

OIL AND GAS DOCKET NO.

MOTION ON VERIFIED COMPLAINT	§	BEFORE THE
OF PIONEER NATURAL RESOURCES	§	
U.S.A., INC. AND PARSLEY ENERGY	§	
INC. REGARDING CONSERVATION	§	RAILROAD COMMISSION OF TEXAS
AND PREVENTION OF WASTE OF	§	
CRUDE PETROLEUM AND NATURAL	§	HEARINGS DIVISION
GAS IN THE STATE OF TEXAS		

MOTION REQUESTING A
MARKET DEMAND HEARING
AND
MARKET DEMAND ORDER EFFECTIVE FOR MAY 2020 PRODUCTION

TO THE HONORABLE RAILROAD COMMISSION OF TEXAS

COME NOW, Pioneer Natural Resources U.S.A., Inc. (“Pioneer”) and Parsley Energy, Inc. (“Parsley”) and file this Motion, containing a verified complaint pursuant to Texas Natural Resources Code (“TNRC”) §85.049 requesting the Railroad Commission of Texas (“Commission”) to conduct a hearing to determine whether the waste of oil and gas is taking place in Texas or is reasonably imminent and, if so, then adopt any rule or order to correct, prevent, or lessen the waste. Further, Pioneer and Parsley request that the Commission inquire as to the reasonable market demand for oil pursuant to TNRC §85.058 and issue any rule or order, effective for May 2020 production, as the Commission may deem appropriate in response to its findings. In support of this Motion, Pioneer and Parsley would show the Commission as follows:

1. The Commission, like state leaders and regulators in other states, has long possessed the authority to prorate oil production in Texas based on market demand in order to prevent economic and physical waste. Beginning in the 1930s, the Commission began issuing market proration orders to bring oil and gas production in line with reasonable market demand.
2. TNRC §85.046(10) defines production in excess of reasonable market demand as “waste.” When the Commission finds wasteful production is occurring or is imminent,

- the Commission is compelled by TNRC §§85.042(b) and 85.051 to issue such rules or orders as are necessary “to correct, prevent or lessen the waste.”
3. The Commission has previously held hearings to determine the reasonable market demand in Texas, including the participation and support from the breadth of the oil and gas industry, from small independent producers to majors.
 4. In 2019, the oil and gas industry employed over 361,000 people in Texas, representing 40 percent of all oil and gas jobs nationally. In 2019, the oil and gas industry generated \$13 billion in Texas tax revenue.
 5. The global oil market is experiencing unprecedented disruption resulting from simultaneous, opposing shocks to both supply and demand. In particular, two global phenomena are driving these shocks: a market share war between Russia and Saudi Arabia, resulting in a sudden, massive surge in the supply of oil; and the outbreak of the COVID-19 pandemic, resulting in the precipitous decline in oil demand. Reportedly, Russian leaders specifically aim to cripple U.S. shale oil production in order to reduce global capacity and competition from U.S. oil exports.¹
 6. As a result of the sudden and dramatic drop in demand, combined with the rapid increase in oil supplies from Saudi Arabia, other OPEC countries and Russia, an unprecedented and massive oil supply surplus (as high as 20 million barrels per day of oil) already is pouring into the global market. At the current rate, 100 million barrels of oil per week could be added to inventories during the second quarter of 2020.
 7. The current available global onshore crude oil storage capacity is only ~1.5 billion barrels. Thus, globally available storage capacity will fall far short of accommodating

¹ <https://www.wsj.com/articles/russia-takes-aim-at-u-s-shale-oil-producers-11584052675>

- the growing volumes of surplus oil due to the demand collapse and production surge. The shortage of storage in the United States already is acute.² When there is little or no storage, there is no place for oil shipments to go and production will be shut in.
8. The surplus will likely overwhelm the handling, processing and storage capacities of the industry's other key logistical nodes (pipelines, vessels, terminals, processing units and storage facilities). The ability of producers to sell oil for the month of May 2020 is becoming increasingly more difficult as oil marketing businesses, such as Plains Marketing L.P. and other purchasers, which together are responsible for purchasing over one million barrels per day in Texas, have begun requesting that suppliers take steps to reduce oil production in response to the pandemic because of the impact on supply and transportation chains.³
 9. The rapidly swelling global oil surplus and limited amount of storage mean that spot oil prices will likely fall under \$10 per barrel and remain severely depressed until the vast amount of excess oil inventory is reduced.
 10. Reflecting these global conditions, market demand for Texas oil is experiencing a massive collapse that threatens to destroy the state's oil industry. Many Texas oil producers very likely will be forced to abandon current and planned production in this price environment. Many may not survive. Rig lay-downs and employee layoffs already are ripping through the industry.
 11. Producing in excess of 13 million barrels of oil per day, the United States is the world's largest oil producer and has just become a net exporter. In the current price

² See, e.g., <https://www.nytimes.com/2020/03/26/business/energy-environment/oil-storage.html>;
https://www.eia.gov/dnav/pet/pet_stoc_wstk_dcu_nus_w.htm

³ <https://finance.yahoo.com/news/pipelines-ask-u-oil-drillers-174638410.html>

environment, industry forecasts predict U.S. production could lose up to 6 million barrels per day in the next 18 months. A drop of that magnitude will cause widespread destruction among producers and their suppliers, and threaten American energy independence as the United States again becomes reliant on foreign producers of oil to meet the bulk of its petroleum needs. That will mean money flowing out of the United States and not spent in Texas.

12. In support of this Motion, Attachment A is a report by IHS Markit published on March 20, 2020, and Attachment B is a report by Rapidan Energy Group published on March 29, 2020. Both of these expert reports provide incisive analyses of current global oil market conditions.
13. Pursuant to Chapter 85 of the TNRC, the Commission possesses the authority to prorate production of oil and gas in the State of Texas to meet reasonable market demand.
14. Pursuant to TNRC §85.049, the Commission is authorized to call a hearing to determine if waste is occurring or is imminent.
15. Upon issuing a notice of hearing pursuant to Tex. Gov't Code §2001.051 and 16 Tex. Admin Code §1.42, the Commission may hold a hearing upon 10 days' notice. In accordance with Tex. Gov't Code §481.016, Governor Abbott temporarily suspended open meeting requirements easing participation by telephone, *see* 16 Tex. Admin. Code §1.112, or videoconferencing, *see* Tex. Gov't Code §551.127.

In light of the foregoing, Pioneer and Parsley respectfully request the Commission to set a market demand hearing as soon as legally possible to determine the current reasonable market demand in Texas and to issue such orders, rules or other relief as may be appropriate to set the market demand for oil in Texas for the month of May 2020. Without Commission action, operators

will shut-in wells in an *ad hoc* and haphazard manner that will heighten industry disruption and cause economic waste. It is therefore incumbent on the Commission to bring fairness and uniformity to any curtailment of production. The Commission must act promptly to ensure the shut-in process takes place in an equitable and orderly manner across the state.

Respectfully submitted,

A handwritten signature in black ink that reads "Scott D. Sheffield". The signature is fluid and cursive, with the first and last names being more prominent.

Scott D. Sheffield
Pioneer Natural Resources USA, Inc.
President & CEO

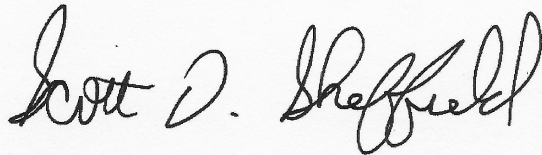
A handwritten signature in black ink that reads "Matt Gallagher". The signature is fluid and cursive, with the first and last names being more prominent.

Matt Gallagher
Parsley Energy Inc.
President & CEO

VERIFICATION OF SCOTT D. SHEFFIELD,
CHAIRMAN AND CHIEF EXECUTIVE OFFICER OF
PIONEER NATURAL RESOURCES U.S.A., INC.

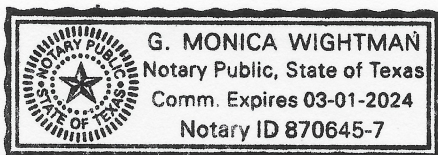
STATE OF TEXAS §
 §
COUNTY OF DALLAS §

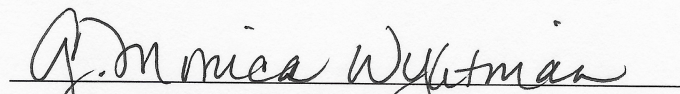
Before me, the undersigned notary public, upon this day personally appeared Scott Sheffield, who being by me duly sworn on his oath deposed and said the factual statements contained in the above and foregoing Complaint are within his personal knowledge and are true and correct.



Scott D. Sheffield

Subscribed and sworn to me on this 30th day of March, 2020, to certify which witness my hand and official seal of office.





Notary Public, State of Texas

VERIFICATION OF MATT GALLAGHER,
PRESIDENT AND CHIEF EXECUTIVE OFFICER OF
PARSLEY ENERGY INC.

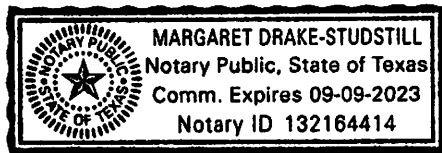
STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

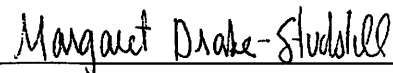
Before me, the undersigned notary public, upon this day personally appeared Matt Gallagher, who being by me duly sworn on his oath deposed and said the factual statements contained in the above and foregoing Complaint are within his personal knowledge and are true and correct.



Matt Gallagher

Subscribed and sworn to me on this 30th day of March, 2020, to certify which witness my hand and official seal of office.





Notary Public, State of Texas

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing was served on the following as indicated below on the 30th day of March, 2020.

Via Email and Fax

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Chairman Wayne Christian
Commissioner Ryan Sitton
Commissioner Christi Craddick
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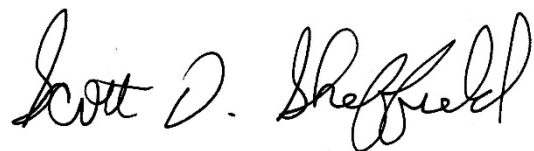
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Scott D. Sheffield

Attachment A

Crude Oil Markets

Scheduled Update

Light-speed oil surplus: Emergency conditions for the oil industry

Global Crude Oil Markets Short-Term Outlook

20 March 2020

Jim Burkhard, Vice President, jim.burkhard@ihsmarkit.com

Paul Tossetti, Executive Director, paul.tossetti@ihsmarkit.com

Stanislav Yazynin, Senior Research Analyst, stanislav.yazynin@ihsmarkit.com

Ashok Dutta, Senior Research Analyst, ashok.dutta@ihsmarkit.com

Karim Fawaz, Director, karim.fawaz@ihsmarkit.com

Bhushan Bahree, Executive Director, bhushan.bahree@ihsmarkit.com

Aaron Brady, Vice President, aaron.brady@ihsmarkit.com



Opening statement

Light-speed oil surplus: Emergency conditions for the oil industry (1 of 3)

If you cannot use or store it, then you cannot produce it. This is what the world of oil is facing as demand temporarily collapses owing to the impact of the coronavirus disease 2019 (COVID-19) and prices fall near lows not seen since the late 1990s. This is an emergency situation for the oil industry given the extreme speed at which it is unfolding. Will adjustments, albeit severe, somehow be coordinated in a chaotic situation or unfold chaotically? Pressure on Saudi Arabia to reconsider its decision to increase supply by 2.6 MMb/d is growing.

The supply surplus looks as if it will exceed the 1.3–1.6 billion bbl of potentially available crude oil storage capacity around the world, onshore and on tankers. In crisis situations, creativity and agility tend to come into play and may lead to new places to store oil. Some of the surplus could be refined and placed in product storage, but this is limited given product quality degradation if stored too long. In any case, the surplus cannot be greater than the ability to store it. Something will have to give—either steep cuts to current production or production will be forced to be shut in—or a combination of the two.

But first, how does this crisis unfold? It begins with consumers drastically curtailing road and air travel. This is happening now in Europe and North America, while China is only beginning to recover.* Second, refineries sharply reduce the volume of crude oil they process. Third, storage tanks and tankers fill to capacity.

*All references to China in this report exclude Hong Kong, Macao, and Taiwan, unless noted otherwise.

Opening statement

Light-speed oil surplus: Emergency conditions for the oil industry (2 of 3)

Producers start shutting in production if and when they can no longer find buyers or storage for their oil. This is a global emergency for the world economy and for the oil industry. Oil production in the United States will be among the most impacted.

How big is the supply surplus? Our 20 March 2020 estimate is that world oil supply will exceed demand in the first half of the year by approximately 1.8 billion bbl, which is 200 MMbbl more than the upper end of estimated available crude oil storage capacity.¹ This surplus assumes no change in Saudi production policy. We have reduced our production outlook for some regions to indicate shut-in production, but our calculated surplus still exceeds crude oil storage capacity. The implication is more production will be shut in than we currently estimate in part because there may be no place to store it.

Most of this previously unimaginable surplus will be concentrated in March, April, and May, when 100 MMbbl or more could be added each week to inventories. This result is based on world oil demand being down approximately 10 MMb/d in the first half of 2020 compared with a year ago owing mainly to the collapse in jet fuel, gasoline, and diesel demand.² For context, the largest year-on-year oil demand decline over a similar time period was in the first half of 2009, when demand fell 2.8 MMb/d during the financial crisis. Immediate and sharp production cuts can mitigate the damage that will take place.

1. The previous largest oil supply surplus—world oil (liquids) supply less demand for liquids—over a similar time period was 320 MMbbl in the first half of 2015.

2. We estimate first-quarter 2020 and second-quarter 2020 world oil demand will be down 6.8 MMb/d and 14.2 MMb/d, respectively, compared with year-earlier levels.

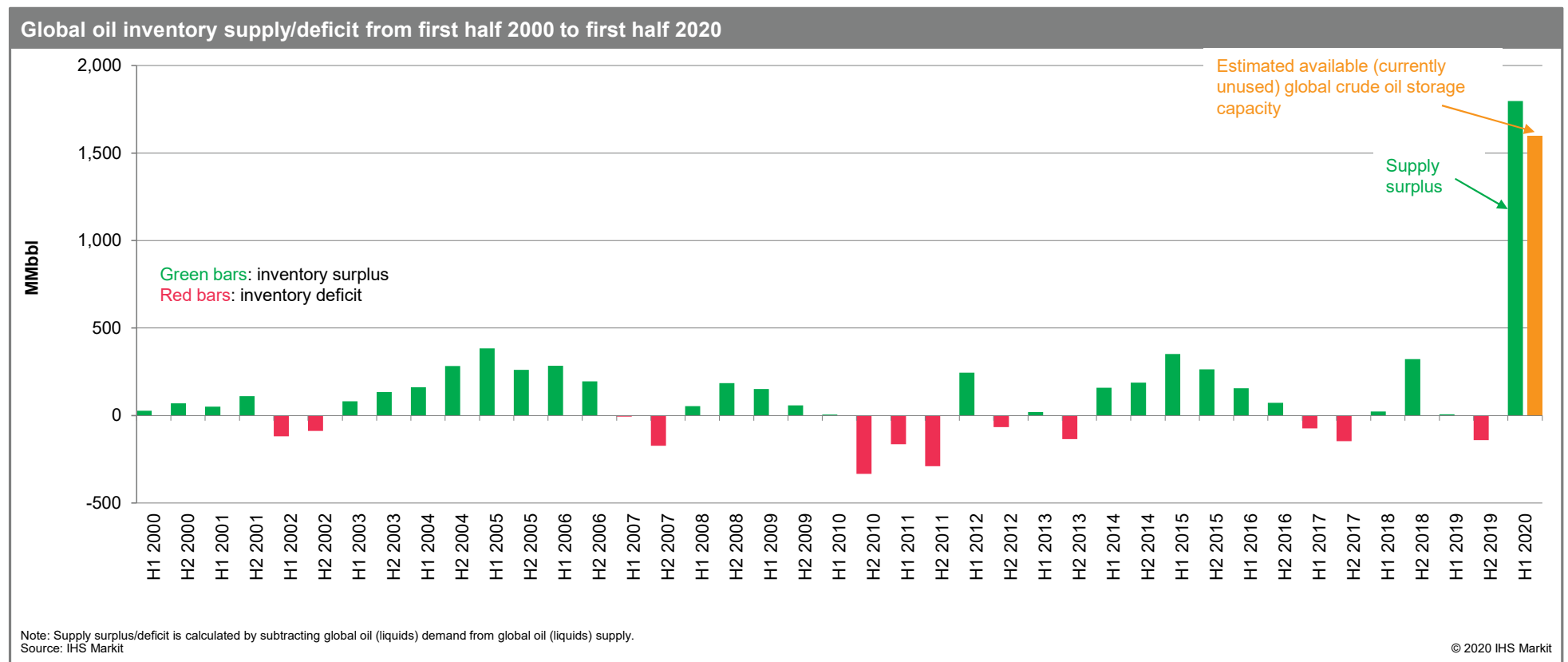
Opening statement

Light-speed oil surplus: Emergency conditions for the oil industry (3 of 3)

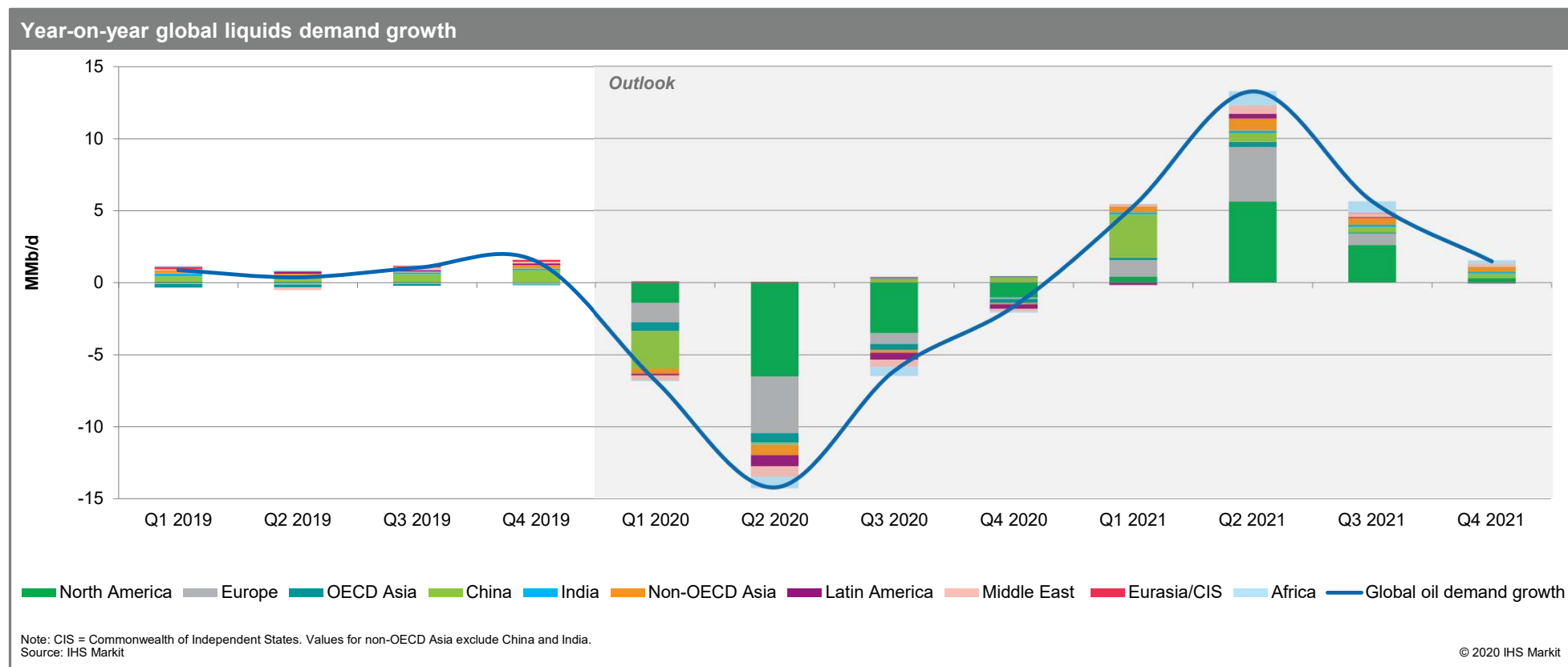
How long will it last? The economy will eventually recover, and demand will stop falling. Very low oil prices will lead to lower upstream spending and fewer new oil wells drilled, especially in the United States. Our current assumptions show an oil supply deficit in 2021, but a severe stock overhang will keep prices depressed. There is a heightened degree of uncertainty about any outlook these days, but our base-case assumptions show that a severe decline in US production will drain some of the inventory overhang in 2021, and prices will rise, albeit from low levels.

In a previous era, the Texas Railroad Commission managed oil supply surpluses by allocating and enforcing production allocations. More recently, Saudi Arabia and Russia led a group of OPEC and other producers that voluntarily agreed to jointly cut output. The size of the oversupply that is building now is beyond the scope of previous market management efforts. Government interventions will take place, but will they be coordinated, or ad hoc and random? Emergency conditions exist that if left unchecked are poised to damage every aspect of the industry: consumers, governments, companies, workers, and future oil supply. The industry will endure beyond these extreme and harrowing conditions. The beginning of a recovery in China is a sign that the rest of the world could also recover later this year.

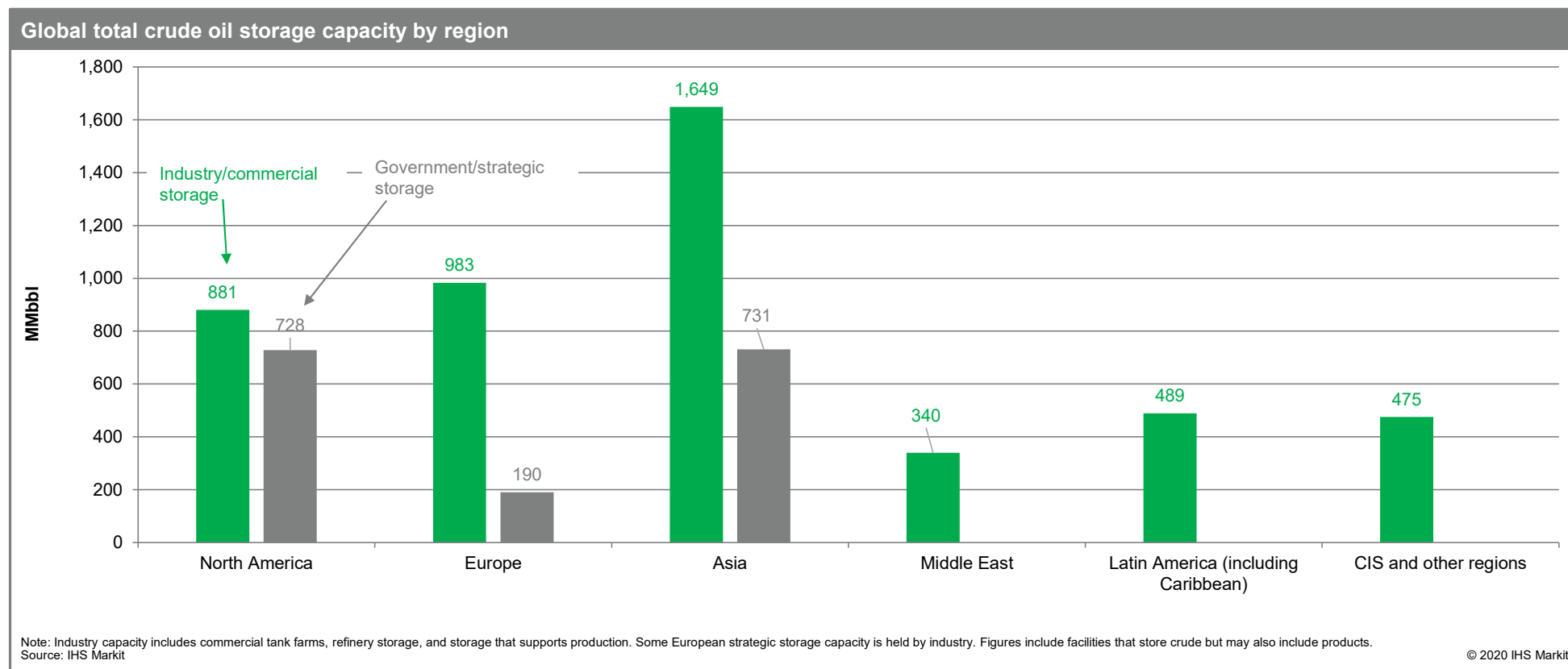
In first half 2020, the global oil surplus of 1.8 billion bbl will exceed globally available crude oil storage, estimated at up to 1.6 billion bbl



The primary cause of the oil supply surplus is the collapse in world oil demand in the first and second quarters of 2020

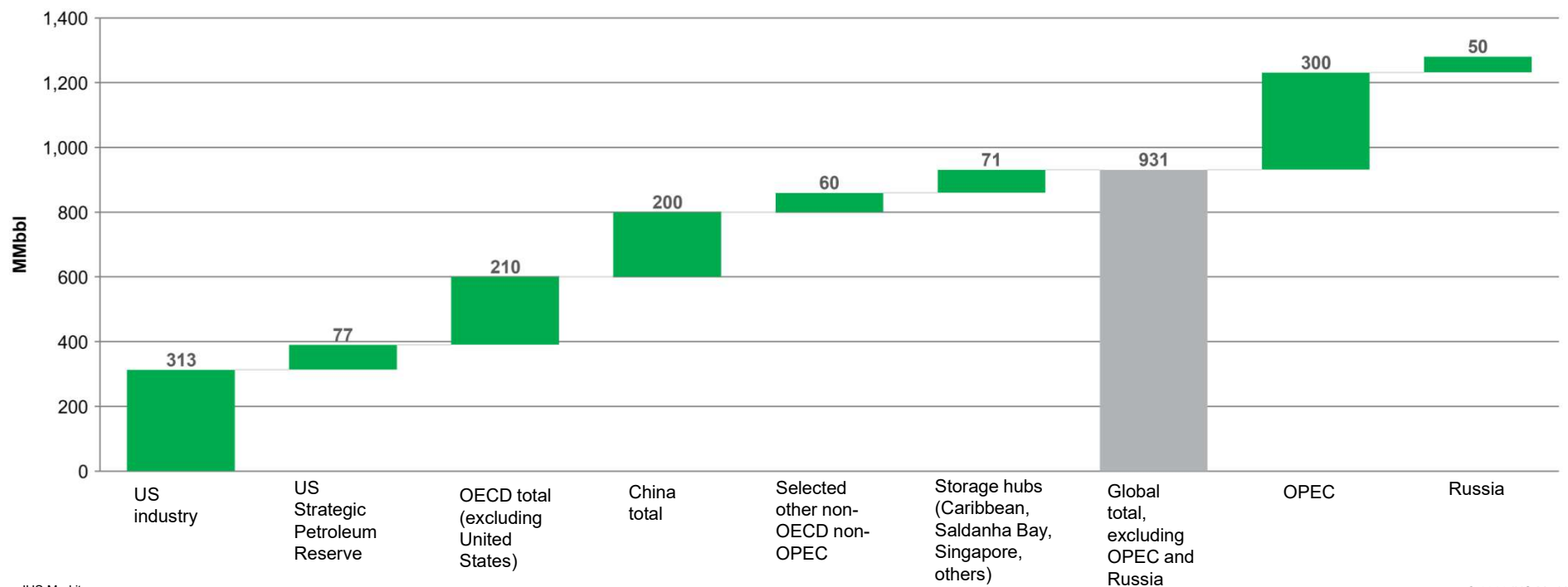


Global existing onshore crude oil storage capacity is estimated at about 6.4 billion bbl, including 4.8 billion bbl of industry capacity



Global available (currently unused) onshore crude storage capacity is estimated at 1.3 billion bbl, while floating storage may offer up to 0.3 billion bbl more

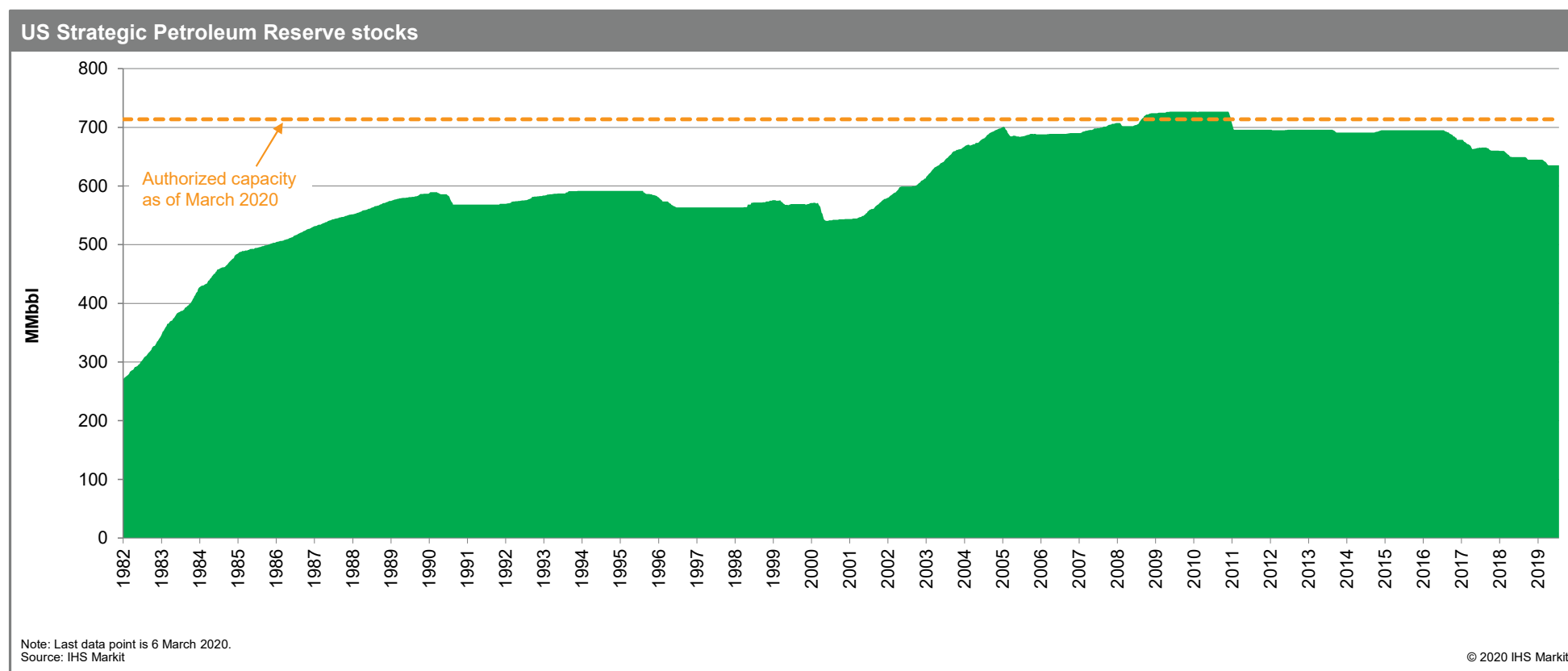
Estimated available onshore crude storage capacity



Source: IHS Markit

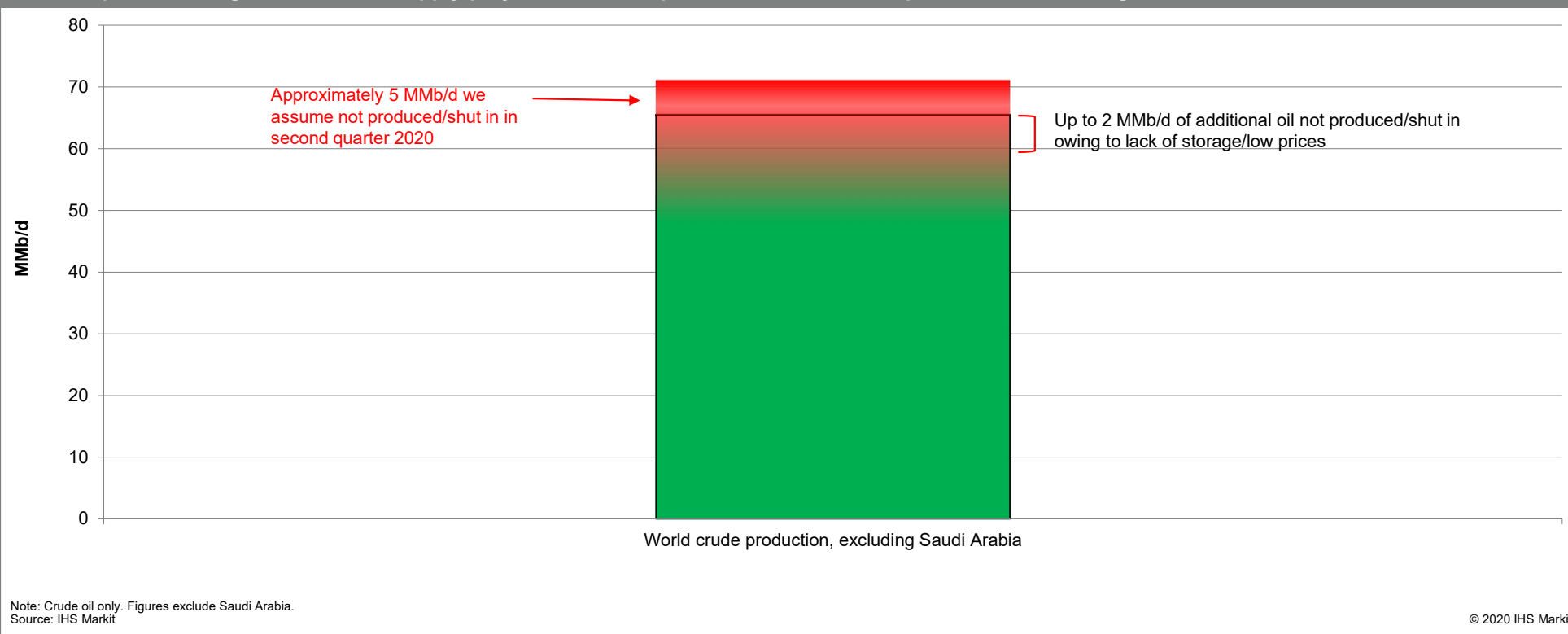
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President Donald Trump's plan to fill up the US Strategic Petroleum Reserve could soak up 79 MMbbl—less than 5% of the first-half 2020 global surplus

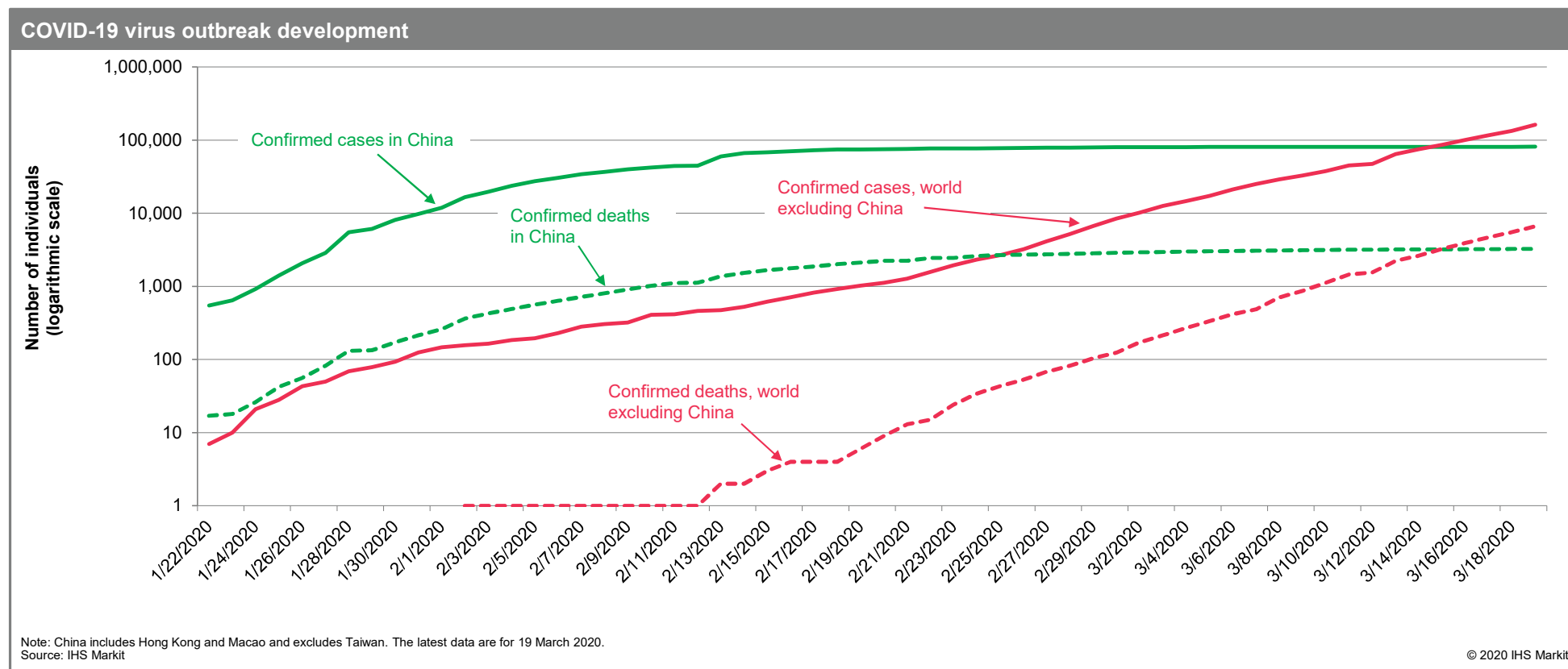


Lack of storage and low oil prices mean 5–7 MMb/d of crude oil production may not be produced/shut in during second quarter 2020

Second-quarter 2020 global crude oil supply projections and implied amount of shut-in production, excluding Saudi Arabia



The COVID-19 outbreak continues as the COVID-19 virus has spread to 155 countries



Temporary demand decline: Key assumptions of our base-case price scenario

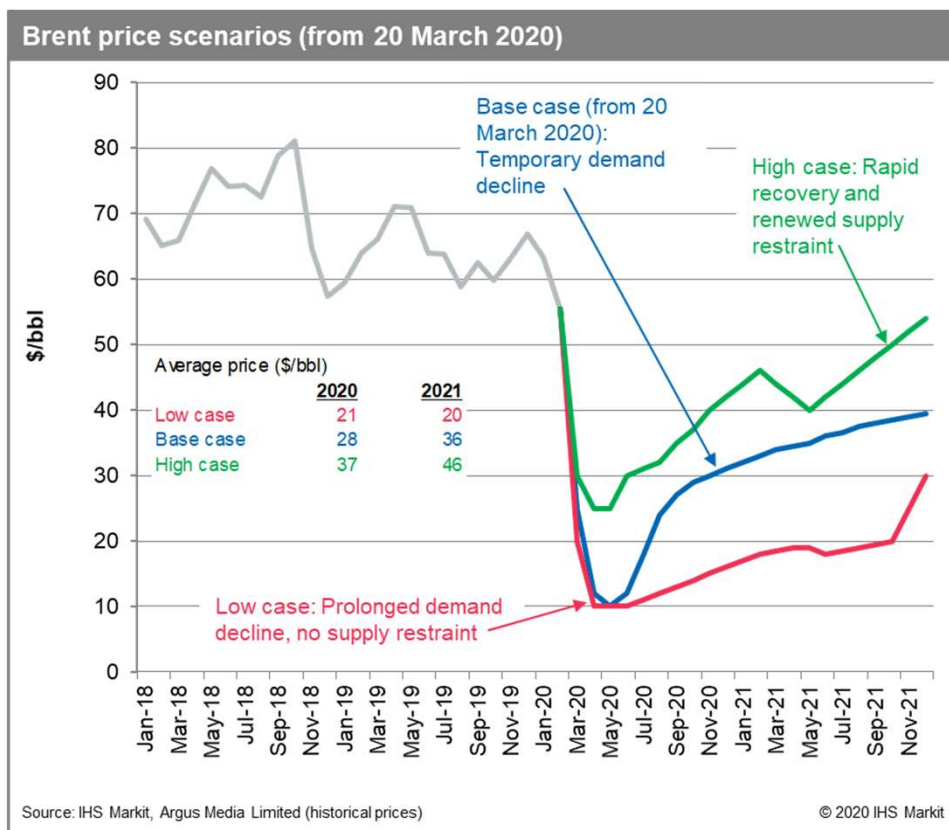
A scenario framework is essential owing to heightened uncertainty about the course of the global economy and oil markets because it provides a range of outcomes for decision makers to consider. Our base-case scenario is called temporary demand decline.

Key assumptions of the temporary demand decline scenario are

- **Peak of new COVID-19 cases outside China by mid-second quarter 2020**
- **World oil demand.** Second-quarter 2020 demand is 14.2 MMb/d below the year-earlier level and down 7.2 MMb/d for the year. In 2021, world oil demand increases 6.4 MMb/d above the 2020 level. This is a major downward revision compared with our short-term outlook from 16 March 2020*.
- **No deal among oil superpowers to manage the second quarter 2020 surplus before it hits.** Saudi Arabia, Russia, and the United States do not establish a collaborative framework for managing the surplus. Instead, Individual efforts, such as the US government filling the Strategic Petroleum Reserve to capacity, take place.
- **Available crude oil storage capacity is 1.3–1.6 billion bbl, which is less than the indicative first-half 2020 supply surplus of 1.8 billion bbl.** This result means that up to 5–7 MMb/d of production will not be produced/shut in.
- **Brent crude oil prices are generally \$10–30/bbl** for the rest of 2020, which leads to oil being shut in and lower production from key producers in the second half of the year.
- **Prices rise in 2021 to \$30–40/bbl as year-on-year oil demand growth returns,** US production continues to fall, and surplus inventories are eroded.

*IHS Markit [Global Crude Oil Markets Short-Term Outlook—March 2020: An enormous, unprecedented oil supply surplus is here.](#)

Three Brent oil price scenarios illustrate the range of outcomes



Base case (20 March 2020): Temporary demand decline; see preceding slide for assumptions

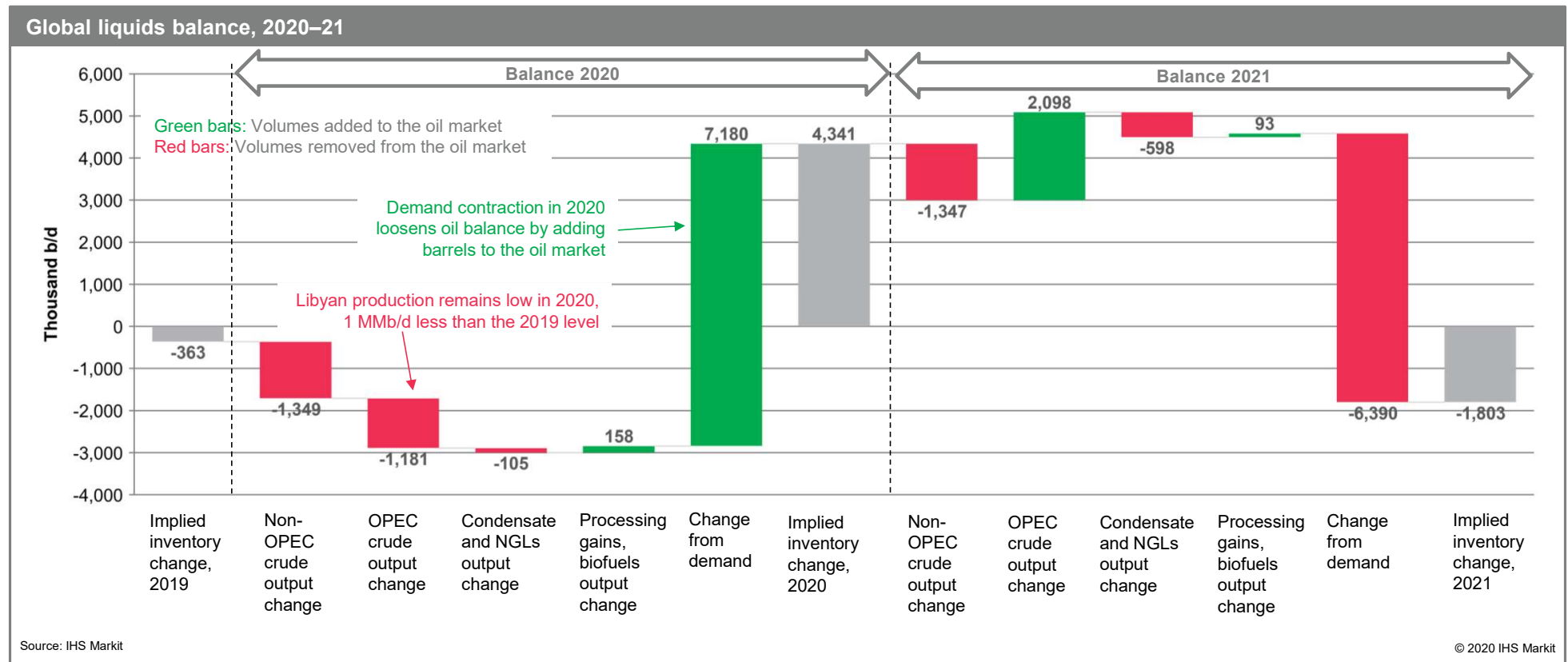
Low case: Prolonged demand decline, no supply restraint

- Global oil demand remains even weaker in second half 2020 compared with that in the base case. There is a full-year decline of 10 MMb/d, with a relatively modest 2 MMb/d increase in 2021.
- Supply infrastructure seizes up in some areas.
- Prices are \$10–20/bbl until second half 2021, keeping higher-opex oil shut in.
- The price war among major oil powers endures.
- US crude oil production falls to 7 MMb/d by late 2021, which helps erode the supply surplus and push prices to \$30/bbl.

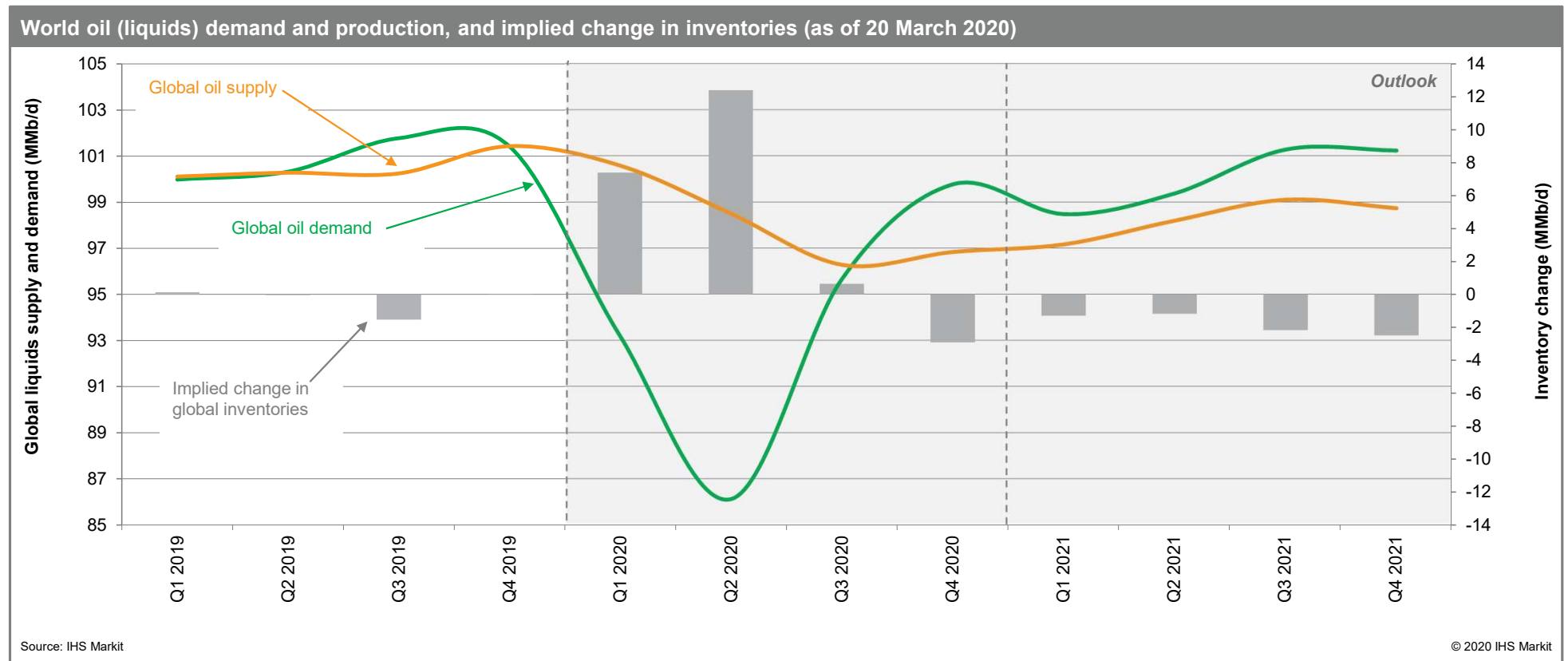
High case: Rapid recovery and renewed supply restraint

- The demand decline is not as severe as envisioned as that in the base case. There is a full-year 2020 demand decline of 4 MMb/d in 2020, with a 2 MMb/d increase in 2021.
- New COVID-19 cases outside China peak in early April. Fear and uncertainty subside, while confidence improves in financial markets.
- Global oil demand growth returns in second half 2020.
- Saudi Arabia, Russia, and the United States agree to supply restraint for a limited time.
- US crude oil production stands at 11 MMb/d in late 2021, down 2 MMb/d from early 2020.

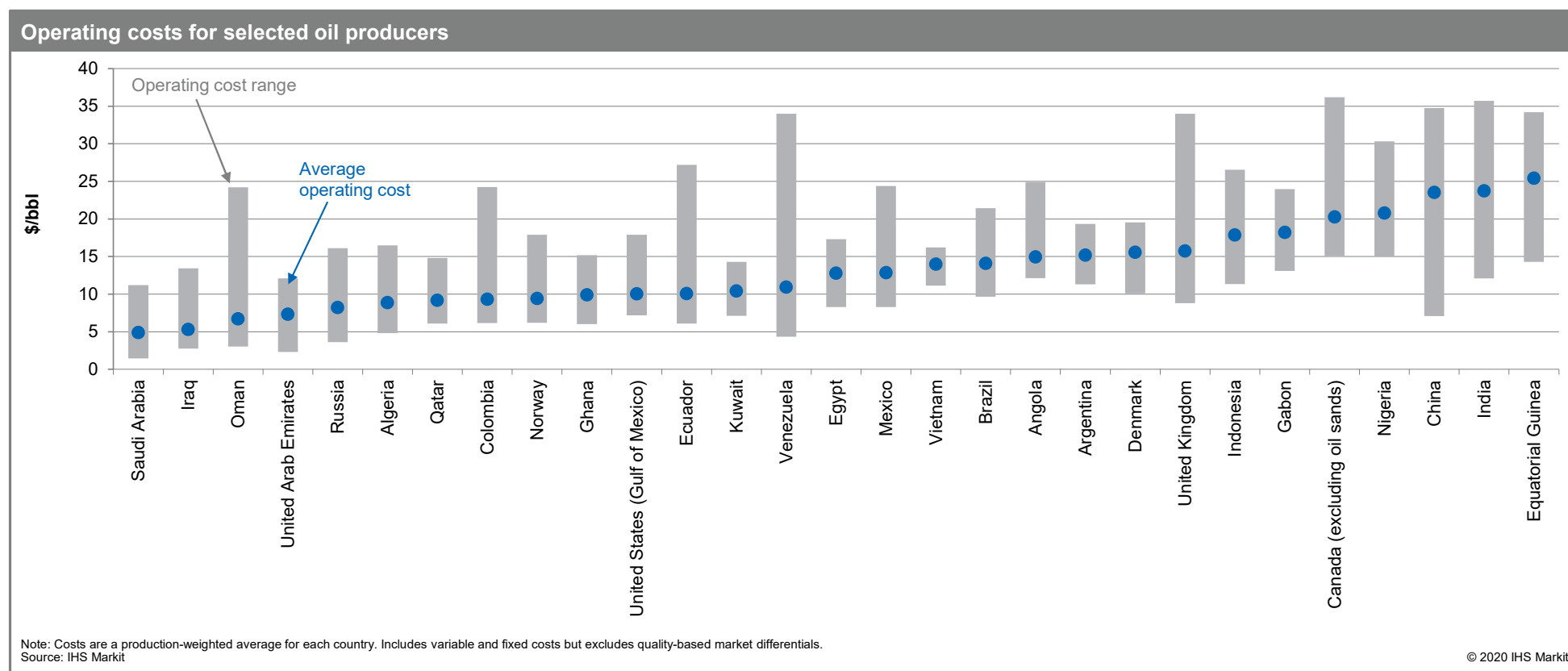
Demand contraction and higher Saudi output drive massive stock builds in 2020



In the base-case scenario, major global oil inventory builds take place in the first two quarters of 2020

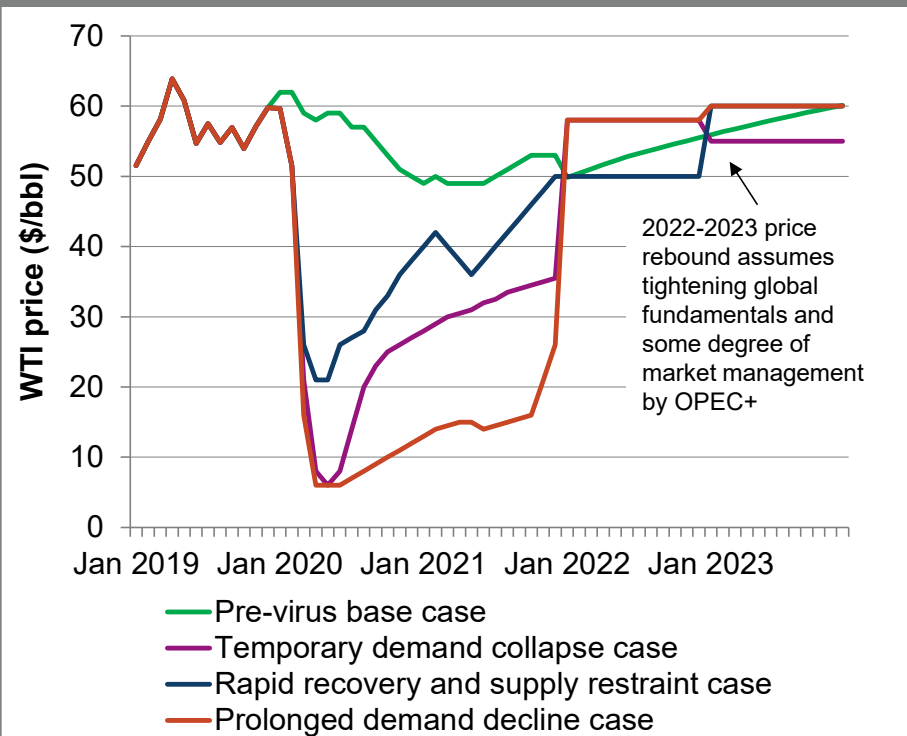


Unable to find a home for their barrels, some producers will be faced with shutting in production. Higher-opex barrels with limited storage options are at the greatest risk.



US Production Could Lose 4 to 6 million b/d within 18 months

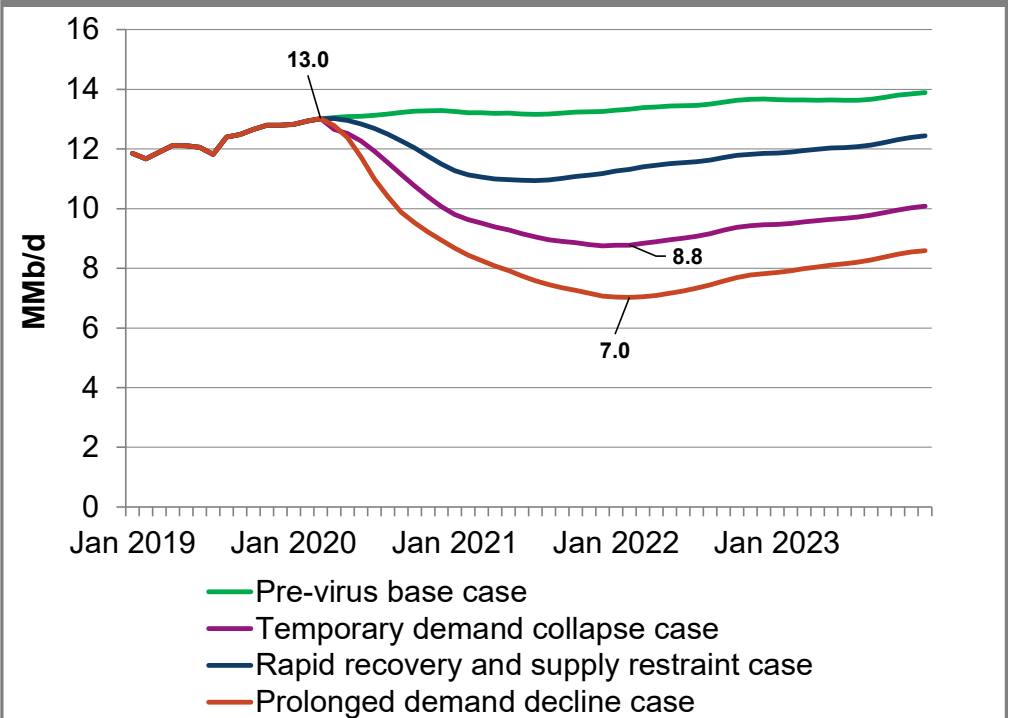
Assumed price path by case



Source: IHS Markit

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US crude oil production by case

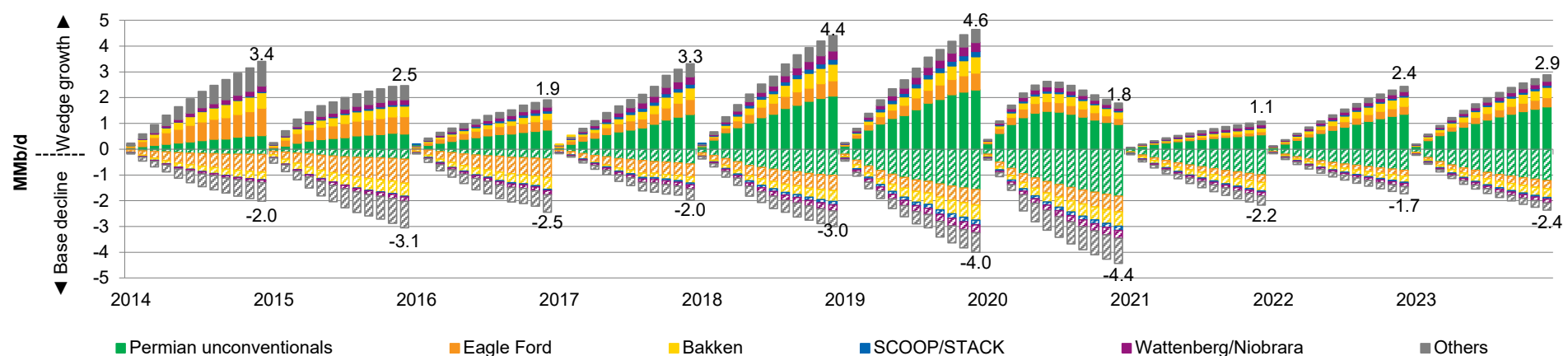


Source: IHS Markit

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For the first time since 2016, the base decline of US onshore crude oil production will be greater than new production (wedge growth) in 2020 and 2021

US onshore crude oil base decline and wedge production



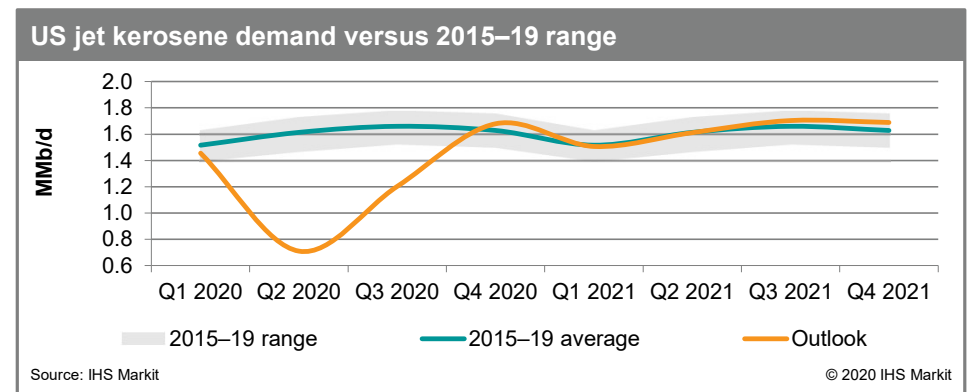
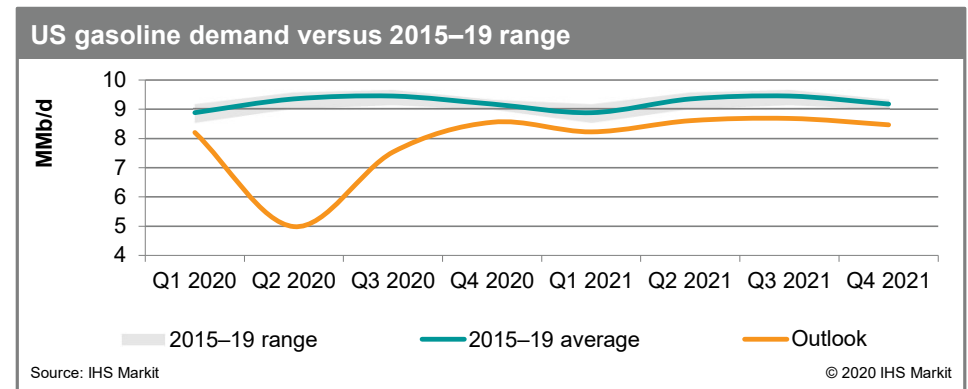
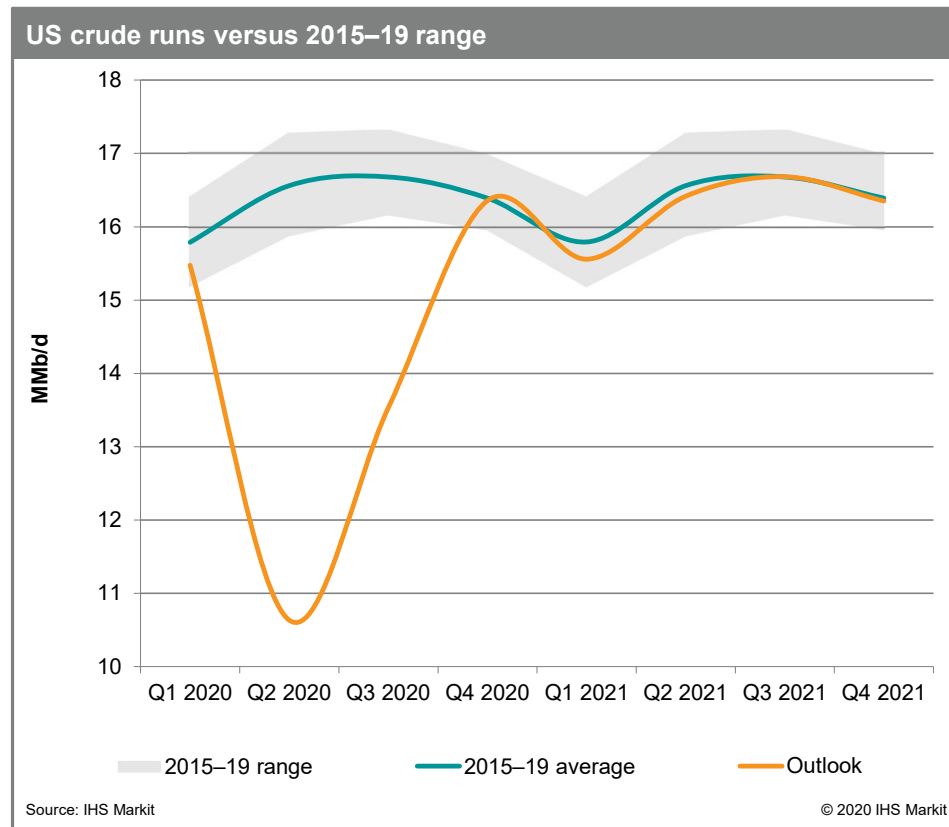
Note: SCOOP stands for South Central Oklahoma Oil Province and is located principally in Oklahoma's Anadarko Basin. STACK is derived from "Sooner Trend (oil field), Anadarko (basin), Canadian and Kingfisher (counties)." Base decline represents total production decline from existing wells over a given year. Wedge growth reflects incremental production from new wells completed each year.

Source: IHS Markit

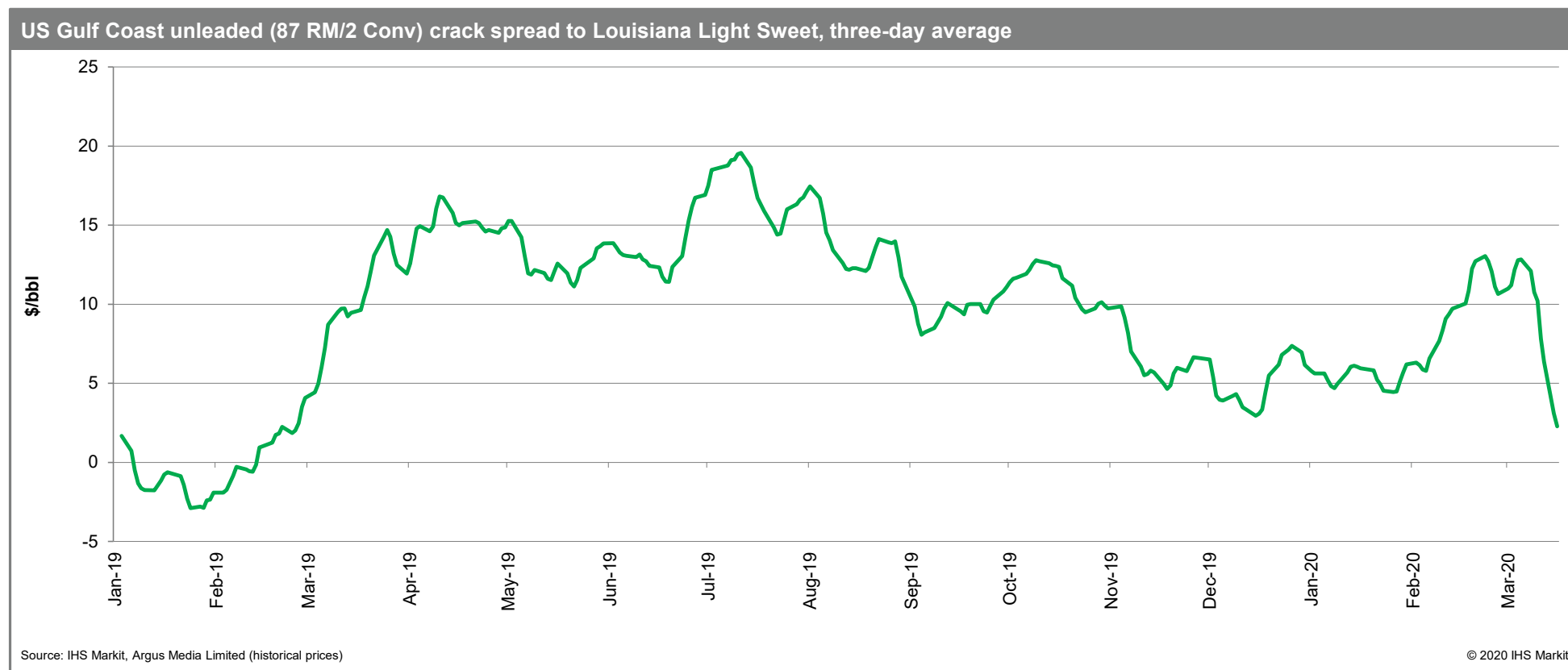
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- In the temporary demand decline scenario, drilling activity plunges from 18,727 well additions in 2019 to just 9,319 well additions during 2020. Production from new wells reaches just 1.8 MMb/d at year-end 2020 and 1.1 MMb/d during 2021 (compared with 4.6 MMb/d during 2019). As new volumes shrink, base declines become dramatically shallower: in such a scenario, base declines total just 2.2 MMb/d at year-end 2021 owing to relatively few new wells brought onstream during the previous year.
- At WTI prices of \$24/bbl in 2020 and \$32/bbl in 2021, the Permian Basin contributes an outsize share of overall wedge production growth given its relatively attractive wellhead economics. The Permian Basin makes up nearly 60% of total new production (wedge growth) from new wells brought onstream during 2020 and 2021.

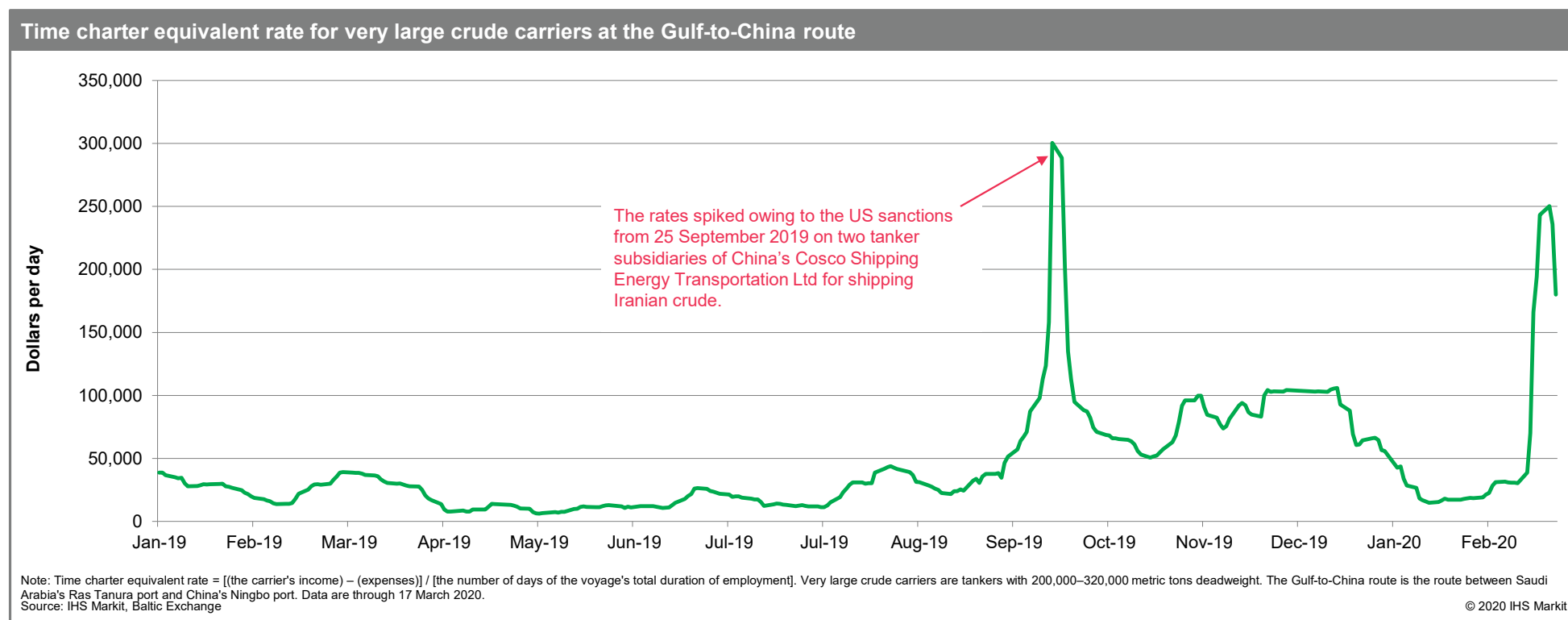
US crude runs are projected at 6 MMb/d below the five-year average in second quarter 2020 as demand for main products contracts



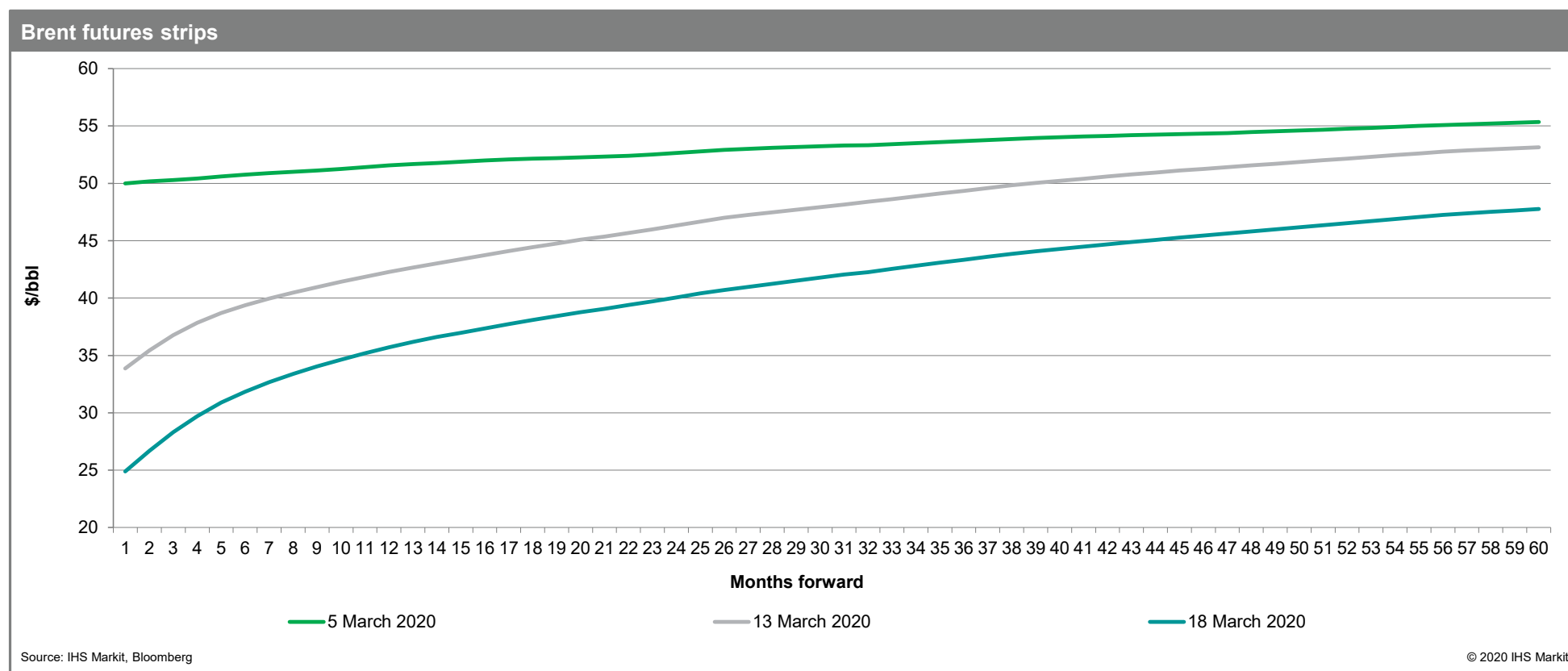
US Gulf Coast gasoline margins are falling owing to declining gasoline demand



Time charter equivalent rates increased eight times in early March 2020, reflecting demand for oil tankers as Saudi chartered tonnage moves higher production



Contango is getting steeper—Brent 12-month futures stripped at \$11/bbl on 18 March 2020—making storing crude more appealing



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Attachment B



RAPIDAN
ENERGY GROUP

Rapidan's Short-Term Oil Balance Update

With Comparisons to EIA, IEA, and OPEC's Latest Outlooks

March 29, 2020



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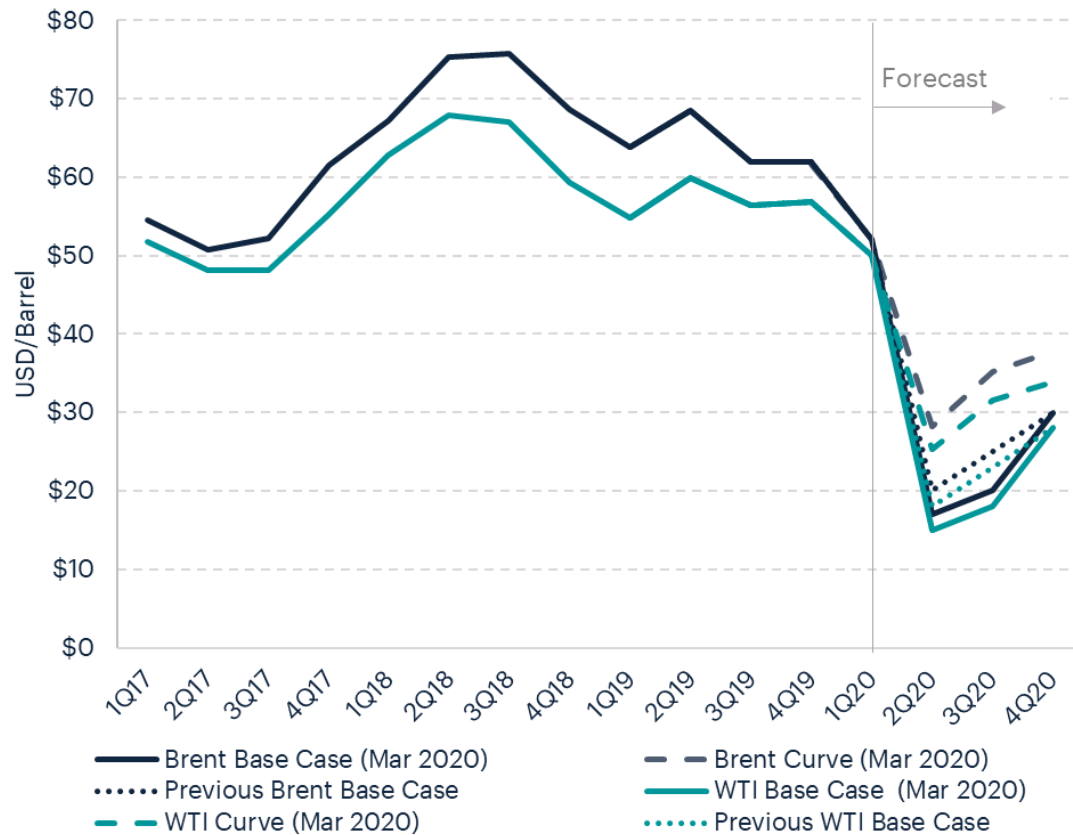
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- Our core view remains unchanged from our [first post-OPEC+ meeting client report](#) released at noon EST on March 6 (when Brent was still above \$45): **There is no floor in sight under crude prices due to the combination of a massive negative demand shock and unraveling producer supply restraint.** Moscow and Riyadh remain dug in, and even if they weren't, it is too late to avoid epic 2Q20 inventory builds. Crude prices are headed to the single digits (on a daily basis) as global supply surpluses test storage capacity in the coming months (if not weeks).
 - We now see 2Q20 demand imploding by 16 mb/d y/y. With OPEC+ ramping up production by 3.4 mb/d between 1Q20 and 2Q20, the combination will unleash the mother of all oil tsunamis - a quarterly surplus exceeding 20 mb/d.
 - Global stocks will build by a net ~2.5 billion bbls this year, approaching our estimated remaining global capacity of ~3.0 billion bbls (~1.5 bn bbls available for crude and ~1.5 bn bbls for products). Shut-ins have begun in Canada and elsewhere but are not nearly fast enough to prevent swelling inventories.
 - Brent averages \$17 in 2Q20 (down \$3 from our previous forecast) as ~20 mb/d of unwanted crude and products pour into shrinking storage capacity in tanks, ships, and pipelines.
- **An epic crude tsunami that will swamp storage and hammer oil prices is unavoidable, but we expect OPEC+ to reconvene by 2H20 and start to clean up the overhang.**
 - Both Riyadh and Moscow remain dug in and determined to maximize production and push barrels into a rapidly shrinking market. Despite boiling anger in US oil states, Riyadh won't blink until Moscow returns to the table and contributes substantial cuts.
 - We assess Saudi Arabia and UAE will come close to pushing their promised 12.3 and 4.0 mb/d, respectively, into the market in April, though distributing the barrels could be tempered by the unusually fast drop in refinery demand for crude, soaring costs for scarce tankers, and choked logistics and storage.
 - President Putin did not expect crude prices to plunge and stay below \$30 and is beginning to wince. However, Russia is unwilling to change course. We continue to expect sub-\$20 prices and a lingering bleak macro picture will convince Moscow to resume OPEC+ negotiations - eventually. Our base case assumes OPEC+ will return to its previous quotas and implement an additional 1.5 mb/d of cuts by July.

- **Demand outlook keeps getting bleaker: We slashed our 2020 global demand growth forecast by 4.7 mb/d, primarily on updated coronavirus-related impacts, and now see it contracting by 7.1 mb/d y/y.** Demand falls ~16.4 mb/d y/y in 2Q20, with the biggest impacts in the US, Europe, and India.
 - April is the worst month, with global demand collapsing by a mammoth 22 mb/d y/y. US and OECD Europe are down by 12 mb/d as social distancing peaks, with a ~70% decline in flights, 45% decline in gasoline demand, 35% decline in diesel, and a 20% decline in other products.
 - US demand falls by 5.2 mb/d in 2Q20 (2.1 mb/d for the year) as travel and trade plummet. As of March 28th, 26 states were under state-wide stay-at-home orders. These states account for 53% (~4.9 mb/d) of US gasoline demand.
- **US shale production falls by ~1.1 mb/d from Dec '19 to Dec '20. Output will decline slowly in 1H20 before falling more steeply (0.1-0.2 mb/d per month) beginning in June.**
 - Most companies are locked into service contracts or pipeline commitments, so drilling activity won't slow meaningfully for a couple of months.
 - We currently assume a 40% y/y drop in well completions in 2H20, with risk skewed toward a deeper drop and a steeper production decline.
- **Important bearish crude price risk: Aggressive Chinese stock building has helped tighten the market in recent years, but the pace could slow as Beijing worries about forex balances and upcoming foreign debt repayments.**
 - China will prioritize servicing the ~\$2.0 trillion of short-term external debt that is due in 2020. Beijing still views energy security as a top priority, but the pace of crude builds may slow (despite lower prices) as foreign currency outlays will be carefully monitored by the State Administration of Foreign Exchange regulator.
- **Despite a modest supply deficit in 4Q20, Brent only recovers to average \$30 due to the massive inventory overhang, relatively small OPEC+ cuts, and residual economic sluggishness.**
 - Global demand growth remains negative at -1.7 mb/d in 4Q20 as the global economy struggles to recover after a summer peak of COVID-19.
 - But the global balance returns to a supply deficit as non-OPEC production declines by 2.6 mb/d y/y (mainly US shale and high opex producers such as Canada, Brazil shallow-water, and China) and OPEC+ restrains production.

- We revised 2Q20 and 3Q20 Brent prices lower by \$3 and \$5, respectively, to \$17 and \$20.
- Our much-looser balance implies many more physical crude grades (particularly landlocked ones) will flip to negative prices and force shut-ins as storage fills.
- Brent averages \$17 in 2Q20 (daily/weekly prints in the single digits) as global stocks swell by 20 mb/d, straining storage capacity limits.
- By late-2Q20, sub-\$20 crude should force Moscow back to the negotiating table. Prices begin to rise in 3Q20 on an OPEC+ deal, COVID-19 peak, and declining US shale.
- Risk to our forecast is bi-directional:
 - Upside: an earlier OPEC+ deal; prorating of US production or import restrictions (bullish WTI, bearish Brent); a prolonged production outage in Libya that extends past 2Q20; Iran resumes targeting Gulf oil infrastructure.
 - Downside: coronavirus fails to peak by 3Q20 (or multi-wave outbreaks); US-Iran deal results in return of 0.5-1.0 mb/d of Iranian production in 2020; China slows stockbuilding due to forex balance concerns; Russia refuses to rejoin OPEC+.

Rapidan Energy Group's Brent and WTI Crude Price Forecasts



Rapidan Energy Group's Brent and WTI-Cushing Price Forecast						
	1Q20	2Q20	3Q20	4Q20	2019	2020
Brent	\$52	\$17	\$20	\$30	\$64	\$30
WTI	\$50	\$15	\$18	\$28	\$57	\$28
Brent-WTI	\$2	\$2	\$2	\$2	\$7	\$2

Source: Bloomberg, Rapidan Energy Group

Our Updated Global Oil Balance

March 29th update

(1) The global supply surplus surges by 20.1 mb/d in 2Q20 as daily Brent prices fall into the single digits. The annual surplus of 2.5 billion bbls will test global storage capacity (we estimate ~3.0 bn bbls is currently available, of which only 1.0 bn is for commercial crude).

(2) Global demand declines by 7.1 mb/d y/y due to coronavirus-related demand destruction and its economic ramifications. 2Q20 demand falls to a 16-year low. At the peak, demand collapses by ~22 mb/d y/y in April.

(3) Single digit crude prices force Russia back to the table in late-2Q20. Our forecast shows OPEC+ returning to previous quotas in 3Q20 and enacting 1.5 mb/d of additional cuts (i.e. OPEC's March 5th [proposal](#)).

(4) US shale production is crushed by single digit WTI prints and falls 1.1 mb/d between Dec '19 and Dec '20 – posting its first y/y decline since 2016.

Rapidan Energy Group's Oil Balance	2019				2020				Average		Y/Y Growth	
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	2019	2020	2019	2020
Consumption (mb/d)												
OECD	47.6	46.9	48.1	47.7	43.9	36.8	46.3	46.6	47.6	43.4	-0.3	-4.2
United States	20.3	20.3	20.7	20.6	18.5	15.1	19.6	20.1	20.5	18.3	0.0	-2.1
Japan	4.1	3.4	3.4	3.8	3.8	3.1	3.4	3.5	3.7	3.5	-0.1	-0.2
Canada	2.5	2.4	2.6	2.5	2.3	2.0	2.5	2.5	2.5	2.3	0.1	-0.2
Mexico	1.9	1.9	1.9	1.9	1.9	1.6	1.9	1.9	1.9	1.8	0.0	-0.1
Other OECD	18.9	18.8	19.4	19.0	17.3	15.0	18.9	18.6	19.0	17.4	-0.2	-1.6
Non-OECD	51.5	52.3	52.6	53.2	48.1	46.0	51.3	52.6	52.4	49.5	1.1	-2.9
China	13.0	13.6	13.6	13.7	11.3	11.9	13.2	13.7	13.5	12.5	0.5	-1.0
India	5.1	5.1	4.8	5.0	4.7	3.7	4.6	5.0	5.0	4.5	0.1	-0.5
Brazil	3.0	3.0	3.2	3.2	3.0	2.7	3.1	3.1	3.1	3.0	0.1	-0.1
Russia	3.4	3.5	3.7	3.6	3.3	3.2	3.6	3.5	3.6	3.4	0.1	-0.2
Other Non-OECD	26.9	27.1	27.4	27.7	25.8	24.6	26.8	27.3	27.2	26.1	0.3	-1.1
Total World Consumption	99.1	99.2	100.6	100.9	92.0	82.8	97.6	99.2	100.0	92.9	0.8	-7.1
Supply (mb/d)												
OECD	31.0	31.2	31.4	32.7	32.9	31.9	31.2	31.1	31.6	31.8	1.6	0.2
U.S. Total Liquids	18.9	19.4	19.5	20.3	20.1	20.0	19.4	19.1	19.5	19.7	1.6	0.2
Crude	11.8	12.1	12.2	12.8	12.7	12.5	12.0	11.8	12.2	12.2	1.2	0.0
Lower 48	9.5	9.7	10.0	10.3	10.3	10.0	9.6	9.3	9.9	9.8	1.1	-0.1
GOM	1.8	1.9	1.8	1.9	1.9	2.0	1.9	1.9	1.9	2.0	0.1	0.1
Alaska	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.0	0.0
NGLs	4.7	4.8	4.8	5.0	4.9	4.8	4.8	4.8	4.8	4.8	0.4	0.0
Other US Liquids	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.5	2.6	-0.1	0.1
Mexico	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	-0.1	0.0
Canada	5.6	5.6	5.6	5.8	5.9	5.1	5.0	5.0	5.7	5.2	0.2	-0.4
Other OECD	4.5	4.3	4.3	4.7	4.9	4.8	4.8	5.0	4.5	4.9	0.0	0.4
Non-OECD	33.0	33.2	33.8	33.7	33.2	33.7	33.3	32.7	33.4	33.2	0.5	-0.2
Brazil	2.9	3.4	4.0	3.9	3.4	3.8	4.1	3.7	3.6	3.8	0.2	0.2
China	4.3	4.3	4.3	4.3	4.3	4.3	4.2	4.2	4.3	4.3	0.1	0.0
Russia	11.7	11.5	11.6	11.6	11.6	11.8	11.3	11.3	11.6	11.5	0.1	-0.1
Other Non-OECD	14.1	14.0	13.9	13.9	13.9	13.8	13.6	13.4	14.0	13.7	0.1	-0.3
Non-OPEC Supply	64.0	64.5	65.2	66.4	66.1	65.6	64.5	63.8	65.0	65.0	2.1	0.0
OPEC	36.2	35.6	35.0	35.8	34.1	37.3	34.0	33.9	35.5	34.8	-1.9	-0.7
Crude Oil Portion	30.7	30.1	29.5	29.8	28.7	31.7	28.5	28.4	30.0	29.3	-1.8	-0.7
Other Liquids	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	0.0	0.0
Total World Supply	100.2	100.1	100.2	101.7	100.2	102.9	98.5	97.7	100.5	99.8	0.2	-0.7
Implied Surplus	1.0	0.9	-0.4	0.8	8.3	20.1	0.9	-1.5	0.6	6.9		
OECD Commercial Inventory Change	0.1	0.1	0.1	-0.5	3.0	13.1	0.3	-1.4	-0.1	3.7		
OECD SPR, Non-OECD Commercial and SPR, Oil on water	0.9	0.8	-0.5	1.3	5.3	7.0	0.6	-0.1	0.6	3.2		
of which: non-OECD SPR	0.5	0.5	0.3	0.5	0.9	1.2	0.5	0.5	0.5	0.8		
OECD SPR	0.1	-0.1	0.0	-0.1	-0.1	0.2	0.0	0.0	0.0	0.0		
Oil on water and other non-OECD	0.4	0.4	-0.8	0.9	4.5	5.6	0.1	-0.6	0.2	2.4		
Brent Forecast	\$64	\$68	\$62	\$62	\$52	\$17	\$20	\$30	\$64	\$30		
WTI Forecast	\$55	\$60	\$56	\$57	\$50	\$15	\$18	\$28	\$57	\$28		
Brent-WTI Spread	\$9	\$9	\$5	\$4	\$2	\$2	\$2	\$2	\$7	\$2		

May not sum due to rounding
Source: Rapidan Energy Group

Revisions to Our Global Oil Balance

March 29th vs. March 19th

- We revised down our 2020 global demand growth forecast by 4.7 mb/d, primarily on coronavirus-related impacts (both direct and lingering economic effects) and particularly from stricter stay-at-home measures enacted in the US, Europe, and India.
- The surging supply surplus and scarce storage capacity will force physical crude prices into single digits or negative prices. As a result, we've revised down higher-opex non-OPEC production by an additional 1.0 mb/d (primarily Canada, Brazil, China, and N. Sea).
- Our OPEC and Russian production forecasts are 1.5 mb/d and 0.2 mb/d lower, respectively in 3Q20 due to our expectation of a late-2Q20 OPEC+ deal. This is slightly earlier than our previous expectation. The higher 2Q20 surplus will put more pressure on Russia to come to the table.
- Our 2Q20 balance is now 10.2 mb/d looser due to the COVID-19 pandemic and related government intervention in the US, Europe and India.

Revisions to our March 19th Global Oil Balance	2019				2020				Average		Y/Y Growth	
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	2019	2020	2019	2020
Consumption (mb/d)												
OECD	0.0	0.0	0.0	0.2	-1.7	-5.5	-0.9	-0.4	0.1	-2.1	0.1	-2.2
United States	0.0	0.0	0.0	0.0	-1.3	-2.8	-0.8	-0.3	0.0	-1.3	0.0	-1.3
Japan	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	-0.2	0.0	-0.1	0.0	-0.1
Canada	0.0	0.0	0.0	0.0	-0.1	-0.4	0.0	0.0	0.0	-0.1	0.0	-0.1
Mexico	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
Other OECD	0.0	0.0	0.0	0.2	-0.2	-1.9	0.0	0.0	0.0	-0.6	0.0	-0.6
Non-OECD	0.0	0.0	0.1	0.1	-1.5	-5.5	-1.8	-1.2	0.1	-2.5	0.1	-2.6
China	0.0	0.1	0.0	0.1	0.1	-1.0	-0.7	-0.4	0.1	-0.5	0.1	-0.6
India	0.0	0.0	0.0	0.0	-0.5	-1.5	-0.2	-0.2	0.0	-0.6	0.0	-0.6
Brazil	0.0	0.0	0.0	0.0	-0.1	-0.4	-0.1	-0.1	0.0	-0.2	0.0	-0.2
Russia	0.0	0.0	0.0	0.0	-0.3	-0.4	-0.2	-0.3	0.0	-0.3	0.0	-0.3
Other Non-OECD	0.0	-0.1	0.1	0.0	-0.6	-2.2	-0.5	-0.3	0.0	-0.9	0.0	-0.9
Total World Consumption	0.0	0.0	0.1	0.3	-3.1	-11.0	-2.7	-1.6	0.1	-4.6	0.1	-4.7
Supply (mb/d)												
OECD	0.0	0.0	0.0	0.0	0.0	-0.5	-0.8	-0.8	0.0	-0.5	0.0	-0.5
U.S. Total Liquids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crude	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lower 48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alaska	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGLs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other US Liquids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Canada	0.0	0.0	0.0	0.0	0.0	-0.4	-0.6	-0.6	0.0	-0.4	0.0	-0.4
Other OECD	0.0	0.0	0.0	0.0	0.0	-0.1	-0.2	-0.2	0.0	-0.1	0.0	-0.1
Non-OECD	0.0	0.0	0.0	0.0	-0.1	-0.4	-0.7	-0.7	0.0	-0.4	0.0	-0.4
Brazil	0.0	0.0	0.0	0.0	0.0	-0.1	-0.2	-0.3	0.0	-0.2	0.0	-0.2
China	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0
Russia	0.0	0.0	0.0	0.0	0.0	-0.1	-0.2	0.0	0.0	-0.1	0.0	-0.1
Other Non-OECD	0.0	0.0	0.0	0.0	-0.1	-0.2	-0.3	-0.3	0.0	-0.2	0.0	-0.2
Non-OPEC Supply	0.0	0.0	0.0	0.0	-0.1	-0.8	-1.5	-1.4	0.0	-1.0	0.0	-1.0
OPEC	0.0	0.0	0.0	0.0	0.0	0.0	-1.5	-0.1	0.0	-0.4	0.0	-0.4
Crude Oil Portion	0.0	0.0	0.0	0.0	0.0	0.0	-1.5	-0.1	0.0	-0.4	0.0	-0.4
Other Liquids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total World Supply	0.0	0.0	0.0	0.0	-0.1	-0.8	-3.0	-1.6	0.0	-1.4	0.0	-1.4
Implied Surplus	0.0	0.0	-0.1	-0.3	3.1	10.2	-0.3	0.1	-0.1	3.3		
OECD Commercial Inventory Change	0.0	0.0	0.0	-0.1	1.2	7.1	-0.2	0.0	0.1	1.3		
OECD SPR, Non-OECD Commercial and SPR, Oil on water	0.0	0.0	-0.1	-0.2	1.8	3.1	-0.1	0.0	-0.2	2.0		
of which: non-OECD SPR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
OECD SPR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Oil on water and other non-OECD	0.0	0.0	-0.1	-0.2	1.8	3.1	-0.1	0.0	-0.2	2.0		
Brent Forecast	\$0	\$0	\$0	\$0	\$0	-\$3	-\$5	\$0	\$0	-\$2		
WTI Forecast	\$0	\$0	\$0	\$0	\$0	-\$3	-\$5	\$0	\$0	-\$2		
Brent-WTI Spread	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		

May not sum due to rounding
Source: Rapidan Energy Group

(1) OPEC maxes production in 2Q20. Supply to the market will likely exceed production as Saudi Arabia and UAE have said they will draw from storage. However, supply may be tempered by rapidly falling refinery demand, costly tankers and soaring inventories.

(2) Shockingly lower prices than Moscow anticipated force Russia back to the table for an OPEC+ deal by 3Q20 (slightly earlier than expected last month due to the higher 2Q20 surplus). We expect OPEC+ will return to its previous quota and enact OPEC's March 5th proposal of 1.5 mb/d of additional cuts, which will be partially offset by Libya's return.

(3) Libya comes back online in 2H20. Fuel shortages, power outages, and economic decline force a resolution between Haftar and Tripoli.

(4) We will update our Venezuela forecast and the impact of Rosneft's exit in a future note.

Rapidan Energy Group's OPEC Forecast	2019				2020				Average		Y/Y Growth	
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	2019	2020	2019	2020
OPEC Crude Supply	30.7	30.1	29.5	29.8	28.7	31.7	28.5	28.4	30.0	29.3	-1.8	-0.7
Algeria	1.0	1.0	1.0	1.0	1.0	(1)	1.0	1.0	1.0	1.0	0.0	0.0
Angola	1.4	1.4	1.3	1.4	1.4	1.4	1.3	1.3	1.4	1.3	-0.1	0.0
Congo	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.0	0.0
Ecuador	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0
Equatorial Guinea	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
Gabon	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0
Iran	2.7	2.4	2.2	2.1	2.0	2.0	2.0	2.0	2.4	2.0	-1.2	-0.4
Iraq	4.7	4.7	4.8	4.6	4.6	(3)	4.9	4.5	4.5	4.7	0.1	-0.1
Kuwait	2.7	2.7	2.7	2.7	2.7	2.9	2.6	2.6	2.7	2.7	-0.1	0.0
Libya	1.0	1.1	1.1	1.2	0.4	0.2	1.2	1.2	1.1	0.7	0.1	-0.3
Nigeria	1.7	1.7	1.8	1.7	1.7	1.8	1.8	1.8	1.7	1.8	0.1	0.0
Saudi Arabia	10.1	9.7	9.5	9.9	9.7	12.0	9.4	9.4	9.8	10.1	-0.5	0.3
United Arab Emirates	3.1	3.1	3.2	3.3	3.2	3.6	2.8	2.8	3.2	3.1	0.2	-0.1
Venezuela	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.9	0.7	-0.5	-0.1

May not sum due to rounding
Source: Rapidan Energy Group

Revisions to our March 19th OPEC Production Forecast	2019				2020				Average		Y/Y Growth	
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	2019	2020	2019	2020
OPEC Crude Supply	0.0	0.0	0.0	0.0	0.0	0.0	-1.5	-0.1	0.0	-0.4	0.0	-0.4
Algeria	0.0	0.0	0.0	0.0	0.0	0.0	(2)	0.0	0.0	0.0	0.0	0.0
Angola	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equatorial Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gabon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iran	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iraq	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0
Kuwait	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0
Libya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saudi Arabia	0.0	0.0	0.0	0.0	0.0	0.0	-0.9	0.0	0.0	-0.2	0.0	-0.2
United Arab Emirates	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	-0.1	0.0	-0.1	0.0	-0.1
Venezuela	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

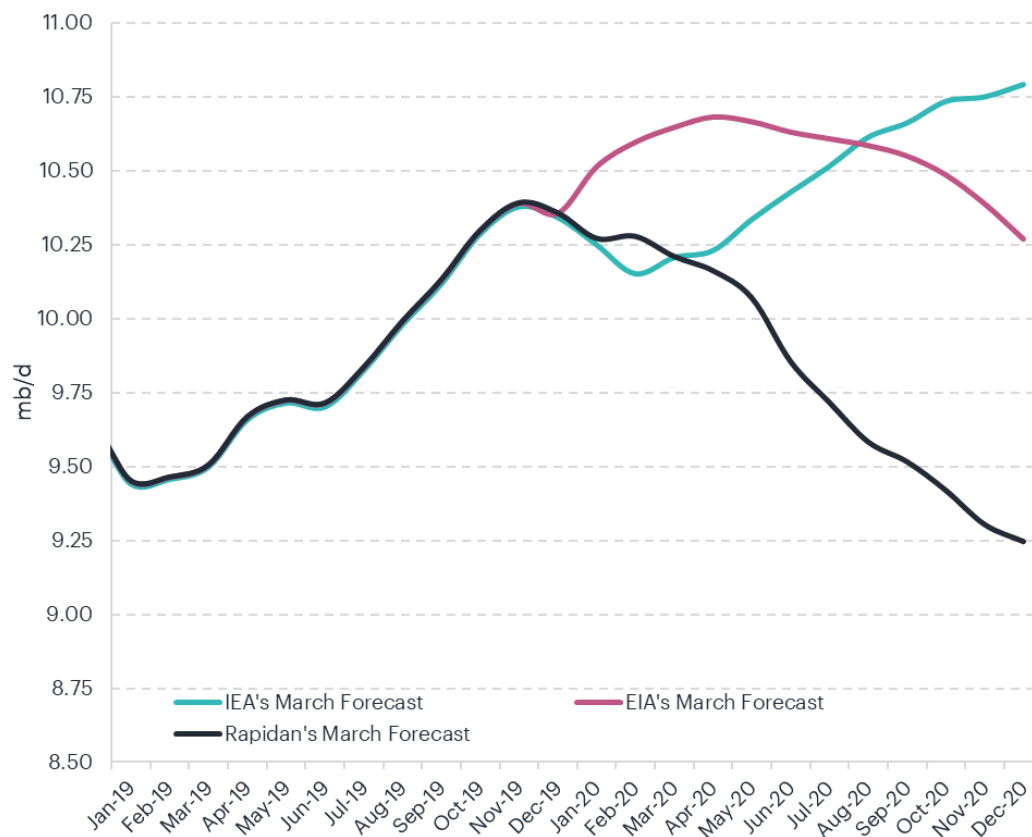
May not sum due to rounding
Source: Rapidan Energy Group

US Shale Production Plummets ~1.1 mb/d Between Dec '19 and Dec '20

Shale production collapses due to <\$20 WTI and reduced well completions

- US shale production will drift lower m/m in 1H20 before declining more steeply (0.1-0.2 mb/d per month) beginning in June.
- Large, visible declines in shale oil production are ~3 months away, as most companies are locked into service contracts or pipeline commitments.
- Storage scarcity could force producers to slow activity even more drastically than we forecast.
 - Pipeline owners are beginning to require customers to prove they have an end-user or storage for crude nominated in pipelines.
 - Cushing is already over halfway full ahead of record-setting surpluses next month.
- The crude price collapse has spurred US E&P companies to slash 2020 capex guidance by \$19.6 bn since early-March, but deeper cuts are still likely. Revised capex and budgets are based on WTI at \$30-35 the rest of the year - far more optimistic than our forecast.
- Production will decline sooner and faster than during past price downturns, due in part to steepening decline curves.
 - Crude production from the five primary oil basins would fall by nearly 4.5 mb/d in a year assuming zero new well completions - a 34% jump from 2019's base production decline.

US Lower 48 Onshore Crude Production Forecasts



Source: EIA, IEA, Rapidan Energy Group

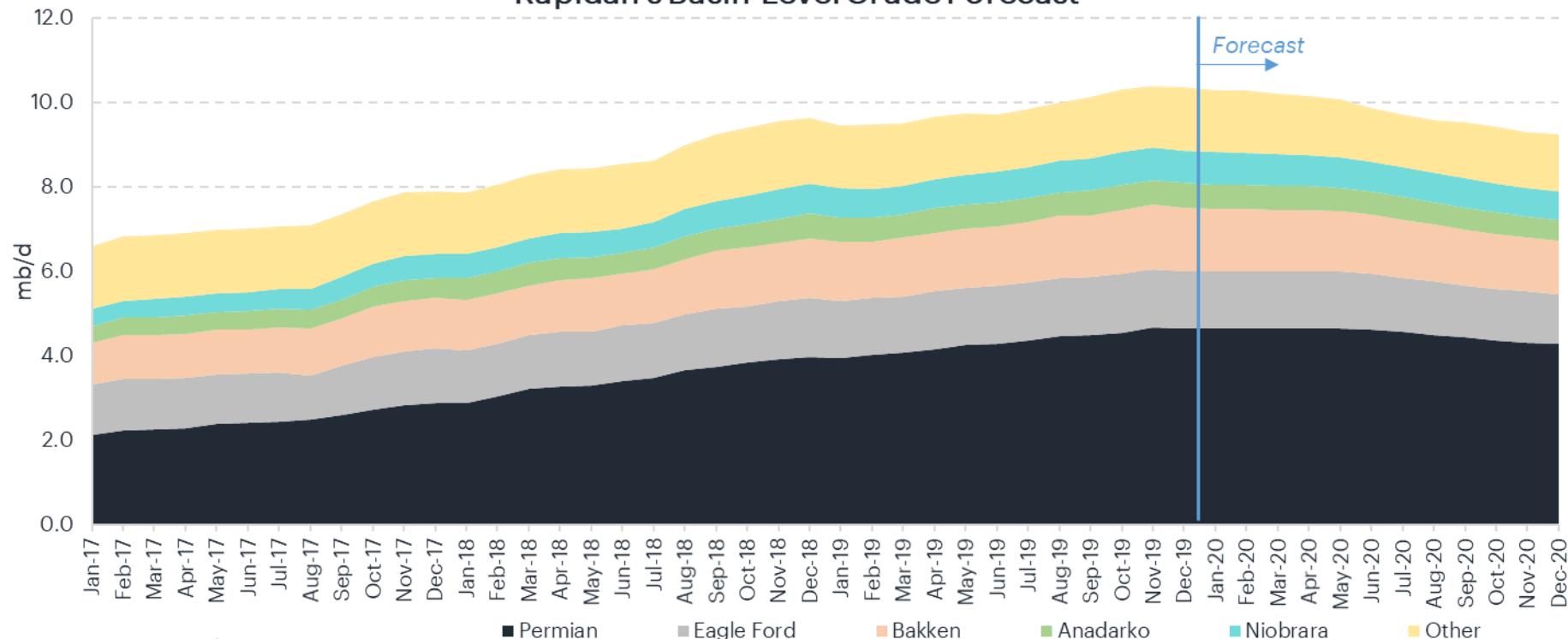
Rapidan Energy Group's Lower 48 Production Forecast

	(mb/d)	2018	2019	2020	'19 Y/Y	'20 Y/Y
Lower 48 Avg Production		8.81	9.88	9.80	1.06	-0.08
Lower 48 Exit Rate Production		9.64	10.36	9.25	0.72	-1.11

Permian Production Declines ~8% (or 0.35 mb/d) Dec '19 to Dec '20

Declines accelerate in June as service contract obligations expire

Rapidan's Basin-Level Crude Forecast



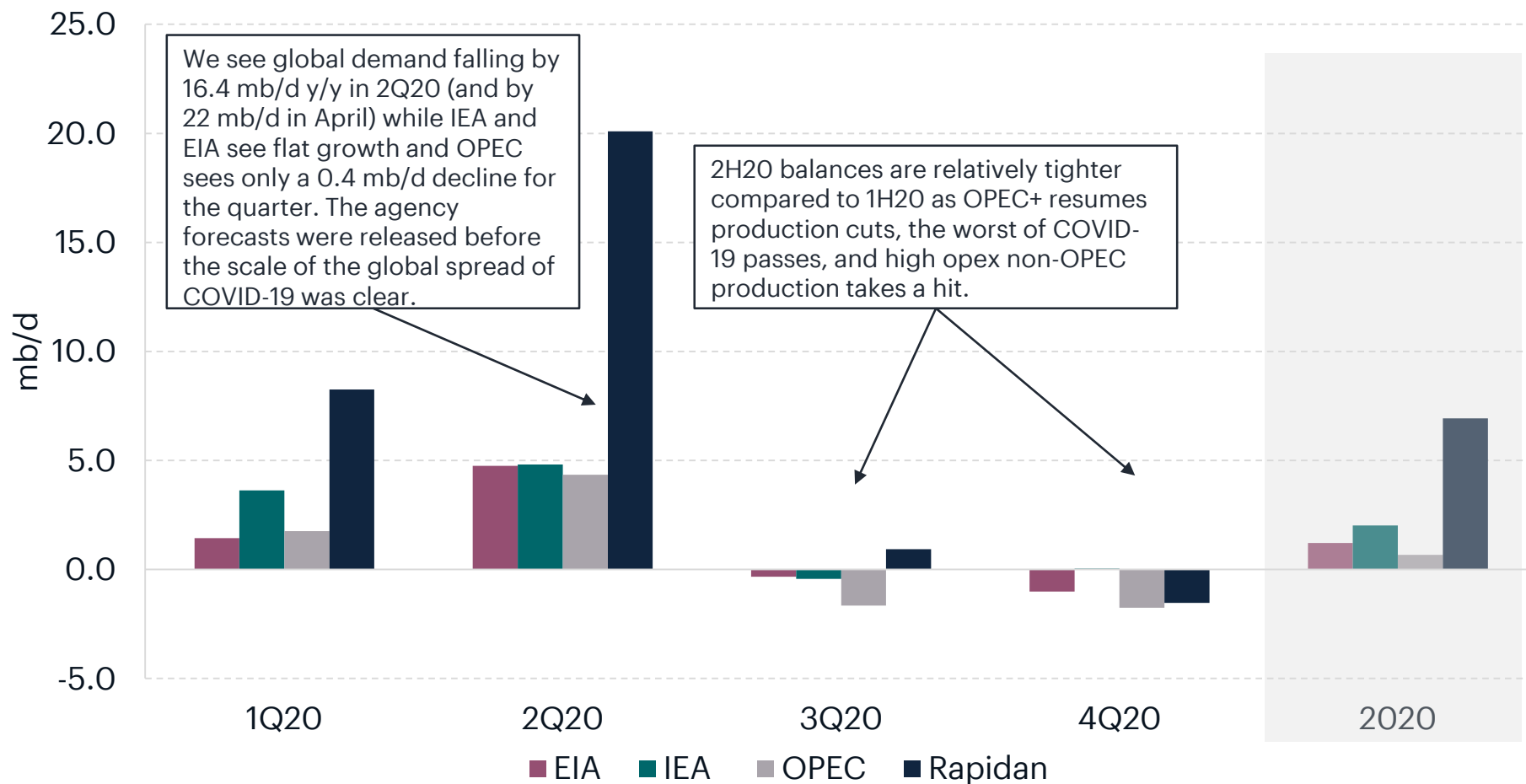
Source: EIA, Rapidan Energy Group

Rapidan Energy Group's US Basin-Level Crude Production Forecast

Average Production													Exit Rate Production			
(mb/d)	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	2019	2020	2019 Y/Y	2020 Y/Y	2019	2020	2019 Y/Y	2020 Y/Y
L48 Onshore	9.47	9.70	9.99	10.35	10.25	10.03	9.60	9.32	9.88	9.80	1.06	-0.08	10.36	9.25	0.72	-1.11
Permian	4.01	4.24	4.44	4.62	4.65	4.65	4.50	4.33	4.33	4.53	0.82	0.21	4.64	4.28	0.65	-0.35
Eagle Ford	1.34	1.35	1.38	1.39	1.35	1.33	1.26	1.20	1.36	1.28	0.05	-0.08	1.37	1.18	-0.03	-0.18
Bakken	1.38	1.41	1.46	1.51	1.48	1.43	1.35	1.29	1.44	1.39	0.15	-0.05	1.50	1.27	0.09	-0.23
Anadarko	0.56	0.57	0.58	0.58	0.57	0.55	0.52	0.50	0.57	0.54	0.04	-0.03	0.58	0.49	0.00	-0.09
Niobrara	0.68	0.71	0.74	0.77	0.76	0.73	0.70	0.67	0.73	0.71	0.10	-0.01	0.77	0.66	0.06	-0.11
Other	1.49	1.43	1.40	1.48	1.45	1.34	1.28	1.34	1.45	1.35	-0.08	-0.10	1.49	1.36	-0.06	-0.14

Source: EIA, Rapidan Energy Group

Implied Global Supply Surpluses Assuming Rapidan's 2020 OPEC Production Forecast*



* 1Q20: 28.6 mb/d, 2Q20: 31.7 mb/d, 3Q20: 30.0 mb/d, 4Q20: 28.5 mb/d

Source: IEA, EIA, OPEC, Rapidan Energy Group



2020 Balance Comparison



Summary of 2020 Balances and Revisions

March 29th update

- (1) We revised down our 2020 global demand growth forecast by 4.7 mb/d due to worsening coronavirus spread. Agency reports were published prior to the announcement of stricter coronavirus responses. Our revisions are driven by lower US, Europe, and India forecasts, which assume a ~70% decline in flights, 45% decline in gasoline demand, 35% decline in diesel, and a 20% decline in other products during peak social distancing in 2Q20.
- (2) We now see stagnant non-OPEC supply growth this year compared to 1.8-2.2 mb/d growth forecasted by the agencies. Cratering crude prices and limited storage capacity will force shut-ins of high opex producers. We are lower than the agencies primarily on US shale (where we see 2H20 well completions falling by ~40% y/y) and Canada.
- (3) Our 2020 supply surplus is 4.9-6.2 mb/d higher than the agencies' due largely to our lower 2020 global demand growth forecast and looser 2019 baseline.

		2020 Quarterly Balance Summaries												
		March Forecast					Revisions to February's Forecast							
		2019	1Q20	2Q20	3Q20	4Q20	2020	2020 Y/Y	1Q20	2Q20	3Q20	4Q20	2020	2020 Y/Y
Global Demand	EIA	100.8	99.1	100.3	102.3	102.7	101.1	0.4	-1.2	-0.8	-0.3	-0.2	-0.6	-0.7
	IEA	100.0	96.7	99.2	102.0	101.7	99.9	-0.1	-2.2	-1.4	-0.3	-0.5	-1.1	-0.9
	OPEC	99.7	97.6	98.2	101.2	101.8	99.7	0.1	-1.9	-1.2	-0.4	-0.5	-1.0	-0.9
	Rapidan	100.0	92.0	82.8	97.6	99.2	92.9	-7.1	-3.1	-11.0	-2.7	-1.6	-4.6	-4.7
Non-OPEC Supply + OPEC NGLs	EIA	70.8	71.9	73.3	73.5	73.3	73.0	2.2	-0.2	0.1	0.1	-0.2	0.0	0.0
	IEA	70.5	71.6	72.3	73.1	73.3	72.6	2.1	0.0	0.0	0.0	0.1	0.0	0.0
	OPEC	69.3	70.7	70.8	71.1	71.7	71.1	1.8	0.1	-0.3	-0.5	-0.8	-0.4	-0.5
	Rapidan	70.5	71.6	71.1	70.0	69.3	70.5	0.0	-0.1	-0.8	-1.5	-1.4	-1.0	-1.0
US Crude + NGL Production	EIA	17.0	18.2	18.5	18.4	18.3	18.3	1.3	-0.1	-0.1	-0.2	-0.4	-0.2	-0.2
	IEA	17.0	17.7	18.0	18.2	18.5	18.1	1.1	0.0	0.0	0.0	0.1	0.0	0.0
	OPEC	17.0	17.7	17.9	18.1	18.0	17.9	0.9	0.1	-0.3	-0.5	-0.7	-0.4	-0.4
	Rapidan	17.0	17.6	17.4	16.8	16.5	17.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Call on OPEC	EIA	30.0	27.2	27.0	28.8	29.4	28.1	-1.8	-1.1	-0.9	-0.3	-0.1	-0.6	-0.7
	IEA	29.5	25.0	26.9	28.9	28.4	27.3	-2.2	-2.2	-1.3	-0.3	-0.6	-1.1	-0.9
	OPEC	30.4	26.9	27.4	30.1	30.2	28.7	-1.8	-2.0	-0.9	0.1	0.3	-0.6	-0.5
	Rapidan	29.5	20.4	11.7	27.6	29.9	22.4	-7.1	-3.1	-10.2	-1.2	-0.2	-3.7	-3.8
Implied Global Supply Surplus*	EIA forecast	-0.2	1.5	1.9	0.6	0.0	1.0		1.2	1.0	0.5	0.3	0.7	
	EIA Implied	-0.2	1.4	4.8	-0.3	-1.0	1.2		1.1	0.9	-1.2	-0.1	0.2	
	IEA	0.5	3.6	4.8	-0.4	0.0	2.0		2.2	1.3	-1.2	0.5	0.7	
	OPEC	-0.6	1.8	4.3	-1.7	-1.8	0.7		2.0	0.9	-1.6	-0.4	0.6	
	Rapidan	0.6	8.3	20.1	0.9	-1.5	6.9		3.1	10.2	-0.3	0.1	3.3	
OPEC Production	Rapidan	30.0	28.7	31.7	28.5	28.4	29.3	-0.7	0.0	0.0	-1.5	-0.1	-0.4	-0.4

*Assumes Rapidan's OPEC Crude Forecast
Source: EIA, IEA, OPEC, Rapidan Energy Group

(3)

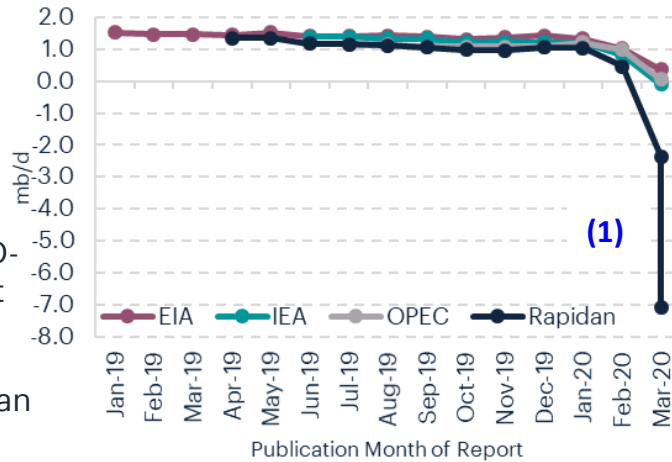
(1) We now see a deeper impact on demand from travel bans, social distancing, and global economic and trade weakness. The agency reports were released before the scope of COVID-19 spread and government intervention was known.

(2) We are ~1.0 mb/d lower than the agencies on US production and ~0.5 mb/d lower on Canada.

(3) We have a lower call on OPEC compared to the agencies due to our weaker 2020 demand growth and looser 2019 baseline.

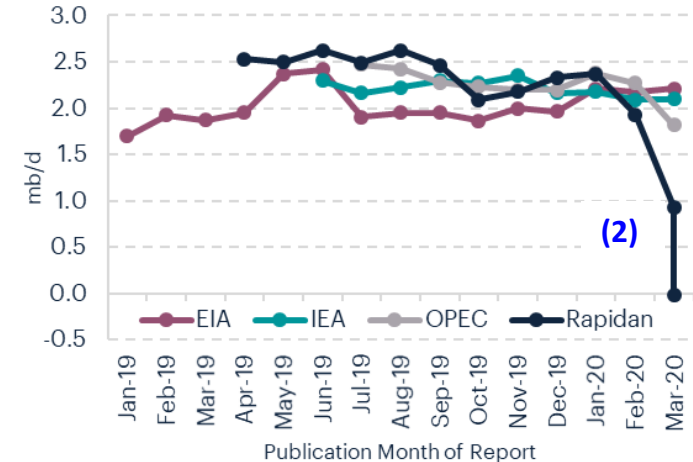
(4) The size of the surplus has now swelled so much that no reasonably likely policy reaction could prevent further price weakness as storage fills and shut-ins spread.

2020 Y/Y Global Demand Growth
Evolution of Monthly Forecasts



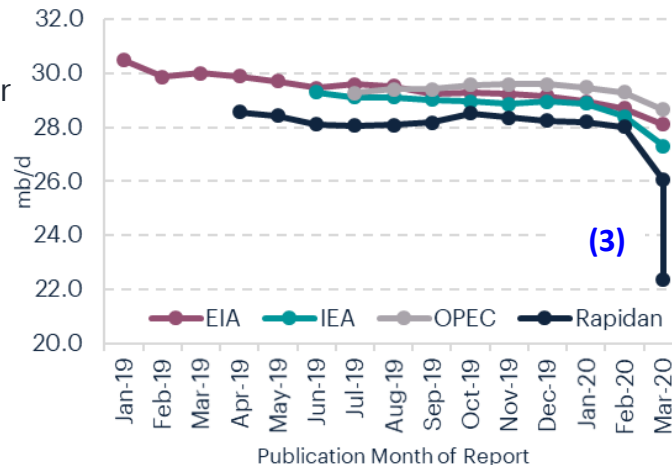
Source: EIA, Rapidan Energy Group

2020 Y/Y Non-OPEC Supply Growth
Evolution of Monthly Forecasts



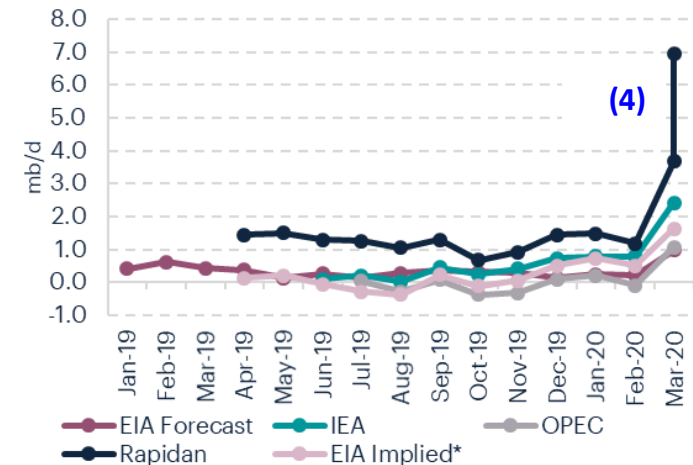
Source: EIA, Rapidan Energy Group

2020 Call on OPEC
Evolution of Monthly Forecasts



Source: EIA, Rapidan Energy Group

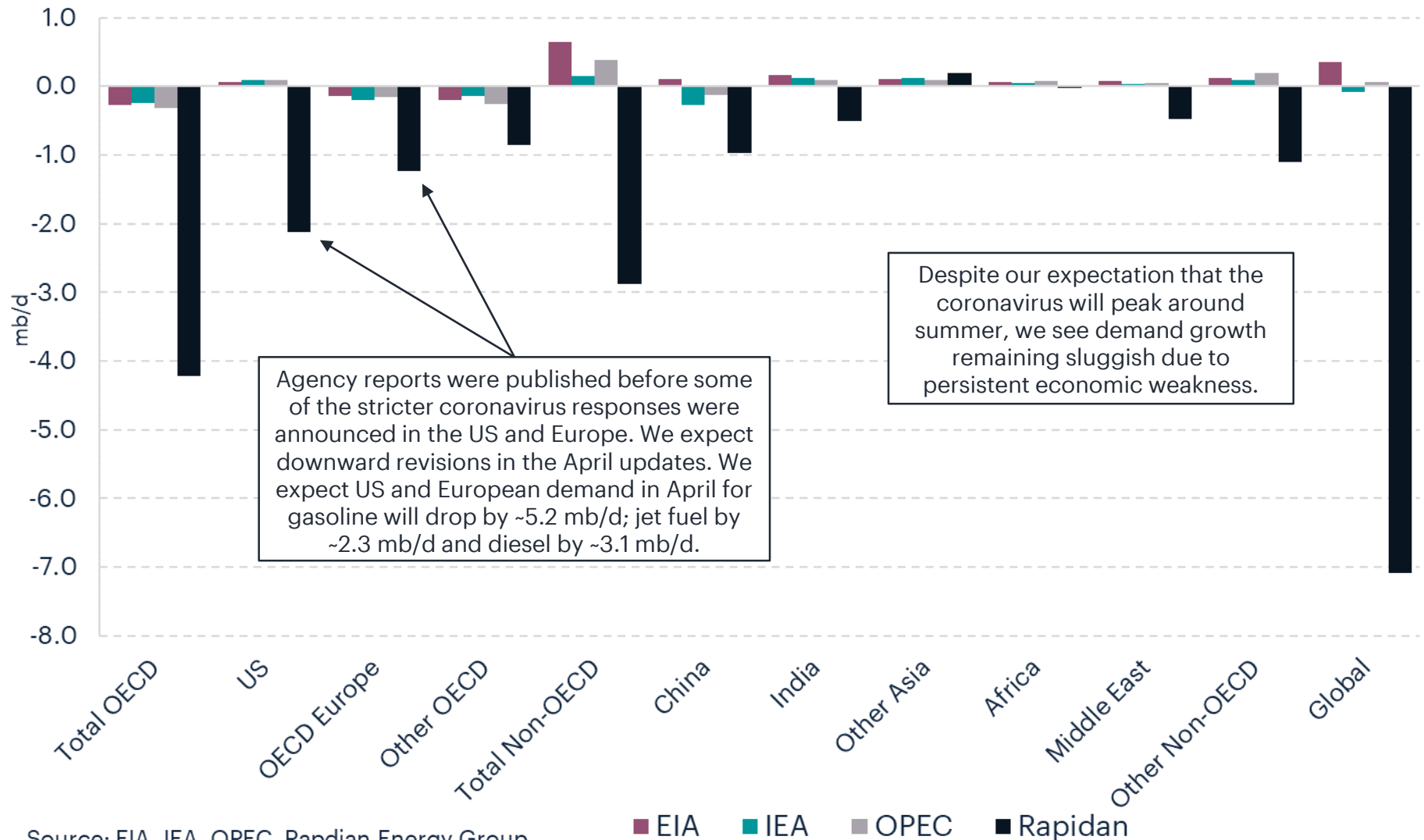
2020 Implied Global Supply Surplus
*Evolution Assuming Rapidan's OPEC Forecast



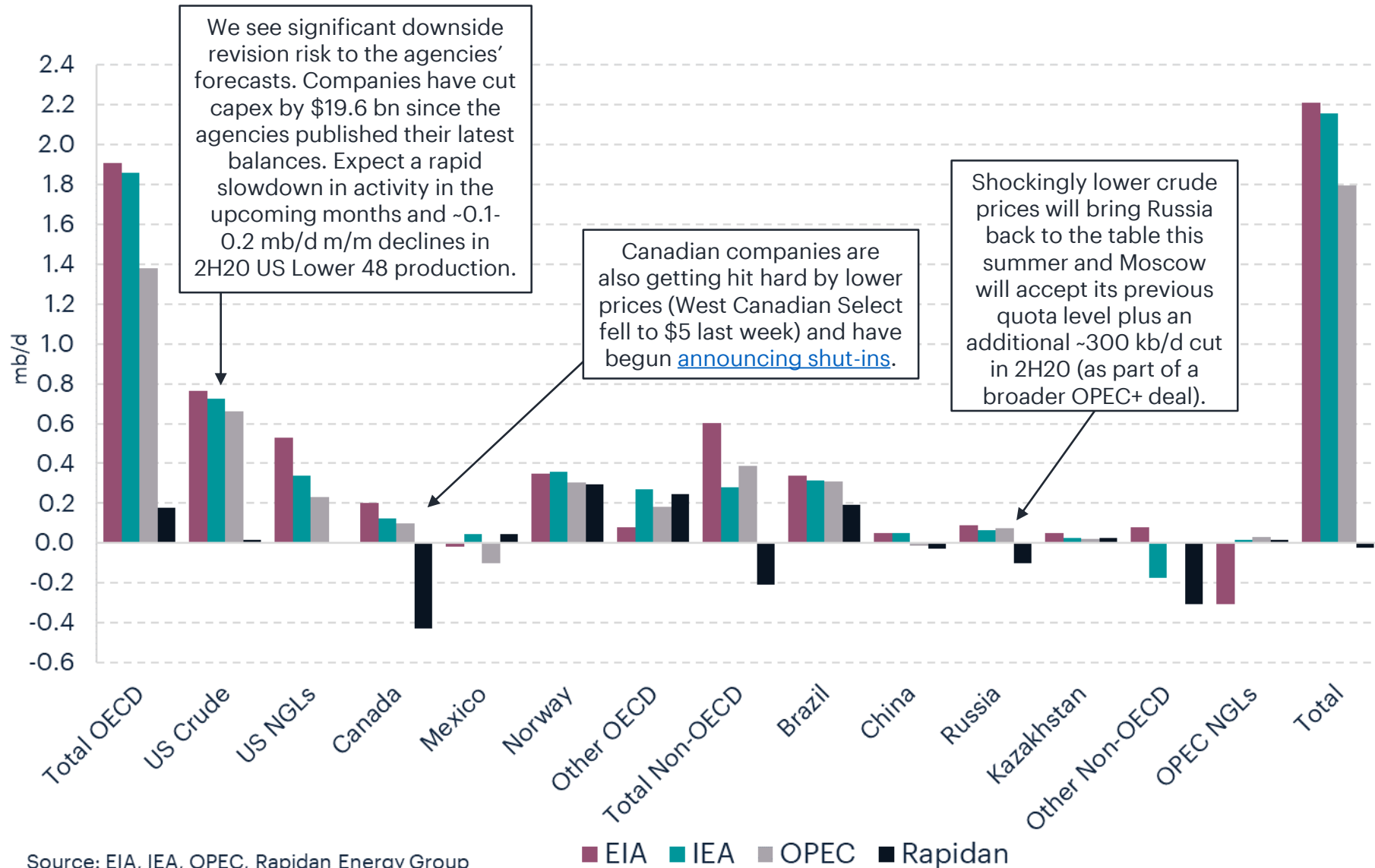
Source: EIA, Rapidan Energy Group

Composition of Current 2020 Global Demand Growth Forecasts

March 29th update



Source: EIA, IEA, OPEC, Rapidian Energy Group



Source: EIA, IEA, OPEC, Rapidan Energy Group

* Includes crude oil, condensates, NGLs, biofuels and nonconventional oils

Every non-OPEC country-level supply number in this report includes crude oil, condensates, natural gas liquids, biofuels (including fuel ethanol), and nonconventional oils and excludes processing gains.

Processing gains are aggregated and included in the global supply figure.

Schedule of Monthly Oil Market Balance Updates			
	<u>EIA</u>	<u>IEA</u>	<u>OPEC</u>
April	Tuesday, 7 th	Wednesday, 15 th	Thursday, 16 th
May	Tuesday, 12 th	Thursday, 14 th	Wednesday, 13 th
June	Tuesday, 9 th	Tuesday, 16 th	Wednesday, 17 th