Marine fuels: Price impact of new 2020 low sulfur regulations negated by refineries and Covid-19

New low-sulfur regulations on shipping fuels were expected to push up bunkering costs this year and disrupt markets, but new investment and blending from refineries, combined with severe demand destruction from Covid-19, has meant low sulfur products have only risen modestly compared to High Sulfur Fuel Oil (HSFO), making scrubber installation an expensive alternative so far.

International Maritime Organization (IMO) rules on sulfur content in marine bunkering fuels were reduced to a 0.5% maximum globally (down from 3.5%) at the beginning of this year. After an initial sharp rise at the beginning of the year, low sulfur marine fuel prices have softened, and premiums to HSFO have fallen from over $300/t in January, to about $70/t by mid-June—which is well below expectations. The impact on demand from Covid-19 has had a significant effect as weaker global trade has reduced demand for marine fuels generally, but other factors have also contributed. Most importantly, refineries worldwide have been able to lift very low sulfur fuel oil (VLSFO) yields significantly by changing blending practices and investing in more desulfurization capacity. Some have also cut sour crude purchases (which yield a higher cut of VLSFO), which provided support to sweet heavy grades early in the year, although this has now eased (see below).

Refiners have diverted low sulfur blend-stocks to produce VLSFO—including low sulfur distillates, jet/kerosene and vacuum gasoil (VGO). Low demand for gasoline this year due to Covid-19, means fluid catalytic cracker feedstocks that would have gone to boost gasoline output, such as VGO, can be diverted to the VLSFO bunker fuel pool as blend-stock instead, which has helped push up VLSFO supply.

Refiners are also processing more high sulfur feedstocks, primarily HSFO, using expanded desulfurization capacity. The US Gulf Coast refining system and Indian refining sector have both increased the refining of HSFO, absorbing surpluses from the Russian refining system and the Middle East. For example, ExxonMobil installed new desulfurization capacity at its Beaumont, Texas, facility in late 2019. The lower the sulfur level the higher the cost of extraction, but refineries—in Europe and North America at least—have already had experience of 0.1% marine fuel sulfur limits under IMO Emission Control Area (ECA) restrictions since 2015, when they were reduced from 1%. Similarly, ultra-low sulfur diesel (0.001% S) is already produced for the European onshore vehicle market and elsewhere.

The focus on HSFO as a feedstock in the United States has been further compounded by OPEC cuts, sanctions on Venezuela and midstream constraints in Canada, which has reduced the supply of medium and heavy, sour crudes. In the Middle East, refineries are only processing sour grades, and there is little VGO available for blending, so the region has to import VLSFO.

Policy makers have also been supportive, with the Chinese central government announcing in January a long-awaited tax rebate scheme for Chinese VLSFO production, which is helping boost sales and production in Chinese bunkering markets. Beijing allocated its first VLSFO export quotas in May, which has also helped with supply to neighboring Asian markets.

Nevertheless, despite filling storage capacity in preparation for IMO 2020 compliance in the months before regulations kicked in, the year still began with a spike for VLSFO prices and premiums. Since then, like the rest of the petroleum complex, fuel oil markets have weakened amid demand uncertainty related to the Covid-19 pandemic and associated economic disruption. Global bunker demand is set to fall 6% to 8% in 2020, according to FGE oil markets, and the main bunkering ports posted sharp year-on-year declines in bunkering demand in the second quarter. In July, a recovery in Asian refining runs and reduced fuel oil feeds for other oil products continued to maintain ample VLSFO supply.

1 | FLEXIBLE HUBS

With plentiful VLSFO available from nearby advanced refineries, IMO 2020 has enabled major bunkering hubs, such as Singapore and Fujairah, to gain market share at the expense of ports like Hong Kong due to the availability and reliability of VLSFO supply. All bunker suppliers in Singapore were able to provide compliant fuels at the beginning of the year, and a number of suppliers also continued to supply HSFO to ships with scrubbers.
The switch to lower sulfur fuel began last year, with the amount of 380 CST HSFO sold in Singapore halving between October and December, leaving its share of sales volume at just 26% in December, compared with an average of over 70% in the first three quarters of the year. On the other hand, sales of IMO 2020-compliant low-sulfur 380 CST bunker fuel soared to 2.25 mn mt in December, accounting for more than half of total bunker sales in Singapore. Wide spreads of above $300/mt in December (compared to an average of $73/mt during the first three quarters of the year), attracted more low-sulfur material into the bunkerering hub and reduced inward flows of high-sulfur cargoes.

VLSFO has emerged as the preferred bunkering alternative to HSFO, rather than marine gasoil (MGO) as some had forecast (although MGO did see a rise in demand in 2019, with sales doubling year-on-year to reach 3.09 mn mt, so it is also gaining some market share). This is despite some questions over quality of VLSFO, including flash point and sediment issues which can potentially block filters and pipework, as well as some material that has been shown to exceed the 0.50% sulfur limit. Its higher viscosity provides an advantage over MGO, with many ship engines designed to run on high-viscous bunker fuel. Alternative uses for MGO in the distillate pool means VLSFO is typically cheaper, and it also tends to be cheaper to produce. Shipbrokers and traders say it is too early to tell if VLSFO will remain the fuel of choice for shippers, and there has also been a surge in sales for marine additives that make gasoil more viscous.

As VLSFO prices softened after January, HSFO prices found some support from United States and Indian feedstock imports. Russian producers, whose production is heavily geared toward HSFO, said they remain optimistic about HSFO demand. There has also been strong power generation demand for HSFO to meet summer air-conditioning needs in the northern hemisphere. This is especially true in the Middle East, where oil-fired generation capacity is mopping up large volumes of locally produced HSFO, with the reminder heading for complex Indian refineries.

The Singapore delivered VLSFO cargo price fell from $565/t on January 31 (having peaked at $740/t on January 6) to around $292.85/t on June 16. On this date, 380 CST HSFO was assessed by Platts at $222.14—a premium of just $70.71/t, which is well down on the $326/t premium seen at the start of the year. And in northwest Europe, the spread between HSFO and VLSFO narrowed to less than $40/mt in mid-April, compared to close to $300/mt on January 1. In the case of MGO, the preference for VLSFO and low middle distillate demand elsewhere meant there was little rise in the price relative to HSFO early in the year, and since then it has seen little support, given the pandemic’s impact on demand generally.

### 2 SCRUBBERS NOT PAYING THEIR WAY

When IMO 2020 went into effect, ships had to either utilize VLSFO or MGO—or install scrubbers (technically known as exhaust gas cleaning systems) if they wanted to continue using the lower cost HSFO. However, there is an upfront cost to scrubbers, and they require additional fuel to operate—which makes their vessels less efficient. There is also a cost associated with disposing of the toxic waste, and several ports across China, Europe, the United States and Singapore have banned the use of open-loop scrubbers, requiring ships to switch to compliant fuels when they are within port limits. These factors are pushing up costs, and HSFO availability outside of the major ports has also been an issue. Morgan Stanley had cited a scrubber manufacturer who said a VLSFO-HFO spread of $100 per ton was the “tipping point” where owners make the scrubber-installation decision—well above current spreads.

Refiners, on the other hand, have been able to cut the cost to desulfurize bunker fuel to around $50/t, which means that in a weak market, the VLSFO/HSFO spread also dropped toward this level, making the use of scrubbers uneconomic. Last year, most analysts incorrectly assumed that scrubbers would provide a competitive advantage and recommended tanker companies retrofit scrubbers. However, in the current market environment it appears that desulfurization is most efficiently achieved by the refining industry, with its associated economies of scale, rather than on-board scrubbers—although this could be reversed if supply tightens up in the months to come.

The fall in VLSFO/HSFO spreads has already led some companies to postpone or cancel scrubber installations. For example, shipping company, Frontline, delayed installation on two VLCCs and two Suezmax tankers in the spring. The company estimates a positive cash impact of about $7.6 mn in 2020 resulting from these deferrals, excluding any benefit from increased vessel availability. Similarly, International Seaways has postponed three planned scrubber installations scheduled for 2021. And Scorpio Tankers is delaying the installation of 19 scrubber retrofits until at least 2021, while Scorpio Bulkers has 13 scrubber installations on hold. Stolt-Nielsen has also announced cancellations, while EURN has decided to put all scrubber installations on hold until the fuel oil sulfur spread is once again wide enough.
The narrower fuel oil sulfur spreads have meant the high premiums for heavy sweet crude that resulted from the high HSFO/VLSFO spread at the beginning of the year (heavy sweet grades can be used as blend-stock, and have a higher VLSFO cut), have also softened, although a number of other factors are influential in determining crude grade spreads. These include the impact on supply of OPEC-plus quotas and shut-ins elsewhere, including in Venezuela and western Canadian oil sands.

At the beginning of the year, the heavy sweet crude grades saw their spot price differentials spike to record highs, reflecting the boost in demand for VLSFO. For example, a 550 000-bl cargo of Australia's Pyrenees crude for loading in early March was sold at a premium of around $31/bbl to Platts Dated Brent, FOB—the highest premium on record for the heavy sweet Australian grade. In this case, analysts said the high premium reflected its value for blending into the low sulfur fuel oil pool, rather than the refining value of the crude. Strength was also seen in other heavy sweets with a high fuel oil cut, including in Brazil and Nigeria. Since then premiums have fallen back, and, overall, the new IMO regulations appear to have had a muted longer-term impact on most crude spreads.

IMO regulations on SOx emissions from ships first came into force in 2005, under Annex VI of the MARPOL Convention. Since then, sulfur limits have been progressively tightened and in 2016 the IMO approved the reduction to 0.5% by 2020 from 3.5% (outside ECAs, where the limit is already 0.1%)—so the changes have been a long-time coming. Boston Consulting Group says the total market transformation could take until 2025, with enforcement action and quality issues likely to remain live topics as demand recovers post Covid-19 and the shipping industry fully adjusts to the sulfur cap. Liquefied natural gas (LNG) is also being introduced as an alternative bunker fuel, with global LNG bunkering demand expected to reach about 9 mn t/yr by 2025.

As well as restrictions on sulfur emissions, the IMO has pledged to reduce carbon emissions by 50% by 2050 (from 2008 levels)—International trade relies on shipping for about 90% of its freight transport, generating about 3% of total global greenhouse gas (GHG) emissions. However, the EU has recently voted to include marine emissions in its Emissions Trading System, which adds a carbon price to the cost of use. This is currently around Eu25/tCO₂ but is expected to rise steadily over coming years—BP, for example, is working with a carbon price of Eu100/tCO₂e in its planning for 2030. The impact of a switch in focus to carbon is likely to have far more of an impact on the marine fuels market than this year's sulfur cuts.

**ENDNOTE**

* An unfinished refinery product that is usually run into a fluid catalytic cracker (FCC) to increase gasoline yields.

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