





Walking the tightrope— vigilance required to keep moving forward in 2020

As we, once again, move from one year to the next, how do we assess the oil and gas and chemical sectors' performance in 2019 and its prospects for 2020? As always, there are headwinds and tailwinds, risks and opportunities, uncertainties and foreseeable trends, but in this report we aim to take stock of the main factors to watch for in 2020 across the diverse oil, gas, and chemical industry. Over the past decade, we have seen the heights of bullish optimism and seemingly limitless investment during the years of the \$100 per barrel world, from 2011 to mid-2014, and the lows of the price crash and extended oil downturn, from mid-2014 to 2017. Neither extreme seems in the cards for an imminent return as the industry has learned valuable lessons from both episodes, but uncertainties are clearly still a challenge to performance and investment.

As we evaluate the most prominent trends and issues for the oil and gas and chemical sectors in this outlook, executives in these businesses seem keenly aware of wider macroeconomic and business environmental risks, which seem to be gaining strength. Among these are:

- Weakening economic growth, not only in the United States but also in Europe and China;
- Ongoing, perhaps intensifying, trade tensions, which can create uncertainty, dampen growth, and lead to modifications in long-established supply chains; and
- The many political risks, of course, including the US election cycle, the outcome of the Brexit process in Europe, and tensions in the Middle East between multiple states and non-state actors with different objectives.

And, while walking the tightrope across these shifting sands in 2020, fundamental changes in the long-term business environment could become more salient. So, attention to the coming disruptive forces associated with this century's energy transition and sustainability imperatives is increasingly crucial alongside day-to-day positioning.

1

Market fundamentals**Trade and economic headwinds are causing uncertainty for fuel markets**

Since the 2014 price crash, global fuels consumption has grown at a rapid pace, but trade disputes and a slowdown in economic growth could weigh on 2020 oil market fundamentals. Demand is not the only concern, as US shale has continued to be the biggest single source of production growth year after year as investment dried up in many regions, and OPEC has pushed to balance the markets.

Deloitte forecasts that US GDP growth will slow in 2020, with a 25 percent chance of recession and only 10 percent chance that growth in 2020 will match recent years. Globally, the picture is not too different as there are a number of countries facing economic headwinds. Trade disputes have expanded to include not just Asia, but also Europe, and high debts and weak currencies in several countries do not bode well. Demand for refined products, and therefore oil, tends to track the global economy—if the latter begins to slow, the former will likely as well. Furthermore, regulatory changes like IMO2020 could lead to near-term changes in product demand, changing the types of crude needed to meet the potential rapid increase in marine gasoil to meet lower-sulfur fuel requirements. Refiners could find themselves pinched not by not having enough IMO2020-compliant low-sulfur fuels but by having too much product overall.

However, unlike previous years where US shale production continued to grow even as prices were low and volatile, we have seen a number of operators focus on capital discipline in the face of poor market sentiment, investor skepticism, and cash-flow constraints. If production from the Permian moderates in 2020, and that is quite uncertain, it would make OPEC's job easier. The mid-2019 OPEC and non-OPEC country (e.g., Russia) agreement cut targets by 1.2 million barrels per day, but global oil and fuels stocks rose in 2018 and 2019. Lower shale output along with OPEC's quotas could bring the market in balance in 2020 and act as a cushion against weakening prices.



2

Global oil supply

Increasing security and decreasing demand of global oil supply

The historically important issue of global oil supply security returned to the forefront of industry attention in mid-September 2019, when an attack on critical facilities in Saudi Arabia resulted in the largest single supply disruption since the Gulf War of 1991. And yet, market disruption was largely avoided, with prices rapidly reverting to their recent trading range after a one-day surge. And, even though this event was dramatic, the global market has also seen the slower-moving decline of supply from two other major producers—Iran and Venezuela; the first largely because of economic sanctions, the second mainly due to both sanctions and the ongoing degradation of investment and operating conditions in the Venezuelan oil sector. So, should security of supply be a bigger concern in 2020? There are a number of factors in play that could reduce supply risk in the current market environment:

- Growing supply from Western Hemisphere producers—the United States and Brazil are both delivering growth in supply barrels from onshore shale plays and deepwater plays, respectively. Together, they added 1.4 million b/d of liquids supply (including crude oil, condensates, and NGLs) in the first nine months of 2019.¹ The Canadian oil sands can also deliver more barrels from current projects if required by the market.
- Healthy commercial crude oil inventories in OECD countries, standing at 2.9 billion barrels in September 2019²—seemingly enough to offset a lengthy supply disruption if needed.
- The production restraint agreement between the OPEC and non-OPEC Vienna agreement countries is still in place, preserving spare production capacity—if needed, adjustment to add barrels back to the market in tight supply conditions would very likely be accommodated.

If we also assume that a lower-demand growth outlook is quite possible in 2020, as a result of potentially weakening global economies, then we could conclude that supply security is reasonably robust, even in the face of security risks in some key producing countries.



3

Liquefied natural gas (LNG)**LNG volumes are up, but sanctioning new projects will be hard**

US LNG export growth has been near exponential since 2016, exceeding 5 billion cubic feet per day (bcfd) for the first time in 2019.³ It has not stopped growing yet, and once the current projects under construction are completed and fully ramped up, export capacity could hit 10 bcfd by 2021. While European and Asian prices are at decade lows, Henry Hub prices remain even lower, supporting the competitiveness of US LNG exports into a soft global gas market. This has cut into profits for existing exporters, but it poses a bigger challenge for project developers looking to sanction in 2020—and it is not the only headwind on the horizon.

US LNG projects' value proposition historically has been based on three things. First, access to a highly liquid and interconnected, low-price natural gas market. Second, contracts with flexible destinations and multiple pricing mechanisms. Third, lower, less volatile, delivered costs than many competing oil-indexed projects have built in recent years. This is likely to change for the second wave of US LNG.

While the US gas market remains a key strength for domestic developers, the contract terms are no longer as differentiated as they once were, with competitors willing to provide flexibility in a buyers' market. Add in tariffs and low oil prices, US cargo pricing is not as attractive as it once was. That has not stopped the market. A number of projects were sanctioned in 2019, both in the United States and internationally, but most were either brownfield or sold without long-term offtake contracts. This is not an option for greenfield developers relying on project financing. Instead, finding anchor buyers in 2020 is expected to be key. The global gas markets are soft today but could tighten in the next few years, and new projects will need to be sanctioned to meet future demand.



4

Financial markets**Oil and gas investors are expecting increased efficiencies despite slowdown**

For oil and gas companies, especially American shale companies, 2019 has had impressive volume growth, moderate capital spending, weak operating cash flows, and a patient investor base awaiting a turnaround. But even with dividend yields of highly rated supermajors (above 4 percent) and well-capitalized US midstream companies (close to 7 percent) listed higher than many risky junk bonds in the market, outside investment into the industry remained muted. In fact, the market capitalization share of the oil and gas industry in the listed companies worldwide fell to an all-time low of about 4.5 percent in late 2019.⁴

The reasons for the industry's falling attractiveness to financial markets go beyond low and volatile oil prices and trimmed demand growth for the long term, which everyone, including investors, seems to have accepted and now sees as the new normal. Growth at any cost, lopsided relationships between operators and vendors, and shifting priorities in capital and cash-flow balancing (debt, investments, and distribution) hampered investors' confidence and the industry's attractiveness. Actually, a prudent financial management strategy driven by operational and technological leadership could be key to retain or win back investors' trust; and, while many companies have made excellent progress here, financial markets are still holding back to see if prudent financial performance can be sustained.

With gains in well productivity slowing down in shale plays and fears of global economic slowdown, 2020 will likely be another challenging year for the industry. Investors are expected to be closely watching how shale operators improve their capital efficiency, which through optimal completion designs can be enhanced by about 20–25 percent in key shale basins.⁵ They will also likely pay attention to how the associated subsectors, primarily oilfield services and infrastructure providers, can help operators bring in new efficiencies and save costs without compromising their margins and sustainability.

The display of operational leadership by oil and gas companies and the patience of investors in finding and investing in these companies can turn out to be a huge opportunity for both in 2020. According to our ten-year analysis of 1,450 US manufacturing companies, a dollar increase in a company's free cash flows has resulted in 1.6 times the increase in its market capitalization.⁶ Everyone wins when the focus is on operational excellence and financial discipline.



5

Emerging longer-term disruptive trends**The energy transition is gaining momentum in the oil and gas sector**

Fossil fuel demand is widely expected to peak around the midcentury, but there is not a clear consensus about when. Some forecasts project combined oil, gas, and coal consumption to plateau by 2030, whereas others do not see a peak until after 2050. Uncertainty is not new to the industry. Oil and gas companies are used to uncertainty not only in high-level outlooks and scenarios, but also in commodity prices, technologies, and geopolitics. The energy transition, however, poses entirely new challenges for these companies and could prove disruptive to long-standing market structures, value chains, customer preferences, and the economic drivers for the oil and gas business.

Despite the robust discussion in recent years, the risk posed by stranded assets is not front and center. The real challenge is that the oil and gas companies of today, many of which aspire to be the broad-based energy companies of tomorrow, will need to figure out how to produce more oil and gas (and increasingly power) year after year while also being carbon-conscious and addressing stakeholders' sustainability concerns.

That is not expected to be an easy task, but there are at least four concrete steps companies can take in the near term. First, companies should identify low-hanging fruit for reducing greenhouse gas emissions like eliminating methane leaks from existing infrastructure. Second, a few have deployed renewables to reduce emissions from field operations; more companies should follow suit. Third, CO₂ enhanced oil recovery could be an avenue to boost production while sequestering carbon, but it remains a niche industry today—more companies should evaluate such opportunities. Lastly, fresh water use and waste water disposal continue to challenge shale producers; more should invest in the infrastructure to sustain operations not just in 2020 but for years to come.

The energy transition is a long-term trend, but we have seen a greater focus on this in 2019, which we expect to gain momentum in 2020. Decisions made now can help companies better position themselves for the decades ahead, to thrive by anticipating disruptive change rather than reacting to it too late.



Chemicals and specialty materials sector

Looking at 2020 through the rear-view mirror

In Deloitte's 2010 report, *The decade ahead: Preparing for an unpredictable future in the global chemical industry*, we laid out three scenarios of possible paths along which the global chemical industry might evolve by 2020. Out of these three, the “resilience” scenario most closely resembles what we have witnessed during the last nine years. The “hits” were (1) the industry witnessing strong recovery, (2) governments guiding investments and national competitiveness, and (3) companies meeting increasingly stringent regulations, focusing on energy efficiency and fossil fuel alternatives. However, the “misses” we didn't clearly foresee were (1) the rise of the United States as a major low-cost producer of base chemicals, (2) lower and more stable feedstock prices, and (3) the geopolitical rivalry between the United States and China.

But as it was in 2010, and so in 2019–2020, the fate of the global chemical industry remains inevitably tied to end-markets demand, price volatility of key feedstocks, trade and regulatory barriers, and sustainability. This is reflected in the latest readings of the Chemical Activity Barometer (CAB)—a leading indicator of macroeconomic activity—that show a declining trend on a year-over-year basis.⁷ Chemical sales are slowing down due to not only trade tensions between the United States and China but also mixed signals about domestic manufacturing activity. In fact, US industrial production has been on the decline for the past few months—a trend that will likely continue for the rest of 2019 and into 2020. This is also reflected in the chemical industry's revenue and margin growth trends, which have dipped in the first half of 2019.⁸



End markets

Chemical companies seeking new opportunities in end markets

Chemicals activity and industrial production are closely tied to the major end markets such as construction and automotive. Despite recent positive gains experienced in construction-related resins and pigments, housing starts in the United States show signs of weakening growth.⁹ The latest projections also highlight this trend: From an average of 1.24 million housing starts per month through 2019 year to date, the US housing starts is projected to drop to about 1.07 million in 2020, a year-over-year decline of 14 percent.¹⁰ While a slight rebound in US car production was witnessed in recent months, midterm projections indicate flat-to-declining US auto production through 2020—stagnating at around 2.8 million units per quarter.¹¹ This not only indicates lower consumer spending on new automobiles but also how that spending is increasingly redirected toward buying used cars and electric vehicles (EVs), as well as using ride-hailing services.

Given these impending headwinds faced by the chemical industry going forward, it only makes sense for chemical companies to find new growth opportunities and extract more out of their existing assets and resources. They can do so by investing more in innovation—not only in new product or technology development but also in new business models. In addition, niche markets within key end-use industries might provide newer growth avenues for chemicals and plastics. For instance, the average plastics content in an automobile still stands below 10 percent, providing an opportunity to incorporate more high-performance plastics and other chemicals into newer vehicle models.¹²



2

Chemical production

Expansion of chemical production capacity is leading to oversupply and margin pressures

2020 is expected to be challenging because of overcapacity due to commissioning of new capacity and lower plant utilization rates (less than 85 percent).¹³ Spurred by low-cost shale gas availability in the United States, many petrochemical companies' expansion projects along the US Gulf Coast have been completed in the latter half of 2018 and early 2019. In fact, 334 projects, amounting to \$204 billion, have been announced, completed, or in works since 2010, which are directly linked to US shale gas.¹⁴ In addition, with the commercialization of crude-oil-to-chemical technologies, the issue of oversupply may get exacerbated in 2020 and beyond, especially for heavier base chemicals.

How can chemical companies respond to oversupply and the resulting margin pressure? Efforts should be directed toward driving higher process efficiencies and enhancing cost savings across the chemical value chain with the help of digital technologies. Increasing downstream synergies might also be explored with integrated oil and gas and commodity chemical companies venturing further into the specialty chemicals space through bolt-on acquisitions to weather the downturn. 2019 year to date has also witnessed a lower number of divestitures (compared to 2018) as companies rationalize their product portfolios and comply with regulations—a trend that will likely continue in 2020 though at a lower intensity.



3

Trade**Trade disputes are exacerbating the effects of slowing chemical demand growth**

The ongoing trade dispute between the United States and China will likely continue to impose an element of unpredictability to chemical demand, thereby impacting investor sentiment and the overall growth outlook. Increased tariffs on Chinese chemical imports into the United States have the potential to negate the low-cost advantage enjoyed by US chemical producers. Moreover, the retaliatory tariffs imposed by China on US chemicals and plastics caused a 24 percent decrease in US chemical exports in 2018 compared to 2017.¹⁵ In addition, this raises the access barriers to the Chinese market wherein US chemicals and plastics are in high demand. There is an additional threat of China readjusting its chemical supply chains to reduce its heavy dependency on US chemical and plastics imports. This will likely threaten the demand for US chemicals as China remains the biggest market for chemicals, especially petrochemicals, for which it doesn't have enough domestic capacities.

In the face of such uncertainty, it will be important for chemical companies, especially those with the United States as their base manufacturing location, to be prudent in planning new capacity expansions. Only time will tell if these companies will move their announced US petrochemical projects to a different location, like the Middle East, South Asia, or the Far East.



4

Sustainability**Consumer activism and environmental regulations are further directing chemical companies toward sustainability**

The recently announced phasing out of some single-use plastics—bags, straws, and cups—in several countries and many US states provides a glimpse into the potential of such moves to disrupt the chemicals business. Consumer activism has picked up in recent years forcing consumer products companies to form consortiums and join alliances to make their packaging environment-friendly by a certain target year. This involves moving away from single-use plastics; making plastics packaging reusable, recyclable, and compostable; and creating a circular economy loop to increase the recyclable content in new plastics packaging.¹⁶ In addition, this involves revealing the data pertaining to plastics production and plastics waste generated by these companies, bringing an altogether new level of transparency to the public eye.

As we step into the next decade, the adoption of sustainable practices is expected to gather pace. There is an existing \$120 billion market opportunity in the United States and Canada alone for plastics and petrochemicals that could be developed by recovering waste plastics.¹⁷ Chemical companies will likely be at the forefront of such sustainable practices by developing processes such as closed-loop recycling, in which polymers can be chemically reduced to their original monomer forms so that they could be processed or re-polymerized and remade into new plastic materials. In addition, alternatives at chemical companies' disposal include materials that are more easily recyclable or bio-based. However, as it is not easy to substitute materials because companies invest heavily in manufacturing capabilities, switching to alternatives should be carried out in a way that adds value to forward progression. And from a long-term standpoint, it is important that while chemical companies and consumer brand owners develop products with recycled materials, consumer behavior also shift toward embracing and using such products.



2020: Balancing the short- and long-term needs

How can company executives remain vigilant to the many risks and uncertainties clouding the outlook for 2020 while standing ready to embrace new opportunities for profitable growth in an evolving market landscape, which might look quite different in the next decade and thereafter, as disruptive forces accelerate? We see signs that many of the lessons from oil and gas of the large swings in the price environment and from chemicals of market dislocations have been taken on board, and these industries, as a whole, are better equipped to face the future than they have been at any time in the past decade. While carefully building capabilities for the long-term future around the energy transition and the circular economy (and demonstrating these to the investor community and other stakeholders), financial discipline and prudent investment strategies should help stabilize performance and reassure financial markets in the near term.

Endnotes

1. "International petroleum and other liquids production, consumption, and inventories," US Energy Information Administration, October 8, 2019, <https://www.eia.gov/outlooks/steo/tables/pdf/3atab.pdf>, accessed October 24, 2019.
2. Ibid.
3. "US natural gas exports and re-exports by country," US Energy Information Administration, https://www.eia.gov/dnav/ng/ng_move_expc_s1_m.htm, accessed October 24, 2019.
4. Deloitte analysis of all listed firms worldwide, data pulled on October 7, 2019.
5. Deloitte, "Moving the US shale revolution forward," October 2019, <https://www2.deloitte.com/us/en/insights/industry/oil-and-gas/us-shale-revolution-playbook.html>.
6. CapitalIQ and Deloitte analysis.
7. ACS and American Chemistry Council (ACC), *Energy and Chemicals Outlook*, June 2019.
8. Deloitte analysis of top publicly listed US-based chemical companies, data extracted on October 8, 2019.
9. ACC, "Chemical Activity Barometer Rises in September," PR Newswire, September 24, 2019, <https://www.prnewswire.com/news-releases/chemical-activity-barometer-rises-in-september-300923979.html>, accessed October 9, 2019.
10. Trading Economics, "United States Housing Starts," <https://tradingeconomics.com/united-states/housing-starts>, accessed October 10, 2019.
11. Trading Economics, "United States Car Production," <https://tradingeconomics.com/united-states/car-production>, accessed October 10, 2019.
12. Alexander H. Tullo, "Plastics makers plot the future of the car," *C&EN* 95, no. 45 (November 13, 2017): pp. 21–23, <https://cen.acs.org/articles/95/i45/Plastics-makers-plot-future-car.html>, accessed October 11, 2019.
13. ACS and ACC, *Energy and Chemicals Outlook*, June 2019.
14. ACC, "Shale Infographic," May 2019, <https://www.americanchemistry.com/Shale-Infographic/>, accessed October 11, 2019.
15. ACC, "Proposed Modification of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation," June 17, 2019, <https://www.americanchemistry.com/ACC-Section-301-Public-Comment-USTR-List-4-June2019.pdf>, accessed October 11, 2019.
16. Sandra Laville, "Coca-Cola admits it produces 3m tonnes of plastic packaging a year," *Guardian*, March 14, 2019, <https://www.theguardian.com/business/2019/mar/14/coca-cola-admits-it-produces-3m-tonnes-of-plastic-packaging-a-year>, accessed October 12, 2019.
17. Closed Loop Partners, *Accelerating circular supply chains for plastics*, April 2019, https://www.closedlooppartners.com/wp-content/uploads/2019/04/CLP_Circular_Supply_Chains_for_Plastics.pdf, accessed November 13, 2019.

Let's talk



Duane Dickson

Vice Chairman
US Oil, Gas & Chemicals Leader
Deloitte LLP
rdickson@deloitte.com
+1 203 905 2633

Duane Dickson is a vice chairman and principal in Deloitte Consulting LLP's Energy, Resources & Industrials industry group, as well as the US Oil, Gas & Chemicals sector leader and the Global Energy, Resources & Industrials Consulting leader. Formerly, he was the Global Chemicals & Specialty Materials sector leader for Deloitte Global. Duane served as a World Economic Forum project advisor and as its chemical community lead, chemistry and advanced materials. He focuses on providing services in corporate and growth strategies; acquisitions, divestitures, and carve-outs; and general management, working primarily with chemicals, materials, industrial products, consumer packaged goods, medical devices, and safety equipment industries.

Duane has more than 38 years of business and consulting experience in senior leadership positions in major industrial and healthcare products companies. Duane also has extensive experience serving as a senior executive focusing on operations and transactions.

Duane holds a bachelor's degree in Business Administration from Southern Methodist University. He also completed the Advanced Management Program at London Business School.



About this publication

This publication contains general information only and Deloitte is not, by means of this publication, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services. This publication is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your business. Before making any decision or taking any action that may affect your business, you should consult a qualified professional advisor. This publication is solely for educational purposes. This publication should not be deemed or construed to be for the purpose of soliciting business for any of the companies/organizations included in this publication, nor does Deloitte advocate or endorse the services or products provided by these companies/organizations. Deloitte shall not be responsible for any loss sustained by any person who relies on this publication.

About the Deloitte Research Center for Energy & Industrials

Deloitte's Research Center for Energy & Industrials combines rigorous research with industry-specific knowledge and practice-led experience to deliver compelling insights that can drive business impact. The Energy, Resources, and Industrials industry is the nexus for building, powering, and securing the smart, connected world of tomorrow. To excel, leaders need actionable insights on the latest technologies and trends shaping the future. Through curated research delivered through a variety of mediums, we uncover the opportunities that can help businesses move ahead of their peers.

About Deloitte

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as "Deloitte Global") does not provide services to clients. In the United States, Deloitte refers to one or more of the US member firms of DTTL, their related entities that operate using the "Deloitte" name in the United States and their respective affiliates. Certain services may not be available to attest clients under the rules and regulations of public accounting. Please see www.deloitte.com/about to learn more about our global network of member firms.

[Letter placeholder]

Pos que pra volorit ommodis ut odipsuntis conse lab ipsant etur accus expelle stinctatinia volore, aut aut inus ut unt officia suntus, evere laborunt enis quia sin repro volupta temqui sinum explitatis aut optias rerempedic torem quo cus milluptas nem. Neque pelit officil ipsum nulpia aut untiumqui voluptis dia venias ium eossin estis sunt eaquaest modi dollecessi dus earuptias alique as estest unte dollaccat endis di nulla acea consecia epedigenimet quam, tem volum harum quod ent unture de sin ne dolupta simusciatur aceseque volorep ellupta quiaeratum vento iur, sam exerunt estrupit, ut a velit, tem incimodi doluptae nis dis es et andebitae. Nam hit que as atisqu iduciet alictium fuga. Nequatur?

Tur, eos qui blabo. Ut que rem. Ut enihilis maiosaeptur mo is et officil il eturibusam eatum que pore, ut omnis dia ium faceptat est modita volorep rorepudant ex eos sequis excerione nia nonse corporro qui ut voluptat illabo. Nequis dellige ndebitatiur? De nulluptio. Ut volecta ectemolore restemp oratem hit illorpo rerume sint haruptias moluptate est evenis repel ipsam, quam andanda ntionectibus quam aliquiati sima cum ute voluptum debita nihillam vendebit harum doluptum, inusam, cum si blam quatus assimpo reribus que prae nobis iligeni enihillit ratibus re comnietum neseque nostia consersperia delent.

Olorion sequam aut quos ut pratquat laut officiistis eatio. Nusae sit faccae. Iqui beat eate amus, comnimus utemquid que verunti delit, con eossitat es digenduci totatur modipsum as est es mos et quam aut fuga dolore qui.

Name

Title

Business