



# IMO 2020 and effects on the shipping industry

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Thang Do, MSc  
Portfolio Manager  
Seahawk Investments GmbH

## 1. IMO 2020 and new requirements

The International Maritime Organisation (IMO) will enforce a new 0.5% global sulphur cap on fuel content from 1st of January 2020, lowering the present 3.5% limit. The global fuel sulphur cap is part of the IMO's response to heightened environmental concerns, contributed in part by harmful emissions from ships.

The shipping industry, the one on the receiving end of the IMO regulation, will have to deal with not only the upcoming 0.5% sulphur cap, but also the existing 0.1% sulphur cap in designated Emission Control Areas (ECAs).

Shipping owners can continue using high-sulfur fuel oil (HSFO) at the cost of installing scrubbers to clean their vessel's emissions on board. The other alternative would be using LNG-powered vessels. The deadline is 1st January 2020.



Source: IMO

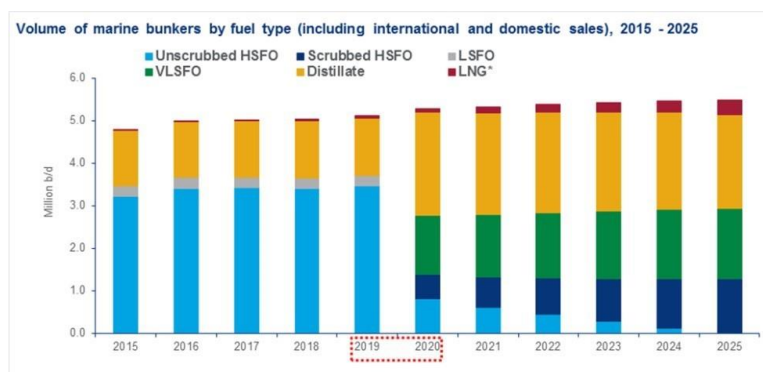
## 2. Options for the Shipping Industry

The new regulation will have big impacts on the shipping industry's operating costs, global freight rates, global fuel supply and demand, and more.

The disruption in global fuel supply and demand becomes apparent as vessels will switch to use very low-sulfur fuel oil, or VLSFO (a primary solution for small and medium-sized vessels), creating high demand for VLSFO but initially excessive supply to HSFO. As the marine sector accounts for about half of the global fuel oil consumption, this drastic shift will initially challenge the supply side for VLSFO.

The below graph shows an estimate of the marine bunker volume break – down up to the year 2025.

Impact of IMO on marine fuels demand



Source: Wood Mackenzie

The upcoming structural shift will have significant repercussions on the pricing of both VLSFO and HSFO.

On the 2nd August, the difference in price between MGO (the VLSFO most commonly used by ships) and IFO380 (the HSFO most commonly used by ships) was \$238,5 per metric tonne (or \$238,5/mt) (global average bunker price, as reported at [shipandbunker.com](http://shipandbunker.com)). In January 2020 the 0,5% standard becomes effective and the spread could peak at around \$350/mt, according to Wood Mackenzie. For a VLCC (Very Large Crude Carrier), which consumes 60 to 70 metric tons of fuel per day, the operating costs would add up significantly. According to IHS Markit research, on-board ship scrubbers will be the primary path for large ship. The cost of installing scrubber is between \$2 mln and \$6 mln for each ship. The upfront cost is high, but it will be paid off in long term. According to Gibson Shipbrokers, the installation costs on a retrofitted VLCC would be repaid in less than one year if the spread is \$350/mt (as predicted by Wood Mackenzie), less than 18 months if the spread is \$200/mt.

However, other than the high upfront cost of installing scrubbers, there are other challenges for shipowners, as reported by Noah T. Jaffe of ReedSmith: (i) scrubber technology is new and unproven, (ii) further environmental regulations may render this approach unviable – for example, some countries have banned the use of open-loop scrubbers (e.g., China, Singapore and Fujairah), and (iii) the availability of HSFO in small or distant ports is uncertain as refineries will reduce their production of such fuels and global supply is expected to shrink.

The current rate of scrubber installations is at low level, but improving. As of the beginning of July 2019, only 4% of all vessels are scrubber-fitted and ready to be in operation. This figure is expected to rise to 11% and 15% by the end of 2019 and 2020, respectively.

Sector	As of Start July 2019 (%Fleet/Orderbook GT)			Projected Scrubber Fitted Fleet, End 2019 (%GT)	Projected Scrubber Fitted Fleet, End 2020 (%GT)
	Scrubber-Fitted	Retrofit Pending	Orderbook		
VLCC	8%	16%	70%	23%	35%
Suezmax	6%	14%	42%	16%	21%
Aframax	4%	12%	23%	12%	18%
<b>Total Tanker</b>	<b>5%</b>	<b>11%</b>	<b>51%</b>	<b>14%</b>	<b>20%</b>
Capesize	6%	15%	52%	20%	26%
Panamax	2%	4%	8%	6%	10%
Handymax	1%	4%	7%	5%	7%
<b>Total Bulkcarrier</b>	<b>3%</b>	<b>8%</b>	<b>29%</b>	<b>10%</b>	<b>14%</b>
Post-Panamax	3%	9%	61%	20%	28%
Neo-Panamax	4%	20%	51%	14%	21%
<b>Total Containership</b>	<b>3%</b>	<b>11%</b>	<b>50%</b>	<b>10%</b>	<b>15%</b>
LPG	5%	5%	63%	10%	16%
<b>Total Fleet</b>	<b>4%</b>	<b>8%</b>	<b>33%</b>	<b>11%</b>	<b>15%</b>

Source: Clarksons

Another possible solution to meet IMO 2020 is the use of LNG-fueled vessels. As opposed to scrubbers which can be retrofitted on an existing ship, LNG-fueled ships cannot be retrofitted and have to be ordered as new-build vessels. Moreover, the costs of an LNG-fueled vessel are on average \$5 mln higher as compared to an oil-fueled ship of similar size.

As of February 2019, there were 143 LNG-powered ships in operation and a further 135 on order. Analysts predict 300 (lowered from 400 to 600) LNG-fueled ships, compared with 2,000 ships with scrubbers, by 2020. Furthermore, the use of LNG as bunker is not expected to become significant over the medium term. Up to 2030 the LNG-demand could reach about 25 million tons (8%).

### 3. Is it possible to ignore IMO 2020?

As potential costs are significant, many shipowners have adopted a “Wait-and-See-Stance” to figure out how committed IMO is to the new regulation. At a February 2018 meeting, a sub-committee of IMO stated clearly, „IMO has agreed to move forward with a prohibition on the carriage of fuel oil for use on board ships, when that fuel oil is not compliant with a new low sulphur limit which comes into force from 2020“. The risk of being banned from operation as well as the reputational risk forces shipping companies to strictly comply with IMO 2020.

### 4. Implications of IMO 2020

The significant increase in operating costs will lead to an increase in freight costs worldwide. In precise terms, an Asia to North Europe round trip could cost an additional \$1 mln after the new regulation takes effect. Further, as analyzed by Rohan Kendall – an expert from Wood Mackenzie: „Brazilian iron ore shipments to China will see largest increases, due to distance travelled, potentially rising by over US\$6/t (more than 40%). Freight from Australia and Indonesia to North Asia will increase by between US\$1.7/t and US\$2.9/t“.

In summer 2018, top carriers such as Maersk, CMA, CGM and MSC announced to add bunker charges to compensate for the unexpected increase of bunker costs. For this purpose a bunker adjustment factor (BAF) tariff was created to recover fuel related costs. It can be charged separately from the basic ocean freight as the fuel cost is a very significant and volatile part of shipping costs.

$$\text{BAF} = \text{Fuel price} \times \text{Trade factor}$$

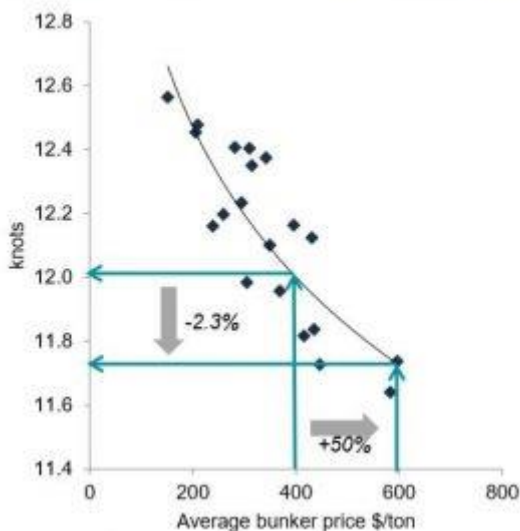
The fuel price is calculated as the average fuel price in key bunkering ports around the world, and the trade factor reflects the average fuel consumption on a given trade. The following table is an example only of BAF tariffs (USD/FFE) for standard (dry) containers at different fuel prices (USD/ton), for selected trades:

Trade	USD 400	USD 450	USD 500	USD 550	USD 600	USD 650	USD 700
North Europe to Far East	280	315	350	385	420	455	490
Far East to North Europe	480	540	600	660	720	780	840
Mediterranean to Far East	280	315	350	385	420	455	490
Far East to Mediterranean	480	540	600	660	720	780	840
Far East to US West Coast	390	439	488	536	585	634	683
US West Coast to Far East	90	101	113	124	135	146	158
US to North Europe	120	135	150	165	180	195	210
North Europe to US	520	585	650	715	780	845	910
Europe to East Coast South America	350	394	438	481	525	569	613
East Coast South America to Europe	600	675	750	825	900	975	1050

Source: Maersk

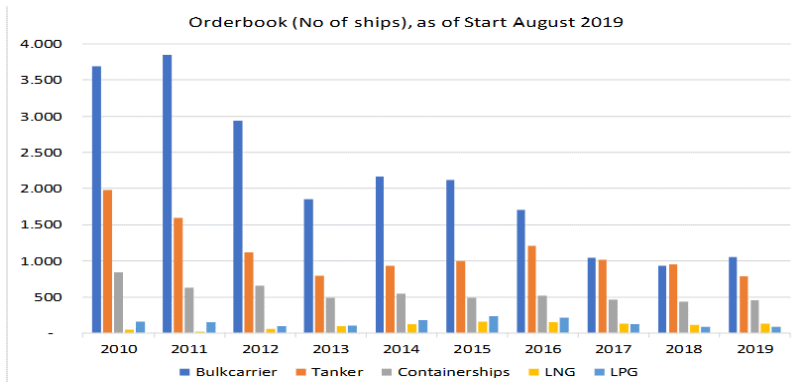
As the fuel consumption increases with the speed of a ship, the average speed of ocean going vessels has come down by 15-25% over the last decade (see graph below). Operating speeds may be reduced even further as bunker prices become more expensive.

VLCC speed (2014-2019) vs. bunker price



Source: Clarksons

In order to comply with IMO 2020, shipowners will primarily choose either to switch to VLSFO or to install scrubbers on existing vessels. The option of ordering a new-built LNG-powered ships is largely limited. High new building demand during the period 2008-11 has led to overcapacities in the market in the subsequent years. At this point in time the orderbook across the shipping segments is moderate by historical standards.



Source: Clarksons

## 5. Conclusion

IMO 2020 is a game-changer in shipping industry, affecting shipowners, refiners, and all other key stakeholders along the marine fuel supply chain. The world will see a greener environment in shipping industry, but also a profound change in global fuel supply and demand. Some players such as refiners with an already set-up infrastructure to supply compliance fuel, or marine equipment suppliers for scrubbers benefit from the changes. Shipping costs are likely to increase once the regulation takes effect.

## Kontakt

Seahawk Investments GmbH

Mergenthalerallee 73-75

65760 Eschborn

Telefon 06196.99942-55

Fax 06196.99942-54

Mobile 0160.90 11 76 08

hc@seahawk-investments.com

www.seahawk-investments.com

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TELOS GmbH

Biebricher Allee 103

D-65187 Wiesbaden

Tel. +49 (0)611 9742 100

E-Mail: [info@telos-rating.de](mailto:info@telos-rating.de)

[www.telos-rating.de](http://www.telos-rating.de)

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