

## *Will COVID-19 and Cheap Oil Green Our Energy Future?*

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*Personal viewpoints*

Last month, Shell joined BP in embracing a serious low carbon strategy, this makes environmental sense, but in a world of enduring cheap oil it could also make good long-term business sense.

In recent days we have seen US oil futures dropping to a price of -\$35 a barrel! Negative prices have never been seen before. Perhaps, this event will be remembered as the moment that the oil industry finally changed, but the seeds of change have been around for some time.

Oil prices have been low for more than 5 years, but the coronavirus pandemic has prompted the dramatic falls that we have seen in recent weeks. The global pandemic has greatly reduced global demand for petroleum fuels resulting in a severe glut in supply<sup>i</sup>. The negative prices for May 2020 futures seen in late April arose from a fear that physical constraints of the real world were about to catch up with the traders and their numbers. The main drive of concern was that the Cushing storage facility in Oklahoma was reaching full capacity. Cushing is sometimes referred to as “*the pipeline crossroads of the world*”. It is the settlement point for one of global oil’s most important price indexes – West Texas Intermediate on the New York Mercantile Exchange. It was the WTI May 2020 future price that went to -\$35. Faced with growing oil in storage, with a near inability to organise the curtailment of production at source, and with relatively limited options to disperse the oil, the challenge quickly became how to get rid of the problem. Frankly, the market was willing to pay anyone able to take the oil away, hence the negative forward prices. While negative prices are likely to be a short-lived anomaly, enduring low oil prices are not. We have lived them for years up to this point and we suggest that they will shape the future to come. Low oil prices are key to the greening of the oil industry.

These new low prices are especially bad for the International Oil Companies (IOCs) – the famous brands familiar to us in the west and around the world. Shell and BP are two key British-linked IOCs. The IOCs once dominated global oil, but no longer. The vast majority of upstream resources are today owned and operated by National Oil Companies, such as Russia’s Rosneft and Saudi Arabia’s Aramco. Upstream abundance and low production costs mean that National Oil Companies (NOCs) can produce profitably in today’s low price scenarios and can be expected to continue in this mode for many years to come<sup>ii</sup>. Meanwhile the IOCs simply can’t get their costs below current crude oil prices, because they have no access to easy oil. For them ‘equity oil’ supply is all about war-zones, frozen wastes or the deep sea. Their upstream business is in trouble as the incentive grows for them to retail NOC produced oil. The IOCs long-standing fear is of an extended period in which they lose money on every barrel they produce.

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COVID-19 is causing the IOCs to lose so much money so quickly that their reliance to longer-term difficulties is fast eroding. There is a growing sense that oil could be so cheap in the coming years that the IOCs must finally recognise that there is no money for them there. The IOCs, however, do have two strategic strengths in their competition for revenue with the NOCS. First, they are generally better at science and engineering, a consequence of having faced such difficult business realities for so long. With that in mind, we suggest that they should now turn their focus away from challenges of upstream access to oil, which costs more to extract than it is worth, and instead turn their attention towards retail sales of greener natural-gas derived fuels in their 'home markets'. They are already good at science, but they will need to strengthen their chemical engineering capabilities still further and adjust their geological research from crude oil extraction to carbon sequestration.

The IOCs have long been much more than oil companies. Indeed, in recent years they have become natural gas companies. We suggest that they must now become hydrogen (and related 'syn-fuel') companies. At the core of this future should be the conversion of natural gas to hydrogen (with great care to minimise greenhouse gas emissions at all stages). For this transition to work it will be essential for them to embrace and develop carbon capture, utilization and storage particularly of the directly process-related CO<sub>2</sub> waste stream. The CO<sub>2</sub> emitted by natural gas to hydrogen conversion is (for reasons of gas concentration and pressure) among the very best sources of CO<sub>2</sub> for CCUS. Such an approach (whereby natural gas-sourced hydrogen is made utilising CCUS) is sometimes referred to as 'Blue Hydrogen'. For an oil and natural gas industry in transition such Blue Hydrogen developments are closer to the core skills and competences of the IOCs than the alternative, and complementary renewables-based approaches that yield "Green Hydrogen". Both Blue and Green Hydrogen will be important with the best hydrogen production processes requiring innovative science and technology. They will also require strong regulatory and economic pressure against older more polluting fuels and their GHG emissions, if we are to ensure climate policy progress.

The second advantage enjoyed by the IOCs is the political and economic influence that they have in major OECD markets. It is relevant that their shares are held by pension funds in large volumes, although importantly such investment strategies have come under increasing pressure as climate change concerns have grown. If institutional investors are to retain their affection for these companies, then the IOCs' activities must change. They must change from being a large part of the CO<sub>2</sub> problem to become central to the solution. It makes business sense, when the old game is over, to find a new game. The old oil game may have felt good at the time, but no longer.

Through their lobbying power in OECD markets, the IOCs might move increasingly to block the very products that they currently sell, they would do it to be green, but importantly they would also do it to keep the NOCs away from the downstream parts of the oil and gas business. With a suitable regulatory, environmental and fiscal framework there could be new money to be made in retail operations.

The ideas described above are clearly somewhat British in style. We have focussed on our nation's oil business as being synonymous the IOCs and that is a gross simplification. In a US context it would not be a helpful simplification. The US situation is somewhat different with a plethora of smaller oil and gas companies associated with domestic oil and gas production. The tight oil and the shale gas revolutions have largely been delivered by smaller enterprises with no downstream retail interests. While the IOCs can source production from NOCs or enter into joint ventures with NOCs, the US small companies are in direct

competition with upstream NOC activities. Rather than go green – these players might seek more direct protection of their current business. With that in mind, we would urge against any US moves to revitalise thinking along the lines of the *No Oil Producing and Exporting Cartels Bill* (NOPEC). This was a recurring feature of US federal politics in the period 2000-2013. To our impression it simply sought to protect US producers from foreign competition and to facilitate business as usual for US producers. We are clear that the future must not be business as usual – the time for change has come. Any return to NOPEC thinking would neither serve the interests of American energy consumers nor protect the planet in the face of looming catastrophic climate change.

We hope that as the energy system moves away from oil to natural gas and then to hydrogen and syn-fuels there will be opportunities for those smaller US companies expert in modern gas extraction techniques to find a beneficial role in an emerging low carbon hydrogen business. We acknowledge however that there will probably be a shake-down of the number of such firms in the coming months as a direct consequence of today's immediate business realities of fossil fuel price collapse.

We appreciate that for many years the IOCs have typically been focussed on upstream reserve replacement, and that they have had little interest in retail operations in their home markets. This must change. It is sometimes joked that they make more money selling coffee in their petrol stations than selling petrol. In Britain and Europe consumers are used to spending £60 to fill their cars. From the £60 only a tiny part of the money goes to the oil company, the bulk is taken in tax by the British government. In the near future, however, might such companies sell greener alternatives for a similar retail price, but now in a context where the Government is willing to receive a lower tax take in return for a greener future? £60 might still go through the cash register, but far more money would rest with the energy company than before. Yes, the costs of change for the IOCs will be high, but so will revenue. Governments will face the challenge of filling the hole in the tax-take, but after the fiscal shocks of 2020 it might feel like a slow and manageable change.

In summary we suggest that an important industrial transition may now be underway. It is a move involving, we hope, by the largest western energy companies belatedly turning towards a safer future for our global climate. Such moves were starting to happen before COVID-19, but it must all move faster now.

For more on the future of fossil-fuel derived hydrogen as a possible cleaner energy carrier, please see our recent book "[Fossil Fuel Hydrogen](#)" (Springer, 2020).

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<sup>i</sup> The IEA reports in its April 2020 Oil Market Report: "Global oil demand is expected to fall by a record 9.3 mb/d year-on-year in 2020. [...] Demand in April is estimated to be 29 mb/d lower than a year ago, down to a level last seen in 1995. For 2Q20, demand is expected to be 23.1 mb/d below year-ago levels." Source: <https://www.iea.org/reports/oil-market-report-april-2020> accessed 27 April 2020.

<sup>ii</sup> Part of the recent downward pressure on global oil prices has come from failure among the NOCs to achieve meaningful cuts in production in the face of falling demand. This process has involved a group of oil producing nations extending beyond the traditional OPEC membership named OPEC+. At the heart of the difficulties has been a reluctance by Saudi Arabia and Russia to implement deep production cuts.