



Facing the challenge of transformation in the next decade

Since we published our [midyear outlook](#) in July, the global economy and capital markets have rebounded faster than expected in the third quarter of 2020.¹ However, the pace of recovery in the coming months remains highly uncertain as mounting COVID-19 cases amid winter conditions, especially in Europe and the United States, may trigger a further round of shutdowns and restrictions.² Any further normalization of economic activity largely depends on how the pandemic evolves during the winter and, most importantly, when COVID-19 vaccines reach the general public. Even when the virus is controlled, economies are expected to still have to deal with the adverse impact of deteriorated fiscal balances and the effect of muted business investment on the labor market and consumer spending in 2021.³

What does this mean for the oil and gas (O&G) industry? Global oil demand fell by 25% in April and it has rebounded sharply since then, cutting its losses to just 8%. Looking ahead, 2021 oil demand is expected to recover strongly but remain lower than pre-COVID-19 levels, about 4% lower in the base case and about 7% lower in Rystad Energy's second-wave scenario.⁴ Similarly, oil prices and energy stocks have underperformed base

metals and the broader S&P 500 index by about 10-25% and 6-10%, respectively, between July to November 2020.⁵ Mass layoffs and heightened cyclicality in employment continue to challenge the industry's reputation as a reliable employer. US O&G companies laid off about 14% of permanent employees in 2020, and our research shows that 70% of jobs lost during the pandemic may not come back by the end of 2021.⁶

Although the O&G industry is used to the highs and lows of economic and price cycles, this downturn seems unlike any other. In fact, this downturn is the "great compression" of the O&G industry. With the survival of many companies at risk and the longer-term decline in petroleum demand, the next decade could look very different for the entire O&G value chain. And 2021 will either be a leapfrog year or a test of endurance for many. We see five trends that may challenge the traditional way of operating and working, determine the direction of the industry, and start separating the pioneers from the followers in 2021.



About the study: Deloitte postelection survey

To understand the outlook and perspectives of organizations across the energy, resources, and industrials industries, Deloitte fielded a survey of more than 350 US executives and other senior leaders in November 2020 following the 2020 US presidential election. The survey captured insights from respondents in five specific industry groups: chemicals and specialty materials, engineering and construction, industrial products, oil and gas, and power and utilities.



The corridor of uncertainty

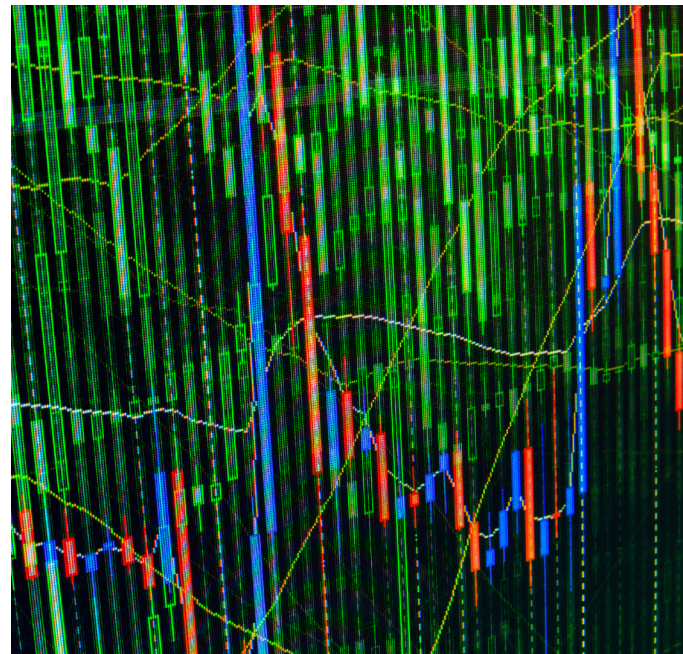
Oil prices are trapped between soft demand and rallying equity markets

The Brent oil price benchmark has reflected inertia at around \$45/bbl since June 2020.⁷ Oil's stability at this price range is reassuring, but its inability to break the upper level (\$50/bbl) despite a bull run in the broader equity and commodity markets is disconcerting. In fact, oil was the worst-performing commodity, falling behind even coal in 2020, and its range-bound behavior has been atypical.⁸ The result: O&G companies remain short of confidence and capital to invest at this price range. What do range-bound oil prices mean for the industry's supply-demand balance?

Oil and gas is a depleting resource with an average annual production decline rate of 6–7%.⁹ Add to that five years of low capital spending and deep cuts in 2020 (global O&G capex is projected to fall by more than 23% year over year in 2020) and we have an industry at risk of underinvestment.¹⁰ Just to replace the annual consumption and offset natural field declines, the industry would need to invest more than \$525 billion annually.¹¹ But will this underinvestment affect 2021 supplies? Probably not, considering OECD crude inventories are still at an all-time high of 2,962 million barrels and OPEC+ nations have 7–8 MMbbl/d of pledged output cuts to be rolled back.¹²

Yet in the medium-to-long term, underinvestment could affect supplies, especially from non-OPEC producing nations. But, unlike in the past, demand (or lack of it) will likely have a larger influence on the future supply-demand balance. Although there is a visible uptick in road traffic, local office commuting and international travel both remain muted: Work-related travel in the United States still remains 35–40% below the prepandemic level.¹³ Even in the base-case scenario, analysts expect 2021 global jet fuel demand to remain below 75% of prepandemic levels.¹⁴

With the risk to both supply and demand, the jury is still out on the future supply-demand balance. In our postelection poll (see “About the study”), 44% of O&G executive respondents expect the oil market to remain in balance, and 33% of O&G respondents expect a high risk of a new supply crunch over the next five years (2020–2025). In light of this uncertainty, what should O&G companies do to guard against downside risk and be ready for any potential upside in 2021? Companies should consider accelerating digital transformation to reduce operating costs, “variablizing” their fixed costs of support functions, maintaining flexibility in their operations, and optimizing their capital allocation for the projects of tomorrow.¹⁵



2

Bail out the shale

Changed market dynamics have altered the financial outlook and portfolio options for US shale operators

Since the start of 2020, US shale companies have written down about \$145 billion worth of assets, and at least 43 operators have filed for bankruptcy protection.¹⁶ Although 5 out of 10 shale operators have been reporting negative free cash flows since 2010, the pandemic and an oil price crash have stripped the industry of its three lifelines: reserve-based lending from bankers (up to 50% fall in borrowing-base redeterminations in 2020), investors' appetite for the shale model (the energy sector is now the second-smallest segment in the S&P 500), and the availability of oilfield service (OFS) firms to optimize the shale boom (many large OFS firms have announced their exit from the hydro-fracturing business).¹⁷

The result: Divestment has become a necessity for many weak shale operators. But even dirt-cheap valuations, especially that of shale assets held by lenders of bankrupt companies, aren't luring many potential acquirers, as the acquirers themselves are focused on preserving cash. In 2020 year to date, shale M&A fell by about 45% year over year to about \$48 billion, with a few buyers even ending or renegotiating their pre-COVID-19 deals.¹⁸ Although the shale market is expected to eventually consolidate, either through acquisitions or bankruptcies, seeking balance in the new normal would test the efficacy of the "shale-only" strategy of many US upstream companies in 2021.

In our survey, only 7% of O&G executives reported that keeping a domestic shale-focused strategy would be the right choice for US shale operators, while 48% of respondents expect some sort of resource or regional diversification from shale operators, including the sale of assets to supermajors. Although both the strategies of concentration and diversification have their pros and cons, operators that go beyond "solving for a market cycle" and challenge their traditional mindset of "this is the type of work we do" would likely emerge as winners in the long term.

Meanwhile, what could keep the US shale industry afloat? Decapitalization, especially of more than 5,500 drilled-but-uncompleted wells, metadata analytics, and a rigorous operational diagnosis that is powered by a new engineering mindset.¹⁹ The US shale industry will likely look different in the next few years—perhaps smaller and dominated by a high-graded or integrated portfolio of data-driven operators. Additionally, the future of US shale could also hinge on how well it inserts itself into a greener future.



3

Crisis accelerates big trends

COVID-19 and the oil downturn have accelerated—not paused—long-term trends, such as energy transition and digital transformation

Of the many immediate reactions to the oil-price crash in March, the prominent one was that low oil prices would slow the energy transition. The logic was that with the oil price under \$40-45/bbl, green energy didn't seem competitive, and O&G companies would have far less “extra” capital to invest in the green energy business. The pandemic caused another reaction—that the industry's low digital maturity, which translates into the need for the technicians and engineers to be on-field, could limit its ability to run its remote operations smoothly.

But the O&G industry has a history of surprising us. The industry accelerated its energy transition, with many O&G companies announcing their net-zero goals at the peak of the pandemic. In fact, supermajors like BP and Shell strengthened their net-zero goals by targeting reduction of O&G production or investment by up to 40% over the next decade.²⁰ OFS companies announced investments in electric pumps and electrification of the road fleet and implementation of many low-carbon solutions.

However, planning for a lower-carbon future won't be easy. O&G companies may have a myriad of green portfolio options to select from in 2021, but not every choice will be economically competitive or give consistent results over the years and across regions. That being said, the hydrocarbon business model still has a lot to offer, especially for resources at the bottom of the cost curve, and can adapt with new clean energy technologies (e.g., carbon capture and hydrogen-based energy storage) that abate emissions on a significant scale. Carbon capture, utilization, and storage (CCUS) and green hydrogen will likely only gain more traction, supported by firmer climate energy policy worldwide and technology advancements.²¹

In addition, digitalization is expected to play a key role in enabling an effective energy transition strategy in 2021. Apart from enabling remote operations and driving human-machine collaboration, digitalization has an important role to play in setting near-term emissions targets, using standardized and credible reporting, and tracking accountability across the hierarchy. Digitalization might also be critical in enhancing employee engagement. With most employees working remotely, companies will need to be more prepared to enhance the engagement of employees and ensure effective knowledge transfer within their organizations. In our postelection poll, 59% of O&G executive respondents highlight the productivity and engagement of employees and knowledge exchange among employees as



the biggest remote working challenges for the industry. Energy transition and digitalization should be the strategic priorities for the organization of the future, and there are many ways in which the one enables the other and the combination of the two creates new and differentiated value for a company and its stakeholders.

4

Is natural gas out of gas?

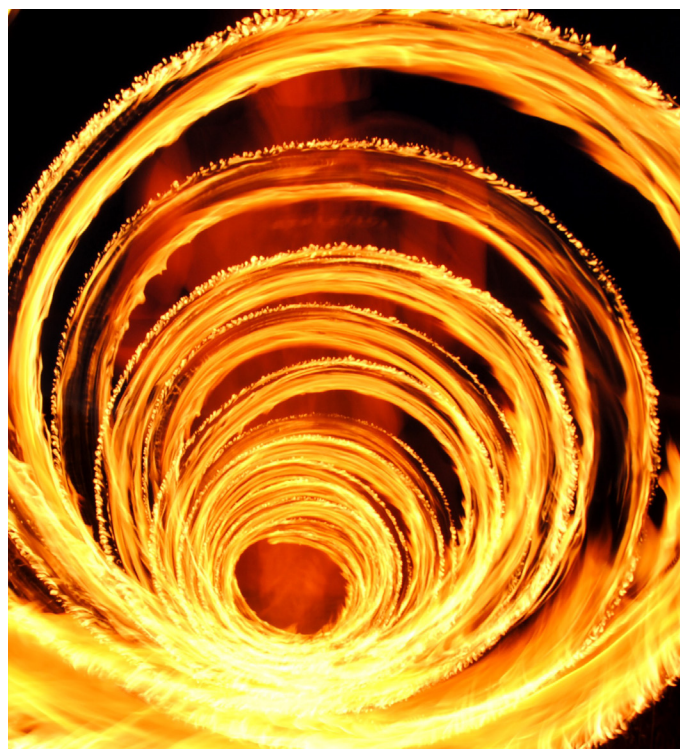
Natural gas is wedged between decarbonization efforts and renewables focus

In 2020, US natural gas prices are expected to average at a 21-year low of about \$2.14/MMBtu, with international gas prices converging within the \$1–2/MMBtu range.²² With the cleanest fossil fuel available at the lowest price, the projected share of gas in the future energy mix should increase over time. Yet, its projected share remains flat at around 25% by 2025–2030, with a few recent outlooks now even predicting a drop to 22–23% in a net-zero scenario.²³ This disconnect is also reflected in our postelection poll findings. Fifty-eight percent of respondents believe that gas will have an essential role in building a clean energy future, while 42% expect a reduced and varied role due to the emergence of alternatives and renewables and the regionalization of industries.

What explains this disconnect, and how should O&G companies plan for the less-promising future of gas in building a green portfolio? Gas seems trapped between O&G companies' decarbonization strategy of focusing on low-carbon fuels and the broader impetus to replace gas with renewables for electricity generation. Other challenges include the ongoing problem of fugitive methane emissions associated with gas and the growing electrification of the broader energy system.²⁴

Industrial demand (not power demand) is expected to become the dominant driver of gas demand. Although gas demand, either as a competitive feedstock or for process heat, is expected to remain strong in the medium term, decarbonization in the industrial sector could pose a long-term threat to gas.²⁵ Eventually, industrial companies may rely on a mix of CCUS, hydrogen, and bioenergy to meet their energy and heat needs. In the long term, gas likely has to decarbonize itself to either pair or compete with other, cleaner fuels.

In the short term, however, natural gas producers (including LNG exporters) should refine their commercial and integration strategies with midstream to build greater resilience and capture new margin opportunities. Higher nonseasonal volatility in natural gas prices is likely to provide more opportunities for value creation through midstream participation. US dry gas producers have this opportunity due to falling production of associated gas from tight oil wells (projected fall of 4% in 2021) and, most importantly, most know how to break even at \$2–2.5/MMBtu.²⁶ The US Energy Information Administration expects US gas prices to average \$3.14/MMBtu in 2021.²⁷



5

Turbulence down the value chain

Overbuilding looms as a growing concern for midstream and downstream

The oil price crash and energy transition aren't the problems of upstream and OFS companies alone. Rising bankruptcies of shale and OFS operators, production shut-ins, and altered urban mobility and international travel patterns have clouded the long-term outlook for US midstream and refining companies. This seems especially worrisome, as these companies have been building infrastructure anticipating growing US tight oil production and higher demand from export markets. More than 30 Bcf/d of new gas pipeline capacity and about 1 MMbbl/d of new refining capacity have come into operation since 2014.²⁸

Volume commitments and typical processing income somewhat safeguard cash flows of midstream and refining companies, respectively, but companies cannot ignore structural changes and still expect to stay healthier than their shale customers. Cash flows from midstream projects, which are typically financed using 50–60% debt, have fallen by 10–15% in tandem with their pipeline utilization.²⁹ Similarly, US refinery utilization rates have fallen from above 90% to 70%, and refiners are witnessing slower-than-expected recovery to 78% through the end of November.³⁰

Considering the numerator of the profitability ratio (cash flows) will remain under pressure amid accelerating energy transition, companies should direct their attention to the denominator of the equation: the assets or the capital. Companies may need to channel their cash flows to rebase their capital, and thus unlock a new capital equation for themselves by:

- Exploring renewable natural gas (RNG) production and delivery opportunities
- Preparing for next-generation technologies including CCUS and hydrogen
- Achieving operational agility by optimizing the crude-to-customer value chain
- Integrating renewables (solar) into existing energy delivery infrastructure
- Diversifying businesses to build optionality across hydrocarbon and clean products
- Converting underperforming assets into storage facilities or renewable plants

In our postelection poll, 31% of O&G executive respondents highlight the integration of renewable energy sources into operations, and 21% of respondents suggest the conversion of existing refining assets as among the most favorable options for US refiners to tackle cyclical shale and the energy transition. Even though these structural changes may happen over



years, cost breakthroughs in technologies such as CCUS and anticipated infrastructure policies of a new US administration could significantly influence their pace of change in 2021.

Petrochemicals, which is a common intersection for both midstream (NGLs as feedstock) and refiners (for downstream integration), offers a promising outlook despite the growing backlash against single-use plastics. But today's bet on advantaged US petrochemicals shouldn't ignore the upcoming competition from mega downstream complexes in the Middle East and Asia that would be better placed to handle the dynamism in demand.³¹ The reverberations of the "great compression" could extend beyond the US shale industry and have a domino effect on the entire O&G value chain.



The future is now, and signs are hidden in plain sight

The O&G industry was facing market headwinds even before the pandemic started. However, the pandemic has turned into a “fast-forward” scenario for the industry, where what might have taken years to happen has instead unfolded in a matter of months. Pivoting to the new energy future could be tough and may require companies to make bold choices—and not everyone will likely succeed. The following signposts could help O&G companies in deciding their strategy and direction in 2021:

- **Stance and commitment of a new administration on clean energy:** Possible policy changes to watch include methane restrictions from O&G facilities, O&G leasing and permitting within federal areas, fuel-economy standards, and investment in building a nationwide, integrated zero-carbon value chain and infrastructure.
- **Changes in end-use demand patterns and supply composition:** Instability in the margin profile and inventory levels of transportation fuels could reflect underlying changes in end-use demand patterns. These can shape refiners’ future configuration and integration plans with petrochemicals. Similarly, it is important to watch who among the United States, Saudi Arabia, and Russia will have an upper hand in the battle of market share.
- **The rise of environmental, socially responsible, and impact investing:** A significant reallocation of capital will likely happen toward sectors and companies that generate a measurable, beneficial social or environmental impact alongside a healthy financial return—and the industry should be ready to capitalize on it for its transformation.
- **Adoption of new talent strategies to succeed in the future of work:** An engaged workforce with new capabilities and high job satisfaction could be critical to realizing the energy transition and digital transformation goals of the industry. How the industry reskills or redeploys its workforce, how it embraces new offshoring and contracting models, and what new digital ways of working and flexibility it offers could affect the pace of transformation.
- **Consolidation in a low-priced environment:** M&A activity can be a leading indicator of a shift in business sentiment, as it typically goes hand-in-hand with strategic transformation, digital acceleration, and financial restructuring in the industry.

The choices O&G companies make in the coming months and the trends they prioritize will decide the path forward and reverberate in their decision-making through the coming decade.

Let's talk



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