Questions for the US Oil and Gas Industry

USAE, Houston TX, March 2020

Spears and Associates, Tulsa, OK
First, a thought experiment: How many Covid-19 cases must be prevented to justify slowing the US economy?

Four systems defining the current crisis:

- Medical
- Economic
- Social
- Political

<table>
<thead>
<tr>
<th>Monthly US Economy</th>
<th>$2,000,000,000,000</th>
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<tbody>
<tr>
<td>% impacted by shutdown</td>
<td>0.1</td>
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<tr>
<td># months</td>
<td>2</td>
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<tr>
<td>$ Impact of shutdown</td>
<td>$400,000,000,000</td>
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<tr>
<td>Value per year of life</td>
<td>$125,000</td>
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<tr>
<td>Years saved/person</td>
<td>10</td>
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<tr>
<td>Value of life saved</td>
<td>$1,250,000</td>
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<tr>
<td># lives saved</td>
<td>320,000</td>
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<tr>
<td>Fatality Rate</td>
<td>0.0125</td>
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<tr>
<td># infections prevented</td>
<td>25,600,000</td>
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How fast and how far will global oil demand fall?

Base case – March/April “hard” shutdown, then recovery; 99.7 million bpd in 2020, down 1.0 million bpd. Low case – (March/June) “hard” shutdown, then recovery. Down 3.5 million bpd.

Global Oil Demand (million bpd)

102.9 million bpd demand in 2021. Will monetary/fiscal stimulus and low oil prices spur greater demand growth in 2021?
How fast and how high will inventories rise?

Base case – global oil stocks up 1,050 million bbls by November 2020, then falling. Eliminated by mid-2022.

Where are oil prices headed?

Low for 2-3 years. Return to $55 at “normal” inventory levels (mid-2022 in Base Case; Q1 2023 in Low Case).

Post-2022 global oil market – prices must regulate demand growth due to absence of spare production capacity (does price inelasticity mean a 3X-4X increase in oil prices?)
How fast and how far will US oil production drop?

Down 2.0 million bpd by Dec-20 in Base Case; down another 1.7 million bpd (Base Case) to 2.0 million bpd (Low Case) by Dec-21.

Well maintenance already at a standstill.
What are the implications for the oil service sector?

Down 46% in 2020 to 500 average rigs in Base Case; down another 35% (Base Case) to 45% (Low Case) in 2021. Fractivity expected to fall faster over near term.

**US Rig Count**

Well costs down ~20% this year?
Errata

Pre-oil price collapse - limited interest by investors

- **A call from Norway**: “We’ve raised $2 billion in our five funds, but we might not be able to raise any more because no one wants to invest in fossil fuels.”
- **A call from Sweden**: “Our investors don’t want to be seen owning anything that looks like fossil fuels.”

But... “distressed-asset” funds now circling the oilpatch

**Cash management is key.** Next round of bank redeterminations to hit small, private independents.

**Limited interest/ability** in addressing technical challenges when in “survivability” mode

Operators’ need to improve profitability in order to attract investors will limit how fast capex/rig count chases higher oil prices.