Background brief: The twin shocks of the oil price crash and Covid-19, and implications for the energy transition

1. The oil price shock is driving and compounding broader financial instability

A political dispute between OPEC+ members Russia and Saudi Arabia on March 9 led to oil prices crashing, with the biggest daily drop in the price of crude since the Gulf War in the early 1990s. This triggered the biggest fall in UK and US stock prices since the 2008 financial crisis, and sharply weakened oil-dependent currencies such as the Canadian dollar, Norwegian krone, and Russian rouble.

The oil shock has seen oil investments massively underperform compared to the broader market: ConocoPhillips shares are down by 59% year to date, Total and Shell by 55% and ExxonMobil by 46%, while S&P 500 is down 20% overall (Table 1). Such volatility raises serious questions about the place of oil companies in the portfolios of long-term investors like pension funds. If oil company dividends are reduced or cancelled this year as a result, the argument for investors keeping exposure to volatile oil stocks would be further weakened.

Table 1: Most stressed oil major stocks as of March 18

ConocoPhillips	-59%
Shell	-56%
Total	-55%
Rosneft	-48%
ExxonMobil	-46%
Equinor	-41%
Chevron	-41%
Lukoil	-39%

Source: Bloomberg Terminal, accessed March 18, 2020

This crash is different from the 2014 oil crisis, which saw the price of crude fall from around $100 to $26 per barrel. US shale producers faced low oil prices in the 2014 crisis, but there are reasons to believe the damage will be bigger this time. First, this oil crash is happening in the context of a massive economic slowdown caused by the Covid-19 outbreak, which is leading to an unprecedented contraction in global oil demand. Secondly, the collapse of the OPEC+ alliance means the market faces much greater oversupply than in 2014, which will compound the demand shock from Covid-19.

Analysts from Goldman Sachs, Citigroup and Energy Aspects expect the oil price to drop to $20 per barrel or lower in the second quarter, according to a survey by Bloomberg. With sub-$30 oil, major producers in the Middle East, northern Europe and the Americas will suffer losses in the global GDP between 2020 and 2022, according to Oxford Economics.

The oil industry is already facing an uncertain future. The rapid growth of clean technologies means demand for oil will peak this decade, according to analysts at the think tank RethinkX. Saudi Arabia and Russia will be buffeted, but will likely survive peak demand with substantially shrunk revenues. High-cost oil

fields in the UK, the US, Canada, Brazil, Mexico and Angola will be stranded, with more than half of the global oil production becoming uncommercial at a production cost of $24.5 a barrel, RethinkX forecasts.

2. Oil price volatility exposes the economic risks of fossil fuel lock-in

Prospects for the oil industry have changed since the 2008 financial crisis. Oil companies face increasing pressure from investors over climate change, and lower returns on energy stocks. Investors had lost confidence in the performance of oil and gas stocks in the Standard & Poor's 500 Index well before the twin crises of Covid-19 and the Saudi-Russian oil war. The share of energy stocks in the S&P 500 fell from 15% in 1990 to 5% in 2019, while renewable stocks outperformed the index by 20% in 2019. In August 2019, ExxonMobil lost its position in the top-10 list of the S&P 500 for the first time since 1957.

Even before the oil price crash, North American drillers faced a growing risk of default, with $86 billion of debt maturing between 2020 and 2024, according to Moody's analysts. Thirty-four North American shale companies have reported a total of $189 billion in negative free cash flow[1] since 2010, according to IEEFA. This means the companies spent more money than they generated from selling oil and gas, discouraging investors and limiting the industry's ability to tap debt and equity markets.

The Saudi-Russian oil war has dramatically exposed the financial vulnerability of shale producers in the US. As of March 18, shares in shale producers had fallen dramatically, including Noble Energy (-83%), Diamondback Energy (-78%), Devon Energy (-74%), Oneok Energy (-71%) and Occidental (-70.7%) year to date, according to Bloomberg. Shale oil is more expensive to produce than oil from conventional sources, with the majority of US shale producers budgeting for oil prices between $55 and $65 per barrel, according to Rystad data. Almost all American shale producers are unprofitable below $30 a barrel, making it much harder for companies to refinance existing debt, or borrow new money to maintain current production levels.

Broader market trends demonstrate that the economic risks of fossil fuel lock-in increase with low or volatile oil prices. These risks spread more widely than the oil and gas sector, and major changes in oil and gas revenues could destabilise countries with non-resilient economies, the IEA finds. During the 2014 oil crisis, for example, state-owned oil companies transferred less money to their governments as their revenues fell sharply. Hence governments are vulnerable to knock-on effects of weak oil prices on the economy, including on pensions and other social services. 18 resource-rich countries have long-term debt equal to more than 5% of their GDP, according to the Natural Resource Governance Institute, further increasing economic fragility.

3. The twin shocks highlight the necessity of a green stimulus

The right kind of fiscal stimulus would help restart the global economy while removing the structural dependency on the increasingly unstable oil industry.

There is some precedent. In the aftermath of the 2008 financial crisis, the American Recovery and Reinvestment Act of 2009 spent $831 billion between 2009 and 2019 supporting almost 900,000 clean energy jobs in the US. South Korea's $38.1 billion green stimulus package generated 950,000 green jobs.

There is also a broad set of opinions in favour. Investment in the clean energy sector is one of the most effective ways of stimulating economic recovery from a recession, according to the World Resources Institute. Fatih Birol, the executive director of the International Energy Agency, argues that governments should boost the resilience of their economies by supporting energy transition in the current fast-evolving

[1] Free cash flow is an indicator of the financial health of companies. Negative free cash flows mean companies will tap into cash reserves, sell assets and raise new money to fund their operations.

crisis, taking “this historic opportunity to steer those investments onto a more sustainable path”. Michael Bloomberg argues that investing in low-carbon infrastructure would also mitigate climate change and create new clean jobs for those who lose work in the oil, gas and coal industry.

Traditional infrastructure investments build roads, airports, and power plants. But a green stimulus package would finance emission cutting projects, stimulate short term growth in green jobs, subsidise the growth of the clean energy sector and lower the cost of capital. As most jobs in the clean energy sector are high-skilled, boosting employment leads to future growth and has educational benefits for the individuals employed, the World Bank finds.

Renewables already create more new jobs than the fossil fuel industry. In the US, clean energy jobs (3.26 million) outnumbered all fossil fuel jobs combined (1.17 million) in 2018. Globally, 11 million people were employed by the renewable energy sector in 2018, according to the International Renewable Energy Agency. Strong climate action could create 65 million new low-carbon jobs by 2030, equivalent to the combined workforces of the UK and Egypt, the New Climate Economy report finds.

4. Renewable assets are resilient to the oil shock

There are a number of factors that make renewables relatively resilient to economic headwinds. Some businesses and the world’s largest asset owners have committed to decarbonising their investments by 2050, with many shifting away from fossil fuel to renewables.

Investment houses have also been drawn to new wind and solar markets to boost returns, BlackRock’s director of renewable power Teresa O’Flynn says.[2] Renewable energy projects have matured as an asset class over the last five years, offering more stable returns on investments through long-term contracts. The falling cost of clean technologies, decreasing cost of capital for renewable projects, and increasing policy support has driven the sector’s rapid expansion globally. Demand is growing for renewable projects among institutional investors, such as pension funds and insurance companies.

Renewables have become cost-competitive with fossil fuels over the last decade. The cost of solar photovoltaics fell by 81% since 2010, the cost of onshore wind by 46%. Building new solar and wind is already cheaper than 60% of operating coal power globally, according to a Carbon Tracker study. Solar and wind plus storage are more economical than many new gas plants in the US and Europe.

The oil price collapse won’t change the direction of the energy transition. Historically, investments in renewables have been shielded from oil price volatility, according to Wood Mackenzie analysts. Cheap oil has failed to halt investor demand for solar energy companies, many of which will have positive returns for the year. Major technology giants that have been investing in renewable energy will have higher returns this year, whereas fossil fuel companies are facing substantial drops in their market capitalisation, according to the Institute for Energy Economics and Financial Analysis. As the price of oil drops, wind and solar projects’ returns have become competitive with oil and gas.

The clean energy market is worth more than $360 billion in 2019, and will continue to grow regardless of oil price volatility. 70% of global clean energy investment is driven by governments through direct finance, tax breaks or subsidies, according to IEA analysis, helping buffer the sector against wider economic downturns.

[2] BNEF. BlackRock Eyes New Wind, Solar Markets as Returns Dip. 2017. Accessed via Bloomberg network.

5. Renewable energy installation might see a slowdown due to Covid-19

The Covid-19 crisis might cause delays in the supply chain and installations in the clean energy sector. Chinese suppliers of wind and solar equipment are resuming production after the factory shutdown due to the Coronavirus outbreak in February, but new solar additions could be slashed by 8% globally in 2020 - the first time since the 1980s installations will have fallen, Bloomberg New Energy Finance(forecasts.

Supply issues are temporary. Chinese solar PV manufacturers claim that the virus will not affect end of year growth, and solar companies in the US expect no delay in deliveries, as they source the majority of panels from Southeast Asia, according to Wood Mackenzie.

The global wind industry could still see a record capacity of 75.4GW installed this year, if Chinese suppliers ramp up production as factories open, BNEF estimates.[3] Any slowdown in wind installations will be limited in 2020, according to the Global Wind Council and Chinese Wind Energy Association. In 2019, wind installations reached more than 60GW worldwide, a 19% increase from 2018. China and the US have the largest amount of installed wind power capacity.

Economic slowdown as a result of the Covid-19 pandemic might affect the demand side, reducing the amount of financing available to wind and solar developers. In the US, a shortage of energy tax credits will be an issue for renewable developers. An economic slowdown could threaten a third of wind jobs and half of solar jobs in the US. Clean energy developers want an Obama-era style stimulus program that will include direct payments from the Treasury Department. Clean energy has been the subject of congressional debate on economic stimulus, but was left out of the $2 trillion package released March 24.

6. Electric vehicle demand holds steady in the face of twin shocks

The global auto market will be hit hard by the demand contraction related to the economic slowdown. In January and February 2020, vehicle sales in China and South Korea fell by 44% and 18% respectively, according to BNEF.[4] The traditional auto industry was already in a steep recession in 2019, with 90.3 million units sold globally, down from 94.4 million in 2018.

Despite the projected fall in global auto sales, electric vehicle sales are expected to do better than internal combustion engine vehicles in 2020, according to BNEF.[5] EV sales have grown exponentially over the last decade, from a few thousand cars in 2010 to 2 million in 2019. The price of lithium-ion batteries has fallen by 89% over the same period, a 24% fall on average every year since 2014.

On the demand side, the electric vehicle industry won't suffer from falling oil prices, according to UBS analysts. Although low oil prices had previously encouraged people to buy large inefficient SUVs in the US, the two biggest EV markets - Europe and China - are driven by tax incentives and emission regulations, a BNEF analyst says. The Chinese government set the floor for fuel prices at $40, which means its drivers won't enjoy lower oil prices. China is a world leader in EV production, and is strategically building a competitive EV and battery manufacturing industry to dominate the future of the EV market. Europe's new carbon dioxide vehicle emission targets are the main driver of EV growth, forcing auto companies to ramp up EV sales.

Most countries and cities have committed to phasing out internal combustion engines and supporting electric vehicles (EVs) with incentives and emissions regulations. Cheap oil and the Covid-19 pandemic are unlikely to disrupt the policy momentum behind electric vehicles. Top car manufacturers remain committed

[3] BNEF. Covid-19: Impact on Clean Energy, Transport and Materials. 2020. Accessed via Bloomberg network.
[4] BNEF. Covid-19: Impact on Clean Energy, Transport and Materials. 2020. Accessed via Bloomberg network.
[5] BNEF. Covid-19: Impact on Clean Energy, Transport and Materials. 2020. Accessed via Bloomberg network.

to electrifying a part of their fleet by 2030, and pledged a total of $225 billion investment in 2019. Volkswagen announced that the company will continue to manufacture electric vehicles, despite the low-oil price environment favouring gasoline cars.

To unleash further EV growth, an economic recovery bill could support expanded infrastructure to power all-electric cars and buses. Investments in charging infrastructure, such as a network of fast charging stations, maps and apps, will create many more jobs than the oil and gas industry. On March 11, the UK government announced a £1 billion stimulus to green transport solutions, covering grants for new EVs until 2023 and funding for rapid charging infrastructure.

This briefing was compiled by researchers in Europe and the US. For more information or questions, please contact info@mission2020.global, or visit mission2020.global.

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