2016 BDO OIL & GAS RISKFACTOR REPORT
“When oil prices first began to decline in mid-2014, many energy industry observers hoped that the slump would follow the pattern of the 2008 contraction which, though painful, was brief. But we’re now well beyond that possibility, and the time has come for the sector to remove its rose-colored glasses. This downturn will stay with us for a while, but it presents a unique opportunity for savvy oil and gas businesses to streamline operations and position themselves for success further down the line.”

Charles Dewhurst, Partner and Leader of BDO’s Natural Resources Practice
Energy Sector Reels as First Full Year of Oil Price Slump Amplifies Risk

Few U.S. E&P companies have managed to emerge from the past year unscathed.

Despite initial optimism that oil prices would stabilize by the end of 2015—though perhaps not at the $100-per-barrel level the industry once enjoyed—commodity prices continually reached record lows, bottoming out at $27 per barrel in January. Though prices have started to rise again, the damage has been done, and the industry must now consider how it can reorient itself in a fundamentally changed market.

According to the 2016 BDO Oil & Gas RiskFactor Report, volatile commodity prices once again top the list of risks cited in the 10-Ks of the 100 largest publicly traded U.S. oil and gas E&P companies, as noted by all companies analyzed. Given the general economic conditions and the competition inherent in the industry, mentioned by 89 percent and 87 percent of companies, respectively, energy companies are looking at an unpredictable future.

While these broad concerns have been, and are likely to remain, leading risks regardless of the health of the industry, persistently low prices have significantly influenced the way companies think about and react to the other risks endemic to exploration and production. From access to capital to accounting concerns, the challenges posed by a low-price environment reverberate throughout the common, perennial risks companies cite in their annual filings.

Moreover, this year’s analysis highlighted how wide-reaching the oil price rout has been:

Of the top 100 E&P companies as ranked in the September 2015 OGJ150 index, about 1 in 10 have declared bankruptcy, been acquired, or been delisted from U.S. stock exchanges.

The 2016 BDO Oil & Gas RiskFactor Report examines the risk factors listed in the most recent SEC 10-K filings of the 100 largest publicly traded U.S. oil and gas exploration and production (E&P) companies. The report analyzes and ranks the risk factors in order of frequency cited.

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### Top 20 Risk Factors
cited by the 100 largest publicly traded U.S. E&P companies

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<tbody>
<tr>
<td>#1t</td>
<td>Fluctuations in the price/volatility of oil/gas/energy commodities</td>
<td>100%</td>
<td>99%</td>
<td>100%</td>
<td>100%</td>
<td>99%</td>
</tr>
<tr>
<td>#1t</td>
<td>Supply risks</td>
<td>100%</td>
<td>100%</td>
<td>98%</td>
<td>96%</td>
<td>98%</td>
</tr>
<tr>
<td>#1t</td>
<td>Political/regulatory/legislative developments</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>#4</td>
<td>Disruptions due to natural disasters, unexpected weather conditions, etc.</td>
<td>97%</td>
<td>96%</td>
<td>96%</td>
<td>96%</td>
<td>95%</td>
</tr>
<tr>
<td>#5t</td>
<td>Operational and E&amp;P risks</td>
<td>96%</td>
<td>96%</td>
<td>98%</td>
<td>95%</td>
<td>98%</td>
</tr>
<tr>
<td>#5t</td>
<td>Environmental and/or health requirements/restrictions/ regulations</td>
<td>96%</td>
<td>95%</td>
<td>98%</td>
<td>96%</td>
<td>94%</td>
</tr>
<tr>
<td>#5t</td>
<td>Limited access to capital/indebtedness</td>
<td>96%</td>
<td>93%</td>
<td>95%</td>
<td>91%</td>
<td>94%</td>
</tr>
<tr>
<td>#8</td>
<td>Inaccurate reserve estimates</td>
<td>93%</td>
<td>91%</td>
<td>89%</td>
<td>93%</td>
<td>95%</td>
</tr>
<tr>
<td>#9</td>
<td>General national/global economic conditions</td>
<td>89%</td>
<td>88%</td>
<td>90%</td>
<td>92%</td>
<td>94%</td>
</tr>
<tr>
<td>#10</td>
<td>General competition</td>
<td>87%</td>
<td>87%</td>
<td>84%</td>
<td>90%</td>
<td>89%</td>
</tr>
<tr>
<td>#11t</td>
<td>Interruptions/threats to production from terrorist activities; civil unrest; political instability</td>
<td>85%</td>
<td>83%</td>
<td>74%</td>
<td>82%</td>
<td>72%</td>
</tr>
<tr>
<td>#11t</td>
<td>Impact of climate change/greenhouse gas legislation</td>
<td>85%</td>
<td>82%</td>
<td>80%</td>
<td>89%</td>
<td>81%</td>
</tr>
<tr>
<td>#13t</td>
<td>Hydraulic fracturing regulation</td>
<td>84%</td>
<td>96%</td>
<td>85%</td>
<td>85%</td>
<td>74%</td>
</tr>
<tr>
<td>#13t</td>
<td>Changes in/level of demand</td>
<td>84%</td>
<td>89%</td>
<td>92%</td>
<td>91%</td>
<td>87%</td>
</tr>
<tr>
<td>#13t</td>
<td>Maintaining adequacy/effectiveness of internal controls, financial reporting and accounting standards</td>
<td>84%</td>
<td>84%</td>
<td>57%</td>
<td>55%</td>
<td>87%</td>
</tr>
<tr>
<td>#16t</td>
<td>Insurance: self, credit, cost, potential losses due to uninsured liabilities</td>
<td>83%</td>
<td>87%</td>
<td>84%</td>
<td>86%</td>
<td>88%</td>
</tr>
<tr>
<td>#16t</td>
<td>Liabilities/costs for pollution resulting from current or previous operations</td>
<td>83%</td>
<td>72%</td>
<td>83%</td>
<td>87%</td>
<td>79%</td>
</tr>
<tr>
<td>#18</td>
<td>Shortage of rigs/equipment/personnel</td>
<td>81%</td>
<td>82%</td>
<td>78%</td>
<td>88%</td>
<td>81%</td>
</tr>
<tr>
<td>#19</td>
<td>Use of hedging/derivative instruments expose company to financial risks</td>
<td>80%</td>
<td>82%</td>
<td>85%</td>
<td>77%</td>
<td>48%</td>
</tr>
<tr>
<td>#20</td>
<td>Competition from; price and availability of alternative energy sources</td>
<td>79%</td>
<td>83%</td>
<td>79%</td>
<td>76%</td>
<td>78%</td>
</tr>
</tbody>
</table>

*t indicates a tie in the rankings

### Supply Concerns Remain Leading Threat

The year 2015 marked the first time that 100 percent of the companies analyzed cited supply risks in their annual reports, and it comes as little surprise that the industry remains deeply concerned about its ability to find and replace reserves. In prior years, this risk was driven primarily by competition as more and more players sought to enter the shale game, as well as by the short-lived nature of shale plays, which tend to deplete more quickly than conventional reserves. However, this year, supply risks have been characterized by worries about the financial feasibility of securing new reserves and, to some extent, by the necessity to shed assets that are no longer economically viable.

Inaccurate reserve estimates also continue to plague E&P companies, with 93 percent noting this as a risk in their 10-Ks, a small increase from last year. Again, though this risk is likely to persist in both high- and low-price environments, it takes on a particular urgency this year as companies struggle to forecast what lies ahead for the industry and their own business.

### Regulatory Environment and Looming Tax Changes Compound Price Woes

Regulatory concerns also persist as a major risk, cited by all companies in the study for the sixth year running. The industry has consistently found itself in the crosshairs of political, legislative and regulatory scrutiny from all levels of government, and with the 2016 election looming (and the candidates already beginning to discuss their plans for fossil fuel production), the energy sector is working to anticipate and proactively prepare for further changes.

The scope of the regulatory risks companies face continues to expand as momentum builds around environmental responsibility and mitigating the impact of climate change.
"Even in flush years, the oil and gas industry needed to remain vigilant about potential changes to their tax liabilities. But with prices as low as they are, the prospect of an additional tax—which, at this point, would substantially raise U.S. producers' break-even price—could prove highly destabilizing as the sector looks to get back on its feet."

Clark Sackschewsky, Tax Principal in BDO’s Natural Resources Practice

change—particularly now, with 177 nations signing the Paris Agreement in April 2016. Almost all (96 percent) companies express worries about environmental regulation this year, while 85 percent point to concerns about regulation specific to greenhouse gas emissions. And with operational risks, such as blowouts, fires and oil spills remaining a central risk, cited by 96 percent of companies, 83 percent say they are worried about liabilities associated with pollution.

In addition, companies remain concerned about changes to tax policies, with 70 percent noting this as a risk in their 10-Ks. Among the specific policies cited, companies point to changes to available tax deductions, as well as favorable tax incentives for the alternative energy sector, which may be driving some of the worries surrounding competition from alternative fuels (cited by 79 percent of companies). Most recently, significant uncertainty has surrounded the Obama administration’s proposal to levy a $10.25 tax per barrel of oil. Of the companies who mention tax changes broadly in their 10-Ks, one-third specifically cite this new proposal as a growing concern.

E&P companies also expect hydraulic fracturing regulation to remain a challenge this year. Eighty-four percent of companies cite this as a risk, down from 96 percent last year. While regulatory chatter is unlikely to recede, worries about fracturing regulation specifically may have declined as a result of lower prices making fracturing projects uneconomical. However, companies continue to keep their ear to the ground in an effort to anticipate what regulations may be coming down the pike in the future. Sixty-eight percent say they are closely monitoring the outcomes related to federal investigations into the impact of fracturing on drinking water and seismic activity.

Finally, the number of companies citing regulation related to crude oil transit doubled to 16 percent, compared to 8 percent in 2015. This may be a result of the Obama administration’s decision to nix the Keystone XL pipeline—with companies required to rely more heavily on truck and rail transit, they may be expecting increased scrutiny.
"As asset write-offs increasingly squeeze materiality thresholds, smaller value transactions can begin to significantly affect financial reporting for oil and gas companies. In this environment, robust internal controls become more important than ever, and can make all the difference in assuring stakeholders that the management team is doing everything in its power to sustain the business through the downturn."

Vicky Gregorcyk, National Practice Leader for BDO Risk, Management and Technology Advisory Services

**A Wave of Financial Challenges Abound for Producers**

As the industry continues to contract, many companies’ cash flow has slowed to a trickle as they face debt redeterminations and as creditors begin to call in their loans. A lack of access to capital or credit, while always a risk, is cited by 96 percent of companies this year, the highest proportion in six years. And though increases in the cost of operating have declined as a risk, down to 59 percent of companies from 70 percent in 2015, it is clear that these lower costs are not enough to offset the concurrent decline in revenues caused by the price slump.

Companies have become increasingly cash-strapped in the last year, leading to significant increases in associated risks. The threat of bankruptcy has more than doubled, from 8 percent in 2015 to 19 percent in 2016—a six-year high. According to Reuters analysis, about 59 North American producers have declared bankruptcy since early 2015, and it seems likely that more are to come.

Meanwhile, there was a substantial uptick in the number of companies citing a downgrade in credit rating, mentioned by 38 percent of companies this year, up from 25 percent in 2015. This risk has impacted companies of all sizes; not even the supermajors are immune, with Moody’s downgrading the credit ratings for Chevron, Shell and Total in April 2016. Companies are not only concerned about their own credit; four in five worry about the risks associated with their hedging arrangements, and 71 percent cite the creditworthiness of their hedging counterparties, vendors and partners as a risk.

The financial challenges have, inevitably, also affected companies’ exposure to accounting-related risks. As prices dropped throughout 2015, many companies were forced to write down the carrying value of a number of their properties, leading 84 percent of companies analyzed to specifically note risks associated with financial reporting, accounting methods and impairment this year.

"Bankruptcy looms large for many independent oil and gas companies, who are sitting on assets they simply cannot produce in the current price environment. The good news is that these businesses can take a variety of steps before it comes to that, including private buyouts or reaching an out-of-court settlement with creditors. These measures may be painful in the short term, but they can help companies stay afloat in the long term."

David Berliner, Partner with BDO Consulting Business Restructuring and Turnaround Services
Business Interruption Risks Prevalent as Ever

As a truly globalized industry, energy companies remain highly vulnerable to business disruptions both within and beyond their borders. Worries about natural disasters, global instability and the costs associated with mitigating these risks continue to fall near the top of the RiskFactor rankings this year.

The threat posed by unexpected weather events and natural disasters remains a near-universal concern, cited by 97 percent of companies this year, roughly consistent with prior years. Extreme weather has battered some of the United States’ most significant oil-producing regions—flooding, tornadoes and blizzards have severely damaged areas of the Southwest, Midwest and Northeast—and with weather patterns expected to remain highly volatile, it seems likely that oil and gas producers may face rapidly growing pressure to protect their operations from potentially catastrophic effects.

The international environment has also grown increasingly troubling over the past few years, with an overwhelming majority (85 percent) of companies pointing to geopolitics and terrorism as significant risks, the highest proportion since 2011. Multiple streams of instability have converged over the last 12 months to create particularly challenging market conditions: OPEC continues to balk at production cuts as it tries to box Iran out as a major industry player; the Islamic State is interrupting operations in a number of oil-producing Middle East states while executing terrorist attacks in the Western world; Russia continues to antagonize Europe and the United States; and Latin America is fighting a deeply painful recession that is stifling efforts to grow its energy sector.

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A significant, and fairly new, area of concern is the threat posed by cyber attacks. Risks associated with data breaches have grown from just 12 percent in 2012 to 74 percent this year, with cybersecurity proving to be a rapidly moving target as bad actors evolve and leverage increasingly sophisticated hacking methods.

Further complicating their ability to manage the ever-growing pool of threats to their businesses, oil and gas companies must also grapple with insurance coverage for these events. Eighty-three percent of companies cite the cost and availability of insurance as a risk this year, consistent with their sentiments over the past several years.

The past two years have clearly placed tremendous strain on the energy industry. After enjoying unprecedented growth and profitability, we’re now seeing companies of all sizes struggle to identify the best way forward in the absence of clarity about what will come next. Common risks and challenges, such as price volatility, stringent regulation and financial stability, have all manifested themselves in very real ways. However, there may yet be a silver lining to the sector’s current troubles: Oil and gas businesses able to make the tough decisions necessary to protect themselves are likely to come out on top when the bust ends and the next boom begins.

“The rate of successful cyber attacks against oil and gas companies is likely to increase as energy companies seek to update their infrastructure and take advantage of new technologies to improve efficiency. While we see the political and legal worlds take steps to help stem the tide of cyber threats, the majority of the responsibility for preventing and responding to attacks lies with the organization itself. The first step is to implement rigorous internal controls and an active response plan should a cyber incident take place.”

Shahryar Shaghaghi, National Leader of BDO Consulting’s Technology Advisory Services Practice and International Head of BDO Cybersecurity
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