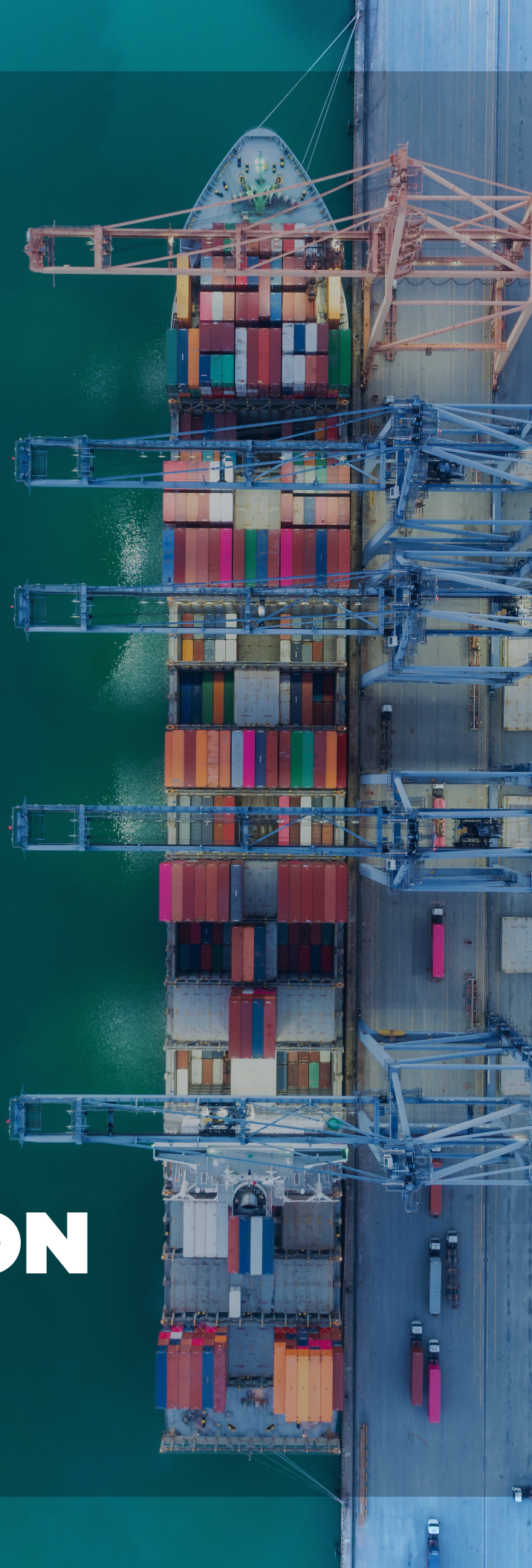


IMO 2020 SULFUR EMISSION REGULATION

Expeditors[®]





Focus on Emission Control

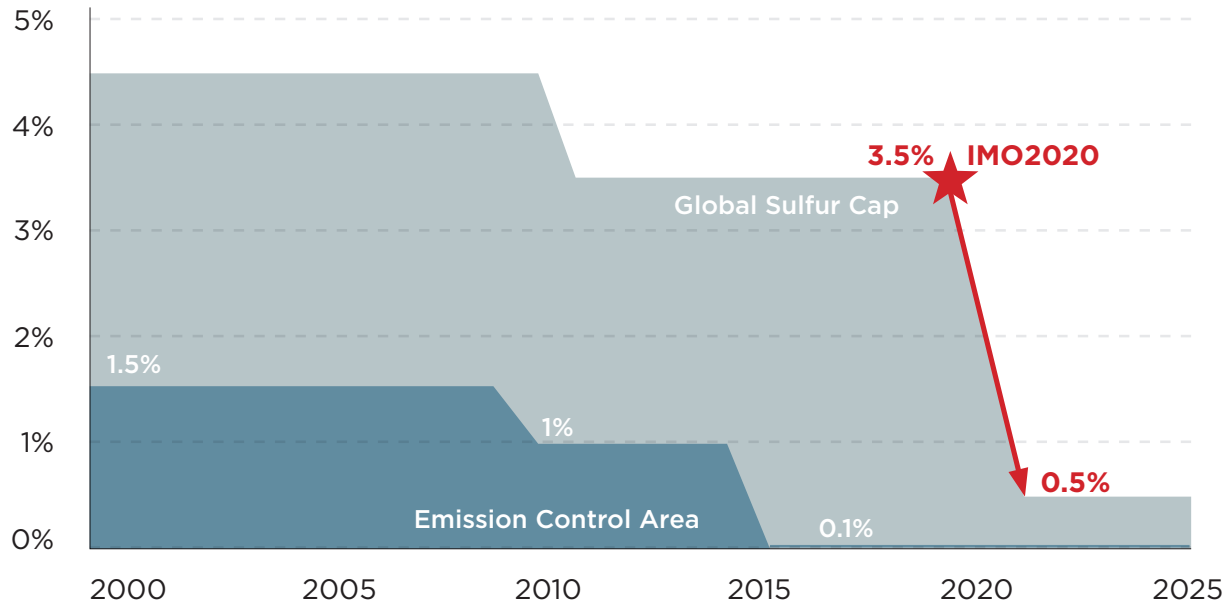
The most widely used marine fuel (bunker) is a residue from crude oil production – the type of fuel used to power automobiles. When this residue, bunker fuel, is used in ocean going vessels, the emissions contain harmful levels of Sulfur, Nitrogen and Carbon particulate and have harmful effects to humans, animals and the environment.

Environmental Effects

- Sulfur dioxide causes deforestation, acidify waterways to the detriment of marine life, corrodes building materials and paints.
- Nitric oxide causes chronic lung disease, reduces ability to smell, reduces crop yields and reduces visibility.
- Carbon monoxide causes serious health impacts to respiratory processes in humans and animals, however, effects are reversible when exposure stops.

International Maritime Organization (IMO) Regulation

The IMO announced effective January 1, 2020, all vessels operating outside of current Emission Control Areas (ECAs) are required to produce no more than 0.5% Sulfur content emissions which is reduced from the current 3.5% Sulfur content.



Emission Control Areas (ECAs)	SOx Content	Effective
EU Waters	0.1%	2010
US Coastal Areas	0.1%	2012-13
Hong Kong & China	0.5%	2018
Global (except ECAs)	0.5%	2020



How Vessel Operating Common Carriers (VOCCs) can Comply

There are three main solutions ocean carriers can implement to comply with the IMO 2020 Sulfur Regulation:

1 Burn Cleaner Fuels

Procure compliant 0.5% Sulfur content bunker at a higher cost.

2 Install Exhaust Gas Scrubbers:

When retro-fitted with Exhaust gas scrubbers vessels have the ability to clean the emissions, reducing Sulphur content to levels compliant with the new regulation.

3 Convert to Liquid Natural Gas (LNG):

LNG as a fuel which burn very clean and does not contain any Sulfur when burned.



Market Reaction

Every carrier introduced new bunker methodologies specific to their own ability to comply with the IMO 2020 Sulfur Regulation. Each methodology considers the price per metric ton of fuel and a trade factor* that represents a mathematical correlation between that fuel cost and the price per container on a particular trade.

Expeditors' Global Bunker Methodology:

Price per metric ton x Trade Factor = 40' Bunker Price**

Our goal is to align as close as possible to each carrier with a robust and transparent methodology.

*List of trade factors available upon request.

**LCL and other container size formulas available upon request.

Our experts track daily spot prices for three representative fuel types that play a role in determining the cost impact of IMO 2020:

1. HSFO - High Sulfur Fuel Oil with 3.5%S: Allowed use on board vessels until January 1, 2020, unless the vessel is outfitted with an exhaust gas cleaning system (or “scrubber”);
2. VLSFO - Very Low Sulfur Fuel Oil with 0.5%S: Required use on board vessels beginning January 1, 2020, unless the vessel is outfitted with a scrubber; and
3. ULSFO - Ultra Low Sulfur Fuel Oil with 0.1%S: Currently used on board vessels to power generators that provide electric power to many shipboard systems, ULSFO is used when a vessel enters into an ECA. Current ECAs include US Territorial Waters and European Union Territorial Waters.

In order to meet the IMO 2020 regulation, Expeditors will replace the 100% HSFO cost basis with 100% VLSFO starting on January 1, 2020.

Contact your local representative to find out more.

A photograph of several stacked shipping containers in various colors (red, blue, green, orange) with white text and markings. The containers are stacked in a way that shows multiple levels, with some containers having their doors open or slightly ajar.

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