Pictured: a methanol powered box-ship being constructed for major international shipping company, Maersk. As a newly built ship, it will be subject to the Energy Efficiency Design Index. It will also be subject to the Carbon Intensity Indicator over its life. Photo credit: Maersk.

Shipping tackles climate change with new rules, systems, devices, processes and fuels

Shipping Australia recently made a large policy submission to the Australia's Climate Change Authority as to how shipping will meet its climate change goals.

We argued that it is good policy for Australia to ensure that marine atmospheric environmental regulation and policy is governed at the international regulatory level. Shipping Australia is pleased to see that fact is recognised by the Climate Change Authority in its issues paper.

The alternative, for Australia to go its own way, would likely have profound adverse economic consequences. It is in Australia's vital economic interest that international shipping services be provided to / from Australia as cheaply as possible in a way that is compatible with safety, sustainability / environmental protection, security, and international policy as decided at the International Maritime Organization.

At the International Maritime Organization's July 2023 Marine Environment Protection Committee 80, government delegates committed global shipping to having greenhouse gas emissions peak "as soon as possible" and then to reach net-zero by, or around, 2050. The IMO has introduced a variety of policies to help achieve this goal.

Energy Efficiency Design Index for NEW ships

Mandatory from 2013 onwards, new ships must meet a set minimum efficiency benchmark which reduces on a five-yearly basis. There are different benchmarks for different ships of different sizes. The design index gives a figure for an individual ship design, expressed in grams of carbon dioxide (CO_2) per ship's capacity-mile; a more efficient ship has a smaller design index. The concept calculation is "design index = C02 emissions / transport work". It accounts for such matters as installed power, vessel speed, cargo carried and the like. A one-off International Energy Efficiency Certificate proves that a ship's attained design index is below the required design index and there is an energy management plan aboard. The IMO reported in its Initial Greenhouse Gas Strategy that, by 2025, all new ships will be a 30% more energy efficient than those built in 2014.

Energy Efficiency EXISTING Ship Index

Coming into effect on 01 January 2023, the Energy Efficiency EXISTING Ship Index (EEXI) requires a one-off certification. It sets two EEXI targets – an "attained" EEXI and a "required" EEXI. Ships over 400 gross tonnes are required to meet a given EEXI, which will vary according to ship type and other factors. Ship owners must calculate their "attained" EEXI which must be less than the "required" EEXI. Ships are unable to trade without a valid International Air Pollution Prevention Survey, according to international shipbroker Clarksons.

Carbon Intensity Index

Entering into force in January 2023, the carbon intensity index (CII) applies to all cargo ships greater than 5,000 gross tonnes. The concept calculation is: "((annual fuel consumption x C02 emissions factor) / (annual distance x ship capacity)) x correction factors". Each year owners calculate their attained CII with reference to the baseline data collected in 2019. The target is reduced by 5% from baseline in 2023 with a further 2% reduction every year until 2026.

Ships are ranked yearly with a grade between A-E, where A is best and E is worst, with C and above (as judged by a recognised organisation (typically a Class