PREPARING FOR IMO 2020
What the International Maritime Organization Regulations Will Mean for Shippers around the World
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WHAT ARE IMO 2020 REGULATIONS?

OVERVIEW OF REGULATIONS

Since 2005, through the Annex VI of the International Convention for the Prevention of Pollution from Ships (known as the MARPOL Convention), the International Maritime Organization (IMO) has introduced progressively tighter regulations regarding sulphur oxide (SO\textsubscript{X}) emissions from ships. The regulations commonly called IMO 2020 refer to the latest revision of IMO regulations.

ACCEPTABLE SULPHUR OXIDE EMISSIONS UNDER IMO 2020

The IMO 2020 regulations require the lowest globally applied requirements of sulphur oxide emissions to date—less than 0.50%. Outside of designated emission control areas, this is an 85% reduction from the existing limit of 3.50% m/m.

REGULATIONS IN EMISSION CONTROL AREAS

Four established emission control areas (ECAS) already have stricter regulations. In effect since 2015, within ECAS, the sulphur oxide emissions limit is 0.10% m/m. This will not change with IMO 2020 regulations.
WHEN DO IMO 2020 REGULATIONS GO INTO EFFECT?

The IMO 2020 regulations specifying 0.50% sulphur emissions will go into effect on January 1, 2020.

THE COST OF NON-COMPLIANCE

Individual countries that are party to MARPOL Annex VI are responsible for monitoring, compliance, and enforcement of the new regulations. Both the state of registry of a ship and port states have rights and responsibilities to enforce compliance.

Some countries have already announced fines and potential jail time for non-compliance, while others have yet to establish penalties.

What is the International Maritime Organization?

According to imo.org, the IMO is a specialized agency of the United Nations. The organization focuses on the safety and security of shipping and the prevention of marine and atmospheric pollution by ships.
GOALS AND BENEFITS OF IMO 2020

REDUCE SHIPPING’S ENVIRONMENTAL IMPACT

Ocean shipping is an efficient and cost-effective means of transporting international goods around the world. In fact, the IMO estimates that ocean shipping transports more than 80% of global trade.

It is therefore critically important to establish sustainable shipping practices for the future—especially for populations living close to ports and coasts. Major environmental benefits include improved air quality, reduced risk for respiratory health, and reduction in acid rain and acidified water.

AVOID PREMATURE DEATHS

According to a study cited by the IMO, not reducing the SO\textsubscript{X} limit for ships could contribute to air pollution responsible for more than 570,000 additional premature deaths worldwide between 2020 and 2025.

LESSEN GREENHOUSE GAS EMISSIONS

Reducing sulphur emissions of shipping vessels contributes to the IMO’s goal to reduce greenhouse gas emissions by at least 50% by 2050 compared to 2008 requirements.

IMO 2020 can reduce SO\textsubscript{X} by 8.5 million metric tons annually

Source: imo.org

SUPPORT UNITED NATIONS’ SUSTAINABLE DEVELOPMENT GOALS

The IMO 2020 regulations also support the United Nation’s 2030 Agenda for Sustainable Development, which 193 countries adopted in 2015.
EFFECTS OF IMO 2020 ON OCEAN FREIGHT CARRIERS

IMO 2020 regulations will directly affect the vast majority of ocean vessels in operation today. According to the IMO, ships of all sizes will need to use fuel oil that meets the 2020 regulations.

Only ships with more than 400 gross tonnage on voyages to ports or offshore terminals under the jurisdiction of other parties are required to have an International Air Pollution Prevention Certificate.

At this time, the IMO does not allow exemptions to the regulations. That said, if a ship cannot obtain compliant fuel oil, they can complete a fuel oil non-availability report (FONAR). The port state control can take this into account when processing, but this does not qualify as an exemption for that vessel.

THREE OPTIONS FOR CARRIER COMPLIANCE

Ocean carriers have multiple options for reaching compliance with IMO 2020 regulations. These options revolve around fuel choices or sulphur mitigation technology.

1. USE LOW-SULPHUR FUELS

The most efficient solution for ocean carriers looking to meet IMO 2020 compliance requirements will be to choose low-sulphur fuels. This option does require costly investments in major vessel upgrades.

The initial quality of low-sulphur fuel is likely to vary significantly according to local refinery configurations, as the current ISO specifications do not account for blended fuels. Carriers will need to watch for problems with incompatibility. It is imperative to keep different batches of fuels separate to avoid undesired reactions.
Currently, the cost of low-sulphur fuel is significantly higher than traditional sulphur fuels. And as the number of suppliers that can offer a reliable supply of high quality, low-sulphur fuel is somewhat limited, the price could spike even higher in the short-term.

2. **INSTALL EXHAUST CLEANING SYSTEMS**

A popular option for many ocean carriers will be to limit sulphur emissions through exhaust gas cleaning systems (EGCS). Commonly referred to as scrubbers, these devices remove sulphur oxides from a ship’s engine and boiler exhaust. This allows an existing vessel to continue using sulphur fuel oil, but does require an initial investment to install the upgrade.

The IMO regulations allow for all types of scrubbers that can achieve the same level of emissions reduction. However, not all flag states have approved scrubbers due to environmental concerns about EGCS discharge. In fact, certain flag states, China and Singapore for instance, have already banned exhaust cleaning scrubber discharge within territorial waters. Carriers choosing this option will need to follow all flag state regulations.

![Anticipated scrubber installations by 2020](source: S&P Global Platts Analytics)
HANDLING WASHWATER FROM EGCS

One thing to note regarding EGCS is the proper disposition of washwater. According to the IMO, any generated residues from closed-loop systems must be delivered ashore to adequate reception facilities as opposed to disposed of while at sea. Open-loop scrubbers can return washwater to the sea as long as the discharge washwater has a pH of no less than 6.5.

As states have separate rights regarding measures to control pollution of the marine environment from ships in their ports, internal waters, and territorial seas, ocean carriers will be limited in their ability to choose scrubbers as the sole means of compliance with IMO 2020 regulations.

3. USE ALTERNATIVE FUELS

Carriers can leverage several alternative fuel options, most of which are non-petroleum based. The primary solution will be liquefied natural gas. Unfortunately, alternative fuel sources are not readily available on a large scale at this time.

Liquefied natural gas is a credible option as it is nearly sulphur free and produces less nitrogen oxides (NO\textsubscript{X}) and particulate matter (PM) for reduced air pollution.

### Comparing each compliance option

<table>
<thead>
<tr>
<th></th>
<th>LOW-SULPHUR FUEL</th>
<th>EXHAUST CLEANING SYSTEMS</th>
<th>ALTERNATIVE FUELS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESTIMATED PERCENT OF CARRIERS THAT MAY CHOOSE THIS OPTION</strong></td>
<td>80–85%</td>
<td>15–20%</td>
<td>5–10%</td>
</tr>
<tr>
<td><strong>COST TO UPGRADE</strong></td>
<td>Low</td>
<td>$4–7 million per installation</td>
<td>$40–60 million to upgrade, only feasible for new vessels</td>
</tr>
<tr>
<td><strong>TIME REQUIRED</strong></td>
<td>Minimal</td>
<td>Potential of 4 to 6 weeks during installation</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>ONGOING FUEL COSTS</strong></td>
<td>High</td>
<td>Economical</td>
<td>High</td>
</tr>
<tr>
<td><strong>OTHER CONSIDERATIONS</strong></td>
<td>Higher risk of equipment failure due to inconsistencies.</td>
<td>Scrubbing residue remains until disposed of at an approved facility, reducing the vessel's available weight for cargo.</td>
<td>Most viable long-term solution for sulphur oxide emission reduction strategies.</td>
</tr>
</tbody>
</table>
EFFECTS OF IMO 2020 ON OCEAN FREIGHT SHIPPERS

IMO 2020 regulations will only indirectly affect today’s shippers. As carriers aim to become compliant, shippers can expect higher shipping costs and potential service disruptions—at least in the short term.

EXPECT HIGHER SHIPPING COSTS

According to maritime consultant Alphaliner, the estimated cost of the new regulations could be more than $15B per year. Many anticipate that ocean carriers will pass this added cost down to shippers and from there, potentially to end consumers.

\[
\text{Fuel Price} \times \text{Trade Factor} = \text{IMO 2020 Fuel Surcharge}
\]

Each ocean carrier has developed a unique approach to IMO 2020 compliance. One way to mitigate added expenses is through the creation of new fuel surcharges created specifically in response to the IMO 2020 regulations.

While fuel prices will be consistent across carriers, the “trade factor,” which enters into carrier calculations will be unique to each company. There are several variables that influence the trade factor.

For example, the size of the specific vessel used to transport a shipper’s goods, the trade lane, the round trip steaming time for the specific voyage, etc. Because these surcharges are likely to vary, there are optimization strategies that can potentially help mitigate added costs.

The carrier community will likely adjust costs late in 2019 to prepare for the January 1, 2020, regulation deadline.

Uncover savings opportunities that can mitigate ocean fuel surcharges

READ THE WHITE PAPER
PREPARE FOR POTENTIAL SERVICE DISRUPTIONS

It is impossible to predict if the IMO 2020 regulations will impede ocean shipping services. The potential for delays and disruptions exists—especially in the short term—as carriers work to become compliant and demand for low-sulphur fuel or fuel alternatives spikes.

Over time, the IMO 2020 regulations could potentially increase ocean shipping capacity as new vessels will be more efficient and eco-friendly than older vessels currently in use.

SUMMARY

The new IMO 2020 regulations will no doubt have a significant impact on today’s shipping industry. And while there are concerns around whether ocean carriers and refineries can adapt quickly enough to meet the new regulation requirements, the IMO is working to identify and mitigate transitional issues so that ships can meet the new requirement with minimal disruption.

It’s important to remember that IMO 2020 regulations are not the first sulphur oxide emissions standards. Previous requirements did not cause a significant fuel shortage or permanently increase prices.

The most effective strategies to prepare for upcoming IMO 2020 regulations include staying up to date with announcements and predictions as well as working closely with your logistics provider. A qualified provider will have a global network of experts who are ready and eager to solve problems backed by a global suite of services to meet all of your logistics services and technology needs for today’s changing market.

Looking for the right 3PL provider? CONNECT WITH C.H. ROBINSON’S EXPERTS
ABOUT C.H. ROBINSON

C.H. Robinson solves logistics problems for companies across the globe and across industries, from the simple to the most complex. With over $20 billion in freight under management and 18 million shipments annually, we are the world’s largest logistics platform. Our global suite of services accelerates trade to seamlessly deliver the products and goods that drive the world’s economy. With the combination of our multimodal transportation management system and expertise, we use our information advantage to deliver smarter solutions for our more than 124,000 customers and 76,000 contract carriers. Our technology is built by and for supply chain experts to bring faster, more meaningful improvements to our customers’ businesses.

For more information, resources, and our blogs, visit www.chrobinson.com

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