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Post-pandemic planning:

As the world emerges from a massive shut-down caused by COVID-19, people and businesses must plot a path forward facing an unprecedented level of complexity.

The coronavirus pandemic of 2020 will be remembered as one of the most impactful events in modern history. The term COVID-19 and the word unprecedented seem to go hand and hand in nearly every aspect of our lives. From shortages of toilet paper, disinfection products, and personal protective equipment (PPE), to a record setting contraction in the global economy, a record setting contraction in the demand for crude oil, a rapid rise in unemployment globally, record levels of government stimulus, a significant drop in GHG emissions, and the list goes on. For the global energy, refining and chemical industries, plotting a path forward has never been so difficult. There exists an unprecedented level of complexity in planning business strategies over the next 18-24 months.

The industry is heavily influenced by the global economy as well as the crude oil market. The economy drives fundamental demand growth and crude oil pricing sets regional competitiveness and impacts profitability. We often look at history as a source of understanding industry responses to events. In the recent past, the industry encountered the economic recession of 2008/09 and the extreme rise in crude oil prices during the 2012-2014 period, followed by the crude oil price collapse in 2015-2016. However, it’s difficult to see how recent industry responses to “market shocks” will help provide guidance. The combination of a severe recession, low crude oil pricing, and heightened personal health concerns creates a combined response by people, businesses and governments that seem impossible to predict. The “action-reaction equation” has changed, as people make different decisions depending on their own sense of a safe environment relative to COVID-19. A simple decision to take a flight to go on holiday is complicated by health protocols that start with whether the destination is allowing travelers and what they must do upon arrival. A recovery in personal and business confidence are major factors impacting the industry during the next 18-24 months.

This issue of INSIGHTS features conversations looking at many challenges facing the companies that are starting to make plans for a post-pandemic world. Given the importance of re-establishing personal and business confidence, one critical discussion is led by the Life Sciences team, looking at “Operation Warp Speed”; a public-private partnership initiated by the US federal government as the most ambitious vaccine program in history. The assumptions around a timeline for containing COVID-19 enables assumptions to be made regarding demand recovery. As demand recovers, assessing damages to different segments of the energy-to-consumer products value-chain will enable the development of different pathways to recovery. From significant cuts in upstream capital to re-inventing refineries in Europe and looking at variations in the demand impact for base and specialty chemicals, IHS Markit experts share their analysis and insights to support a fully integrated view of a recovery. The overarching theme running through all segments is climate change and the push to reduce emissions. Due to the impact of COVID-19, IHS Market Energy & Climate experts are expecting the largest-ever annual decline in global emissions for 2020. This forecast along with other issues are also a key topic of discussion.

Enjoy the articles and please reach out to our teams and allows IHS Markit to assist in your post-COVID-19 planning efforts.
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When will we get a vaccine

It’s called Operation Warp Speed for a reason: The public-private partnership initiated by the US federal government is the most ambitious vaccine program in history. It is designed to launch a vaccine against COVID-19 less than a year after the virus was discovered. “Warp speed” of course is the stuff of science fiction. And it is highly unlikely that we will have a vaccine before the year is out.

The stakes, however, have never been higher. For most companies around the world, the global push to develop a vaccine is considered one of the most critical components of returning business to a fuller sense of “normalcy.” Without a vaccine, the toolkit to combat COVID-19 remains focused on policy weapons, including social distancing and lockdowns that prevent any full reopening of the global economy.

Unprecedented sums are being invested in the R&D landscape, not just for the discovery and development of an actual vaccine but also to pre-emptively scale up production facilities around the world – even before a candidate has been validated. Some of the largest pharmaceutical companies, including Johnson & Johnson, AstraZeneca, Sanofi, Pfizer, and Merck & Co., as well as smaller, little-known firms such as Inovio Pharmaceuticals, NovaVax, BioNTech, and a series of Chinese biotechs are all advancing candidates in a global race to the market.

At the time of this writing, there are 115 formally recognized vaccine candidates – most of which will fail. Indeed, there is no guarantee that we will succeed in developing any vaccine, no matter how much money is thrown at the problem. Coronavirus are notoriously unstable, and there has never been a vaccine or cure for any of the previous outbreaks from these viruses. There is no historical precedent for success here.

However, our baseline assumption at IHS Markit, taken from the Life Sciences group’s COVID-19 R&D Tracker, is that there will be a fully approved, effective vaccine, probably by the summer of 2021. We may have emergency access (primarily to healthcare workers) on an experimental basis before then, but this assumes that the development pathway has gone smoothly through the whole process and that regulators are willing to risk providing access despite the lack of proper safety data. Typically, any vaccine that is to be introduced into a wide population requires several years of clinical testing to ensure that any safety signals are caught.

Notwithstanding this, it is important to point out that a vaccine will not be a magic bullet that gets rid of COVID-19 for the foreseeable future. We will still need treatments, public health programs...and probably lockdowns. There are many reasons for this, but the most important are:

- The vaccines will likely be only moderately effective.
- That effectiveness will likely wane over time.
- There are major production and logistical hurdles that will prevent widespread, global vaccination immediately.
- There will likely be significant protests and resistance to mandatory vaccinations.
- There will need to be multiple vaccines, and each vaccine will have different safety and efficacy profiles.

In short, vaccines will be only one piece of the puzzle. Thus there is additional pressure for the pharmaceutical industry to come up with a treatment in addition to a vaccine. The R&D landscape for treatments is much more diverse than the comparatively consolidated vaccine space, and researchers are exploring many different approaches and mechanisms of actions.

The most high-profile approach to date remains Gilead Sciences’ Remdesivir, which has gone through emergency approvals in several countries in the absence of any alternatives. However, the most likely success will come further down the pipeline from candidates specifically designed to fight the disease itself or the consequences of the infection. These include antibody cocktails, such as those being developed by Vir Biotechnology and Regeneron Pharmaceuticals, and plasma-derived therapies, where firms such as Takeda Pharmaceutical Co. and CSL Behring are taking charge. We expect availability of such treatments slightly earlier than a vaccine, probably around the spring of 2021.

Taken together, the therapies and vaccines that will trickle in through the first half of 2021 will be critical components in the global fight against COVID-19. They also will increase the likelihood of a more sustained return to normality in the second half of 2021 and early 2022.

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COVID-19, crude oil price shocks, and other high impact events have near-term and long-term implications on the global chemical markets. Nearly every industry relies on chemicals for their production processes. You need a pulse on the rapidly changing chemical markets, whether you invest in, manufacture, or consume chemicals.

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Key Benefits:

Take the pulse of the situation from a trusted source, allowing your organization to:

- Adjust strategy and enable better informed decision-making
- Determine where investment opportunities lie in the chemical sector
- Understand how the chemical markets are affected by energy environment, the impact to supply and on end-use chemical markets
- Get unique perspectives and analysis provided by a special taskforce of IHS Markit experts
The new dynamics of upstream supply and spending after COVID-19

Every oil price collapse over the past four decades—1986, 1998, 2008, and 2014—sparked a similar concern: a steep decline in cash flow could soon lead to underinvestment and oil shortages. But this did not happen. Will the COVID-19-induced price collapse be different?

Oil companies spend money investing in new supply, reducing debt, paying dividends, buying back stocks, and making acquisitions and other investments. But 2020’s sharp revenue decline and other circumstances create unique challenges. Oil companies must navigate tough spending choices that have not been present in previous downturns. Four factors illustrate the challenges:

- **The future of oil demand after COVID-19 and the energy transition.** The leading uncertainty for the entire industry is the trajectory of oil demand. The epic 11 million barrel per day (MMb/d) drop in world oil consumption this year erases nearly a decade’s worth of demand growth. Demand is rising after hitting bottom in April, but repercussions from COVID-19 in terms of personal behavior and government policies—including support for carbon-free energy—make the future of fossil fuel demand more uncertain than ever. How much will companies invest in new supply with demand so uncertain?

- **Oil company debt levels are reaching an all-time high.** The collective net debt of 55 globally listed international oil companies, national oil companies, and exploration and production companies is expected to rise to an all-time high of $960 billion by year-end 2021, up some 14% from year-end 2019 (see Figure 1). Paying down this debt will soak up substantial amounts of cash flow in the years ahead. Furthermore, the total-debt-to-total-capital ratio is projected to rise from 33% at year-end 2019 to 36% at year-end 2021. This is higher than the 30% ratio at the end of 2014. Additional asset write-downs are likely in coming quarters, further inflating debt ratios.

- **Investor disenchantment with oil—particularly with the US upstream industry.** The past decade saw an enormous flow of capital to the US upstream oil industry, which fueled record-setting production growth. However, financial returns were poor. Access to new capital is encumbered by lackluster financial performance, uncertainty about demand and oil prices, and investors’ increasing focus on the impact of climate change policy.

- **Little upstream cost deflation, unlike in 2014-16.** Upstream capital spending fell by some 50% from 2014 to 2016, but capital costs also fell 27%. Lower costs supported supply growth, despite the price collapse. A much smaller decline in upstream costs is expected this time around as most of the “fat” has already been cut. Upstream capital costs are expected to fall by just 6% by the end of 2020 relative to 2019, but capital spending will be down over 30% over the same period.

How much money is needed to develop new supply and sustain existing production to meet demand in the years ahead? There is no pre-determined level of future oil and gas demand that supply must meet. But to create some sense of how much money may be needed, we have used the assumptions in our base case—the Rivalry scenario—for oil demand, supply, and price to year-end 2024. These include annual average dated Brent prices ranging from...
$40 to $65 per barrel (bbl) and our estimates of future spending required to enable supply to meet demand. Our Rivalry scenario assumes a COVID-19 vaccine is in place by 2021. We have also used relationships between reported free cash flow, spending, and oil price from our company metrics database to inform the forward projections.

Based on these analyses, we estimate that $4.5 trillion is needed for the global upstream industry to develop new supply (with capex) and sustain production (with opex) to meet demand in the five years from the beginning of 2020. That’s similar to the spending in the prior five years. Figure 2 illustrates our calculations.

Will there be enough money from selling oil and gas to fund this spending? The short answer is yes, based on our analysis and assumptions. Although free cash flow for the industry from 2020 to 2024 is less than the prior five-year period, the story is more promising on an annual basis after 2020. Free cash flow rises from a low of $2.5/bbl in 2020 to $9.2/bbl in 2024, allowing the industry to significantly improve cash flow after 2020 and spend enough money to meet the projected level of demand.

But these free cash flow estimates exclude upstream companies’ commitments to repay debts and to make dividend payouts and repurchase shares. Overall, the additional pressures on the industry to control debt levels, improve returns, and minimize emissions could lead to spending choices that reduce upstream spending below this outlook.

By any measure, 2020 will be an annus horribilis for the oil industry and governments dependent on oil revenue. Free cash flow of $2.5/bbl for the industry is well below the previous decade’s 2015 low point of $4/bbl. That drop understates the total hit to company revenues, as global production will be lower in 2020 compared with 2019.

Higher prices would improve financial performance, assuming cost inflation is contained. But they could also lead to more pressure in large oil-consuming markets to move away from oil and accelerate the energy transition.

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The benefit of higher prices is also shared between oil companies and host governments. For example, when annual average Brent prices were near or over $100/bbl from 2010 to 2014, the amount of revenue attributed to “government take & other” accounted for some 55% of the revenue generated per barrel. But after the 2014 oil price collapse, the share of government take declined, falling to 36% in 2016.

In any case, the projected price recovery paints a cautiously positive picture of the upstream industry – particularly from the dismal perspective of the 2020 COVID-19 crisis. But tough choices lie ahead.

1Cash flow is the money generated from operations. In the upstream industry, it is revenue from selling oil and gas.

2“Upstream capital spending” is based on IHS Markit estimates of E&P capex excluding the liquefied natural gas midstream. Cost reductions quoted reflect the changes in IHS Markit Upstream Capital Cost Index, which is referenced to a fixed portfolio of developments to reflect changes in supply chain costs. Opex costs are excluded here.

3For the purposes of this note, “government take & other” is simply the value in the barrel, which is not attributable to spending and free cash flow to the oil companies and government entities with an equity share of the production.

Figure 2: Global E&P - indicative cashflow components excluding debt, financing and dividends

Source: IHS Markit. © 2020 IHS Markit
Reduce, repurpose, reinvent: Long-term refinery outlook defined by diverging regional imperatives

The inventiveness and reactivity of the global refining industry has been sorely tested by COVID-19. Already in a state of flux from the January 2020 International Maritime Organization (IMO) specification change, refiners in all world regions have been forced to reduce output and reconfigure yields to meet unexpected demand changes. As markets begin to find a new balance, refiners will be tasked with not just redesigning production profiles in the medium term, but weighing investments to selectively future-proof assets for the longer term in an inhospitable investment environment.

IHS Markit’s forecast for 2020 refined product supply projects a drop of about 10.8 million barrels per day (Mmb/d), a decline of approximately 12% compared to 2019. Recovery will be slow, and existing refiners will be under pressure not just from muted demand growth, but increasing world capacity. Some 5.7 Mmb/d will come on line by 2025, even accounting for project delays and cancellations, estimated at about 1.6 Mmb/d.

Longer term, in a post-Covid environment, opposing forces will be region-dependent. In regions with clear energy transition goals, decarbonization will not only pressures on the refining production process itself. Other regions, notably parts of Asia and the Middle East, will be under pressure to find new, cost-effective ways of supplying naphtha for petrochemical feedstocks at scale – something older fuels-oriented refineries will struggle to deliver. With an additional 7.9 Mmb/d in capacity needs still to be determined, overall capex requirements remain in excess of US$ 350 billion.

REDUCE: Energy transition and COVID-19 act as an accelerator of inevitable rationalization

The European refining industry is structurally challenged by imbalances in product yield and demand, high crude-import cost structures, labor and fixed costs, and high fuel costs relative to competitors. IHS Markit’s post-Covid outlook for European refining is for some 1.8 Mmb/d in runs reductions through 2025 compared with 2019. This shift equals about half of the total reductions expected to 2050, similar in magnitude to the losses seen in the five years following the 2008 financial and economic crisis.

The US is seeing rationalization linked to the shifts in supply costs due to the lifting of the crude oil price cap in the US.
export ban. Other shifts are occurring due to the COVID-19 reduction in demand. And more moderate runs are expected in export refineries in South Korea, Taiwan, and Singapore due to competition from newer, lower cash-cost export refineries.

**REPURPOSE: Biofuels and hydrogen pathways present new opportunities for existing sites**

Europe and select US states stand out in their ambition to reconfigure energy supply and demand toward net-zero carbon emissions. These policies call for increased fuel efficiency, a reduction in the carbon content of liquid fuels, and alternatives to fossil fuel use in the heavily oil-dependent transportation sector. The refining industry is already seeking ways to adapt to a low-carbon future by pursuing:

- Bio-feedstocks, co-processing of wastes and residues or agricultural sources
- Local renewable electricity and carbon capture use and storage (CCUS) technologies
- Creation of green hydrogen hubs for provision of low-carbon fuel
- Closer integration with local industry, including petrochemicals

This transitional model began to take shape in the wake of the 2009 financial crisis with a series of refinery conversions, where existing sites and equipment were repurposed to focus entirely on biofuels (see Figure 1). Now six US refineries are moving to renewable diesel or sustainable aviation fuel (SAF), joining many others now adapting plants for co-processing of biofeedstocks alongside fossil fuels.

**REINVENT: The refinery of the future will prioritize petrochemicals**

Companies battling the effects of pandemic lockdowns on oil demand face increased capex pressures and a far less certain future investment outlook. IHS Markit expects a “plant and prune” cycle of activity – preparing for new supply growth while cutting back the old – to continue through 2050. Rising demand for petrochemicals will more than double petrochemical feedstocks demand by 2050. In response, the refining system must reconfigure to balance fuels trade with increased petrochemical feedstock production.

The sheer magnitude of new petrochemicals demand supports the addition of large-scale production units, but traditional refinery-plus-steam-cracker configurations are not the answer. R&D efforts are now focusing on the most efficient path from crude to chemicals, both in new plants and existing facilities. IHS Markit’s upcoming Refining and Petrochemicals Integration Study examines how refiners can turn to growing petrochemical demand to help their businesses survive and thrive using a combination of strategies:

- Debottlenecking and increased naphtha feedstocks production by adjusting parameters in hydrocrackers and fluid catalytic crackers to target naphthas over distillates
- Shift in existing integrated facilities to favor petrochemical products over conventional refined fuels
- Optimization of yields in new builds to favor petrochemicals to around 30%, compared to ~10% in older refineries
- Development of technology to allow for more direct crude-to-chemicals paths, either via new builds with reinvented configurations or new technologies at existing refineries

Feasibility analysis on future refinery investment should also look closely at the potential benefits of co-investment in integrated petrochemicals and, in certain markets, biofuels. The ability to switch between products is critical, and flexibility to cater to both fuels and chemicals production can provide a competitive edge.

The downstream refining industry has weathered many storms but has also been shaped by them. The industry will endure this challenge as well. It must, for oil products will be needed for a long time, even in the greenest of scenarios. However, the industry will reduce, repurpose, and reinvent to accommodate climate goals as well as consumer and feedstock demand.

Figure 2: Example of modeled yield shifts to reach naphtha production required by 2050 to meet petrochemical feedstocks demand. In this example, current country-level current petrochemical naphtha yield stands at 8%, or 250,000 b/d of production. Three pathways are selected to obtain a final yield of 19% (910,000 b/d) in 2050.

- **Base yield optimization**: Assumes increase/decrease in crude throughputs (typically via debottlenecking), achieving an 8% yield and additional production of ~10,000 b/d
- **HCK route**: Addition of refinery with hydrocracker-type (HCK) configuration, with estimated yield of 37% for a total production increase of ~360,000 b/d
- **RFCC route**: Addition of refinery with residual fluid catalytic cracker-type (RFCC) configuration, with estimated yield of 45% and production increase of ~290,000 b/d
- **Final configuration**: Sum of base yield optimization and addition of units allows for a final naphtha yield of ~19%, with final production at ~910,000 b/d
The Global Economic Outlook

The deepest recession since the 1930s will also probably be the shortest on record

Working assumptions

IHS Markit composite PMI™ – The worst seems to be over

1. New cases will peak over the summer (with localized recurrences possible).
   - We will be “inching” toward normalcy.
   - The damage from this downturn will be horrific, with many jobs lost forever, and inequality and social tensions rising and remaining elevated.
   - However, the worst seems to be over. Recovery is going to be weak—while most PMIs are coming off record lows, they are still around 35 (except for China).
   - Though China was the first to recover, its PMIs are hovering just above 50.

2. There will be no effective and widely available vaccine until late 2021.
   - We will be “inching” toward normalcy.
   - Production shortages, initial supply shock gives to an unprecedent demand shock for both industrial economy and personal consumption.

3. Lockdowns will continue to be eased gradually over the summer and autumn.
   - Despite easing supply shock, negative implications from demand contraction in western economies will be far severe for trade in 2H20.

Considerations

1. Sharp Decline For Global Trade in 2020, Short-term Demand Hit Unprecedented
   - Near-term (2Q-3Q20) impact on global trade likely to be worst ever as economies stall, external demand faces imminent collapse.
   - Production shortages, initial supply shock gives to an unprecedent demand shock for both industrial economy and personal consumption.
   - Despite easing supply shock, negative implications from demand contraction in western economies will be far severe for trade in 2H20.

Global Trade in Goods (Year-over-year % Change)

2. The global center of economic activity continues to move east – as it did before the Corona virus.
   - By 2050, non-OECD countries will generate 55% of global GDP, and non-OECD Asia will produce 75% of this. Supply chains will diversify away from China, but stay in Asia.

Alternatives to Chinese Manufacturing

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3. The future of oil demand faces epic uncertainty

World oil (liquids) demand to 2030 by scenario

GDP growth is highly uncertain in the short term

The economy will be smaller over the next 30 years than pre-recession views in all three scenarios

Rivalry
- The lifting of health restrictions and reopening of national economies is steady, with periodic relapses in COVID-19 in some areas.

Autonomy
- The lifting of health restrictions and reopening of national economies is protracted, with few relapses of COVID-19.
- Global economic recovery is slower than Rivalry in 2021–22, but rises to a level above the trend average in 2023–25 and beyond.

Discord
- There is a weak global recovery in 2021 and 2022. And Global GDP growth in 2023–25 is well below trend growth through 2030, only returning to trend by the end of the outlook period.

Global GDP Growth Rates, 1990-2050

Source: IHS Markit
In 2020, we are expecting the largest-ever annual decline in global emissions. On the basis of the IHS Markit GDP and fuel price projections from May, we anticipate a fall in global energy-related carbon dioxide (CO₂) of close to 8% year-on-year. This is not by design. The COVID-19 pandemic and resulting recession is significantly affecting emissions in the short term.

The unprecedented drop in economic activity is pulling down key energy-consuming markets and sectors, and with it, CO₂ emissions. The global economy is projected to shrink by roughly 5% in 2020 as a result of the pandemic response measures adopted by governments, corporations, and consumers. The resulting economic downturn and the implications for specific energy-intensive sectors of economy, such as transport and industries that have been hard hit by public health policies, have massive implications for our expectations of primary and final energy demand and related emissions (see Figure 1).

Total primary energy demand is expected to decline by 6.5% in 2020. The total global demand destruction is around 950 million metric tons of oil equivalent (Mtoe) this year. That’s about the level of energy consumed across all Organization for Economic Co-operation and Development (OECD) Asian markets in 2018.

Expectations for emissions have fallen along with the outlook for energy demand. For scale, the roughly 2.5 billion tons of CO₂ that is not projected to be emitted this year is equivalent to the energy-related CO₂ that India produced in 2018. India is the world’s third-largest national emitter of CO₂, so the scale of displacement is considerable.

Sector and regional declines in energy demand and emission vary widely

The pandemic recession has created locally specific impacts at the national and sector level. Varying degrees of economic contraction are anticipated in all regions of global economy. No region escapes a decline, resulting in major implications for the emissions outlook through 2023.

The biggest changes in 2020 have come in the largest-emitting markets of North America and non-OECD Asia. Together, the US and mainland China emit more than 40% of global energy-related emissions. As a result, the notable local impacts of the recession on the world’s two largest-emitting markets have global implications.

The decline in industrial energy demand is a feature of the displacement of emissions in non-OECD Asian markets, including mainland China. The impacts of the pandemic recession on the domestic sector as well as lower activity in key export markets are both important. In North America, transportation emissions are a leading indicator. In the US and to a lesser extent Canada, reduced mobility leads to a collapse in the on-road transport sector in 2020.
These local impacts contribute to the global sector outlooks. World power and industrial emissions are both down 6% for 2020. Global transport is down some 13%, more than 1 gigaton (Gt). This decline equals more than 40% of the total emissions displacement, with notable contractions in road and aviation activity at the global level this year.

In percentage terms, aviation is the sector with the greatest reduction in consumption, at -26% compared to 2019. Those sectors that emit the most CO₂ are also those most acutely impacted by the pandemic.

Where do emissions go from here?
From an environmental standpoint, one key question is what happens next. Emissions are projected to rebound 5% in 2021 and return to trend thereafter through 2023, according to the latest GDP, fuel prices, and existing Rivalry Scenario assumptions regarding climate policy performance. Nonetheless, the depth of the initial decline means that emissions levels projected for 2025 in our IHS Markit 2019 outlooks now would not be reached until 2050. Levels are, however, still rising.

It does not appear that the interventions made by governments in the initial phases of combatting COVID-19 and economic recession, such as assistance or stimulus spending, will accelerate the energy transition. The bailout of aviation businesses in Australia, Brazil, India, the United Kingdom, and the United States without any low-carbon qualification; the decision by Germany and South Africa not to collect carbon taxes in 2020; and Russia’s fiscal incentives for oil and gas producers are examples of recovery plans that reinforce pre-COVID-19 emissions trends. However, a greener recovery remains possible and can be accelerated by shifting future government spend to low-carbon initiatives that would both increase growth and lead to lower emissions. The window on clean air and less congestion that was opened during the extended lockdowns could energize many NGOs, financial institutions, and the general public to demand that action be taken.

Finally, the evidence of physical climate change damages, such as those seen in 2018 and 2019, will not recede because the world is in a pandemic. The US National Oceanic and Atmospheric Administration (NOAA) says there is a 75% probability that 2020 could be the warmest year on record, with a 99.9% chance that it will be in the top five years. Although a shift downward in the emissions curve will reduce what could have happened, only when the emissions trajectory turns markedly down-

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**Energy and Climate Scenarios**

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The pace of chemical demand recovery depends on complex interactions with the circular economy

The impact of COVID-19 on chemical demand segments has been a mixed bag. The demand for chemicals and plastics that are used to create durable goods such as automobiles, appliances, and construction products significantly deteriorated as factories were closed and households went on lockdown. Discretionary spending tightened as massive job losses occurred. One small bright spot was on the durable side: as work-from-home mandates escalated with the lockdowns, so did a temporary rise in computer equipment demand and thus plastics used in the electronics sector. On the non-durable side of demand, nearly the opposite occurred. As restaurants, entertainment, sports, and schools closed – causing the food service industry to essentially shut down – food retail sales at grocery stores accelerated, providing a boost in packaging demand. Figure 1 shows this massive shift from food service to food retail.

Hygiene concerns also played a role in demand shifts. Even though many companies continue to confirm their commitment to sustainability in the long term, plastic recycle and reuse efforts stalled. This is due to both wariness about the safety of collection activities as well as the low cost of virgin plastic resins, making them more affordable than recycled resins. In some places, bans on disposable bags were lifted, temporarily halting the use of reusable bags. Home-delivery orders accelerated with home lockdowns, causing the need for even more packaging. Cleaning chemicals and disinfectant usage ramped higher along with disposable medical supplies made from fibers.

Figure 2 shows that many of the largest chemical markets include a high percentage of these non-durable applications, with polyethylene (PE) and polypropylene (PP) rising enough from increased packaging and medical needs to nearly offset the destruction of durable goods demand. Methanol, which has 30% of its demand tied to motor fuels, was negatively impacted by the large drop in fuel demand. Other than polyethylene terephthalate (PET) for water bottles and some polystyrene (PS) for packaging, most of the aromatics-based chemicals have a strong tie to durable goods and therefore suffered a decline in demand.

How COVID-19 affects chemical demand is complex and depends on the exposure of each chemical or plastic to durable and non-durable end segments. With this in mind, how will each chemical demand outlook develop in the near term, and what are the potential long-term effects?

Demand for high-cost durable goods such as automobiles and the pace of discretionary spending will depend on consumer confidence and how quickly
job markets around the world recover. While there is significant government stimulus being applied everywhere, it will likely take several years to return to pre-pandemic demand levels for many chemicals. It is also likely that the world will go through permanent changes not yet known. “Work from home” has proven to be successful for many companies, which has implications for the automotive, building construction, and fuel markets.

There is no denying that China will play a major role in how quickly the recovery takes place, given the high demand for chemicals produced there and used for global production. While the country was the first to deal with the virus, China’s recovery is well ahead of most other countries. But since it is a large exporter of finished goods, China’s demand for chemicals to make those finished goods will also depend on how quickly the rest of the world recovers. Longer term, another potential change could be reshoring of chemical production. Countries and supply chains that were affected by China closing shop first during the COVID-19 outbreak may well rethink the risk associated with any future events. That could cause them to re-shore some manufacturing or contract with another low-cost country.

Companies will also rethink their approach to sustainability. The pandemic highlighted the need to focus on hygiene in collection and waste management efforts. It also spotlighted the value of chemicals and plastics in all areas of life. As crude oil prices rise, virgin resin prices will increase, allowing recycle materials to erode some of the demand for non-durable packaging virgin resin gained during the pandemic.

Since the pandemic was declared, a steep decline in durable goods demand has been bad news for the chemicals used in their manufacture. On the flip side, non-durable goods (mainly packaging) fared much better, boosting the prospects for chemicals such as PE and PP. As the recovery develops over the next several years, durable goods should eventually experience pent-up demand, leading to strong growth rates. In contrast, the growth rates of non-durable goods – and the chemicals and plastics associated with them – may drag with the return of sustainability efforts. All in all, the demand recovery for all chemicals is likely to be just as interesting as the effects of COVID-19.

Figure 2: Percentage of chemicals end-use into durable goods

Many of the large chemical markets are in non-durable end-use segments with high annual growth rates (AAGR for 2015-2019). Source: IHS Markit.

Global chemical markets are experiencing greater uncertainty than ever before. Hindsight is 20/20. Improve your strategic vision for 2020 and beyond with IHS Markit Chemical World Analysis.

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The biocides market in the times of Coronavirus

The outbreak of COVID-19 significantly increased the demand for biocides such as sanitation and disinfection products for hands and surfaces. Some estimates anticipate demand increases as high as 600% for 2020. With the long-term prospects for coronavirus unclear, the biocide growth rate for the 2019 to 2025 period may be as much as 17% (CAGR). This demand is good news for major suppliers of hand and surface sanitizers, including 3M, Reckitt Benckiser, Gojo Industries, Henkel, Himalaya Global Holdings, Unilever, CVS Health, Ecolab, Proctor & Gamble, S.C. Johnson & Son.

The biocides market is split into two categories: products needed to combat COVID-19 and products used in areas indirectly influenced by the outbreak. The impact of COVID-19 on these products varied widely (see Table).

Disinfecting hands
Hand disinfection is mostly achieved with alcohols. Frequently used are ethanol or isopropanol (alone or in combination). N-propanol is the fastest acting disinfectant alcohol, but it is used less often than ethanol or isopropanol.

In 2020, total global production and consumption of isopropanol is expected to be about 2.1 million tons, about 40% were pharmaceutical, cosmetic and electronic grade in the major regions. The major producers of isopropanol are Shell, ExxonMobil, INEOS, Kellin Chemicals, Dow Chemical, and LG Chem. Together these firms supply about 50% to 55% of the global output. ExxonMobil increased its production of isopropanol by 3,000 tons per month in April 2020, boosting annual production by 10% at its Baton Rouge, Louisiana (USA) plant. In Germany, Oxea tripled its n-propanol output in the second quarter of 2020. Expanding the production of n-propanol freed large quantities of ethanol – that otherwise would have been used as solvent for the printing industry – for the manufacturing of hand sanitizer.

While n-propanol and isopropanol are produced by chemical synthesis, ethanol is largely produced by fermentation. Globally 65% of ethanol is used as a green fuel for combustion engines. Because the demand for transportation was reduced by the epidemic, manufacturers had enough capacity available to satisfy the demand for ethanol-based sanitizers. Ethanol producers in all regions donated large quantities of ethanol and in many cases produced disinfectant themselves.

Sanitizing surfaces
Surface cleaning is needed to sanitize items such as medical instruments, vehicles, rooms, buildings, or streets. Commonly used surface disinfectants include peroxides, halogen compounds, and quaternary ammonium compounds.

The type of biocide to be applied depends on how sensitive the surfaces are. Stables or vehicles can be disinfected with peracetic acid, while hospitals or other inhabited buildings are cleaned with hydrogen peroxide – often in combination with silver salts. About 6 million tons of hydrogen peroxide are consumed every year. All peroxide agents must be handled by professionals. Major global producers are Evonik Industries, Solvay, Kemira Oyj, Eka (Nouryon), and Mitsubishi Gas Chemical.

We estimate that 3% to 5% of the produced hydrogen peroxide is used as a sanitizer or for synthesis of peroxides used as sanitizers. Dow and Solvay donated 600 tons of hydrogen peroxide to the government of Thailand – enough to treat 300 million square meters of risk areas. Yet monthly global trade patterns of countries with substantial monthly imports or exports of hydrogen peroxide show no change as compared to the pre-COVID-19 period. Volumes used for disinfection are too small to impact the overall market. Any lag in hydrogen peroxide availability was more likely caused by production stops in the pulp and paper market, which affected packaging.

Another peroxide compound widely used in hospital disinfection is potassium peroxymonosulfate. Lanxess, one of the major producers of this product, expanded its production significantly and donated several tons of product to hospitals in China and Europe.

Halogen compounds like sodium hypochlorite – commonly known as bleach – have long been used as sanitizers in the public and private space. Sodium hypochlorite is relatively cheap, effective, and easily...
available. Disadvantages are its smell and limited storage time. A huge number of small- and mid-sized producers are present in all regions. Sodium hypochlorite is sold as an aqueous solution with an average chlorine content of 4% to 6%. Global consumption is about 2.2 million tons (chlorine equivalents), with households representing 35% of total use. About 50% of the consumption is in North America and Western Europe. A general drawback of halogen compounds and peroxides is their potential to corrode metallic surfaces.

Because global production capacity is about 50% higher than consumption, manufacturers had no problem satisfying additional demand generated by COVID-19. Producers and resellers of household bleach reported no supply shortages from hypochlorite producers. The empty supermarket bleach shelves experienced as the virus started to spread were caused by bottlenecks in logistics, rather than product supply. Monthly trade patterns of countries with significant imports or exports of hypochlorite bleach show no deviation from normal quantities or prices through April and May of 2020. Interestingly, the actual production capacity for hypochlorite bleach is even higher than reported. Reported capacity refers only to marketable product and does not include the capacity that all chlor-alkali producers need to have installed to absorb chlorine gas in case of a technical issue.

Quaternary ammonium compounds (quats) can kill many fungi, bacteria, and viruses. The antimicrobial properties of quats have been known for more than 100 years. Their chemical structure can be easily altered, making it possible to maximize their antimicrobial properties. Two types of quats prevail as disinfectants: alklyldimethylbenzylammonium chloride (ABDAC) and dialkyldimethylammonium chloride (DADM). The optimum chain length for ABDAC is in the C12 to C16 range, while DADM has an optimum between C8 and C10. The vast majority of commercial products are within these ranges.

Quats in general are surfactants. Their interaction with the surface of viruses can lead to destruction of the outer hull of the virus or it can form a micelle around the virus. In both cases, the virus is deactivated. Quats are very effective in concentrations as low 30 parts per million for enveloped viruses. They are popular as disinfectants because they are non-corrosive, have a good human toxicology profile, and combat a wide range of microorganisms. They are the preferred disinfectants in medical facilities. Globally about 130,000 tons of quats were consumed as disinfectants or preservatives in 2019. Major producers include Lonza Group, Nouryon, Stepan, and Thor Specialties.

In February 2020, quat producers were challenged by unprecedented demand for their products. At peak times, production capacities were at their limit. Many plants that produced intermediates for biocides were closed. In addition, a lack of available transportation hindered the delivery of both raw materials and finished products.

Achieving a new normal

Helping out with the production of formulated disinfectants on short notice was the best contribution the chemical industry could make to the world’s battle with COVID-19. It seems unlikely, however, that this short-lived business will make up for the losses the industry suffered as a result of the coronavirus-driven economic downturn.

Assuming that there is no second wave of COVID-19, we expect sales in the biocide market to reach their 2019 levels again in the second half of 2021. Industry sources anticipate that the biocides used in disinfection will normalize at a level about 5% to 15% above the pre-coronavirus consumption.

Impact of COVID-19 on Biocides

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Minor changes up to 5%, ↑ changes up to 10%, ↑↑ changes up to 20%, ↑↑↑ changes over 20%, na not used. a) Only C2 and C3 alcohols. b) Includes NaOCl c) Metal working fluids. IHS Markit estimates 2020
How COVID-19 is crushing US corn prices

When driving down the road, it is unlikely that you are thinking about what you are doing to support US and world corn prices. But, in fact, you are making a marginal contribution. Nearly every gallon of unleaded gasoline in the US has 10% ethanol blended into it. That ethanol is derived from corn. So, in a way, every mile you drive is good for corn farmers.

With the COVID-19 mitigation measures put in place, nearly all of us are driving a lot less than a year ago – or even a couple of months ago. This shift has caused gasoline consumption to fall and ethanol demand to follow in its footsteps, driving a rapid retreat in corn prices. While gasoline consumption and consequently ethanol production have recovered from the troughs of mid-April, current levels are still running about 20% below a year ago.

The Renewable Fuel Standard (RFS) was established under the administration of US President George W. Bush in the mid-2000s. This law provided subsidies to various biofuels, including ethanol, and mandated their use in the US motor fuels complex. Some countries, such as Brazil, use sugar to produce ethanol. In the US, however, the raw material of choice is corn. The amount of US corn dedicated to producing ethanol quickly went from less than 1% in crop year 2001-02 to nearly 40% in 2010-11. Since then, the volume of US-grown corn used in ethanol production has plateaued at just under 40% of production. The use of ethanol has made cars burn cleaner and supported farm incomes. While the subsidies were eliminated several years ago, ethanol remains an integral part of the US motor fuel complex today.

Stay safe, do not drive
Starting in late March, US efforts to slow the rate of COVID-19 infections largely focused on social distancing and encouraging people to remain in their homes. Various government-mandated measures have spread across the country, resulting in nearly all Americans living under some sort of lockdown measure. These mandates caused gasoline consumption to collapse.

IHS Markit Agribusiness checked in with our colleagues in the European energy unit to understand the likely effect of these trends on the US. Because countries such as Italy and Spain entered this pandemic several weeks ahead of the US, data on gasoline consumption in the post-lockdown period was already available.

The information indicated that Italy’s petroleum consumption fell as much as 90% and Spain’s fell 56% immediately after the lockdown measures were put in place. However, not all lockdowns are equal. Italy’s measures were far more restrictive than anything expected in the US, making Spain a far better base-case scenario. There are some significant differences between Spain and the US, both culturally and in terms of population density. For instance, Spain’s population density is around 230 people per square mile as compared with the US at less than 95 people per square mile. It was determined these sorts of differences would matter in terms of how much mandatory driving is required under lockdown situations. Taking all of this into account, in late March IHS Markit produced a forecast that US
ethanol production would fall by 40% in April and May as a result of the drop in gasoline consumption, before rebounding in June.

The weekly Energy Information Administration (EIA) reports indicate implied gasoline consumption fell from a three-year average of 9.50 million barrels per day (bbl/d) to below 5.08 million bbl/d in early April—marking a 47% decline. Since then, a recovery has ensued as lockdown measures have been lifted and people resume moving about the country. Nonetheless, gasoline consumption remains 20% below last year.

At the same time, ethanol production fell 43% from year-ago levels in mid-April, lagging the drop in gasoline consumption by roughly three to four weeks. Since then, ethanol production has increased but remains 24% below year-ago levels (see Figure 1). Where ethanol production and corn demand go from here is largely dependent upon the recovery in gasoline consumption. There is clearly upward momentum in this area, but we expect the hangover of the economic damage and some people’s reticence about being in public will continue to hold back driving. We are not expecting either gasoline consumption or ethanol production to rise to last year’s levels within calendar year 2020. Only time will tell whether or not that forecast is too pessimistic.

The farmer pays the price

This collapse in gasoline consumption and the associated decline in ethanol production significantly affected corn demand. In its March 2020 report, the US Department of Agriculture (USDA) forecast 2019-20 demand for corn from ethanol production at 5.425 billion bushels, 39% of corn production. In its June report, USDA lowered that forecast to 4.900 billion bushels – and there are likely more downward revisions to come. This drop in demand has weighed heavy on prices.

By late April, Chicago Mercantile Exchange (CME) corn futures had fallen to the low-$3 area for the front-month contract. In fact, on April 29, the front-month contract traded within 1/4 cent of $3.00. As reference, corn has not traded below $3.00 since December 2008 and has had only a handful of trades below the psychologically important $3.00 level in the last 14 years (see Figure 2). Since then, the market has moved higher, but only modestly so, with nearby corn futures trading at $3.26 now. With the US growing season under way, any sign of above-normal production is likely to push the market back toward testing the $3.00 level again.

This has clearly having a negative impact on the US corn farmer. However, it does not stop there. The interconnected nature of crops means a large drop of this nature impacts the profitability of growing wheat and soybean as well. While those commodities are not testing 14-year lows, they are at the lower end of their price ranges since 2007. While the rural areas have not seen the same public health impact of the COVID-19 pandemic as the cities, the economic impact has been severe.
Latin America’s petrochemical industry: Unexpected changes resulting from COVID-19 and lower crude oil prices

The global petrochemical industry has always been cyclical. After experiencing an extended upcycle from 2015-2018, the industry was affected by lower economic growth in countries such as China, decreasing demand for many petrochemicals and beginning a reduction in margins in 2019. While demand was declining, significant additional production capacity was expected to enter the market in the 2019-2022 timeframe. The combined effect of lower demand and higher supply was expected to reduce margins in from 2019 to 2021 – and that was before the impacts of COVID-19 and lower crude oil prices were realized.

To understand recent market developments and the impact in Latin America, let’s consider ethylene, the building block of the petrochemical industry. Latin America has an installed capacity to produce approximately 7.5 million metric tons of ethylene per year at facilities throughout the region (see Figure 1). Brazil, Mexico, and Argentina account for the largest production capacity in the region, while Colombia’s production capacity is approximately 100,000 tons per year. Venezuela has two ethane/propane crackers on the West Coast, but the lack of feedstock availability has reduced production capacity to negligible volumes in recent years. It’s worth noting that nameplate capacity does not translate into production when feedstock availability is limited.

Venezuela has two ethane/propane crackers on the West Coast, but the lack of feedstock availability has reduced production capacity to negligible volumes in recent years. It’s worth noting that nameplate capacity does not translate into production when feedstock availability is limited.

Of the feedstock slate at crackers in the region, naphtha is the preferred feed with 46% of the total (see Figure 2).

In recent years, however, ethylene production in the region has been limited by feedstock availability. Hence, imports of ethylene derivatives and in some cases, ethane and propane shipments have increased significantly as well. Today, almost 12% of the ethane consumed at the Braskem/Idesa cracker in Mexico is imported from the US Gulf Coast.

We believe the impact of lower crude oil prices will affect production cost and competitiveness of the petrochemical industry in Latin America. On the demand side of the equation, the negative impact of COVID-19, primarily on durable goods, will be unprecedented. As a result, production of many end-use products derived from petrochemicals will be dramatically lower, affecting operating rates at the crackers.

Lower crude oil prices will result in lower naphtha prices, which will then translate into increased cost-competitiveness for naphtha crackers. This trend primarily affects crackers in Brazil, where naphtha accounts for 73% of total feed. While ethane crackers in the Americas (including the USA, Mexico, and Argentina) are expected to lose some of their cost advantage in the 2020-2021 period, we anticipate this change in production cost among crackers in the region will be short-lived – ended by a return to higher crude oil prices and a higher naphtha price by end of 2021.

Figure 3 illustrates ethylene production costs for several units in the region under different crude oil scenarios. The blue line represents production costs across different ethylene production facilities in the region during first half of 2020. Production costs at these units are evaluated under a low West Texas Intermediate (WTI) crude oil scenario of US$ 32/bbl in 2020. This graph was produced using the IHS Markit Cost Curve Margin Analysis (CCMA) model.

We believe producers in Brazil that crack naphtha will be the lowest-cost producers in the region for a
short period. Ethane crackers in Argentina and Mexico will move higher along the cost curve to reach less-competitive cost positions. This situation is expected to change in 2021 as naphtha prices increase upon the return of higher crude oil prices.

These changes in production costs have a significant impact on local markets, trade opportunities, and production rates. For a producer with a flexible feed position, having access to this information is very useful to develop strategies and help mitigate the downturn. Producers can even increase production to make better-than-expected margins and earnings during these unexpected and short-lived windows of opportunity.

Despite a competitive position for Brazilian naphtha crackers in early 2020, the COVID-19 lockdown created a significant downturn in domestic demand—virtually eliminating the possibility of Brazilian crackers running at high rates during this temporary competitive position. However, the rapid recovery and increase in domestic demand in China opened the door for exports, as production costs at Brazilian crackers were competitive with other producers around the globe. Looking ahead, as delivered cost to other regional markets becomes too high for ethane cracker producers, there may be opportunity to expand sales to regions not previously considered. In this way, we could see Brazilian product entering markets in Europe and Asia.

Of course, very little ethylene is sold as monomer. More often it is sold as a derivative such as polyethylene, ethylene glycol, or polyisoprene, typically in domestic markets that yield a better netback. For example, for polyethylene plants consuming ethylene from naphtha feedstock steam crackers, a much more favorable competitive position will develop under the current crude oil price scenario. However, demand for these derivatives must exist in order to run units at relatively healthy rates.

Prior to COVID-19 and current lower crude oil prices, we anticipated a downturn in margins for most chemical chains, which should have extended for some years to come. However, unexpected change in global demand for most products has reshaped the immediate future. In dynamic markets, access to information pertaining to changing production costs and margins is essential to creating insight into a product chain and developing strategies for the coming years.

Fundamental changes in production costs, feedstock availability, and global trade will challenge “business as usual” in Latin America. Hence, a clear understanding of how crude oil prices affect the selection of a competitive feedstock slate for producers in the region can prove valuable in these uncertain times.

**Figure 2: Latin America ethylene capacity in 2020**

Total regional capacity is at 7.65 MM tons per year

<table>
<thead>
<tr>
<th>Country</th>
<th>Capacity (%)</th>
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</tr>
<tr>
<td>Colombia</td>
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**Latin America feedstock slate**

- Ethane: 41.8%
- Propane: 5.7%
- Naphtha: 46.4%
- Others: 6.1%

**Figure 3: World cost curve- ethylene**

April 2020 vs April 2021

Chemical Competitive Cost and Margin Analytics

Assess the cost and margin positions of operating chemical plants according to geography, capacity, time, technology, feedstock, operating rate and integration level

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New COVID-19 outbreaks raise the prospect of a second wave, tempering U.S. fuel demand recovery optimism

Global fuel demand recovery got off to a great start in April, as China emerged from COVID-19 with a classic V-shaped rebound that was mirrored in many nations – including the US, Germany, and India. This rebound is now threatened by the prospect of a second virus wave.

The fragility of the recovery was underscored in late June following an outbreak in Beijing. The Chinese government swiftly curbed flights in and out of the capital city and locked down suburbs, which immediately affected jet fuel and gasoline consumption. Although gasoline and diesel consumption reached pre-COVID levels in May, consumers are spooked by the reemergence of the virus in Beijing.

“The government is taking it seriously because it was at a major food market, even though the number of cases is not big,” says Feng Xiaonan, IHS Markit analyst in Beijing. “They are locking down community by community. Gasoline demand was affected a bit due to a reduction in leisure travel, which appeared as lower weekend traffic.”

Changing consumer behavior boosts US fuel demand

The US, the world’s largest oil consumer, saw a noticeable recovery since this spring’s unprecedented collapse in gasoline demand. About half of the losses have been clawed back, OPIS data shows.

According to OPIS DemandPro, which tracks weekly same-store U.S gasoline sales at over 15,000 stations, retail demand at the pump hit rock bottom during the second week of April. Demand was down 49% from the same week in 2019, as a spike in COVID-19 infections led to the shutdown of the economy and stay-at-home orders across the nation.

Since then, average station gasoline volumes climbed in the low- to mid-single digit percent range (week-on-week) for 10 consecutive weeks. This growth halved the year-over-year loss to 22% in the second week of June, the most recent OPIS survey shows.

“We can see a new preference for driving your car instead of taking public transportation or a short-range flight, and people do want to get out,” says Tom Kloza, OPIS global head of energy analysis. “The gap in consumption between this year and last year will continue to narrow, but at this point we don’t see demand reaching the record levels of last year.”

Yet regional disparities in demand recovery are prevalent. Volumes were most challenged in the Northeast, off 27% from this point last year. Massachusetts experienced the largest decrease, at 33%. The Western region was 25% below year-ago levels, with the largest US gasoline market, California, 26% below prior-year levels. Other states are seeing stronger rebounds. Year-on-year consumption is down by just 15% in Indiana, 19% in Florida, and 18% in Texas.

However, the three most populous US states of California, Florida, and Texas all reported record-high COVID-19 cases during the week of June 22. Texas Governor Greg Abbott paused further reopening of its economy, threatening to derail the nascent fuel demand recovery.

Refining and retail margins depend on COVID-19’s progression

As volumes continued to recover, fuel retailers have seen margins compress. Rack-to-retail margins, which measure the difference between net retail price and wholesale delivered-to-station costs, swelled to almost USD $1 per gallon in the last week of March due to sharply lower spot gasoline cargo prices (see figure 1).

That number, however, shrank to about 25 cents per gallon in mid-June. Downstream retail margins will end the second quarter about 10 cents below 2019 levels, according to OPIS MarginPro data. Still, an extremely competitive wholesale segment during April and May is on track to propel rack-to-retail margins into their strongest-ever second-quarter performance.

A possible second wave of COVID-19, or an extension of the first wave, could determine where refining and retail profits move in the 10 or so weeks left in the traditional US driving season. Less commuting, the cancellation of most sporting events, and still-high unemployment levels are major speed bumps for North American refiners. Refining margins for transportation products – including gasoline, diesel, and jet fuel – are well below typical levels from the last three years.

Inventory levels, as measured in day’s supply numbers, are at the highest point this century for all
refined products. Gasoline days of supply surged to a record high of almost 50 days in late April, before returning to 32 in mid-June. Jet and distillate oil are hovering near records at 60 days and 55 days, respectively.

On the other hand, refiners have always tended to see profits inversely proportional to fuel retailers, and that was clearly the case in spring 2020. West Coast refining margins are slightly higher than those east of the Rockies.

On June 16, OPIS reported that Marathon will likely not restart its temporarily idled 161,000-barrel per day (b/d) Martinez refinery in California this year. Operators recognize that fuel demand has not improved enough to warrant more production in the region.

Even though California and the Pacific Northwest yield the highest spot gasoline prices in the country, crude runs and output in the Golden State are about 20% to 25% below March levels. On the Gulf Coast, complex refineries that typically count on cheaper heavy-sour crude are instead seeing a less than $2 per barrel discount to light-sweet grades, as robust demand for marine fuels kept the heavier blends buoyant.

The recovery of the export market for transportation fuels is key

Another critical element that will define the recovery of US refining levels and prices will be the fate of the transportation fuels export market, especially in Mexico and the rest of Latin America. US gasoline production was estimated at 6.77 million b/d in June, up from 5.96 million b/d in April, according to an IHS Markit short-term outlook, while year-on-year output is down from 8.26 million b/d. In the week ending June 19, the four-week average for US gasoline exports was 338,000 b/d, half the levels reported a year ago, data from the US Energy Information Administration (EAI) shows.

A recovery in US exports will especially influence crude run rates of US Gulf Coast (USGC) refiners, which exported an average 757,000 b/d of finished gasoline in 2019, according to EIA data. Exports of finished gasoline and its blending components from the USGC fell to 516,100 b/d in May, half the volume reported in May 2019, data from IHS Markit’s Commodity at Sea (CAS) show. USGC gasoline exports averaged 1 million b/d between June 1 and 25, down from 1.2 million b/d in June 2019.

Petroleos Mexicanos CEO Octavio Romero Oropeza said that the state-owned company’s gasoline and diesel sales recovered to pre-COVID-19 levels during the first week of June, at 620,000 b/d and 241,000 b/d, respectively. Gasoline sales recovered from 446,700 b/d in April and 472,900 b/d in May, according to the company’s monthly statistical reports.

Driving levels in Mexico during the week ending June 21 were 30% less than those recorded in mid-January, according to Apple mobility data. This is a significant recovery from mid-April, when levels were 65% below the January figures. Driving activity picked up as the country’s largest population centers, such as Mexico City and Guadalajara, lifted mobility restrictions while preparing to reopen their economies.

However, Mexico must move carefully. As the administration of President Andres Manuel Lopez Obrador looks to reopen local economies based on hospital occupancy rates, Mexico’s COVID-19 curve continues to rise. In a single day during the last week of June, Mexico recorded more than 6,000 new confirmed cases and over 1,000 deaths.

A similar scenario is seen in India, which by June 29 chalked up almost 550,000 cases with more than 16,000 deaths. On June 23, Germany ordered a new lockdown for an entire district after an outbreak at a slaughterhouse, the first new restrictions since early May when the first round was eased.

These cases spur concerns about reopening of the economy, with some cities already declaring fresh localized social distancing measures. Such incidents illuminate the vulnerability of the fuel demand recovery story – and how quickly things can change until a COVID-19 vaccine is in place.

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