THE IMPACTS OF THE INTERNATIONAL MARITIME ORGANIZATION (IMO) 2020 SULPHUR REGULATION
KEY POINTS:

- The **IMO 2020** regulation to further limit emissions of sulphur dioxide (SOx) from shipping will go into effect on January 1, 2020 which reduces the marine fuel sulphur limit from 3.5 percent to 0.5 percent.
- Ships will be required to either seek IMO-compliant fuel oil, install scrubber technology, or explore alternatives to fuel oil such as Liquified Natural Gas.
- Limiting sulphur content in marine fuel is an evolving concept that was first formally adopted in 1997 by the IMO.
- Low-sulphur fuels will be more sought after than high-sulphur fuels which may make some crude slates more attractive to refiners.
- **IMO 2020 can also accelerate the energy transition in the long-term as the shipping industry looks towards alternative fuels and new technologies to achieve compliance.**

CONTEXT

On January 1, 2020, the International Maritime Organization (IMO) 2020 Regulation, which limits the amount of sulphur content in marine fuel to 0.5 percent from 3.5 percent, will come into immediate effect. Excessive amounts of sulphur in the atmosphere can lead to acid rain, harm biodiversity, and contribute to the acidification of oceans that negatively impacts sea life. Implementation of this regulation will have an impact on overall demand of crude oil, demand for specific fuel grades, and may also have implications for global energy security and on orderly energy transitions.

The IMO has stated that as of 1 January 2020 all ships must reduce their sulphur emissions from 3.5 percent thresholds to 0.5 percent. As such, all ships will be required to use:

1. **Fuel oils with a sulphur content of 0.5 percent or lower.**
2. An approved equivalent means of compliance such as exhaust gas cleaning systems (EGCS) commonly referred to as “scrubbers”, or
3. **Crude oil alternatives such as switching to liquefied natural gas (LNG) or methanol as fuel.**

Limiting the amount of sulphur content in marine fuel is an evolving concept. The Marine Environment Protection Committee (MEPC) of the IMO has been implementing environmental regulations for decades in Emission Controlled Areas (ECAs) – the Baltic Sea area, the North Sea area, the North American area (covering designated coastal areas off the United States and Canada), and the United States Caribbean Sea area (around Puerto Rico and the United States Virgin Islands). To address air pollution from shipping, the MEPC adopted Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL Convention) in 1997. Annex VI took effect in May 2005, and in October 2008, MEPC revised Annex VI to further reduce marine fuel maximum sulphur content by approving Resolution MEPC.176(58). Below is the evolution of regulations reducing sulphur content from marine fuel since 1997:

<table>
<thead>
<tr>
<th>Year</th>
<th>IMO adopts MARPOL Annex VI</th>
<th>MARPOL Annex VI takes effect. Global maximum sulphur content for all marine fuel at 4.5 percent</th>
<th>IMO announces timeline for marine fuel sulphur content restrictions</th>
<th>Maximum sulphur content for marine fuel consumed in ECAs reduced to 1.5 percent</th>
<th>Maximum sulphur content for marine fuel consumed outside ECAs reduced to 3.5 percent</th>
<th>Maximum sulphur content for marine fuel consumed in ECAs reduced to 0.1 percent</th>
<th>Maximum sulphur content for marine fuel consumed outside ECAs reduced to 0.5 percent</th>
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Source: IEF, Stillwater Associates
IMPACT AND ANALYSIS:

Given that freight is largely fueled by hydrocarbons and will continue to be in the near future, crude oil demand for shipping will remain strong despite IMO 2020 and will continue to grow. The biggest change will be a shift in demand between from high sulphur fuel oil (HSFO) to low sulphur fuel oil (LSFO) as LSFO will be more IMO-compliant and hence in greater demand.

The International Energy Agency and OPEC estimate that some 1 mb/d of HSFO will continue to be used as marine fuel while about 2 mb/d of HSFO will have to be replaced by low sulphur fuels, mainly marine gas oil (MGO) and very low sulphur fuel oil (VLSFO). This can have implications from several perspectives and includes five key takeaways:

1. **Preference for sweeter crudes** – In the short-term, medium-low sulphur crudes may see greater demand than high-sulphur sour crudes. Heavier-sour grades tend to contain greater sulphur quantities and thus may not be compliant with IMO 2020 directives. Thus, refineries will favour sweeter crudes in the short-term.

2. **Greater demand for distillates** – Middle to heavy distillates such as low sulphur diesel to low sulphur gas oil are expected to be utilised as a replacement fuel for 3.5 percent sulphur content bunker fuel or used in bunker fuel blends to lower sulphur content. This can create a disproportionate demand for one type of refined product over another which may increase demand for crude overall.

3. **HSFO for power generation** – HSFO could still be used for scrubber-equipped vessels under IMO 2020, but this will not be the case given the long lead times required to repurpose existing ships. In the short-term, simple refineries that are unable to de-sulphurise residue will be incentivised to pay a premium for LSFO and redirect cheaper HSFO to the power or construction industries as an alternative to coal.

4. **A catalyst for energy transition** – IMO 2020 can provide a further boost to natural gas by encouraging shippers to shift from oil-based fuels to natural gas and/or methanol in the long-term. An immediate shift is not expected given the investments still needed in global LNG infrastructure and the time it would take to repurpose or build new vessels to accommodate new fuel types.

5. **Non-compliance could be a reality in the short-term** – The success of IMO 2020 depends on how each player adjusts to new realities. Refineries will need to make larger volumes of low-sulphur fuels available to the market. Marine technology companies will need to ensure supply of technologies (scrubbers) for shipowners. Meanwhile, shippers will have to take steps to secure IMO-compliant fuel or retrofit their fleets. Finally, the IMO will need to put mechanisms in place to enforce compliance to the best of its ability. In the absence of such drivers, shipper non-compliance could be a reality in the short-term.

CONCLUSION:

Although ambitious in scale and dependent on the success of several different variables, the IMO 2020 regulation is significant because it implements both climate policy and energy security objectives.

- First, it serves as a reminder that sustainability, environmental stewardship and reducing the amount of harmful substances in the atmosphere is not an option but a global priority.
- Secondly, the regulation recognises the importance that hydrocarbons will continue to play, especially in the area of freight transport and global trade, and the role clean technologies will have in mitigating negative impacts to the environment.
Global energy dialogue findings on how to put in place reliable pathways towards sustainability that adequately recognise energy security considerations were also highlighted in last month’s IEF Insight Brief.

IMO 2020 is only one example of a regulation that is impacting energy markets and future supply-demand balances. Providing an understanding of current and future energy developments, policies and regulations under the umbrella of energy security and energy transition is a cornerstone of the IEF Dialogue and is highlighted in the IEF Charter under objective two which notes:

...Promoting a better understanding of the benefits of stable and transparent energy markets for the health of the world economy, the security of energy supply and demand, and the expansion of global trade and investment in energy resources and technology.