

<http://www.imo.org/en/MediaCentre/HotTopics/Pages/Sulphur-2020.aspx>

## How the new fuel regulations change the entire shipping industry

LSF2020 refers to the new “Low Sulfur Fuel” regulations, which will come into effect on 1 January 2020. These regulations are the biggest of a series of steps by the International Maritime Organisation (IMO) to reduce marine pollution (MARPOL) in response to the threat of climate change. The LSF2020 emission regulations mean ships will have to significantly reduce emissions on the high seas as well as in coastal areas. This change does not only concern Hapag-Lloyd but it challenges the entire shipping industry. The good news is however: Thanks to the regulations, the industry will become much greener.

Now, the question is how to comply with the new regulations and how much it will cost. Ship owners are effectively having to decide whether to switch to burning the more expensive low sulfur fuel, or place investment bets on Exhaust Gas Cleaning Systems (EGCS) or Liquefied Natural Gas (LNG) powered ships. There are however only limited facts and experience upon which to base these decisions, which will continue to have an impact on the profitability and competitiveness of liner shipping companies, long after the facts have become clear in hindsight.

### Three main ways to go

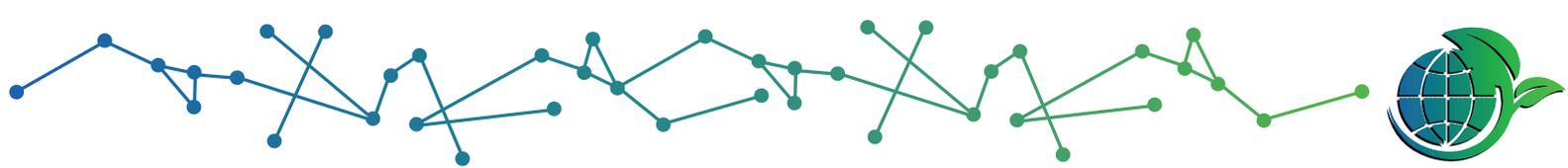
The simplest way to comply with the new regulations is just to switch to using new, compliant 0.5 percent “Low Sulfur Fuel”. The problem: The lower the sulfur content, the higher the cost of bunker fuel. Oil industry experts estimate 0.5 percent Sulfur “Low Sulfur Fuel” will be 150 to 250 US Dollar more expensive per ton than the current 3.5 percent Sulfur “Heavy Fuel Oil”. According to estimation this will increase global average prices per TEU by around 80 to 120 US Dollar, or about 10 percent. All alternative approaches to enable ships to burn cheaper fuels, require considerable additional capital investment.

One option is to install an Exhaust Gas Cleaning System (EGCS), to remove the excess pollution from the exhaust gases – and continue to burn the cheaper 3.5 percent Sulfur “Heavy Fuel Oil”. EGCS are desulphurization systems that remove unwanted particles from industrial exhaust flows. The systems are installed inside the ship’s funnel and can work in a number of different ways. The two main kinds are “open-loop” and “closed-loop” (and “hybrid”, able to switch between open-loop and closed-loop operation). Operating in open-loop mode removes the pollution from the exhaust gases and then flushes it into the sea, instead of into the atmosphere. Operating in closed-loop mode retains the pollution in tanks on board the ship – but this is not practical for long distance journeys. The challenge: So far, these systems have not yet been used with large container ships, only with cruise liners and short sea ferries. There is also the risk that regulations will change in the coming years and will prohibit flushing the pollution into the sea at all.

Another alternative is to switch to Liquefied Natural Gas (LNG). Hapag-Lloyd currently owns 17 so called “LNG-ready” ships – these are ships with engines that can burn LNG as well as fuel oil. They just need an additional LNG fuel tank to be installed in a cargo bay, together with some additional piping and machinery. Then they are able to switch between LNG and fuel oil. The other approach is to build new ships, designed from the beginning to only burn LNG. The challenge: The capital costs to convert ships or to build them from new to burn LNG, are quite high. Moreover, since there is as yet little demand for marine LNG – a resource that is otherwise freely available onshore – there are as yet still only a small number of LNG bunker vessels available in a few ports.

Lastly, there are many limitations to how many ships can be converted to LNG or retrofitted with EGCS. It also takes time to build new ships fitted with scrubbers or designed to burn LNG. The vast majority of the global container fleet will therefore have no other choice than to switch to the new, much more expensive compliant 0.5 percent Sulfur “Low Sulfur Fuel” – or to break the law.

That shows: Each solution comes with its challenges. That is why right now there is no one right way to go. Liners have to individually decide the mix which seems best for them. However, low sulfur oil bunkering will have to start in the fourth quarter of 2019 due to the long round voyage times – which will mean higher costs for



customers already by the end of next year. All in all, industry experts guess that the new fuel regulations will cost the shipping industry about 60 billion US Dollar per year.

Source: in [International Shipping News, Shipping: Emission Possible](#) 04/08/2018 Hapag-Lloyd

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## New rules on ship emissions herald sea change for oil market

[Libby George](#), [Ahmad Ghaddar](#)

LONDON (Reuters) - New rules coming into force from 2020 to curb pollution produced by the world's ships are worrying everyone from OPEC oil producers to bunker fuel sellers and shipping companies.

The regulations will slash emissions of sulfur, which is blamed for causing respiratory diseases and is a component of acid rain that damages vegetation and wildlife.

But the energy and shipping industries are ill-prepared, say analysts, with refiners likely to struggle to meet higher demand for cleaner fuel and few ships fitted with equipment to reduce sulfur emissions.

This raises the risk of a chaotic shift when the new rules are implemented, alongside more volatility in the oil market.

"The reality is that the industry has already passed the date beyond the smooth transition," Neil Atkinson, head of the oil industry and market division at the International Energy Agency (IEA), said in April.

### WHAT ARE THE NEW RULES?

The rules, drawn up by the U.N. International Maritime Organization (IMO), will ban ships using fuel with a sulfur content higher than 0.5 percent, compared to 3.5 percent now, unless a vessel has equipment to clean up its sulfur emissions.

Any vessels failing to comply will face fines, could find their insurance stops being valid and might be declared "unseaworthy" which would bar them from sailing.

### HOW WILL IT AFFECT THE FUEL OIL MARKET?

The global shipping fleet now consumes about 4 million barrels per day (bpd) of high sulfur fuel oil, but about 3 million bpd of that demand will "disappear overnight", according to the average market forecast calculated by Norway's SEB Bank.

Most demand is expected to shift to marine gasoil, a lower sulfur distillate fuel.

Morgan Stanley predicts this will generate at least 1.5 million bpd in extra demand for distillate in the next three years, pushing up total distillate demand growth for the period to 3.2 million bpd.

That, in turn, will drive up prices. Gasoil now trades at a premium of about \$250 a ton to fuel oil, but the forward curve forecasts this will balloon to \$380 per ton by early 2020.

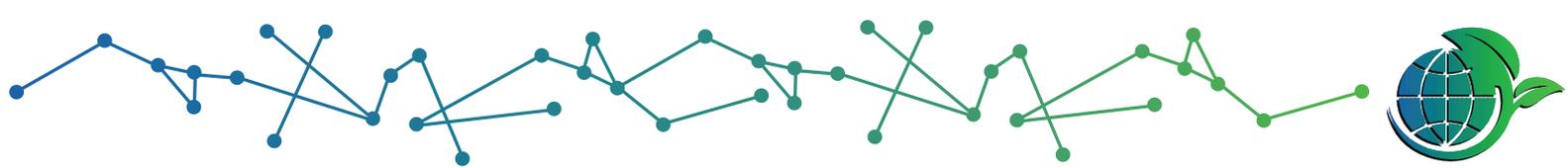
Thomson Reuters Research estimates fuel accounts for about half a ship's daily operating cost. Based on average fuel consumption of 20 to 80 tonnes a day (MT/day), a ship using cleaner fuel faces extra daily expenses of about \$6,000 to \$20,000.

For example, a VLCC, one of the biggest oil tankers at sea, will pay 25 percent more for its fuel, or an extra \$500,000 on top of normal bill of \$2 million, for a typical 25-day voyage from the Middle East to Japan.

### WILL "SCRUBBERS" HELP THE SHIPPING INDUSTRY?

Shipowners can install kit called a "scrubber" that strips out sulfur emissions and allowing them to use the dirtier fuel oil. Some ships already have them. Global trading firm Trafigura has ordered scrubbers for its fleet of 32 ships.

But the equipment alone can cost \$1 million to \$6 million, according to manufacturer Wartsila, putting it out of reach of many operators.



By 2020, about 2,000 ships could have scrubbers, according to Wartsila, SEB Bank and industry analyst AlphaTanker.

But AlphaTanker's Andrew Wilson called this a "drop in the ocean", given there are about 90,000 vessels in the global fleet, of which about 60,000 ply international routes.

Based on the limited number of manufacturers and time constraints on facilities to install scrubbers, AlphaTanker estimates no more than 500 ships could be fitted each year. Wartsila puts the figure closer to 300.

So it would take more than 100 years to fit the global fleet.

#### **WILL EVERYONE FOLLOW THE RULES?**

Many vessels may try to dodge the new rules, unable to afford the cost of scrubbers and reluctant to pay the premium for cleaner fuel. But how much of the industry will cheat is open to debate, with estimates ranging from 10 to 40 percent.

The IMO says it will ban ships that do not have scrubbers from carrying any fuel oil, making it easier to catch cheaters.

Oil major BP expects 10 percent of ships could cheat, while consultancy Wood Mackenzie expects a figure of about 30 percent when the rules launch in 2020. Consultant Citac says industry polls indicate cheating could be in a range of 25 to 40 percent.

#### **CAN REFINERS MEET NEW DEMAND?**

The global refining industry needs to process an extra 2.5 million bpd of crude to make distillates for cleaner fuel, says Robert Herman, refining executive at Phillips 66.

Some refiners have invested in cutting sulfur in their output, but fitting hydrocracker or coker unit so that a refinery produces more distillates with lower sulfur content while reducing fuel oil output can cost about \$1 billion, analysts say.

Small refineries, unable to afford the upgrade, may find they are churning out fuel oil without finding buyers.

A KBC consultancy survey showed 40 percent of Middle Eastern and European refineries are not prepared. European plants, which tend to be less complex than those in other regions, produce more fuel oil and may face the biggest challenge.

Morgan Stanley says refineries of Spain's Repsol ([REP.MC](#)), Turkey's Tupras, India's Reliance ([RELI.NS](#)) and U.S. independent Valero ([VLO.N](#)) are among the best prepared because they already produce high middle distillate and low high-sulfur fuel oil.

#### **WHAT WILL HAPPEN TO THE CRUDE MARKET?**

The simplest way for refineries to produce fuel with less sulfur is to buy and process crude that contains less sulfur, a shift that could change demand for different oil grades and lead to greater oil market volatility.

For example, processing Iraq's Basra Heavy grade with high sulfur content produces as much as 50 percent fuel oil, while using light, sweet North Sea crude with less sulfur produces about 12 percent fuel oil.

"There will be a bidding war for sweet crude," said Stephen George, chief economist with KBC Advanced Technologies.

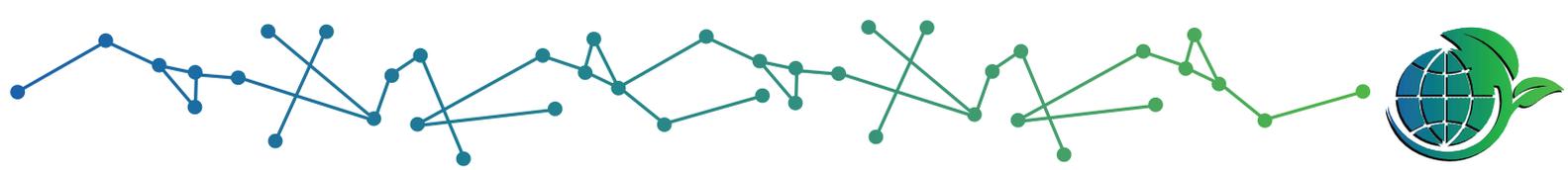
This could hike the price of sweeter crudes, including several grades used to make dated Brent, the benchmark for three quarters of the world's oil. Meanwhile, the cost of refining "sour" crudes with more sulfur, such as those from Venezuela, Mexico and Ecuador, "could be more than its value," he said.

#### **WHO WILL PAY THE PRICE?**

Energy firms and shippers may face a squeeze on margins. But, ultimately, extra costs are likely to fall on consumers of everything from household appliances to gasoline that are shipped around the world. Roughly 90 percent of world trade is by sea.

Wood Mackenzie estimates that global shipping fuel costs are likely to rise by a quarter, or \$24 billion, in 2020. Others estimate extra costs for container shipping alone will be \$35 billion to \$40 billion.

In addition, a surge in distillate demand by shippers could push up prices of other products, such as jet fuel and diesel.



“It’s going to make moving anything more expensive,” said AlphaTanker’s Wilson.

Additional reporting by Devika Krishna Kumar in New York and Ron Bousso in London; Editing by Edmund Blair

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