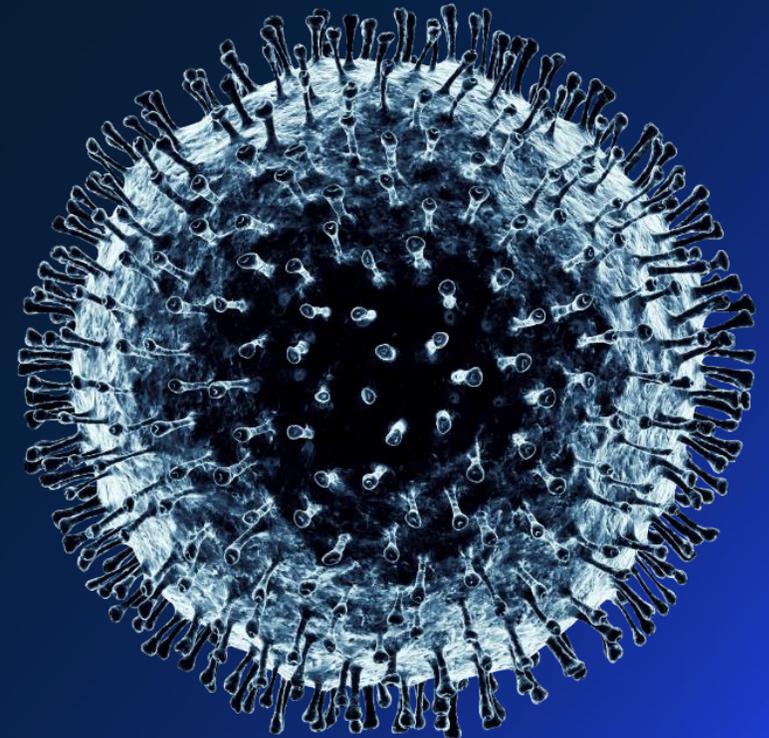


# Impact of COVID-19 on the O&G industry

Updated March 17<sup>th</sup>, 2020

DOCUMENT INTENDED TO PROVIDE  
INSIGHT AND PERSPECTIVES RATHER  
THAN SPECIFIC COMPANY ADVICE



COVID-19 is, first and foremost, a global humanitarian challenge. Thousands of health professionals are heroically battling the virus, putting their own lives at risk. Governments and industry are working together to understand and address the challenge, support victims and their families and communities, and search for treatments and a vaccine.

Companies around the world need to act promptly. This document is meant to help senior leaders understand the COVID-19 situation and how it may unfold, and take steps to protect their employees, customers, supply chains and financial results.

[Read more on Mckinsey.com](#) →

# Contents

01

---

COVID-19  
The situation &  
possible future  
scenarios

02

---

Impact of  
COVID-19 on  
the oil market

03

---

Impact of  
COVID-19 on  
the gas / LNG  
market

04

---

Questions for  
O&G  
companies to  
consider

# COVID-19 appears to be more dangerous than the flu

Latest as of March 15, 2020

## Features of the disease to date<sup>1</sup>

**1.5-2X**

Higher reproduction than the flu

**Up to 20%**

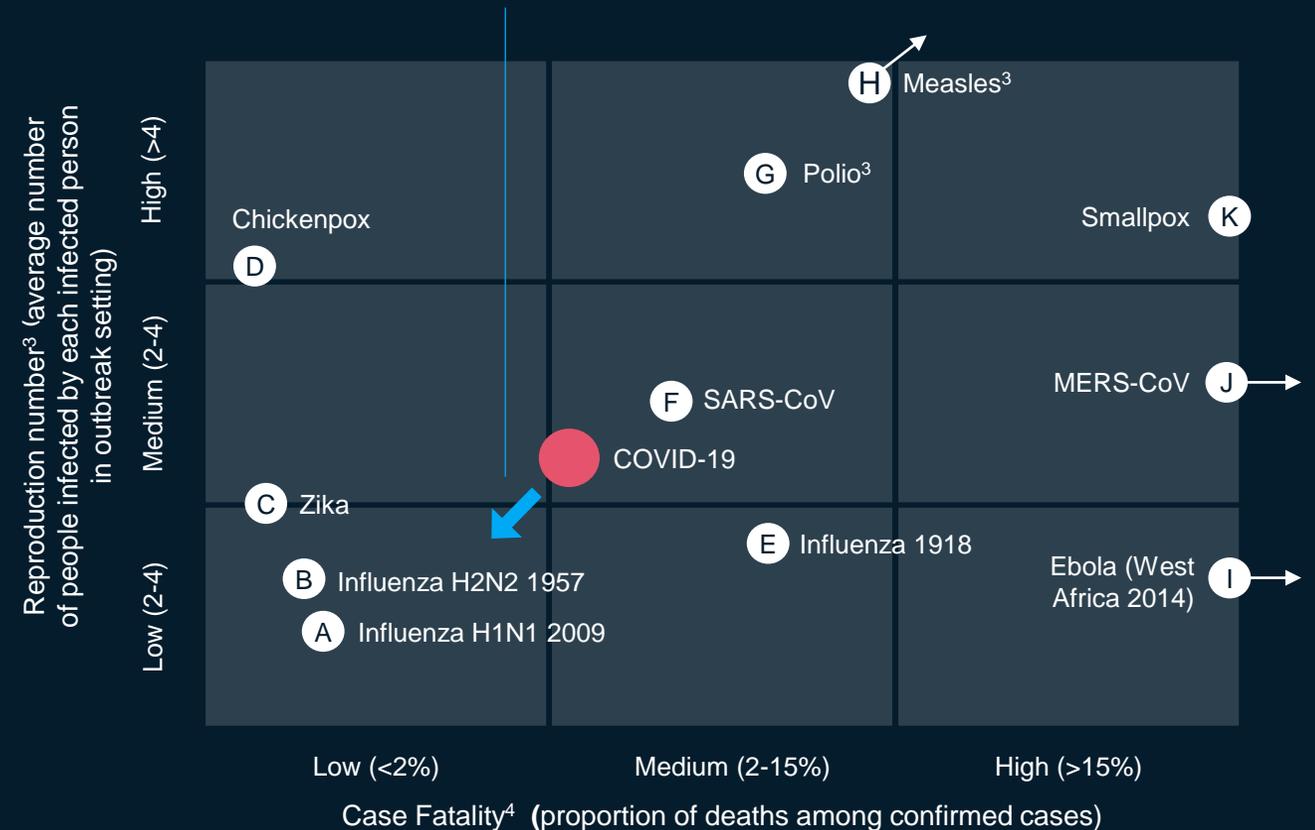
Of cases have a severe/critical form of the disease<sup>6</sup>

**~0.9%**

Case Fatality Ratio in South Korea after widespread testing. CFR appears higher where cases are missed and is higher when health systems are overwhelmed<sup>2</sup>

## Comparison to other diseases<sup>5</sup>

Early identification of the disease, intensification of viral control, and treatment, when available, will reduce reproduction number and case fatality



1. Evidence on exact numbers are emerging, however expected to decrease as viral containment measures intensify and treatments are developed  
 2. WHO estimates the global average CFR at 3.4%, dependent on conditions such as patient age, community immunity, and health system capabilities. Latest case fatality ratios were calculated as death/ cases  
 3. In outbreak setting or the introduction of a new disease  
 4. Case Fatality numbers reflect outbreak settings and factors such as the patient's age, community immunity and health system capabilities  
 5. Estimates are very context and time specific, however are provided from prior outbreaks based on academic lit review  
 6. WHO estimates 15% severe and 5% critical

# Impact to date

>153,000

Reported confirmed cases

>5,700

Deaths

## The global spread is accelerating with more reports of local transmission

>140

Countries or territories with reported cases<sup>1</sup>

>80

Countries or territories with evidence of local transmission<sup>2</sup>

~40

Countries or territories with more than 100 reported cases<sup>1</sup>

<1%

China's share of new reported cases March 9<sup>th</sup>-15<sup>th</sup>

~75%

New reported cases on March 9-15<sup>th</sup> from Europe

>40

New countries with cases March 9<sup>th</sup>-15<sup>th</sup>

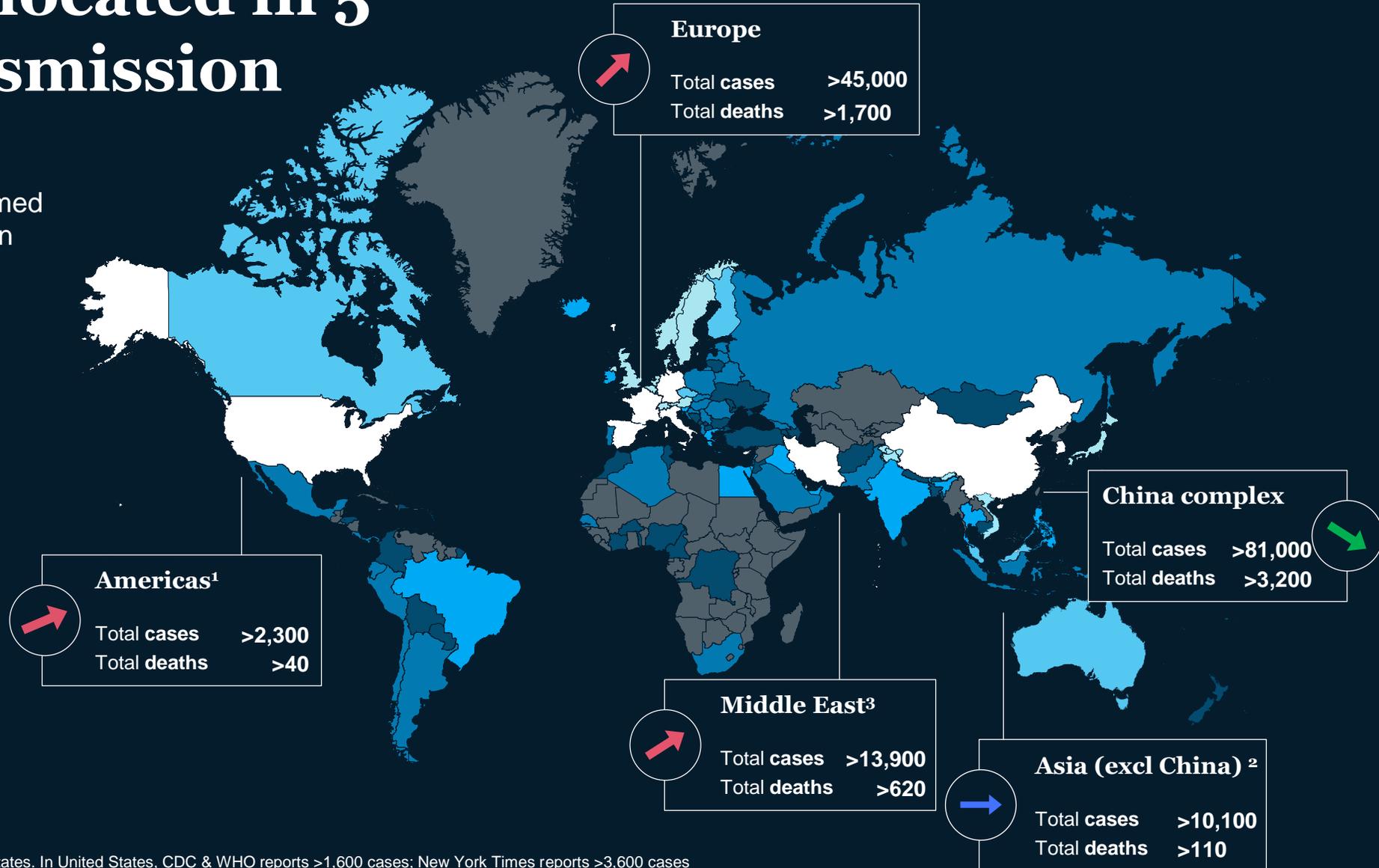
Latest as of March 15, 2020

1. Previously counted only countries; now aligned with new WHO reports; excluding cruise ship;  
2. Previously noted as community transmission in McKinsey documents; now aligned with WHO definition

# The virus is located in 5 major “transmission complexes”

A complex is an area with confirmed local transmission, and more than 100 confirmed cases, where it is difficult to prevent people’s movement

- ↗ Propagation trend
- Mature/ on-going propagation
- Early propagation
- > 1000 reported cases
- 250-999
- 100-249
- 50-99
- 10-49
- <10



1. WHO data is lagging behind news reports for United States. In United States, CDC & WHO reports >1,600 cases; New York Times reports >3,600 cases  
 2. Includes Western Pacific and South-East Asia WHO regions; excludes China; Note that South Korea incremental cases are declining, however other countries are increasing  
 3. Eastern-Mediterranean WHO region

# Progression varies widely among countries

Country	Status	Recent Actions
<p>China</p> <p><b>&gt;81,000</b> Cases</p> <p><b>&gt;3,200</b> Deaths</p> <p><b>~4.0%</b> Case Fatality<sup>2</sup></p>	<p> New cases at low levels throughout China</p>	<p>Strict containment and quarantine</p> <p>Significant testing at facilities and in Hubei</p> <p>Construction of makeshift hospitals to increase capacity</p>
<p>South Korea</p> <p><b>&gt;8,100</b> Cases</p> <p><b>&gt;70</b> Deaths</p> <p><b>~0.9%</b> Case Fatality<sup>2</sup></p>	<p> New cases declined ~75% in the last week with potential decline or plateau<sup>1</sup></p>	<p>Significant preparedness &amp; rapid regulatory approval process for tests</p> <p>Rapid roll-out of diagnostics (e.g., diagnostic drive-through)</p> <p>Hospitalization available for lower-severity cases &amp; significant hospital coordination</p>
<p>Italy</p> <p><b>&gt;21,100</b> Cases</p> <p><b>&gt;1,400</b> Deaths</p> <p><b>~6.8%</b> Case Fatality<sup>2</sup></p>	<p> ~3,500 new cases on March 15<sup>th</sup> – the highest in the world, corresponding to a ~180% increase in the last week<sup>1</sup></p>	<p>Efforts initially focused on Northern Italy, but efforts now extend to the entire country, including cancellations of larger gatherings</p> <p>Healthcare recruiting efforts due to strain</p> <p>Schools closed nationwide</p>
<p>US<sup>3</sup></p> <p><b>&gt;1,600</b> Cases</p> <p><b>&gt;40</b> Deaths</p> <p><b>~2.4%</b> Case Fatality<sup>2</sup></p>	<p> US cases are increasing daily, however official reporting may be lagging<sup>1</sup></p>	<p>A national emergency was declared on March 13 with Congress aiming to provide testing free of charge</p> <p>&gt;29 states have declared emergency with a range of actions including school closures, bans on large gatherings and large-scale testing plans</p>

1. Number of new confirmed cases on March 15th compared to March 8th

2. Case Fatality calculated as (total deaths) / (total cases) – this rate is evolving and dependent upon several factors, including number of suspected cases that are tested

3. WHO data is lagging behind news reports for United States; In United States, CDC & WHO reports >1,600 cases; New York Times reports >3,600 cases

# Scenario overview



## The situation now

COVID-19 has seen a consistent case decline in countries that had experienced rapid case growth early (esp China, South Korea)

However, cases outside of Asia are growing dramatically, driven primarily by complexes in Europe and the Middle East. The United States, while it has confirmed only a limited number of new cases, may experience a large increase in cases once testing kits become widely available



## Epidemiological scenarios

### Delayed Recovery

China and East Asian countries continue their current recovery and control the virus by late Q1 or early Q2 2020

European and US case count growth rises rapidly through mid-April

### Prolonged Contraction

China and East Asian countries face a surge of re-infection as they attempt to restart economic activity

The virus is not seasonal with a mutated virus resurging in the fall of 2020



## Economic impacts

China and East Asian countries start recovery but supply chains remain impaired

US and Europe large-scale quarantines, travel restrictions, and social distancing drive drop-off in consumer spending and business investment in 2020

China and East Asia experience double-dip slowdowns as economic recovery is derailed in 2020 and pushed into Q1 2021

The United States and Europe experience demand-side reductions in consumer and business spending and deep recessions in 2020



## Epidemiological scenario

European and US case-count growth rises rapidly through mid-April

Tests available, and extent of cases fully discovered by mid-April; More aggressive shutdowns and social distancing slows spread

New case counts peak by end April and decline by June with stronger public-health response and seasonality of virus

Fall 2020 sees a resurgence of the virus. Although countries have better public-health preparedness globally

Iran continues to be the epicenter in Middle East; Southeast and South Asia, Africa, and Latin America are spared worst effects due to their warm climates and young demographics

China and East Asian countries continue their current recovery and control the virus by late Q1 or early Q2 2020



## Economic impacts

China and East Asian countries start recovery but supply chains remain impaired in much of Q2 2020 and consumer spending subdued

In the United States and Europe, large-scale quarantines, travel restrictions, and social distancing drive drop-off in consumer spending and subsequently, business investment in 2020

- Layoffs drive unemployment rates higher
- Corporate bankruptcies spike, putting pressure on the banking/financial system
- Monetary easing has limited impact with already low rates and fiscal responses prove insufficient and poorly timed
- Self-reinforcing recession dynamics extend GDP declines through Q3; recovery begins in Q4

2020 Global GDP growth falls sharply, driven by recessions in the United States and Europe and slower growth in China and other Asian countries

## Delayed recovery

The virus continues to spread across the Middle East, Europe, and the United States until mid-Q2, when virus seasonality combined with a stronger public-health response drives case-load reduction

## Prolonged contraction

The virus spreads globally without a seasonal decline, creating a demand shock that lasts until Q2 2021. Health systems are overwhelmed in many countries, especially the poorest, with large-scale human and economic impact



### Epidemiological scenario

European and US public-health measures deliver initial containment of the virus only by early June

The virus does not prove to be seasonal with a mutated virus resurging in the fall of 2020, leading to a spike in cases across geographies throughout Q2

Restrictions on travel and quarantines in the United States, Europe, China, and East Asia are tightened further in an attempt to stem the tide

Iran continues to be the epicenter in Middle East; Southeast and South Asia, Africa, and Latin America are spared worst effects due to their warm climates and young demographics

China and East Asian countries face a surge of re-infection as a result of attempt to restart economic activity



### Economic impacts

China and East Asia experience double-dip slowdowns as the economic recovery is derailed in 2020 and pushed into Q1 2021

The US and Europe experience demand-side reductions in consumer and business spending and deep recessions in 2020

- Layoffs and bankruptcies in the most affected sectors rise sharply throughout 2020, feeding into a self-reinforcing downward spiral
- Financial system distress is significant but a full-scale banking crisis is averted due to better capitalization of banks and new macro-prudential supervision in place
- Fiscal and monetary policy responses prove insufficient to break the headwinds

The global economic impact is severe, with significant GDP contraction in most major economies in 2020 and a slow-moving recovery beginning in only Q2 2021

# Contents

01

---

COVID-19  
The situation &  
possible future  
scenarios

02

---

Impact of  
COVID-19 on  
the oil market

03

---

Impact of  
COVID-19 on  
the gas / LNG  
market

04

---

Questions for  
O&G  
companies to  
consider

---

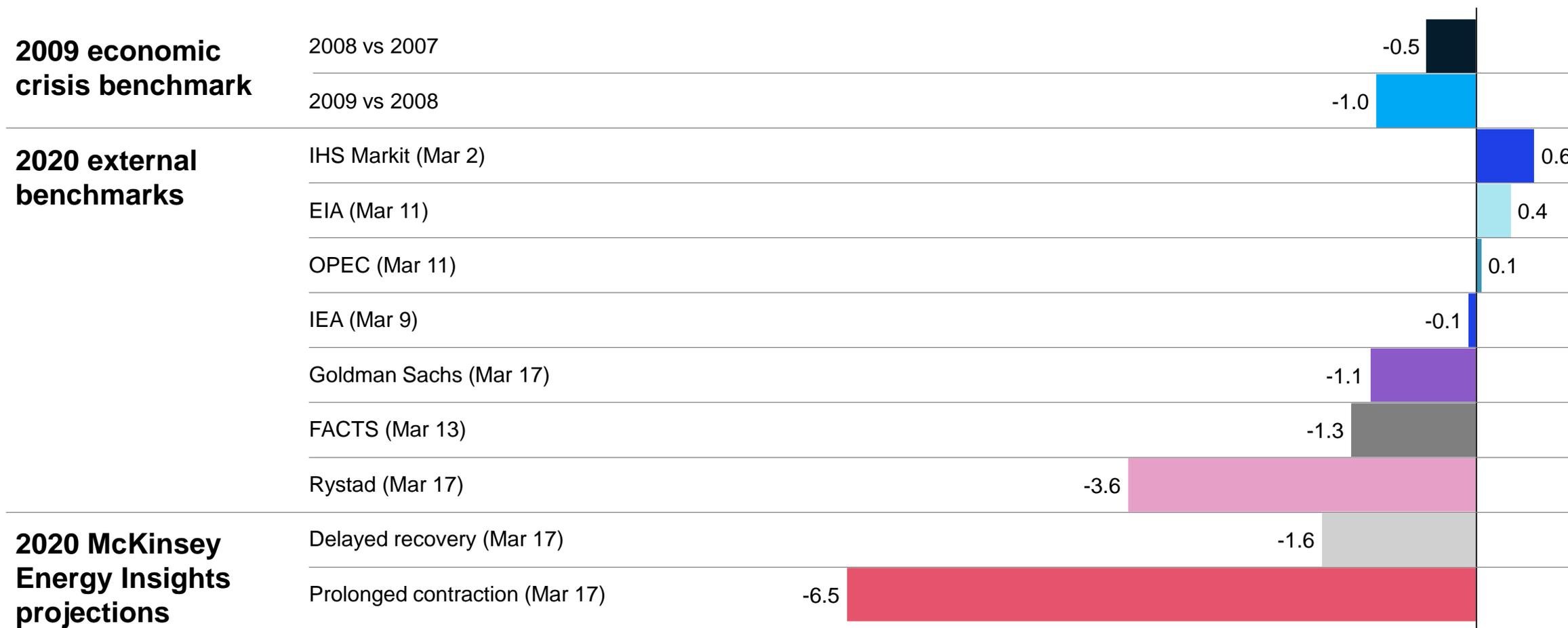
# Global oil market – key takeaways

---

- 1 In the **delayed recovery scenario**, 2020 oil demand would be **1.6Mbd below 2019 levels**, while in a **prolonged contraction scenario** the impact would be much higher, close to **6.5Mbd below 2019 levels**
- 2 Combining the demand impact with the supply decisions from OPEC+, we see 3 main possible supply-side and pricing scenarios for the short term
  - (1) **No OPEC+ alignment**: OPEC+ increases combined production by 4.4MMbd and sustain it for 3 years, prices remain in the low \$30s with occasional \$20s driven by oversupply and inventory overhang, no extended shut-ins in existing fields
  - (2) **Return to prior OPEC+ cut levels**: Saudi Arabia and Russia get to a partial agreement, only extending cuts that existed before OPEC+ meeting (2.1Mbd), prices return to \$40s in 2020, with market balancing in 2021
  - (3) **New OPEC+ deal implemented**: Saudi Arabia and Russia agree on a plan for additional cuts of 1.5Mbd on top of prior cuts – 3.6Mbd total cuts, with prices rising to high \$40s by Q3, averaging ~\$50 for 2020
- 3 Under these scenarios US shale production would remain flat at best in 2022 vs 2019, and decrease by over 2mbd in 2022 vs 2019 in the worst scenario, with activity in the Permian being cut for 2020 in all scenarios
- 4 Deepwater production would remain robust under all these scenarios due to lags between investment decisions and production, but capital spend is expected to slow by ~\$25 billion to 2022 vs. pre-COVID-19 outlook
- 5 Short term price dynamics increase the likelihood of having an under-investment scenario play out in the medium-term, resulting in a new price up-cycle

# 1. In response to the COVID-19 situation, several agencies have downgraded their short term oil demand outlook

## Change in global oil demand (2019 – 2020), Mbd



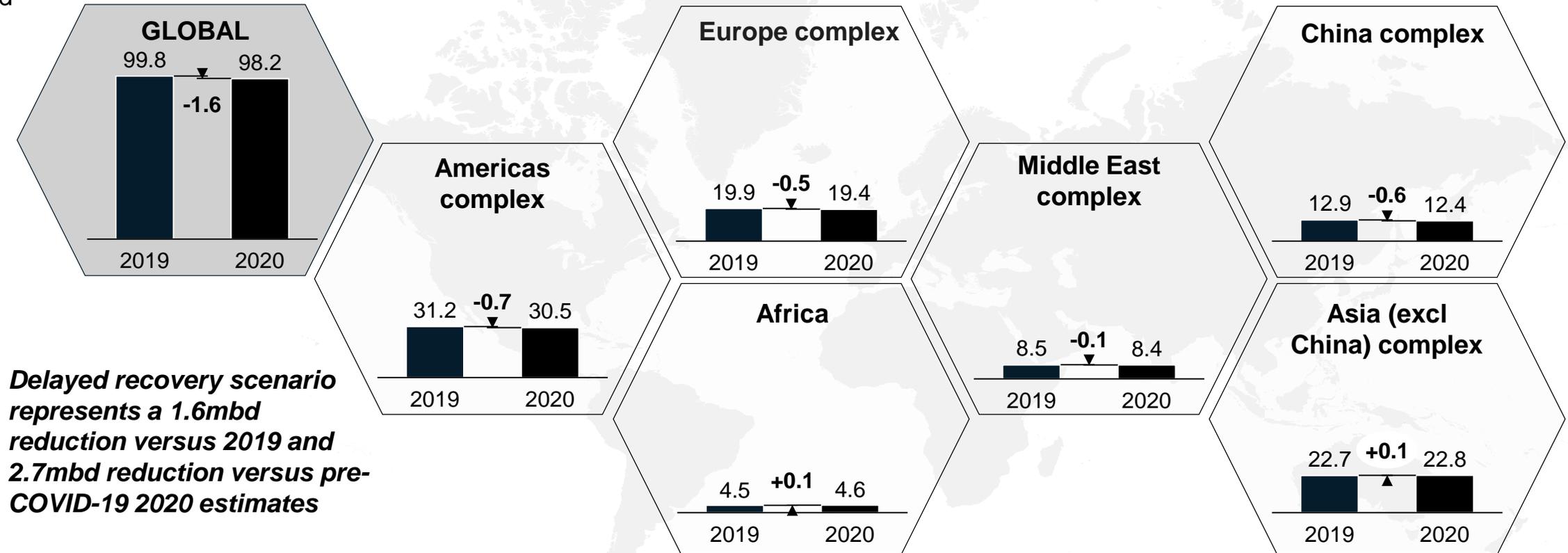
# 1. Potential impact of COVID-19 outbreak on global oil demand<sup>1</sup>

In a “delayed recovery” scenario, global oil demand falls 1.6Mbd from 2019 to 2020

## DELAYED RECOVERY DEMAND SCENARIO

### Oil demand

Mbd



1. Delayed recovery scenario model outputs are provisional and subject to change.

# 1. Severe short-term downside expected in Road Transport and Aviation, downward revision for Chemicals

 Deep-dive follows

DELAYED RECOVERY DEMAND SCENARIO

2019-20 YoY change in oil demand, Kbd

■ >200  
 ■ 50-200  
 ■ 50-(50)  
 ■ (50)-(200)  
 ■ <(200)

Global oil demand change (projected), Kbd

	Americas complex	Europe complex	Middle East complex	China complex	Asia (ex. China) complex	Africa	Total	Pre-COVID-19
Road transport							-959	+370
Aviation							-224	+219
Chemicals							+19	+416
Industry							+6	+189
Buildings							-32	-32
Other <sup>1</sup>							-403	-109
<b>Total</b>	-668	-464	-113	-563	+76	+139	-1,593	+1,053

1. Includes electricity and heat generation, marine, refining and rail transport

Source: McKinsey Energy Insights Global Energy Perspective, McKinsey analysis

## Key takeaways

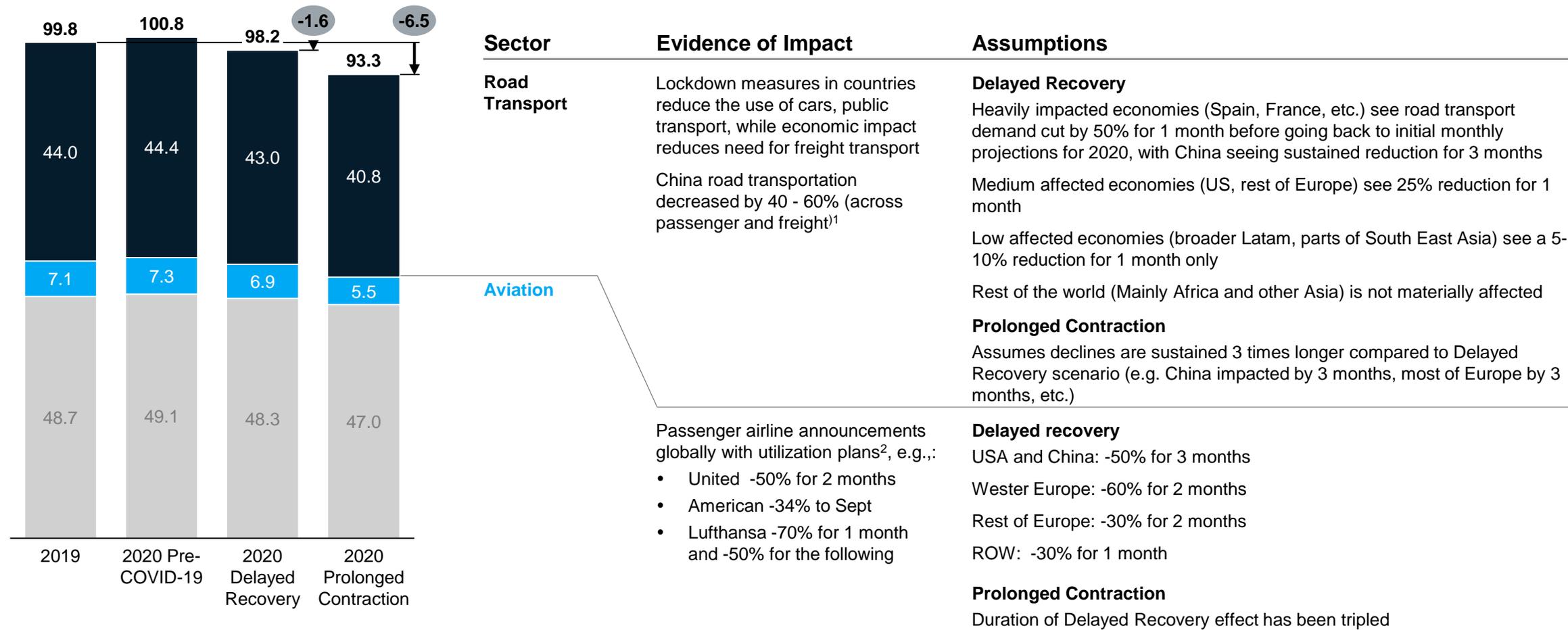
**Road transport projected to see largest decline**, driven by restrictions (e.g., in China and multiple European countries), and first wave of institutional closings combined with reluctance to travel (in USA)

**Aviation projected to be hit hard**, with airlines across the world announcing major capacity declines throughout Q2 and Q3

**Decline in 'Other' mainly driven by Marine and Refining**, both expected to slow down as a result of decreased economic activity and fuel demand

# 1. Road transport and Aviation are affected the most by as the main modes passenger transport

Oil demand, Mbd



1. IHS, China ministry of transportation

2. Additional plans include: Qantas, Norwegian Air, British Airways, Virgin, Malaysia, Air Egypt, Azul, LATAM, Morocco, Argentina, India Jordan, Saudi, Denmark, Poland

# 1. Chemicals and other industries are primarily affected by the performance of the broader economy

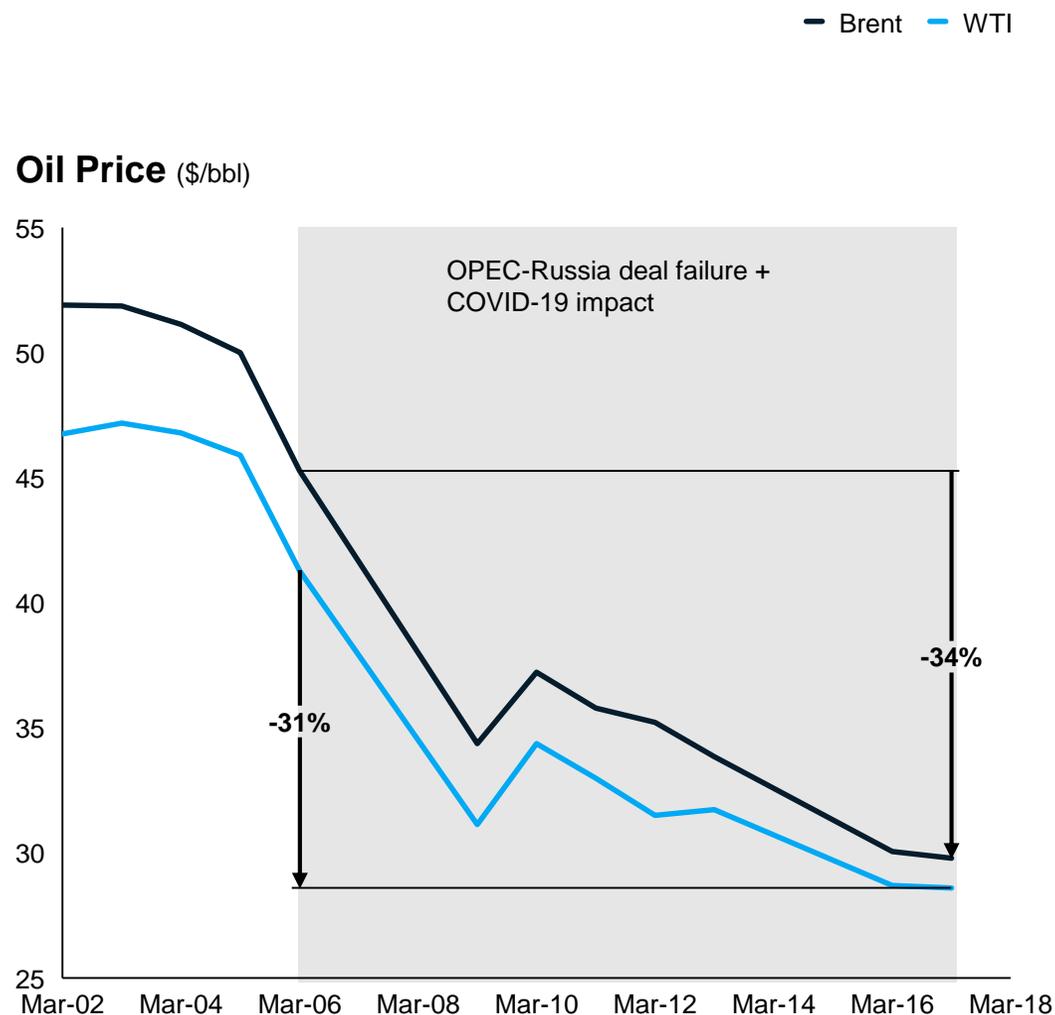
Oil demand, Mbd



Sector	Evidence of Impact	Assumptions
<b>Chemicals</b>	Petrochemical plants in Asia observed a 10-20% reduction in utilization during the January – February period <sup>1</sup>	<p><b>Delayed Recovery</b></p> <p>Demand for chemicals declines driven by a slowdown in economy</p> <p>Petrochemical value chain (i.e., ethylenes, aromatics, polyethylenes) sees a 15% drop in utilization in the regions hit by COVID-19 (Asia ex China, Europe, Middle East, US), in line with observed reduction in Asia</p> <p><b>Prolonged Contraction</b></p> <p>Duration of effect tripled to 6 months, as underutilization persists longer</p>
<b>Other</b>	<p>Consists of Marine, Refining, Power Generation, Mining and Minerals, Agriculture, etc.</p> <p>40% reduction in demand of Bunker fuels in China for Q1</p> <p>Rest of industry affected by impacts of broader economy, no hard evidence has emerged yet</p>	<p><b>Delayed recovery</b></p> <p>Marine: China reduction 40% for 3 months, US &amp; Singapore decline by 20% for 2 months, ROW by 10% for 1 month</p> <p><b>Prolonged Contraction</b></p> <p>Duration of effect tripled across regions</p>

1. Based on IHS published data

# 1. Demand fears over COVID-19 and OPEC-Russia deal failure pushed oil prices under \$30/bbl



Source: Bloomberg; Press search

## Market reactions

“” While we can't rule out an OPEC+ deal in coming months, we also believe that this **agreement was inherently imbalanced** and its production cuts economically unfounded. As such, we **base case for now that no such deal occurs**, with any response only likely at sharply lower prices anyways

- Goldman Sachs (Mar 8, 2020)

“” Oil markets face a moment of truth as disagreement between key OPEC+ members means **unhinged supplies will likely overwhelm near-term market balances amid large-scale demand destruction** due to virus containment measures

- Barclays (Mar 10, 2020)

“” The crash of oil prices as the global coronavirus crisis intensifies may **challenge the plans by oil and gas (O&G) giants to finance a shift to renewables**

- International Energy Agency (Mar 10, 2020)

“” The result has been an **unprecedented shock to the global oil market [...] the largest drop ever, bigger even than during the 2008 financial crisis**. Before Russia's decision on Friday, oil prices had already fallen almost 30% since the year began.

-WSJ (Mar 10, 2020)

“” **Russia said it could withstand low oil prices for as long as a decade, [...]** after talks over further production cuts collapsed, leading to the **biggest one-day fall in prices since the 1991 Gulf war**

- Financial Times (Mar 10, 2020)

## 2. We see 3 main possible supply-side scenarios for the short-term

### DELAYED RECOVERY DEMAND SCENARIO

#### What do you need to believe

#### No OPEC+ alignment

Demand declines by 1.6Mbd in 2020 and recovers partially in 2021  
 Saudi Arabia, Russia and other OPEC+ members increase production by 4.5Mbd and sustain these levels for 3 years  
 Assuming no extended shut-ins in existing fields, large inventory build-up takes multiple years to burn through

**Prices remain in the low 30s with occasional 20s for next 3 years due to oversupply and inventory overhang**

#### Return to prior OPEC+ cut levels

Demand declines by 1.6Mbd in 2020 and recovers partially in 2021  
 Saudi Arabia and Russia get to an agreement but only to extend cuts that existed before OPEC+ meeting (2.1Mbd)  
 OPEC+ reduces cuts as demand picks back up in 2021

**Prices return to low \$40s/bbl in 2020 and slowly recover to mid to high \$50s/bbl by 2022**

#### New OPEC+ deal implemented

Demand declines by 1.6Mbd in 2020 and recovers partially in 2021  
 Saudi Arabia and Russia agree on a plan for additional cuts of 1.5Mbd on top of prior cuts – 3.6Mbd total cuts  
 Inventory overhang is burned off quickly

**Prices increase to \$45-50/bbl in 2020 and mid-\$60/bbl by 2022**

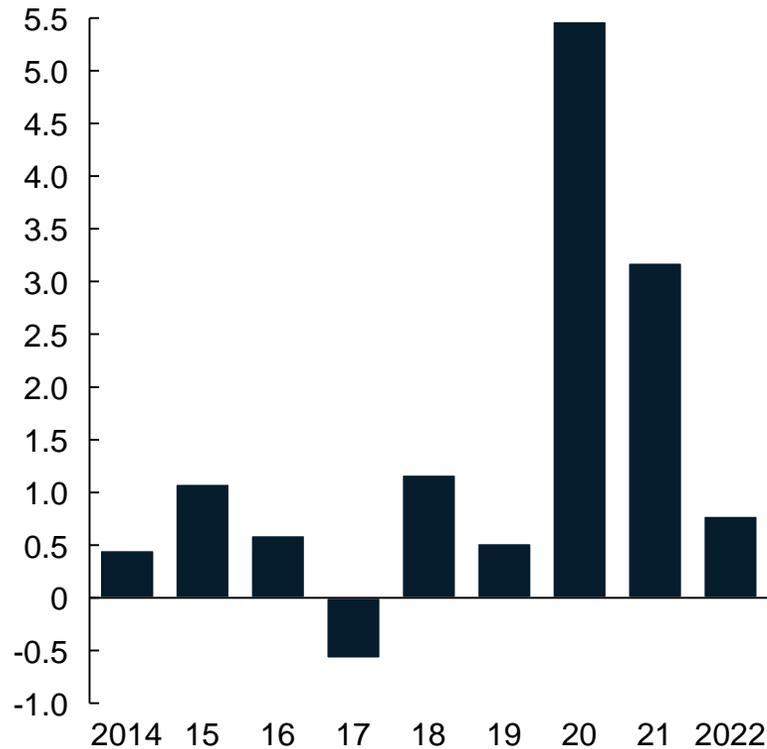
# 2. 2020: Under a “No OPEC+ alignment” scenario, excess supply is expected to be 5-6MMb/d and remain for 2+ years

## DELAYED RECOVERY DEMAND SCENARIO

■ Market balance (supply minus demand)

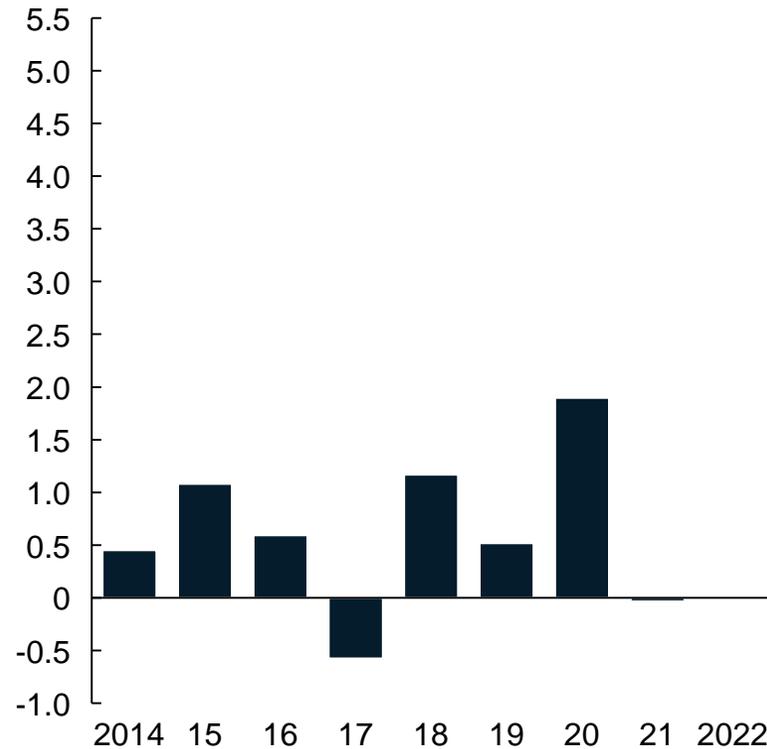
### No OPEC+ alignment

Global oil market balance  
Mbd



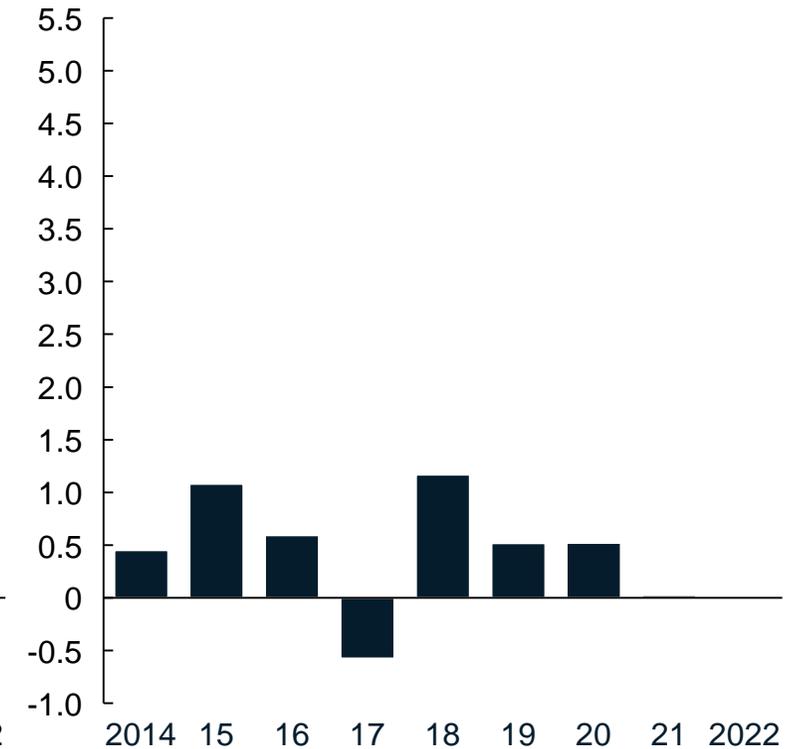
### Return to prior OPEC+ cut levels

Global oil market balance  
Mbd



### New OPEC+ deal implemented

Global oil market balance  
Mbd

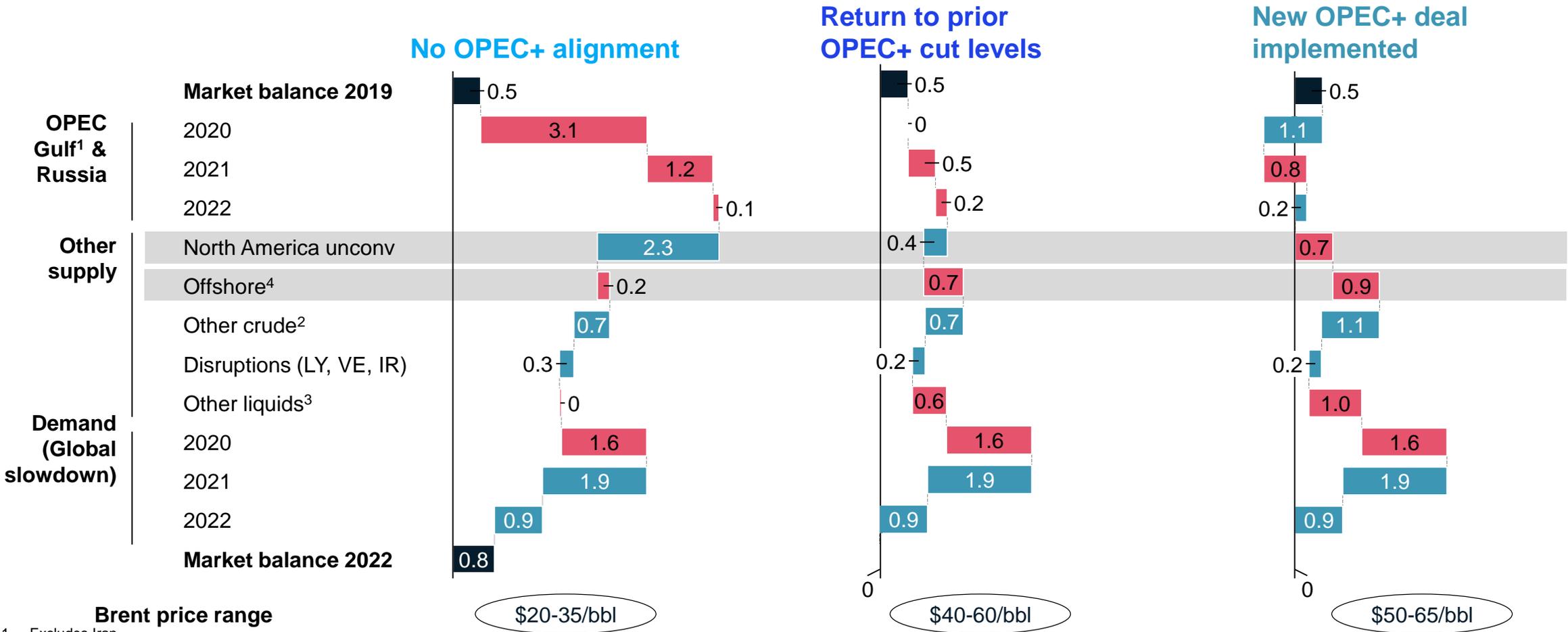


# 2. 2020: Excess supply is expected to keep prices low in 2020 unless OPEC+ agrees on a new deal

## Oil market balance, Mbd

DELAYED RECOVERY DEMAND SCENARIO

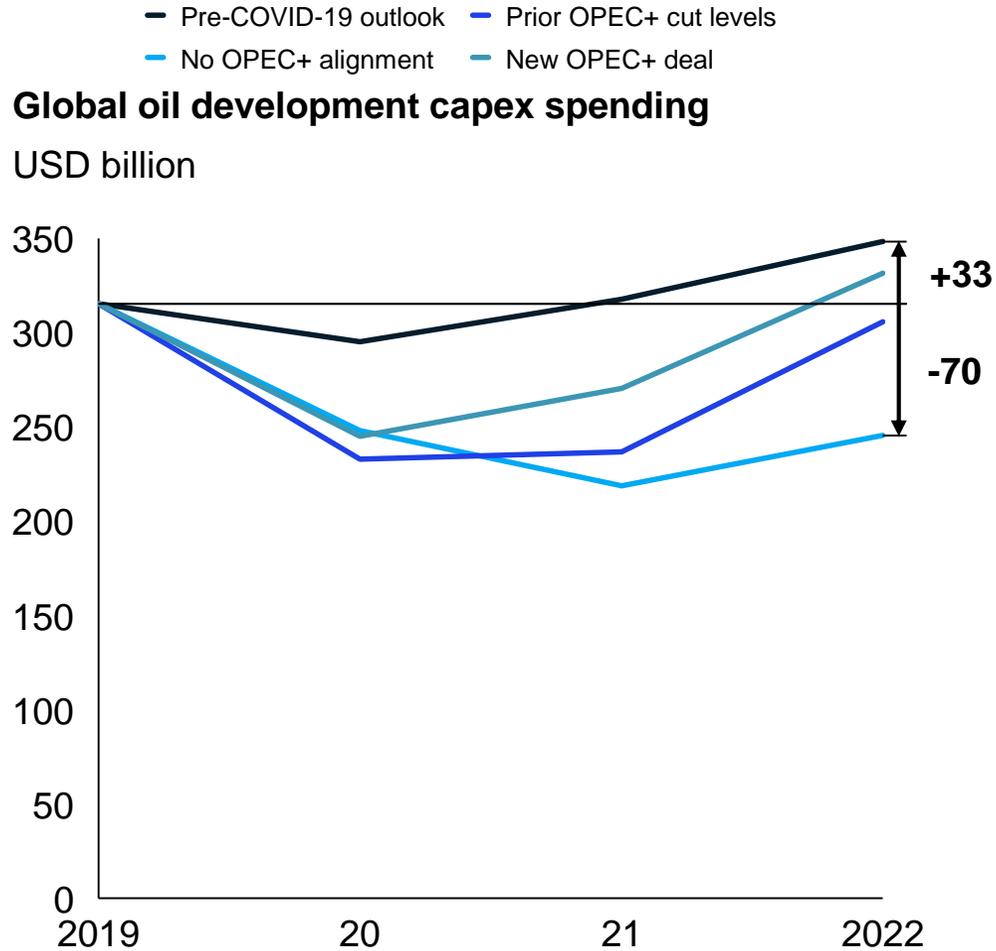
■ Increase in supply/Decrease in demand ■ Decline in supply/Increase in demand ■ Deep dive follows



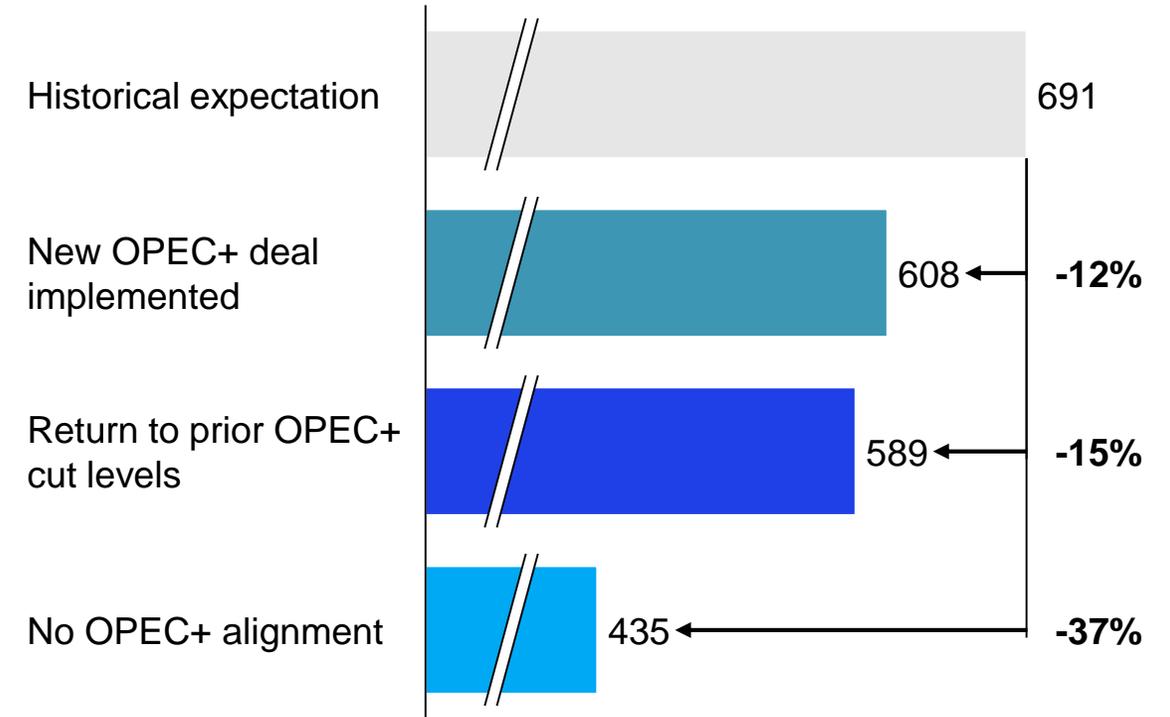
1. Excludes Iran  
 2. Onshore, non-OPEC excluding shale oil and OPEC+ excluding OPEC Gulf and Russia  
 3. NGLs, biofuels, CTLs, GTLs, MTBE, processing gains  
 4. Excludes shallow water in OPEC Gulf and Russia

# 2. 2020-2022: Up to USD100 billion of oil capex investments and ~40% of project FIDs could be at risk

## DELAYED RECOVERY DEMAND SCENARIO



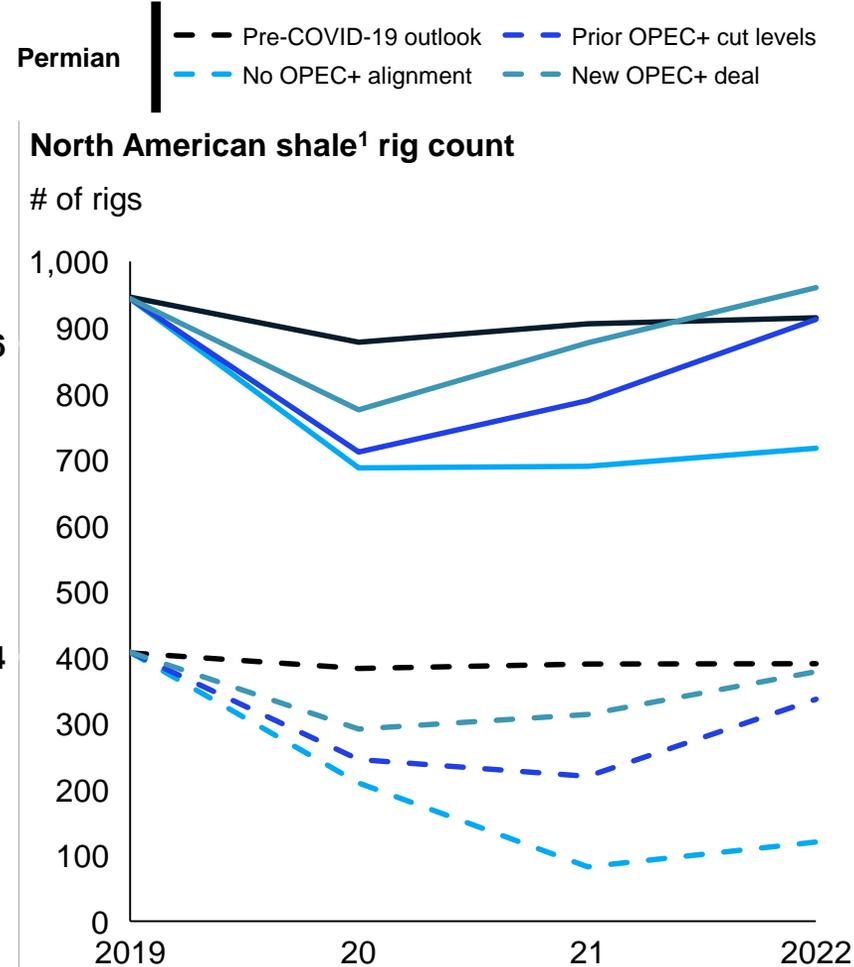
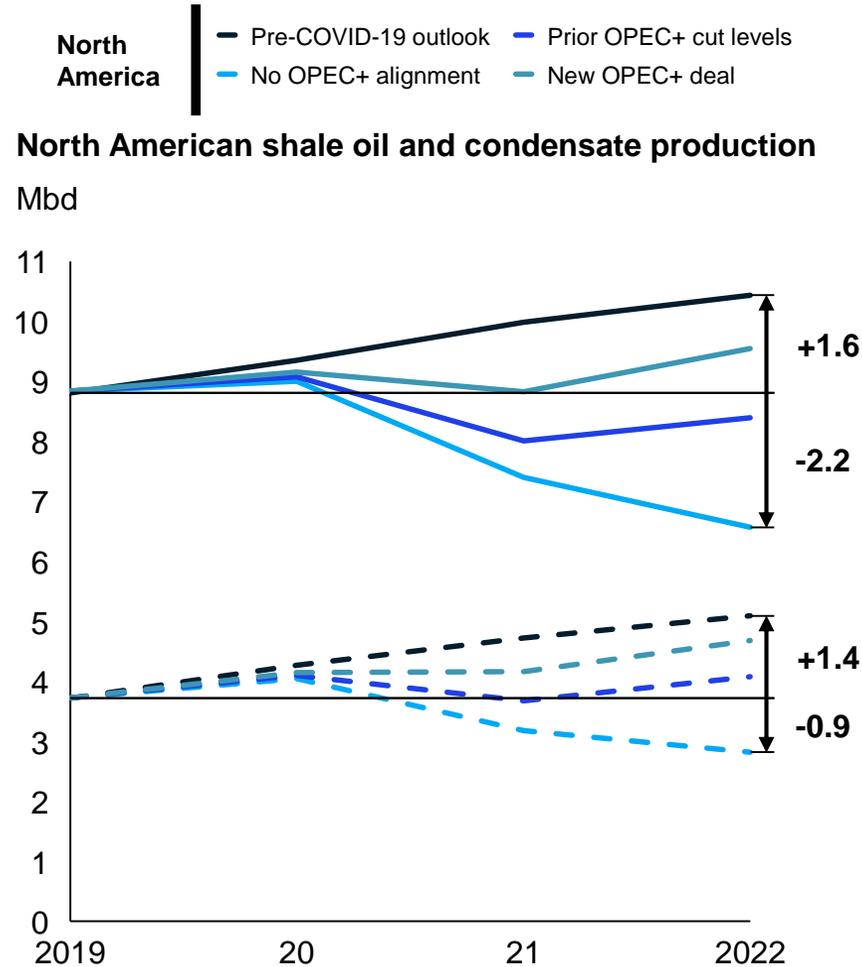
## Number of project FIDs 2020-22



# 3. Potential impacts on North American shale

~2Mbd production decline in “No OPEC+ alignment” case in 2022 vs. 2019

## DELAYED RECOVERY DEMAND SCENARIO



1. Includes rig drilling for both oil and gas; based on economics and financial constraint, not contract requirement

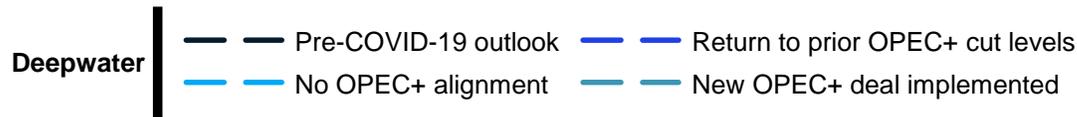
## Key takeaway

- **Less than 15%** of North American wells drilled in 2019 would be **economic** in a \$35/bbl Brent environment
- North America production could **decrease by 2.2 Mbd in 2022 relative to 2019** (compared to an increase of 1.6Mbd in prior base case) if prices stay at current levels
- **Financial constraints** to shale producers considered under supply scenarios
- **Decreased oil activity will reduce associated gas production** and encourage **more gas activity** to meet demand, partially offsetting rig count decline

# 4. Potential impacts on offshore production and capex spending

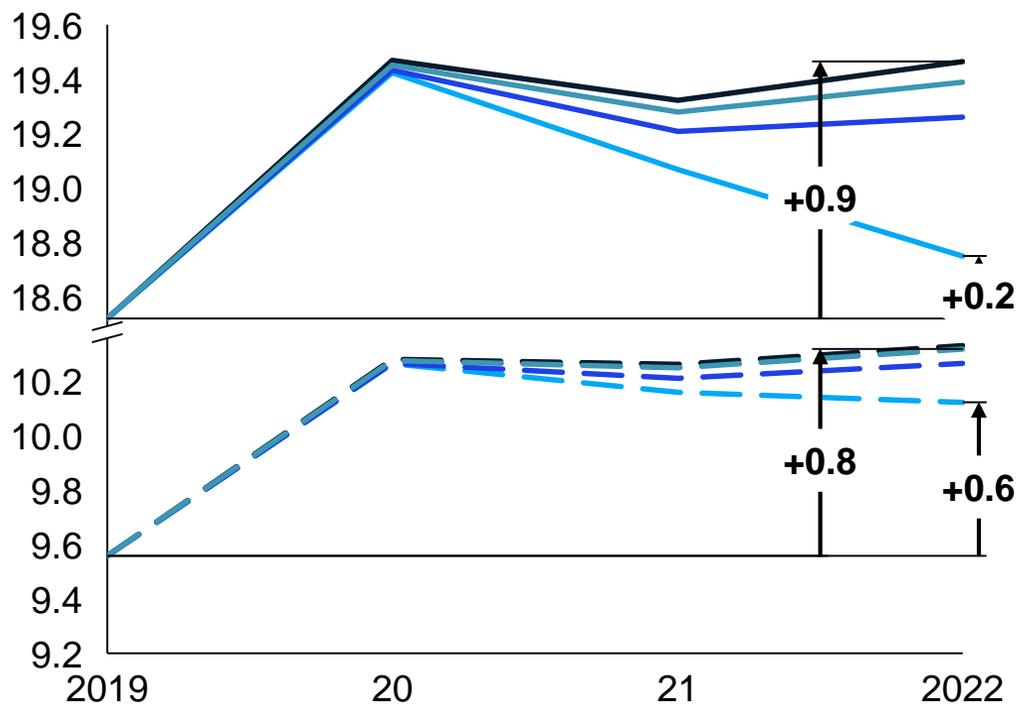
Global offshore production would still grow but capex spending could fall significantly

## DELAYED RECOVERY DEMAND SCENARIO



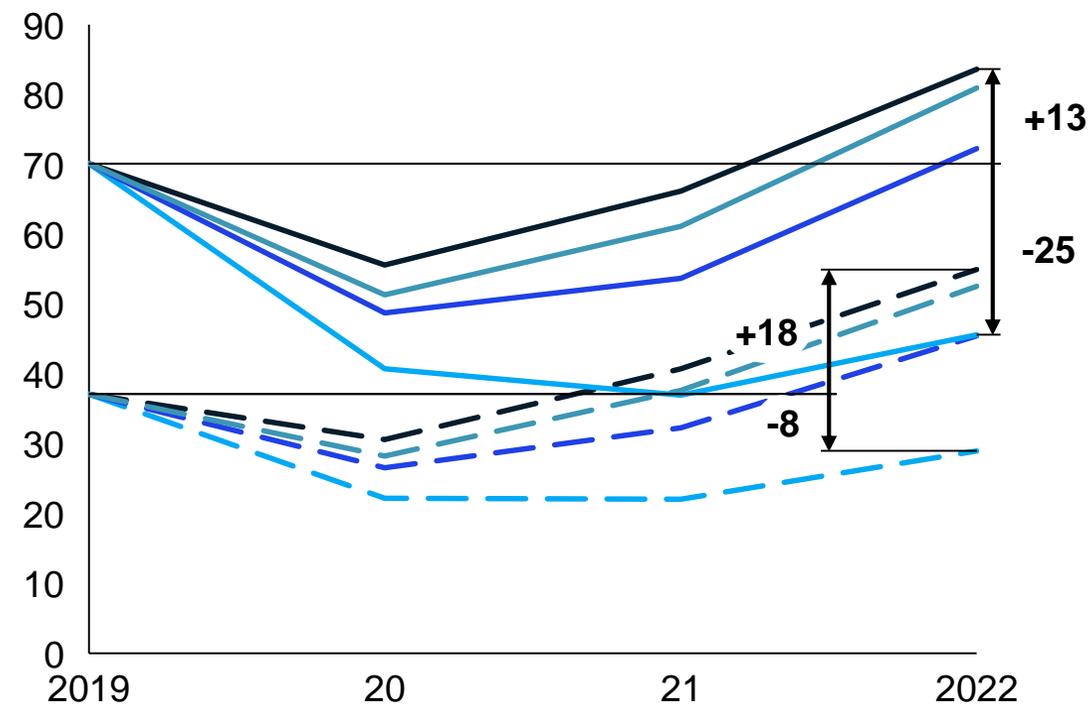
### Offshore crude and condensate production

Excluding OPEC Gulf and Russia, Mbd



### Offshore development capex spending

Excluding OPEC Gulf and Russia, USD billion



**Monitoring project FIDs help to determine which supply scenario is likely to play out**

### **Selection of largest projects with FID in next 18 months – Not exhaustive**

<b>Project name</b>	<b>Country</b>	<b>Operator</b>	<b>Resource type</b>
Payara	Guyana	Exxon	Ultra deepwater
Itapu	Brazil	Petrobras	Ultra deepwater
Pecan	Ghana	Aker Energy	Ultra deepwater
Parque das Valeia	Brazil	Petrobras	Deepwater
Zama	Mexico	Talos Energy	Deepwater
Iara	Brazil	Petrobras	Ultra deepwater
Sea Lion	Falkland Islands	Premier Oil	Deepwater
Carcara	Brazil	Equinor	Ultra deepwater
Agogo	Angola	ENI	Ultra deepwater
Mero-3	Brazil	Petrobras	Ultra deepwater
Palas-Astraea-Juno	Angola	BP	Ultra deepwater
Cameia	Angola	Total	Ultra deepwater
Cambo Hub	United Kingdom	Siccar Point Energy	Deepwater

# 5. Short term price dynamics increase the likelihood of an under-investment scenario playing out in the medium-term

Low investments across oil resources may result in a price increase post 2022

Short term scenario	Long term price scenario <sup>1</sup>	What you need to believe
		<p>Major supply disruptions remove production permanently from the supply stack and shale oil declines prove to be higher than expected</p> <p>Strong demand growth in Asia and other non-OECD</p>
<p><b>Stagnation and over-supply</b></p>	<p>\$ 50-55</p>	<p><b>Under-investment:</b> Years of underinvestment in exploration &amp; infrastructure catch up with the industry, prices go up above USD80/bbl as OPEC does not have sufficient spare capacity to balance the market</p> <p>Dampened long-term demand growth</p>
<p><b>OPEC control</b></p>	<p>\$65-75/bbl</p>	<p><b>New normal:</b> OPEC remains in control of the market balance. Oil prices slowly recover with enough shale oil and offshore coming online at USD65-75/bbl</p> <p>Dampened long-term demand growth</p>
<p><b>Supply disruption continues</b></p>	<p>\$50-60/bbl</p>	<p><b>Long-term oversupply:</b> Medium-term price fly-ups result in increased investments and FIDs in early 2020s. Due to this supply build-up, market gets into another wave of oversupply and low prices</p> <p>Dampened long-term demand growth</p>
	<p>&lt;\$40/bbl</p>	<p>Technology disruption or significant factor cost adjustments drive down breakeven costs across multiple resource types to ~\$40/bbl levels</p> <p>Demand peaks earlier than expected</p>

1. Reflects Brent real prices

# Contents

01

---

COVID-19  
The situation &  
possible future  
scenarios

02

---

Impact of  
COVID-19 on  
the oil market

03

---

Impact of  
COVID-19 on  
the gas / LNG  
market

04

---

Questions for  
O&G  
companies to  
consider

---

## Global gas and LNG market – key takeaways

---

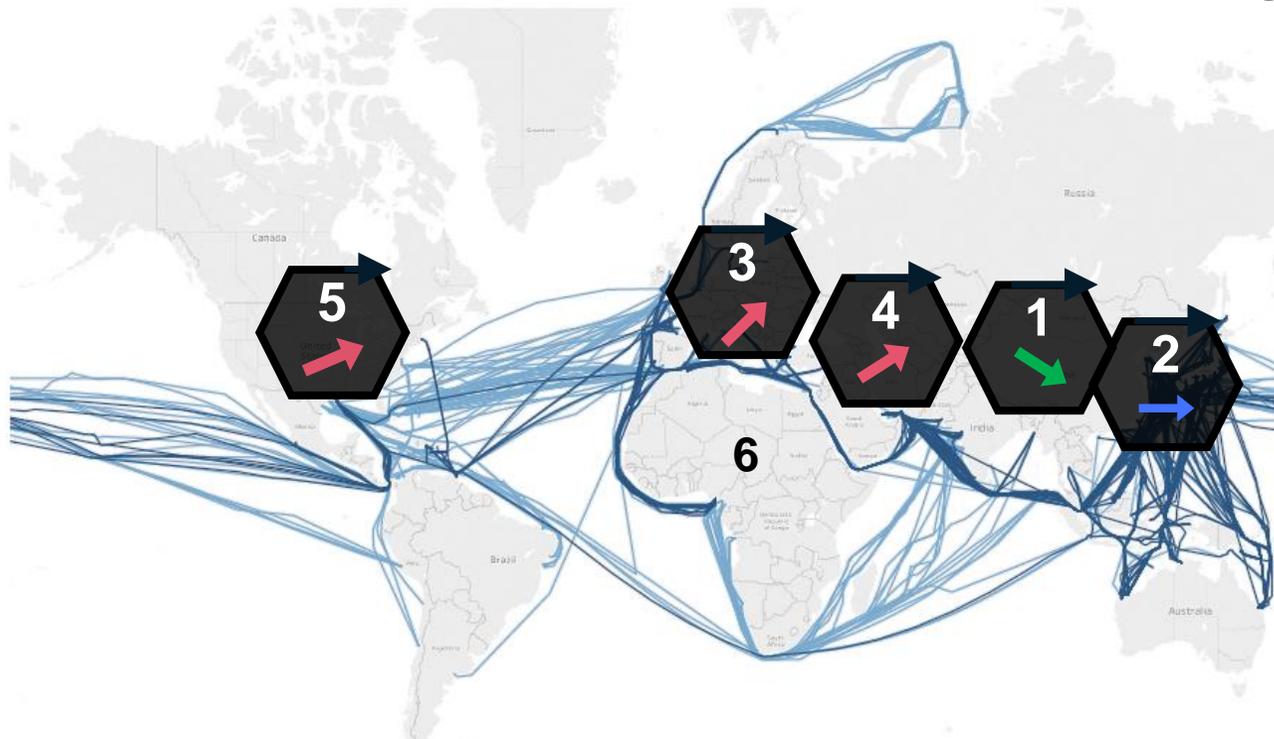
- 1 COVID-19 has primarily affected countries that account for 80% of global LNG demand
- 2 Chinese LNG imports (17% of global imports) fell by 9% in January and February 2020, triggering Force Majeure clauses on contracts
- 3 Based on our global COVID-19 scenarios, LNG demand could significantly range reducing from 5-9% compared to previous expectations
  - **Delayed recovery (seasonality combined with a stronger public health response): 5% decline to 355mtpa**, China recovery extends to Q3, generalized reaction across Europe and the US, other regions experience slowdown. LNG demand reaches just over 380mtpa in 2021
  - **Prolonged contraction (virus spreads globally without a seasonal decline): 9% decline to 340mtpa, with lower growth trajectory in the following years**, based on China and East Asia experiencing double-dip slowdowns as the economic recovery is derailed in 2020 and pushed into Q1 2021. LNG demand reaches 352mtpa in 2021
- 4 LNG buyers need to actively manage volume exposure
  - Sharp crude price decline has somewhat decreased the price level exposure under oil-linked LNG contracts
  - Limited global capacity to absorb lost demand, on the back of a warmer than average winter and record high storage
- 5 LNG suppliers, will likely face prolonged shutdowns and cargo cancelations as the market tries to balance
  - Near-term LNG supply overcapacity is likely to drive LNG price economics to (residual) cash costs (Henry Hub plus \$1-2/mmbtu in Asia)
  - Buyers of US LNG supply capacity, as highest cash cost, likely most affected

# 1. COVID-19 has been spreading across at least four major transmission complexes that account for over 80% LNG demand

Complex combines confirmed local transmission, >100 confirmed cases, tough-to-prevent people movement

➤ Propagation trend    ⬡ Mature/ on-going propagation    ⬢ Early propagation

## 5 complexes with COVID-19 propagation



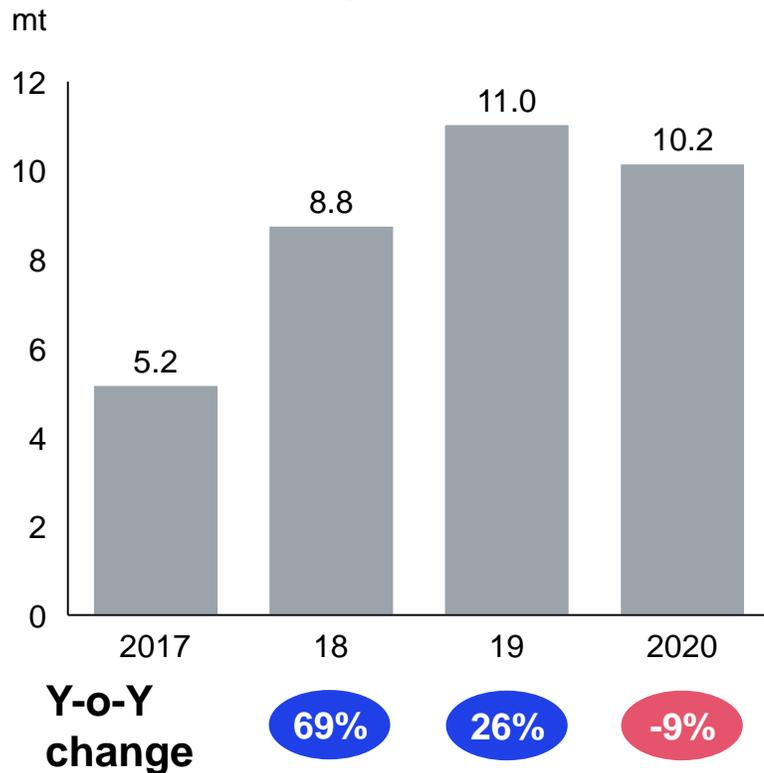
Transmission complexes	Share of LNG demand
➤ 1 China complex	17%
➤ 2 Asia (excl China) complex <sup>1</sup>	41%
➤ 3 Europe complex	22%
➤ 4 Middle East complex <sup>2</sup>	2%
➤ 5 Americas complex	2%
➤ 6 Africa	0%

1. Includes Western Pacific and South-East Asia WHO regions; excludes China; Note that South Korea incremental cases are declining, however other countries are increasing

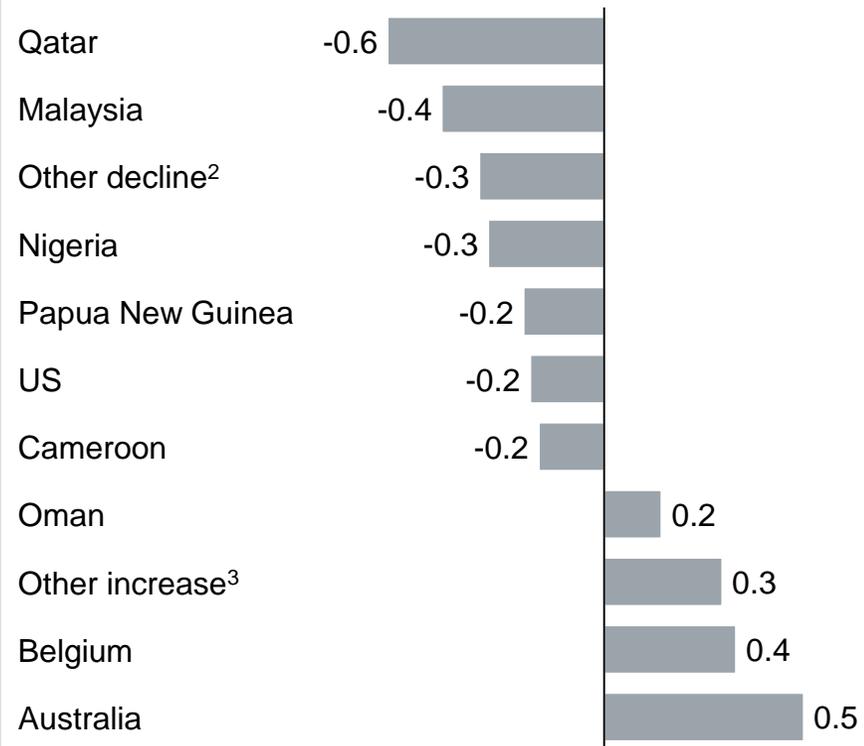
2. Eastern-Mediterranean WHO region

# 2. Chinese LNG imports declined 9% yoy over January-February, with Qatar most impacted

Chinese LNG imports Jan 1<sup>st</sup> to Feb. 28<sup>th</sup>



Change in exports to China 2020 vs 2019<sup>1</sup>



## Key Takeaways

Chinese LNG imports from January 1<sup>st</sup> to February 28<sup>th</sup> dropped by 0.9 mt or 9% year-on-year

With >20 Mtpa of additional supply due in 2020, the reduction in Chinese demand will amplify market over-capacity

Qatari and Malaysian exports fell by 27% and 37% y-o-y respectively

Australian exports grew by 13% y-o-y, higher than the overall increase in LNG output of 9%

1. January 1 to February 28

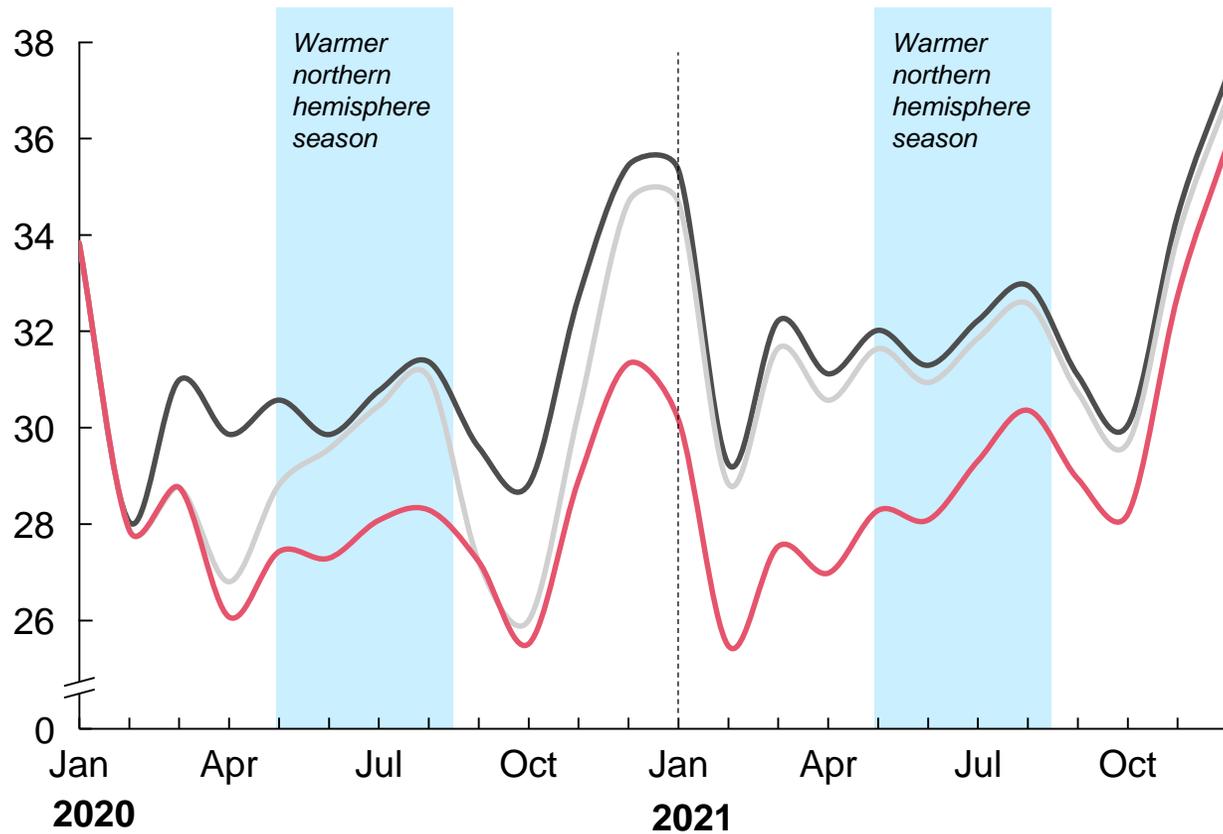
2. In order of size: Angola, France, India, Egypt

3. In order of size: Trinidad & Tobago, Peru, Russia, Indonesia, Singapore

# 3. COVID-19's immediate impact on global LNG demand is likely to create a large supply overcapacity

**Global LNG demand scenarios<sup>2</sup>**  
Mtpa

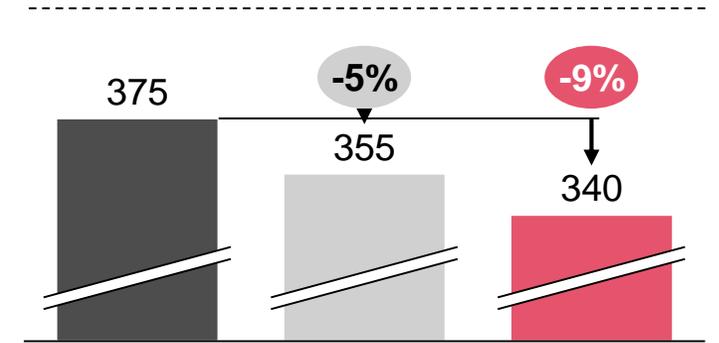
— Historical expectation  
— Delayed recovery  
— Prolonged contraction



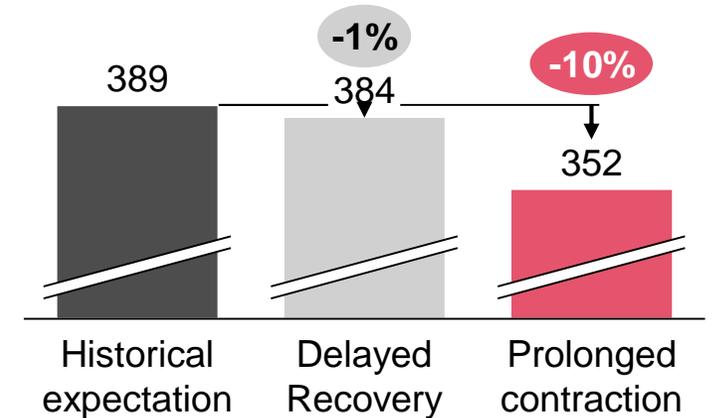
**LNG demand-supply capacity, mtpa**

**380 mtpa**  
**Global LNG capacity<sup>1</sup>**

**2020**



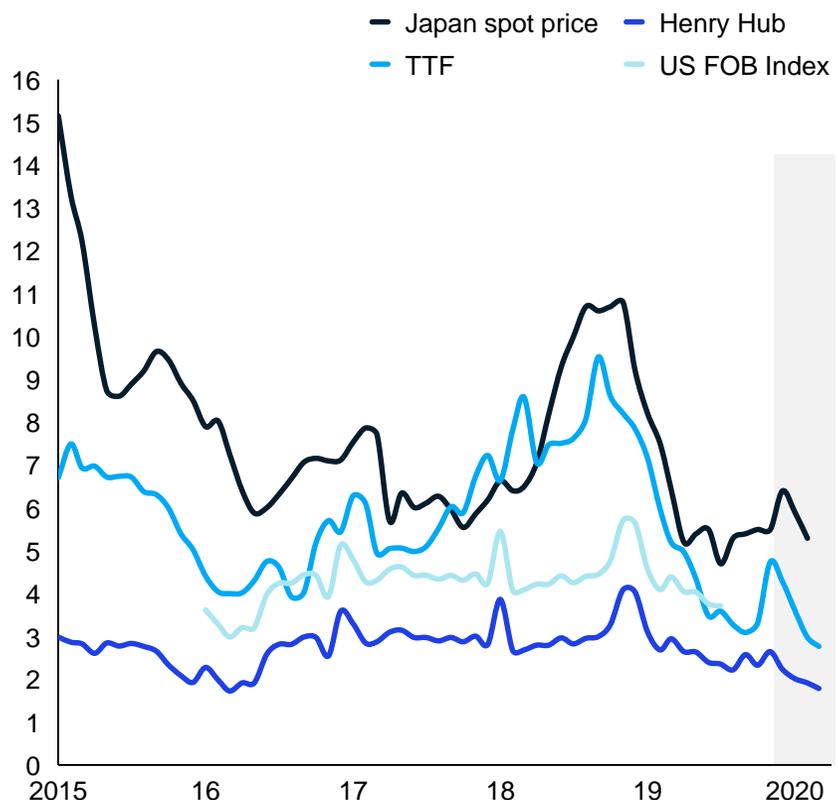
**2021**



1. 95% of operational nameplate capacity  
2. Created March 15, 2020

# 4. Near-term LNG supply overcapacity is likely to drive LNG price economics to (residual) cash costs

LNG price by market, \$/MMBTU



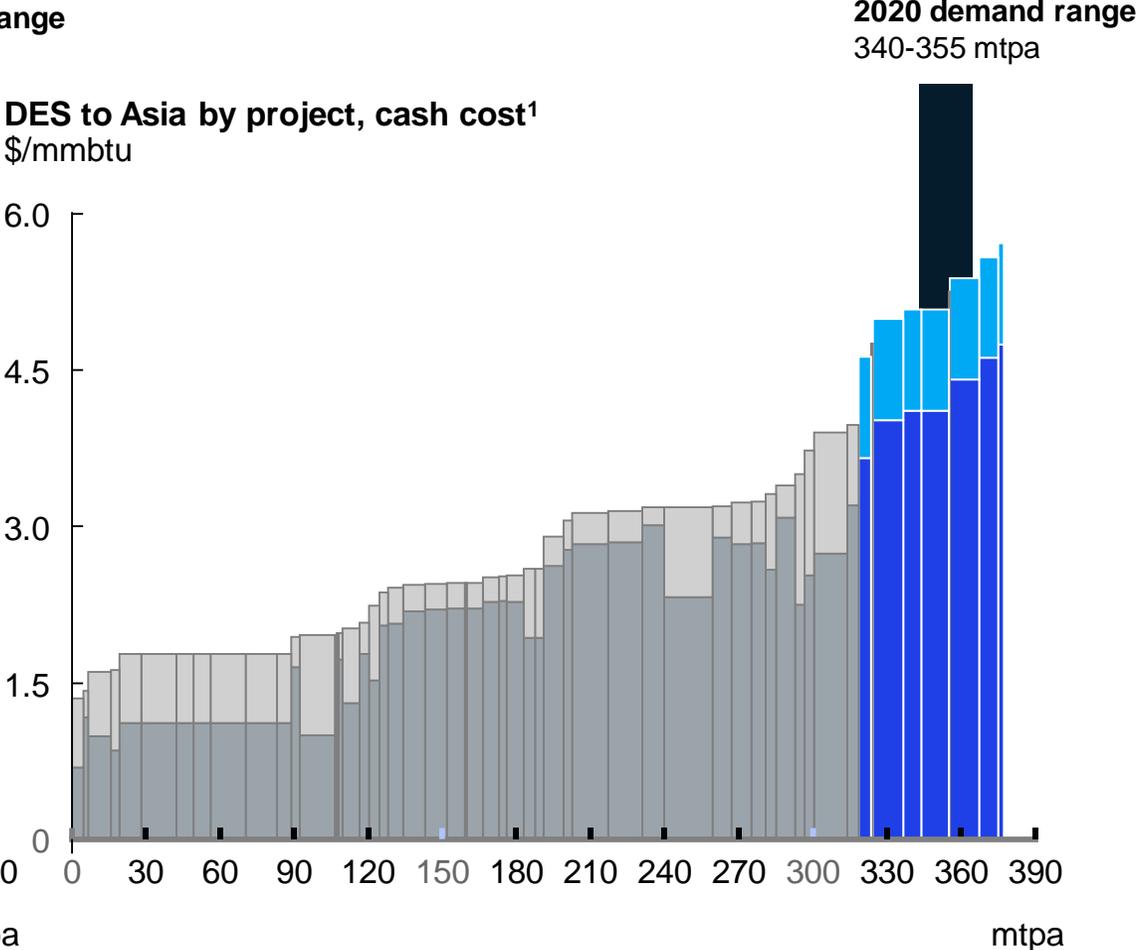
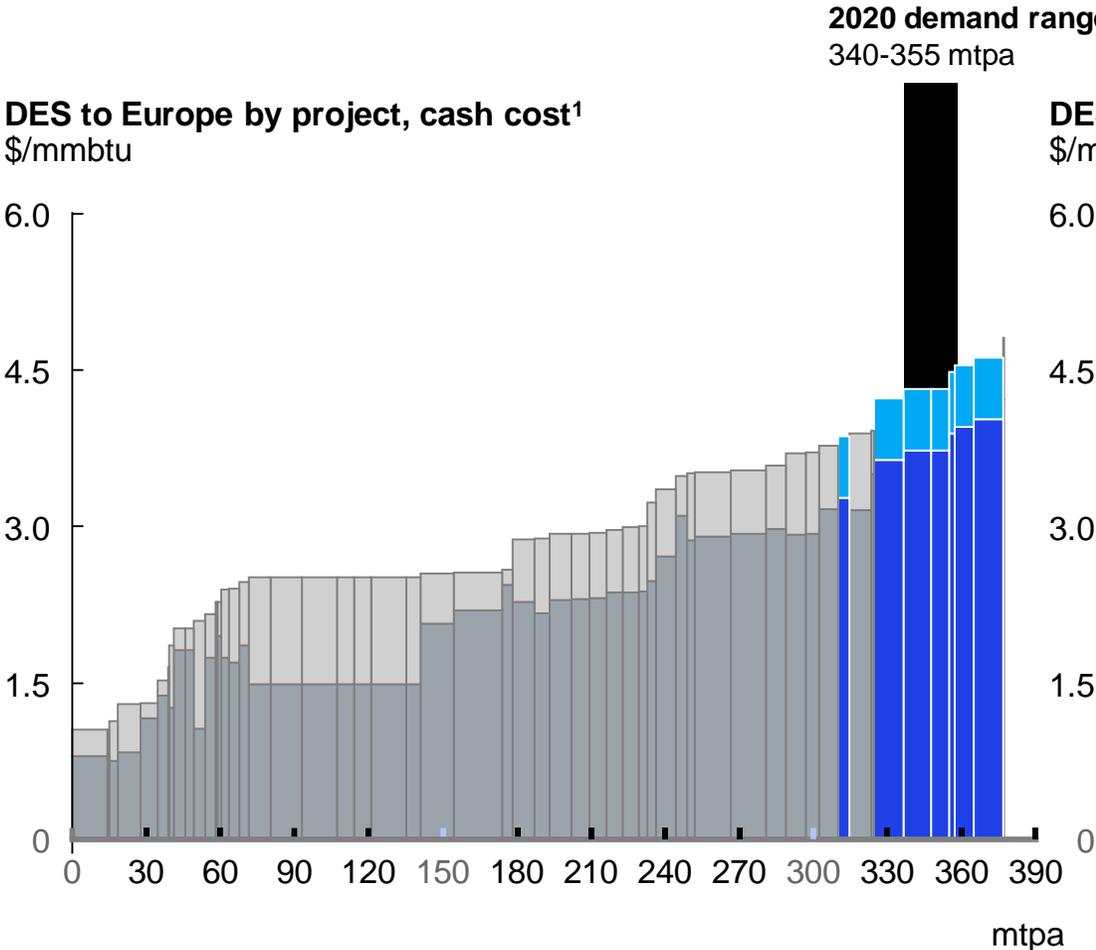
Price economics logic, \$/mmbtu

	Residual cash costs <sup>1</sup>	Cash cost	Full cost
Henry Hub (price setter)	Base	Base	Base
+			
Liquefaction cost	0.4-0.5 Tolling ToP fixed fee	+0.8 LNG cash cost in short-term oversupplied market (opex)	+2.2-2.7 LNG full costs in a balanced market (opex and capex)
Shipping costs	+0.5 Bunker fuel/ boil off only	+1.7 Short-term charter rates	+1.8-2.2 Full cost shipping (opex and capex) to Tokyo Bay
Delivered LNG to Asia	Base +0.8-0.9 Near term cash costs	Base +2.5 Short-term cash costs	Base +4-5 Full cost

<sup>1</sup> Costs that are variable in the very short term 2 July 2019

# 5. The cash costs of US LNG delivered to Europe and Asia are coming under pressure

■ Other Residual	■ USA Residual
■ Other	■ USA



1. Price assumptions: Brent \$45/bbl and Henry Hub \$2.2/mmbtu. Residual cash costs exclude shipping chartering

# Contents

01

---

COVID-19  
The situation &  
possible future  
scenarios

02

---

Impact of  
COVID-19 on  
the oil market

03

---

Impact of  
COVID-19 on  
the gas / LNG  
market

04

---

Questions for  
O&G  
companies to  
consider

# Key questions for oil & gas players

---

- **PORTFOLIO**

- What actions can be taken to preserve cash and enhance the balance sheet in the current situation?
- How do you make your portfolio more robust in this low oil price environment?
- How do you continue to drive M&A activity under current conditions (capital availability, travel constraints, etc) and how to use it to reconfigure/consolidate the businesses?

- **OPERATIONS**

- How do you improve the efficiency and effectiveness of your operations to be a lower cost producer and optimise cash flow?
- How do you develop a flexible LNG portfolio with optimization capabilities to rapidly redirect volumes?
- How do you ensure the safety of your personnel while maintaining operations running, especially in offshore, and upgrade the operating model through technology uptake?

- **SUPPLY CHAIN / PROCUREMENT**

- How do you improve contracting agreements with your vendors?
- How do operators develop partnerships with OFS providers to strengthen financial performance and secure services?
- How do OFS providers reduce capacity in the market and drive consolidation in lieu of another activity slowdown?

- **ORGANIZATION**

- How do you make the right organizational moves to retain talent for when the market recovers?

McKinsey  
& Company

