

Oil Market Report: May 2023

Over the last 2 months we have been on a renewables journey, firstly looking at solar and then wind power. We established that both forms of energy were viable from a commercial and environmental perspective, but also that the industrial processes involved in production were carbon intensive. This means that if we are to build these facilities at speed, then CO2 emissions will continue to rise – bad news considering the increasingly tangible effects of climate change. The requirement then for effective Carbon Capture, Utilisation and Storage (CCUS) is now pressing to a point, where arguably, it is the most important part of the environmental equation.

Unlike the development of renewable energy, the capture and storage of CO2 can never be a profitable enterprise, because the process simply involves the removal of CO2 from the atmosphere (at significant cost), followed by CO2 storage ad infinitum. This means that CCUS can only ever work as a mandated obligation or via taxation. An obligation would mean that governments force CO2 emitters to build carbon sequestration facilities, as part of their “license to operate”. This is unlikely to work as emitters (industrial complexes, factories, power-stations, refineries) will simply “up-sticks” to countries where there are no CCUS requirements. A more realistic approach would be to fund CCUS via carbon taxation, whereby producers and sellers of products generating CO2 would be taxed, before (almost certainly) passing that cost on to end-consumers.

Introducing new tax revenue streams is nothing new and considerably more straight-forward than the actual building and operation of CCUS facilities. In fact, it is probably appropriate at this point to ask how feasible carbon capture is and whether even it is a real “thing”? As subject matter it is much talked about, but even the most developed projects are far from operational and cynics will point out that effective carbon capture has long been promised, but never delivered. Just because things have not yet worked however, does not mean they never will. Furthermore, one rather surprising paradox is that the technology behind CCUS is not only well established, but regularly used in the oil industry itself!

“Enhanced oil recovery” involves the pumping of CO2 into depleted oil reservoirs to increase the crude yield of mature oil fields. This has led some “innovative” oil companies to start talking about the prospect of “net-zero” oil, whereby the amount of CO2 produced in production is matched by the same amount pumped into a depleted reservoir. Understandably, this is difficult for many to swallow, but it is surely a good thing that taking CO2 and pumping it into underground reservoirs, isn’t actually a new development. And for the moment, there is no shortage of reservoirs to pump the CO2 into – over 1m oil wells in the USA alone!

This knowledge and confidence in the technology available has stimulated significant development, with new CCUS projects springing up across the world. In the UK, the 6 million tonne Clean Gas Project on Teesside has BP, ENI, Equinor, Occidental, Shell and Total aiming to gather industrial CO2, compress it and then either sell it (to those industries that use CO2) or store it in reservoirs under the North Sea. The Humber Industrial Cluster Plan (HICP) involves the likes of P66, British Steel, Drax and Centrica and aims to do pretty much the same thing, this time using the depleted Viking Gas Field off the Yorkshire Coast. Other similar sized projects are also now under construction across Europe (DMX in Dunkirk), North America (Quest in Edmonton) and Australia (Gorgon in Western Australia). It is inconceivable that the multi-nationals involved in these ventures would invest millions of pounds in something they don’t believe will work and whatever their motivations (and of course they vary), their intent means that CCUS will become a “thing”.

A more problematic issue is that most facilities will not be removing and storing CO2 until late into this decade, which speaks directly to the slow work of decarbonisation versus the potentially quicker work of climate change. The International Energy Agency has also predicted that over 2,000 CCUS facilities will be required globally by 2040 to meet COP21 climate targets, but at present there are still only 19 industrial sized plants in development across the world. There are also concerns that the CCUS operational model is unsustainable in the longer-term. Each year the world generates CO2, which has to be removed and stored. But in the same way that oil exploration constantly has to find new oil wells to maintain its status quo, constant new CO2 reservoirs will also need to be found to continue storing CO2.

We shouldn’t lose sight of the fact that there is no single “silver bullet” in the decarbonisation conundrum and only the reduction of CO2 emissions will provide a long-term solution to the problems of climate change. Nonetheless, CCUS can act as a brake in the cycle and as a result will inevitably become a key component in greening the global economy. The modern world requires steel, concrete and other heavy industries and as long as this is the case, copious amounts of CO2 will be generated. Emissionless energy, carbon-free concrete, green steel and renewable plastics are all possible, but they are further down the track than CCUS. On that basis, if we want a low-carbon but modern economy, then heavy investment in carbon capture is going to be required.