



Oil and Gas (Upstream) Industry

ANNUAL UPDATE | 2022





IN THIS EDITION

- Benchmark Spot Prices
- Historical and Futures Oil & Gas Prices
- Rig Count by Basin
- Production by Area
- Stock Price Performance:
Selected E&Ps and Royalty Trusts, Mineral and Royalty (M&R) Entities
- Publicly Traded E&P Valuation Multiples and M&R Valuation Multiples

Insights and Observations

Natural gas prices are crashing

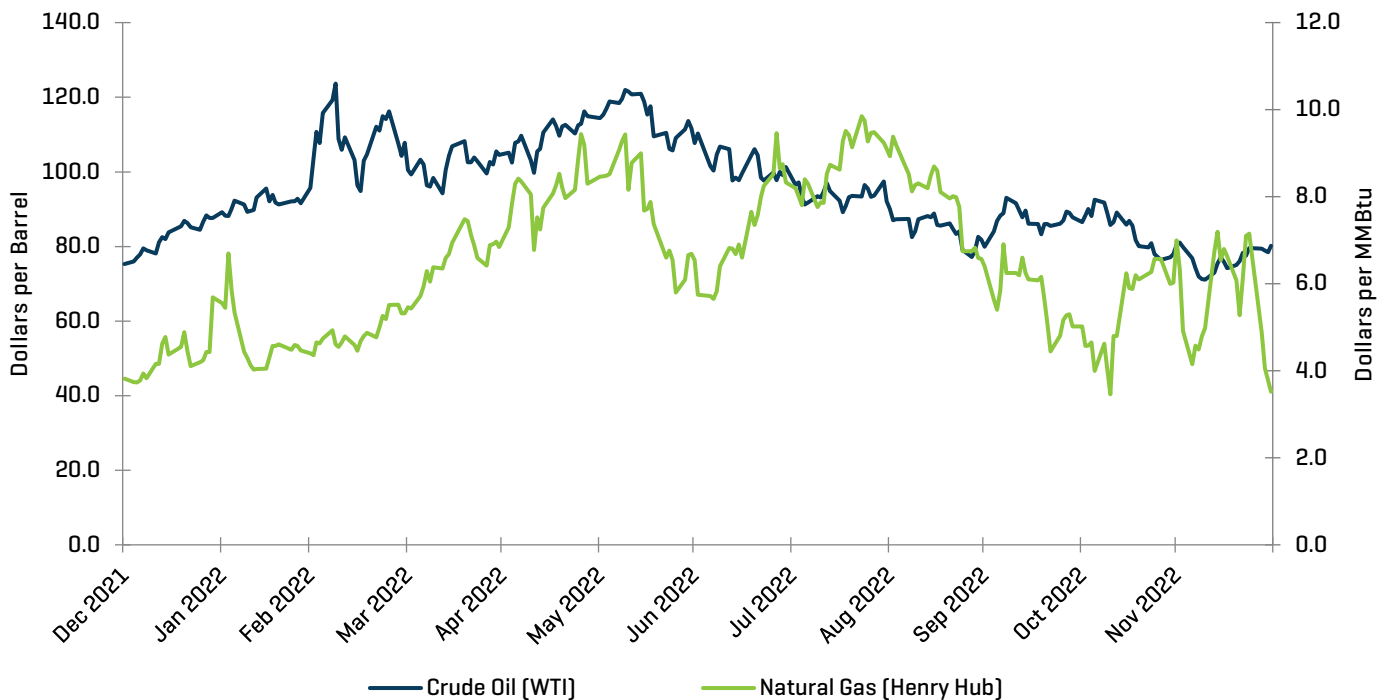
Mineral and royalty entities continued to consolidate

Natural gas prices fell precipitously at year end to \$3.52/MMBtu, compared to a \$6.45/MMBtu average during 2022. Crude oil prices also declined during the 2H 2022, but not as dramatically, ending the year at \$80.16/bbl.

Mineral and royalty (M&R) entities continued to consolidate. Publicly traded Sitio Royalties was formed in June 2022 from the combination of Desert Peak and Falcon Minerals. Sitio then merged with Brigham Minerals in late 2022, joining Viper and Black Stone Minerals as the major M&Rs.

Oil & Gas Benchmark Spot Prices – Year 2022

One-Year Historical Oil and Gas Prices as of Dec. 21, 2022



Source: S&P Capital IQ

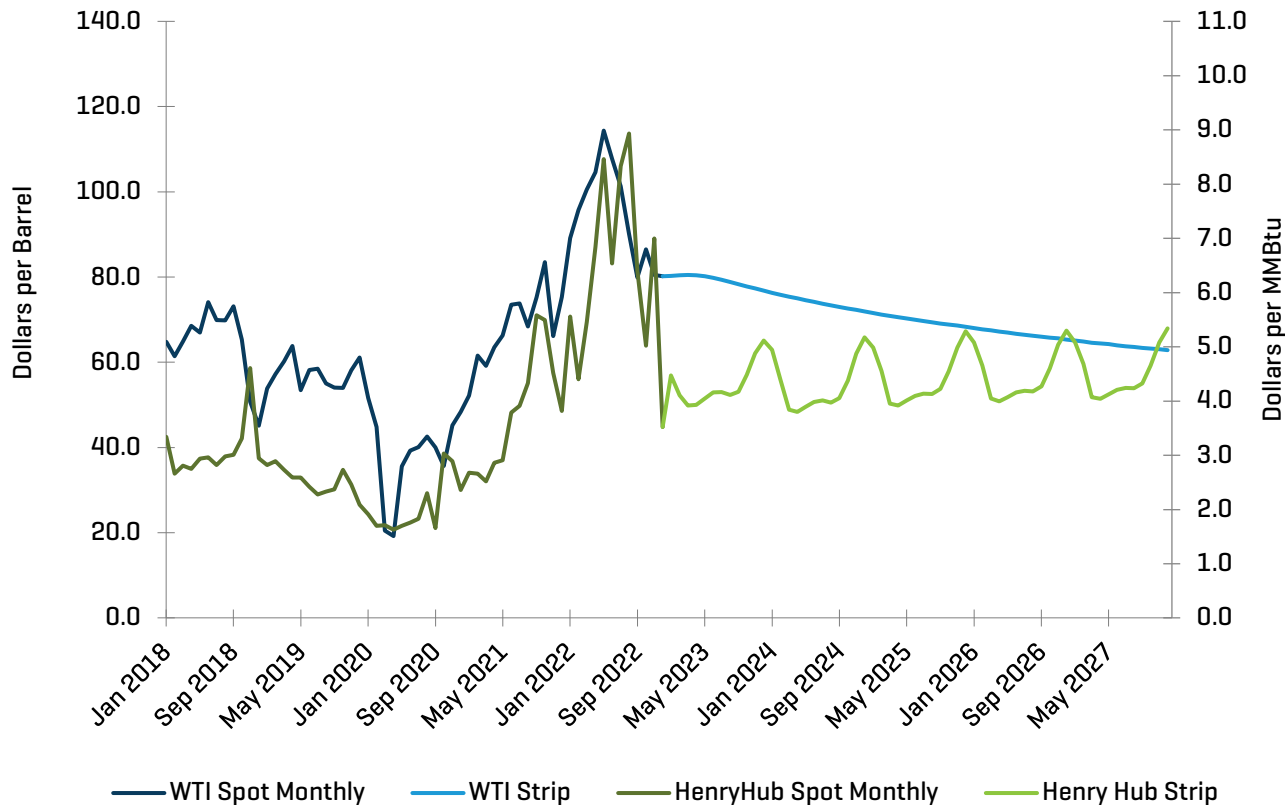
COMMODITY PRICING TRENDS

The price of oil and gas is determined by the forces of supply and demand and has a history of high volatility. In the one-year period ending December 31, 2022, spot West Texas Intermediate (“WTI”) oil prices generally ranged from a low of **\$71.05** per barrel (“/bbl”) in December 2022 to a high of **\$123.64/bbl** in March 2022. Spot Henry Hub (“HH”) natural gas prices fluctuated between a low of **\$3.46** per million British thermal unit (“/MMBtu”) in November 2022 and a high of **\$9.85/MMBtu** in August 2022. Natural gas prices declined notably in late 2022, unsettling natural gas producers which benefited from very favorable pricing during 2022 compared to recent years.

- WTI closed at \$80.16/bbl on December 31, 2022.
- HH closed at \$3.52/MMBtu on December 31, 2022.

Historical and Futures Oil & Gas Prices

Historical and Future Oil and Gas Prices as of Dec. 21, 2022



Source: S&P Capital IQ

COMMODITY PRICING OUTLOOK

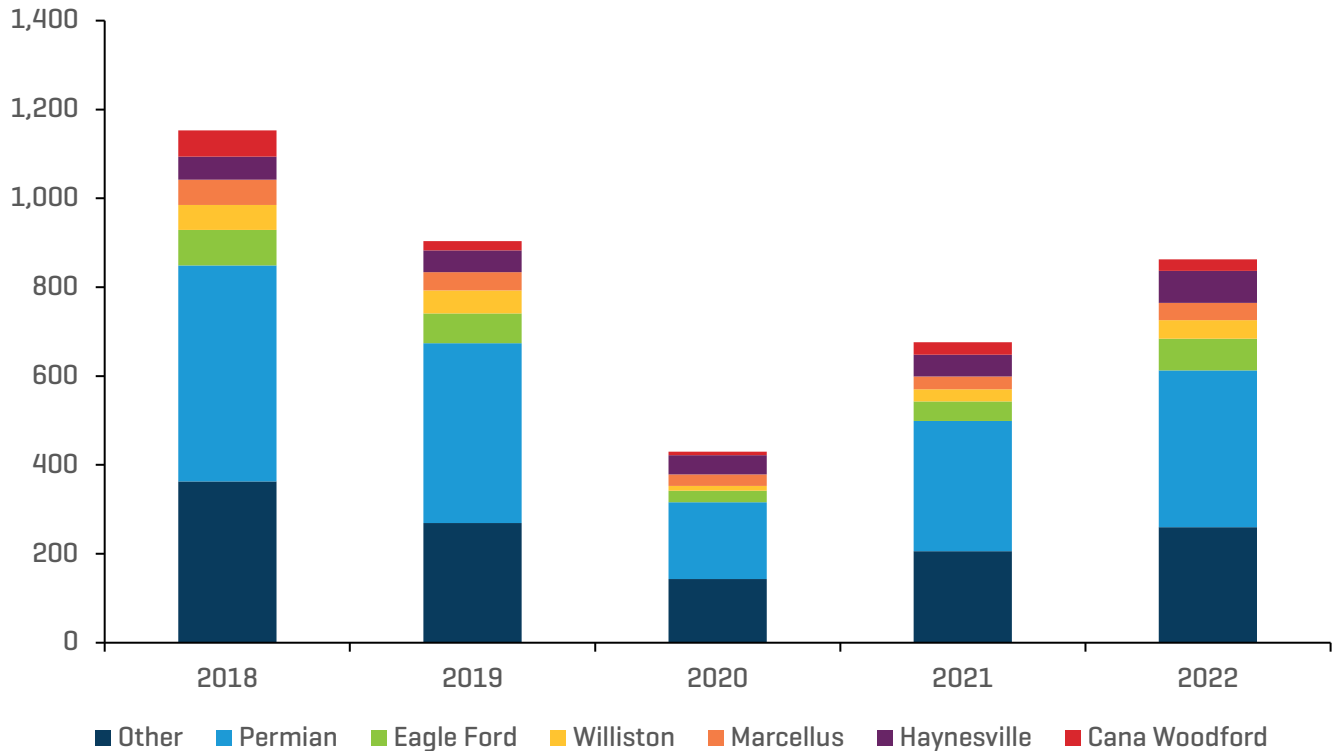
Going forward, oil prices continue to reflect uncertainty related to Russia's invasion of Ukraine, the impact of a COVID wave on China's economy, sanctions and price caps on Russia's oil production and contribution to global supply, and OPEC+ production decisions.

Natural gas demand was negatively impacted by a warmer-than-expected winter in the U.S. and Europe.

Oil forward curves displayed backwardation, while natural gas forward curves displayed contango as of December 31, 2022.

Rig Count by Basin

Rig Count – As of Year-End



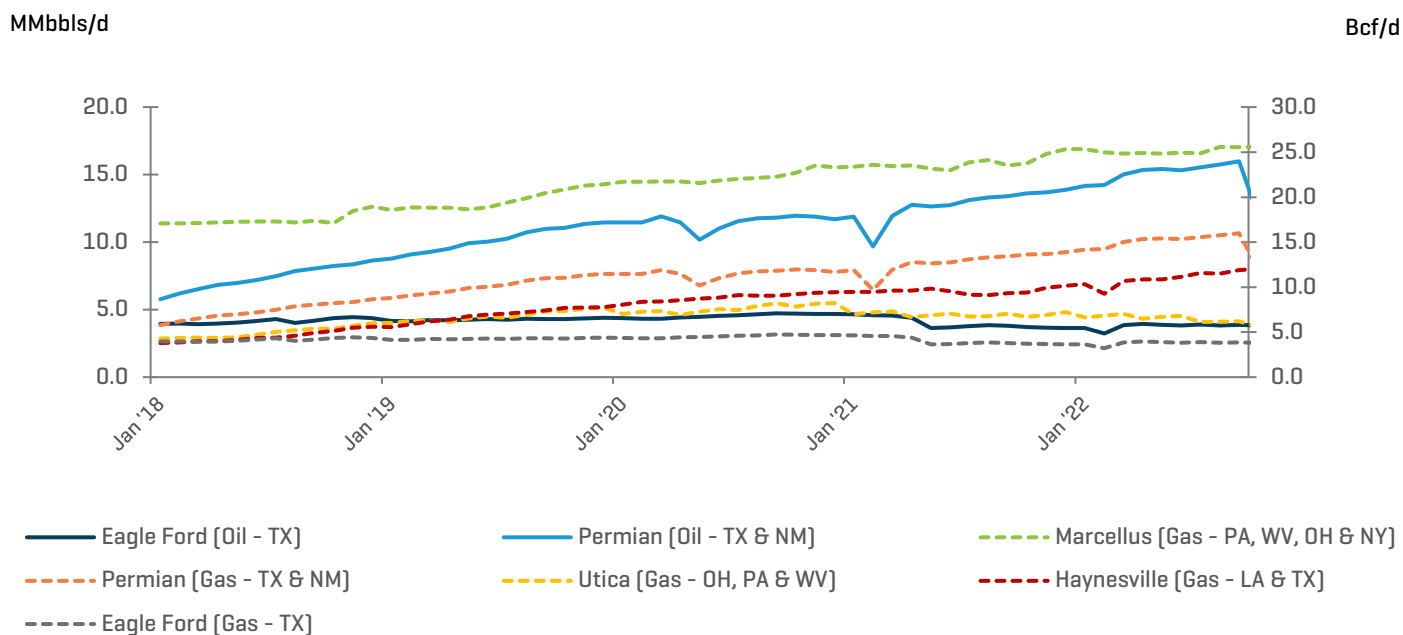
Source: Baker Hughes North American Rotary Rig Count

RIG COUNT

During 2022, the rig count continued to improve, increasing to 863 rigs on December 31, 2022, as compared to 676 rigs in December 2021. The Permian continued to be the most active basin, with 353 rigs or 41% of total rigs. Technological advances have benefited the E&P sector in recent years. Horizontal drilling and the introduction of fracking contributed to the significant increase in production in recent years despite the decrease in the number of rigs. As of December 31, 2022, horizontal wells comprise approximately 91% of the total U.S. rig count.

Historical Oil & Gas Production by Area

Crude Oil and Natural Gas Production as of December 31, 2022



Source: EIA

HISTORICAL PRODUCTION

U.S. production of crude oil generally increased from an average of 9.4 MMbbls/d (million barrels per day) in 2017 to 11.92 MMbbls/d in 2022 (as of December 31, 2022). Average annual production increased 6.0% in 2022 vs. 2021.

U.S. production of natural gas increased from an average of 74.80 billion cubic feet per day (“Bcf/d”) in 2017 to 98.16 Bcf/d in 2022 (as of December 31, 2022). Average annual production increased 3.9% in 2022 vs. 2021 as drilling activity continued to increase into 2022. This was especially true in the Permian Basin, where associated gas production constituted a substantial portion of total U.S. natural gas production growth.

PRODUCTION OUTLOOK

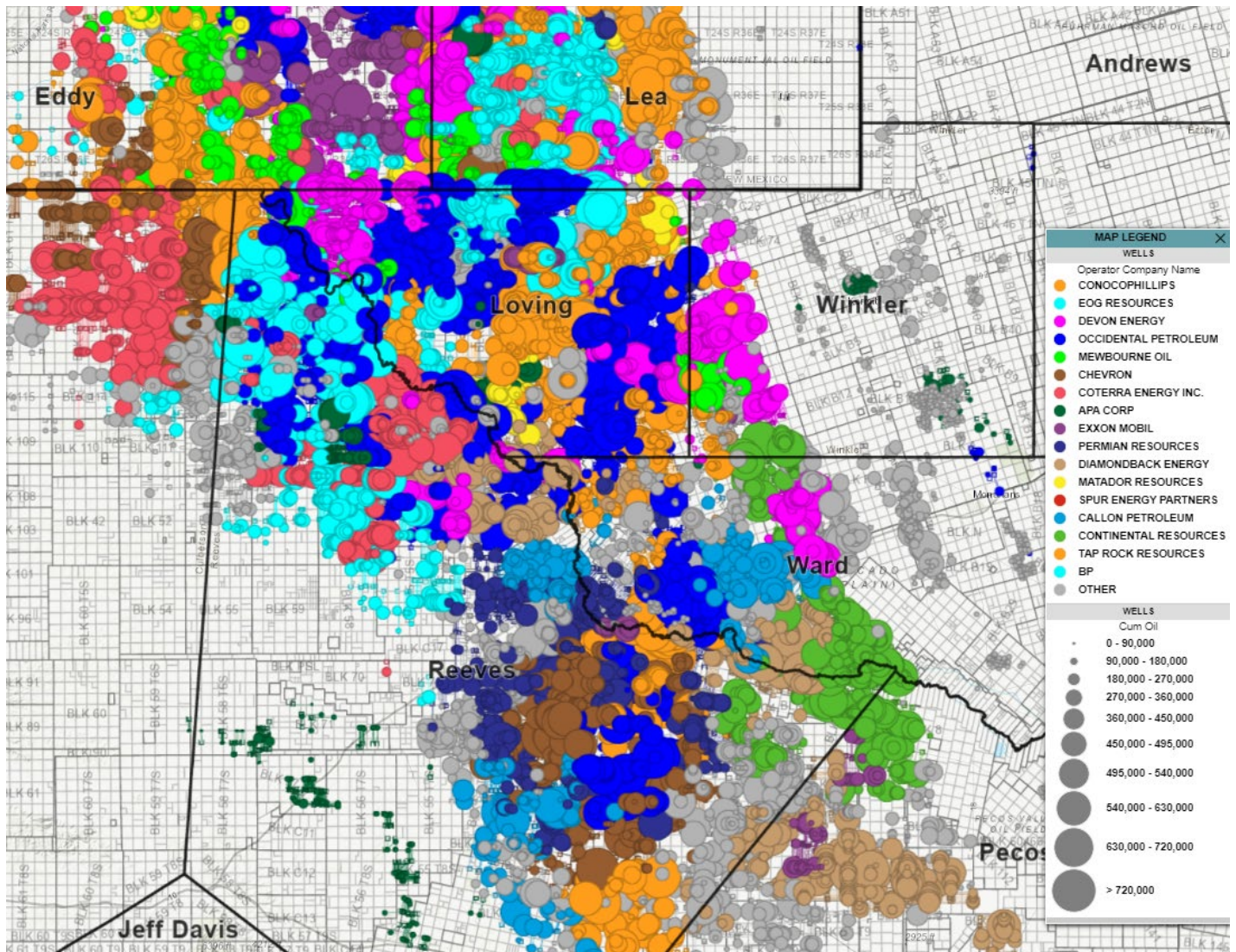
The Energy Information Administration (EIA) forecasts an approximate 4% increase in U.S. crude oil production in 2023 vs. 2022 and an average 12.41 MMbbls/d during 2023. Most growth should come from the Permian region of Texas and New Mexico.

The EIA forecasts a 2% increase in U.S. natural gas production in 2023 vs. 2022 and an average of 100.35 Bcf/d in 2023. Production in the Appalachian region will drive gas production growth.

The Permian's Delaware Basin

OPERATORS AND WELL RESULTS

The most active operators in the Delaware Basin are ConocoPhillips, EOG Resources, Devon, Oxy, and Mewbourne Oil. The best wells have generally been located in southern areas of the Eddy and Lea counties, New Mexico, and Loving County, Texas.

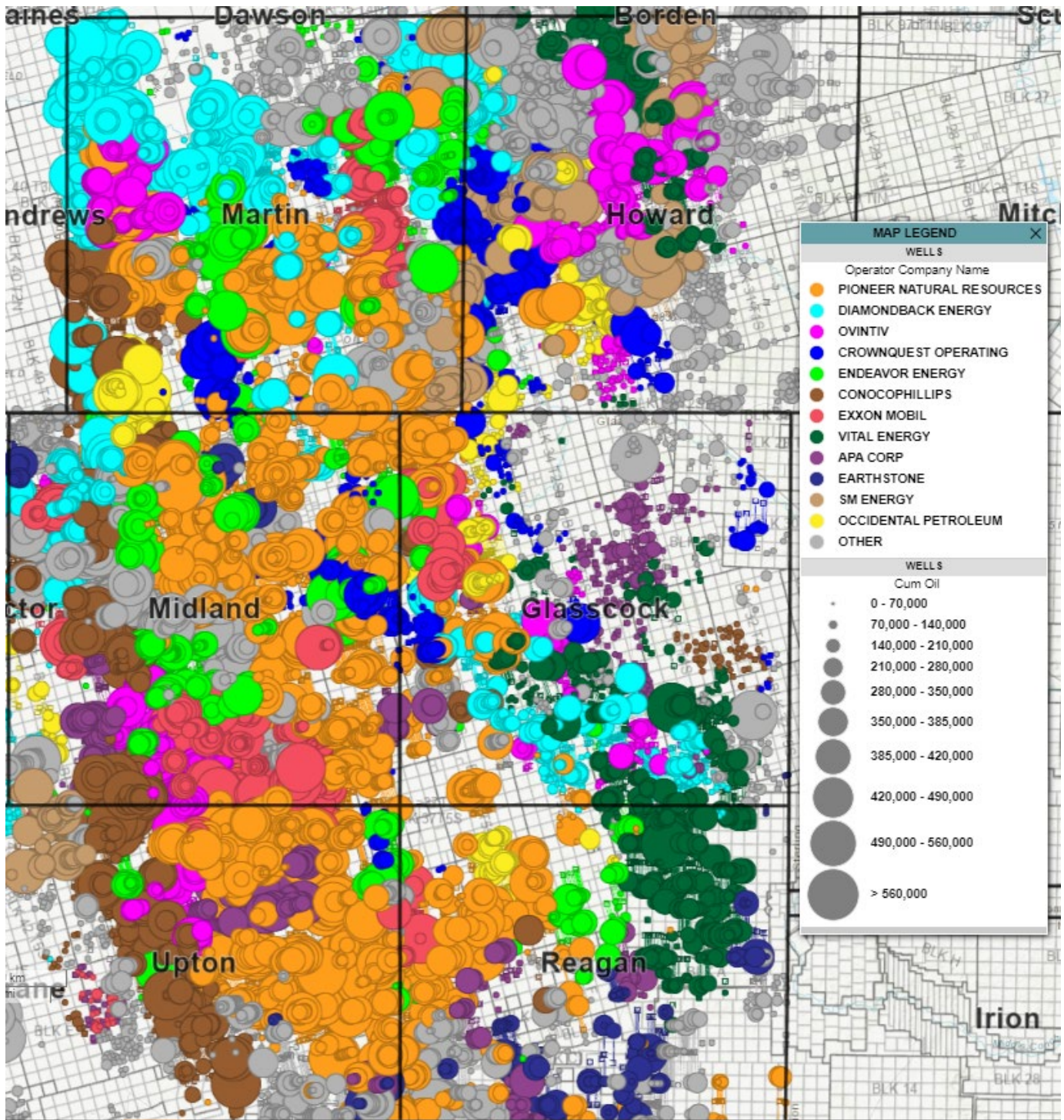


Source: Enverus DrillingInfo (Wells with first production during the past 10 years)

The Permian's Midland Basin

OPERATORS AND WELL RESULTS

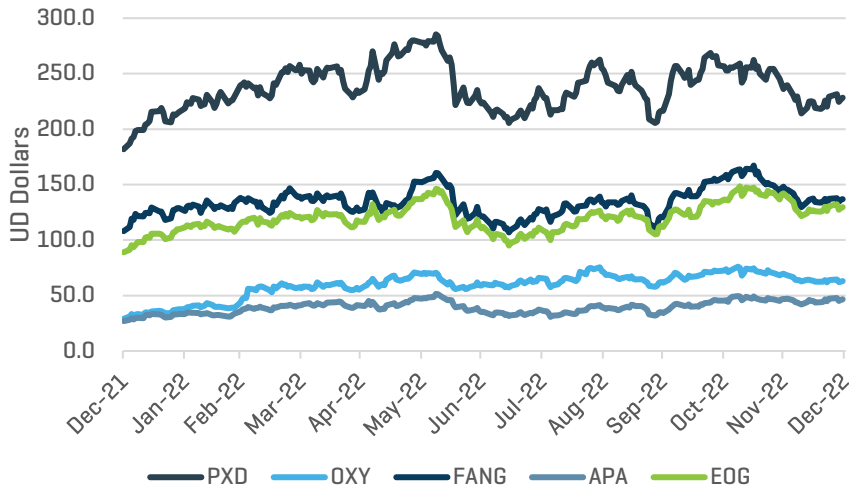
The most active operators in the Midland Basin are Pioneer Natural Resources, Diamondback Energy, Ovintiv, and CrownQuest/CrownRock. Key counties include Midland, Martin, Howard, and Upton counties.



Source: Enverus DrillingInfo (Wells with first production during the past 10 years)

2022 Stock Price Performance: Selected E&Ps

Oil Weighted E&Ps

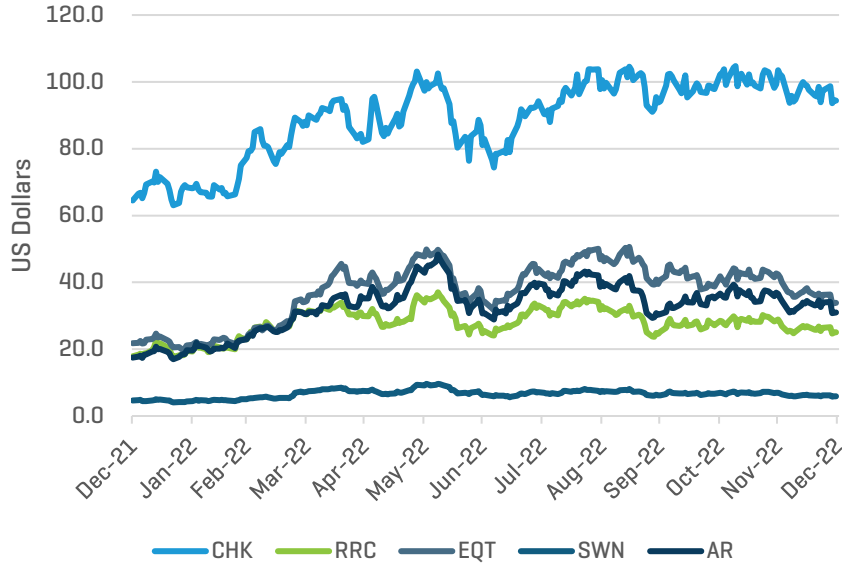


Source: S&P Capital IQ

E&P STOCKS TRENDS

Over the twelve-month period ending December 31, 2022, the selected publicly traded exploration and production companies' stocks have all performed positively. The E&P industry was a top performing sector in 2022.

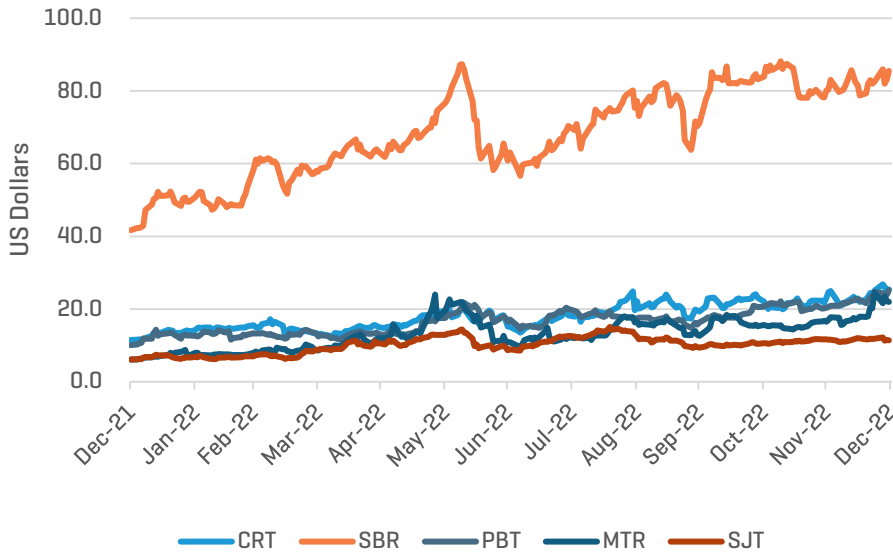
Gas Weighted E&Ps



Source: S&P Capital IQ

Stock Price Performance: Royalty Trusts, Mineral and Royalty (M&R) Entities

Royalty Trusts



MINERAL AND ROYALTY STOCK TRENDS

Over the twelve-month period ending December 31, 2022, the publicly traded mineral and royalty interest stocks have all performed positively. During 2022, significant consolidation occurred. Falcon Minerals, Foundation Minerals, Momentum Minerals, and Brigham Mineral all combined to form **Sitio Royalties (“STR”)**.

Source: S&P Capital IQ

Active Mineral and Royalty Companies



Source: S&P Capital IQ

Publicly Traded E&P Valuation Multiples

Pricing Multiples

In Millions of U.S. Dollars

| Company | Ticker | 12/31/2022 Price Per Share | Enterprise Value ("EV") | LTM EBITDAX | 2023 EBITDAX | 2024 EBITDAX | LTM Average Daily Production (boe/d) |
|-------------------------------------|--------|----------------------------------|----------------------------|----------------|-----------------|-----------------|--|
| Natural Gas Weighted | | | | | | | |
| 1 Chesapeake Energy Corporation | CHK | \$ 94.37 | \$ 17,568.2 | \$ 5,302.0 | \$ 5,617.9 | \$ 5,275.5 | 666,849 |
| 2 Range Resources Corporation | RRC | 25.02 | 8,120.6 | 2,119.3 | 2,093.6 | 2,022.3 | 353,465 |
| 3 EQT Corporation | EQT | 33.83 | 18,396.0 | 4,645.5 | 7,187.0 | 6,551.3 | 885,864 |
| 4 Southwestern Energy Company | SWN | 5.85 | 12,443.6 | 3,297.0 | 4,120.3 | 4,829.0 | 791,157 |
| 5 Antero Resources Corporation | AR | 30.99 | 15,075.8 | 3,514.2 | 3,528.5 | 2,877.2 | 534,123 |
| Crude Oil Weighted | | | | | | | |
| 6 Pioneer Natural Resources Company | PXD | 228.39 | 60,914.1 | 12,547.0 | 11,243.7 | 10,915.3 | 649,772 |
| 7 Occidental Petroleum Corporation | OXY | 62.99 | 91,551.7 | 21,600.0 | 18,954.6 | 16,649.2 | 1,158,667 |
| 8 Diamondback Energy, Inc. | FANG | 136.78 | 31,431.6 | 7,415.0 | 7,481.1 | 7,012.9 | 386,005 |
| 9 APA Corporation | APA | 46.68 | 21,065.3 | 6,815.0 | 6,677.2 | 6,448.6 | 348,305 |
| 10 EOG Resources, Inc. | EOG | 129.52 | 77,162.5 | 14,041.0 | 15,490.2 | 14,712.0 | 907,945 |

| Company | Ticker | EV / LTM EBITDAX | EV / 2023 EBITDAX | EV / 2024 EBITDAX | EV / LTM Avg Daily Production (boe/d) |
|--------------------------------------|--------|---------------------|----------------------|----------------------|--|
| Natural Gas Weighted | | | | | |
| 11 Chesapeake Energy Corporation | CHK | 3.3x | 3.1x | 3.3x | \$ 26,345.1 |
| 12 Range Resources Corporation | RRC | 3.8x | 3.9x | 4.0x | 22,974.2 |
| 13 EQT Corporation | EQT | 4.0x | 2.6x | 2.8x | 20,766.2 |
| 14 Southwestern Energy Company | SWN | 3.8x | 3.0x | 2.6x | 15,728.3 |
| 15 Antero Resources Corporation | AR | 4.3x | 4.3x | 5.2x | 28,225.3 |
| Crude Oil Weighted | | | | | |
| 16 Pioneer Natural Resources Company | PXD | 4.9x | 5.4x | 5.6x | 93,746.9 |
| 17 Occidental Petroleum Corporation | OXY | 4.2x | 4.8x | 5.5x | 79,014.7 |
| 18 Diamondback Energy, Inc. | FANG | 4.2x | 4.2x | 4.5x | 81,427.9 |
| 19 APA Corporation | APA | 3.1x | 3.2x | 3.3x | 60,479.4 |
| 20 EOG Resources, Inc. | EOG | 5.5x | 5.0x | 5.2x | 84,985.9 |

Source: S&P Capital IQ, Inc.

E&P VALUATION MULTIPLES

Publicly traded exploration and production (E&P) companies are assessed by the market primarily based on their EBITDAX levels. As EBITDAX is a measurement of earnings prior to consideration of interest expense and taxes depreciation, depletion, amortization, and exploration expense, the use of EBITDAX in our analysis mitigates the effects of different capital structures and tax situations. As of December 31, 2022, EBITDAX multiples averaged approximately 4.0x.

Publicly Traded M&R Valuation Multiples

Pricing Multiples

In Millions of U.S. Dollars

| Company | Ticker | 12/31/2022 Price Per Share | Enterprise Value ("EV") | LTM EBITDA [a] | 2023 EBITDA | 2024 EBITDA | Yield |
|--------------------------------|--------|----------------------------------|----------------------------|-------------------|----------------|----------------|-------|
| Royalty Trusts | | | | | | | |
| 1 Cross Timbers Royalty Trust | CRT | \$ 25.44 | \$ 150.4 | n/a | n/a | n/a | 7.7% |
| 2 Sabine Royalty Trust | SBR | 85.45 | 1,229.6 | n/a | n/a | n/a | 10.3% |
| 3 Permian Basin Royalty Trust | PBT | 25.20 | 1,171.7 | n/a | n/a | n/a | 4.5% |
| 4 Mesa Royalty Trust | MTR | 22.01 | 39.9 | n/a | n/a | n/a | 7.0% |
| 5 San Juan Basin Royalty Trust | SJT | 11.42 | 525.5 | n/a | n/a | n/a | 14.9% |
| Mineral and Royalty | | | | | | | |
| 6 Black Stone Minerals, L.P. | BSM | 16.87 | 4,071.2 | 531.3 | 551.1 | 544.4 | 9.4% |
| 7 Kimbell Royalty Partners, LP | KRP | 16.70 | 1,680.5 | 189.7 | 209.8 | 222.5 | 11.3% |
| 8 Viper Energy Partners LP | VNOM | 31.79 | 4,512.1 | 783.4 | 670.8 | 660.0 | 7.7% |
| 9 Sitio Royalties Corp. | STR | 28.85 | 5,079.4 | 318.1 | 314.5 | 644.6 | 9.5% |
| 10 Dorchester Minerals, L.P. | DMLP | 29.93 | 1,110.0 | 149.7 | n/a | n/a | 12.0% |

| Company | Ticker | EV / LTM EBITDA | EV / 2023 EBITDA | EV / 2024 EBITDA |
|---------------------------------|--------|--------------------|---------------------|---------------------|
| Royalty Trusts | | | | |
| 11 Cross Timbers Royalty Trust | CRT | n/a | n/a | n/a |
| 12 Sabine Royalty Trust | SBR | n/a | n/a | n/a |
| 13 Permian Basin Royalty Trust | PBT | n/a | n/a | n/a |
| 14 Mesa Royalty Trust | MTR | n/a | n/a | n/a |
| 15 San Juan Basin Royalty Trust | SJT | n/a | n/a | n/a |
| Mineral and Royalty | | | | |
| 16 Black Stone Minerals, L.P. | BSM | 7.7x | 7.4x | 7.5x |
| 17 Kimbell Royalty Partners, LP | KRP | 8.9x | 8.0x | 7.6x |
| 18 Viper Energy Partners LP | VNOM | 5.8x | 6.7x | 6.8x |
| 19 Sitio Royalties Corp. | STR | nmf | nmf | 7.9x |
| 20 Dorchester Minerals, L.P. | DMLP | 7.4x | n/a | n/a |

Source: S&P Capital IQ, Inc.

VALUATION MULTIPLES

Publicly traded mineral and royalty entities (M&R) and royalty trusts are priced primarily on yield, and most are not taxable entities; they are pass-through entities for income tax purposes. Royalty trusts do not acquire mineral interests/properties, and therefore have a static asset base. The M&R entities are continuing to increase their asset base by acquiring more properties, so their growth rates should be higher than royalty trusts.



ABOUT STOUT UPSTREAM OIL AND GAS VALUATION SERVICES

Stout's Upstream Oil and Gas valuation group provides valuations of privately held E&Ps, mineral and royalty entities and portfolios, and oil and gas reserves. Stout has subscriptions to leading industry databases (Enverus DrillingInfo, CapIQ) and has technical experts (reservoir engineers and others) available to assist with valuations.

| | | | |
|----------------|-----------------------|---------|--|
| Alan Harp | Managing Director | Houston | aharp@stout.com |
| Robert Moore | Managing Director | Houston | rmoore@stout.com |
| Shishir Khetan | Managing Director | Houston | skhetan@stout.com |
| Greg Scheig | Managing Director | Dallas | gscheig@stout.com |
| Atiba Henry | Senior Vice President | Houston | ahenry@stout.com |