How the pandemic is harming the oil and gas industry

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Credit: Gavin Schaefer

In August, Exxon Mobil, once the largest publicly traded company in the world, was dropped from the Dow Jones industrial average after 92 years. Exxon's removal is emblematic of the changing profiles of energy

companies. In 2008, oil and gas companies accounted for more than 15 percent of the S&P 500; today they make up only 2.3 percent. And, according to the Washington Post, five major tech companies—Alphabet, Amazon, Apple, Facebook and Microsoft—are each worth more than the top 76 energy companies put together.

Several factors have brought about the declining fortunes of oil and gas companies: plummeting costs of renewable energy, concerns about climate change and environmental performance, and the overproduction of oil and gas, which resulted in lower prices. And then COVID-19 arrived, delivering what might prove to be a fatal blow.

When countries went into lockdown to try to stem the pandemic, air travel was halted, stores and restaurants shut down, and people stopped driving to work and stayed home. Global electricity demand fell by 20 percent.

How have oil and gas companies been affected, and what does their future look like?

Oversupply and low prices

The U.S. became the world's biggest natural gas producer in 2011, and the biggest oil producer in 2018, when crude oil prices were over $75 a barrel. Today many oil and gas companies have gone bankrupt because they borrowed huge sums of money when prices were high, produced an overabundance of oil and gas, and created a glut in supply that led to lower prices.

Earlier this year before COVID, oil demand was already falling, in part because the US/China trade war prompted an economic slowdown, and prices were dropping because of the overproduction of oil. Then a standoff between Russia and Saudi Arabia, a member of the

Organization of Petroleum Exporting Countries (OPEC), sent prices even lower. With demand for oil falling dramatically in March, Saudi Arabia proposed a cut in oil production, but Russia refused to cooperate. Saudi Arabia then retaliated by cutting prices and increasing production, and Russia followed suit by lowering its prices. This tit for tat resulted in crude oil prices falling more than 60 percent from the start of 2020. A few weeks later, OPEC and Russia agreed to cut oil production levels to stabilize prices, but by then COVID had already hit. In April, US oil prices went into negative territory for the first time, which meant that sellers were actually paying buyers to offload oil.

Oil prices have dropped about 40 percent so far this year, and are hovering around $40 a barrel, but many fossil fuel projects require a price of at least $50 a barrel to secure investment and be financially feasible. Many oil companies have invested heavily in oil exploration, but with prices so low, it may not make economic sense to exploit the resources they found. These resources may eventually be deemed "stranded assets"—investments that have become worthless. One analyst speculated that 10 percent of global oil resources that could be recovered—approximately 125 billion barrels—will be left in the ground.

And beyond the problematic economics, the imperative to cut carbon emissions to meet the Paris climate accord's goal of keeping global warming to below 2˚C from pre-industrial levels means that an estimated one third of oil reserves, half of gas reserves and 80 percent of coal reserves need to remain unused by 2050, according to a 2015 *Nature* report.

Bankruptcies and falling demand

Since 2015, over 200 oil and gas companies in North America have filed for bankruptcy. Twenty oil and gas companies defaulted on their debts

last year, and 18 have already done so this year. Exxon Mobil faces a deficit of $48 billion through next year, after suffering its largest ever loss—almost $1.1 billion—between April and June. JP Morgan reported that it may be unable to collect on about $39 million in loans related to oil and gas. And Wells Fargo blames fossil fuel loans for $278 million in commercial loan losses.

When COVID hit, global oil demand fell by as much as 30 million barrels per day. In May, U.S. oil production dropped by nearly 2 million barrels per day, its sharpest monthly decline since 1980. The International Energy Agency (IEA) has said that it expects that the 2020 fall in oil demand could be the largest in history. The agency's September monthly report projected that global oil demand could decline by more than 8.14 million barrels per day. It also predicts that the economic slowdown will take months to reverse completely and some sectors, such as aviation, may not even fully recover by next year. One OPEC former research head who believes consumer habits have changed for good, said, "This is permanent demand destruction."

COVID's impacts on oil and gas

Does this mean that oil and gas are now in irreversible decline?

Marianne Kah, an adjunct senior research scholar and advisory board member at Columbia University's Center on Global Energy Policy, is currently trying to answer just this question. Her research brings together four teams, each with ten top energy and transportation forecasters, to examine possible scenarios. Although the research is ongoing, Kah already knows that the answer to the question depends on two things—when COVID actually stops affecting us, and how governments respond.

The effects of COVID

If COVID continues to linger, if there is no vaccine, or if another disease hits, Kah says there will be factors that actually increase oil demand, despite people having to lock down and avoid travel. People will use more single-use plastics, and plastics is the sector with the highest expected oil demand growth.

There may also be increased oil consumption for driving. People are buying more used cars because they want to avoid public transportation, but have less money to spend; used cars are the least fuel efficient. And because many people don't want to enter stores, there are more truck deliveries.

"The other thing is," said Kah, "Particularly with social unrest going on in U.S. cities now on top of COVID, people may move out of cities." There is anecdotal evidence that many are fleeing cities for the suburbs, and one Harris poll found that 39 percent of urban dwellers are considering moving to a less dense place. "If we stay in a pandemic-type environment, that will happen on a larger scale," said Kah. "And guess what people do when they move to suburbs or rural areas? They drive more."

Even if the pandemic ends and people are still working remotely, however, driving may increase. "Historically, when people have telecommuted, they've actually increased their overall vehicle miles," said Kah. "The reason is they spend the time that's been freed up by visiting friends, going shopping and doing recreational things."

After COVID

Kah does not believe air travel will come back very quickly when the

pandemic is over. "We had the earliest scenario that oil for travel comes back in 2024," she said. "And the worst scenario was in 2030." Moreover, business travel, which constitutes 12 to 18 percent of air passenger demand, may never return to pre-COVID levels. Since business travel subsidizes passenger travel, without it, airlines will have to raise airfares; this, on top of COVID, would likely discourage many people from flying. Major airlines could go out of business because there isn't enough traffic, resulting in less fossil fuel consumption.

Government response

Today in the U.S., not one cent is going towards green stimulus to get the economy back on its feet, said Kah. In fact, the Coronavirus Aid, Relief, and Economic Security (CARES) Act directed 93.5 percent of the $3.8 billion it allocated for energy companies to fossil fuel companies.

In contrast, Europe approved a $572 billion green stimulus plan for sustainable agriculture, electric vehicles, renewable energy, public transport and the development of green hydrogen, hydrogen generated by electrolysis from renewables.

If Biden is elected president, Kah believes he will promote policies that reduce oil demand and reinstate some of the environmental policies that the current administration has removed, such as restrictions on methane flaring.

Another government policy that would reduce oil and gas consumption is a push for electrification of vehicles. A new study has shown a direct correlation between more exposure to air pollution and an increase in COVID mortality. Kah hopes this evidence could make it a priority for cities to reduce air pollution through initiatives to speed the electrification of vehicles.

Investor concerns

Oil and gas companies are also feeling pressure from investors. Environmental, social, and corporate governance—three important factors for measuring the sustainability and societal impact of an investment in a company or business—are becoming mainstream in the investor community today.

In addition to their concerns about the financial viability of oil and gas companies, investors are increasingly dissatisfied with the environmental performance of oil and gas companies, as well as their role in climate change. "Climate change is related to both environmental performance as well as concerns about demand coming to a halt at some point," said Kah. "You actually have some banks now that claim they are going to reduce the carbon profile of what they invest in, for the companies they own. This has definitely gotten the oil industry's attention. So you see the oil industry changing now, with no government policy change—the investors are whom the industry really cares about."

Predicting the future of oil and gas

Global economic activity is expected to slow down over the next 30 years due to the effects of COVID and the impacts of climate change on the economy, according to London-based BP's 2020 Energy Outlook report. In one BP scenario that assumes aggressive government climate policies to meet the Paris climate accord's goal, fossil fuel consumption drops by half over the next three decades, with renewables projected to grow from 5 percent in 2018 to 60 percent by 2050.

Renewables provided almost 28 percent of global electricity supply in the first quarter of this year. And while they too have taken a hit this year due to supply chain disruptions and other impacts of the pandemic,

the IEA expects that they will rebound in 2021. Renewables have actually proven to be the most resilient energy source during the pandemic, according to the IEA. Once installed, renewable energy is essentially free, so when electricity demand fell, many grid operators turned to the cheapest energy resources to fulfill the falling demand—wind and solar.

Big oil companies see the writing on the wall and some are changing course accordingly. While American companies Chevron and ExxonMobil continue to bank on fossil fuels, European companies BP, Royal Dutch Shell and Total have declared their goal to be carbon neutral by 2050. BP, which has predicted that world oil demand could peak early this decade, plans to increase investment tenfold in green businesses like renewable energy and simultaneously cut oil and gas production by 40 percent by 2030. Shell is planning a vast wind farm off the coast of the Netherlands and is expanding its electric vehicle charging business. And Total is investing in solar power in Spain and wind in Scotland. One energy analyst speculated that over the next decade, big oil companies will grow their wind, solar and hydrogen businesses by 25 percent or more each year.

Bernard Looney, BP's CEO, has said, "What the world wants from energy is changing, and so we need to change, quite frankly, what we offer the world."

More information: Michael Petroni et al. Hazardous air pollutant exposure as a contributing factor to COVID-19 mortality in the United States, *Environmental Research Letters* (2020). DOI: 10.1088/1748-9326/abaf86