Other Air Pollution

SO_x (SULFUR OXIDE) EMISSIONS

Sulfur oxides are harmful to human health, causing respiratory, cardiovascular and lung disease. The relationship between particulate matter and the sulfur content of fuel means that reductions in fuel sulfur content also reduce particulate matter in the air, resulting in fewer respiratory health problems. Once released into the atmosphere, SOx can also lead to acid rain, impacting crops; forests; and aquatic species contributing to the acidification of the oceans.

The IMO regulates SOx emissions from ships under Annex VI of the International Convention for the Prevention of Pollution from Ships, also known as the MARPOL Convention. Effective January 1, 2020, MARPOL Annex VI established a global sulfur limit of 0.5%, a significant reduction from the prior limit of 3.5%.

FLEET AIR EMISSIONS		2018	2019	2020	2021	2022
SOx Emissions	(M tons)	0.14	0.12	0.02	0.02	0.02

Seaspan has taken the following steps to decrease its SOx emissions:

SWITCHED TO LOW (0.5%) AND ULTRA-LOW (0.1%) SULFUR FUELS

INSTALLED ALTERNATIVE MARINE POWER (“AMP”) ON 156 SHIPS INCLUDING NEWBUILDS, TO ALLOW SHORE POWER CONNECTION WHEN IN PORT, THEREBY REDUCING PARTICULATE MATTER EMISSIONS

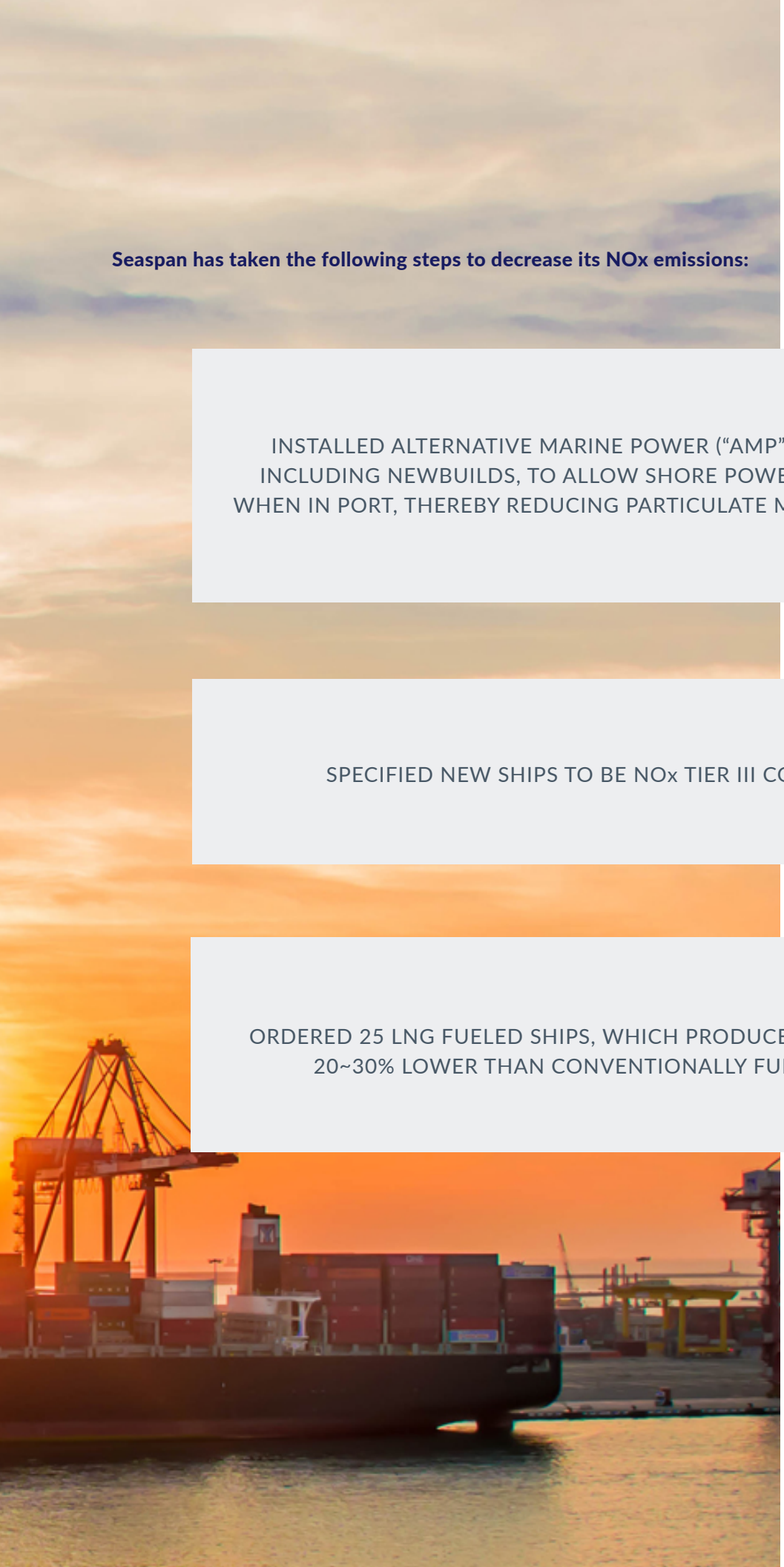
ORDERED 25 LNG FUELED SHIPS, WHICH PRODUCE SULFUR EMISSIONS 90~99% LOWER THAN CONVENTIONALLY FUELED SHIPS

NO_x (NITROGEN OXIDE) EMISSIONS

Nitrogen oxide reacts with other chemicals in the air to form both particulate matter and ozone. Both are harmful to the respiratory system when inhaled. Nitrogen oxides can also interact with water, oxygen and other chemicals in the atmosphere to form acid rain, which can harm sensitive ecosystems. Nitrate particles that result from NOx also make the air hazy and create poor visibility.

The IMO regulates NOx emissions from ships through the MARPOL Convention. Different levels of control ("Tiers") apply based on the ship construction date and operating area. Tier I and Tier II apply worldwide, while Tier III controls only apply in specified areas. Current NOx Tier III areas are: North America, the United States Caribbean Sea, the Baltic Sea and the North Sea.

FLEET AIR EMISSIONS		2018	2019	2020	2021	2022
NOx Emissions	(M tons)	0.16	0.15	0.15	0.17	0.16



Seaspan has taken the following steps to decrease its NOx emissions:

INSTALLED ALTERNATIVE MARINE POWER (“AMP”) ON 156 SHIPS INCLUDING NEWBUILDS, TO ALLOW SHORE POWER CONNECTION WHEN IN PORT, THEREBY REDUCING PARTICULATE MATTER EMISSIONS

SPECIFIED NEW SHIPS TO BE NOx TIER III COMPLIANT

ORDERED 25 LNG FUELED SHIPS, WHICH PRODUCE NOX EMISSIONS 20~30% LOWER THAN CONVENTIONALLY FUELED SHIPS