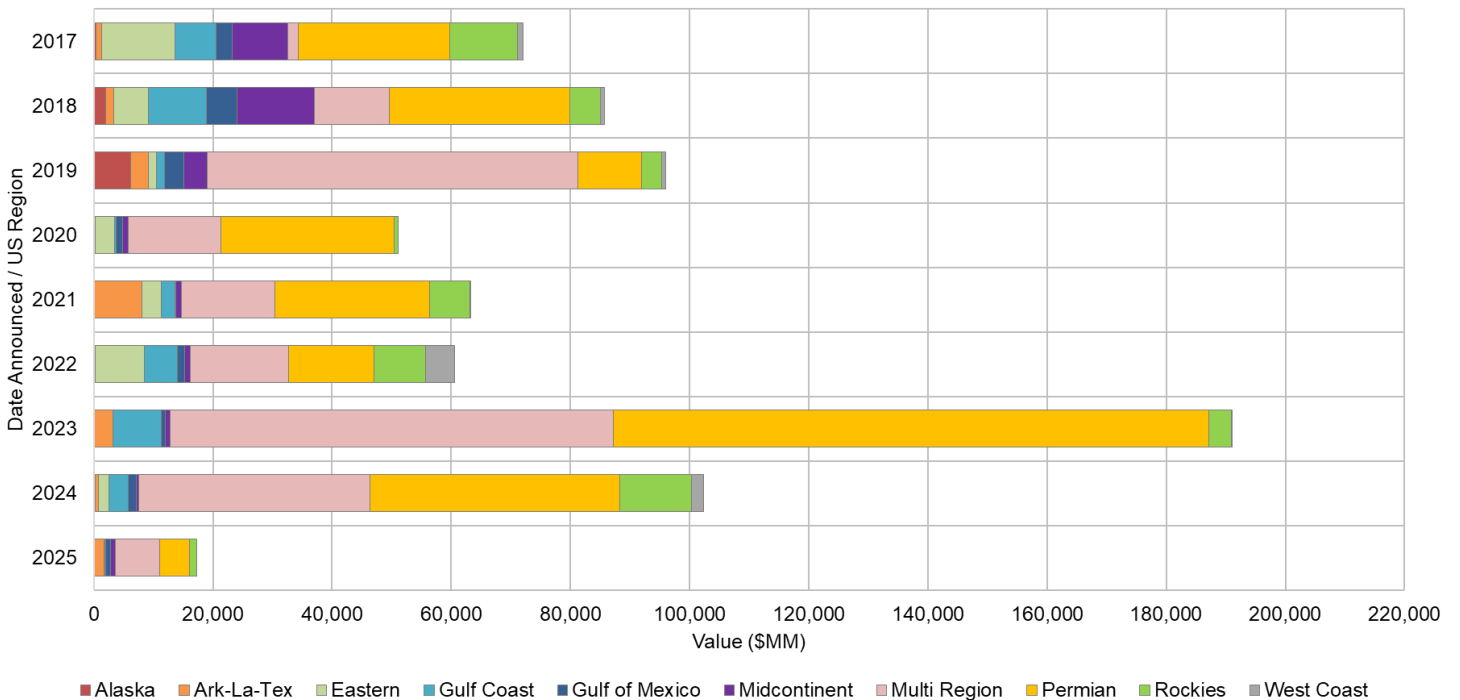
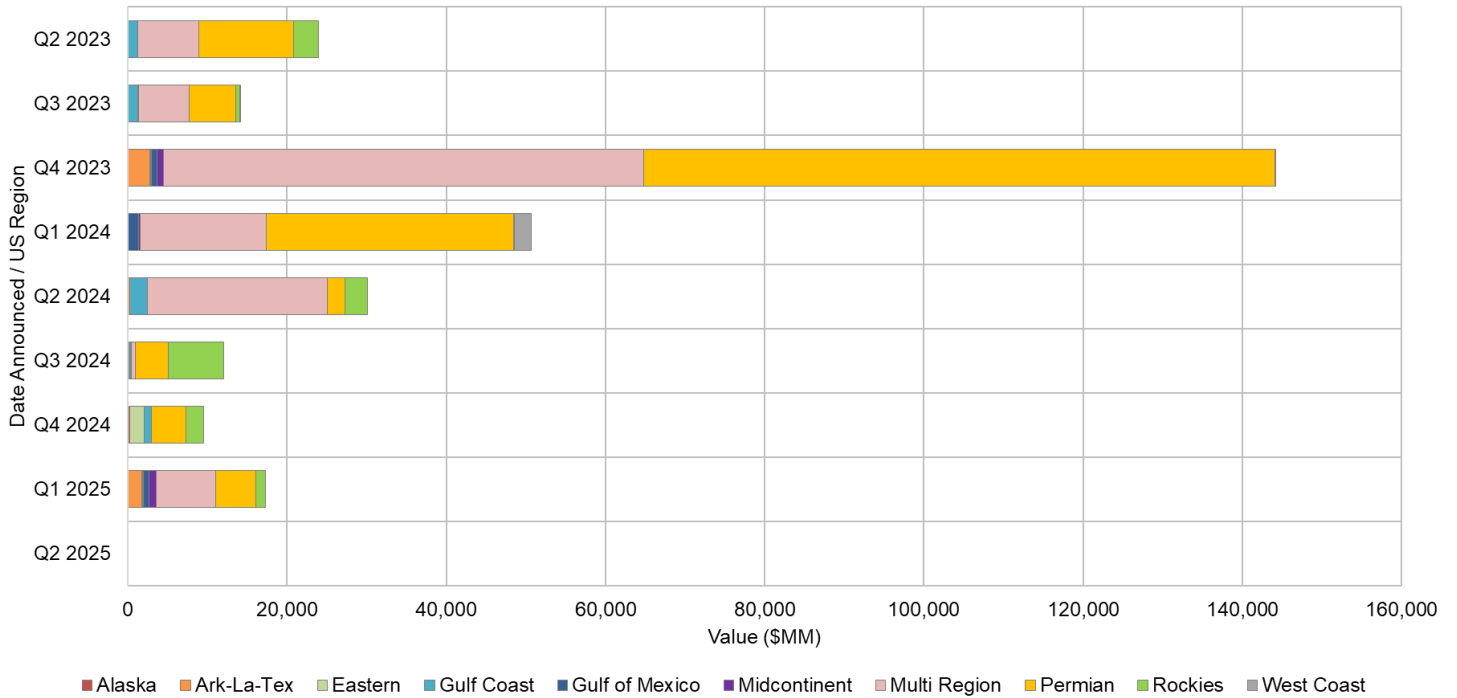


*Rig Count as of 04/11/2025
*Rig Count as of 04/04/2025

U.S. Rig Breakouts	Week Ending 04/11/2025		Week Ending 04/04/2025		Week Ending 04/12/2024
	Count	+/-	Count	+/-	Count
Oil	480	(9)	489	(26)	506
Gas	97	1	96	(12)	109
Not Specified	6	1	5	4	2
Directional	46	(2)	48	(5)	51
Horizontal	523	(6)	529	(31)	554
Vertical	14	1	13	2	12
Land (Inc Others)	567	(6)	573	(31)	598
Inland Waters	3	0	3	3	0
Offshore	13	(1)	14	(6)	19
US Total	583	(7)	590	(34)	617

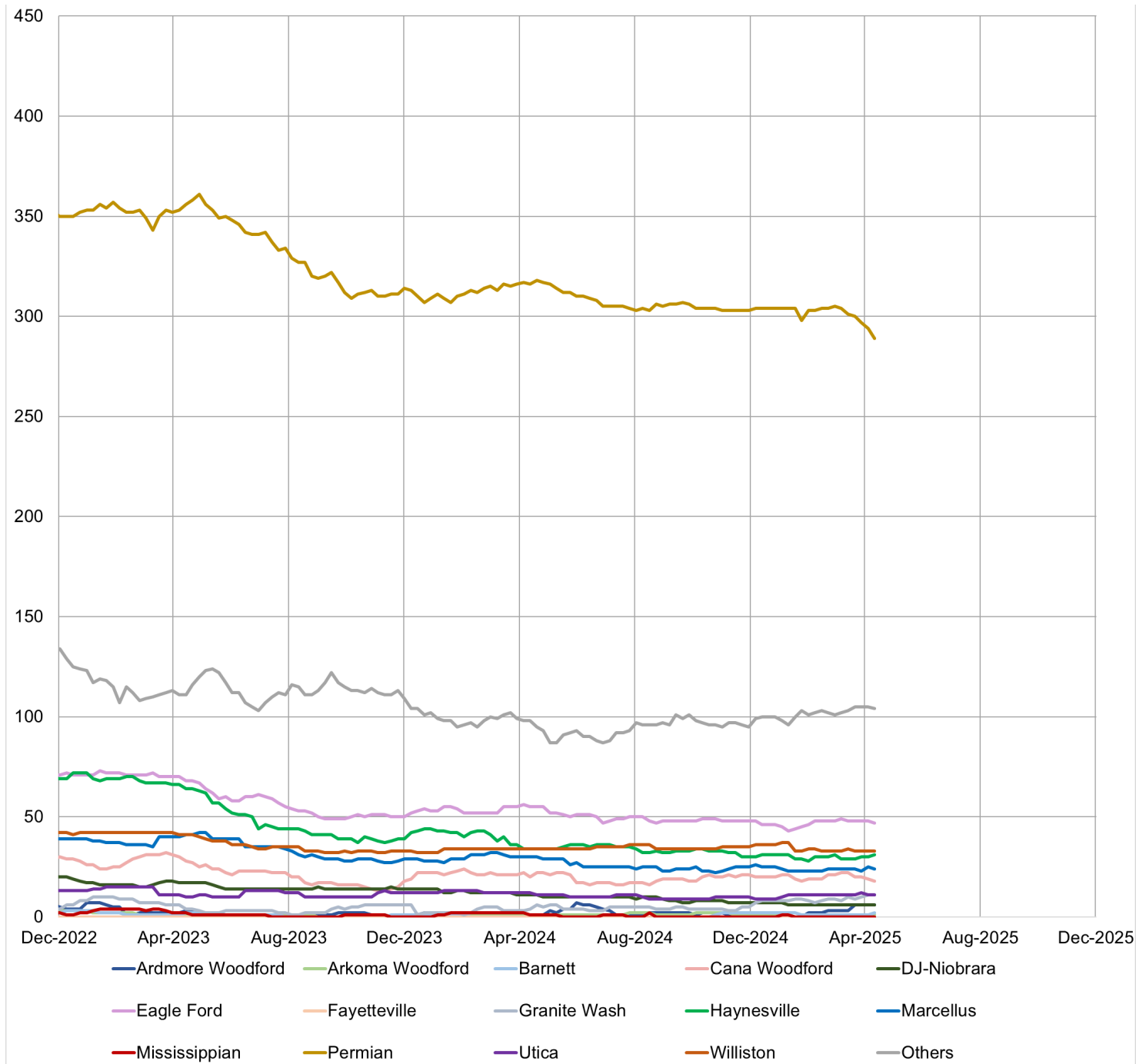
*Source—Baker Hughes North America Rotary Rig Count

DEAL VALUE BY US REGION (BY QUARTER)



*Source—Enverus M&A Data- (Charts exclude terminated deals)

RIG ACTIVITY BY US REGION



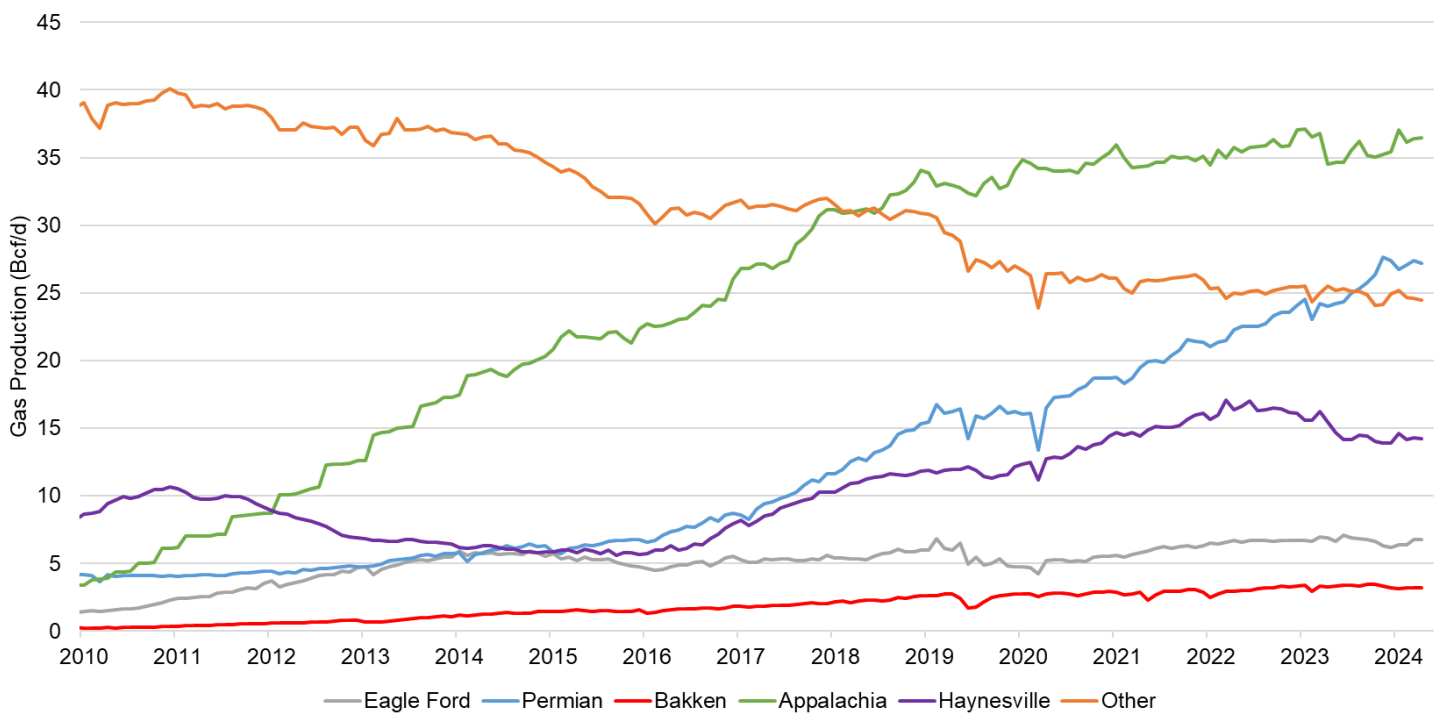
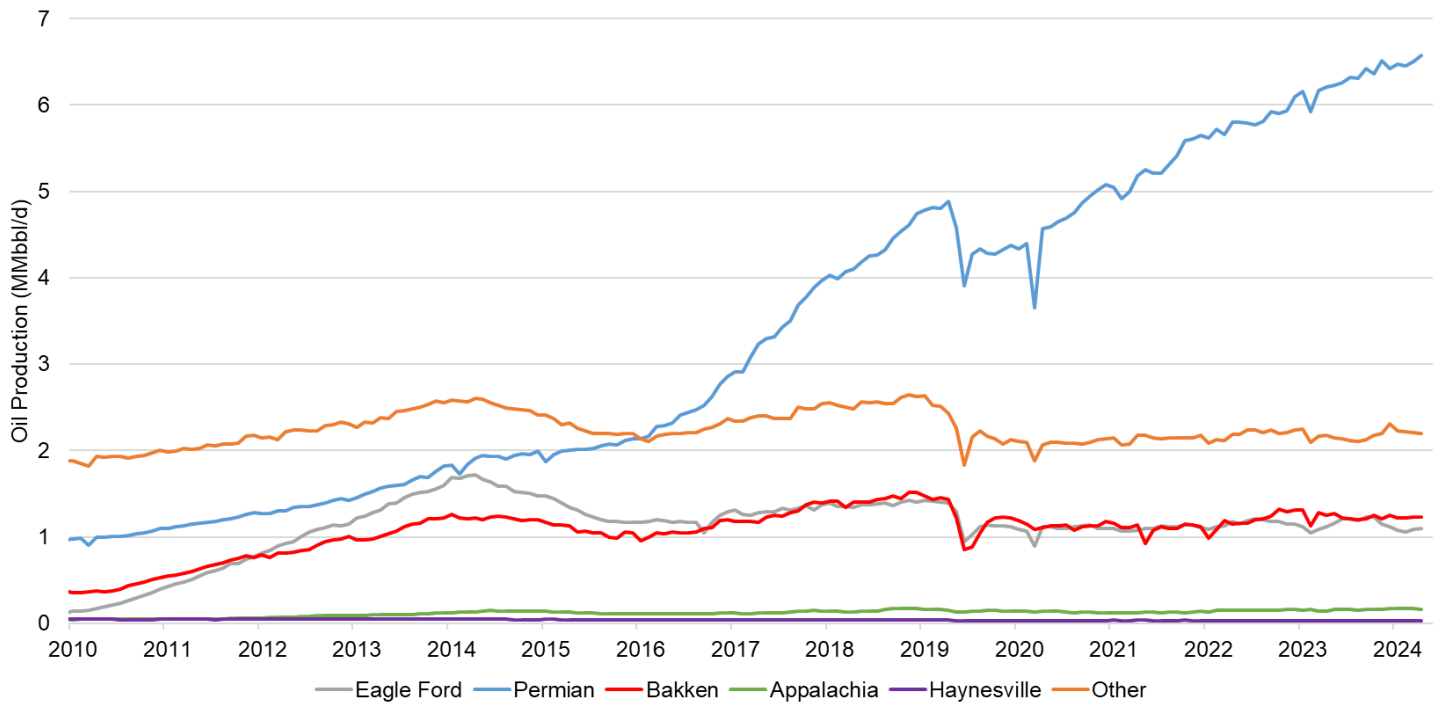
*Source—Baker Hughes North America Rotary Rig Count

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



*Source—Energy Information Administration (EIA)

HISTORICAL PRODUCTION OF SELECTED US SHALE REGIONS



*Source—Energy Information Administration (EIA)

UPCOMING EVENTS

April 2025

<u>SPE GCS - New Ventures Panel</u>	April 16	Houston, TX
<u>Quorum Qnections 25</u>	April 22-24	Las Vegas, NV
<u>SIGMA Spring Conference</u>	April 22-24	Scottsdale, AZ
<u>World Oilman's Poker Tournament</u>	April 23-25	Las Vegas, NV
<u>Hunger Free Golf Classic</u>	April 25	Houston, TX
<u>World Oilman's Tennis Tournament</u>	April 30 - May 3	Houston, TX

May 2025

<u>Quorum Qnections Barcelona</u>	May 13-15	Barcelona, Spain
<u>ASA Energy Valuation Conference</u>	May 15	Houston, TX
<u>North American Petroleum Accounting Conference</u>	May 15-16	Dallas, TX
<u>Texas Dreamin' 2025</u>	May 29-30	Austin, 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).

