

# The last word

IMO 2020 poses the largest and most disruptive challenge the industry has had to face, but the industry is remarkably resilient and will quickly adapt, writes Chris Midgley.



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“Problem – what problem?” That is what many may have been saying about IMO 2020 at the end of last year, when fuel oil was trading above gasoline in some regions. As a result, simple conversion refineries were looking more attractive to run than cat cracking refineries; so, why all the fuss?

While many have accused both the shipping and refining industries of having their heads in the sand in their response to IMO 2020, the last 18 months have clearly demonstrated that this is a case of “chicken and egg” — which comes first, refinery investment to destroy fuel oil, or the shipping industry’s response to consume it?

The refining industry has made multi-billion dollar investments in raising conversion capability (refinery complexity). These investments have in general been made under strategies to increase conversion yield based on long-term planning assumptions, refinery and/or chemicals integration, or — as in the case of Russia — tax incentives. They often take around five to seven years to come to fruition and are based on paybacks over many years. While IMO 2020 may have been seen as a window of opportunity for short-term gain, it would have been unlikely to have driven the investment decision on its own.

On the other hand, the shipping industry has had tight margins which have not generated a large free cash

flow to allow capital investment in conversion to LNG or the addition of scrubbers without an economic incentive. Given the relative short cycle time for conversions or scrubbers, inevitably the industry has been sitting on its hands until the time is right. In the last six months, as we forecasted, the number of scrubber orders and installations has increased dramatically — from less than 500 in operation at the start of the second half of last year, likely rising to 2,200 in time for 2020, which would enable the sector to still consume over 500,000 b/d of high sulfur fuel oil.

As we approach IMO 2020, one could be forgiven for starting to believe it will be a non-event. The economic tragedy of Venezuela and the US oil export sanctions re-imposed on Iran have meant the quantity of heavy, sour grades falling by more than 500,000 b/d over the last two years while light, sweet grades have increased by over 3 million b/d (mainly due to the rise of US shale oil). This has forced analysts such as ourselves to revise down our residue forecasts by almost 1 million b/d. In addition, as we welcome in 2019, the macroeconomic gloom is deepening. In general, when the economy heads into recession, any slowdown in distillates demand tends to lag as industrial activity is slower to respond. However, with much of this slowdown being driven by trade conflicts, we are seeing trade and

industrial activity being hit, which is starting to affect distillates demand earlier in the cycle.

Despite fuel oil being in tighter supply today, especially during the Middle Eastern summer when Saudi Arabia demonstrated its ability to increase HSFO burn over crude, and with light distillates being in ample supply due to the growth in light crude production, IMO 2020 still poses the largest and most disruptive change that the industry (shipping or refining) has had to face. Whichever way you look at it, some 3 million b/d of HSFO (up to 3.5% sulfur) will have to switch to 0.5% fuel oil. As ever, the industry will be quick to adapt and with some simple segregation and changes to blends can easily mitigate this problem to the extent of around 1.5 million b/d of HSFO length and a short of 1.5 million b/d of distillates. However, beyond this, economic incentives will be needed to optimize refineries to maximize gasoil yield and find outlets for surplus HSFO.

With US cokers only operating at 89%, only a small shift in the clean-dirty spread (gasoil-HSFO) will be needed to increase their utilization, thus raising fuel oil destruction and gasoil yield. Further economic incentives will be needed to de-optimize catalytic crackers (FCCUs) to free up low sulfur blendstocks, thus affecting gasoline and some petrochemical yields. Depending on the health of the economy, it remains likely that the world will still be short of distillates, requiring simple refineries to be incentivized to run harder and as a result increasing the HSFO length, which will need to seek new outlets, such as power plants – first into new-build plants such as in Bangladesh, then displacing cheap

natural gas (for example, in Russia) and then more expensive LNG or crude in places such as Saudi Arabia and maybe Pakistan. This will of course result in HSFO prices being discounted and thus require gasoil to increase reciprocally to maintain simple margins just above zero.

Of course, the irony of all this is that legislation intended to reduce sulfur dioxide emissions, especially where it has a health impact (close to coastlines), has simply pushed some of it into static sources (power plants), which by definition are inland (or just offshore in the case of floating power) and close to populations. The increased desulfurization of distillates will add to the growing sulfur surplus for industry to consume and higher coker utilization will result in a greater supply of coke to compete with coal.

The wide range of blend components and increased percentage of distillates that will be used for 0.5% fuel oil will create a host of compatibility issues. Some blends have even been patented by some of the international oil companies. Shipowners have had some experience of this from the Emission Control Areas (ECAs), but this greater volume will require good tank turnover and cleaning, and effective engine fuel switchover. In addition, bunker suppliers will need to supply a range of fuels from HSFO, marine gasoil and a range of 0.5% sulfur blends, creating even more complexity to fuel management and supply chains, especially on their bunker barges. The cost of this compliance will ultimately drive up crude prices or the key sweet (low sulfur) benchmarks – with tightness in gasoil and gasoline resulting in wider product cracks.

All of this will hit consumers and impact the global economy, potentially pushing it into recession, if it has not already entered it this year!

While all these factors will be disruptive in 2020, the industry is remarkably resilient and will quickly adapt to the new circumstances. Scrubber investments are forecast to continue, and while I have seen forecasts of up to 18,000 scrubbers, I have also suggested that we may not need many more than 6,000 to be installed. At this level, the amount of demand for HSFO would increase to above 1.5 million b/d which in itself would tighten the HSFO market, pulling supply back out of power plants and into marine bunkers. At this point, fuel oil would price back up to the breakeven point for ships with scrubbers to burn fuel oil over gasoil (taking into account loss of efficiency). With over a third of the scrubbers being installed on new build vessels, this demand is likely to be here to stay for many years to come – and with the inevitable overinvestment in refinery complex capacity we will no doubt see fuel oil markets once more returning to strong cracks post-2020.

The tide may well be turning for fuel oil right now, but just as the tide goes out, it is inevitable that it will come back in again not too long after 2020. Following this, there will be fresh challenges for the refining and shipping industries, perhaps as Venezuelan and Iranian crude returns more residue to the market, as the shipping industry learns to deal with new tighter fuel efficiency targets (for lower greenhouse gas emissions), or low refinery margins lead to consolidation of simple refineries, all resulting in fuel oil tightness continuing to ebb and flow.