



PORTLAND MARKET REPORT

“HYDROGEN GENERATED FROM
ATMOSPHERIC CO₂ SEQUESTRATION
AND MANUFACTURED BY OIL
REFINERIES WILL BECOME THE NEW
AVIATION FUEL”

November update

Let's start with mobility and the inevitable prediction that petrol and diesel cars (Internal Combustion Engines = ICE), are on their way out. By 2025, the majority of passenger cars coming off production lines will be electric (Ford have targeted 2022) and by 2030, this will manifest itself with the majority of cars on the road being EV (Electric Vehicle). These cars will not be Tesla or any other industry disrupter and instead will have the usual brand marquees of Ford, VW, Toyota et al. These automotive giants know full well that they have to adapt to survive and have the scale and depth of pocket to do so. In fact, one of the most poorly guarded secrets within the automotive sector is that the major manufacturers are more than ready to make the change to electric today. However, they fear the cannibalisation of their existing petrol and diesel models and therefore only a controlled roll-out of EV's will preserve market share, protect revenues and allow existing manufacturing plants an optimal transition to electric production.

Buses will follow a similar route to passenger cars, with the vast majority of urban buses running on electricity by 2030. This will be aligned with all major European, North American and Chinese cities becoming emission free by 2030. A small number of urban buses (typically older models), alongside coaches that operate outside of city limits will be either diesel hybrids or LNG. Trucks on the other hand will not be electrified by 2030 – or even close. Whereas buses will be forced by municipal authorities to make the necessary changes, the fragmented nature of the haulage sector means a much slower pace of change. For one, the procurement model for a truck is very different to that of a car, where consumers have largely decided that EV's are “cool” and are therefore willing to put aside potential operational concerns (low range, lack of infrastructure, questionable residual value etc). The purchase of a truck is whole different process and at £150,000 a pop, why would it not be?! No trucking company is going to buy a vehicle in the hope that the technological and commercial framework will be “sorted” by the

time a new unit is delivered and this “chicken and egg” conundrum will delay any major transition away from ICE's. Instead, diesel hybrids and LNG will dominate the haulage sector.

Both the aviation and marine industries present significant decarbonisation opportunities, mainly because very little (and in the case of aviation, nothing) has yet been done to reduce the carbon footprint of both these sectors. Electric aviation is not even a reality in the laboratory, let alone as a wide-reaching solution for the estimated 140,000 daily flights that 2030 will bring. Therefore, aviation will continue with a liquid fuel solution, that will use much of the existing liquid fuel infrastructure. But the fuel will not be kerosene and instead, hydrogen generated from atmospheric CO₂ sequestration and manufactured by oil refineries will become the new aviation fuel. The challenge for ship propulsion will be finding a fuel that can generate enough residual power to shift a 400,000t, 18,000 container ship from Rotterdam to Singapore. The only viable alternative to standard fuel oil (the current fuel) is LNG and by 2030, about 50% of ships will be powered by this lower carbon fossil fuel. Such is the nature and age of the global shipping fleet, that the supply of standard fuel oil will continue, albeit on an annually diminishing scale.

Hydrogen will also make some inroads into the industrial power market, but the same problem will exist for heavy industry as shipping, in that no power source will provide sufficient energy for the production of the likes of steel, cement, chemicals, glass, bricks, ceramics etc (basically all the heavy industries covered by the EU Emissions Trading Scheme). Here the alternatives to fossil fuels will not come up to scratch, so two things will happen to these industries. Either they will transfer en-masse to countries where CO₂ reduction is less important than economic growth (typically in the developing world) or they will have to comply with extremely penal domestic carbon tariffs and forced Carbon Capture and Storage schemes. Many industries could end up being nationalised as a result of this, in an

attempt by local governments to maintain manufacturing capacity.

The future of nuclear power will remain in the balance, but wind power will continue its remarkable rise. By 2030, 25% of electricity generation globally will be wind derived, whilst a further 15% will be solar or other renewable. There will be no coal-fired power stations in either Europe nor North America. Although gas will see its grip on global power diminishing, it will continue to be the largest source of energy. Gas will retain its dominant position for domestic heating (along with a residual amount of oil in remote areas), will exist in power plants that have not yet fully depreciated and finally, it will also act as the main back-up power source for grids across the world (enjoying as it does the enduring quality of easily being able to be switched on and off). Finally, penal carbon taxing and carbon offsets will become the norm for both consumers and business, whilst overall CO₂ reduction will be dramatically reduced by the universal adoption of smart energy grids. This system will rely on artificial intelligence and will efficiently match demand to supply in “real time” and thus avoid the ongoing problem of surplus (and thus unnecessary) power generation. So, there you have it! Of course, we don't really know what 2030 will look like, but when Portland reaches its 20th birthday, we will dust this report down and revisit it for accuracy. Even if half of what we predict comes true, that would have to be considered as a half-decent job, considering just how much change we are currently experiencing in both the energy and wider political world. If any one of the above predictions comes to pass, then each one would be a seismic energy shift in its own right.

For more pricing
information, see
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Portland Fuel Price Protection
www.portland-fuel-price-protection.com