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Tracking the impact of **IMO's 2020 global sulphur limit regulation** on risk management and counterparty risk appraisal

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## 1. Executive summary

The International Energy Agency called the impending 2020 global sulphur limit “easily the most dramatic change in fuel specifications in any oil product market on such a large scale”.

It is almost impossible to over-state the significance of the impact on shipping and energy markets of the IMO's decision to ratify modifications to MARPOL Annex VI and invoke a 0.5% global sulphur limit from January 1st, 2020. Not since the transition of ship propulsion from coal to fuel oil, including the dawn of the container and the mega-ship, has the shipping industry – and the 70,000 vessels affected – faced such a dramatic change.

As this paper will reference, it is a truly daunting prospect for multiple stakeholders with shipowners and operators, charterers, bunker suppliers, traders, financiers, insurers, and refiners all impacted. Indeed, from a shipping perspective, the fear of the known unknowns that 2020 generates has been well-documented, yet often lacking in detail.

Less well cited has been the impact 2020 will have on the energy market and, specifically, refining. There is almost an assumption that refiners – who for almost a decade called for shipping to invest in scrubbers and ‘pay the bill’ for meeting 0.5% fuel compliance standards – had a plan; in short, to meet the supply demands of the highest bidder. With estimates from consultancy Wood McKenzie that over 3m barrels per day (b/d) of high sulphur heavy fuel oil (HFO) supplies will be reduced to as little as 1m barrels post 2020, from an estimated total of just under 4m b/d of bunker fuel being sold (with total oil production at approximately 100m b/d), refiners have been seeking to update coker technology to produce more low sulphur HFO (LSHFO) and distillates.

Yet, as the recent decision (September 2018) by Shell to ‘demobilise’ a coker upgrade project in its 327,000 b/d Rhineland refinery demonstrated (widely acknowledged as a reaction to higher scrubber uptake in Q218, and subsequent demand for high sulphur HFO in Europe), even refiners are struggling to predict what will happen on the morning of Wednesday, 1st January, 2020. The decision followed Switzerland-based commodities trader Gunvor saying it had “decided to put on hold the construction of a delayed coker unit” at its Rotterdam refinery.

There are undoubtedly a plethora of uncertainties and very few established facts. As this document will go on to discuss, some assumptions can be made; HFO prices will likely fall, LSHFO and distillate prices will most likely rise (with industry estimates suggesting an expected spread in excess of USD 300) shipowners will be required to commit more capital and are likely to take on more debt (to fund investment in scrubbers and LNG capability), and bunker suppliers and traders will face a market that features larger credit exposures, and likely requiring access to higher liquidity levels and even shorter payment terms, to meet higher fuel cost requirements and to partly control escalating credit exposures.

Compliance levels may vary considerably as some Flag States and Port State Control jurisdictions might not have resource capacity or wherewithal to police compliance, leaving the potential for an uneven playing field, while insurers will likely hike premiums amid high non-compliance and against the higher value of bunker fuel. Regional differentiation to compliance is also likely, with availability of compliant fuels – especially blended 0.5% fuel – expected to dwindle for ships looking to take on fuel away from the major bunkering hubs.

How impactful this will be for the shipping, energy and commodity markets remains to be seen. If the price of LSHFO and distillates rise as predicted, it is important to maintain a healthy sense of perspective around the rises. If costs do increase, it will not be the first time the industry has endured high levels of exposure; 2013 also saw bunker prices reach close to USD 650 per tonne, albeit this was triggered by market driven – not regulatory – factors. Based on historical trends, it is unlikely, whatever the outcome, that Junichiro Ikeda, President and CEO, Mitsui OSK Lines' now infamous prediction that "We're all going to go bust" will ring true for shipowners and operators.

In terms of known knowns we can assess that some will benefit from the transition, and some will suffer – not least in market segments where vessels with scrubbers installed compete with vessels fuelling with blended 0.5% fuel or distillates; it remains unknown which party will win out in this scenario. Moreover, volatility will undoubtedly reign; for shipowners and operators, charterers, bunker suppliers, traders, financiers and refiners, accurate forecasting will be almost impossible going into 2020, ensuring that robust risk management is at the core of business planning.



## 2. What are the IMO 2020 global sulphur limit compliance options?

There are several options available to comply with the 2020 0.5% global sulphur limit, all of which come at a cost:

- The vast majority of vessels will look to burn a blended or hybrid fuel that combines a 'clean' distillate fuel with HFO. Other options include:
  - Burning distillates (NB: it should be acknowledged that any vessels entering a designated Emission Control Area (ECA) zone will be required to burn a distillate in order to comply with 0.1% sulphur oxides (SO<sub>x</sub>) requirements)
  - Installing an exhaust gas cleaning system (scrubber) - enabling the continued operation of the vessel with fuel with a sulphur content greater than 0.5%
  - Using LNG, which emits almost zero SO<sub>x</sub>
  - Adopting lesser known alternative energy solutions, such as methanol, hydrogen fuel, LPG or batteries, although these technologies are more likely to be adopted, beyond only a handful of vessels, well after 2020.

There are pros and cons with each, and much depends on the type and size of vessel, as well as where it operates, fuel availability, onboard fuel management regimes, capital and operational expenditure, as well as maintenance requirements. These all must be predicated by factors such as vessel type, trading area and remaining service life.

On top of this, there is every likelihood that in some regions shipowners and operators could also opt for 'non-compliance' if they feel the benefits outweigh the risks.

Monitoring, compliance and enforcement of the 2020 global sulphur limit falls to Governments and national authorities of Member States that are Parties to MARPOL Annex VI. Flag States (the State of registry of a ship) and Port States have rights and responsibilities to enforce compliance. All of the top 10 Flag states by tonnage -- Panama, Liberia, the Marshall Islands, Hong Kong, Singapore, Malta, the Bahamas, Greece, China and Cyprus -- have ratified MARPOL Annex VI. Sanctions for non-compliance are likely to vary considerably between each, but the anticipated risks associated with breaches could include fines, vessel downtime and loss of earnings, in addition to reputational damage.

In spite of this, many participants in the bunker and shipping industry say privately that they hope there is the possibility that some of these Flag States could take a lax approach to enforcement of the 0.5% global cap - as it will be a costly adjustment for shipowners - or that some Flag States will simply lack the capability to effectively enforce it.

While not responsible for enforcement, the IMO is stating that consistent compliance with the 2020 global sulphur limit is vital, and that it is working with Member States as well as industry (including both the shipping industry and the bunker supply and refining industry) to identify and mitigate transitional issues so that ships may meet the new requirement. This includes developing guidance and standardised formats for reporting fuel oil non-availability if a ship cannot obtain compliant fuel oil, and considering verification and control issues.

### 3. Which key shipping industry sectors will be impacted by the 2020 regulations?

#### A. Ship Owners and Operators

It will be the shipowners' responsibility to make sure their ship is compliant with the IMO's 2020 global sulphur limit. They must take the critical decision on which compliance option or options to select, and their decision must be made at a time of prolonged strain on the finances of much of the industry, and amid other important, costly, legislation, including the adoption of the Ballast Water Treatment Convention adoption.

For shipowners, selecting the 'wrong' compliance strategy represents the biggest risk associated with the 2020 global sulphur limit, as it could place them at a severe disadvantage to their competitors. Looming large over their decision are two key factors: bunker pricing and bunker availability, both of which are expected to exhibit much less market stability in the last half of 2019 and for most of 2020.

Bunker fuel pricing has been long regarded as the biggest risk influencing the shipping industry. With close to a year to go until 1st January 2020, shipowners are still telling the IMO that they do not know what the costs associated with compliance will be. There are some projections that the price of distillates could exceed USD 1,000 per tonne, fuelled by lower than expected uptake of scrubbers, high total global demand for distillates and a predicted 'scramble period' in which less-complex refineries bid up the price of light sweet (low sulphur crude) to produce more low sulphur distillates and less residual fuel. Shipowners without scrubbers will likely only accept charter rates that reflect the fuel price, and therefore will be particularly interested in post 1st January 2020 prices.

While they can take comfort in the fact that most of their competitors will be in the same boat, liner operators in particular will be hit by escalating prices. As end users of high volumes of bunker fuels, liner operators will find it hard to put up freight rates to compensate for larger fuel bills. Indeed, mitigation plans to offset a significant 'hit' on fuel costs in the liner market are already out in force, with Maersk Line, which estimates a rise in its annual fuel bill of USD 2 billion from January 1st 2020, already stating (September 2018) that it will raise its Bunker Adjustment Factor (BAF) – a surcharge on fuel costs – from January 1st 2019.

It is genuinely unclear where bunker prices will end up in the early months of 2020, and a true picture may not be known for several months or years after the deadline, as refining patterns adjust. In the meantime, many shipowners are expected to adopt a 'wait and see' approach; keeping a close eye on the compliance moves of competitors, or in some cases holding out and risking the consequences of non-compliance until the costs associated with the various compliance options come down. Many uncertainties also remain over fuel availability, with shipowners currently having a lack of full clarity of what types of fuel will be available. To give a simple example, this could mean shipowners who place a scrubber on board their vessel may find they cannot buy high sulphur fuel or, equally, a shipowner opting to burn distillates may find there is a shortage in the post 2020 world.

There is also a technical dimension to shipowners' decision-making processes for 2020 compliance options. Discussing the 2020 sulphur cap at SMM Hamburg 2018, Frank Starke, chief executive officer of Caterpillar Motoren, said: "Regulations are usually introduced gradually, but this is a step change for all ships overnight, whether they are new ships or existing vessels with 30-year-old equipment."

Each compliance option brings a plethora of technical considerations for shipowners and operators. To give just a few examples, the ramifications on performance from vessels switching from burning

blends / hybrids to distillates when transitioning in and out of ECAs is unclear. Moreover, the rapid rise in the use of blended fuels will lead to higher risks of compatibility issues if 0.5% fuels from different origins are commingled on a vessel. Indeed, two or more VLSFO fuels that may be fine to burn on their own may not be compatible when mixed in an on-board fuel system. Fuel contamination and associated engine problems, as witnessed recently in Houston and Singapore, will continue to pose a risk for vessels in a post 2020 world. However, despite the widely publicised problems, it is not clear whether contamination will become more widespread when the global sulphur limit is initiated.

With regards to timing of the “switch on” date for 2020 compliant fuel, further clarity is needed on the right time to enact the swap to ensure that the vessel is both holding compliant fuel and operating in accordance with the new rules (i.e. how many tank flushes will be required before the vessel is burning compliant fuel). At present, it is expected high levels of non-compliance will be unavoidable in 2020 while vessel owners clean up their tanks.

For those vessels currently committing to using scrubbers – currently around 1,500 vessels and rising – the industry is several years away from understanding how this relatively untested technology will perform in the medium to long term. Questions remain: what constitutes robust scrubber maintenance strategies and budgets; including the cost of additional engineers on board, what is the optimum maintenance strategy to increase the lifespan and performance of the scrubbers? What is their long-term durability? All maintenance considerations will add existing OPEX costs to hard-pressed ship owners operating capital-intensive scrubber systems, which can cost as much as USD 2m to USD 5m per unit, depending upon vessel size and type – unless special capital contribution arrangements are made with charterers. All those investing in scrubbers pre-2020 remain exposed to regulatory risks. Future new regulations – environmentally driven or otherwise – could render conventional systems obsolete; a scenario that would require further investment from shipowners who would be required to keep their vessels compliant. One example of this could be decarbonisation; the IMO could introduce new regulations to ensure it is able to meet its commitment to reduce carbon emissions from shipping by at least 50% by 2050.

However, certain post-2020 scenarios could pay dividends to shipowners who make the investment. For example, in a situation where scrubbers operate effectively and HFO is readily available at a competitive price, shipowners are far more likely to be able to secure time charterers (who pay for approximately 60% of fuel costs in the industry) by accepting freight rates only marginally lower than those vessels using more costly distillates or blended/hybrid fuels. Conversely, if a scrubber becomes unreliable (highly unlikely in the initial post 2020 period when installations are new) and a shipowner is forced to burn 0.5% fuels, the high CAPEX cost of the scrubber will not be offset by lower fuel costs.



## B. Charterers

Suggestions indicate that charterers pay for a vessel's fuel in around 60% of cases. While the long-term cost implications of 2020 on fuel prices are not known at present, it is expected that in the short-term charterers buying HFO for use on a vessel with a scrubber will pay less than those purchasing distillates or blended/ hybrid fuels. This means those with time charterers and long-term contracts of affreightment (COAs) could be looking to move their cargo on vessels equipped with scrubbers. Indeed, such are the potential benefits that it has been indicated that several major charterers are acknowledging the value of making arrangements with owners to install the technology and subsequently reap the financial benefits of running ships on lower-priced HFO. While officially charterers are hesitant to fix pricing beyond 1st January 2020, there are some recent suggestions that several T/C agreements in the tanker and bulk sectors are being drawn up where a notable premium has been paid for tonnage fitted with scrubbers compared to vessels without the technology on board. If this suggestion is indeed correct, the move could be viewed as a strong signal that confidence in the availability and perceived cost of low sulphur fuels is low.

For those taking tonnage on a spot basis, higher costs are certain whether selecting a vessel with or without a scrubber. This is because shipowners with scrubbers will likely only be willing to accept charter rates marginally below that offered by owners with vessels using blended/hybrid fuels or distillates, in order to secure the charterer's business without eating away significantly at their profit margins.

In addition to price implications, vessels operating using blended/ hybrid fuels or distillates represent a greater risk from a technical perspective. This is because the industry is yet to fully understand the impact of these new fuels on engines. As referenced, the chances of breakdown or engine failure are likely to be higher, especially in the early 2020s, but so is the risk of the vessel being impounded for non-compliance. Conversely if a scrubber on a vessel fails, the onus is on the shipowner to then temporarily arrange and purchase 0.5% low-sulphur fuels for the charterer, and do so with a sense of immediacy to ensure the vessel remains compliant and in commercial operation.

In addition to the fuel price and technical uncertainties, bunker fuel clauses within charter party agreements currently represent significant risk for both shipowners and charterers. Owners, who have overall responsibility for 2020 compliance, are very dependent on the charterers to procure the 'right type' of fuel, and if the charter party is vague, the likelihood of disputes will increase, burdening both the shipowner and the charterer with loss of earning time, fines, and potentially heavy legal costs. Industry body BIMCO is advocating a clause that unequivocally states that if the charterer does not deliver 'on spec fuel' (for best practice this clause will state the latest ISO: 8217 standards) then he will protect the owner from any consequence of fines if he gets caught by the Port State Control.





### C. Bunker Suppliers and Traders

With only around 5% of the world's fleet using scrubbers – and with many of those outfitted so far on cruise ships and ferries where the shipowner operates the vessel and pays for fuel - the 2020 global sulphur limit is set to trigger a dramatic change in marine fuels globally from high sulphur fuel (3.5% or lower) to 0.5% low sulphur fuels. This, in turn, will have an impact on global marine fuel supply composition, market pricing and supply patterns with buyers needing higher levels of credit, and suppliers requiring similar increases in liquidity if they wish to continue to deal with the same volume of bunkers they do today. While credit decisions will continue to be judged on a case-by-case basis, what is clear is that credit lines will have to be extended to new higher levels. This could also result in shortening of payment terms and a reduction in counterparties deemed fit for purpose. Suppliers and traders with the right structure and the capability to secure access to higher levels of competitively-priced liquidity, while managing concentration risk, will have a significant advantage.

From a physical supplier's perspective, bunker storage presents additional complexity and cost post-2020, as additional tank storage space at ports and hub locations will be required for low sulphur marine fuels for (vessels without scrubbers) and high sulphur marine fuel (for those vessels with scrubbers). Space will also be needed at hub locations for blending facilities. These additional tank storage requirements, and associated costs, will be replicated across the bunker barge sector. Even for non-physical suppliers, the increased costs associated with bunker transport, blending and storage will be passed on.

In addition to bunker suppliers and traders, cargo traders will also require increased liquidity to account for the additional costs of transporting goods. Recent announcements by a number of carriers regarding the imposition of an Emergency Bunker Surcharge (EBS) to recoup the costs of 2020 compliance have been met with concern, with questions about lack of transparency and accusations of blatant profiteering in the most extreme cases. What is clear is that as EBS becomes widespread, long-haul transit will be the worst impacted by additional costs, with some routes no longer financially viable in worst case scenarios. At the same time, while still impacted by the charges, shorter-haul routes that are less impacted by EBS may stand to benefit.



## D. Financiers and Insurers

The costs of global bunker fuels could rise by up to USD 60 billion annually from 2020, while the scrubber market could end up costing the market in excess of USD 8 billion by 2024, according to a 2018 study by Global Market Insights Inc.. The costs of 2020 compliance will undoubtedly be felt by the industry's financiers, requiring them not only to fund investment in technology (scrubbers and LNG), but also in terms of extending lines of credit to bunker suppliers, traders and shipowners.

The challenge to meet 2020 capital requirements has also seen some shift in terms of who is investing. Some traditional banks have been lending to well capitalised, established players; for example, in September 2018, the NYSE announced that Nordea, ABN Amro, Danish Ship Finance, DNB, ING, SEB and Swedbank were all involved in providing \$50m of scrubber finance to DHT Holdings, Inc. In addition, new investors such as Private Equity funds are eyeing an opportunity to extract a high IRR, while charterers are investing in scrubbers to ensure continuity and 'lock in' the benefits of purchasing high sulphur HFO.

From an insurance perspective, insurance costs are likely to rise amid the higher value of bunker fuel stored onboard the vessel, which has seen calls for updates and clarity within charter party agreements. Furthermore, the cost of credit insurance is also set to rise as a result of higher discretionary limits, in keeping with higher bunker fuel costs and higher credit risk.

In its 2018 report, 'Emissions Regulations: Concerns for the Marine Industry', insurance broker Marsh also warned that ship owners should plan early to ensure 2020 compliance and should not assume their insurance coverage will remain in place if their vessels are found to be non-compliant after the regulations are enforced.

When it comes to credit insurance, premiums and levels of underwriting are likely to rise post-2020, in line with the increased business exposure to insolvency due to 2020 compliance costs, particularly the increased cost of fuel. If a bunker trader is involved as a middle party in the insolvency claim, committed credit is likely to double to cover costs of both the seller and the trader.



#### 4. The final countdown is on: What do we know so far about the 2020 sulphur cap?

With around a year to go before the new limits apply, clarity is yet to emerge on which global sulphur limit compliance method will deliver the most reliable and cost-effective long-term solution. It is likely that the full implications of the decisions shipowners make now regarding their preferred compliance option will not be seen or fully understood for an indefinite timescale into the future. This is due to the fact that new risk exposures are likely to emerge - and require further management - as the industry speeds towards and enters the post-2020 era.

What we do know now is that asset providers, who carry the burdens of capital costs to meet 2020 compliance requirements, face the biggest immediate risks related to the global sulphur limit. There is no 'right' option, nor a proof of concept for shipowners to work from, which means they must select the best option for their fleets informed only by the information available to them. As the countdown continues in earnest, the available market information that is informing decisions is changing rapidly, fed by visibility of decisions being taken by competitors and other stakeholders. In this unpredictable environment, taking a decision based on calculated risk is challenging. This is thanks to many factors, but most importantly uncertainty over fuel availability, fuel cost and long-term scrubber performance. More clarity will likely come when further information is available on the direction refiners will take, will a commitment to low sulphur fuels pointing to sufficient availability which could, in turn, bring costs down.

From a credit and risk management perspective, we can infer that available capital will play a key role in how all businesses impacted by the global sulphur limit will perform in a post-2020 world. Whether you are a shipowner financing a scrubber, a charterer funding the cost of higher fuel bills or more costly charter rates, or a bunker supplier or trader working with 0.5% fuels, all will require additional liquidity to fund the costs associated with compliance. Those with the very highest credit rating are likely to achieve the most competitive terms. Whether the remainder of the market can operate sustainably amid less favourable terms, and their associated financial impact, is yet to be seen.

Amid the new risk exposures, there are also opportunities. A multi-tiered market is possible and will likely be influenced by the availability of 0.5% sulphur fuels, and the compliance policies of major charterers, who may opt to consider only certain types of vessels that deliver affordable, effective and reliable compliance solutions. The Liner market is likely to be a key player in the formation of such a multi-tiered system, as the industry directly services end users and buyers, and must maintain reliable service, no matter the cost. New opportunities could also emerge for tanker owners to ply different routes to meet changing supply and demand characteristics.

Out of all the questions surrounding the global sulphur limit perhaps the most important is the success of the regulation itself. It will take years to understand whether the IMO has achieved its ultimate aim of delivering major health and environmental improvements, and in doing so realised associated (but yet to be determined) economic benefits of the changes. It is also important to remember that, while significant change instigated by the 2020 global sulphur limit should not be underestimated, it is but one step in a longer journey to reduce the environmental impact of the global shipping industry. The biggest challenge – decarbonisation – is yet to come, and will require more capital-intensive decisions in the medium to long term.

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