Financial Review of the Global Oil and Natural Gas Industry: 2020

Petroleum and Liquid Fuels Markets Team

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Key findings for 2020

• Brent crude oil daily average prices were $43.21 per barrel in 2020—33% lower than 2019 levels and the lowest annual average since 2004.

• In this study of 92 companies, the combined petroleum liquids production decreased 5% in 2020 from 2019, and natural gas production decreased 6%.

• As a result of both relatively few discoveries and downward proved reserves revisions, total proved reserves declined 9% in 2020.

• Finding plus lifting costs decreased 5% from 2019 to 2020.

• Several acquisitions and company dissolutions in 2020 reduced the total number of companies in this study from 102 in 2019 to 92 in 2020.

• Most refiners’ earnings per barrel processed were negative in 2020.

Note: The 92 companies analyzed in this study publish publicly available financial statements. A full list of the companies included and a glossary of terms begin on slide 24.
Upstream
Most company headquarters included in our study were located in the United States.

Geographic distribution of global oil and natural gas company headquarters, 2020

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>55</td>
</tr>
<tr>
<td>Canada</td>
<td>16</td>
</tr>
<tr>
<td>Europe</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
</tr>
</tbody>
</table>

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: Other includes Argentina, Brazil, Chile, China, Colombia, Mexico, Thailand, and Russia
Global oil and natural gas company proved reserves were highest in the **other** category

Proved reserves of global oil and natural gas companies by region of headquarters, 2020

billion barrels of oil equivalent

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: **Other** includes Argentina, Brazil, Chile, China, Colombia, Mexico, Thailand, and Russia
Almost 40% of companies we included produced less than 50,000 barrels per day in 2020.

**Distribution of companies by volume of petroleum liquids produced, 2020**

<table>
<thead>
<tr>
<th>Volume Range</th>
<th>Number of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 50</td>
<td>36</td>
</tr>
<tr>
<td>50–99</td>
<td>11</td>
</tr>
<tr>
<td>100–499</td>
<td>24</td>
</tr>
<tr>
<td>500–999</td>
<td>7</td>
</tr>
<tr>
<td>1,000 or greater</td>
<td>14</td>
</tr>
</tbody>
</table>

2020 petroleum liquids production, thousand barrels per day

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements
Production from the oil and natural gas companies declined in 2020 compared with 2019

Petroleum liquids and natural gas production, 2011–20
million barrels of oil equivalent per day

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements
Petroleum liquids and natural gas production decreased from 2019 to 2020

Petroleum liquids and natural gas production, 2012–20
year-over-year change

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements
The SEC requires companies to value proved reserves based on an average of the prices on the first day of each month.

**Brent crude oil front-month futures prices, 2020**

dollars per barrel (b)

Brent 2020 first day of month average = $43.43/b  
Brent 2019 first day of month average = $62.58/b

Source: U.S. Energy Information Administration, Intercontinental Exchange, Bloomberg L.P.

Note: SEC = U.S. Securities and Exchange Commission
Global proved reserves totaled 258 billion barrels of oil equivalent at the end of 2020, 9% lower than at the end of 2019

Proved reserves by region, 2011–20
billion barrels of oil equivalent

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: Mergers and acquisitions between companies may affect net reserve changes for the year and comparisons between years
Net proved reserve additions for petroleum liquids and natural gas were almost zero in 2020 as a result of negative revisions.

Proved reserve additions, 2011–20

billion barrels of oil equivalent

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements.
Excluding revisions, the companies replaced 51% of their production through organic proved reserve additions

The proved reserve replacement ratio measures the amount of proved reserves a company added compared with the amount it produced that year. A proved reserve replacement ratio higher than 100% means it discovered more proved reserves that year than it produced, adding to its resource base and future potential production. Excluding revisions, the energy companies had a reserve replacement ratio of 51% in 2020. Including revisions, the energy companies had a reserve replacement ratio of 4% in 2020.

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: Excludes proved reserve revisions. Organic proved reserves additions include those added through extensions and discoveries and improved recovery.
Total upstream costs incurred decreased to $252 billion in 2020, the lowest in the 2011–20 period

Upstream costs incurred, 2011–20

billion dollars

$700

$600

$500

$400

$300

$200

$100

$0


proved reserve acquisition
unproved reserve acquisition
exploration
development

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: Percentages are shares of total upstream costs. Percentages may not sum to 100% because of rounding
Most of the decrease in exploration and development spending from 2019 to 2020 was in the United States

<table>
<thead>
<tr>
<th>Exploration and development costs incurred, 2011–20</th>
</tr>
</thead>
<tbody>
<tr>
<td>billion dollars</td>
</tr>
<tr>
<td>$600 to $500</td>
</tr>
<tr>
<td>2011: 8%</td>
</tr>
<tr>
<td>2012: 7%</td>
</tr>
<tr>
<td>2013: 6%</td>
</tr>
<tr>
<td>2014: 9%</td>
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<td>2015: 8%</td>
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</tr>
<tr>
<td>2019: 6%</td>
</tr>
<tr>
<td>2020: 5%</td>
</tr>
</tbody>
</table>

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: Percentages are shares of global exploration and development costs incurred. Percentages may not sum to 100% because of rounding. Includes costs incurred from acquiring unproved reserves.
Finding plus lifting costs, 2011–20

dollars per barrel of oil equivalent

Finding plus lifting costs decreased 5% from 2019 to 2020

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: Excludes proved reserve revisions
Capital expenditure and cash from operations decreased $106 billion and $151 billion, respectively, from 2019 to 2020

Cash from operations and capital expenditure, 2011–20
billion dollars

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements
The companies increased net debt by $68 billion in 2020, the largest annual increase since 2014.

Financing activities, 2011–20

billion dollars

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements.
Return on equity for the energy companies and for U.S. manufacturing companies decreased to -12% and 9%, respectively, in 2020

Return on equity, energy companies and U.S. manufacturing companies, 2012–20
percentage

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements and U.S. Census Bureau
The long-term debt-to-equity ratio increased to 68% for the energy companies and to 66% for U.S. manufacturing companies.

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements and U.S. Census Bureau.
Downstream
Global refining distillation capacity decreased slightly from 2019 to 2020

Global refining distillation capacity by region, 2011–20
million barrels per day

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements
Note: A global refiner is a company with refining assets in different regions of the world.
Capacity utilization for all companies averaged 78% in 2020 and declined in most regions.

Refining capacity utilization by region, 2011–20

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements.

Note: A global refiner is a company with refining assets in different regions of the world.
Earnings per barrel processed declined for most refiners from 2019 to 2020

Refiner earnings per barrel of oil processed by region, 2011–20
dollars per barrel

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements
Note: A global refiner is a company with refining assets in different regions of the world.
Appendix: List of companies in the upstream analysis

Abraxas Petroleum Corporation
Aker BP ASA
Amplify Energy Corp.
Anadarko Petroleum Corp.
Antero Resources Corporation
APA Corporation
Apco Oil and Gas International Inc
Approach Resources Inc
Athlon Energy Inc.
ATP Oil & Gas Corp.
Bankers Petroleum Ltd
Battalion Oil Corporation
Baytex Energy Corp.
Berry Corporation
BG Group
Black Stone Minerals LP
Blue Ridge Mountain Resources, Inc.
Bonanza Creek Energy Inc
BP Plc.
Brazos Valley Longhorn, L.L.C.
California Resources Corporation
Callon Petroleum
Camber Energy, Inc.
Canadian Natural Resources Limited
Carrizo Oil & Gas, Inc
Centennial Resource Development, Inc.
Chevron Corporation
Cimarex Energy Co.
Clayton Williams Energy, Inc.
CNOC Ltd
Concho Resources Inc
ConocoPhillips
Contango Oil and Gas Company
Continental Resources, Inc.
Crescent Point Energy Corp
Denbury Inc.
Devon Energy Corporation
Diamondback Energy Inc.
Earthstone Energy Inc.
Ecopetrol
Ovintiv Inc.
Endeavour International Corporation
Enegher Corp
Energy XXI Gulf Coast, Inc.
Enerplus Resources
ENI
EOG Resources
EP Energy Corporation
EPL Oil & Gas Inc
Equinor ASA
Evinrude Corporation
Extradition Oil & Gas, Inc.
ExxonMobil
FieldPoint Petroleum Corporation
Forest Oil Corporation
Frontera Energy Corporation
Galp Energia
Gastar Exploration Inc.
Gazprom Neft PSC
GeoPark Limited
Gran Tierra Energy Inc.
Harvest Natural Resources Inc.
Hess Corporation
HighPoint Resources Corporation
Houston American Energy Corp
Husky Energy Inc.
International Petroleum Corporation
Jagged Peak Energy Inc.
Kodiak Oil & Gas Corp.
Kosmos Energy Ltd
Laredo Petroleum Inc.
Legacy Reserves Inc.
Lilis Energy Inc.
Linn Energy
Lonestar Resources US, Inc.
Lukoil PJSC
Magnolia Oil & Gas Corporation
Marathon Oil Corp.
Matador Resources Company
Maverick Natural Resources, LLC
Mid-Con Energy Partners, LP
Montage Resources Corporation
Murphy Oil Corporation
Newfield Exploration Company
Nexen Inc.
Noble Energy Inc.
Northern Oil & Gas Inc
Oasis Petroleum Inc.
Occidental Petroleum Corporation
OMV Group
PHX Minerals Inc.
Parex Resources Inc.
Parley Energy Inc.
PDC Energy, Inc.
PEDEVCO Corp.
Permex
Pengrowth Energy Corporation
Penn Virginia Corporation
Petrolebras (IFRS US$ Current)
PetroChina
Petromeriales Ltd.
PetroQuest Energy, Inc
Pioneer Natural Resources Company
Pitt
QEP Resources Inc
Range Resources Corporation
Repso
Ring Energy Inc
Roan Resources Inc.
Rosehill Operating Company, LLC
Rosetta Resources Inc.
Rosneft
Royal Dutch Shell
Royale Energy Inc.
RSP Permian Inc
Sabine Oil & Gas Corporation
Mesquite Energy, Inc.
SandRidge Energy, Inc.
Seven Generations Energy Ltd
Sherritt International Corp
Sinopet
SM Energy Company
Sonde Resources Corp.
SRC Energy Inc
Stone Energy Corporation
Suncor Energy Inc.
T-Rex Oil, Inc.
Talos Energy Inc.
TNK-BP International Ltd
Total
TransAtlantic Petroleum Ltd.
TransGlobe Energy Corporation
Triangle Petroleum Corporation
Unit Corporation
Vaalco Energy Inc
Grizzly Energy LLC
W & T Offshore
Whitecap Resources Inc.
Whiting Petroleum Corporation
WPX Energy, Inc.
YPF Sociedad Anonima
Yuma Energy, Inc.
Yuma Energy, Inc. (Pre Davis)

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements
Note: Some companies merged, split, or delisted before 2020. A total of 92 companies existed in 2020.
Appendix: List of companies in the downstream analysis

Alon USA Energy
Andeavor
Blue Dolphin Energy Co
BP Plc.
Cenovus Energy Inc.
Chevron Corporation
CVR Energy, Inc.
Delek US Holdings
ENI
ExxonMobil
Galp Energia
Gazprom Neft PJSC
Grupa Lotos
HollyFrontier Corporation
Husky Energy Inc.
Imperial Oil Limited
INA Group
Indian Oil Corporation Limited
Lukoil PJSC
Marathon Petroleum Corporation
MOL Group
Neste Corporation
OMV Group
Par Pacific Holdings, Inc.
PBF Energy Inc
Pemex
Petrobras (IFRS US$ Current)
PetroChina
Phillips 66
PKN Orlen
Repsol
Rosneft
Royal Dutch Shell
Sinopec
Suncor Energy Inc.
TNK-BP International Ltd
Total
TUPRAS
Valero Energy Corporation
Western Refining Inc.

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements
Note: Some companies merged, split, or delisted before 2020. A total of 36 companies existed in 2020.
Background

• The upstream analysis focuses on the financial and operating trends of 92 global oil and natural gas companies (called the companies or the energy companies), and the downstream analysis focuses on 36 companies.

• The data come from the public financial statements each company publishes, which a data service (Evaluate Energy) aggregates for ease of data analysis.

• For consistency, we kept an energy company’s assets that were acquired by another company in the group in 2011 or later were kept in the data for the previous years.

• Several charts show comparisons between energy companies and the U.S. manufacturing industry. We collected the data from the U.S. Census Bureau’s Quarterly Financial Report.
Brief description of terms

• *Cash from operations* is a measure of income from the company’s regular business activities.

• *Capital expenditure* is cash used to purchase property, plant, and equipment.

• *Financing activities* measure inflows and outflows in debt or equity markets, including dividends, share issuance or repurchases, and debt issuance or repayments.

• *Return on equity* is a measure of the profit a company earns on money that shareholders have invested.

• *Market capitalization* is the total value of a company’s outstanding, publicly traded shares.
Brief description of terms

• *Net income* represents profits after taxes and depreciation.

• *Asset impairments* occur when a company lowers the estimated value of a property to reflect current market value, which may result from the loss of production potential or a decline in oil prices.

• *Reserve revisions* are changes to prior year-end proved reserve estimates, either positive or negative, resulting from new information other than an increase in proved acreage (extension). Revisions include increases of proved reserves associated with the installation of improved recovery techniques or equipment. They also include correction of prior year arithmetical or clerical errors and adjustments to prior year-end production volumes to the extent that these alter reserves estimates.
Brief description of terms

• *Upstream activities* refers to crude oil exploration, production, and other operations that occur before refining.

• *Downstream activities* refers to refinery operations, product sales, and marketing at the wholesale and retail levels.