A photograph of an industrial oil and gas refinery at sunset. The scene is filled with large cylindrical storage tanks, complex piping systems, and metal scaffolding. The sun is low on the horizon, creating a strong golden glow and long shadows across the gravel-covered ground. A large yellow rectangular overlay is positioned in the upper left quadrant, containing the title and year of the study.

# US oil and gas reserves, production and ESG benchmarking study

2023

The EY logo, consisting of the letters 'EY' in a bold, white, sans-serif font. A yellow triangle is positioned above the 'Y'.

Building a better working world



# Table of contents

Overview .....	01
Capital expenditures .....	05
Revenues and results of operations .....	07
Capital allocation analysis .....	09
Oil reserves .....	10
Gas reserves .....	13
Performance measures	
Proved reserve acquisition costs .....	15
Production replacement rates: oil .....	16
Production replacement rates: gas .....	17
Production costs .....	18
ESG .....	19
Company statistics .....	22
Peer groups .....	36
Appendix .....	37
Contacts .....	41

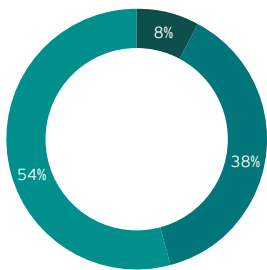
# Overview

This study is a compilation and analysis of US oil and gas reserve and production information reported by publicly traded companies to the United States Securities and Exchange Commission (SEC) and an analysis of certain publicly reported environmental, social and governance (ESG) disclosures, as applicable. It presents results for the five-year period from 2018 to 2022 for the 50 largest companies based on 2022 end-of-year US oil and gas reserve estimates. These companies represent approximately 42% of the US combined oil and gas production for 2022, and we believe that these companies are a good bellwether of industry trends. However, the oil and gas industry in the US is unique, and the conclusions that we draw do not necessarily apply to the rest of the world.

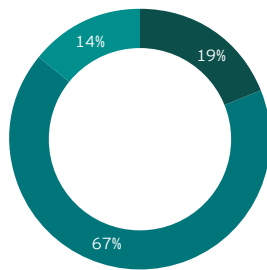
Companies have been classified into three peer groups: integrated companies (integrateds), large independents, and independents. Integrateds are companies that have oil-refining and marketing activities, in addition to exploration and production (E&P) activities. Independents do not have oil-refining and marketing activities, but may have midstream operations. Independents are classified as “large” if their reserves exceeded 1 billion barrels of oil equivalent (BOE) at the end of 2022.

In this year’s study, we continue to highlight the industry’s growing focus on sustainability and nonfinancial goals related to ESG matters, especially in light of the proposed rules and draft standards issued by the SEC and other regulators and standard setters that will require public companies and certain other entities to make various climate-related disclosures in their annual reports. Our benchmarks include whether an ESG or a sustainability report was issued; which scope(s) of greenhouse gas (GHG) emissions are reported; whether external assurance is provided and, if so, what level of assurance is provided; and finally, whether GHG reduction goals have been established.

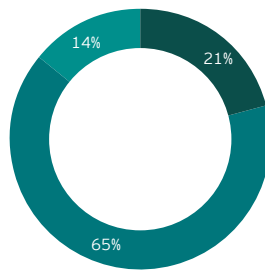
Number of companies



End-of-year US oil and gas reserves, 2022



US combined oil and gas production, 2022



■ Integrateds ■ Large independents ■ Independents



## Study highlights

Rising commodity prices through the first half of 2022 led to increases in revenues, production costs and exploration and development expenditures in 2022. Although the studied companies were able to capitalize on elevated commodity prices and realize an increase in revenues and pretax results of operations, this was partially offset by increases in production costs and production taxes, in part attributed to rising inflation and increases in production, respectively.

### Capital expenditures

- ▶ Expenditures totaled US\$106.6 billion, 25% lower than 2021, primarily due to a decline in merger and acquisition activity. Acquisitions of proved and unproved property decreased 59% and 77%, respectively, compared to 2021.
- ▶ Exploration and development expenditures increased 51% in 2022, totaling US\$74.3 billion, as the companies capitalized on elevated commodity prices.
- ▶ The companies drilled 5% more development and exploration wells in the aggregate, compared to 2021.

### Revenues and results of operations

- ▶ Revenues were US\$332.9 billion, up 58% from 2021 and the highest in the study period as a result of higher commodity prices. Revenues exceeded the previous high recorded by the study group in 2014, the last time oil surpassed \$100 per barrel, by 53%.
- ▶ Production costs were up US\$1.80 per BOE, a 17% increase as compared to 2021.
- ▶ Impairment was US\$1 billion, the lowest amount of the study period.
- ▶ Pretax profits were US\$187.5 billion, an increase of 115% compared to 2021 and a reflection of record profits for the industry in 2022.

### Capital allocation

- ▶ Payments of dividends and share repurchases increased 210% among large independents and independents from US\$19.0 billion in 2021 to US\$58.8 billion in 2022.
- ▶ Development and exploration costs as a percentage of netback (revenues less production costs) decreased from 32% in 2021 to 28% in 2022 as a result of the continued shift in capital allocation more toward dividends and share repurchases.

### Oil reserves and production

- ▶ Production was 3.2 billion barrels in 2022, a 7% increase from 2021 and the highest production during the study period.
- ▶ Purchases of reserves were 1.5 billion barrels in 2022, a decrease of 59% from the record 3.5 billion barrels of purchases in 2021. Similarly, sales of reserves declined 63% in 2022 to the lowest level of the study period, totaling 0.5 billion barrels.
- ▶ The companies reported combined oil reserves of 34.0 billion barrels in 2022, a 7% increase compared to 2021, primarily driven by 3.9 billion barrels of extensions and discoveries and the 1.5 billion barrels of purchases.

### Gas reserves and production

- ▶ Production was 15.9 trillion cubic feet in 2022, a 14% increase from 2021 and the highest production during the study period.
- ▶ Purchases of reserves were 6.6 tcf in 2022, a decrease of 70% from the record 21.6 tcf of purchases in 2021. Similarly, sales of reserves declined 25% compared to 2021 and were the lowest of the study period, totaling 3.3 tcf.
- ▶ The companies reported combined gas reserves of 196.3 tcf in 2022, an increase of 4% as compared to 2021, primarily driven by 21.9 tcf of extensions and discoveries and 6.6 tcf of purchases.



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The studied companies capitalized on the highest commodity prices seen in a decade, scaling up development spending and realizing record profits.



# Capital expenditures

## US – capital expenditures (US\$ millions) (a)

	2018	2019	2020	2021	2022
Proved properties acquired	25,788	28,814	7,370	59,487	24,240
Unproved properties acquired	13,399	34,663	4,512	34,277	7,995
Exploration	13,203	11,408	6,018	8,124	10,888
Development	76,986	76,590	42,222	41,086	63,445
Other	578	369	96	40	23
<b>Total</b>	<b>129,954</b>	<b>151,844</b>	<b>60,218</b>	<b>143,014</b>	<b>106,591</b>

(a) Includes the 50 largest companies based on 2022 end-of-year oil and gas reserve estimates. Activity related to acquired companies has also been reflected as described in the Appendix.

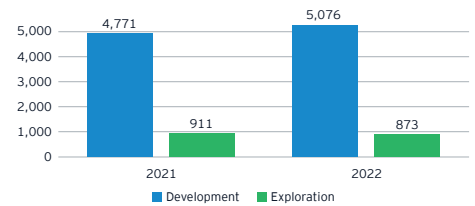
Total capital expenditures decreased among the study companies in 2022, declining 25% to US\$106.6 billion. This is one year after the study companies spent a near-record amount of US\$143 billion in capital expenditures in 2021. The decrease in total capital expenditures was primarily driven by a sharp decline in merger and acquisition activity in 2022, which saw its lowest level of activity since the COVID-19 pandemic in 2020 and came one year after the study companies recorded record merger and acquisition spending in 2021.

Merger and acquisition expenditures decreased 66% in 2022, from US\$93.8 billion in 2021, to US\$32.2 billion in 2022. Permian Resources Corporation was the leading purchaser in 2022 with total property acquisition costs of US\$3.9 billion, primarily due to its merger with Colgate Energy Partners III, LLC, which included acquisition costs of US\$3.3 billion and US\$633 million for proved and unproved properties, respectively. Marathon Oil Corporation followed with total property acquisition costs of US\$3.3 billion, primarily due to its acquisition of the assets and certain liabilities of Ensign Natural Resources, which included acquisition costs of US\$3.2 billion for proved and unproved properties combined. Chord Energy Corporation rounded out the top purchasers in 2022 with total property acquisition costs of US\$3.2 billion, primarily due to its merger with Whiting Petroleum Corporation, which included acquisition costs of US\$3.2 billion for proved and unproved properties combined.

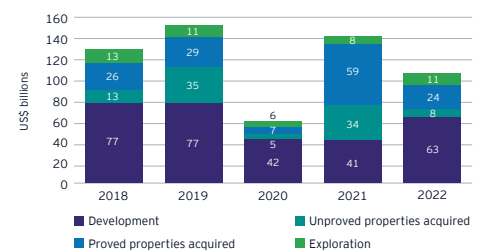
Although total capital expenditures decreased in 2022 compared to 2021, exploration and development spending increased 34% and 54%, respectively. Exploration spending was US\$10.9 billion in 2022 compared with US\$8.1 billion in 2021, while development spending increased from US\$41.1 billion in 2021 to US\$63.4 billion in 2022. Despite these year-over-year increases, total exploration and development spending in 2022 was nearly half of what was spent by the study group in 2014, when commodity prices were last comparable. This highlights the shift toward capital discipline in the industry seen over the last few years in response to investor sentiment.

Pioneer Natural Resources Company kept its leading position in exploration spend from the prior year and incurred US\$3.2 billion. Diamondback Energy, Inc. followed with exploration spend of US\$1.7 billion. The two companies represented 45% of 2022 total exploration spend in our study. After observing a decline from 2020 to 2021 in development expenditures from the integrated oil and gas companies, development spending increased 34% among the integrations in 2022. This was primarily a result of elevated commodity prices. Development spending from large independents and independents also increased, rising 63% and 55%, respectively, compared to 2021.

### Net wells drilled



### Costs incurred



### Highest capital expenditures for 2022 (US\$ millions)

Proved properties acquired	
Permian Resources Corporation <sup>1</sup>	3,297
Chord Energy Corporation <sup>1</sup>	3,165
Chesapeake Energy Corporation	2,321
Marathon Oil Corporation	2,291
PDC Energy, Inc.	2,094
Unproved properties acquired	
Diamondback Energy, Inc.	1,536
Marathon Oil Corporation	1,029
Devon Energy Corporation	803
Chesapeake Energy Corporation	795
Permian Resources Corporation <sup>1</sup>	642
Exploration	
Pioneer Natural Resources Company	3,167
Diamondback Energy, Inc.	1,698
ConocoPhillips	1,339
Shell plc	721
HighPeak Energy, Inc.	655
Development	
Chevron Corporation	6,221
Exxon Mobil Corporation <sup>1</sup>	5,916
ConocoPhillips	5,875
EOG Resources, Inc.	4,106
BP p.l.c.	3,825

<sup>1</sup> See company endnotes on page 40.

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The studied companies recorded a combined \$333 billion in revenues, surpassing the previous record of \$217 billion recorded by the study group in 2014 at the height of the shale revolution.





# Revenues and results of operations

## US – revenues and results of operations (US\$ millions) (a)

	2018	2019	2020	2021	2022
Revenues	173,475	164,810	111,218	211,163	332,874
Production costs (b)	52,433	55,112	48,452	56,814	73,155
Exploration expense	4,065	3,514	7,272	1,993	2,288
DD&A (c)	58,058	73,472	85,167	59,810	60,830
Impairments	8,923	19,747	68,244	1,577	980
Other expenses (d)	5,773	12,458	6,974	3,569	8,121
Pretax results of operations	44,223	507	(104,891)	87,400	187,500
Income tax expense (e)	9,200	396	(18,590)	13,766	35,243
<b>Results of operations</b>	<b>35,023</b>	<b>111</b>	<b>(86,301)</b>	<b>73,634</b>	<b>152,257</b>

## US – revenues and results of operations (US\$ per BOE) (a)

	2018	2019	2020	2021	2022
Revenues	36.87	32.04	21.56	39.98	57.17
Production costs (b)	11.14	10.71	9.39	10.76	12.56
Exploration expense	0.86	0.68	1.41	0.38	0.39
DD&A (c)	12.34	14.28	16.51	11.33	10.45
Impairments	1.90	3.84	13.23	0.30	0.17
Other expenses (d)	1.23	2.42	1.35	0.68	1.39
Pretax results of operations	9.40	0.11	(20.33)	16.53	32.21
Income tax expense (benefit) (e)	1.96	0.08	(3.60)	2.61	6.05
<b>Results of operations</b>	<b>7.44</b>	<b>0.03</b>	<b>(16.73)</b>	<b>13.92</b>	<b>26.16</b>

(a) Includes the 50 largest companies based on 2022 end-of-year oil and gas reserves; activity related to acquired companies has also been reflected as described in the Appendix.

(b) Includes production taxes and transportation costs for companies that separately disclose these expenses.

(c) DD&A = depreciation, depletion and amortization.

(d) Includes asset retirement obligation accretion and production-related general and administrative costs, among other items, for companies that separately disclose these expenses.

(e) Income taxes are presented for informational purposes only. The study is focused on pretax results of operations as a more meaningful comparative metric. Facts and circumstances underlying an individual company's tax results might not be representative of the study group as a whole and, as such, are not discussed in further details.

The study companies reported the highest combined pretax and after-tax results of operations during the study period, represented by profits more than twice the size of those recorded in 2021. The results of operations for 2022 was a pretax profit of US\$187.5 billion, compared to a pretax profit of US\$87.4 billion in 2021, mainly due to commodity prices continuing to increase for most of 2022. The revenue increase of 58% from the prior year was primarily attributable to rising prices, as the average realized revenue per BOE increased by 43% compared to the prior year. However, oil and gas production also contributed partly to the increase, as production increased by 7% and 14%, respectively.

The study companies recognized an increase of US\$1.80 per BOE, or 17%, in production costs year over year, primarily due to rising inflation and higher production taxes

in 2022. While production costs per BOE increased, DD&A decreased year over year by US\$0.88 per BOE or 8%. Oil and gas property impairments also continued to decline, falling 43% to US\$0.17 per BOE primarily as a result of higher commodity prices throughout 2022.

The highest average commodity prices in nearly a decade were seen in 2022. The West Texas Intermediate (WTI) crude oil spot price averaged just over US\$94 in 2022, according to the Energy Information Administration, while the Henry Hub natural gas spot price averaged between US\$6 and US\$7. The last time both commodities saw prices this high was in 2014, when the WTI spot price averaged approximately US\$93, and the Henry Hub spot price averaged just over US\$4. Due to the similarities in the commodity price environment of 2022 and 2014, we compared the results of operations between the study groups from both years.

We observed that while total revenues increased by 53% in 2022 compared to 2014, production costs only increased by 19%. On a per BOE basis, production costs actually decreased from 2014 to 2022, from US\$14.09 per BOE to US\$12.56 per BOE. This is primarily due to technological efficiencies and advances over the last eight years. We also observed a significant decline in exploration expenses from 2014 to 2022 (US\$9.1 billion to US\$2.3 billion) due to companies taking a more disciplined approach to their drilling plans and primarily focusing more on discovered and developed plays than new plays. The combination of these factors led the 2022 study group to record significantly higher pretax and after-tax profits than the 2014 study group, 329% and 428% higher, respectively.

## US – revenues and results of operations

	US\$ millions		US\$ per BOE	
	2014 (f)	2022 (a)	2014 (f)	2022 (a)
Revenues	217,183	332,874	49.75	57.17
Production costs (b)	61,532	73,155	14.09	12.56
Exploration expense	9,089	2,288	2.08	0.39
DD&A (c)	74,085	60,830	16.97	10.45
Impairments	22,863	980	5.24	0.17
Other expenses (d)	5,953	8,121	1.36	1.39
Pretax results of operations	43,661	187,500	10.00	32.21
Income tax expense (e)	14,830	35,243	3.40	6.05
<b>Results of operations</b>	<b>28,831</b>	<b>152,257</b>	<b>6.60</b>	<b>26.16</b>

(a) Includes the 50 largest companies based on 2022 end-of-year oil and gas reserves; activity related to acquired companies has also been reflected as described in the Appendix.

(b) Includes production taxes and transportation costs for companies that separately disclose these expenses.

(c) DD&A = depreciation, depletion and amortization.

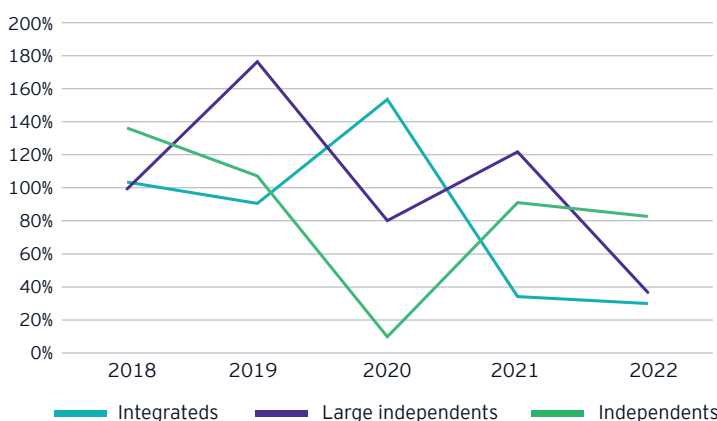
(d) Includes asset retirement obligation accretion and production-related general and administrative costs, among other items, for companies that separately disclose these expenses.

(e) Income taxes are presented for informational purposes only. The study focuses on pretax results of operations as a more meaningful comparative metric. Facts and circumstances underlying an individual company's tax results might not be representative of the study group as a whole and, as such, are not discussed in further detail.

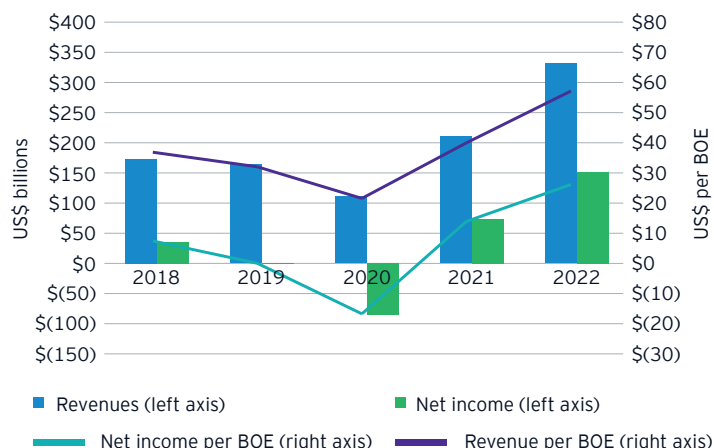
(f) Includes the 50 largest companies based on 2014 end-of-year oil and gas reserves published in our 2015 US Oil and Gas Reserves Study.

The study companies posted a 41% plowback percentage in 2022, compared to the 2021 average of 93%. The plowback percentage represents total capital expenditures as a percentage of netback (revenues less production costs). Large independents posted the largest decline in plowback percentage, falling from 122% in 2021 to 37% in 2022. Integrated companies and independents posted more moderate declines in plowback, falling from 34% to 30% and 91% to 83%, respectively. The decline in plowback percentage is primarily due to the decrease in acquisitions of proved and unproved properties in 2022 compared to 2021, coupled with record revenues. Additionally, as discussed later in the study, large independents and independents both continued to allocate a growing portion of their profits to shareholders in the form of dividend payments and share buybacks.

### Plowback percentage

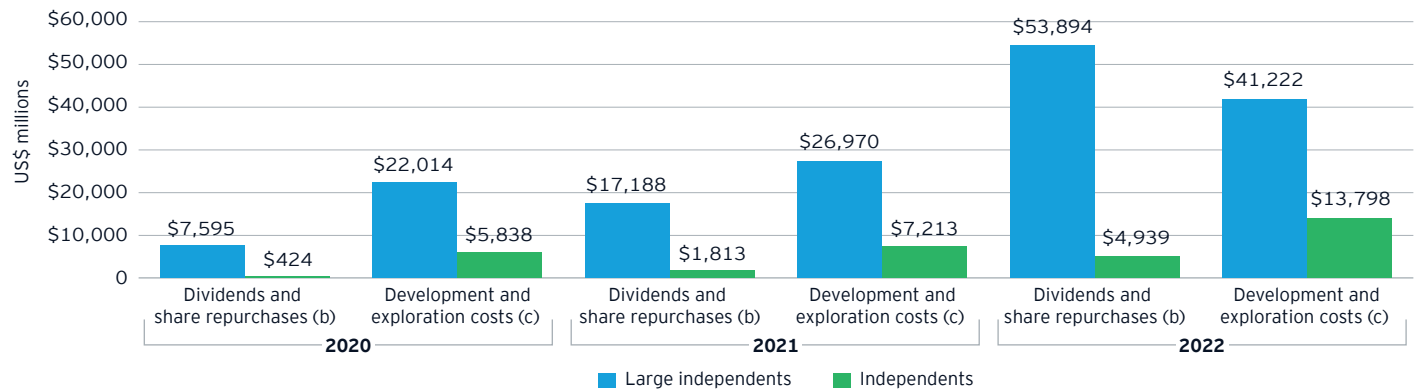


### Revenues and results of operations



# Capital allocation analysis

## Dividends paid, shares repurchased, and development and exploration costs (a) (b)



(a) Integrated are excluded from this analysis, as the reported dividends and share repurchases are for the consolidated company, whereas the development and exploration costs are for US exploration and production operations.

(b) Dividends and share repurchases reflect the amounts recorded as financing activities within the statement of cash flows.

(c) Includes capital expenditures noted as "other" (see capital expenditures table on page 22).

## Capital allocation (a)

US – dividends paid, shares repurchased, and development and exploration costs as a percentage of netback (%) (b)

	2020		2021		2022	
	Dividends and share repurchases (c)	Development and exploration costs (d)	Dividends and share repurchases (c)	Development and exploration costs (d)	Dividends and share repurchases (c)	Development and exploration costs (d)
Large independents	22%	65%	19%	30%	34%	26%
Independents	4%	59%	10%	39%	15%	41%

(a) Integrated are excluded from this analysis, as the reported dividends and share repurchases are for the consolidated company, whereas the development and exploration costs are for US exploration and production operations.

(b) Netback is calculated as revenues less production costs.

(c) Dividends and share repurchases reflect the amounts recorded as financing activities within the statement of cash flows.

(d) Includes capital expenditures noted as "other" (see capital expenditures table on page 22).

In 2022, large independents increased payments of dividends and share repurchases compared to 2021 by US\$36.7 billion (214%). The significant increase in dividend payments and share repurchases in 2022 compared to 2021 contrasts with only a US\$14.3 billion (53%) increase in development and exploration costs in 2022 by large independents. This is primarily due to increased cash on hand from a more favorable commodity price environment compared to 2021, coupled with continuing pressure from shareholders to provide higher returns as opposed to allocating capital to production growth.

This trend is reinforced when looking at dividends and share repurchases and development and exploration costs as a percentage of netback (revenues less production costs). Dividends and share repurchases were paid out at much higher percentages of netback in 2022 (34% and 15% for large independents and independents, respectively) compared to 2021 (19% and 10% for large independents and independents, respectively). This is in contrast to development and exploration costs as a percentage of

netback remaining relatively consistent in 2022 (26% and 41% for large independents and independents, respectively) compared to 2021 (30% and 39% for large independents and independents, respectively).

Furthermore, in 2020, dividends, share repurchases and development and exploration costs represented approximately 87% and 63% of total netback for large independents and independents, respectively. This percentage declined in 2021, where dividends, share repurchases and development and exploration costs only comprised 49% and 49% of netback for large independents and independents, respectively. This trend continued in 2022, where dividends, share repurchases and development and exploration costs comprised 60% and 56% of netback for large independents and independents, respectively. This highlights the continued focus observed among the large independents and independents on strengthening the balance sheet and capital allocation in 2022 amidst a more favorable commodity price environment.

# Oil reserves

## US – proved oil reserves (million barrels) (a) (b)

	2018	2019	2020	2021	2022
Beginning of year	27,767	31,384	32,285	26,108	31,725
Additions:					
Extensions and discoveries	5,368	4,933	2,329	4,617	3,866
Improved recovery	263	460	143	71	97
Revisions	357	(2,037)	(5,215)	1,832	614
Production	(2,558)	(2,879)	(2,826)	(2,963)	(3,180)
Purchases	1,823	2,129	825	3,504	1,450
Sales	(1,700)	(1,734)	(1,433)	(1,426)	(527)
Other	64	29	0	(18)	0
<b>End of year</b>	<b>31,384</b>	<b>32,285</b>	<b>26,108</b>	<b>31,725</b>	<b>34,045</b>

(a) Includes the 50 largest companies based on 2022 end-of-year oil and gas reserve estimates; activity related to acquired companies has also been reflected as described in the Appendix.

(b) Includes condensate and natural gas liquids.

Oil reserves for the study companies increased by 7% in 2022, mainly due to extensions and discoveries, purchases, and net upward revisions, which were partially offset by sales and production. As a result, the study companies reported the highest oil reserves in the study period.

Extensions and discoveries continued to outpace production, but declined 16% compared to 2021. At 3.9 billion barrels, the study companies reported the second-lowest extensions and discoveries for the study period, primarily as a result of the study companies continuing to remain disciplined in their development activities and allocating a growing portion of their profits to shareholder returns, as shown earlier in the study.

Upward revisions for 2022 were 1.6 billion barrels, offset by downward revisions of 1.0 billion barrels, resulting in 0.6 billion barrels net of positive revisions.

The largest upward revisions were reported by EOG Resources (378 million barrels), Occidental Petroleum Corporation (341 million barrels), and ConocoPhillips (202 million

barrels). Revisions by these three companies accounted for 58% of all upward revisions in 2022. The largest downward revision was reported by Exxon Mobil Corporation (396 million barrels), comprising 40% of total downward revisions. All other contributions to the downward revisions were not significant.

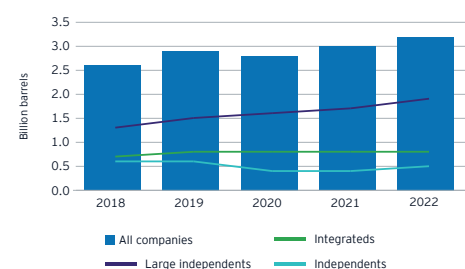
Oil production increased moderately as compared to 2021, increasing 7% year over year. The largest increases were posted by ConocoPhillips (63 million barrels) and Coterra Energy Inc. (45 million barrels). The largest decrease was posted by Shell plc (43 million barrels) and is likely the result of the sales of its assets in the Permian basin to ConocoPhillips that closed in late 2021.

Overall, oil production increased by 24% from 2018 to 2022, with the large independents' production growing 45%, compared with 14% growth for the integrations and an 11% decrease for the independents.

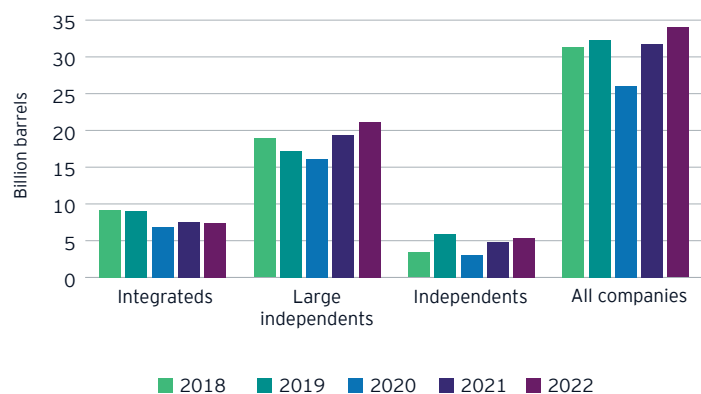
Purchases of oil reserves for 2022 were 1.5 billion barrels, while sales were 0.5 billion barrels, a 59% and 63% decline from 2021, respectively.

Chord Energy Corporation recorded 276 million barrels in purchases (18% of total purchases), largely due to its merger with Whiting Petroleum Corporation. Permian Resources Corporation recorded 191 million barrels in purchases (13% of total purchases), largely due to its merger with Colgate Energy Partners III, LLC. Whiting Petroleum Corporation accounted for sales of 255 million barrels (49% of total sales) through its merger with Chord Energy Corporation. All other contributions to sales were not significant.

### Oil production



## End-of-year oil reserves



## Oil reserves, 2022 – top-ranked companies (million barrels)

Ending reserves	
ConocoPhillips	3,290
Chevron Corporation	2,958
EOG Resources, Inc.	2,804
Exxon Mobil Corporation <sup>1</sup>	2,323
Occidental Petroleum Corporation	2,293
Production	
ConocoPhillips	343
Chevron Corporation	324
Occidental Petroleum Corporation	268
EOG Resources, Inc.	240
Exxon Mobil Corporation <sup>1</sup>	206

<sup>1</sup> See company endnotes on page 40.

## Oil reserves, 2021 – top-ranked companies (million barrels)

Ending reserves	
ConocoPhillips	3,115
Chevron Corporation	2,876
Exxon Mobil Corporation <sup>1</sup>	2,462
EOG Resources, Inc.	2,375
Occidental Petroleum Corporation	2,030
Production	
Chevron Corporation	313
ConocoPhillips	280
Occidental Petroleum Corporation	261
EOG Resources, Inc.	215
Exxon Mobil Corporation <sup>1</sup>	192

<sup>1</sup> See company endnotes on page 40.



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In 2022, the studied companies reported the highest production amounts in the study period, eclipsing pre-pandemic levels.



# Gas reserves

## US – proved gas reserves (billion cubic feet (bcf)) (a)

	2018	2019	2020	2021	2022
Beginning of year	169,960	175,501	170,956	149,136	188,733
Additions:					
Extensions and discoveries	31,078	23,866	15,524	24,216	21,919
Improved recovery	1,650	703	730	255	101
Revisions	(2,177)	(18,248)	(19,961)	11,840	(1,882)
Production	(12,705)	(13,544)	(13,354)	(13,907)	(15,853)
Purchases	5,294	10,250	6,981	21,622	6,593
Sales	(15,885)	(7,679)	(11,755)	(4,373)	(3,272)
Other	(1,714)	107	15	(56)	0
<b>End of year</b>	<b>175,501</b>	<b>170,956</b>	<b>149,136</b>	<b>188,733</b>	<b>196,339</b>

(a) Includes the 50 largest companies based on 2022 end-of-year oil and gas reserve estimates; activity related to acquired companies has also been reflected as described in the Appendix.

End-of-year gas reserves for the study companies increased by 4% in 2022 to 196.3 tcf, marking the highest level of gas reserves in the study period. The increase is primarily due to extensions and discoveries and purchases, which were partially offset by production, sales, and net downward revisions.

EQT Corporation (2.4 tcf), Exxon Mobil Corporation (2.2 tcf), and Southwestern Energy Company (2.1 tcf) posted the largest extensions and discoveries, accounting for 31% of the total extensions and discoveries for the study group.

Downward revisions for 2022 were 7.7 tcf, and upward revisions were 5.8 tcf, resulting in 1.9 tcf net negative revisions.

The largest upward revisions were reported by Chesapeake Energy Corporation (2.0 tcf), Occidental Petroleum Corporation (0.8 tcf), and PDC Energy, Inc. (0.5 tcf). Revisions by these three companies accounted for 57% of all upward revisions in 2022. The largest downward revisions were reported by Coterra Energy Inc. (4.3 tcf) and Exxon Mobil Corporation (1.0 tcf). Revisions by these two companies accounted for 69% of all

downward revisions in 2022 and were largely performance-related.

Gas production increased 14% compared to 2021, rising to its highest level in the study period. The largest increases were posted by Southwestern Energy Company (505 bcf) and Chesapeake Energy Corporation (501 bcf), while the largest decreases were posted by Shell plc (88 bcf) and Exxon Mobil Corporation (68 bcf).

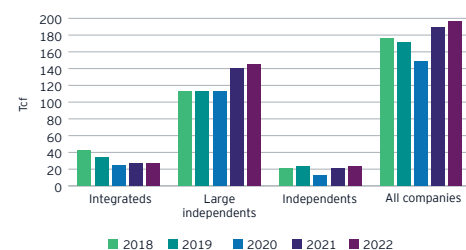
While gas production from 2018 to 2022 has increased moderately (25%), the level of change varied among the peer groups. The large independents increased their gas production by 113% from 2018, and production of the integrated and the independents decreased by 10% and 57%, respectively. The large independents accounted for 73% of total gas production.

Purchases of gas reserves were 6.6 tcf in 2022. Chesapeake Energy Corporation recorded 2.9 tcf in purchases primarily due to its acquisitions of Chief E&D Holdings, LP and associated non-operated interests held by affiliates of Tug Hill, Inc. Permian Resources Corporation

recorded 0.5 tcf in purchases primarily due to its merger with Colgate Energy Partners III, LLC. Collectively, this represents 52% of total purchases.

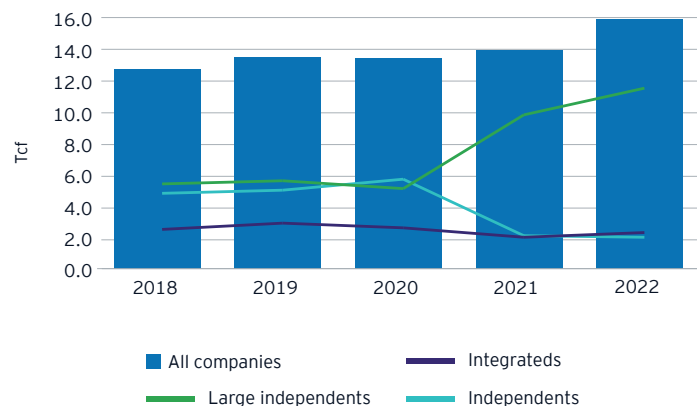
Sales of gas reserves were 3.3 tcf in 2022. Exxon Mobil Corporation posted the largest sales in 2022 of 1.6 tcf, while Whiting Petroleum Corporation accounted for sales of 0.4 tcf through its merger with Chord Energy Corporation.

### End-of-year gas reserves





## Gas production



## Gas reserves, 2022 – top-ranked companies (bcf)

Ending reserves	
EQT Corporation	23,825
Southwestern Energy Company	17,362
Exxon Mobil Corporation <sup>1</sup>	13,772
Range Resources Corporation	11,798
Chesapeake Energy Corporation	11,369
Production	
EQT Corporation	1,842
Southwestern Energy Company	1,520
Chesapeake Energy Corporation	1,308
Exxon Mobil Corporation <sup>1</sup>	1,046
Coterra Energy Inc. <sup>1</sup>	1,024

<sup>1</sup> See company endnotes on page 40.

## Gas reserves, 2021 – top-ranked companies (bcf)

Ending reserves	
EQT Corporation	23,524
Southwestern Energy Company	17,207
Exxon Mobil Corporation <sup>1</sup>	15,128
Coterra Energy Inc. <sup>1</sup>	14,895
Range Resources Corporation	11,452
Production	
EQT Corporation	1,746
Exxon Mobil Corporation <sup>1</sup>	1,114
Southwestern Energy Company	1,015
Coterra Energy Inc. <sup>1</sup>	911
Antero Resources Corporation	826

<sup>1</sup> See company endnotes on page 40.



# Performance measures

## Proved reserve acquisition costs

### US – proved reserve acquisition costs (PRACs) (a) US\$ per BOE

	2018	2019	2020	2021	2022	Three-year	Five-year
PRACs	10.03	7.79	3.96	8.36	9.52	7.91	8.19

(a) Includes the 50 largest companies based on 2022 end-of-year oil and gas reserve estimates and their historical results of operations and production information; as a result, activity related to acquired companies has not been reflected as described in the Appendix.

PRACs were US\$9.52 per BOE in 2022, approximately 14% higher compared to 2021. Permian Resources Corporation, Marathon Oil Corporation, and Chord Energy Corporation accounted for 36% of proved property acquisition costs in 2022. The larger acquisitions relating to these companies were discussed earlier in the study. The PRAC results for Permian Resources Corporation, Marathon Oil Corporation, and Chord Energy Corporation were US\$12.08 per BOE, US\$11.94 per BOE and US\$9.05 per BOE, respectively. We note that this measure is a combination of oil and gas property acquisitions and the US\$ per BOE measure is impacted by the mix of the commodities in acquired reserves.

### Lowest three-year (2020-2022) PRACs (a) (b)

PRACs	
Ovintiv Inc. <sup>1</sup>	\$ 1.85
Ranger Oil Corporation	2.00
National Fuel Gas Company	2.19
Ring Energy, Inc.	2.79
TXO Energy Partners, L.P.	3.17

<sup>1</sup> See company endnotes on page 40.

(a) Amounts presented represent a combination of oil and gas property and development costs. As such, a company with a large concentration of expenditures related to natural gas will likely have a lower US\$ per BOE in these measures.

(b) Based on companies with proved acquisition costs of at least US\$50 million for the three-year period.



## Production replacement rates: oil

### US – all sources and finding and development (F&D) oil production replacement rates (a)

	2018	2019	2020	2021	2022	Three-year	Five-year
All sources	293%	191%	(90%)	314%	181%	142%	176%
F&D, including revisions	246%	126%	(95%)	220%	144%	96%	126%
F&D, excluding revisions	225%	191%	89%	159%	125%	125%	154%

(a) Includes the 50 largest companies based on 2022 end-of-year oil and gas reserve estimates and their historical results of operations and production information; as a result, activity related to acquired companies has not been reflected as described in the Appendix.

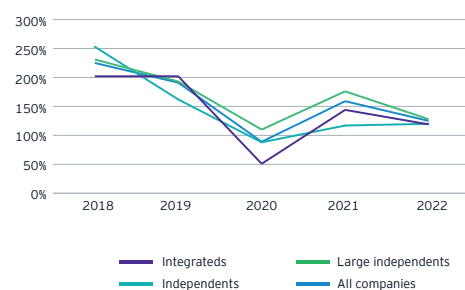
Continued increases in oil reserves as a result of a favorable price environment kept 2022 oil production replacement rates at high levels following the significant improvement observed in 2021. Production replacement rates from all sources; F&D, including revisions; and F&D, excluding revisions, were greater than 100% in 2022.

**All sources.** In 2022, only three companies with significant oil reserves reported negative replacement from all sources, while 33 companies reported more than 100% replacement from all sources.

**F&D, including revisions.** In 2022, 45 companies reported positive replacement from all F&D sources, while 32 companies reported more than 100% replacement from all F&D sources.

**F&D, excluding revisions.** In 2022, 29 companies achieved more than 100% replacement from F&D sources other than revisions.

### Oil F&D, excluding revisions and production replacement rates



### Oil production replacement by peer group, 2022

	All sources	F&D, including revisions	F&D, excluding revisions
Integrated	83%	85%	119%
Large independents	195%	173%	128%
Independents	284%	124%	120%

## Production replacement rates: gas

### US – all sources and F&D gas production replacement rates (a)

	2018	2019	2020	2021	2022	Three-year	Five-year
All sources	191%	100%	(30%)	400%	151%	177%	165%
F&D, including revisions	245%	44%	(25%)	261%	127%	124%	130%
F&D, excluding revisions	265%	183%	124%	176%	139%	147%	174%

(a) Includes the 50 largest companies based on 2022 end-of-year oil and gas reserve estimates and their historical results of operations and production information; as a result, activity related to acquired companies has not been reflected as described in the Appendix.

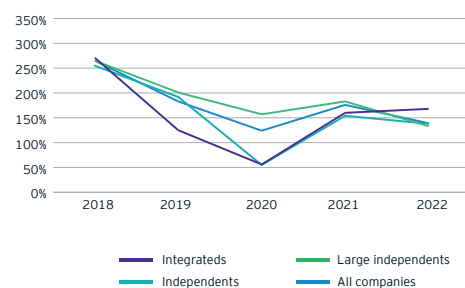
Similar to oil replacement rates, continued increases in gas reserves resulted in positive and high levels of replacement rates for gas reserves. Each peer group achieved a positive production replacement rate in 2022 from all sources; F&D, including revisions; and F&D, excluding revisions.

**All sources.** In 2022, 47 companies reported positive replacement rates from all sources, while 39 companies reported more than 100% replacement from all sources.

**F&D, including revisions.** In 2022, 46 companies reported positive replacement rates from all F&D sources, while 37 companies reported more than 100% replacement from all F&D sources.

**F&D, excluding revisions.** In 2022, 26 companies achieved more than 100% replacement from F&D sources other than revisions.

### Gas F&D, excluding revisions, production replacement rates



### Gas production replacement by peer group, 2022

	All sources	F&D, including revisions	F&D, excluding revisions
Integrations	78%	153%	168%
Large independents	149%	117%	133%
Independents	244%	156%	138%

## Production costs

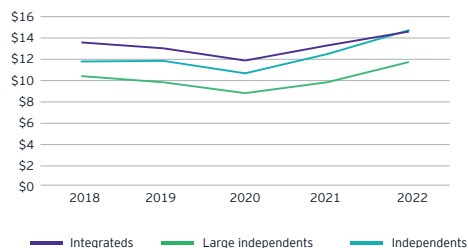
### US – production costs (US\$ per BOE) (a)

	2018	2019	2020	2021	2022	Three-year	Five-year
Integrations	13.40	12.85	11.70	13.11	14.42	13.05	13.07
Large independents	10.24	9.66	8.64	9.66	11.56	10.08	10.02
Independents	11.61	11.67	10.50	12.30	14.55	12.61	12.26
<b>All companies</b>	<b>11.29</b>	<b>10.80</b>	<b>9.67</b>	<b>10.75</b>	<b>12.56</b>	<b>11.08</b>	<b>11.06</b>

(a) Includes the 50 largest companies based on 2022 end-of-year oil and gas reserve estimates and their historical results of operations and production information; as a result, activity related to acquired companies has not been reflected as described in the Appendix.

Production costs per BOE increased 17% from 2021 to 2022, as production taxes increased due to higher commodity prices and as cost inflations began to be realized by companies concurrent with the rising price environment. While large independents saw the largest increase in production costs per BOE (20%), this peer group continued to realize the lowest production costs per BOE in 2022 compared to the integrations and independents.

### Production costs per BOE

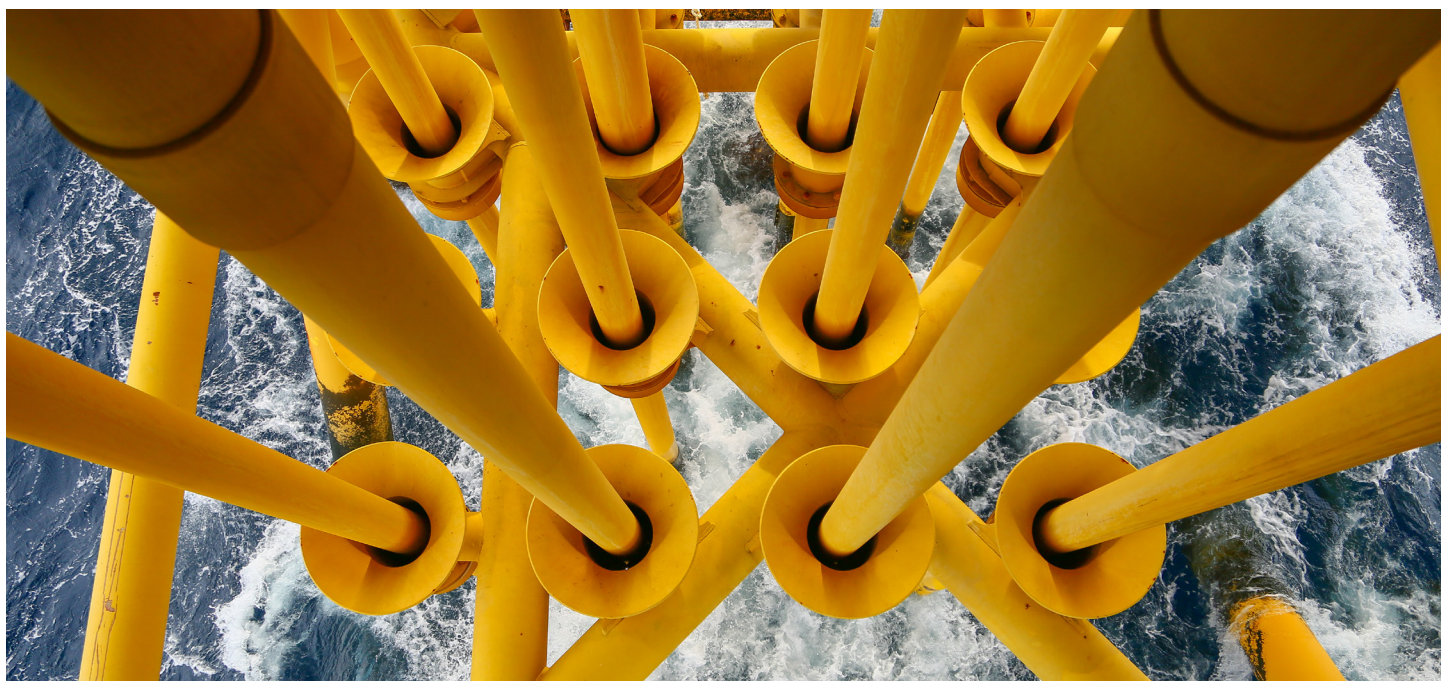


### Lowest three-year (2020-22) production costs (US\$ per BOE) (a)

Comstock Resources, Inc.	3.60
CNX Resources Corporation	4.48
National Fuel Gas Company	5.32
Coterra Energy Inc. <sup>1</sup>	6.17
SilverBow Resources	6.30

(a) Amounts presented represent a combination of oil and gas production costs. As such, a company with a large concentration of expenditures related to natural gas will likely have a lower US\$ per BOE in this measure.

<sup>1</sup> See company endnotes on page 40.



# ESG

## US – ESG reporting

	Does the Company publish a sustainability or ESG report?	Are greenhouse gas (GHG) emissions reported?	Does reporting include external assurance obtained over Scope 1 and Scope 2 GHG emissions?	Has the company set a GHG reduction goal?	
2022 (a)	Integrations	100%	100%	100%	
	Large independents (b)	95%	100%	47%	
	Independents	81%	81%	19%	
	<b>All companies</b>	<b>88%</b>	<b>90%</b>	<b>36%</b>	<b>66%</b>
2021 (c)	<b>All companies</b>	<b>82%</b>	<b>86%</b>	<b>26%</b>	<b>62%</b>

(a) Includes the 50 largest companies based on 2022 end-of-year oil and gas reserve estimates; the data presented here is based on a review of company sustainability and ESG reports, as well as a review of information included on company websites.

(b) Three large independents did not publish a sustainability or ESG report, but published GHG emissions data on their websites.

(c) Includes the 50 largest companies based on 2021 end-of-year oil and gas reserve estimates; the data presented here is based on a review of company sustainability and ESG reports, as well as a review of information included on company websites.

Financial regulators globally are beginning to draft and adopt rulemaking, requiring certain entities to make various climate-related disclosures, including GHG emissions, in their annual reports. While many oil and gas companies already make disclosures about ESG matters in separate voluntary sustainability reports and environmental regulatory reporting, financial regulators are responding to calls from investors for more consistent, comparable information they can use to make investment decisions.

The SEC issued a proposal in March 2022 to enhance and standardize disclosures that registrants make about climate-related risks, their climate-related targets and goals, their GHG emissions and how the board of directors and management oversee climate-related risks. The proposal would also require registrants to quantify the effects of certain climate-related events and transition activities in their audited financial statements.

In our study, we looked at voluntary ESG disclosures provided by oil and gas companies through sustainability reports and information on company websites. We included in our analysis select metrics that entities within the scope of the SEC's proposed rules would be required to disclose.

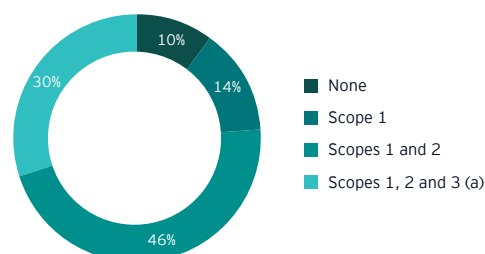
The integrated and large independents have led the charge, as 100% and 95% of these companies, respectively, published a sustainability or ESG report, while 81% of independents published a report. This reflects an increase to 88% of all companies in the study group publishing a sustainability or ESG report, as compared to 82% in 2021.

Under the SEC's proposed rules, registrants would be required to disclose direct GHG emissions from operations they own and control (Scope 1) and indirect emissions from purchased electricity and other forms of energy their operations consume (Scope 2). The SEC's proposed

GHG emissions disclosures would follow the same organizational boundaries as the financial statements. That means a registrant would be required to include its proportionate share of the Scope 1 and Scope 2 emissions of entities in which it holds equity method investments and entities that it proportionately consolidates. We noted a significant reporting difference between the SEC's proposed organizational boundary requirement and the study group, where a significant majority of the study companies reported their GHG emissions using the operational control approach. Under the operational control approach, a company includes any facility it has operational control over, even if it is not the owner of the facility, in its organizational boundary. Particularly relevant to many upstream operations and joint ventures, a company applying the operational control approach would not include non-operated assets in its organizational boundary.

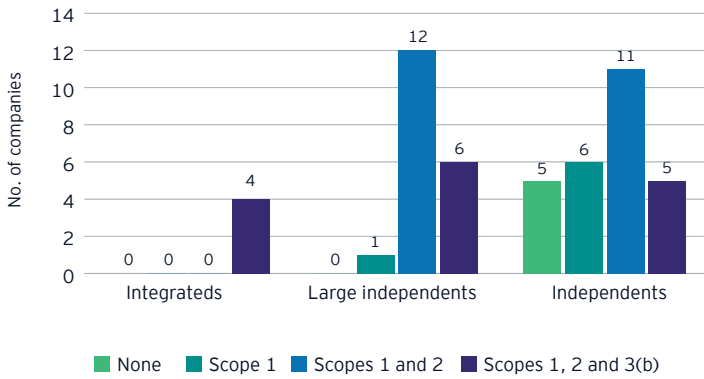
Registrants that are not smaller reporting companies would also be required to disclose indirect emissions from value chain GHG producing activities by category (Scope 3), if material, or if they have set a GHG emissions reduction target or goal that includes Scope 3 emissions of that category.

### GHG emission scope(s) reported



(a) Represents reported scope 3 GHG emissions for any category, as there were not any companies reporting all categories of their scope 3 emissions.

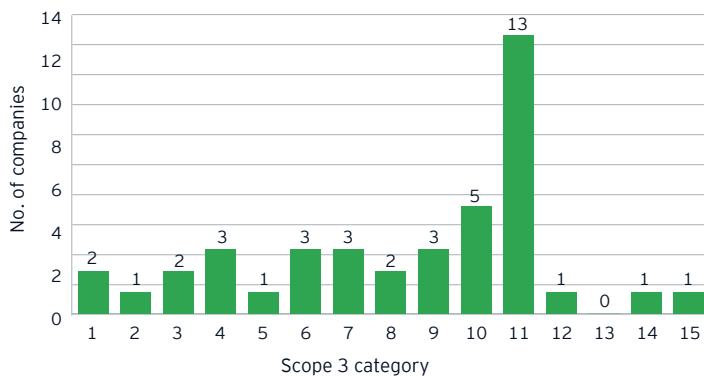
### GHG emission scope(s) reported by peer group (a)



(a) Peer group populations consisted of the following: integrated – 4, large independent – 19, and independent – 27  
 (b) Represents reported Scope 3 GHG emissions for any category, as there were not any companies reporting all categories of their Scope 3 emissions.

A significant majority of the study companies (90%, 45 companies) reported at least one scope of GHG emissions. The study companies most commonly reported Scope 1 and Scope 2 emissions (46%), while 30% reported at least one category of Scope 3 emissions in addition to their Scope 1 and Scope 2 emissions. All of the integrated reported Scope 1, Scope 2 and a least one category of Scope 3 GHG emissions, while a majority of the large independent (12 of 19 companies, or 63%) reported Scope 1 and Scope 2 emissions.

### Scope 3 categories reported by study group (a)

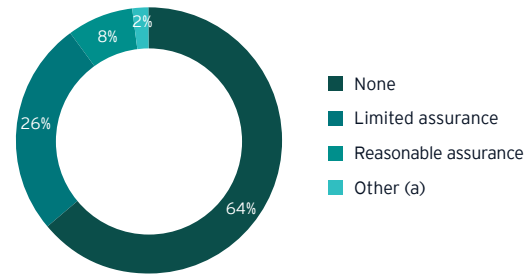


(a) This graph includes data from companies within the study group that: (1) report all relevant Scope 3 emissions categories (i.e., do not report categories they deem not relevant for their facts and circumstances), and (2) choose to report certain categories of Scope 3.

Of the 15 companies that reported at least one category of scope 3 emissions, the most commonly reported categories were Category 11 (use of sold products) and Category 10 (processing of sold products). Category 11 represents the GHG emissions from the use of sold products by the company. In the case of the study group, Category 11 primarily consists of the combustion emissions associated

with the company's oil and gas production. Category 10 represents the GHG emissions from the processing of sold products, which typically reflect the GHG emissions from the refining of an upstream oil and gas company's production by others (note that for an integrated oil and gas company, the emissions from refining operations owned and controlled by the company would be captured in its Scope 1 inventory).

### Level of assurance obtained over Scope 1 and Scope 2 GHG emissions



(a) One company within the study group did not disclose the type of assurance provided over its Scope 1 and Scope 2 emissions.

The SEC's proposed rules would require Scope 1 and Scope 2 emissions to be initially subject to limited assurance and soon after reasonable assurance by an independent provider for accelerated and large accelerated filers. While 100% of integrated companies included external assurance over Scope 1 and Scope 2 GHG emissions, large independent and independent were significantly less likely to include external assurance over Scope 1 and Scope 2 emissions (47% and 19%, respectively). Of the 18 companies (36%) from the study group that obtained external assurance over Scope 1 and Scope 2 GHG emissions, substantially all obtained limited assurance (13 companies), while four companies obtained reasonable assurance (one did not disclose).

A majority of companies (66%) within the study group disclosed a GHG reduction goal of some type (e.g., a total GHG emissions reduction target, a GHG intensity reduction target, a net zero commitment, etc.). Substantially all of the integrated and large independent reported a GHG reduction goal – 100% and 89%, respectively, while 44% of the independent reported a GHG reduction goal.



# Company statistics

US – capital expenditures for the latest fiscal year (a)

US\$ millions

	Proved properties	Unproved properties	Exploration	Development	Other	Total expenditures
Amplify Energy Corp.	0	0	0	43	0	43
Antero Resources Corporation	0	149	6	775	0	930
APA Corporation	596	66	4	848	0	1,514
Battalion Oil Corporation	0	0	8	120	15	143
Berry Corporation	28	0	0	148	0	176
BP p.l.c.	183	37	288	3,825	0	4,333
California Resources Corporation	0	0	4	389	0	393
Callon Petroleum Company	0	33	133	743	0	909
Chesapeake Energy Corporation	2,321	795	15	1,918	0	5,049
Chevron Corporation	18	104	390	6,221	0	6,733
Chord Energy Corporation <sup>1</sup>	3,165	43	1	508	0	3,717
Civitas Resources, Inc. <sup>1</sup>	420	17	7	1,044	0	1,488
CNX Resources Corporation	20	15	7	526	0	568
Comstock Resources, Inc.	1	54	64	968	0	1,087
ConocoPhillips	249	255	1,339	5,875	0	7,718
Continental Resources, Inc.	459	413	343	2,186	0	3,401
Coterra Energy Inc. <sup>1</sup>	0	10	29	1,617	0	1,656
Crescent Energy Company <sup>1</sup>	793	71	3	625	8	1,500
Denbury Resources Inc.	1	0	4	353	0	358
Devon Energy Corporation	1,760	803	472	2,132	0	5,167
Diamondback Energy, Inc.	778	1,536	1,698	566	0	4,578
Earthstone Energy, Inc.	1,935	77	2	538	0	2,552
EOG Resources, Inc.	419	186	263	4,106	0	4,974
EQT Corporation	82	114	3	1,293	0	1,492
Exxon Mobil Corporation <sup>1</sup>	10	19	27	5,916	0	5,972
Gulfport Energy Corporation <sup>1</sup>	30	0	0	441	0	471
Hess Corporation	0	1	158	970	0	1,129
HighPeak Energy, Inc.	353	175	655	391	0	1,574



	Proved properties	Unproved properties	Exploration	Development	Other	Total expenditures
Magnolia Oil & Gas Corporation <sup>1</sup>	54	38	0	478	0	570
Marathon Oil Corporation	2,291	1,029	219	1,203	0	4,742
Matador Resources Company	37	97	136	644	0	914
Murphy Oil Corporation	129	2	42	705	0	878
National Fuel Gas Company	2	11	10	529	0	552
Northern Oil and Gas, Inc.	1,036	51	0	387	0	1,474
Occidental Petroleum Corporation	496	488	279	3,083	0	4,346
Ovintiv Inc. <sup>1</sup>	123	154	5	1,530	0	1,812
PDC Energy, Inc.	2,094	10	25	1,093	0	3,222
Permian Resources Corporation <sup>1</sup>	3,297	642	10	540	0	4,489
Pioneer Natural Resources Company	6	167	3,167	780	0	4,120
Range Resources Corporation	0	29	27	462	0	518
Ranger Oil Corporation	138	7	1	517	0	663
Ring Energy, Inc.	179	0	0	129	0	308
Shell plc	0	66	721	1,951	0	2,738
SilverBow Resources	593	20	0	308	0	921
SM Energy Company	0	4	147	811	0	962
Southwestern Energy Company	0	202	0	2,021	0	2,223
Talos Energy Inc	0	2	126	542	0	670
TXO Energy Partners, L.P.	57	0	0	30	0	87
Vital Energy, Inc. <sup>1</sup>	8	3	26	540	0	577
W&T Offshore, Inc.	79	0	24	77	0	180
<b>All companies</b>	<b>24,240</b>	<b>7,995</b>	<b>10,888</b>	<b>63,445</b>	<b>23</b>	<b>106,591</b>
Integrations	211	226	1,426	17,913	0	19,776
Large independents	11,099	6,410	8,119	33,104	0	58,732
Independents	12,930	1,359	1,343	12,428	23	28,083

(a) Amounts are determined from the disclosure of costs incurred and may include amounts that were capitalized and amounts that were charged to expense.

<sup>1</sup> See company endnotes on page 40.

## US – revenues and results of operations for the latest fiscal year (a)

US\$ millions

	Revenues	Production costs (b)	Exploration expense	DD&A	Impairments	Other income (expense) (c)	Income taxes	Results of operations
Amplify Energy Corp.	260	(194)	0	(24)	0	(7)	0	35
Antero Resources Corporation	8,295	(2,992)	(4)	(738)	(98)	0	959	5,422
APA Corporation	4,144	(1,093)	(24)	(564)	0	(34)	(510)	1,919
Battalion Oil Corporation	227	(137)	0	(52)	0	0	0	38
Berry Corporation	874	(347)	0	(141)	0	(24)	(74)	288
BP p.l.c.	14,847	(2,296)	(144)	(3,122)	0	(3,143)	(1,409)	4,733
California Resources Corporation	1,901	(896)	(4)	(175)	0	(100)	(189)	537
Callon Petroleum Company	2,262	(547)	0	(467)	0	0	(12)	1,236
Chesapeake Energy Corporation	9,892	(1,776)	(23)	(1,703)	0	(17)	(1,440)	4,933
Chevron Corporation	28,150	(6,038)	(402)	(4,612)	(38)	(75)	(3,736)	13,249
Chord Energy Corporation <sup>1</sup>	2,976	(815)	(2)	(354)	0	0	(426)	1,379
Civitas Resources, Inc. <sup>1</sup>	3,215	(763)	(7)	(816)	(22)	(56)	(406)	1,145
CNX Resources Corporation	2,025	(482)	(8)	(461)	0	(185)	(12)	877
Comstock Resources, Inc.	2,262	(345)	(8)	(489)	0	0	(261)	1,159
ConocoPhillips	30,992	(7,712)	(223)	(5,676)	9	(118)	(3,979)	13,293
Continental Resources, Inc.	10,075	(1,668)	(23)	(1,856)	(70)	0	(1,512)	4,946
Coterra Energy Inc. <sup>1</sup>	8,687	(1,781)	(29)	(1,635)	0	(1)	(1,104)	4,137
Crescent Energy Company <sup>1</sup>	2,225	(1,000)	(3)	(533)	(143)	5	(36)	515
Denbury Resources Inc.	1,579	(651)	0	(122)	0	(186)	(84)	536
Devon Energy Corporation	14,082	(2,797)	(29)	(2,119)	0	18	(2,041)	7,114
Diamondback Energy, Inc.	8,716	(1,521)	0	(1,344)	0	(5)	(1,174)	4,672
Earthstone Energy, Inc.	1,499	(354)	(2)	(302)	0	11	(124)	728
EOG Resources, Inc.	22,604	(3,799)	(167)	(3,314)	(340)	(621)	(3,129)	11,234
EQT Corporation	12,114	(2,418)	(3)	(1,666)	(177)	8	(1,987)	5,871
Exxon Mobil Corporation <sup>1</sup>	27,281	(6,983)	(18)	(5,752)	0	0	(3,294)	11,234
Gulfport Energy Corporation <sup>1</sup>	2,331	(482)	0	(266)	0	0	0	1,583
Hess Corporation	4,076	(948)	(122)	(810)	(54)	(1,382)	0	760
HighPeak Energy, Inc.	756	(108)	(1)	(178)	0	0	(98)	371

	Revenues	Production costs (b)	Exploration expense	DD&A	Impairments	Other income (expense) (c)	Income taxes	Results of operations
Magnolia Oil & Gas Corporation <sup>1</sup>	1,694	(291)	(12)	(243)	0	(3)	(7)	1,138
Marathon Oil Corporation	7,022	(1,712)	(110)	(1,682)	0	(53)	(789)	2,676
Matador Resources Company	2,748	(439)	0	(466)	0	(3)	(399)	1,441
Murphy Oil Corporation	3,461	(720)	(39)	(626)	0	(184)	(371)	1,521
National Fuel Gas Company	1,882	(309)	0	(202)	0	(9)	(369)	993
Northern Oil and Gas, Inc.	1,530	(419)	0	(251)	0	0	(3)	857
Occidental Petroleum Corporation	22,487	(5,610)	(113)	(5,608)	0	(981)	(2,213)	7,962
Ovintiv Inc. <sup>1</sup>	6,680	(1,673)	0	(861)	0	(8)	(952)	3,186
PDC Energy, Inc.	3,833	(700)	(13)	(742)	(7)	(13)	(500)	1,858
Permian Resources Corporation <sup>1</sup>	2,011	(426)	(11)	(445)	(4)	(78)	(120)	927
Pioneer Natural Resources Company	15,886	(2,887)	(41)	(2,530)	0	(82)	(2,106)	8,240
Range Resources Corporation	3,721	(1,363)	(27)	(353)	(29)	(70)	(230)	1,649
Ranger Oil Corporation	962	(184)	0	(244)	0	0	(4)	530
Ring Energy, Inc.	347	(71)	0	(56)	0	(2)	0	218
Shell plc	12,478	(1,553)	(621)	(4,462)	0	(629)	(739)	4,474
SilverBow Resources	534	(132)	0	(134)	0	(1)	(10)	257
SM Energy Company	2,635	(621)	(55)	(604)	(7)	0	(284)	1,064
Southwestern Energy Company	10,577	(1,969)	0	(1,169)	0	0	0	7,439
Talos Energy Inc	1,226	(312)	0	(415)	0	(56)	(3)	440
TXO Energy Partners, L.P.	156	(223)	0	(41)	0	(6)	0	(114)
Vital Energy, Inc. <sup>1</sup>	1,794	(339)	0	(298)	0	(4)	(12)	1,141
W&T Offshore, Inc.	863	(259)	0	(107)	0	(27)	(54)	416
<b>All companies</b>	<b>332,874</b>	<b>(73,155)</b>	<b>(2,288)</b>	<b>(60,830)</b>	<b>(980)</b>	<b>(8,121)</b>	<b>(35,243)</b>	<b>152,257</b>
Integrations	82,756	(16,870)	(1,185)	(17,948)	(38)	(3,847)	(9,178)	33,690
Large independents	204,026	(44,153)	(943)	(34,756)	(766)	(3,510)	(22,470)	97,428
Independents	46,092	(12,132)	(160)	(8,126)	(176)	(764)	(3,595)	21,139

(a) Amounts are determined from the results of the operations table if it is provided; otherwise, amounts are determined from the income statement. Revenues determined from the income statement include oil and gas sales and realized derivatives gains or losses.

(b) This includes production taxes and transportation costs for companies that separately disclose these expenses.

(c) This includes asset retirement obligations accretion and production-related general and administrative expenses, among other items, for those companies that separately disclose these expenses.

<sup>1</sup>See company endnotes on page 40.

## US – oil reserves for the latest fiscal year (a)

### Million barrels

	Beginning	Extensions and discoveries	Improved recovery	Revisions	Production	Purchases	Sales	Other	Ending
Amplify Energy Corp.	69	0	0	7	(4)	0	0	0	72
Antero Resources Corporation	1,255	27	0	28	(62)	0	0	0	1,248
APA Corporation	380	15	0	18	(49)	27	(14)	0	377
Battalion Oil Corporation	75	4	0	(7)	(4)	0	0	0	68
Berry Corporation	87	23	0	(6)	(9)	5	0	0	100
BP p.l.c.	1,633	23	14	89	(134)	0	(2)	0	1,623
California Resources Corporation	384	12	6	(38)	(24)	0	(8)	0	332
Callon Petroleum Company	388	55	0	(30)	(31)	0	(2)	0	380
Chesapeake Energy Corporation	292	4	0	28	(25)	0	(25)	0	274
Chevron Corporation	2,876	427	2	(8)	(324)	36	(51)	0	2,958
Chord Energy Corporation <sup>1</sup>	174	46	0	57	(32)	276	0	0	521
Civitas Resources, Inc. <sup>1</sup>	250	19	0	24	(43)	22	0	0	272
CNX Resources Corporation	106	11	0	(8)	(7)	0	0	0	102
Comstock Resources, Inc.	1	0	0	(1)	0	0	0	0	0
ConocoPhillips	3,115	345	0	202	(343)	9	(38)	0	3,290
Continental Resources, Inc.	794	195	0	(86)	(73)	60	0	0	890
Coterra Energy Inc. <sup>1</sup>	410	139	0	50	(61)	0	(2)	0	536
Crescent Energy Company <sup>1</sup>	287	45	0	(15)	(29)	42	(9)	0	321
Denbury Resources Inc.	189	0	0	25	(17)	0	0	0	197
Devon Energy Corporation	1,146	203	0	(29)	(163)	130	(1)	0	1,286
Diamondback Energy, Inc.	1,358	270	0	(7)	(111)	54	(9)	0	1,555
Earthstone Energy, Inc.	100	21	0	4	(19)	142	(3)	0	245
EOG Resources, Inc.	2,375	315	0	378	(240)	11	(35)	0	2,804
EQT Corporation	240	10	0	(37)	(16)	0	0	0	197
Exxon Mobil Corporation <sup>1</sup>	2,462	465	0	(396)	(206)	1	(3)	0	2,323
Gulfport Energy Corporation <sup>1</sup>	69	8	0	0	(5)	0	0	0	72
Hess Corporation	731	77	0	(25)	(55)	0	0	0	728
HighPeak Energy, Inc.	59	54	0	(8)	(8)	16	0	0	113

	Beginning	Extensions and discoveries	Improved recovery	Revisions	Production	Purchases	Sales	Other	Ending
Magnolia Oil & Gas Corporation <sup>1</sup>	93	20	0	8	(19)	3	0	0	105
Marathon Oil Corporation	741	78	0	45	(82)	125	0	0	907
Matador Resources Company	181	38	0	(3)	(22)	1	0	0	195
Murphy Oil Corporation	290	18	5	24	(36)	5	(4)	0	302
National Fuel Gas Company	22	0	0	1	(2)	0	(21)	0	0
Northern Oil and Gas, Inc.	131	23	0	(3)	(16)	28	0	0	163
Occidental Petroleum Corporation	2,030	125	70	341	(268)	9	(14)	0	2,293
Ovintiv Inc. <sup>1</sup>	992	132	0	(62)	(78)	30	(21)	0	993
PDC Energy, Inc.	454	0	0	90	(52)	125	0	0	617
Permian Resources Corporation <sup>1</sup>	209	71	0	(31)	(25)	191	(5)	0	410
Pioneer Natural Resources Company	1,638	306	0	(46)	(187)	0	(1)	0	1,710
Range Resources Corporation	1,054	65	0	(33)	(39)	0	0	0	1,047
Ranger Oil Corporation	203	59	0	(43)	(13)	8	0	0	214
Ring Energy, Inc.	66	1	0	4	(4)	45	0	0	112
Shell plc	610	7	0	48	(122)	0	0	0	543
SilverBow Resources	43	9	0	(1)	(5)	38	0	0	84
SM Energy Company	285	11	0	40	(32)	0	0	0	304
Southwestern Energy Company	657	54	0	37	(35)	0	(1)	0	712
Talos Energy Inc	122	6	0	(8)	(16)	0	0	0	104
TXO Energy Partners, L.P.	67	1	0	5	(4)	6	0	0	75
Vital Energy, Inc. <sup>1</sup>	221	29	0	(14)	(22)	0	(3)	0	211
W&T Offshore, Inc.	56	0	0	6	(7)	5	0	0	60
Whiting Petroleum Corporation (a)	255	0	0	0	0	0	(255)	0	0
<b>All companies</b>	<b>31,725</b>	<b>3,866</b>	<b>97</b>	<b>614</b>	<b>(3,180)</b>	<b>1,450</b>	<b>(527)</b>	<b>0</b>	<b>34,045</b>
Integrations	6,971	915	16	(315)	(664)	37	(56)	0	6,904
Large independents	18,552	2,268	70	898	(1,835)	553	(147)	0	20,359
Independents	6,202	683	11	31	(681)	860	(324)	0	6,782

(a) See Appendix for activity related to acquired companies.

<sup>1</sup>See company endnotes on page 40.

## US – gas reserves for the latest fiscal year

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	Beginning	Extensions and discoveries	Improved recovery	Revisions	Production	Purchases	Sales	Other	Ending
Amplify Energy Corp.	314	0	0	21	(23)	0	0	0	312
Antero Resources Corporation	10,204	437	0	427	(798)	0	0	0	10,270
APA Corporation	1,422	38	0	93	(173)	71	(73)	0	1,378
Battalion Oil Corporation	125	19	0	9	(9)	0	0	0	144
Berry Corporation	62	13	0	1	(4)	11	(25)	0	58
BP p.l.c.	5,805	10	46	449	(492)	0	(9)	0	5,809
California Resources Corporation	576	26	0	(36)	(54)	0	(1)	0	511
Callon Petroleum Company	577	76	0	(11)	(42)	0	(8)	0	592
Chesapeake Energy Corporation	7,824	60	0	1,989	(1,308)	2,926	(122)	0	11,369
Chevron Corporation	5,885	1,573	1	171	(641)	85	(243)	0	6,831
Chord Energy Corporation <sup>1</sup>	459	36	0	(57)	(67)	444	0	0	815
Civitas Resources, Inc. <sup>1</sup>	888	51	0	9	(112)	32	0	0	868
CNX Resources Corporation	8,988	1,055	0	(315)	(541)	0	0	0	9,187
Comstock Resources, Inc.	6,118	1,090	0	(7)	(501)	0	(4)	0	6,696
ConocoPhillips	7,283	505	0	326	(631)	23	(262)	0	7,244
Continental Resources, Inc.	5,111	1,204	0	(285)	(443)	259	(1)	0	5,845
Coterra Energy Inc. <sup>1</sup>	14,895	1,602	0	(4,299)	(1,024)	0	(1)	0	11,173
Crescent Energy Company <sup>1</sup>	1,491	60	0	(15)	(129)	139	(40)	0	1,506
Denbury Resources Inc.	17	0	0	16	(3)	0	0	0	30
Devon Energy Corporation	2,878	449	0	74	(356)	137	(7)	0	3,175
Diamondback Energy, Inc.	2,586	387	0	3	(176)	82	(13)	0	2,869
Earthstone Energy, Inc.	285	51	0	37	(54)	430	(7)	0	742
EOG Resources, Inc.	7,907	1,414	0	(271)	(493)	32	(316)	0	8,273
EQT Corporation	23,524	2,435	0	(432)	(1,842)	141	0	0	23,826
Exxon Mobil Corporation <sup>1</sup>	15,128	2,232	0	(993)	(1,046)	2	(1,551)	0	13,772
Gulfport Energy Corporation <sup>1</sup>	3,478	391	0	66	(323)	0	0	0	3,612
Hess Corporation	935	92	0	57	(80)	0	0	0	1,004
HighPeak Energy, Inc.	30	25	0	(7)	(3)	14	0	0	59

	Beginning	Extensions and discoveries	Improved recovery	Revisions	Production	Purchases	Sales	Other	Ending
Magnolia Oil & Gas Corporation <sup>1</sup>	255	67	0	30	(51)	12	0	0	313
Marathon Oil Corporation	1,446	100	0	44	(132)	401	0	0	1,859
Matador Resources Company	853	197	0	13	(99)	(1)	0	0	963
Murphy Oil Corporation	320	16	3	31	(34)	3	(4)	0	335
National Fuel Gas Company	3,723	838	0	3	(343)	0	(50)	0	4,171
Northern Oil and Gas, Inc.	938	54	0	(15)	(69)	100	0	0	1,008
Occidental Petroleum Corporation	3,419	244	51	841	(445)	8	(45)	0	4,073
Ovintiv Inc. <sup>1</sup>	2,536	237	0	38	(180)	72	(5)	0	2,698
PDC Energy, Inc.	2,160	0	0	506	(199)	426	0	0	2,893
Permian Resources Corporation <sup>1</sup>	577	144	0	(111)	(60)	494	(11)	0	1,033
Pioneer Natural Resources Company	3,507	607	0	203	(319)	1	(1)	0	3,998
Range Resources Corporation	11,452	1,278	0	(393)	(539)	0	0	0	11,798
Ranger Oil Corporation	225	71	0	(44)	(12)	6	0	0	246
Ring Energy, Inc.	72	1	0	(19)	(4)	108	0	0	158
Shell plc	615	10	0	22	(126)	0	0	0	521
SilverBow Resources	1,155	514	0	1	(71)	127	(1)	0	1,725
SM Energy Company	1,243	37	0	248	(126)	0	0	0	1,402
Southwestern Energy Company	17,207	2,106	0	(397)	(1,520)	0	(34)	0	17,362
Talos Energy Inc	236	31	0	(8)	(32)	0	(8)	0	219
TXO Energy Partners, L.P.	379	2	0	56	(30)	0	0	0	407
Vital Energy, Inc. <sup>1</sup>	586	34	0	(15)	(49)	0	(4)	0	552
W&T Offshore, Inc.	608	0	0	64	(45)	8	0	0	635
Whiting Petroleum Corporation (a)	426	0	0	0	0	0	(426)	0	0
<b>All companies</b>	<b>188,733</b>	<b>21,919</b>	<b>101</b>	<b>(1,882)</b>	<b>(15,853)</b>	<b>6,593</b>	<b>(3,272)</b>	<b>0</b>	<b>196,339</b>
Integrations	26,818	3,815	47	(373)	(2,179)	87	(1,803)	0	26,412
Large independents	130,057	14,155	51	(1,633)	(10,906)	4,508	(811)	0	135,421
Independents	31,858	3,949	3	124	(2,768)	1,998	(658)	0	34,506

(a) See the Appendix for activity related to acquired companies.

<sup>1</sup>See company endnotes on page 40.

## US – performance measures (three-year averages)

Costs in US\$ per BOE; production replacement rates in %

	Production replacement rates							Production costs
	Oil			Gas				
	PRAC	All sources	F&D including revisions	F&D excluding revisions	All sources	F&D including revisions	F&D excluding revisions	
Amplify Energy Corp.	0.00	(99%)	(99%)	9%	12%	13%	7%	19.32
Antero Resources Corporation	0.00	108%	136%	50%	51%	69%	63%	13.91
APA Corporation	15.06	19%	31%	52%	155%	160%	57%	10.90
Battalion Oil Corporation	0.00	237%	251%	277%	359%	367%	208%	20.82
Berry Corporation	5.67	(11%)	(31%)	99%	185%	269%	93%	28.95
BP p.l.c.	0.00	(78%)	29%	28%	(129%)	225%	74%	10.45
California Resources Corporation	0.00	(154%)	(138%)	55%	18%	24%	32%	22.38
Callon Petroleum Company	11.75	63%	63%	132%	(37%)	(46%)	132%	11.49
Chesapeake Energy Corporation	5.68	(91%)	(50%)	58%	272%	110%	68%	8.30
Chevron Corporation	4.65	157%	117%	122%	214%	209%	182%	12.81
Chord Energy Corporation <sup>1</sup>	9.27	616%	141%	94%	287%	(17%)	37%	16.94
Civitas Resources, Inc. <sup>1</sup>	12.78	457%	53%	57%	598%	25%	60%	12.36
CNX Resources Corporation	0.00	223%	223%	187%	179%	179%	259%	4.48
Comstock Resources, Inc.	0.66	(498%)	(163%)	5%	194%	183%	156%	3.60
ConocoPhillips	13.66	215%	126%	111%	241%	111%	108%	14.87
Continental Resources, Inc.	8.91	168%	43%	211%	162%	103%	244%	9.16
Coterra Energy Inc. <sup>1</sup>	11.12	807%	297%	195%	38%	(23%)	163%	6.17
Crescent Energy Company <sup>1</sup>	13.24	174%	(12%)	88%	209%	(25%)	32%	17.63
Denbury Resources Inc.	1.18	45%	34%	0%	155%	105%	0%	30.51
Devon Energy Corporation	10.66	299%	142%	119%	272%	151%	109%	10.96
Diamondback Energy, Inc.	10.08	299%	223%	298%	467%	403%	299%	8.98
Earthstone Energy, Inc.	8.79	648%	60%	116%	932%	237%	134%	10.83
EOG Resources, Inc.	17.33	157%	160%	183%	328%	356%	357%	10.09
EQT Corporation	3.29	234%	175%	135%	243%	137%	173%	7.31
Exxon Mobil Corporation <sup>1</sup>	7.02	(72%)	(67%)	195%	(68%)	(14%)	125%	15.37
Gulfport Energy Corporation <sup>1</sup>	0.00	50%	50%	139%	56%	64%	122%	8.05
Hess Corporation	0.00	127%	161%	205%	210%	227%	163%	10.69
HighPeak Energy, Inc.	18.37	934%	789%	896%	1289%	909%	1098%	11.72



	Production replacement rates							Production costs
	Oil			Gas				
	PRAC	All sources	F&D including revisions	F&D excluding revisions	All sources	F&D including revisions	F&D excluding revisions	
Magnolia Oil & Gas Corporation <sup>1</sup>	16.03	154%	145%	128%	187%	176%	126%	8.40
Marathon Oil Corporation	11.91	133%	82%	59%	237%	142%	61%	13.16
Matador Resources Company	17.77	187%	171%	138%	234%	229%	150%	9.50
Murphy Oil Corporation	22.40	(19%)	(20%)	52%	19%	19%	45%	15.38
National Fuel Gas Company	2.19	(298%)	38%	26%	238%	166%	173%	5.32
Northern Oil and Gas, Inc.	9.28	182%	69%	112%	733%	114%	74%	13.71
Occidental Petroleum Corporation	15.28	122%	125%	54%	96%	134%	47%	13.31
Ovintiv Inc. <sup>1</sup>	1.85	43%	53%	227%	147%	151%	191%	12.09
PDC Energy, Inc.	7.43	298%	84%	1%	347%	120%	1%	6.43
Permian Resources Corporation <sup>1</sup>	12.10	431%	117%	241%	475%	138%	193%	11.07
Pioneer Natural Resources Company	9.96	273%	154%	176%	429%	299%	206%	9.48
Range Resources Corporation	0.00	128%	159%	153%	81%	118%	208%	9.75
Ranger Oil Corporation	2.00	420%	225%	494%	740%	214%	554%	10.56
Ring Energy, Inc.	2.79	534%	35%	87%	1192%	(0%)	82%	14.72
Shell plc	0.00	3%	33%	22%	(120%)	5%	39%	11.76
SilverBow Resources	7.44	505%	(4%)	158%	411%	257%	473%	6.30
SM Energy Company	13.60	148%	150%	165%	153%	156%	152%	10.06
Southwestern Energy Company	0.00	128%	58%	283%	370%	134%	166%	6.44
Talos Energy Inc	6.96	77%	15%	23%	168%	(18%)	41%	12.97
TXO Energy Partners, L.P.	3.17	728%	138%	15%	466%	203%	10%	20.15
Vital Energy, Inc. <sup>1</sup>	8.51	147%	85%	80%	30%	107%	38%	7.85
W&T Offshore, Inc.	9.32	86%	58%	1%	146%	130%	0%	14.71
<b>All companies</b>	<b>7.91</b>	<b>142%</b>	<b>96%</b>	<b>125%</b>	<b>177%</b>	<b>124%</b>	<b>147%</b>	<b>11.08</b>
Integrates	5.01	30%	40%	104%	(7%)	88%	124%	13.05
Large independents	7.69	189%	130%	139%	213%	134%	157%	10.08
Independents	9.60	164%	62%	109%	209%	113%	118%	12.61

<sup>1</sup> See company endnotes on page 40.

## US – rankings and accounting method

	Rankings for the latest fiscal year					Accounting method
	All sources	Oil reserves		Gas reserves		
	Total capital expenditures	Beginning	Ending	Beginning	Ending	
Amplify Energy Corp.	50	43	46	41	43	Successful efforts
Antero Resources Corporation	30	9	10	6	7	Successful Efforts
APA Corporation	22	22	23	25	27	Successful efforts
Battalion Oil Corporation	48	41	47	46	47	Full Cost
Berry Corporation	47	40	42	48	49	Successful efforts
BP p.l.c.	11	7	7	13	14	Successful efforts
California Resources Corporation	43	21	24	37	39	Successful efforts
Callon Petroleum Company	33	20	22	35	36	Full Cost
Chesapeake Energy Corporation	5	23	28	9	5	Successful efforts
Chevron Corporation	2	2	2	12	11	Successful efforts
Chord Energy Corporation <sup>1</sup>	13	34	20	38	33	Successful Efforts
Civitas Resources, Inc. <sup>1</sup>	25	27	29	30	32	Successful efforts
CNX Resources Corporation	39	37	41	7	8	Successful efforts
Comstock Resources, Inc.	28	50	49	11	12	Successful efforts
ConocoPhillips	1	1	1	10	10	Successful efforts
Continental Resources, Inc.	14	13	14	14	13	Successful efforts
Coterra Energy Inc. <sup>1</sup>	20	19	19	4	6	Successful Efforts
Crescent Energy Company <sup>1</sup>	23	25	25	23	25	Successful efforts
Denbury Resources Inc.	44	32	33	50	50	Full Cost
Devon Energy Corporation	4	10	9	19	19	Successful efforts
Diamondback Energy, Inc.	8	8	8	20	21	Full Cost
Earthstone Energy, Inc.	17	38	30	42	34	Successful Efforts
EOG Resources, Inc.	6	4	3	8	9	Successful efforts
EQT Corporation	24	28	34	1	1	Successful efforts
Exxon Mobil Corporation <sup>1</sup>	3	3	4	3	3	Successful efforts
Gulfport Energy Corporation <sup>1</sup>	42	42	45	17	18	Full Cost

	Rankings for the latest fiscal year					Accounting method
	All sources	Oil reserves		Gas reserves		
	Total capital expenditures	Beginning	Ending	Beginning	Ending	
Hess Corporation	27	15	15	29	30	Successful efforts
HighPeak Energy, Inc.	21	46	37	49	48	Successful efforts
Magnolia Oil & Gas Corporation <sup>1</sup>	38	39	39	43	42	Successful efforts
Marathon Oil Corporation	7	14	13	24	23	Successful efforts
Matador Resources Company	32	33	35	31	31	Successful efforts
Murphy Oil Corporation	34	24	27	40	41	Successful Efforts
National Fuel Gas Company	40	49	50	15	15	Full Cost
Northern Oil and Gas, Inc.	26	35	36	28	29	Full Cost
Occidental Petroleum Corporation	10	5	5	18	16	Successful efforts
Ovintiv Inc. <sup>1</sup>	19	12	12	21	22	Full Cost
PDC Energy, Inc.	15	18	17	22	20	Successful Efforts
Permian Resources Corporation <sup>1</sup>	9	30	21	36	28	Successful efforts
Pioneer Natural Resources Company	12	6	6	16	17	Successful efforts
Range Resources Corporation	41	11	11	5	4	Successful efforts
Ranger Oil Corporation	36	31	31	45	44	Full Cost
Ring Energy, Inc.	45	45	38	47	46	Full Cost
Shell plc	16	17	18	32	38	Successful efforts
SilverBow Resources	31	48	43	27	24	Successful Efforts
SM Energy Company	29	26	26	26	26	Successful efforts
Southwestern Energy Company	18	16	16	2	2	Full Cost
Talos Energy Inc	35	36	40	44	45	Full Cost
TXO Energy Partners, L.P.	49	44	44	39	40	Successful efforts
Vital Energy, Inc. <sup>1</sup>	37	29	32	34	37	Full Cost
W&T Offshore, Inc.	46	47	48	33	35	Full Cost

<sup>1</sup> See company endnotes on page 40.

## US – ESG reporting (a)

	Does the Company publish a sustainability or ESG report?	Are greenhouse gas (GHG) emissions reported?	Does reporting include external assurance obtained over Scope 1 and Scope 2 GHG emissions?	Has the company set a GHG reduction goal?
Amplify Energy Corp.	No	No	No	No
Antero Resources Corporation	Yes	Yes	Yes	Yes
APA Corporation	Yes	Yes	No	Yes
Battalion Oil Corporation	No	No	No	No
Berry Corporation	Yes	Yes	No	No
BP p.l.c.	Yes	Yes	Yes	Yes
California Resources Corporation	Yes	Yes	Yes	Yes
Callon Petroleum Company	Yes	Yes	No	Yes
Chesapeake Energy Corporation	Yes	Yes	Yes	Yes
Chevron Corporation	Yes	Yes	Yes	Yes
Chord Energy Corporation <sup>1</sup>	Yes	Yes	No	No
Civitas Resources, Inc. <sup>1</sup>	Yes	Yes	No	Yes
CNX Resources Corporation	Yes	Yes	No	Yes
Comstock Resources, Inc.	No	Yes	No	No
ConocoPhillips	Yes	Yes	Yes	Yes
Continental Resources, Inc.	Yes	Yes	No	No
Coterra Energy Inc. <sup>1</sup>	Yes	Yes	No	Yes
Crescent Energy Company <sup>1</sup>	Yes	Yes	No	Yes
Denbury Resources Inc.	Yes	Yes	Yes	Yes
Devon Energy Corporation	Yes	Yes	Yes	Yes
Diamondback Energy, Inc.	Yes	Yes	Yes	Yes
Earthstone Energy, Inc.	No	Yes	No	No
EOG Resources, Inc.	Yes	Yes	Yes	Yes
EQT Corporation	Yes	Yes	No	Yes
Exxon Mobil Corporation <sup>1</sup>	Yes	Yes	Yes	Yes
Gulfport Energy Corporation <sup>1</sup>	Yes	Yes	No	No
Hess Corporation	Yes	Yes	Yes	Yes
HighPeak Energy, Inc.	No	No	No	No

	Does the company publish a sustainability or an ESG report?	Are greenhouse gas (GHG) emissions reported?	Does reporting include external assurance obtained over Scope 1 and Scope 2 GHG emissions?	Has the company set a GHG reduction goal?
Magnolia Oil & Gas Corporation <sup>1</sup>	Yes	Yes	No	No
Marathon Oil Corporation	Yes	Yes	No	Yes
Matador Resources Company	Yes	Yes	No	No
Murphy Oil Corporation	Yes	Yes	Yes	Yes
National Fuel Gas Company	Yes	Yes	No	Yes
Northern Oil and Gas, Inc.	Yes	No	No	No
Occidental Petroleum Corporation	Yes	Yes	Yes	Yes
Ovintiv Inc. <sup>1</sup>	Yes	Yes	No	Yes
PDC Energy, Inc.	Yes	Yes	No	Yes
Permian Resources Corporation <sup>1</sup>	Yes	Yes	No	Yes
Pioneer Natural Resources Company	Yes	Yes	Yes	Yes
Range Resources Corporation	Yes	Yes	No	Yes
Ranger Oil Corporation	Yes	Yes	No	No
Ring Energy, Inc.	Yes	Yes	No	No
Shell plc	Yes	Yes	Yes	Yes
SilverBow Resources	Yes	Yes	No	No
SM Energy Company	Yes	Yes	Yes	Yes
Southwestern Energy Company	Yes	Yes	No	Yes
Talos Energy Inc	Yes	Yes	No	Yes
TXO Energy Partners, L.P.	No	No	No	No
Vital Energy, Inc. <sup>1</sup>	Yes	Yes	Yes	Yes
W&T Offshore, Inc.	Yes	Yes	No	No
<b>% of all companies</b>	<b>88%</b>	<b>90%</b>	<b>36%</b>	<b>66%</b>
<b>Integrations</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Large independents</b>	<b>95%</b>	<b>100%</b>	<b>47%</b>	<b>89%</b>
<b>Independents</b>	<b>81%</b>	<b>81%</b>	<b>19%</b>	<b>44%</b>

(a) 50 largest companies based on 2022 end-of-year oil and gas reserve estimates; the data presented here is based on a review of company sustainability and ESG reports, as well as a review of information included on company websites.

<sup>1</sup> See company endnotes on page 40.



## Peer groups

### Integrateds

BP p.l.c.  
Chevron Corporation  
Exxon Mobil Corporation  
Shell plc

### Large independents

Antero Resources Corporation  
Chesapeake Energy Corporation  
CNX Resources Corporation  
Comstock Resources, Inc.  
ConocoPhillips  
Continental Resources, Inc.  
Coterra Energy Inc.  
Devon Energy Corporation  
Diamondback Energy, Inc.  
EOG Resources, Inc.  
EQT Corporation  
Hess Corporation  
Marathon Oil Corporation  
Occidental Petroleum Corporation  
Ovintiv Inc.  
PDC Energy, Inc.  
Pioneer Natural Resources Company  
Range Resources Corporation  
Southwestern Energy Company

### Independents

Amplify Energy Corp.  
APA Corporation  
Battalion Oil Corporation  
Berry Corporation  
California Resources Corporation  
Callon Petroleum Company  
Chord Energy Corporation  
Civitas Resources, Inc.  
Crescent Energy Company  
Denbury Resources Inc.  
Earthstone Energy, Inc.  
Gulfport Energy Corporation  
HighPeak Energy, Inc.  
Magnolia Oil & Gas Corporation  
Matador Resources Company  
Murphy Oil Corporation  
National Fuel Gas Company  
Northern Oil and Gas, Inc.  
Permian Resources Corporation  
Ranger Oil Corporation  
Ring Energy, Inc.  
SilverBow Resources  
SM Energy Company  
Talos Energy Inc  
TXO Energy Partners, L.P.  
Vital Energy, Inc.  
W&T Offshore, Inc.

# Appendix

## Acquired companies

Due to the significance of the operations of companies that were acquired during the study period, capital expenditures, revenues and results of operations, oil reserves and gas reserves schedules for the 2018 through the 2022 period were updated to include activities prior to acquisition, as described below. This provides a more meaningful comparison throughout the study period.

In September 2022, Permian Resources Corporation (formerly Centennial Resource Development, Inc.) merged with Colgate Energy Partners III, LLC, with Permian Resources Corporation remaining as the accounting acquirer. The capital expenditures, revenues and results of operations, oil reserves and gas reserves for Colgate Energy Partners III, LLC for 2018 through 2021 are not publicly available and have been excluded from the above-mentioned schedules. The capital expenditures, revenues and results of operations, oil reserves, and gas reserves reported by Permian Resources Corporation for 2022 include activity related to the operations acquired from Colgate Energy Partners III, LLC.

In July 2022, Chord Energy Corporation (formerly Oasis Petroleum Inc.) and Whiting Petroleum Corporation merged, with Chord Energy Corporation remaining as the accounting acquirer. Whiting Petroleum Corporation's 2018 through 2020 results have been included in the above-mentioned schedules as applicable. The capital expenditures, revenues and results of operations, oil reserves, and gas reserves reported by Chord Energy Corporation for 2022 include activity related to the operations acquired from Whiting Petroleum Corporation. Whiting Petroleum Corporation's end-of-year 2021 oil reserves (255 million barrels) and gas reserves (426 bcf) have been included in 2022 beginning-of-year reserves with an equal volume included as sales in 2022 to reflect the Chord Energy Corporation transaction.

In December 2021, Crescent Energy Company was formed through the merger of Contango Oil and Gas Company and Independence Energy LLC. The annual report filed by Crescent Energy Company for 2021 included the 2019 and 2020 capital expenditures, revenues and results of operations, oil reserves and gas reserves for Contango Oil and Gas Company and Independence Energy LLC. These results have been included in the above-mentioned schedules. The capital expenditures, revenues and results of operations, oil reserves and gas reserves for Contango Oil and Gas Company and Independence Energy LLC for

2018 are not publicly available and have been excluded from the above-mentioned schedules. Contango Oil and Gas Company's and Independence Energy LLC's end-of-year 2018 oil reserves (279 million barrels) and gas reserves (1,190 bcf) have been included as an adjustment to "Other" in the oil reserves and gas reserves schedules to roll the reported proved reserves.

In November 2021, Civitas Resources, Inc. (formerly Bonanza Creek Energy, Inc.) and Extraction Oil & Gas, Inc. merged, with Civitas Resources, Inc. remaining as the accounting acquirer. Extraction Oil & Gas, Inc.'s 2018 through 2020 results have been included in the above-mentioned schedules as applicable. The capital expenditures, revenues and results of operations, oil reserves, and gas reserves reported by Civitas Resources, Inc. for 2021 include activity related to the operations acquired from Extraction Oil & Gas, Inc. Extraction Oil & Gas, Inc.'s end-of-year 2020 oil reserves (84 million barrels) and gas reserves (370 bcf) have been included in 2021 beginning-of-year reserves with an equal volume included as sales in 2021 to reflect the Civitas Resources, Inc. transaction.

In October 2021, Coterra Energy Inc. (formerly Cabot Oil & Gas Corporation) and Cimarex Energy Co. merged, with Coterra Energy Inc. remaining as the accounting acquirer. Cimarex Energy Co.'s 2018 through 2020 results have been included in the above-mentioned schedules as applicable. The capital expenditures, revenues and results of operations, oil reserves and gas reserves reported by Coterra Energy Inc. for 2021 include activity related to the operations acquired from Cimarex Energy Co. Cimarex Energy Co.'s end-of-year 2020 oil reserves (304 million barrels) and gas reserves (1,363 bcf) have been included in 2021 beginning-of-year reserves with an equal volume included as sales in 2021 to reflect the Coterra Energy Inc. transaction.

In March 2021, Diamondback Energy, Inc. and QEP Resources, Inc. merged, with Diamondback Energy, Inc. remaining as the accounting acquirer. QEP Resources, Inc.'s 2018 through 2020 results have been included in the above-mentioned schedules as applicable. The capital expenditures, revenues and results of operations, oil reserves and gas reserves reported by Diamondback Energy, Inc. for 2021 include activity related to the operations acquired from QEP Resources, Inc. QEP Resources, Inc.'s end-of-year 2020 oil reserves (302 million barrels) and gas reserves (368 bcf) have been included in 2021 beginning-of-year reserves with an equal volume included as sales in 2021 to reflect the Diamondback Energy, Inc. transaction.

In January 2021, Concho Resources Inc. was acquired by ConocoPhillips, Parsley Energy, Inc. was acquired by Pioneer Natural Resources Company, and WPX Energy, Inc. and Devon Energy Corporation merged, with Devon Energy Corporation remaining as the accounting acquirer. As Concho Resources Inc, Parsley Energy, Inc. and WPX Energy, Inc. did not file annual reports for 2020, the activity related to these companies has been excluded from the above-mentioned schedules to provide a more meaningful comparison throughout the study period.

In October 2020, Noble Energy, Inc., was acquired by Chevron Corporation. Noble Energy, Inc.'s 2018 and 2019 results have been included in the above-mentioned schedules as applicable. The capital expenditures, revenues and results of operations, oil reserves and gas reserves reported by Chevron Corporation for 2020 include activity related to the operations acquired from Noble Energy, Inc. Noble Energy, Inc.'s end-of-year 2019 oil reserves (640 million barrels) and gas reserves (2,019 bcf) have been included in 2020 beginning-of-year reserves with an equal volume included as sales in 2020 to reflect the Chevron Corporation transaction.

In November 2020, Montage Resources Corporation merged into Southwestern Energy Company. Montage Resource Corporation's 2018 and 2019 results have been included in the above-mentioned schedules as applicable (see below for information related to Montage Resources Corporation's 2018 acquisition of Eclipse Resources Corporation). The capital expenditures, revenues and results of operations, oil reserves and gas reserves reported by Southwestern Energy Company for 2020 include activity related to the operations merged from Montage Resources Corporation. Montage Resources Corporation's end-of-year 2019 oil reserves (99 million barrels) and gas reserves (2,138 bcf) have been included in 2020 beginning-of-year reserves with an equal volume included as sales in 2020 to reflect the Southwestern Energy Company transaction.

Brazos Valley Longhorn, L.L.C. is the successor company to WildHorse Resources Development Company, which was acquired by Chesapeake Energy Corporation in February 2019. Brazos Valley Longhorn, L.L.C.'s and WildHorse Resources Development Company's 2018 results have been included in the above-mentioned schedules as applicable. The capital expenditures, revenues and results of operations, oil reserves and gas reserves reported by Chesapeake Energy Corporation for 2019 include activity related to the operations acquired from WildHorse Resources

Development Company and succeeded by Brazos Valley Longhorn, L.L.C. Brazos Valley Longhorn, L.L.C.'s end-of-year 2018 oil reserves (343 million barrels) and gas reserves (378 bcf) have been included in 2019 beginning-of-year reserves with an equal volume included as sales in 2019 to reflect the Chesapeake Energy Corporation transaction.

In August 2019, Anadarko Petroleum Corporation was acquired by Occidental Petroleum Corporation. Anadarko Petroleum Corporation's 2018 results have been included in the above-mentioned schedules as applicable. The capital expenditures, revenues and results of operations, oil reserves and gas reserves reported by Occidental Petroleum Corporation for 2019 include activity related to the operations acquired from Anadarko Petroleum Corporation. Anadarko Petroleum Corporation's end-of-year 2018 oil reserves (787 million barrels) and gas reserves (3,198 bcf) have been included in 2019 beginning-of-year reserves with an equal volume included as sales in 2019 to reflect the Occidental Petroleum Corporation transaction.

In December 2019, Carrizo Oil & Gas, Inc. was acquired by Callon Petroleum Company. Carrizo Oil & Gas, Inc.'s 2018 results have been included in the above-mentioned schedules as applicable. The capital expenditures, revenues and results of operations, oil reserves and gas reserves reported by Callon Petroleum Company for 2019 include activity related to the operations acquired from Carrizo Oil & Gas, Inc. Carrizo Oil & Gas, Inc.'s end-of-year 2018 oil reserves (249 million barrels) and gas reserves (483 bcf) have been included in 2019 beginning-of-year reserves with an equal volume included as sales in 2019 to reflect the Callon Petroleum Company transaction.

In January 2018, Eclipse Resources Corporation was acquired by Montage Resources Corporation, Inc. The capital expenditures, revenues and results of operations, oil reserves and gas reserves reported by Montage Resources Corporation for 2018 include activity related to the operations acquired from Eclipse Resources Corporation. Eclipse Resources Corporation's end-of-year 2017 oil reserves (62 million barrels) and gas reserves (1,090 bcf) have been included in 2018 beginning-of-year reserves with an equal volume included as sales in 2018 to reflect the Montage Resources Corporation transaction.

In November 2018, Energen Corporation was acquired by Diamondback Energy, Inc. The capital expenditures, revenues and results of operations, oil reserves and gas reserves reported by Diamondback Energy, Inc. for 2018



include activity related to the operations acquired from Energen Corporation. Energen Corporation's end-of-year 2017 oil reserves (348 million barrels) and gas reserves (576 bcf) have been included in 2018 beginning-of-year reserves with an equal volume included as sales in 2018 to reflect the Diamondback Energy, Inc. transaction.

In 2018, Encana Corporation, which later became Orintiv Inc. (see company endnotes), announced its acquisition of Newfield Exploration Company. The transaction closed in February 2019, and Newfield Exploration Company did not file an annual report for 2018. The capital expenditures, revenues and results of operations, oil reserves and gas reserves reported by Orintiv Inc. Corporation for 2019 include activity related to the operations acquired from Newfield Exploration Company. Newfield Exploration Company's end-of-year 2017 oil reserves (394 million barrels) and gas reserves (1,704 bcf) have been included in 2018 beginning-of-year reserves with an equal volume included as sales in 2018 to reflect the Encana Corporation transaction.

For purposes of the peer group analysis, Whiting Petroleum Corporation is an independent.

## Performance measures

The performance measures presented herein were calculated based on the companies' oil and gas reserve disclosure information. The EY methodology for calculating the performance measures is defined below:

- ▶ **Plowback percentage** represents total capital expenditures as a percentage of netback (revenues less production costs).
- ▶ **PRACs** are calculated as proved property acquisition costs divided by proved reserves purchased.
- ▶ **Production replacement rate (all sources)** is calculated as the sum of extensions and discoveries, improved recovery, revisions, purchases and sales of proved reserves divided by production.
- ▶ **Production replacement rate (F&D including revisions)** is calculated as the sum of extensions and discoveries, improved recovery and revisions of proved reserves divided by production.

- ▶ **Production replacement rate (F&D excluding revisions)** is calculated as the sum of extensions and discoveries and improved recovery of proved reserves divided by production.

- ▶ **Production costs** are calculated as production costs, including production taxes, and transportation costs divided by production.

Many individual companies calculate and report their own performance measures, and companies may use different methods that produce results different from those shown in this study.

## Data limitations

Users of this study should keep in mind the following limitations of the data presented:

- ▶ This study excludes government- and privately owned companies and smaller public companies.
- ▶ This study excludes companies whose primary business is to own and acquire mineral and royalty interests in oil and gas properties.
- ▶ Individual companies did not prepare or review the compiled data presented in this report.
- ▶ Oil and gas companies that follow US generally accepted accounting principles (GAAP) are allowed to select either successful efforts accounting or full cost accounting for their oil and gas activities. Some companies included in this study follow US GAAP, while others follow International Financial Reporting Standards (IFRS) as adopted by their applicable country. These variations in standards can result in different results for some companies.
- ▶ Data for all companies may not be comparable because of differing interpretations or applications of reporting requirements.
- ▶ Oil and gas reserve estimates are imprecise and are revised as additional information about reserves becomes known.

## Other

The data included herein for the 2018 study period is obtained from Evaluate Energy and the individual companies' published annual reports. The data included herein for the 2019-2022 study periods is obtained from the individual companies' published annual reports. The study companies generally were determined based on data available as of March 31, 2023. The 2018 data include each year's original disclosures made by the companies. Restatements and other adjustments made to capital expenditures or revenues and results of operations data in subsequent years generally have not been incorporated herein. The 2019-2022 data are generally based on companies' 2020, 2021 and 2022 annual reports. Unless otherwise indicated, restatements and other adjustments made to oil and gas reserve data are included in the "Other" component of the reserve tables, but these amounts are not included in the performance measure calculations.

Totals presented may not add due to rounding. All amounts are reported in US dollars.

Natural gas prices are quoted on an MMBtu basis, while gas reserves in this study are presented in bcf and tcf.

Certain amounts in this study are presented on a per BOE basis. Natural gas volumes are converted to barrels at a ratio of 6,000 cubic feet (mcf) to one barrel of oil. This ratio is generally viewed as reflecting an approximate thermal equivalence between the two commodities; however, some individual companies may use a different ratio for their internal performance metrics.

## Company endnotes

Gulfport Energy Corporation filings include only acquisition costs without further breakdown between proved and unproved properties. For our study purposes, Gulfport Energy Corporation acquisitions were included in the proved properties acquired category.

Amounts presented for Exxon Mobil Corporation include investments accounted for by the equity method. Oil rollforwards and computations based on oil volumes exclude NGLs, which are only reported on a worldwide basis.

Magnolia Oil & Gas Corporation's filings include exploration and development capital expenditures without further breakdown between exploration and development. For our study purposes, Magnolia Oil & Gas Corporation's exploration and development capital expenditures were reflected as development costs.

Ovintiv Inc. is the successor to Encana Corporation as a result of Encana Corporation's corporate reorganization in January 2020. Ovintiv Inc. filed an annual report for 2019 that included the operations previously owned by Encana Corporation. For consistency, results for prior periods include the results of Encana Corporation.

Bonanza Creek Energy, Inc. changed its name to Civitas Resources, Inc. following the merger of Bonanza Creek Energy, Inc. and Extraction Oil & Gas, Inc. Civitas Resources, Inc. filed an annual report for 2021 which included the operations owned by Bonanza Creek Energy, Inc. For consistency, results for prior periods include the results of Bonanza Creek Energy, Inc. See discussion above for the treatment of the merger with Extraction Oil & Gas, Inc.

Cabot Oil & Gas Corporation changed its name to Coterra Energy Inc. following the merger of Cabot Oil & Gas Corporation and Cimarex Energy Co. Coterra Energy Inc. filed an annual report for 2021 that included the operations owned by Cabot Oil & Gas Corporation. For consistency, results for prior periods include the results of Cabot Oil & Gas Corporation. See the discussion above for treatment of the merger with Cimarex Energy Co.

Crescent Energy Company was formed through the merger of Contango Oil and Gas Company and Independence Energy LLC in December 2021. See the discussion above for how the results for prior periods are used in the study.

Centennial Resource Development, Inc. changed its name to Permian Resources Corporation following the merger of Centennial Resource Development, Inc. and Colgate Energy Partners III, LLC. Permian Resources Corporation filed an annual report for 2022 that included the operations owned by Centennial Resource Development, Inc. For consistency, results for prior periods include the results of Centennial Resource Development, Inc. See the discussion above for the treatment of the merger with Colgate Energy Partners III, LLC.

Oasis Petroleum Inc. changed its name to Chord Energy Corporation following the merger of Oasis Petroleum Inc. and Whiting Petroleum Corporation. Chord Energy Corporation filed an annual report for 2022 that included the operations owned by Oasis Petroleum Inc. For consistency, results for prior periods include the results of Oasis Petroleum Inc. See discussion above for the treatment of the merger with Whiting Petroleum Corporation.

Laredo Petroleum changed its name to Vital Energy, Inc. in January 2023. For consistency, we refer to the company as Vital Energy, Inc. in this study.

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US SCORE no. 20725-231US

2304-4218678  
ED None

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