Oil and Gas Investment in the New Risk Environment

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By Joseph McMonigle, Alan Thomson, Christof van Agt, Rebecca Fitz, and Jamie Webster

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The International Energy Forum (IEF) is the world’s largest international organization of energy ministers from 70 countries, including both producing and consuming nations. The Forum’s biennial Ministerial Meetings are the world’s largest gathering of energy ministers, underscoring the position of the IEF as a neutral facilitator and honest broker of solutions in the common interest. In addition to its unique global platform, the IEF has a broad mandate to examine all energy issues, including oil and gas, clean and renewable energy, sustainability, energy transitions and new technologies, and data transparency, as well as providing focus to the critical issue of energy poverty.

Founded 30 years ago as a forum to facilitate dialogue between member producing and consuming countries from OPEC and IEA, the IEF now has more member countries than those two organizations combined, from all regions of the world. Member countries are signatories to the IEF Charter, which outlines the framework of the global energy dialogue through this intergovernmental organization. Through the Forum and its associated events, IEF ministers, their officials, energy industry executives, and other experts engage in a dialogue of increasing importance to global energy security and sustainability.
Oil and Gas Investment in the New Risk Environment

The COVID-19 pandemic has created the largest oil and gas demand shock in history, but its repercussions are likely to extend through a future supply shock as oil and gas companies curtail their spending on upstream operations. Although upstream investment has declined sharply over the past year, and is set to do so again in 2021, ongoing demand for oil and gas will necessitate an increase in the near future. Without sufficient investment, a reduced supply of oil and gas could lead to greater market volatility and higher prices, slowing the global economic recovery and jeopardizing energy security, and international goals.

Much Has Happened

COVID-19 has had multiple impacts on oil and gas markets. It has reduced prices and government revenues, significantly lowered demand, and inflated stockpiles of crude and petroleum products. The weaker environment has also led oil and gas companies to cut capital expenditures (capex) in a bid to shore up their balance sheets. The impact of this reduced investment and activity is beginning to be visible in natural gas supplies—a critical fuel for offsetting demand for coal, which has a more carbon-intensive emissions profile.

Unfortunately, these lower capex levels appear to be insufficient to deliver the volumes of oil and gas needed to maintain market stability. Greater investment will be necessary to avoid a future of higher prices and increased market volatility. Inadequate investment would set off another wave of unwanted boom-and-bust pricing. Governments and industry leaders set up the IEF producer-consumer dialogue—whose fundamental aim is to enhance energy market stability, sustainability, and transparency—to avoid this outcome and to support the health of the global economy. The threat of underinvestment looms as governments and consumers feel the pinch of reduced income because of the unprecedented recession. The rising price volatility that this is likely to cause weakens prospects for the inclusive and sustainable economic recovery that producers, consumers, and governments all want.

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Oil and gas companies have cut their capex by a combined 34% in 2020, slightly more than the initial 28% reduction following the price decline that started in 2014. (See Exhibit 1.) Already, companies are indicating that additional capex cuts are likely in 2021, which underscores the uncertainty they face. For our modeling, we assumed a further 20% decline, which is in the range of announcements made at the time of publication. Moreover, we estimate that every dollar of capex that is cut today will have twice as powerful an effect in terms of reducing activity than cuts made following the 2014 fall in prices had. Starting in 2014, oil and gas companies cut capex for two consecutive years. At the same time, service sector companies reduced their costs sharply, which helped to support industry activity. This time around, suppliers have less scope to do that. As a result, the recovery in investments is likely to take longer than it did in the wake of the 2014 price drop.

Because of capex cuts by operators and the inability of suppliers to lower prices, industry capex this year has fallen to levels last seen in 2004, when prices were similar to today’s. The combination of low capex and low prices in 2004 contributed to the subsequent historic high-water mark for oil prices in August 2008, as rapid growth in Asia unexpectedly boosted demand.
Outsized Impact

Every dollar of 2020–2021 capex that is cut will have twice the impact in reducing activity that cuts made after the 2014 price fall had
The COVID-19 era is very different from the early 2000s. First, there is no expectation that a new demand source will turbocharge demand growth. In fact, quite the opposite. Greater energy efficiency, aging economies, and concerns about climate change are likely to reduce future demand growth. Indeed, some commentators believe that oil demand has already peaked. Even if oil demand were to flatten, the industry would still need to make significant investments to compensate for production declines (natural oil and gas production decreases over the life of a well as the deposit it taps is depleted).

At present, neither the International Energy Agency (IEA) nor the Organization of Petroleum Exporting Countries (OPEC) believes that oil demand will peak in the next ten years. Although they disagree on the pace of demand recovery after the pandemic, both believe that another 27 million to 30 million barrels of oil equivalent (mmboe) will be needed by 2022 to close the gap between production declines and demand levels. The IEA and OPEC also expect required volumes to increase to 68 mmboe to 70 mmboe by 2030. Consequently, the key issue in a post-COVID-19 market risk assessment should not be peak demand but peak investment (where upstream investment will not return to previous levels). The topic, therefore, merits closer scrutiny in any dialogue about economic recovery, energy security, and sustainable growth. (See Exhibit 2.)

An analysis by the IEF, in partnership with BCG, suggests that industry investment will have to rise over the next three years by at least 25% yearly from 2020 levels to stave off a crisis. Substantially greater sums will be needed by the end of the decade to ensure sufficient production to guarantee market stability. Even if demand were to peak and begin to decline in the near term, peak demand would still need to be met with increased investment over 2020 levels. In this event, the production gap would still be more than 90% of the gap that would exist if demand continued to grow incrementally.

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It is difficult to determine precisely how markets would react if investment were to remain inadequate. But higher prices and greater market volatility would occur at a time when consumers, companies, and governments worldwide were dealing with the negative economic consequences of the pandemic. Admittedly, with the rollout of an effective vaccine, global demand has the potential to recover rapidly—and indeed, China has already seen a quick rebound in demand. But such a recovery would accelerate the impact of any investment gap. Higher and more volatile prices would reduce the number of people who could afford the cooking, heating, and transportation fuels they...
require, and volatility would further increase uncertainty for companies and governments.

Some commentators argue that reduced spending by oil and gas companies on upstream operations, along with the price rises that would ensue, would increase the pace of energy transitions toward low-carbon sources. Aside from the unequal effect that higher oil and gas prices would have on the world’s population, however, governments would probably see higher fuel prices as a strategic threat. Many would try to increase their reserves and boost domestic oil production in a bid to strengthen energy security. Such actions might increase global upstream investment so that it delivered an adequate supply of oil and gas. But given the energy security concerns that prevail in many countries, the reserves brought online would likely generate a higher level of unwanted greenhouse gas emissions than if pure economics held sway.

**Market Stability**

Without increased investment in upstream oil and gas projects, intra-annual price ranges could widen as a COVID-19-induced demand shock triggered a new boom-and-bust cycle. Owing to changes in the project cycle for oil and gas investments, as well as to macroeconomic changes, several mitigating factors would likely limit the duration and magnitude of most price spikes:

- **More production now comes from less investment.** Because the industry has removed significant costs from upstream operations since the price downturn of 2014, twice as much production is available at $50 per barrel as was available prior to the downturn. Further cost reductions are possible, but they would take more effort and would require companies to fundamentally change their operations. To achieve these reductions, companies would also need to leverage wide-ranging digital solutions to drive down costs. In addition, a period of industry consolidation and post-M&A integration could accelerate the move toward lower costs.

- **Projects are faster.** The shale revolution increased supply and shortened timelines to initial production. Although the reduced time to first oil was partly the result of unconventional drilling techniques and resources, shale provided examples and lessons for other asset types—including conventional and deepwater offshore projects—as well. These asset types are now able to come on-stream faster, in some cases up to 50% faster.

### Exhibit 2 - The Most Critical Long-Term Risk to the Industry in the Aftermath of COVID-19 Will Relate to Peak Investment

**Demand and supply gap with no new investment**

Millions of barrels per day

![Diagram showing oil demand and supply gap with no new investment](image)

**Additional production needed to offset declines**

- **2022:** 27 mmboe/d of new production needed if demand recovers slightly
- **2030:** 68 mmboe/d of new production needed if demand recovers and continues growth at lower than the historic average
- **2030:** 51 mmboe/d of new production needed even if demand peaks

Sources: IEA; OPEC; BP.

**Note:** Dotted lines connect organization-provided forecasts. (e) = estimated; mmboe/d = million barrels of oil equivalent per day.
1IEA stated policy scenario.
2OPEC reference case.
Speedier Projects

Short-cycle and faster FID-to-first-production projects are now preferred over larger-scale, slower, capital-intensive projects
Because companies can ramp up new production more rapidly when markets tighten, their faster development cycles can reduce the duration of any price spike. This situation differs markedly from the 2008 price runup, when companies ramped up investment to meet incremental demand, but projects couldn’t come online as fast.

- **Projects are smaller.** Smaller projects deliver lower volumes, but they also reduce the operator’s financial risk. This helps speed up investment decisions, which, in turn, shortens the duration of any price spike as quicker decisions enable new production to hit the market faster.

- **Demand growth is likely to be lower and have greater elasticity.** Annual demand growth has averaged approximately 1.2 million barrels per day (mmb/d) for the past 20 years. Over the next 20 years, this level of demand growth is likely to drop, potentially by quite a bit, which will reduce the amount of incremental production that companies must bring on-stream to balance the market. In addition, some countries have increased retail fuel prices or reduced subsidies so that end users feel the impact of price changes earlier than in the past, increasing elasticity.

Still, these factors do not eliminate the possibility of a sharper spike or an extended period of elevated prices. Indeed, several changes in the industry tend to increase the likelihood of price spikes and more prolonged elevated prices, beyond the impact of sharply reduced investment by operators:

- **Limited service sector cost cuts increase the impact of lower capex.** In 2014, responding to demands from operators, service sector companies reduced their costs, often by 30% or more, as operators cut capex. As a result, a $1 cut in capex diminished actual activity by just 34 cents. In 2020, however, we calculate that a $1 cut in capex reduces activity by 87 cents, since service companies are cutting their costs only slightly. In addition, as some service companies are shuttered or absorbed into other companies, the risk of losing service sector capability is increasing. Reduced levels of capacity, innovation, and investment resulting from a weakened and more consolidated industrial base could slow the market’s response to higher prices.

- **Heightened investor expectations may hamper oil and gas companies’ ability to respond with higher investment when the market requires it.** This factor has at least four distinct facets that may have problematic effects. First, investors are putting greater pressure on oil and gas companies to reduce their carbon footprints at the same time that regulatory requirements for new upstream infrastructure investment are becoming more stringent. Second, recognition that the energy business is changing is causing some companies to alter the way they allocate capital, resulting in greater intra-company competition for scarce investment dollars and reducing the willingness of companies to increase investments in upstream projects during periods of greater price volatility. Third, investors—particularly in the shale space—are increasing their demands for real returns, which reduces the amount of capital available for future investment and puts upward pressure on the hurdle rates needed for project approvals. Fourth, oil and gas companies’ debt levels are at all-time highs, hampering their ability to invest and leading to a higher cost of capital.

Without increased upstream investment, the supply-and-demand balances in oil and gas could tighten faster, causing price levels to trend higher in a more volatile energy market. (See Exhibit 3.) This could result in more frequent short-lived price spikes or more prolonged upward price pressure that would deepen the negative economic impact of COVID-19, slow the global economic recovery, jeopardize the prospect of inclusive and sustainable growth, and erode energy security.

### Several changes in the industry increase the likelihood of price spikes and more prolonged elevated prices.

However, although every dollar of capex removed has a greater impact on activity levels today than in the past, any additional upstream investment will generate increased production much faster. For this reason, we do not envision a return of the super price spike of 2008, nor multyear periods of $100+ pricing, as the industry—if it can raise sufficient capital—possesses greater elasticity on both the supply side and the demand side, aided by vastly increased storage capacity since the 2014 price downturn.

### The Impact of Short-Term Risks on Longer-Term International Goals

Many governments are using the COVID-19 pandemic as a pivot to accelerate responses to climate change, create new opportunities for employment, and achieve global sustainable development goals in which social equity plays a central role. More than 120 countries—along with several US states—have adopted ambitious, forward-looking policy agendas aimed at achieving net-zero greenhouse gas emissions, as have international, national, and independent oil and gas companies in Europe, Asia, and the US, either as members of the Oil and Gas Climate Initiative (OGCI) or independently. No doubt more will follow.
More than 120 countries have adopted policy agendas aimed at achieving net-zero greenhouse gas emissions.
But deep investment cuts and project deferrals by oil and gas companies risk undermining policymakers’ long-term post-COVID-19 goals and industry strategies.

**CLIMATE CHANGE**

It is essential that the world achieve the Paris Agreement climate goals as soon as possible. Unfortunately, factors ranging from stricter government policies to weaker public acceptance of the oil and gas industry are increasing the difficulty of investing in upstream oil and gas and clean energy technologies, on which both market stability and climate goals depend. Elevated market volatility due to insufficient upstream investment hampers efforts to mitigate climate change and to achieve the industry’s other environmental policy objectives.

In the US, owing to the inexpensiveness and wide availability of natural gas, coal use in electricity generation has declined by nearly 50% since 2008. Low-priced natural gas can be a key enabler for cutting emissions, especially in countries that depend on coal.

All energy demand trajectories show continued global reliance on oil and gas for some time to come. Given this backdrop, peak investment—and the elevated oil and gas market volatility it entails—would reduce the industry’s ability to finance and deploy clean energy technologies that are necessary to balance the world’s continued dependence on hydrocarbons with the need to comply with regulations governing climate change mitigation. Stricter policies and regulations prematurely limiting the industry’s social license to operate and introducing a narrow focus on renewable technologies would discourage investment in broader clean-energy initiatives and diminish upstream returns that the industry needs in order to innovate, reduce greenhouse gas emissions across oil and gas value chains, and successfully transform global energy markets over the coming decades.

Beyond the OGCI and other industry-led approaches, global initiatives spearheaded by governments, such as the recent Circular Carbon Economy (CCE) Platform, show how much progress is possible when policymakers include the oil and gas industry in the climate change equation. The CCE Platform has increased international policy cohesion by widening the range of potential solutions beyond renewables and creating a sharper focus on technologies for managing greenhouse gas emissions in the oil and gas industry. The G20 energy ministers endorsed the platform at their September 27–28 meeting, and the participants in the G20 Leaders’ Summit did so at their November 21–22 meeting. It encourages producers and consumers to increase investment in technologies that reduce, recycle, reuse, or remove carbon dioxide from oil and gas value chains on which the global economy will continue to rely.

**Exhibit 3 - Insufficient Upstream Investment Would Once Again Increase Oil Prices and Volatility**

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Social Equity
COVID-19 has claimed more than 1 million lives worldwide and is responsible for income losses exceeding those of any previous non-wartime recession over the past 100 years. Even before the pandemic, an estimated 1.3 billion people worldwide had no access to electricity; 2.8 billion lacked access to clean cooking fuels; 2.5 billion had no clean water; 800 million lived in extreme poverty, with a daily income of less than $1.90 as measured in 2011 international prices; and air pollution inside buildings caused 4 million premature deaths annually (exceeding current COVID-19 mortalities), according to UN figures. COVID-19 will significantly worsen these numbers and widen generational, gender, and income divisions. Indeed, the UN predicts that the number of people facing acute hunger may double to 265 million by the end of this year.

Beyond the loss of life and livelihoods and the worsening plight of the world’s poorest that the coronavirus has caused, its negative economic impact exceeds that of the 2008 financial crisis. Global growth will decline to –4.4% in 2020, according to International Monetary Fund projections. People employed in the informal economy, younger workers, and lower-skilled workers are most affected by the economic downturn and are at risk of remaining unemployed for an extended period of time.

Against this backdrop, reduced upstream spending by oil and gas companies and tighter investment constraints will make achieving global goals such as affordable access to modern energy services and healthy living conditions more costly and more challenging, increasing social disparities worldwide.

Jobs and Talent
COVID-19-induced jobs losses in the oil and gas sector may be as high as 400,000 in 2020, according to preliminary industry estimates, and many of the affected positions will not return. The layoffs are likely to worsen human resource constraints in an industry that has an aging workforce and struggles to attract younger talent.

Reductions in investment are likely to force companies to lay off highly skilled employees, further diminishing the attractiveness of the industry as a reliable employer that offers fulfilling career opportunities. The industry already faces a skills shortage as recent university graduates choose other employment options and mid-career professionals seek job opportunities outside oil and gas.

The industry’s poor employment prospects have multiple causes. But peak investment would worsen the situation at a time when companies need new thinking to apply digital tools, create efficiencies, and help solve the fundamental problem of how to meet ongoing demand for oil and gas while investing in cleaner and more high-performance fuels and innovative technologies.

Energy Solidarity, Dialogue, and Data
Superficially, it may seem that the industry has made successful supply adjustments and is benefiting from persistently high inventory levels in a world with abundant oil and gas supplies. In reality, however, the COVID-19 pandemic has deepened an investment crisis that already existed and is unprecedented in the history of energy markets. This crisis risks eroding energy security and jeopardizing the prospect of inclusive, sustainable growth. It also threatens to undermine the industry’s ability to attract talent and create the jobs that are essential to the oil and gas sector’s ability to transform at scale and help achieve global climate change mitigation goals, improve energy access, reduce energy poverty, and raise living standards worldwide.

The pandemic has deepened an investment crisis that already existed and is unprecedented in the history of energy markets.

Formidable cost and policy barriers to investment, together with an unfamiliar risk environment, will make the oil and gas industry more vulnerable and will slow its recovery from the effects of COVID-19. If left unaddressed, peak investment would have the following impacts:

• **Supply-and-demand balances will deteriorate faster**, and price levels may trend higher in more volatile markets, reducing the likelihood of an inclusive economic recovery and more sustainable growth globally.

• **Social disparities worldwide will increase**, as tighter constraints on oil and gas investment make achieving energy access and energy poverty reduction goals more costly and challenging.

• **Layoffs and more limited employment opportunities will worsen the sector’s existing human resource constraints**, reducing its ability to attract talent, innovate, and change.

• **Risks to global energy security will rise**, as market stability and resilience increasingly depend on a single geography and as the share of low-cost producers grows, reducing the diversity of market participants.
Reduced upstream spending and tighter investment constraints will make achieving global goals more costly and challenging.
A lack of incentives for producers to increase investment shortly after this low cycle will delay and weaken the restoration of market balances that are necessary to promote global economic recovery and support global sustainable development and greenhouse gas emissions reduction goals.

In a fundamentally new risk environment, stakeholders can help the oil and gas industry address its investment crisis—and stave off the danger of peak investment—through renewed partnerships, better articulation of the industry’s narrative to investors and consumers, and international cooperation and dialogue. In particular, such dialogue should focus on three objectives:

- **Build on existing goodwill and trust** that oil and gas companies and investment partners in producer and consumer countries have established over recent decades.

- **Enhance market transparency over longer investment horizons** by deepening stakeholders’ insights into energy policy and technology trends, while emphasizing inclusiveness and reliable data.

- **Strengthen cohesive international responses** to rising risks related to energy security, climate change, energy access, and environmental health in a densely interconnected, rapidly changing global energy market.

Enhanced dialogue and collaboration between oil and gas producers and consumers are essential to shaping appropriate government policies and industry strategies. Reducing hurdles to investment by resisting the temptations of protectionism and uncoordinated solitary actions will help unlock the trillions of dollars that oil and gas companies and the wider energy sector need in order to safeguard a secure, sustainable, and affordable energy market that can power the world economy.
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