



CUTTING SULPHUR OXIDE EMISSIONS

IMO 2020 REGULATION

FAQs



The new IMO 2020 regulation is getting off the starting blocks. We support you in preparing for it.

From January 1st 2020 onwards, all seagoing vessels will have to reduce sulphur oxides by 85%. We understand that the prospect of IMO 2020 has resulted in a high level of uncertainty about availability of petroleum products and prices. Below we answer your most frequently asked questions about the implementation of the new regulation. We give you our assessment of its consequences based on the information collected up to June 2019. Be sure that we will update the FAQ on a regular basis.

Sea Explorer, Kuehne + Nagel's digital platform for sea liner services, gives you additional insights into how every vessel carrying your goods will comply with the IMO 2020 regulation by the use of icons for the means of IMO 2020 compliance.



Closed Loop Scrubber



Open Loop Scrubber



Hybrid Scrubber



IMO 2020 Compliant Fuel



Liquefied Natural Gas (LNG)



IMO 2020 Compliant Fuel or LNG

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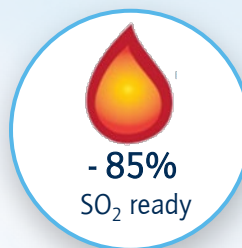
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About IMO 2020

What is IMO 2020?

From January 1st 2020 onwards, all seagoing vessels will have to reduce sulphur oxides by 85%. The new regulation is set by the International Maritime Organisation (IMO) with the aim of cutting sulphur oxide gas emissions, protecting public health and supporting the environment. Vessels must use marine fuels with a maximum sulphur content of 0.5% compared to the current limit of 3.5%.

What is the scope of IMO 2020?

The regulation will apply globally and throughout the industry to fuels used in the open sea. It will affect vessel operators, refineries, and global oil markets. In the Environmental Control Areas (ECA zones) an even stricter regulation remains, limiting the sulphur content to 0.1%.

How can vessel operators comply with the IMO 2020 regulation?

Vessel operators have the following choices to comply with the new IMO 2020 sulphur limits:

1. Use Scrubbers

Use Scrubbers (emission cleaning technology) to remove pollutants from the ship's exhaust, which allows them to continue using higher-sulphur fuels. However, the process of installing Scrubbers is limited and expensive due to space and capacity constraints and will increase operating costs. In addition, the price and availability of higher sulphur fuels after 2020 remains uncertain.

2. Switch to non-petroleum-based fuels

Switch to non-petroleum-based fuels, such as Liquefied Natural Gas (LNG). This is feasible for newer vessels with appropriate specifications. However, the infrastructure to support the use of LNG is currently limited in scope and availability. Experts predict that by 2020 approximately 250-500 vessels, or a maximum of 10-12% of the global container fleet, will either be equipped with pollution cleaning technology or will be able to burn LNG. [*Source Clarksons Research – June 2019*]

3. Switch to a Very Low Sulphur Fuel (VLSF) or MGO

Switch to a Very Low Sulphur Fuel (VLSF) or MGO that complies with the new rules (Most likely choice). However, the cost, widespread availability and specifications of a new fuel for use in marine engines are still uncertain. The petroleum industry needs to adapt refineries and supply chains and is likely to pass these costs on to the market.

By the use of icons for the means of IMO 2020 compliance in combination with the Information on CO2 emissions [Sea Explorer](#) allows you to obtain full transparency on the sustainability of the services.

Who controls the implementation of the IMO 2020 regulation?

The Port State Control of the respective state is responsible. They will check logbooks, use sniffer devices and sniffer drones.

What will be the fine if a carrier does not comply with IMO 2020?

Depending on the jurisdiction, the penalties are high fines, ship arrest or even imprisonment of the captain.



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What are the impacts and risks?

The prospect of IMO 2020 has resulted in a high level of uncertainty about availability of petroleum products and prices. It is currently not possible to indicate an accurate future price level for IMO 2020 compliant fuels, as prices are affected by several factors. In particular, geopolitical events such as sanctions and war, the actions of OPEC (Organisation of the Petroleum Exporting Countries) and the general demand of the world economy for oil influence the price of crude oil and ultimately the price of fuel products. The IMO 2020 regulation will have another significant effect in addition to the regular volatility of global oil prices.

At this stage all we can predict is that it will cost more than currently used fuels. Today's forecast assumes a short- to midterm increase in bunker prices between US\$ 180 and US\$ 400 per TEU (incl. all implementation costs). This range is very wide, but cannot be specified any further at present, as the aspects mentioned have a large influence on the price development. Due to the significant increase in bunker prices, every company involved in sea freight will be confronted with rising and more volatile fuel costs. With the **Secured Energy Plan**, Kuehne + Nagel offers its customers a risk management tool to secure and set the bunker price at certain levels. The **Secured Energy Plan** is available for volume contracts from approx. 2,500 TEU. Please ask your local Kuehne + Nagel representative for further details.

Support from Kuehne + Nagel

What is the positioning of Kuehne + Nagel towards IMO 2020

The shipping industry must prepare for a future with lower transport emissions. IMO 2020 will ensure that ocean transportation remains the most environmentally friendly and carbon efficient mode of transportation. Kuehne + Nagel welcomes any industry approach to improve environmental protection and fully supports this initiative.

If price negotiations already took place, will Kuehne + Nagel maintain prices?

By default, all fuel prices in the contracts are variable, i.e. they follow the upward or downward movement of the oil price. From the fourth quarter of 2019 we will switch to the IMO 2020 compliant fuels VLSF / MGO for the BAF calculations, which tend to be more expensive than the Heavy Fuel Oil (HFO) currently used.

How will Kuehne + Nagel support me as a customer with regard to IMO 2020?

Our ultimate goal as Kuehne + Nagel is to run our customer's business best in class without disruptions but at competitive prices. We provide you with up-to-date information, transparency and security and enable you to react appropriately to possible disruptions in your supply chain. Our experts will constantly strive to successfully solve potential IMO 2020 challenges for you. Kuehne + Nagel is assuring full transparency in fuel consumption reflecting individual trade factors per TEU. To offset any financial risk we offer the **Secured Energy Plan** to hedge against the volatility of fuel prices. Please ask your local Kuehne + Nagel representative for further details.



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Environmental Impacts

What impact will IMO 2020 have on health and environment?

With the implementation of IMO 2020, the International Maritime Organisation aims to reduce total sulphur emissions from ships by 77% from 2020 until 2025. The overall objective is to reduce the negative impact of shipping on human health by decreasing air pollution from sulphur emissions by 68% globally and in particular in the coastal areas of Asia-Pacific, Africa and Latin America.

Please note that the IMO 2020 regulation focusses on the reduction of sulphur emissions, not on the reduction of carbon dioxide emissions. So there will not be a direct impact on the global warming, but reducing sulphur emissions helps prevent acid rain and combats ocean acidification.

People benefit the most from this. Significant health improvements list the reduction of stroke, asthma, cardiovascular disease, and lung cancer as well as pulmonary disease. The International Maritime Organisation states that more than 570,000 premature deaths can be avoided between 2020 and 2025 due to the new regulations.

[Source International Maritime Organisation – June 2019]

Which is the environmental footprint that my company will have as a customer?

Please see question above: "What impact will IMO 2020 have on health and environment?"

Cost Impacts

What will be the impact on freight rates and operations?

According to current calculations, the expected increase in costs will have a significant impact on the overall prices of container transportation and on freight rates. Whilst the implementation date for IMO 2020 is January 1st 2020, we anticipate freight rates to increase as early as the end of the third quarter of 2019. Therefore, long-term agreements for both full and part load containers will include a price adjustment method also known as **Bunker Adjustment Factor (BAF)**. In order to offset price risks associated with the foreseeable increase of volatility in freight costs, Kuehne + Nagel provides the possibility of fix fuel costs up to three years in advance at an upfront payment with the **Secured Energy Plan**. The Secured Energy Plan will be available for volume contracts from approx. 2,500 TEU. Please ask your local Kuehne + Nagel representative for further details.

When and how will the extra costs for IMO 2020 compliance be charged?

From the fourth quarter of 2019, when the cleaner bunker will be used by the first ships, the Bunker Charge (BUC) will reflect IMO 2020 compliant fuels.

Is there going to be an extra surcharge on top of the Bunker Adjustment Factor (BAF)?

There will be no extra costs apart from the general rise in fuel prices to cover the costs of compliance with the IMO 2020 regulation. Higher fuel costs arise from the consumption of low-sulphur fuels. The energy costs for deep sea transport are referred to as BAF.



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How is the BAF calculated?

Freight rates will be determined by a formula based on the recent historic price development (either monthly or quarterly):

$$\text{FUEL PRICE PER TON} \times \text{FUEL CONSUMPTION PER TEU (TRADE FACTOR)} = \text{FLOATING ENERGY COST}$$

The fuel consumption per TEU is the average fuel consumption on a trade lane considering variables like transit time, fuel efficiency, a severe weather buffer, as well as head haul - back haul Imbalances.

Compliance Specifications

Is there a trend amongst carriers towards complying with the new regulation?

The majority of carriers will use IMO 2020 compliant fuels (VLSF / MGO) to meet legal requirements. Scrubbers are expected to be installed at approximately 10-12% of the global vessel capacity [Source *Clarksons Research - June 2019*], while LNG technology is still in its early stages.

Are there different cost elements in my cargo contract depending on the technology used on board of a ship to comply with the law?

No, our pricing is based on the use of the globally available, IMO 2020 compliant fuel, namely VLSF or MGO.

What is a Scrubber?

A Scrubber is a device for cleaning the exhaust gases of a ships main engine by pumping water through its funnel. The sulphur and other particles are "washed out", but there are problems with the subsequent handling/disposal of the washing water containing the particles. Several countries, including Singapore and China, have established strict rules for the use of certain Scrubbers (Open Loop Scrubber) and for the treatment of the washed product as toxic waste, making the use of this technology more expensive.

What are the different types of Scrubbers?

In general, there are two types of Scrubbers: those that work in an open system by pumping seawater through the funnel of the vessel, and those that work in a closed system and keep the "washout" on board the ship. However, due to the size and power of the main engines of larger container vessels, the handling of the washout may vary. In particular, the environmental impacts of Open Loop Scrubbers are currently the subject of controversy. Kuehne + Nagel follows the progress of the global container fleet in terms of IMO 2020 compliance and Scrubber installations via its online platform for sea liner services, [Sea Explorer](#), and will inform you about the latest developments in this field.

What impact do Scrubbers really have?

Scrubbers are a non-proven interim technology. Only approx. 10 -12 % of the global container vessel fleet is currently equipped with Scrubbers or planned to be equipped with Scrubbers [Source *Clarksons Research - June 2019*]. The impact of Scrubbers on the environment, ports and coastal waters is debated with controversy.

Amongst others, China and Singapore have already banned open-loop Scrubbers in inland port waters and coastal shipping ECAs as the environmental benefits are questionable. Current knowledge indicates that the use of Liquefied Natural Gas (LNG) is preferable against Scrubbers for the purpose of sulphur reduction.



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Can I buy transportation with LNG vessels or vessels using Scrubbers / VLSF or MGO only?

From a price point of view, Kuehne + Nagel does not differentiate whether a carrier has invested in technologies such as Scrubbers or LNG propulsion, or decides to buy cleaner fuel. However, a new feature of Sea Explorer - Kuehne + Nagel's digital platform for sea liner services - provides our customers with an overview of the status and means of compliance with the IMO 2020 regulations for each vessel carrying their goods. By the use of icons for the means of IMO 2020 compliance in combination with the information on CO2 emissions [Sea Explorer](#) allows to obtain full transparency on the sustainability of the Services.

What is the Low Sulphur Surcharge?

In the dedicated Environmental Control Areas (ECA) in Northern Europe, North America and parts of Asia, the use of even cleaner fuel with a sulphur content of 0,1% is mandatory. This fuel is even more expensive and will be priced separately.

Is the Low Sulphur Surcharge (LSF) limited to Intra Asia or does it account for all trades?

The LSF is charged wherever the specific, very clean fuel is used. The focus is on Northern Europe, the USA and parts of Asia.

Can different types of fuel be mixed in one tank?

No. After cleaning the tanks, the operator needs to stick to the cleaner fuel. Otherwise, the tank has to be cleaned again, which is highly costly.

Customer's Considerations

In case refineries will not have the capacity to produce enough low-sulphur fuel oil, would prices increase further?

There is a risk that by 1 January 2020 not enough IMO 2020 compliant fuels will be available in the geographical area where the fuel is needed. This will further increase prices, at least temporarily.

Is there a risk of engine failure due to the use of faulty fuels?

Yes. If fuels are blended inappropriately, sediment will form which can lead to a breakdown of the main engine. Therefore, when IMO 2020 comes into force, transport services may be disrupted due to poor fuel quality or insufficient availability of compliant bunker fuels.

Will there be extra surcharges for large shippers from the carriers/forwarders? As a low-volume shipper, would this have an impact on me?

The IMO 2020 regulation applies to everyone, regardless of the shipped volume. Fuel consumption values (Trading Factors / Bunker Adjustment Factor BAF) apply equally to all too.

Will the available capacity (vessels) for the transporting of my goods be reduced?

Only if the tonnage will have to be reduced for technical changes, such as the installation of a Scrubber, there will be a minor impact on available transport capacity.



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Will the transit times / overall Turn Around Time (TAT) of my goods be extended?

So far, we have no information about any planned changes to timetables. However, schedule delays may occur due to insufficient availability of suitable fuels or slower steaming in order to recover the costs for the more expensive IMO 2020 compliant fuel.

Will there be a 'grace period' from January 1 for the current 3.5% sulphur being used by ships?

No. All seagoing vessels have to comply with the new rule from January 1st 2020.