

# Oil & Gas in the Perfect Storm



**March 2020**

We could have borrowed from Gabriel Garcia Marquez's *Love in the Time of Cholera* to title this piece, "Oil & Gas in the Time of Coronavirus". But that would only recognize the coronavirus disease of 2019 (COVID-19) and its impact on oil demand and ignore the black swan in the concurrent supply shock posed by Russia's refusal to hyphenate itself with OPEC again in cutting oil production. Broader uncertainties from an election year in the U.S. and growing investor clamor for shale profitability and energy transition initiatives add further, even if now less urgent, uncertainties.

We at ADI instead see the "perfect storm" as a better metaphor for the collective impact from the Russian-Saudi spat and COVID-19. Metaphors and clever writing aside, how should we think about this perfect storm? We try to address this here with our firm's research and consulting work.

## Why are we here?

The oil markets – led by Saudi and OPEC through the majors and the shale operators to the traders and analysts – were blindsided by Russia's refusal to cut oil production with OPEC in an year when oil demand growth was expected to decline independent of the coronavirus.

Russia made some noise about OPEC cheating on its commitments but abandoned its three-year alliance with OPEC primarily to harm U.S. shale supply, which has been, as such, constrained by rising investor disenchantment. Larger geopolitical reasons such as U.S. sanctions on Rosneft and Nord Stream 2 also motivated Russia which is today in a stronger economic position relative to the 2014 oil price crash.

## Surveying the damage

Unwilling to lose market share and also force Russia to return to negotiations, Saudi announced plans to raise production from 9.7

**Saudi announced plans to raise production from 9.7 million bpd in March to 12.3 million bpd starting April 2020.**

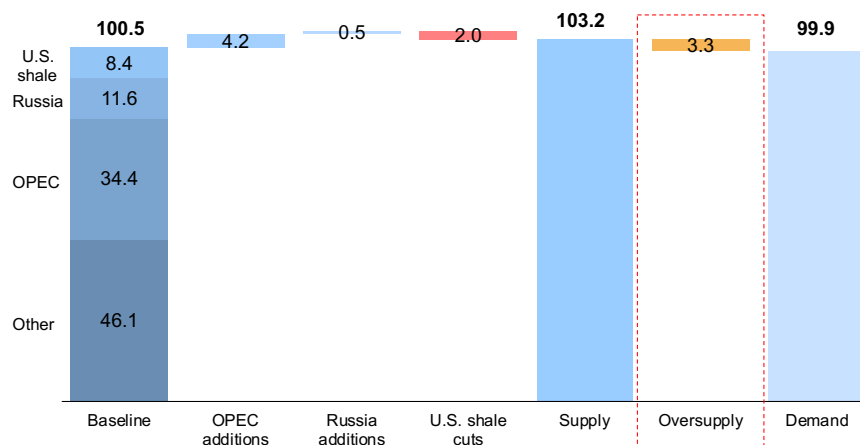
*The market in 2020 will be oversupplied by 3-5 million bpd and global inventory will surpass 400 million barrels over the next few months.*

million barrels per day (bpd) to 12.3 million bpd starting April 2020. It also doubled down on its bet by offering discounts of \$4 to \$8 per barrel on its production. In solidarity, the United Arab Emirates will increase supply by 0.8 million bpd.

Russia plans to increase production too but only by 0.5 million bpd as it is limited by sanctions on its oil trading. In addition, incremental supply growth may come from Libya once the outage there ends along with some small production growth in other places.

At this rate, collectively, the market in 2020 will be oversupplied by 3-5 million bpd and global inventory will surpass 400 million barrels over the next few months (see Exhibit 1 for one scenario variant).

**Exhibit 1. Global crude oil supply-demand scenario, million bpd.**



*Oil demand destruction from COVID-19 is highly uncertain and ranges from 0.6 to 1.2 million bpd for all of 2020 with peak demand slump ranging as high as 10 million bpd.*

However, two reasons make estimating this supply-demand balance difficult.

1. Oil demand destruction from COVID-19 is highly uncertain and today ranges from 0.6 to 1.2 million bpd for all of 2020. First quarter oil demand alone likely fell more than 3.5 million bpd led by lockdowns in China that are spreading rapidly to U.S. and Europe. Peak demand slump estimates range even more wildly from 3.5 million bpd to as much as 10 million bpd likely peaking in the second quarter of 2020.
2. Operators will cut production as oil prices plumb new depths – Brent was below \$25 a barrel on March 18 and WTI barely at \$20

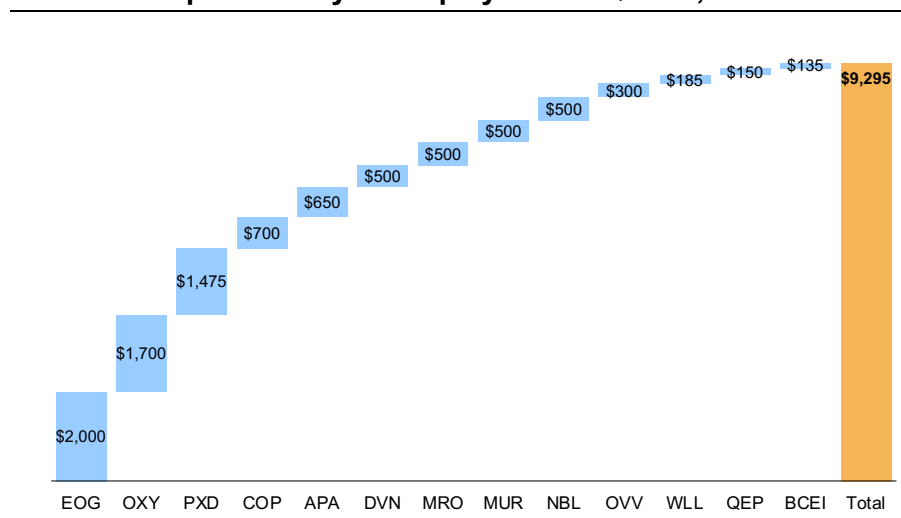
*Shale will need to cut deeply – 2 million bpd or so through 2020 – to stop oil prices from staying near marginal cash costs.*

*Acknowledging role of swing producers, U.S. operators are cutting capex by 25% to 35%.*

*We try to forecast what happens next through three scenarios.*

– but the extent is uncertain. But we do know that most of those supply cuts will likely happen in the U.S. Acknowledging their role as swing producers, publicly-listed shale operators have started cutting capital spending with most reductions averaging 25% to 35% (see Exhibit 2).

**Exhibit 2. Capex cuts by shale players in 1Q 2020, USD million.**



Worryingly enough, corresponding production cuts are small for those who have disclosed those details suggesting that operators may be trimming drilling but will continue completing their well inventories limiting the supply impact. The last oil price crash was followed by supply cuts that exceeded 1 million bpd over 15 months beginning in late 2014. The shale industry will need to deliver much deeper cuts this time – think around 2 million bpd through 2020 as opposed to growth forecasts of 0.6 to 0.9 million bpd – in order to keep oil prices from falling and staying at marginal cash costs.

### What happens now?

ADI has developed three scenarios (see Exhibit 3 and 4) of what may happen going forward.

*“Recession” is our most pessimistic outlook where the economy slips into a recession and oil prices test marginal cash costs of \$10 to \$15.*

*“Reconciliation” has oil prices in the low \$30s in 2020 to low- to mid-\$40s by 2022.*

*“Rebound” is our most optimistic scenario where oil prices attain high \$30s in 2020 and rise to \$45 to \$55 in 2022.*

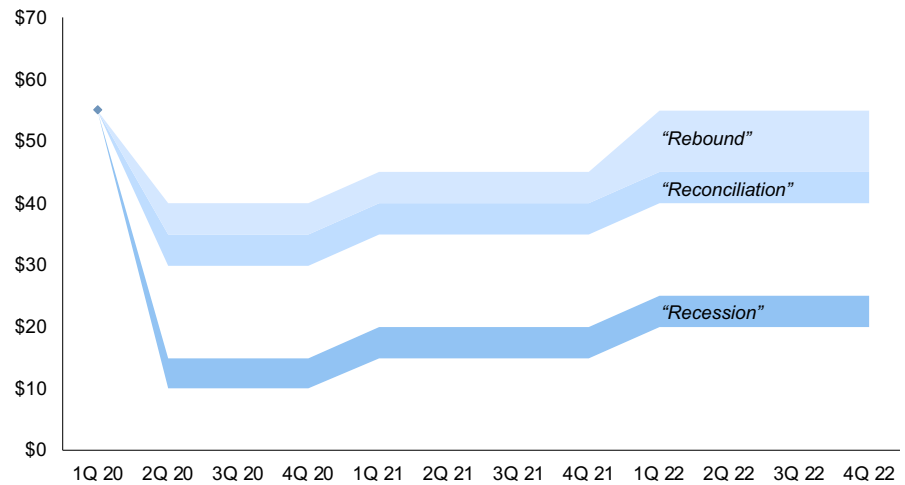
### Exhibit 3. ADI crude oil price scenario descriptions.

|                              | <b>I</b><br><b>RECESSION</b><br><i>Protracted oil demand slump as economy slips into a recession</i> | <b>II</b><br><b>RECONCILIATION</b><br><i>Pain lasts thru 2Q 2020 driving Russia - OPEC reconciliation</i> | <b>III</b><br><b>REBOUND</b><br><i>COVID-19 resolves quickly driving oil demand rebound</i> |
|------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>BRENT OIL PRICE, \$/B</b> |                                                                                                      |                                                                                                           |                                                                                             |
| 2020                         | \$10 - \$15                                                                                          | \$30 - \$35                                                                                               | \$35 - \$40                                                                                 |
| 2021                         | \$15 - \$20                                                                                          | \$35 - \$40                                                                                               | \$40 - \$45                                                                                 |
| 2022                         | \$20 - \$25                                                                                          | \$40 - \$45                                                                                               | \$45 - \$55                                                                                 |
| <b>OIL DEMAND</b>            |                                                                                                      |                                                                                                           |                                                                                             |
| COVID-19                     | Expands to a global lockdown thru summer                                                             | Limited further precautions and travel with limited improvement                                           | Limited regional lockdowns and virus blows over thru spring                                 |
| Govt. stimuli                | Fails to avoid a recession                                                                           | Barely avoids a recession                                                                                 | Helps with economic rebound                                                                 |
| <b>OIL SUPPLY</b>            |                                                                                                      |                                                                                                           |                                                                                             |
| Balance                      | Oversupply of 4+ mm bpd with inventory >500 mm bbl                                                   | Oversupply of 1–2 mm bpd with inventory of 500 mm bbl                                                     | Oversupply of <1 mm bpd with inventory of <300 mm bbl                                       |
| Russia-OPEC deal             | Irrelevant                                                                                           | Occurs in the summer                                                                                      | Occurs in early 2Q 2020                                                                     |
| Shale supply                 | Drops 2.5+ mm bpd                                                                                    | Drops 1 mm bpd                                                                                            | Drops <0.5 mm bpd                                                                           |

1. **“Recession” is our most pessimistic outlook where oil demand suffers a protracted slump as the global economy slips into a recession as COVID-19 lockdowns spread and persist through the summer of 2020. Oil prices will test new lows and stay close to the marginal cash cost of \$10 to \$15 a barrel through most of 2020.** They will rise slowly to \$25 a barrel in 2022, just barely above the marginal cash costs. There will most likely be government stimuli as well as a deal between Russia and OPEC but they will be irrelevant as the damage will be too severe.
2. **“Reconciliation” is where we forecast a moderate level of pessimism around the global economy, COVID-19, and oil prices, which hover in the low \$30s a barrel in 2020 and rise up to low- to mid-\$40s by 2022.** In this world, we stay at the current or slightly expanded levels of regional lockdowns, Russia and OPEC don’t do a deal until June, and government stimuli help avoid a recession but the world slips into an economic slowdown.
3. **“Rebound” is our most optimistic scenario, given the current situation, where oil prices attain high \$30s a barrel in 2020 and rise up to \$45 to \$55 a barrel in 2022.** A lot of things need to come together for this scenario to pass. The current set of lockdowns do not spread and they and COVID-19 blow over

through the spring, Russia and OPEC come to a deal in the next month or two, and government stimuli prove to be highly effective and support an economic rebound. Even so, the aftershocks from COVID-19 and the Russia-OPEC spat linger through larger oil inventories and lead to low oil prices in the near- to mid-term.

**Exhibit 4. ADI crude oil price scenarios, Brent, USD per barrel.**



## So what?

None of these scenarios will come to pass as forecasted. But a number of implications recur across our three scenarios, and the oil and gas industry may consider paying attention to them.

1. Oil and gas companies should prepare for an average oil price of \$20 to \$30 a barrel for 2020. Modest improvements will come in 2021 with recovery only in 2022.
2. There is limited upside for oil prices through most of 2020 unless Russia and OPEC agree to a deal within the next several weeks. As Saudi Arabia ramps up production, the global oil inventory will surge and any price rise will have to wait until those inventories are depleted. Further, nearly two-thirds of U.S. shale production has been hedged at ~\$55 a barrel for 2020 and is unlikely to fall at current prices.

*Several implications recur across our three scenarios, and those could serve as important guidance for the oil and gas industry.*

*ADI is now detailing these scenarios further for granular impacts to shale, offshore, NGLs, gas processing, midstream, LNG, refining, and petchem. Contact us at [info@adi-analytics.com](mailto:info@adi-analytics.com) to learn more.*

3. Russia and Saudi Arabia both have sufficient financial resources to weather a protracted period of low oil prices. This limits the probability of a deal in the near term.
4. U.S. shale production will fall – only by how much is up for debate. Even if hedges protect U.S. shale operators through 2020, sharp cuts will come in 2021. Unlike the oil price crash of 2014-16, there is limited private equity appetite to buy distressed operators. As a result, operators that are small or hold undifferentiated acreage will face significant distress.
5. North American natural gas producers will be an unlikely beneficiary of this oil price crash. As light tight oil supply falls so will associated gas production, which has driven over 50% of gas supply growth in North America in recent years. This reduction in the growth of gas supply should help Henry Hub pricing.
6. However, some of this will be limited by caps on natural gas demand growth that will come from delays to the second wave of LNG export projects in the U.S.
7. Refiners' have gone from starry dreams of a "golden year" thanks to IMO 2020 to a nightmare scenario of cutting refinery runs as refined product demand grinds to a crushing halt due to COVID-19 lockdowns around the world. Downstream companies with complex refineries, strong linkages to export markets, mature commercial trading teams, and integrated petrochemical assets will weather through these times but other refiners will struggle.
8. Midstream companies will face challenges with product exports, in particular, light tight oil, which will have to be discounted extensively to find overseas buyers. Support for existing and new capital projects will, of course, decline. Finally, we anticipate investor flight to quality based on contract portfolios.
9. Traders and majors with strong commercial organizations will likely benefit across at least two scenarios – "reconciliation" and "rebound" – with limited prospects in the "recession" scenario.
10. Shipping and logistics players with tankers, terminals, product storage tanks, and blending capabilities may benefit in this environment as a contango market drives interest and demand for storage.

Our research and consulting teams at ADI recognize that these are difficult times for the oil and gas industry, and its various segments as they grapple with a broad range of market, economic, and policy uncertainties.

As a result, we are developing in-depth scenarios for each of the various oil and gas industry segments including upstream (onshore shale, onshore conventional, and offshore), midstream (NGLs and gas processing), LNG (small- and large-scale), refining, and petrochemicals and plastics.

These scenarios model various aspects of COVID-19, the oil price crash, and government stimuli and forecast in granular detail price, margin, and competitive implications, risks and challenges, and opportunities. Contact us at [info@adi-analytics.com](mailto:info@adi-analytics.com) to learn more about ADI's "Oil & Gas in the Perfect Storm" scenarios.

# Oil & Gas in the Perfect Storm: Navigating COVID-19 and the Price Crash

## *Multi-Client Study Prospectus*

April 2020

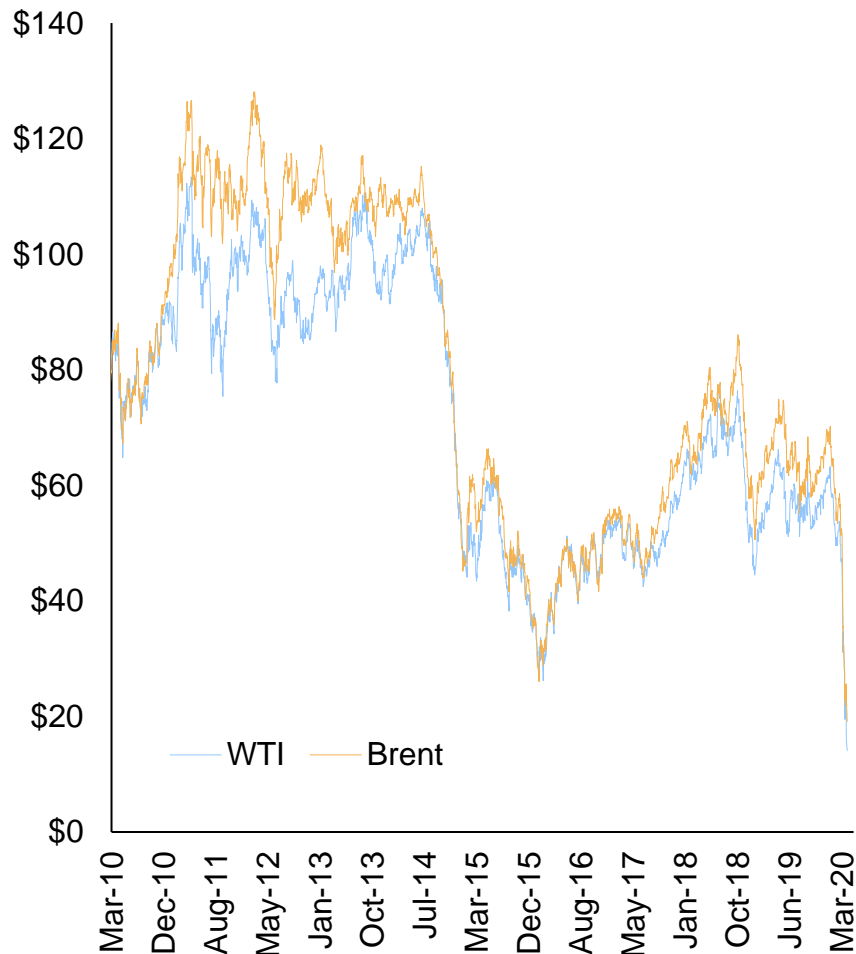


+1.832.768.8806  
info@adi-analytics.com  
www.adi-analytics.com



# Oil and gas after the price crash is in uncharted waters and the entire industry is grappling with several key questions

**Crude Oil Prices**  
(U.S. Dollar Per Barrel)

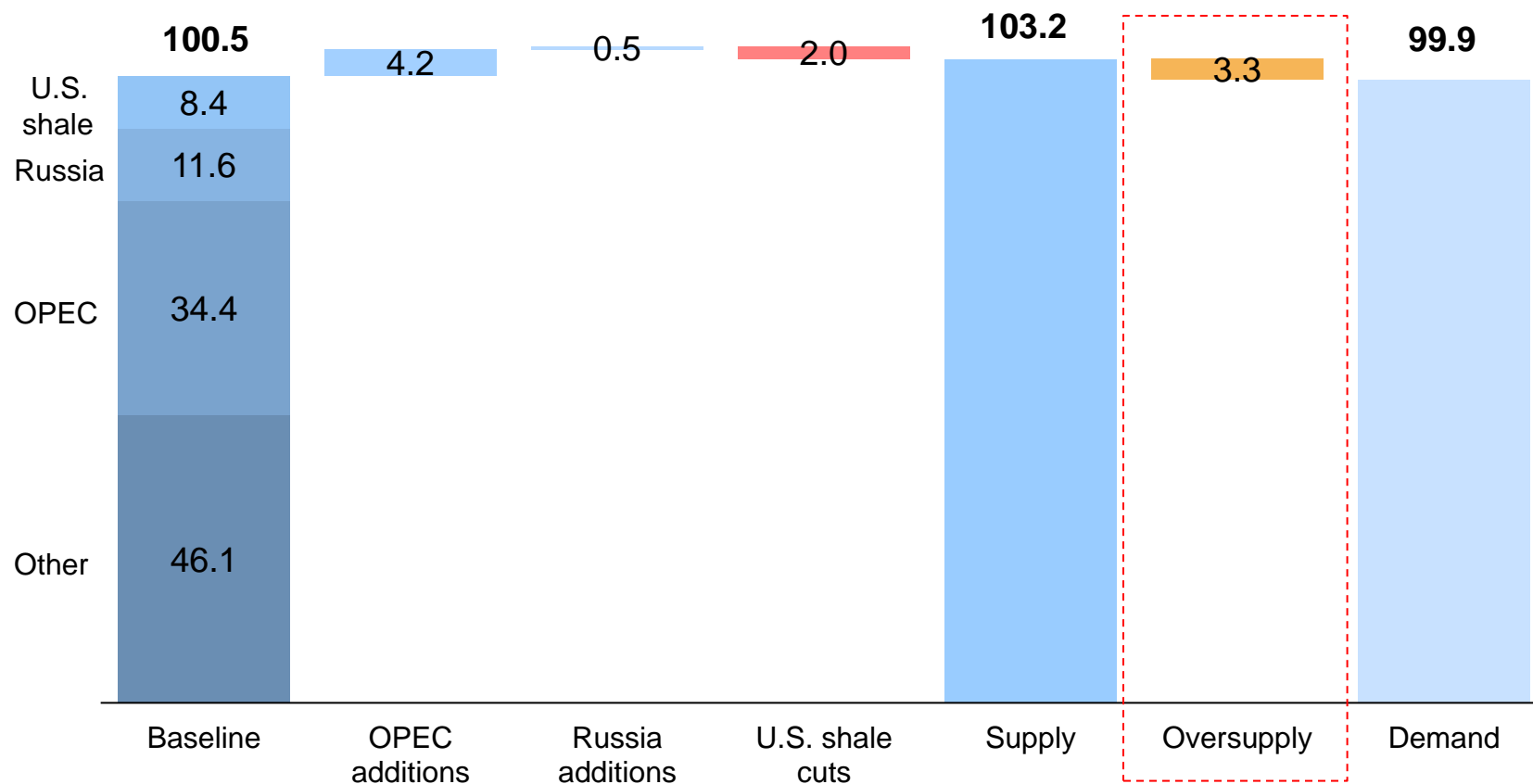


## Key Questions

- What is the outlook for oil prices now?
- Will there be a resolution between Russia and Saudi Arabia? How will U.S. intervene?
- Which shale plays will be disrupted? Why?
- Is there a role for offshore in the near future?
- How will midstream and NGLs be impacted?
- What options do refiners have going forward?
- Where will LNG export projects make money?
- Which oilfield service, EPC, OEM, and suppliers survive in this environment?
- Which oil and gas operators are better positioned to survive and who will struggle?
- When will oil demand recover? How soon?
- What is CAPEX and OPEX forecast now?

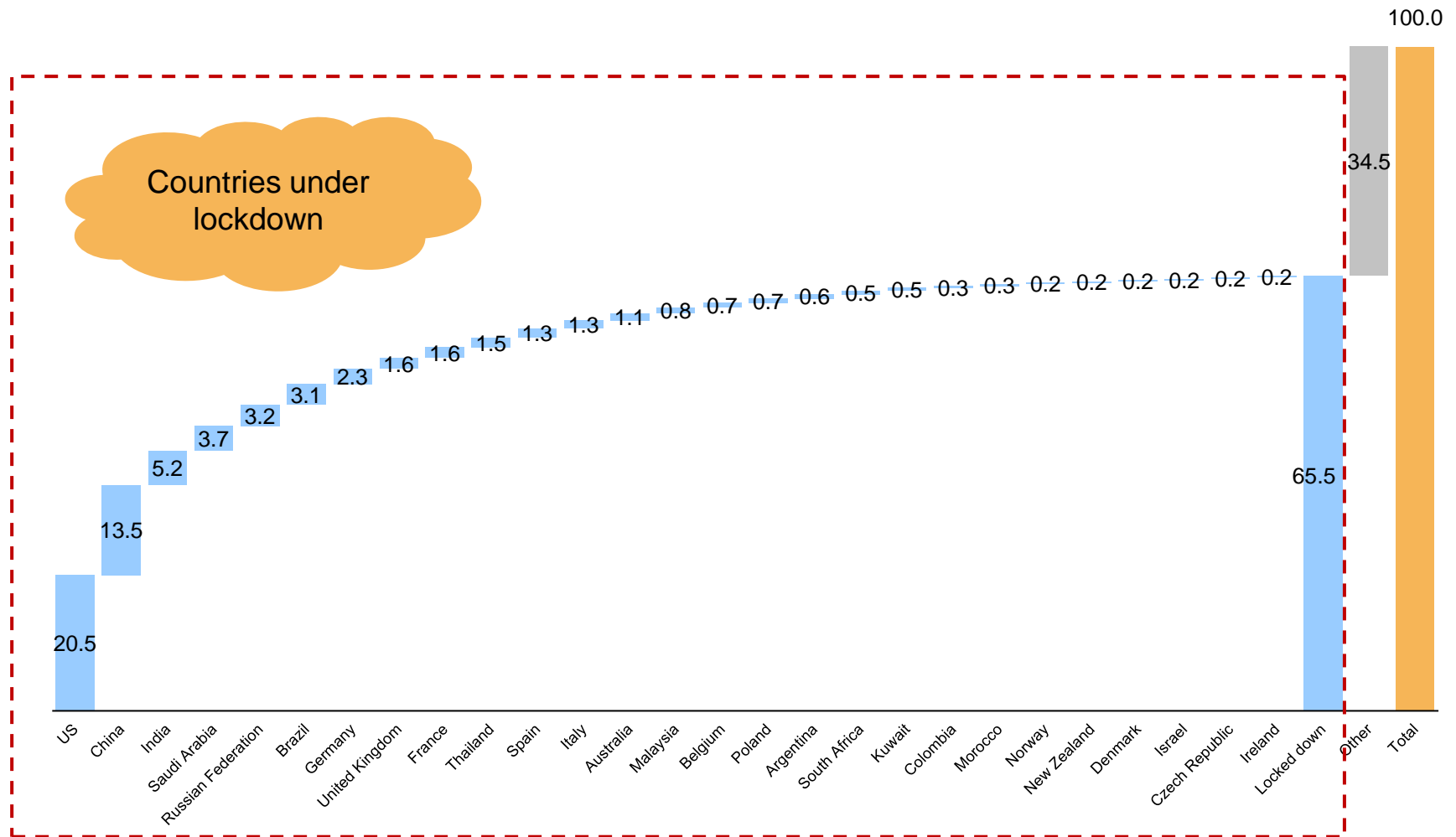
# At the same time, ADI anticipates the oil and gas market oversupplied with the extent varying in multiple scenarios

ADI Scenarios for Global Crude Oil Supply and Demand  
(Million Barrels Per Day)

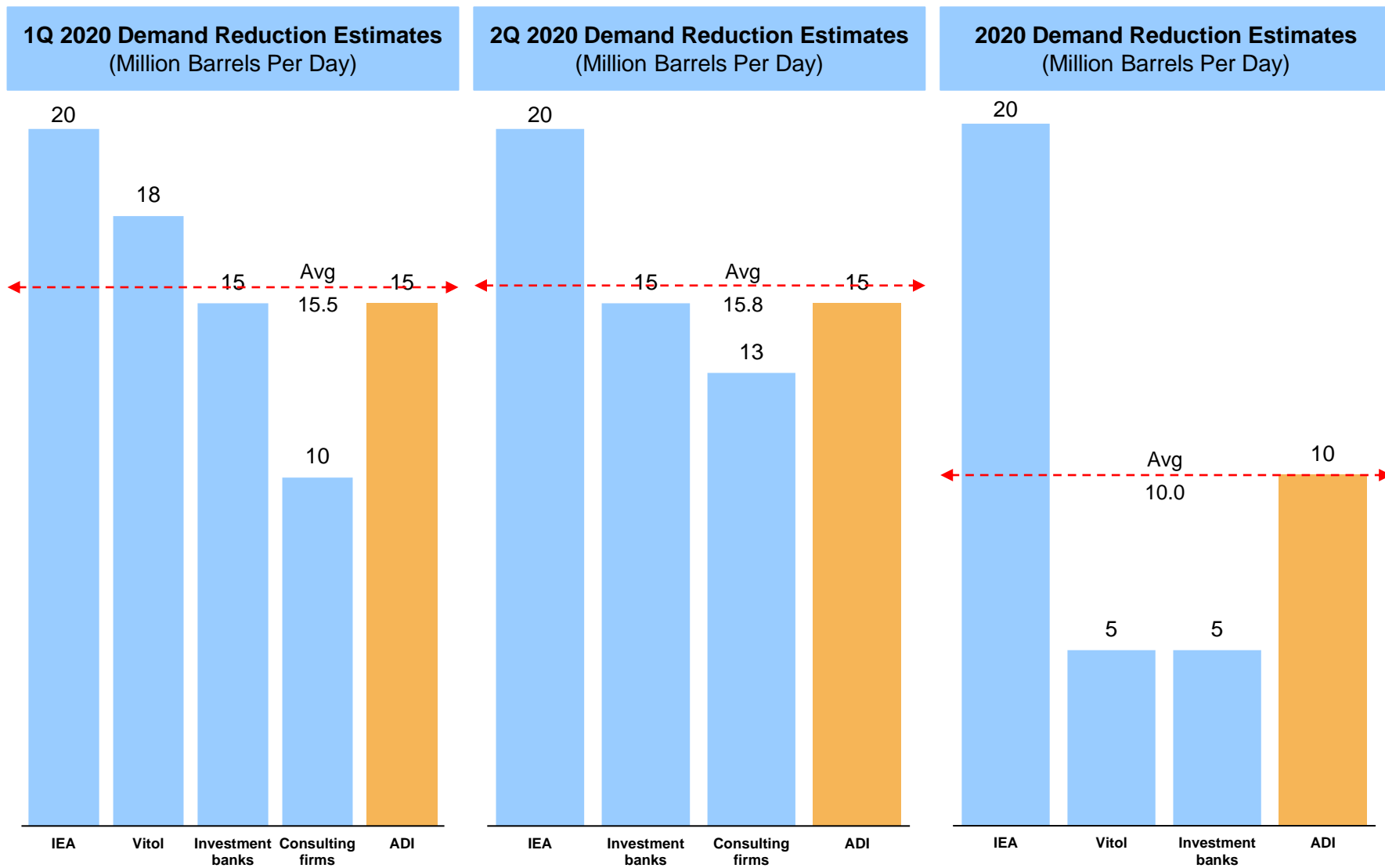


# COVID-19 has led to lockdowns in nearly 30 countries collectively impacting two-thirds of oil consumption

Oil Consumption  
(Million Barrels Per Day)



# Collectively, ADI estimates COVID-19 leading to dramatic oil demand destruction in 1H 2020 and for the entire year as well



# ADI research teams are working on a new study to assess impacts of oil price crash and COVID-19 on oil & gas industry

## Research Goals

1

Conduct in-depth review of 2020 oil price crash and COVID-19 on oil & gas industry

2

Develop scenario planning-based forecasts for oil & gas industry through 2025

3

Build granular impact assessments for upstream, midstream, refining, and petchem segments and sub-segments

4

Synthesize strategic implications for oil & gas operators, suppliers, investors, and other stakeholders

## Select Insights

- Crude oil supply / demand balances
  - Breakeven prices and marginal costs
  - Geopolitical drivers and developments
  - COVID-19 demand destruction impacts
- 
- Three crude oil price scenarios with ...
  - ... Supply/demand balances for each
  - Signposts and milestones for scenarios
- 
- Upstream (conventional, shale, offshore)
  - Midstream (gas proc, pipelines, NGL, LNG)
  - Refining
  - Petrochemicals
- 
- Implications by segment for each scenario
  - Capital and operating spend impacts
  - Likely winners and losers
  - Policy and other implications

# Going forward, ADI sees three likely scenarios for oil & gas ...

| I | <b>RECESSION</b><br><i>Protracted oil demand slump as economy slips into a recession</i> | II | <b>RECONCILIATION</b><br><i>Pain lasts thru 2Q 2020 driving Russia - OPEC reconciliation</i> | III | <b>REBOUND</b><br><i>COVID-19 resolves quickly driving oil demand rebound</i> |
|---|------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------|
|---|------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------|

## BRENT OIL PRICE, \$/B

|      | RECESSION   | RECONCILIATION | REBOUND     |
|------|-------------|----------------|-------------|
| 2020 | \$10 - \$15 | \$30 - \$35    | \$35 - \$40 |
| 2021 | \$15 - \$20 | \$35 - \$40    | \$40 - \$45 |
| 2022 | \$20 - \$25 | \$40 - \$45    | \$45 - \$55 |

## OIL DEMAND

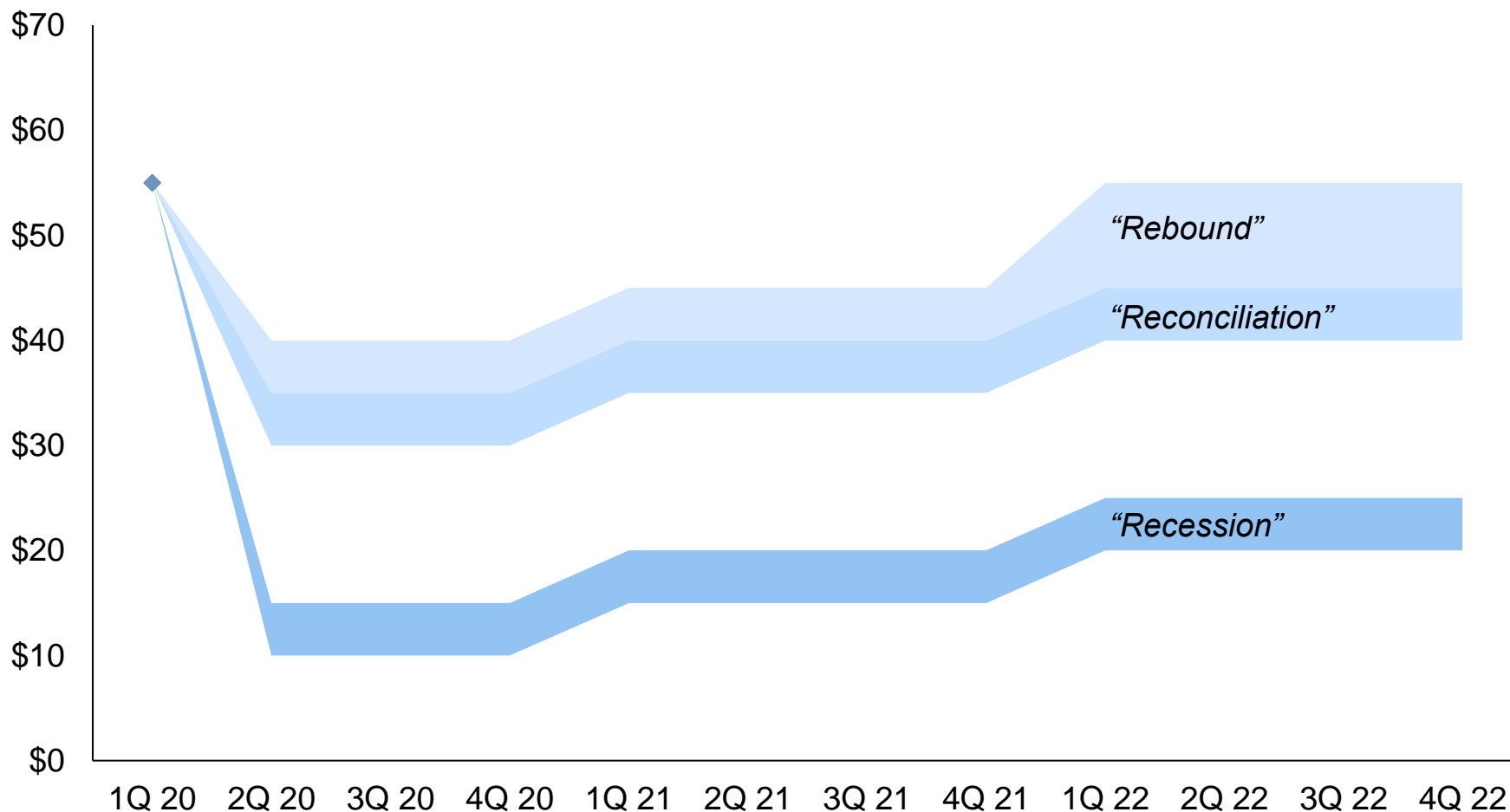
|               | RECESSION                                | RECONCILIATION                                                  | REBOUND                                                     |
|---------------|------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------|
| COVID-19      | Expands to a global lockdown thru summer | Limited further precautions and travel with limited improvement | Limited regional lockdowns and virus blows over thru spring |
| Govt. stimuli | Fails to avoid a recession               | Barely avoids a recession                                       | Helps with economic rebound                                 |

## OIL SUPPLY

|                  | RECESSION                                          | RECONCILIATION                                        | REBOUND                                               |
|------------------|----------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|
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| Russia-OPEC deal | Irrelevant                                         | Occurs in the summer                                  | Occurs in early 2Q 2020                               |
| Shale supply     | Drops 2.5+ mm bpd                                  | Drops 1 mm bpd                                        | Drops <0.5 mm bpd                                     |

# ... Each offering a distinct set of oil price implications

ADI Scenarios for Brent Crude Oil Price  
(USD Per Barrel)



# The new ADI report's Table of Contents shows the in-depth coverage of issues as oil & gas navigates this “perfect storm”

|   |                                                                                                                                                                                                                                                        |    |                                                                                                                                                                                                                                                |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | <b>Executive Summary</b><br><i>Key conclusions, findings, and strategic implications with a review workshop and underlying data in spreadsheet format</i>                                                                                              | 8  | <b>Oil &amp; Gas Capital Spend (CAPEX) Forecast</b><br><i>Review capex cuts, project cuts/delays, and revised capex forecast to 2025 for upstream, midstream, refining, and LNG</i>                                                            |
| 2 | <b>Oil Price Crash Background</b><br><i>Geopolitical drivers, OPEC and Russia's motivations and fiscal resilience to low oil prices, U.S. interventions, deal scenarios, and critical timelines to watch</i>                                           | 9  | <b>Oil &amp; Gas Operating Spend (OPEX) Forecast</b><br><i>Review impact on opex spending with new opex forecast to 2025 for upstream, midstream, refining, and LNG</i>                                                                        |
| 3 | <b>COVID-19 and Oil Demand Destruction</b><br><i>State of COVID-19 and evolution scenarios, countries under lockdown, oil and fuel (gasoline, diesel, and jet fuel) demand destruction through 1Q and 2Q and all of 2020</i>                           | 10 | <b>Deep Dive into Midstream and NGLs Outlook</b><br><i>Impact assessment on midstream including project cuts / delays by shale play, revenue stability / outlook, cost and margin analysis, and key strategic implications for the sector</i>  |
| 4 | <b>Deep Dive into Upstream and Supply Outlook</b><br><i>Global supply cost curve, breakeven prices and supply risk by region and asset incl. U.S. shale, offshore, deepwater, oil sands, conventional, stripper wells, and NGLs</i>                    | 11 | <b>Deep Dive into Refining Outlook</b><br><i>Impact assessment on refining including cuts to refinery runs, fuel demand, crack spread stability / outlook, refinery sales, and key strategic implications for the sector</i>                   |
| 5 | <b>Oil Supply-Demand Balance and Inventories</b><br><i>Quarterly forecasts for supply-demand balances and inventories through 2023 in three likely oil price scenarios with strategic supply cuts and demand reduction implications</i>                | 12 | <b>Deep Dive into Natural Gas and LNG Markets</b><br><i>Impact assessment on dry and associated gas production, pricing, demand, and outlook; LNG markets, demand, pricing, and export projects; and strategic implications for the sector</i> |
| 6 | <b>Oil Price Forecasts, Scenarios, and Outlook</b><br><i>Oil price history and forecast scenarios, marginal cost of oil supply, regional oil pricing, discounts, trade flows, light-heavy and other crude differentials, and global price dynamics</i> | 13 | <b>Deep Dive into Petrochemical Markets</b><br><i>Impact assessment on petrochemical and polymer markets; feedstock competitiveness; demand assessment and outlook; and strategic implications for the sector</i>                              |
| 7 | <b>Investor Implications and Opportunities</b><br><i>Summarize investor implications for institutional and private equity investors and opportunities including potential best performers and opportunities in each sector</i>                         | 14 | <b>Strategic Implications and risk / opportunity analysis</b><br><i>Findings and conclusions, strategic implications by segment, risks and mitigation strategies, and opportunity analyses</i>                                                 |



# The study -- available early April 2020 -- includes a report, underlying data, and a review call with client teams

|   | Deliverable               | Format                      |
|---|---------------------------|-----------------------------|
| 1 | Executive summary         | Slide deck                  |
| 2 | Final report              | Slide deck                  |
| 3 | Market data and analytics | Spreadsheet                 |
| 4 | Report review workshop    | Interactive conference call |

Call Uday Turaga +1 (832) 768-8806 or  
e-mail [info@adi-analytics.com](mailto:info@adi-analytics.com) to subscribe.

# Meanwhile, please download articles based on research for this study from the ADI team

## Oil & Gas in the Perfect Storm

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March 2020

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#### Surveying the damage

Unwilling to lose market share and also force Russia to return to negotiations, Saudi announced plans to raise production from 9.7

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## Locking Both the World and Oil Down

### Oil & Gas in the Perfect Storm: Part 2 – Locking Both the World and Oil Down



April 2020

*Read our first "perfect storm" article to see how oil prices evolve going forward.*

A third of the world's population is today living in countries that have enforced moderate to severe lockdowns on virtually all human activity to mitigate the spread of COVID-19. In all, 27 countries have imposed lockdowns with nearly all of them opting for severe measures. Only three countries – Israel, Ireland, and the Czech Republic – have chosen to impose moderate lockdowns. In addition, there are a handful of countries where lockdowns have not been mandated but citizens are being cautious and have voluntarily imposed limits on their activities.

#### How much oil demand is impacted?

These lockdowns are collectively impacting oil demand in an unprecedented fashion. ADI estimates that the 27 countries that are under moderate to severe lockdown measures consume ~61 million barrels of oil daily. Including other countries such as Brazil where gangs are enforcing lockdowns, almost two-thirds of global oil demand – ~66 million bpd – is under threat of significant impact from COVID-19 (see Exhibit 1).

*ADI estimates that the countries under lockdown consume almost two-thirds of global oil demand*

Exhibit 1. Global oil demand impacted by COVID-19, million bpd.



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## Riches to Rags: Downstream O&G in Perfect Storm

### Riches to Rags: Refining in the Oil & Gas "Perfect Storm"



April 2020

*Read our first "perfect storm" article to see how oil prices evolve going forward.*

The refining panel session at the 2020 ADI Forum – our consulting firm's annual oil & gas conference – in January this year was brimming with justified optimism. After several years of questioning and cross-questioning, IMO 2020 – the International Maritime Organization's rule limiting sulfur in marine fuel oil – was finally here and refiners were getting ready for a strong year with robust diesel margins.

Production planners at many refineries had advanced maintenance into 2019 so they could operate throughout 2020 and take full advantage of the higher margins they were anticipating. Forecasting higher demand for low-sulfur diesel as blendstock for marine fuels, many refiners in the U.S. had also started tweaking their product mix to favor diesel over gasoline.

*Coronavirus has interrupted this party in a brutal manner.* Forget higher margins, refiners today are struggling to maintain operations, find storage for growing inventories, and service debt as refinery margins have plummeted.

#### Global fuel demand collapse

As illustrated in a prior note from ADI's on-going research on the oil & gas "perfect storm", nearly two-thirds of oil demand is in countries that are under lockdowns collapsing demand for refined products. In the U.S., the most recent weekly demand for gasoline was ~45% lower than normal demand of ~6.2 million bpd averaged over 2019.

*Read our second "perfect storm" article to learn how much oil demand will coronavirus destroy?*

Inventories of fuels and oil, therefore, are now building quickly across the world to the point that in some places storage capacity is running out. India's Bharat Petroleum has disclosed storage capacity constraints as fuel demand has fallen dramatically in a lockdown that was recently extended again. Along with crude oil, fuel inventories in the U.S. too jumped and the market is finding creative solutions. Enterprise Products reported that it is storing gasoline and diesel in NGL wells and operating the Seaway pipeline in bidirectional model. Someone has also proposed using pipelines as short-term storage vessels.

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440 Cobia Drive  
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Houston, Texas 77494

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