



RYSTAD ENERGY

# COVID-19 REPORT

## 11<sup>TH</sup> EDITION

GLOBAL OUTBREAK OVERVIEW AND ITS IMPACT  
ON THE ENERGY SECTOR

**20 MAY 2020**  
**PUBLIC VERSION**

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**Executive summary**

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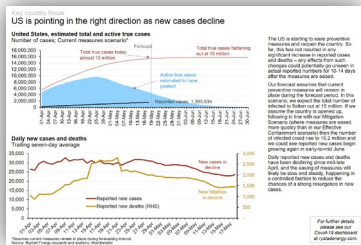
# Road traffic up while the markets briefly rally on fragile vaccine hopes

Have we seen more good news or bad news in the past week? On the positive side, we observe that daily fatality rates continue to fall in East Asia, Europe and North America, and countries in these regions are beginning to reopen after two months of lockdown. In China, residents are free to travel domestically starting this week. However, there is an understanding that the government is monitoring every move and will implement quarantine measures quickly if a new wave of infection is detected. Moreover, we have seen positive news from the medical company Moderna stating that the first round of testing for its Covid-19 vaccination was successful, creating a rally in the stock market. We have also seen reports indicating that herd immunity may be achieved in populations with just 20% to 40% of people infected due to population heterogeneity. For example, “super-spreaders” which are very social individuals, will be immune first.

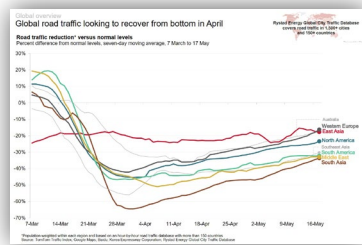
However, on the negative side, we see that despite lockdown-measures in South America, South Asia and the Middle East, it does not appear that daily fatalities have peaked, meaning that the exponential spread of the virus continues. The epicenter of the pandemic has moved from East Asia to Europe, and then to North America; it now appears that South America and South Asia could be the next epicenters. Still, it is clear from antibody testing in Spain and other places that herd immunity will not be within reach for many months, as preliminary results indicate that even in hard-hit countries like Spain, only 5% of the population has been infected. The vaccination optimism has also cooled down, as experts have not been convinced by Moderna’s data that their antibody-based vaccine will be effective. Many scientists claim that the autumn of 2021 is the most realistic timeline when we may see global vaccination programs. Increasing international rivalry, rather than cooperation, does not appear to be a good sign.

Thus, we reflect on a quite balanced week overall, as global citizens begin to accept that it will take at least 12 to 18 months before the world fully normalizes.

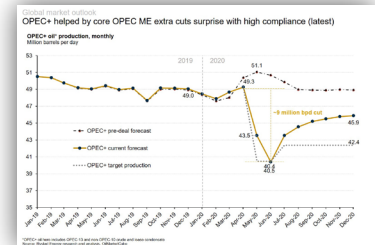
For the oil market, we see good news in that road traffic is clearly coming back; In May we expect to see the largest month-over-month growth in history. Additional international storage has also been mobilized in the past week, and OPEC + cuts are actually happening, pushing the potential storage abyss out in time.



US outbreak outlook, page 12



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Impact on oil demand

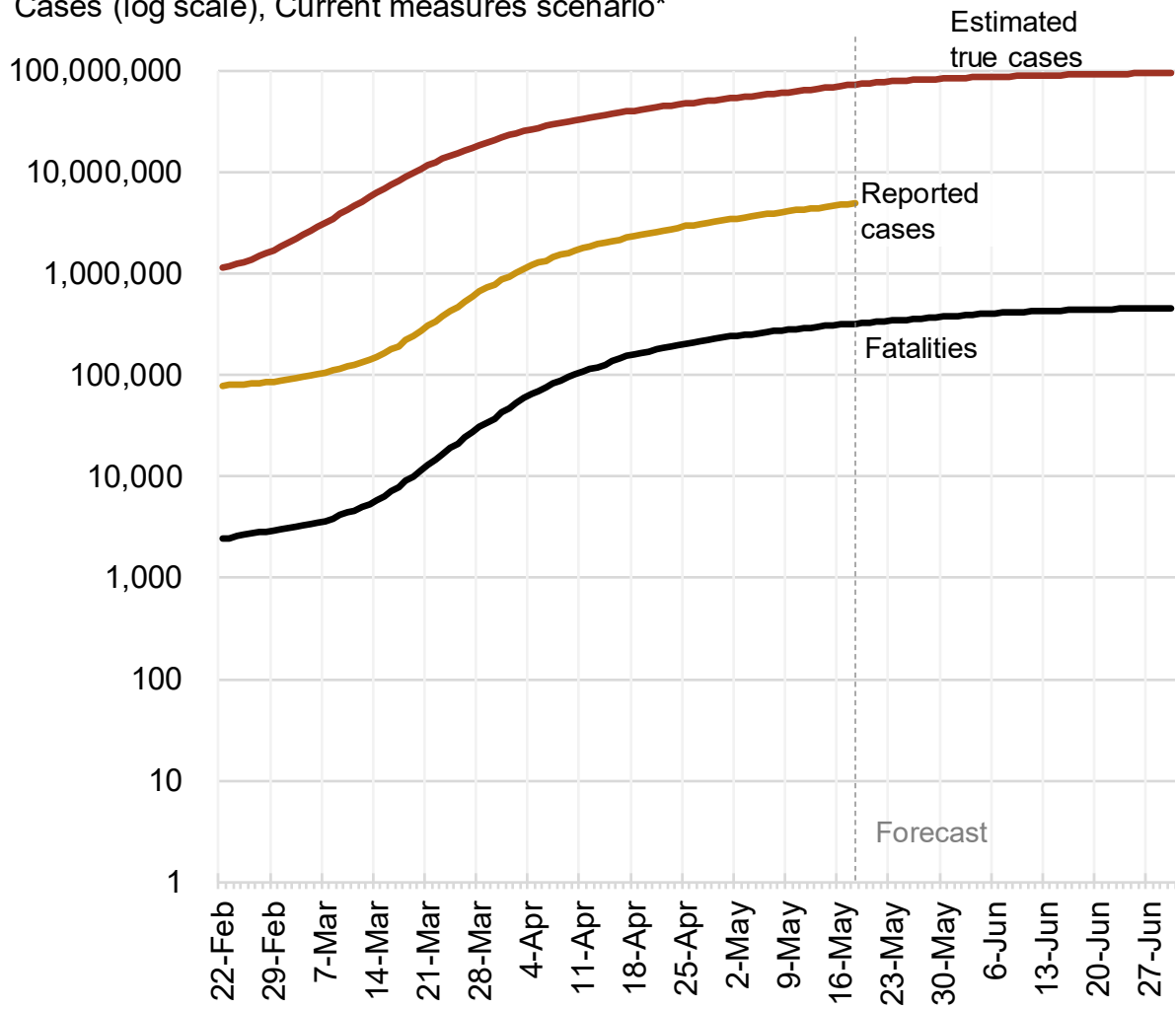
Impact on the oil and gas industry

Methodology

# The true cumulative number of people infected globally today is likely 64 million

## Number of true and reported cases

Cases (log scale), Current measures scenario\*



As of 18 May, 72 million people have likely been infected with Covid-19, according to our updated model.

Reported cases were almost 4.9 million as of 18 May, a number which our analysis suggests represents just 7% of true cases. Reported cases are now growing at only approximately 2% per day (7-day trailing average), a growth rate which has somewhat stabilized. This is an indication that quarantine measures are working. Growth is no longer exponential, but now appears linear, with 80,000-85,000 new reported cases per day on average over the last three weeks

Registered fatalities globally were almost 320,000 as of 18 May, a number which has also stabilized at a 2% growth rate (trailing 7-day average).

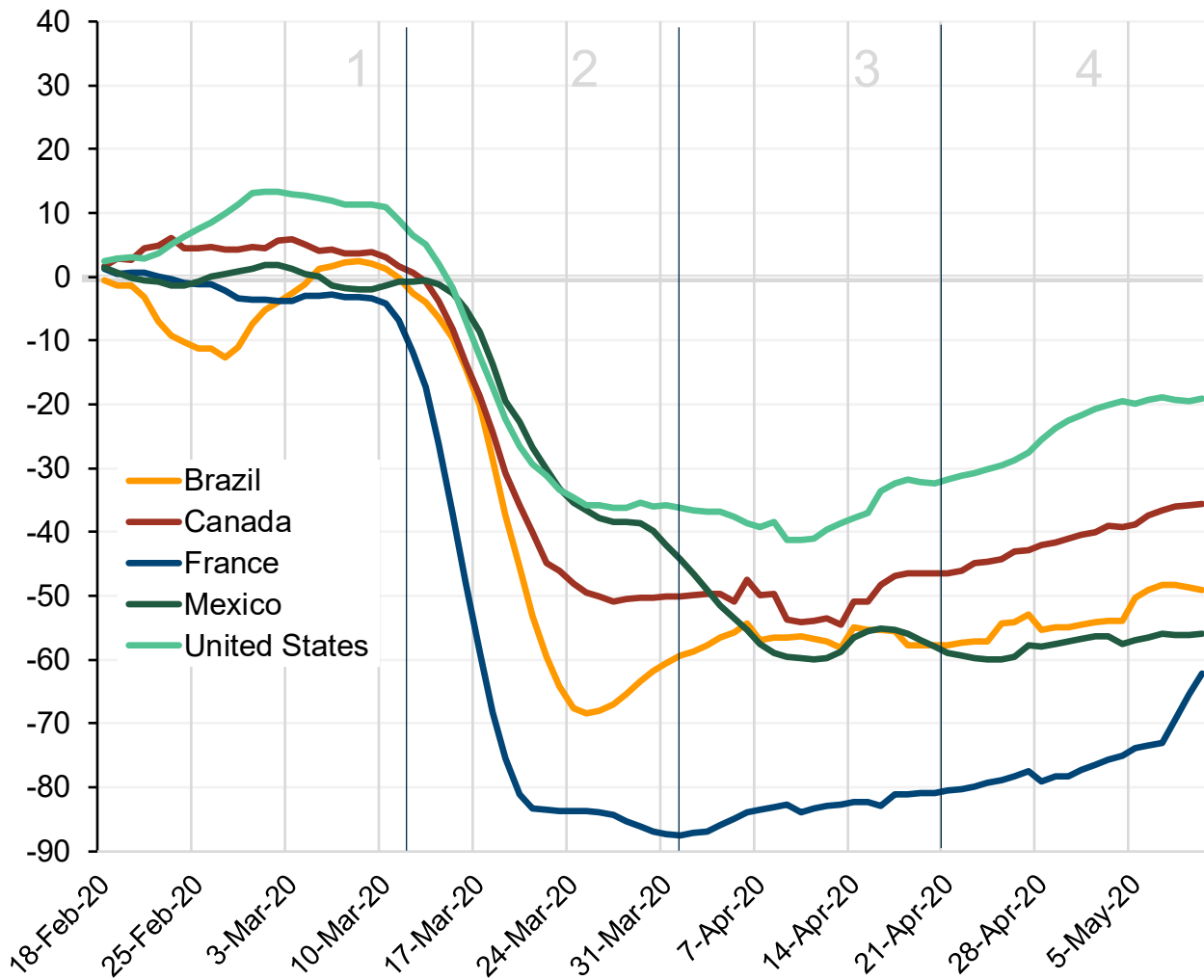
Our forecast assumes current strict measures will remain in place until the end of June. In this scenario, 95 million people will be infected across the globe by the end of June.

\*Assumes current measures remain in place during forecasting interval  
Source: Rystad Energy Covid-19 research and analysis; Worldometer

# No countries in the Americas have implemented lockdowns as strict as in France

## Retail and recreation activity (restaurants, shopping centers, etc)

Percent above or below normal levels based on Google mobility data (7-day average)



To the left we see recreation activity in four countries in the Americas, plus France for comparison. No countries in the Americas have applied the same strict country-wide lockdowns as in France. It should be noted that the extreme virus spread in New York City has other drivers, such as population density and the presence of contamination over the entire month of February.

Fatality rate as of 20 May per 100,000:

- Canada: 16
- Mexico: 4
- USA: 28 (New York: 147)
- Brazil: 9
- France: 43

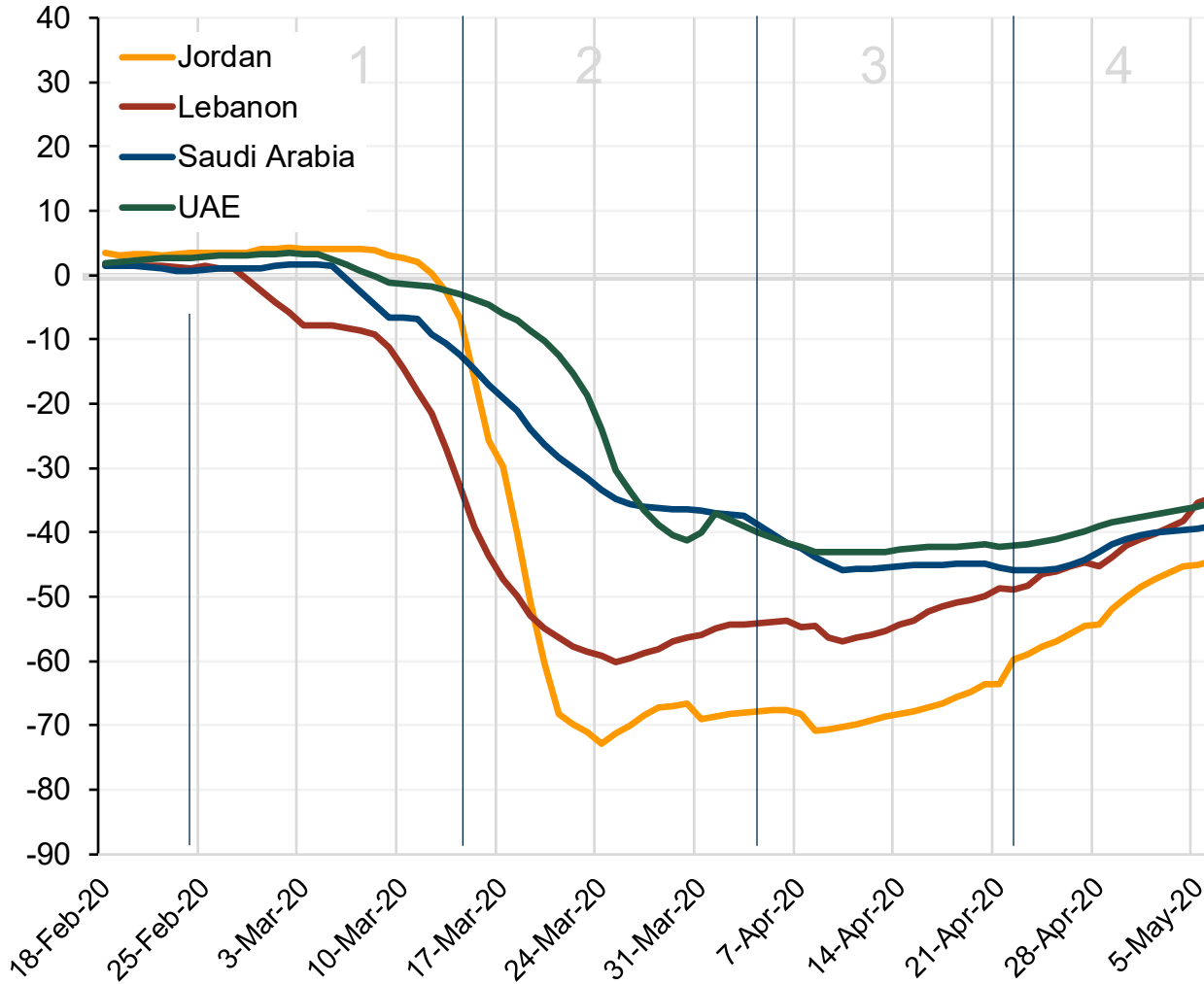
	Start of 21-day period			
	22 Feb	13 March	3 April	21 April
Country	$R_{eff}$	$R_{eff}$	$R_{eff}$	$R_{eff}$
Canada	2.6	2.0	1.1	0.8
Mexico	2.8	2.1	1.5	1.3
USA	3.9	1.6	0.9	0.8
Brazil	3.6	1.8	1.4	1.1
France	3.1	1.2	0.7	0.8

Source: Rystad Energy Covid-19 model; Google Mobility data

# Differences in work place activity explains cases in the Middle East

## Work place activity (stay at work, rather than work from home)

Percent above or below normal levels based on Google mobility data (7-day average)



To the left we see work place activity for four countries in the Middle East. As seen, UAE and Saudi Arabia work place presence was reduced more slowly and was more shallow than in Jordan and Lebanon. The latter two achieved an  $R_{eff}$  below 1.0 from mid March, while UAE and Saudi Arabia still have not achieved an  $R_{eff}$  lower than 1.0, meaning that new cases are still growing.

Ratality rates as of 19 May per 100,000:

- UAE: 2.3
- Saudi Arabia: 0.9
- Lebanon: 0.4
- Jordan: 0.1

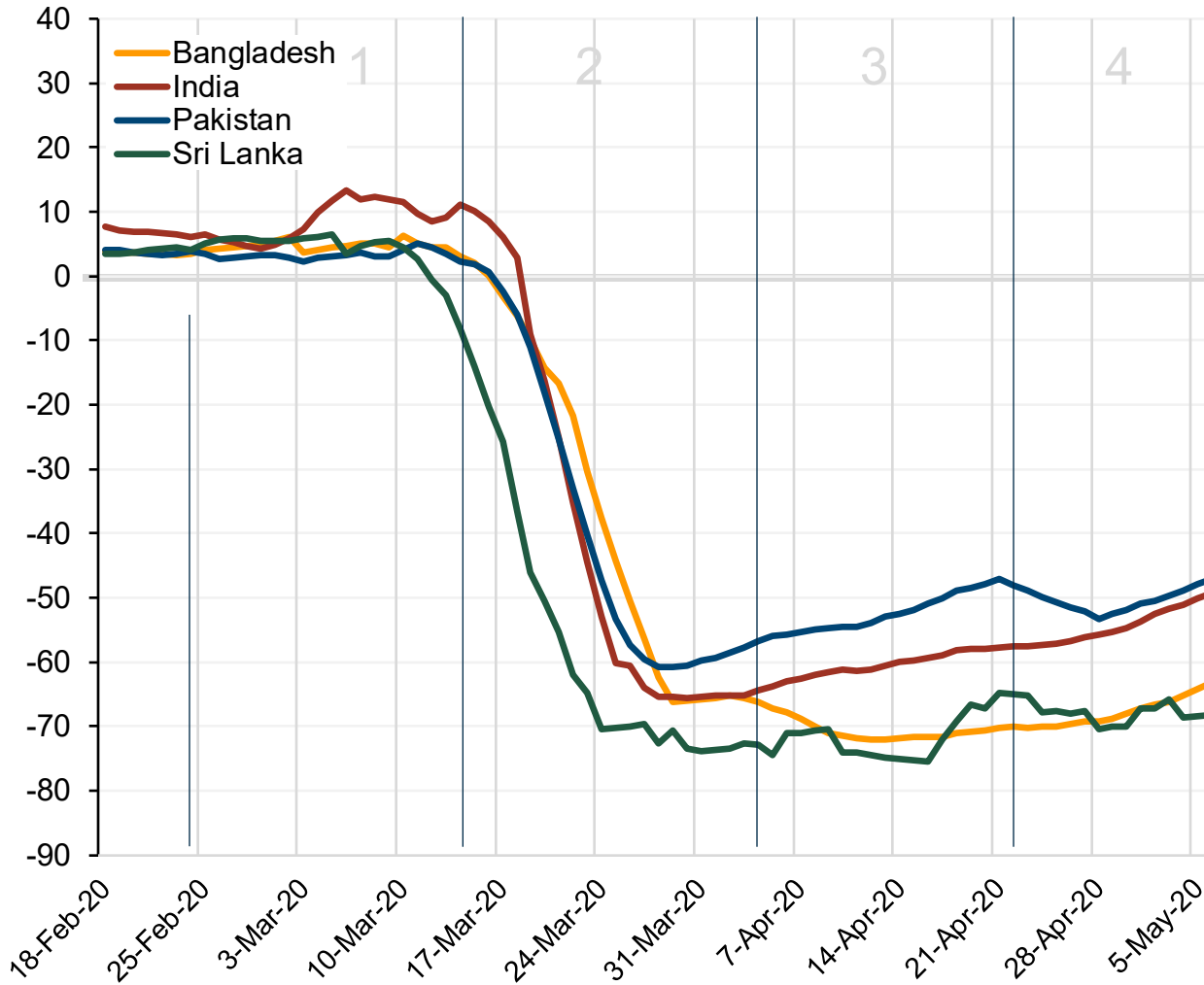
	Start of 21-day period			
	22 Feb	13 March	3 April	21 April
Country	$R_{eff}$	$R_{eff}$	$R_{eff}$	$R_{eff}$
UAE	2.2	1.7	1.4	1.1
Saudi Arabia	3.8	1.5	1.2	1.3
Lebanon	2.2	0.8	0.8	1.0
Jordan	2.5	1.0	0.9	0.9

Source: Rystad Energy Covid-19 model; Google Mobility data

# Low fatality rates so far in South Asia, but three out of four countries are still growing

## Transit station activity (subway, bus or train stations)

Percent above or below normal levels based on Google mobility data (7-day average)



In South Asia, Sri Lanka was the first country to introduce strict measures and have also maintained measures the longest. This has paid off, as the number of fatalities per 100,000 in population is only 10. versus Pakistan, which has practiced slightly looser measures.

Fatality rate as of 19 May per 100,000:

- Bangladesh: 0.2
- India: 0.2
- Pakistan: 0.4
- Sri Lanka: 0.04

	Start of 21-day period			
	22 Feb	13 March	3 April	21 April
Country	R <sub>eff</sub>	R <sub>eff</sub>	R <sub>eff</sub>	R <sub>eff</sub>
Bangladesh	1.8	2.2	0.9	1.8
India	2.7	1.7	1.4	1.1
Pakistan	2.6	1.5	1.3	1.3
Sri Lanka	3.0	1.0	0.9	0.9

Source: Rystad Energy Covid-19 model; Google Mobility data



## Claims that a vaccine could be ready by the end of 2020 are probably too optimistic



- Dozens of companies and universities are attempting to make Covid-19 vaccines, including Pfizer/BioNTech, CanSino, and the University of Oxford/AstraZeneca
- As of this week, the most optimistic estimates do not expect a vaccine for the next 12-18 months, thus well into 2021.
- Vaccines are seen as the best solution to fully recover from the pandemic as achieving herd immunity comes with many uncertainties, such as timing and risk of resurgence
- This explains why stock markets and oil prices rose following news from biotechnology company Moderna

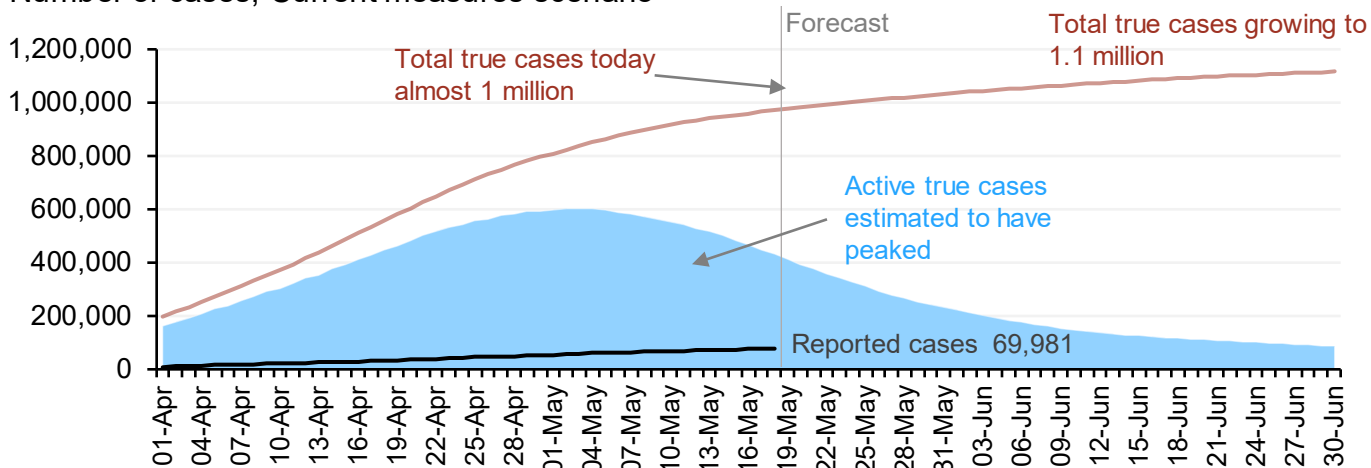
moderna®

- On Monday 18 May, Moderna announced it had successfully completed an initial Phase 1 testing round. Eight healthy volunteers ages 18-55 found the experimental vaccine safe and saw that it provoked an immune response.
- The vaccine is on an accelerated time table to begin Phase 2 testing on 600 people in 2Q. The testing group will be split into two cohorts of 300, one aged 18-55, and another aged 55 and above.
- A third testing phase with 30,000 people will begin in July.
- If trials go well, the vaccine could reportedly become available by late 2020/early 2021
- Moderna claims it has a production capacity of 1 billion of the smallest doses (50 µm) per year.
- However, experts remain skeptical, and Moderna has produced little documentation to support its claims.
- After rallying, Moderna stock fell again this week after initial news, hinting at continued uncertainty.

# The worst may be behind in Canada, as cases and fatalities decline

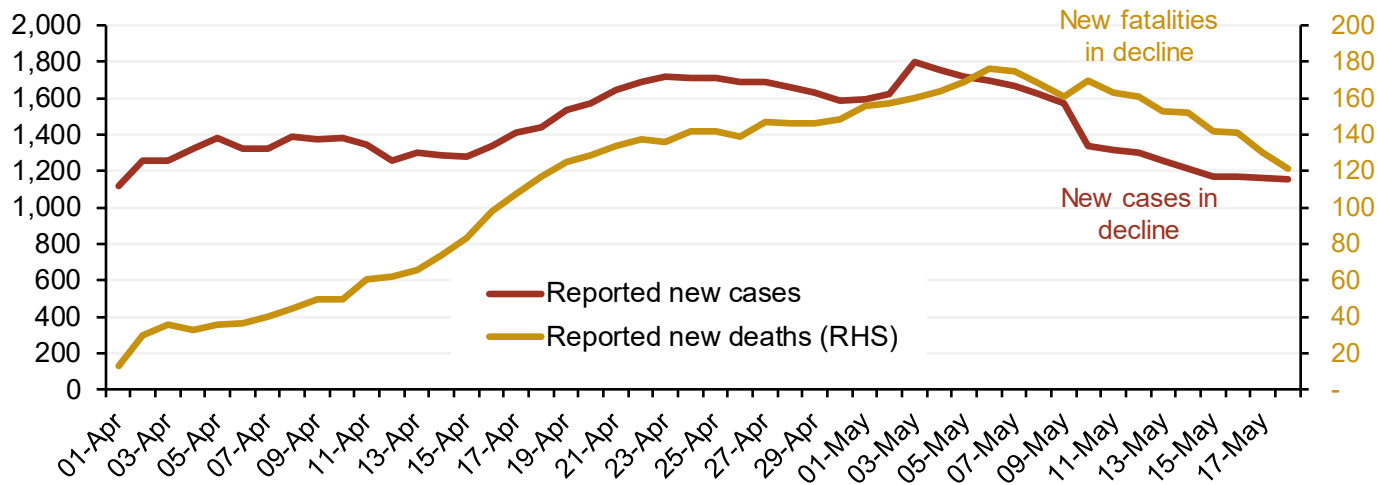
## Canada, estimated total and active true cases

Number of cases; Current measures scenario\*



## Daily new cases and deaths

Trailing seven-day average



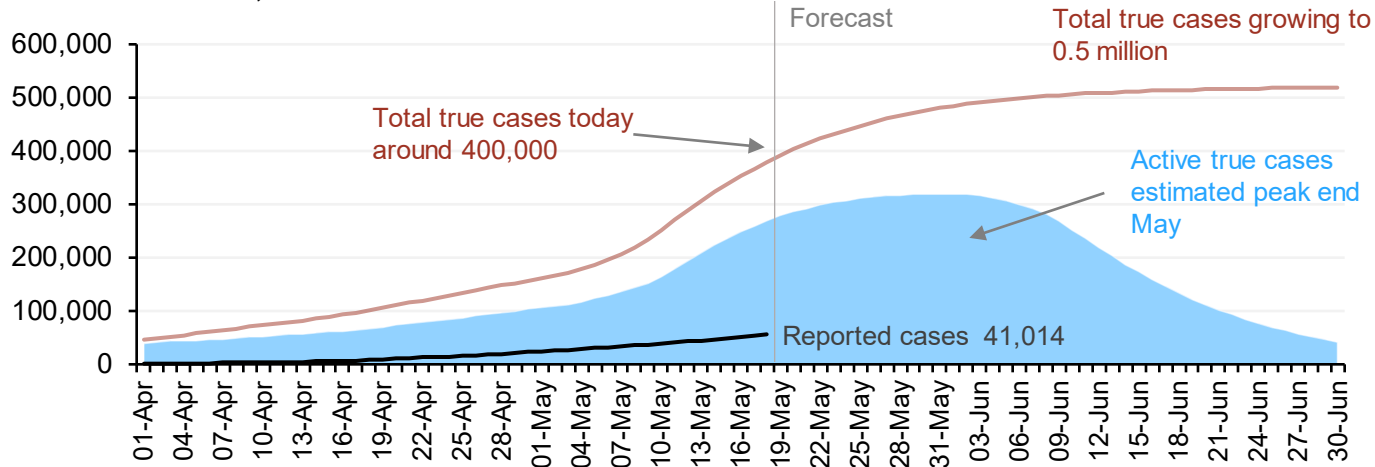
\*Assumes current measures remain in place during forecasting interval  
Source: Rystad Energy research and analysis; Worldometer

For further details  
please see our  
Covid-19 dashboard  
at [rystadenergy.com](http://rystadenergy.com).

# Saudi Arabia still is showing growth in spread, but may be about to peak

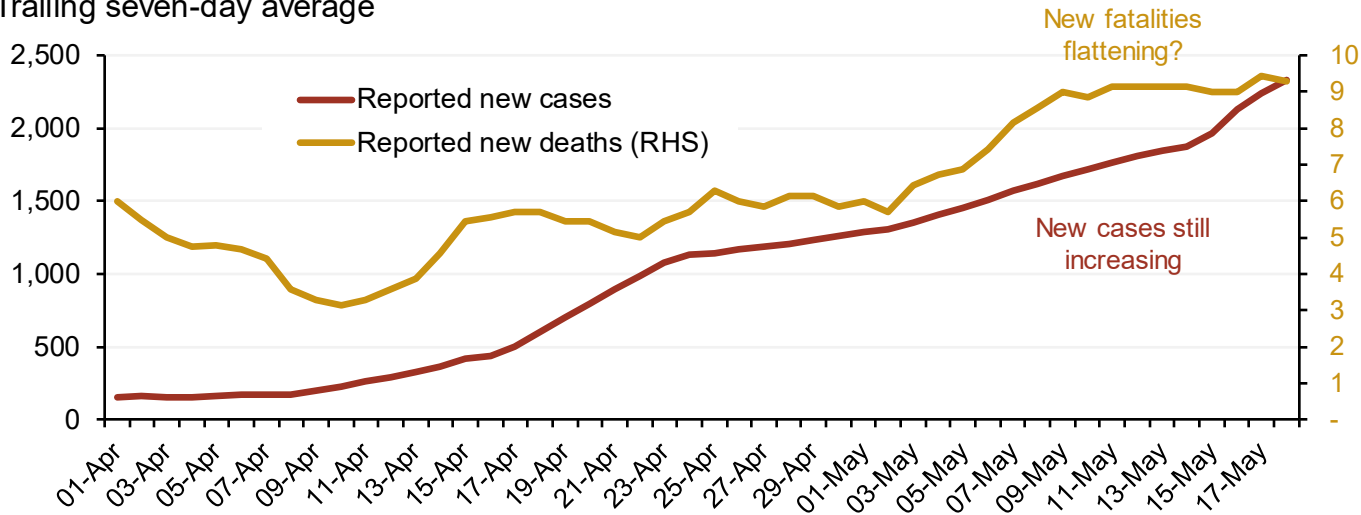
## Saudi Arabia, estimated total and active true cases

Number of cases; Current measures scenario\*



## Daily new cases and deaths

Trailing seven-day average



\*Assumes current measures remain in place during forecasting interval  
Source: Rystad Energy research and analysis; Worldometer

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Impact on the oil and gas industry

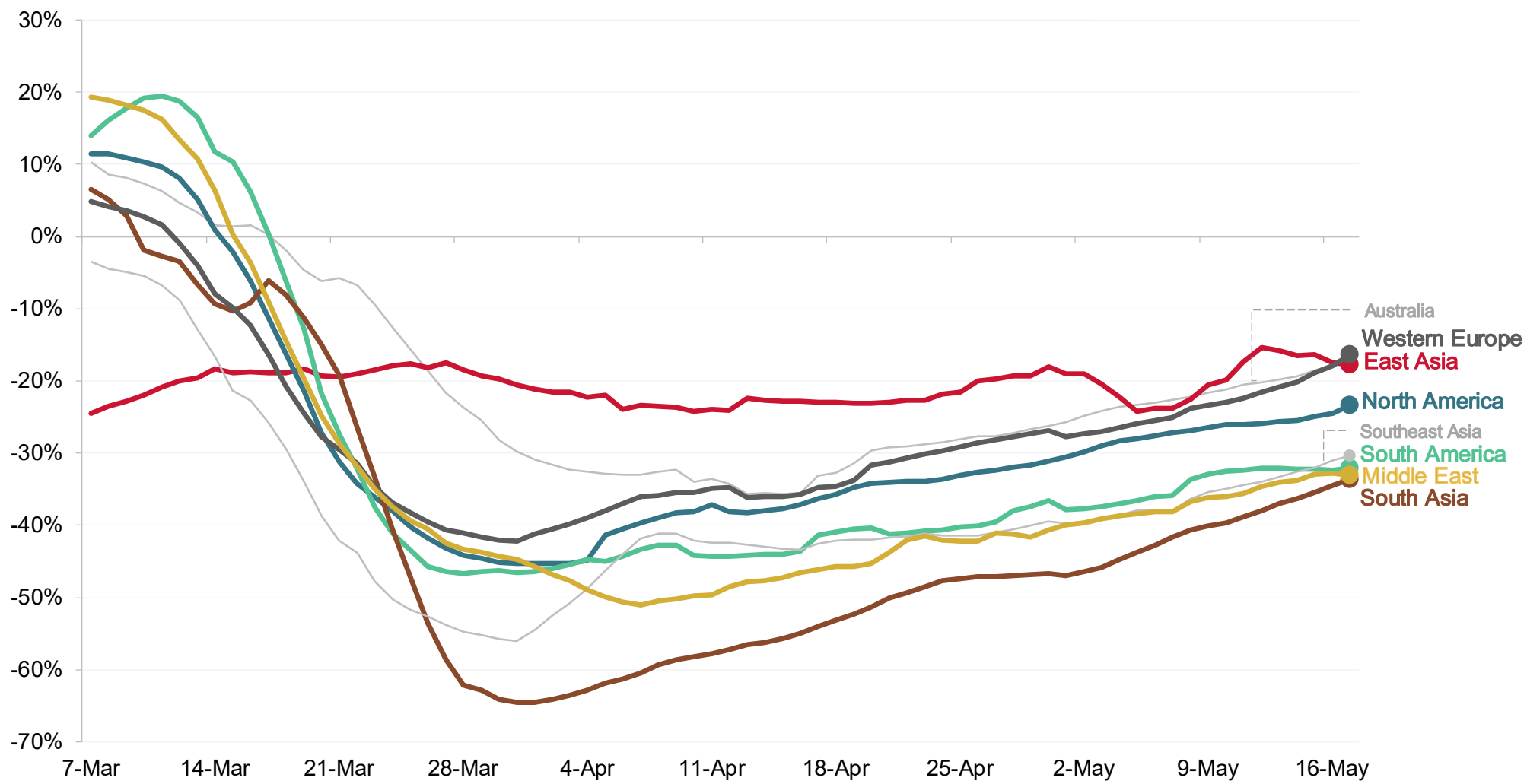
Methodology

# Global road traffic looking to recover from bottom in April



## Road traffic reduction\* versus normal levels

Percent difference from normal levels, seven-day moving average, 7 March to 17 May

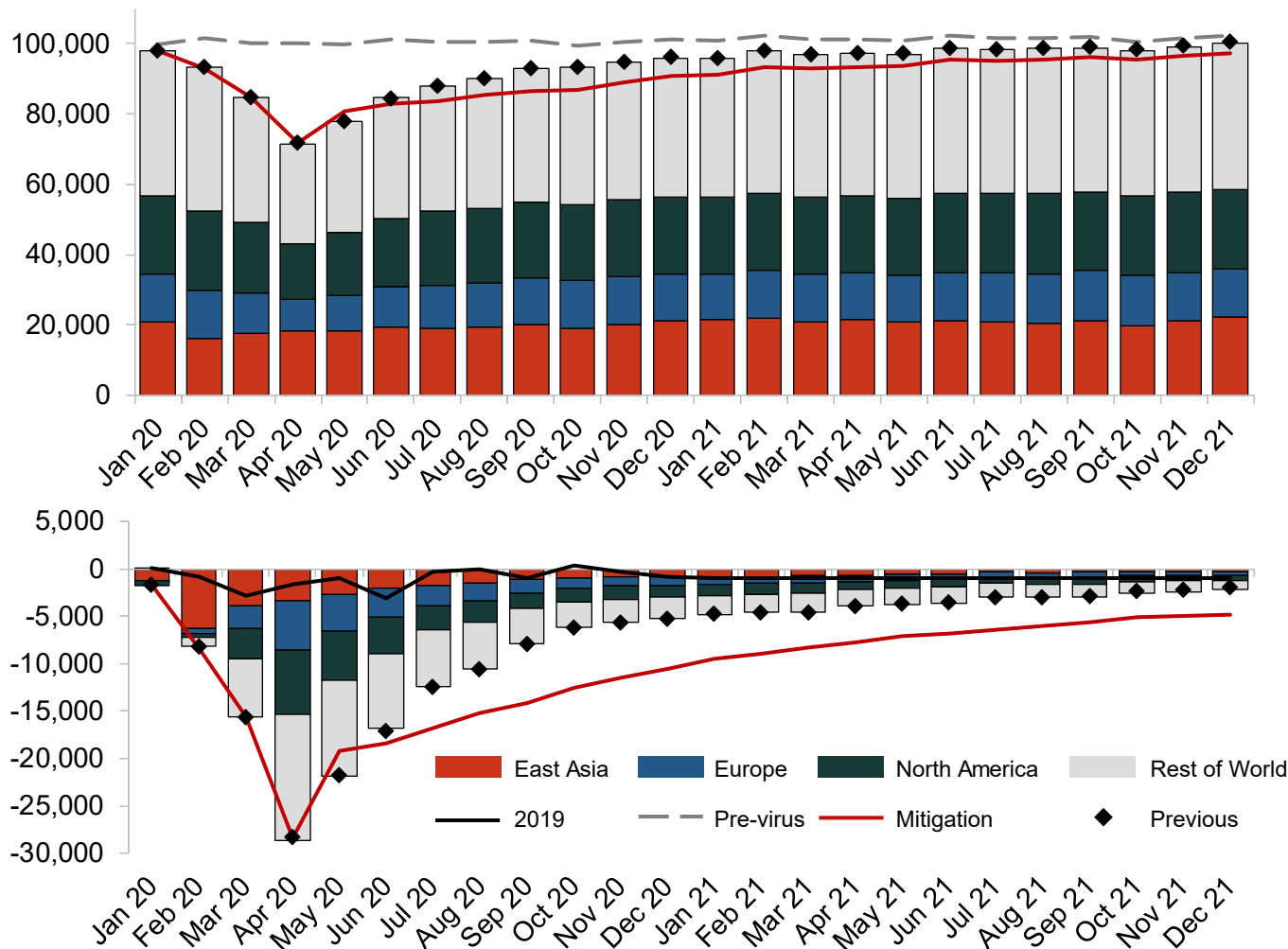


\*Population-weighted within each region and based on an hour-by-hour road traffic database with more than 150 countries  
Source: TomTom Traffic Index; Google Maps; Baidu; Korea Expressway Corporation; Rystad Energy Global City Traffic Database

# From a low of 72 million bpd, oil demand recovers by 6 million bpd every month, May-July

## Global oil demand impact analysis of Covid-19 by region, levels and changes vs. pre-virus estimates

Thousand barrels per day



### Remaining barrels

Oil demand has taken an r-shaped dip, reaching a low point in April and improving in May and June.

The December 2020 level is expected at 96 million bpd, with a potential downside to 90 million bpd. Significant downside risks will linger far into 2021.

Average demand for 2020 is expected at 89 million bpd, a drop of 11% from 2019. Average demand for 2021 is seen at 98 million bpd.

Europe is the worst hit, with demand in April down 38% year-on-year and a 13% demand decline expected for 2020 as a whole.

### Lost barrels

About 4 billion barrels will be removed from global oil demand during 2020.

More than half of this decline comes from areas outside the main demand pools of East Asia, Europe and North America.

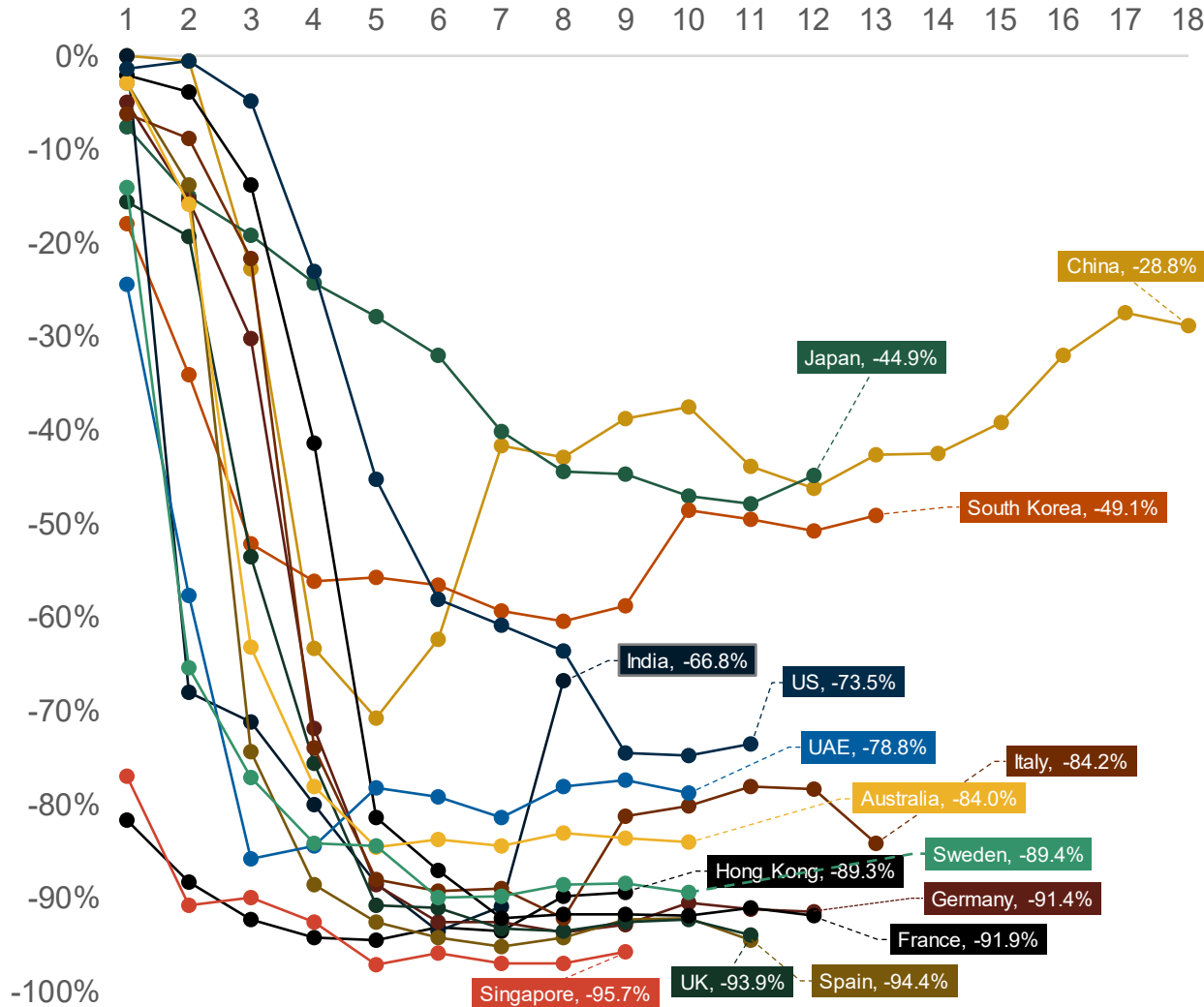
In our downside scenario, we see global demand impact remaining down by 10.5 million bpd in December 2020 and 4.8 million bpd in December 2021.

Source: Rystad Energy research and analysis

# Recovery seen in aviation activity in East Asia, Europe still at 90% reduction y/y

## Scheduled flight cancellations after 500 reported cases in weeks

Year-on-year change



Aviation is set to stabilize in many countries as the summer peak of June and July approaches and major airlines have extended their flight cancellation schedule.

The US had a significant increase in the number of cancellations in week 9, and is set to reach a new floor of negative 73.5% cancellations.

Year-on-year scheduled flight cancellations in China have increased the past five weeks and seem to stabilize at a new plateau at negative 28.8% cancellations.

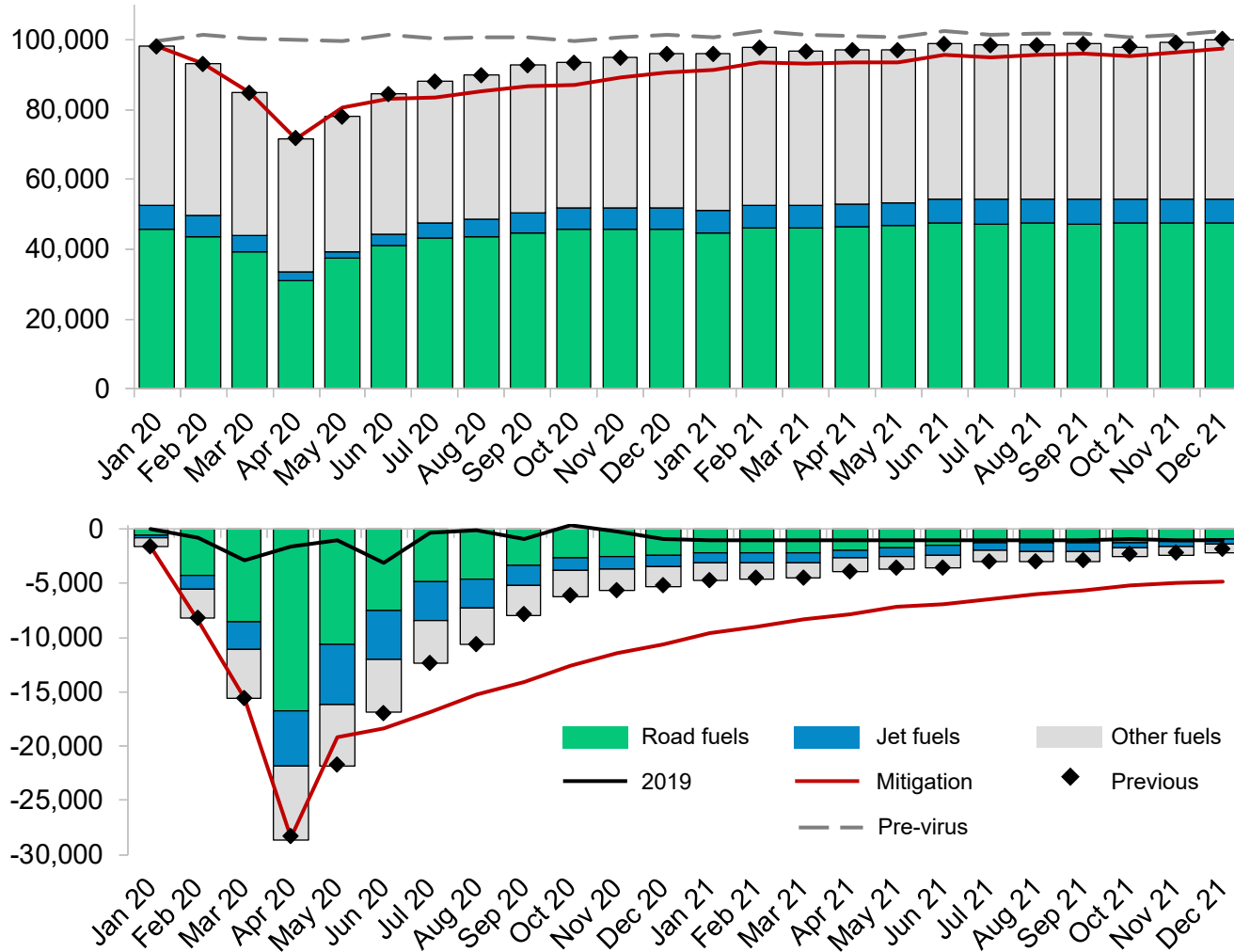
Much of Europe is still in lockdown when it comes to air travel, reflected in flight cancellations of around 90% in the busiest travel hubs in Europe.

Source: OAG, IATA, ICAO, Rystad Energy research and analysis

# Road fuel is down 11% for the year, jet fuel down 33% and all other fuels down 7% vs 2019

## Global oil demand impact analysis of Covid-19 by fuel, levels and changes vs pre-virus estimates

Thousand barrels per day



Global demand for road fuel was 31.2 million bpd in April, jet fuel demand was 2.2 million bpd, and demand for all other fuels stood at 38 million bpd.

About 16.7 million bpd was removed from road fuel demand in April, while the decline was 5.2 million bpd for jet fuel and 7 million bpd for all other fuels.

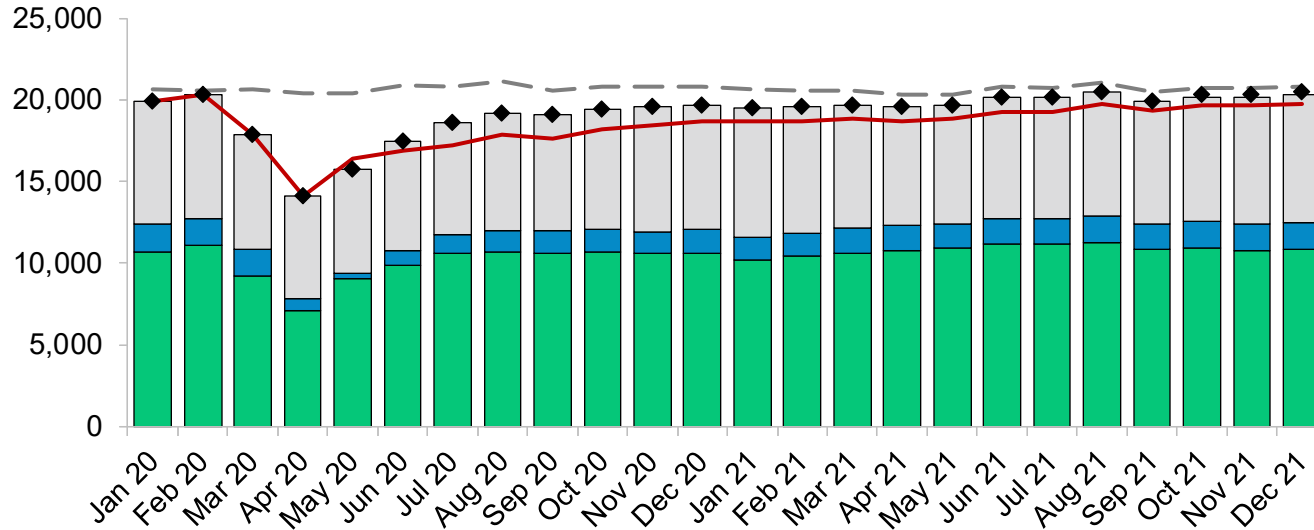
Source: Rystad Energy research and analysis



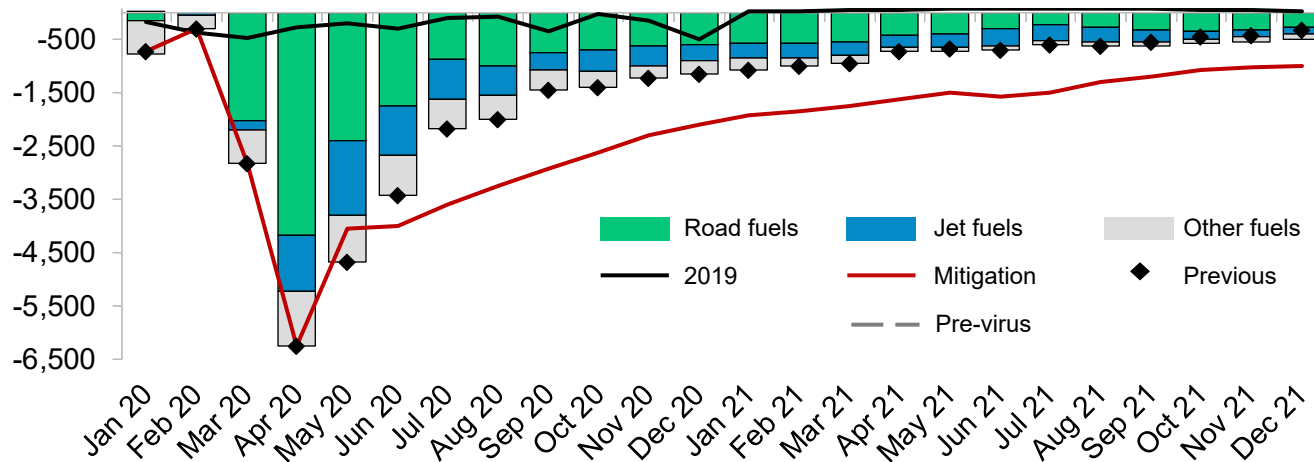
# US oil demand recovers in May by 1.7 million bpd vs April

## US oil demand impact analysis of Covid-19 by fuel, levels and changes vs pre-virus estimates

Thousand barrels per day



US road fuel demand was 7.1 million bpd in April, jet fuel demand was 700,000 bpd and demand for all other fuels totaled 6.3 million bpd.



About 4.2 million bpd was removed from US road fuel demand in April, while the decline was 1.3 million bpd for jet fuel and 1 million bpd for all other fuels.

All in all, 880 million barrels will be removed from total demand in the US during the course of 2020.

Source: Rystad Energy research and analysis

## Summary data table for total liquids demand after Covid-19 “Effective Containment” case

	Million barrels per day										Change year-on-year								
				2020				2020 1Q						2020				2020 1Q	
	2019	2020	2021	1Q	2Q	3Q	4Q	April	May	June	2020	2021	1Q	2Q	3Q	4Q	April	May	June
<b>Global</b>	<b>99.5</b>	<b>88.8</b>	<b>98.1</b>	<b>92.0</b>	<b>78.0</b>	<b>90.3</b>	<b>94.7</b>	<b>71.4</b>	<b>77.9</b>	<b>84.5</b>	<b>-10.8%</b>	<b>10.5%</b>	<b>-7.3%</b>	<b>-20.9%</b>	<b>-9.8%</b>	<b>-5.4%</b>	<b>-27.5%</b>	<b>-21.1%</b>	<b>-14.0%</b>
Road	47.4	42.3	46.8	42.9	36.6	43.9	45.7	31.2	37.3	41.2	-10.8%	10.7%	-8.0%	-22.8%	-8.3%	-3.8%	-34.2%	-21.3%	-13.0%
Aviation	7.2	4.8	6.8	5.9	2.4	4.9	6.1	2.2	1.8	3.0	-33.5%	41.5%	-15.9%	-67.5%	-34.8%	-14.7%	-68.7%	-74.9%	-59.2%
Other	44.9	41.7	44.4	43.2	39.0	41.5	42.9	38.0	38.8	40.3	-7.3%	6.7%	-5.3%	-11.0%	-7.2%	-5.7%	-13.5%	-12.2%	-7.3%
<b>United States</b>	<b>20.5</b>	<b>18.4</b>	<b>19.9</b>	<b>19.3</b>	<b>15.8</b>	<b>19.0</b>	<b>19.5</b>	<b>14.1</b>	<b>15.8</b>	<b>17.5</b>	<b>-10.0%</b>	<b>8.2%</b>	<b>-4.7%</b>	<b>-22.2%</b>	<b>-8.3%</b>	<b>-5.0%</b>	<b>-29.6%</b>	<b>-22.1%</b>	<b>-15.1%</b>
Road	11.2	10.1	10.8	10.3	8.7	10.6	10.6	7.1	9.0	9.9	-10.5%	7.6%	-6.2%	-24.1%	-6.8%	-4.6%	-36.9%	-20.5%	-15.1%
Aviation	1.7	1.2	1.5	1.6	0.7	1.3	1.4	0.7	0.4	1.0	-29.0%	24.1%	-1.7%	-62.1%	-29.7%	-20.4%	-59.4%	-79.8%	-47.2%
Other	7.5	7.1	7.6	7.4	6.5	7.1	7.5	6.3	6.4	6.7	-4.9%	6.4%	-3.1%	-9.4%	-5.3%	-2.0%	-10.7%	-10.2%	-7.2%
<b>China*</b>	<b>15.1</b>	<b>13.8</b>	<b>15.6</b>	<b>12.7</b>	<b>14.0</b>	<b>14.3</b>	<b>14.4</b>	<b>13.6</b>	<b>13.8</b>	<b>14.5</b>	<b>-8.2%</b>	<b>12.6%</b>	<b>-15.8%</b>	<b>-5.9%</b>	<b>-5.3%</b>	<b>-5.9%</b>	<b>-6.3%</b>	<b>-11.3%</b>	<b>0.2%</b>
Road	6.1	5.7	6.5	4.8	5.7	6.0	6.2	5.3	5.7	6.1	-7.0%	14.9%	-22.4%	-4.4%	-2.6%	1.6%	-8.7%	-9.6%	5.7%
Aviation	0.9	0.6	1.0	0.5	0.5	0.7	0.8	0.5	0.4	0.5	-29.4%	51.1%	-36.7%	-46.2%	-25.4%	-10.2%	-42.6%	-51.5%	-44.5%
Other	8.1	7.5	8.1	7.4	7.8	7.5	7.4	7.8	7.7	7.9	-6.7%	7.6%	-8.4%	-2.5%	-4.8%	-10.9%	-0.7%	-8.2%	1.8%
<b>Europe</b>	<b>14.2</b>	<b>12.4</b>	<b>13.6</b>	<b>13.1</b>	<b>10.2</b>	<b>12.8</b>	<b>13.5</b>	<b>9.0</b>	<b>10.0</b>	<b>11.4</b>	<b>-13.2%</b>	<b>10.3%</b>	<b>-7.3%</b>	<b>-28.5%</b>	<b>-12.4%</b>	<b>-4.6%</b>	<b>-37.5%</b>	<b>-28.4%</b>	<b>-19.3%</b>
Road	7.0	6.2	6.7	6.4	5.0	6.5	6.8	4.1	5.0	6.0	-12.0%	8.8%	-5.7%	-28.3%	-9.6%	-4.4%	-42.7%	-27.2%	-14.8%
Aviation	1.5	0.9	1.4	1.1	0.2	0.9	1.2	0.2	0.2	0.3	-39.3%	54.9%	-14.0%	-84.8%	-42.3%	-10.8%	-88.3%	-88.1%	-78.3%
Other	5.7	5.3	5.5	5.5	4.9	5.3	5.4	4.8	4.8	5.1	-8.0%	4.4%	-7.6%	-13.6%	-7.4%	-3.3%	-18.1%	-14.1%	-8.2%

\*Includes mainland China, Hong Kong and Taiwan  
Source: Rystad Energy research and analysis

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Impact on oil demand

**Impact on the oil and gas industry**

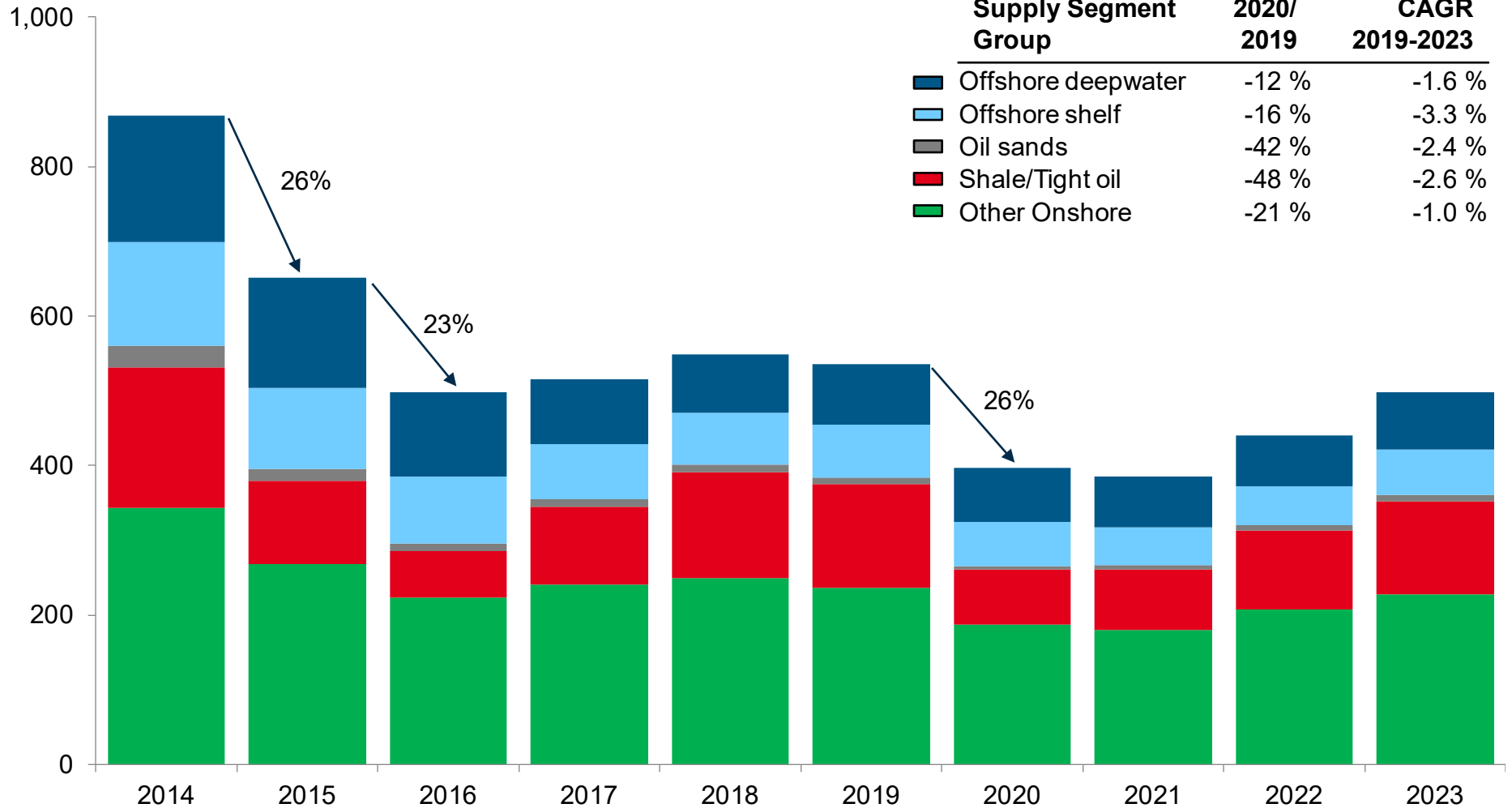
- Global market outlook
- Market segment focus

Methodology

# Global E&P investments expected to fall more than 25% this year

## Global Investments\*

Billion USD

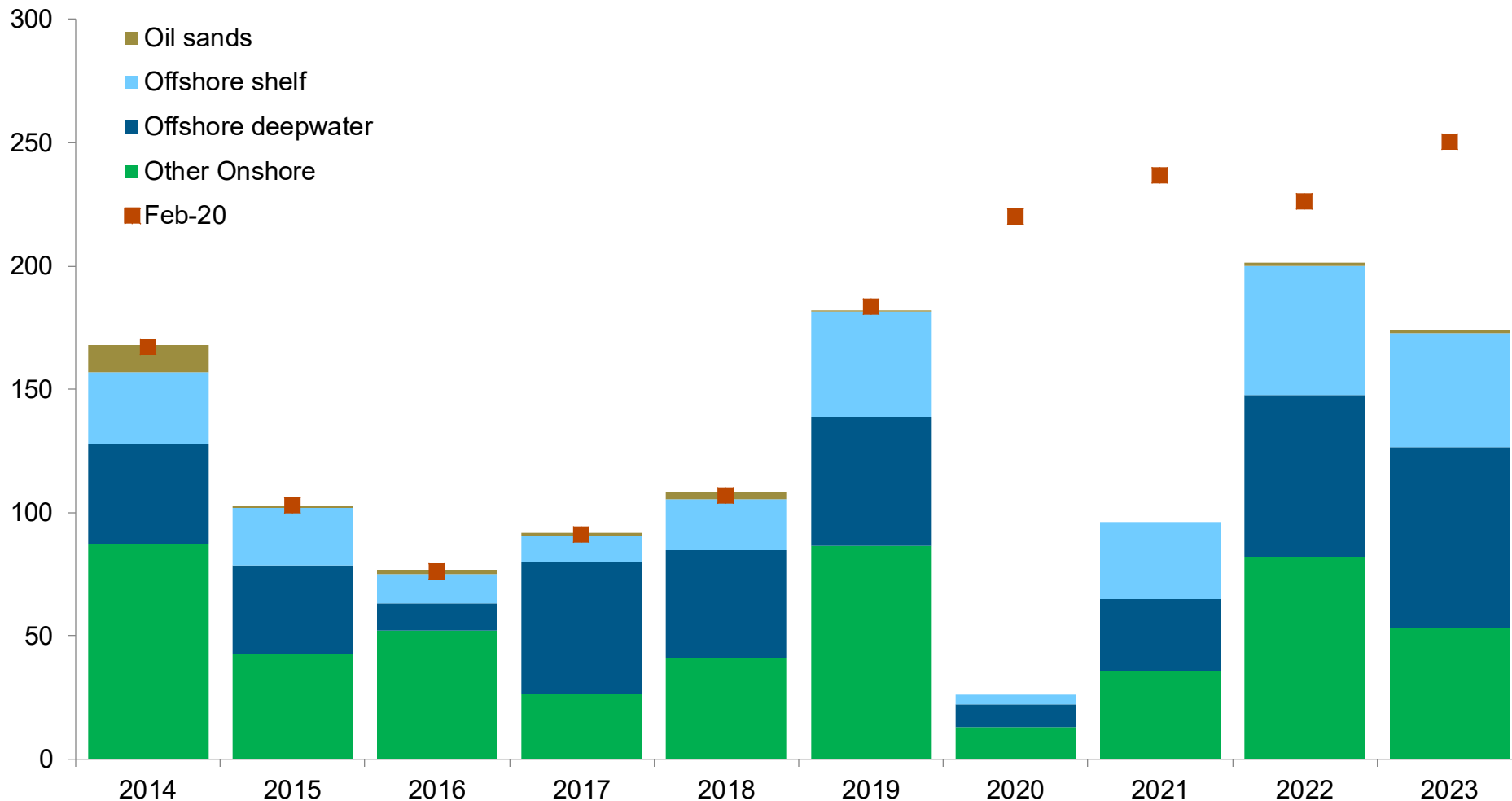


\*Investments include greenfield, brownfield and exploration capex  
Source: Rystad Energy UCube

# Global FID activity to slip significantly

## Total conventional sanctioning of greenfield investments (capex committed each year)

Billion USD

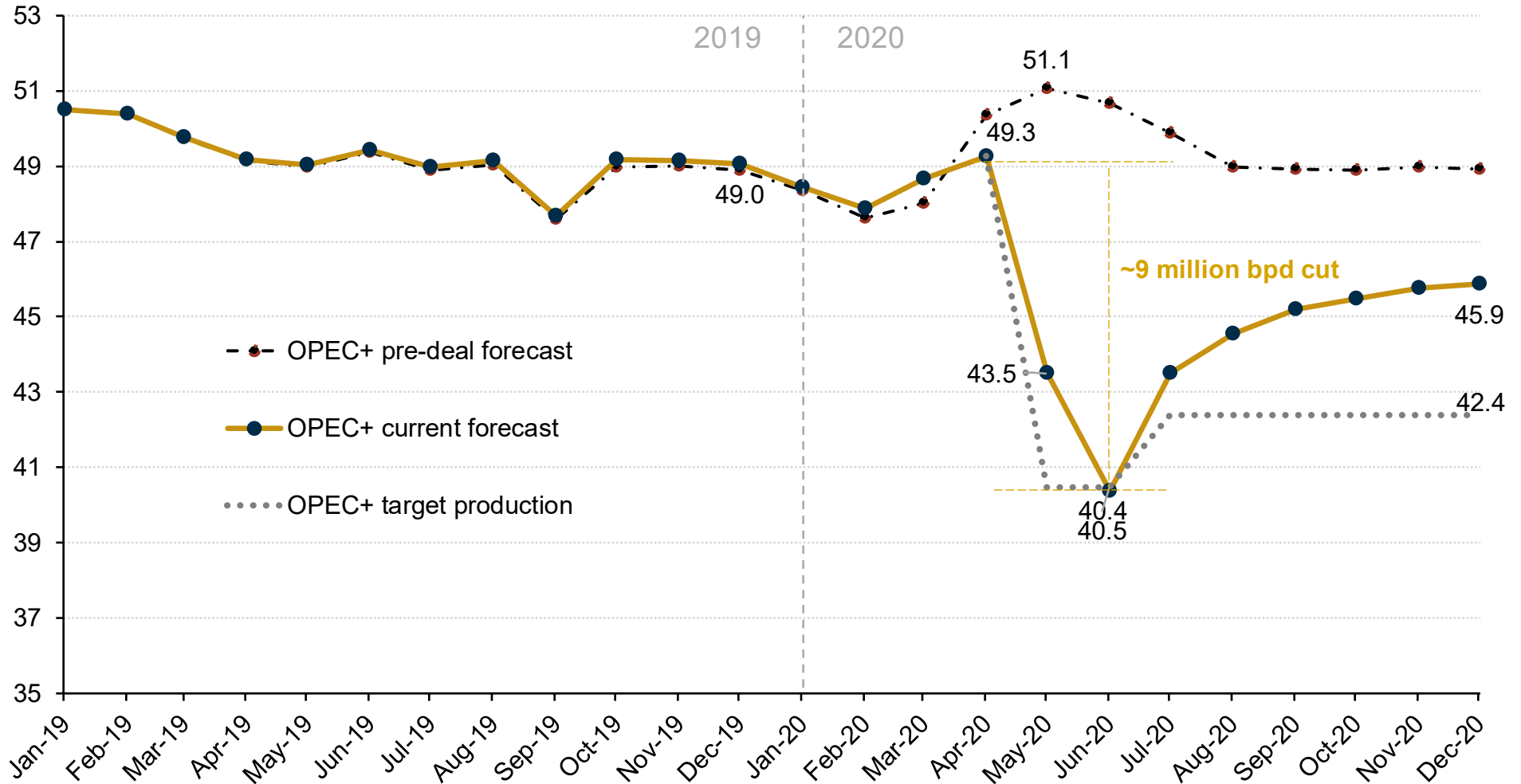


Source: Rystad Energy UCube

# OPEC+ helped by core OPEC ME extra cuts surprise with high compliance (latest)

## OPEC+ oil\* production, monthly

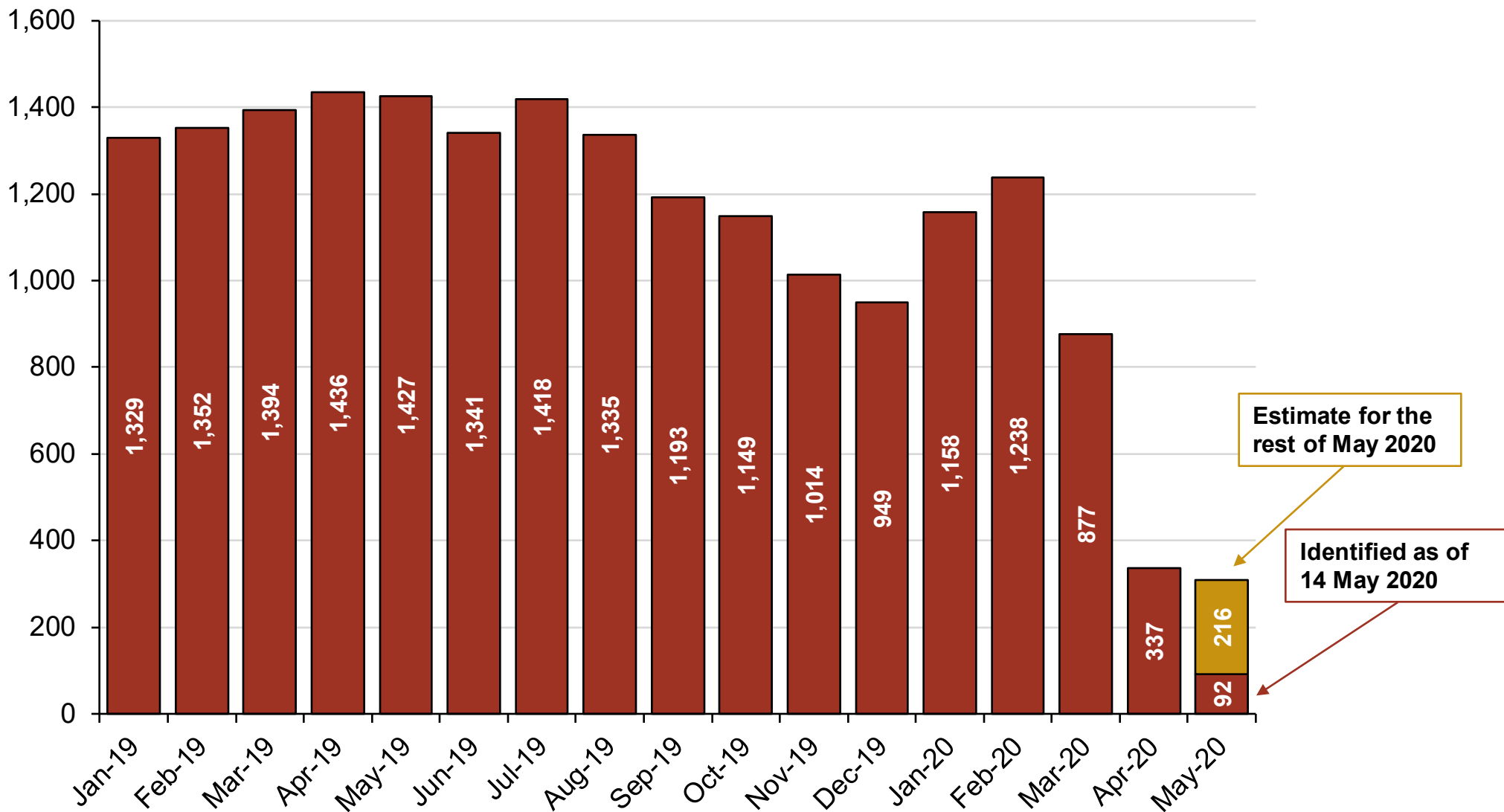
Million barrels per day



\*OPEC+ oil here includes OPEC-13 and non-OPEC-10 crude and lease condensate  
 Source: Rystad Energy research and analysis, OilMarketCube

# Fracking operations have tumbled even more than drilling

Number of wells

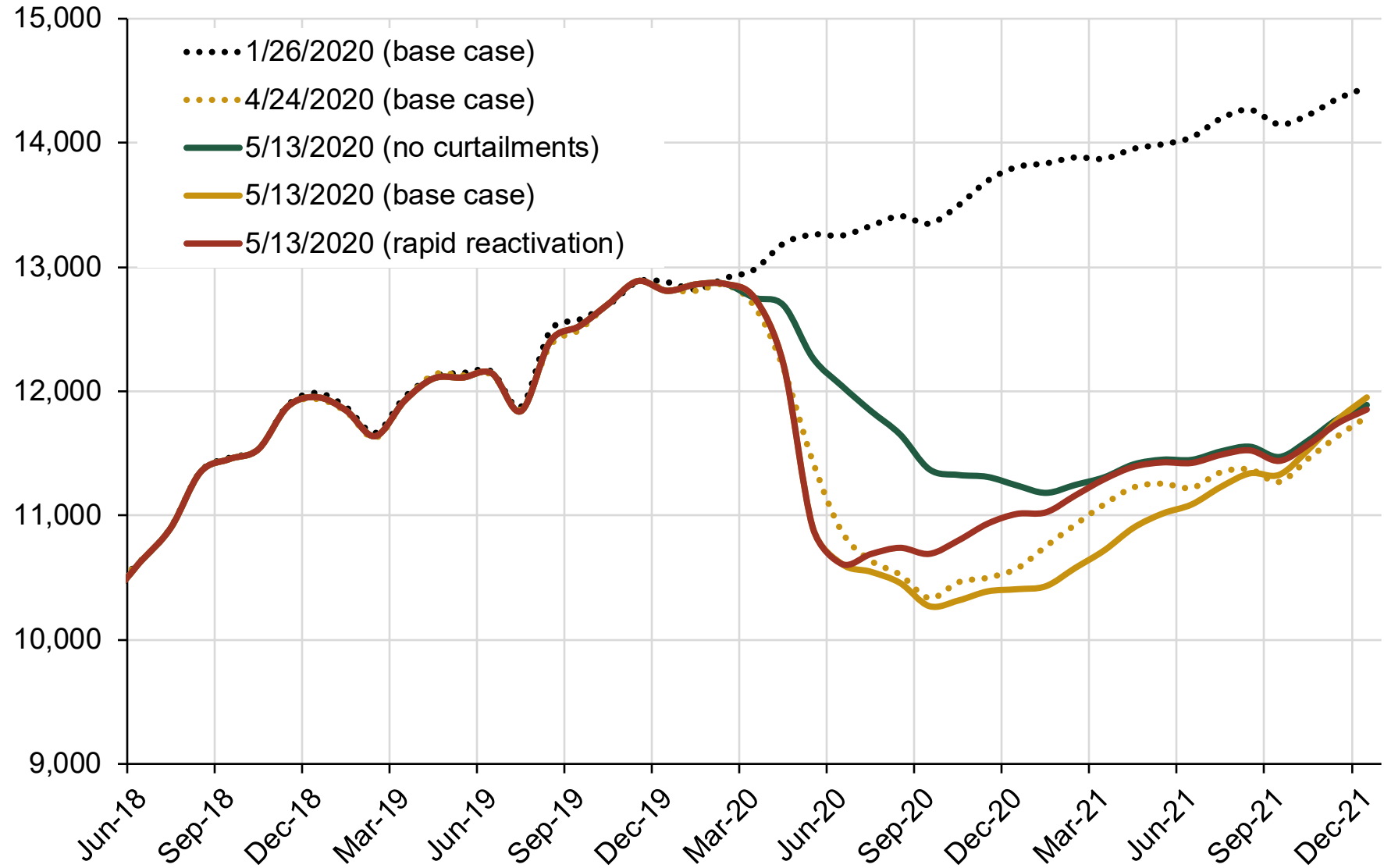


\*Actual number of started frac operations divided by the number of days in each month and multiplied by 365.25 / 12

Source: Rystad Energy ShaleWellCube

# US oil\* production outlook by forecast time stamp and scenario

Thousand barrels per day



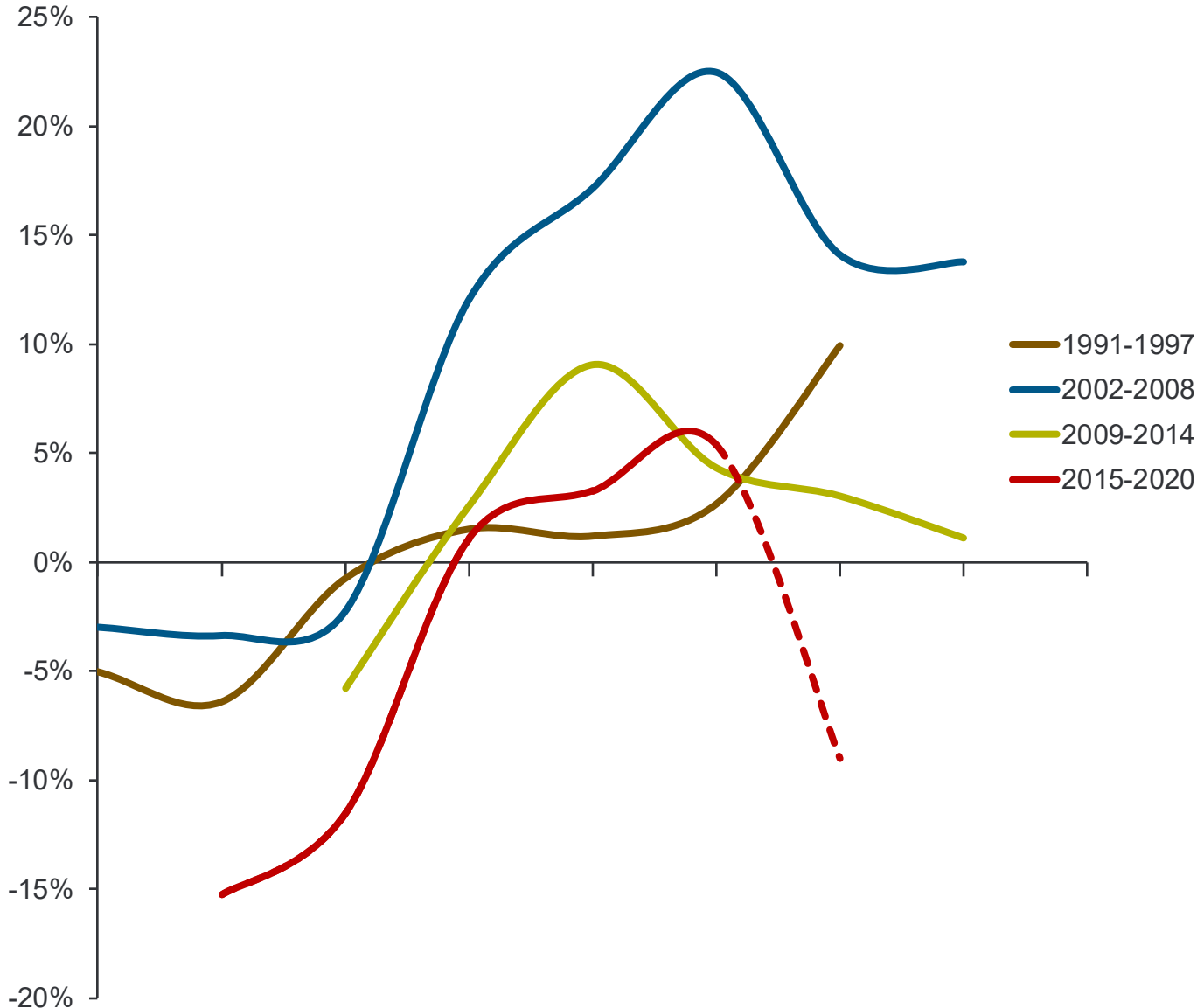
\*Crude oil and lease condensate production

Source: Rystad Energy ShaleWellCube, Rystad Energy OilMarketCube, Rystad Energy research and analysis



# Service price inflation from 1990 to 2020

Year-on-year change, index normalized to 2014=100 for each segment



Source: Rystad Energy Cost Solutions, May 2020

Comparing the current cycle that we're in against previous cycles over the past three decades, two key takeaways can be identified:

- The [cost deflation seen from 2015 through 2018](#) was the most dramatic when compared against the previous three major cycles
- The duration of cost inflation in the upturn of the cycle also was the shortest duration when compared against the previous cycles dating back to 1990

These two factors combined mean the service industry not only saw prices decrease dramatically, but also was denied the expected cost relief that had applied in previous cycles.

Current service pricing is squeezed and has not managed to grow in the same manner as was seen throughout other cycles over the past 30 years. The good news with this downturn, however, is that service price reduction will happen organically.

# Stay updated on our COVID-19 content

In order for you to stay up to date on our releases regarding COVID-19 and the impact on the energy sector, we have two options for you:

## **Sign up for Rystad Energy's Free Solutions:**

As an industry professional you can sign up to Rystad Energy's Free Solutions [here](#). You will get full access to the library of free COVID-19 related releases and other energy related analytics and dashboards.

## **Sign up for e-mail notifications:**

Sign up [here](#) to get immediate email notification when Rystad Energy publishes a new report / new press release associated to COVID-19.



# OIL MARKET WEEKLY

RYSTAD ENERGY PRODUCT RELEASE



ANALYTICS

## OIL MARKET WEEKLY – Demand report, a weekly report with:

- An overview of **global oil demand**
- Oil demand impact in two **COVID-19 mitigation scenarios**
- Impact of oil demand in **aviation, ground transportation and road fuels**



ANALYTICS LIBRARY

## OIL MARKET WEEKLY – Balances report:

- A weekly **Commentary** with the latest oil market observations
- A weekly **Executive Summary** on the oil market balances, oil supply and demand, and the overall oil market view



CUBE DASHBOARDS

## **OIL MARKET DASHBOARDS and Excel data on:**

- **Oil demand analysis dashboard**: split by country, transport type, aviation
- **COVID-19 dashboard**: oil demand impacting two COVID19 mitigation scenarios



RYSTAD ENERGY

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