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In-depth case study: Shipping

Authors: Jakob Lagercrantz & Mattias Goldmann

China has had a trade surplus for most of the past ten years, with most of the goods being shipped abroad from one of China’s main harbors¹. Five of the ten largest container ports in the world can be found in China, and the five big Chinese carriers carry about one-fifth of the world’s container shipping. The Chinese-owned fleet has tripled in size since 2004, reaching 140 million gross tons in 2016. It is the world’s third-largest fleet, shadowing Japan’s and the world leader Greece. About a third of the fleet is sailing under other flags².

China is also expanding abroad, through investments and ownership of a large number of international ports. According to a *Financial Times*’ review from January 2017, two-thirds of all global container traffic goes through Chinese ports, or ports with Chinese investment³.

The expansion of the merchant fleet, with a yearly growth of approximately 10%⁴, has also positioned China as a shipbuilding country. Many of the still few Liquid Natural Gas (LNG) ships (methane-fuelled) ordered in the past years have been built in China, preparing for 2020 when the market is predicted to be at thousands of LNG ships⁵. LNG is one of the few alternative fuels available for the shipping industry and is opening up a path for renewable biogas.

In 2007 the Sulphur Emission Control Area (SECA)⁶ was introduced in US waters and the North Sea/Baltic. In the SECA areas there is a limit to sulphur contents in marine fuels. China has on a voluntary basis implemented a maximum-permitted marine sulphur level in shipping fuels of 0.5%. This is still five times higher than the SECA limits, but it is a beginning of legal restrictions to polluting fuels. In China, ships in key ports in the largest rivers and the Bohai Sea Area need to use fuel with a lower sulphur level when docked. By 2019, the voluntary Domestic Emission Control Area (DECA) will be implemented to all operations in all ports in China⁷. The SECA Sulphur level is introduced in the busy waters of the Mediterranean in 2020.

This is the start of controlling emissions from shipping and has been enforced by the Chinese authorities. In 2016, 55 out of 1,858 ships inspected by the Shanghai’s enforcement agency were caught violating the emission rules. This resulted in more than US\$100,000 in penalties. Furthermore, two ships, one of them foreign-flagged, were caught using fuels that didn’t comply with emission standards two months following the phase-in of the regulations at four ports in Bohai Bay⁸. The enforcement will be strengthened in 2019 as DECA is expanded.

¹ Trading Economics, 2018-03-08

² Hellenic Shipping News, 2017-03-30

³ Financial Times, 2017-01-12

⁴ Hellenic Shipping News, 2017-03-30

⁵ Wan et al., 2015

⁶ Annex VI of the 1997 MARPOL Protocol

⁷ Climate Home News, 2017-04-20

⁸ Climate Home News, 2017-04-20

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In December 2017 China launched what has been called the world’s first all-electric cargo ship. It is a 2,000-ton cargo ship, which will ironically be used to carry coal to industries along the Pearl River. It has a battery capacity of 2,400 kWh, the equivalent of 24 Teslas with the largest battery available, and can travel 80 kilometers at a speed of 8 knots⁹.

China is now a global leader in many areas of environmental investments¹⁰. With the introduction of legislation limiting emissions, like SECA, and the increased importance of Chinese ship yards in the production of alternative fuel ships, there is a large potential for China to have an impact on global shipping. This would be facilitated by a uniform adoption of emission-limitation rules throughout the Chinese coastal waters; stringent emission regulations at the home market has time and again proven to be a recipe for international commercial success.

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⁹ Electrek, 2017-12-04

¹⁰ Deloitte Research, 2017