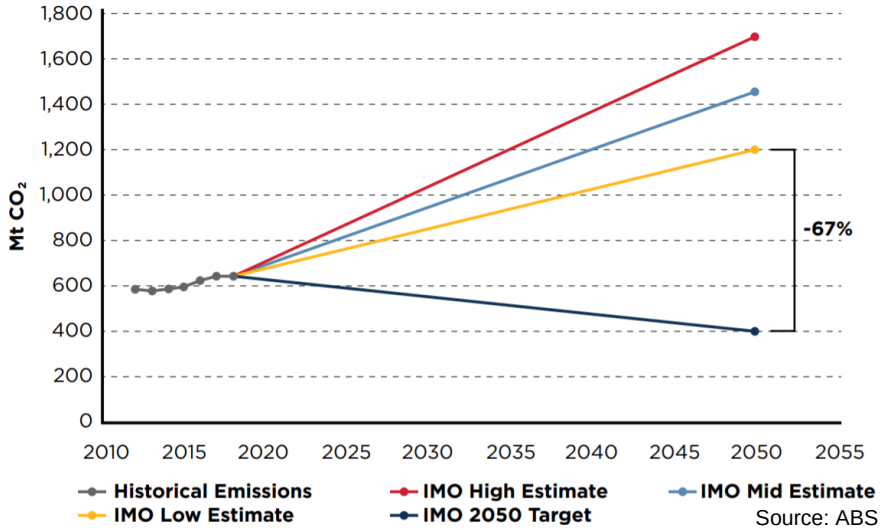
Sustainability in the Maritime Industry Regulations and Drivers

11/17/2021

ABS Sustainability Centers

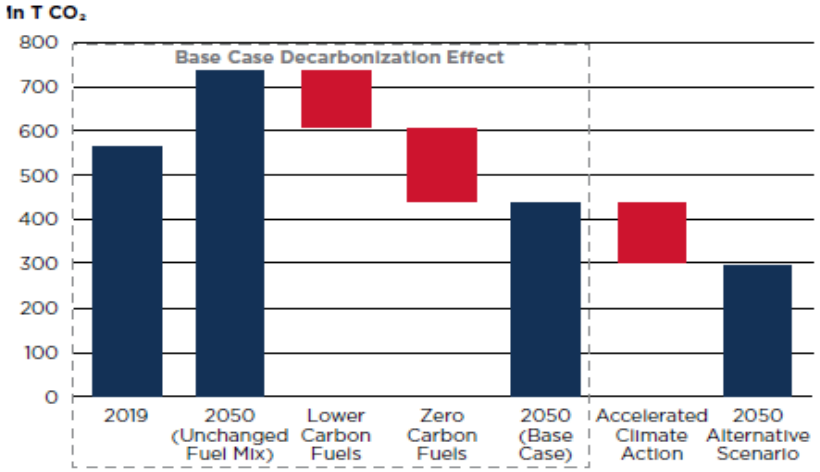
The Decarbonization Challenge

Scenarios of 2050 emissions from shipping



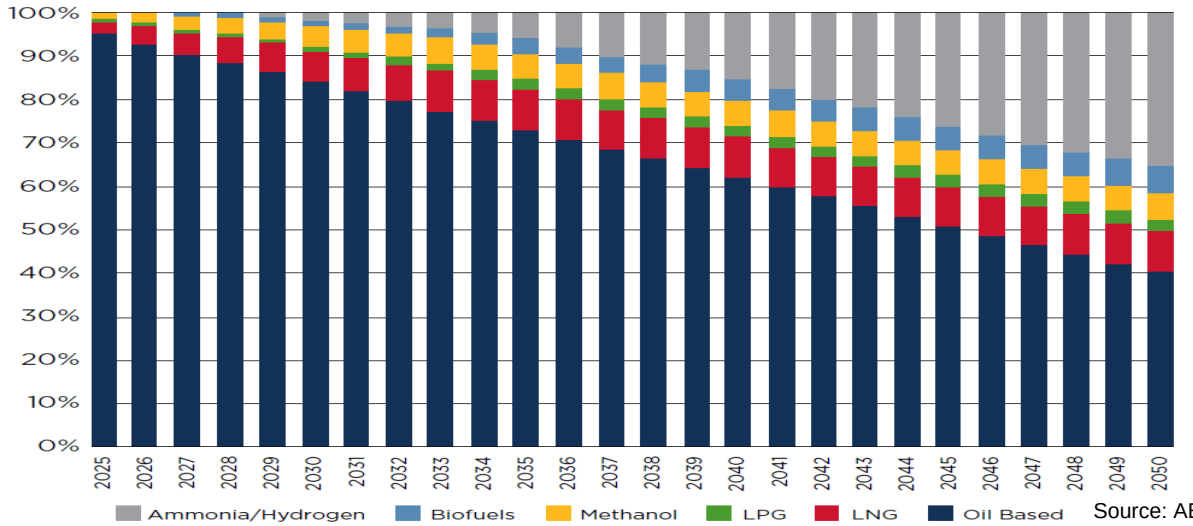
Source: ABS

Forecast of CO2 Emissions from shipping



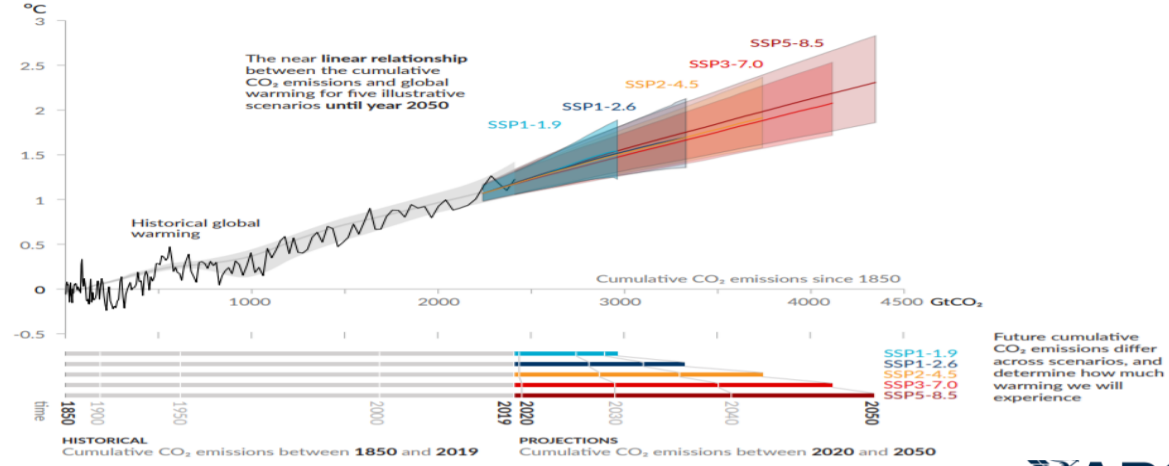
Source: ABS

Forecasted fuel mix in base case scenario



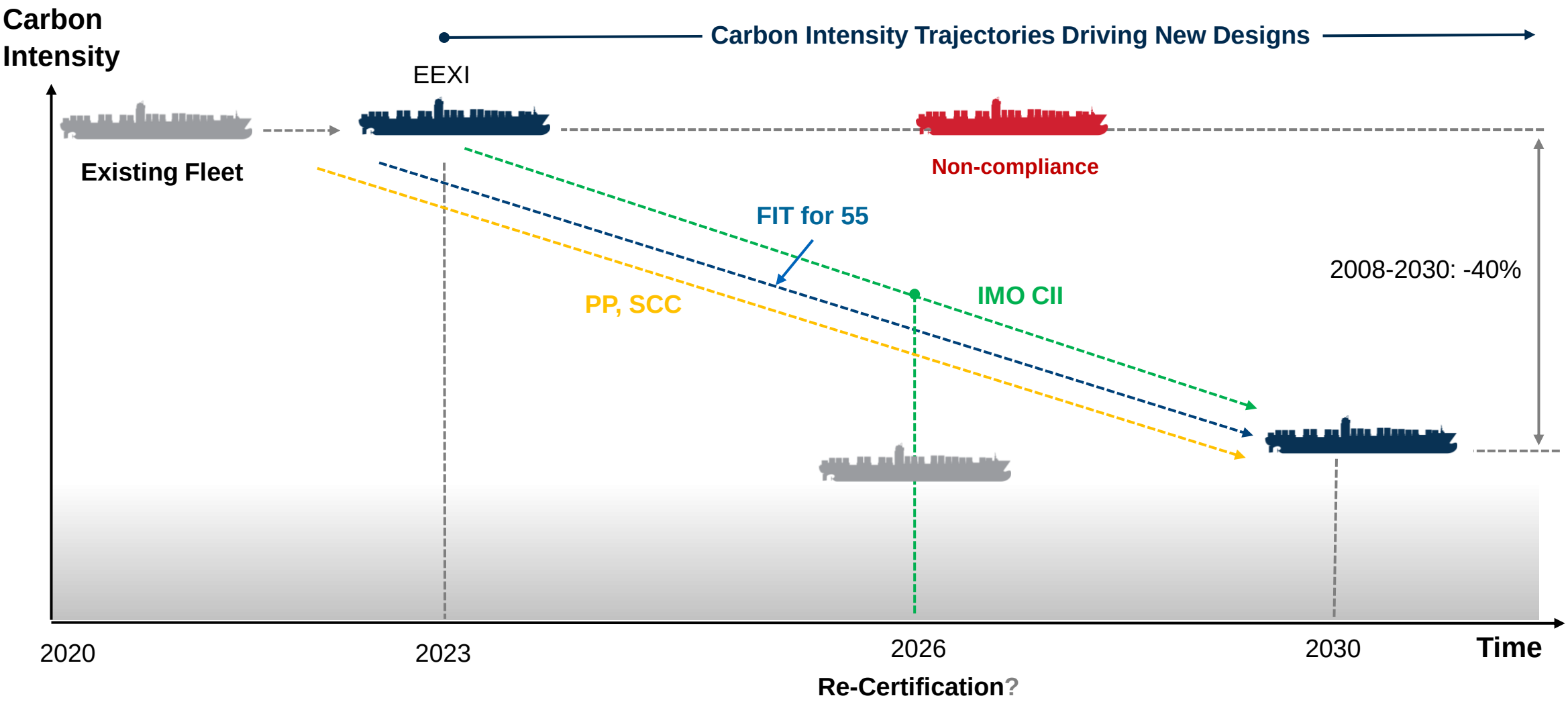
Source: ABS

Global surface temperature increase since 1850-1900 (°C) as a function of cumulative CO_2 emissions ($GtCO_2$)



Source: IPCC AR6

Emerging Landscape



IMO - Regulatory Background

- The International Maritime Organization (IMO) agreed on technical and operational measures for individual vessels with the goal of assisting the industry in achieving the IMO's 2030 and 2050 emissions reduction targets

TECHNICAL
EEXI – Energy Efficiency Index for Existing Ships

- For ships over 400 gross tonnage (GT) in line with EEDI

OPERATIONAL
CII – Carbon Intensity Indicator

- For ships over 5,000 GT in line with IMO Data Collection System (DCS)
  - Each ship must have an approved SEEMP on board as of January 1, 2023
  - SEEMP will be subject to verification and company audits

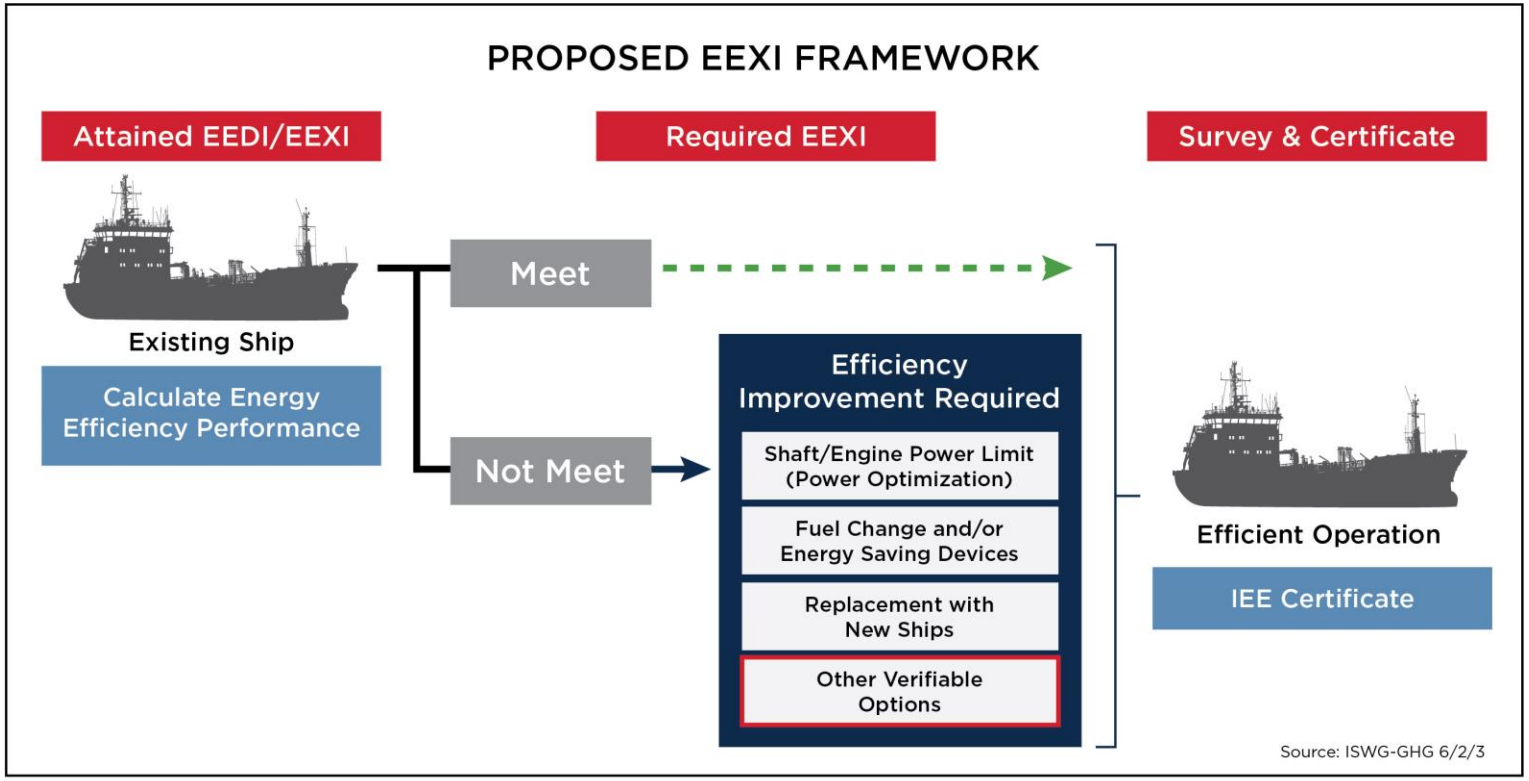
- Entry into force January 1, 2023, on first annual, intermediate or renewal International Air Pollution Prevention (IAPP) survey or the initial International Energy Efficiency Certificate (IEE) survey
- Measures shall be reviewed for effectiveness before January 1, 2026

Introduction to EEXI

Who: Vessels over 400 GT who falling under MARPOL Annex VI and were not built to EEDI Phase 2 or 3

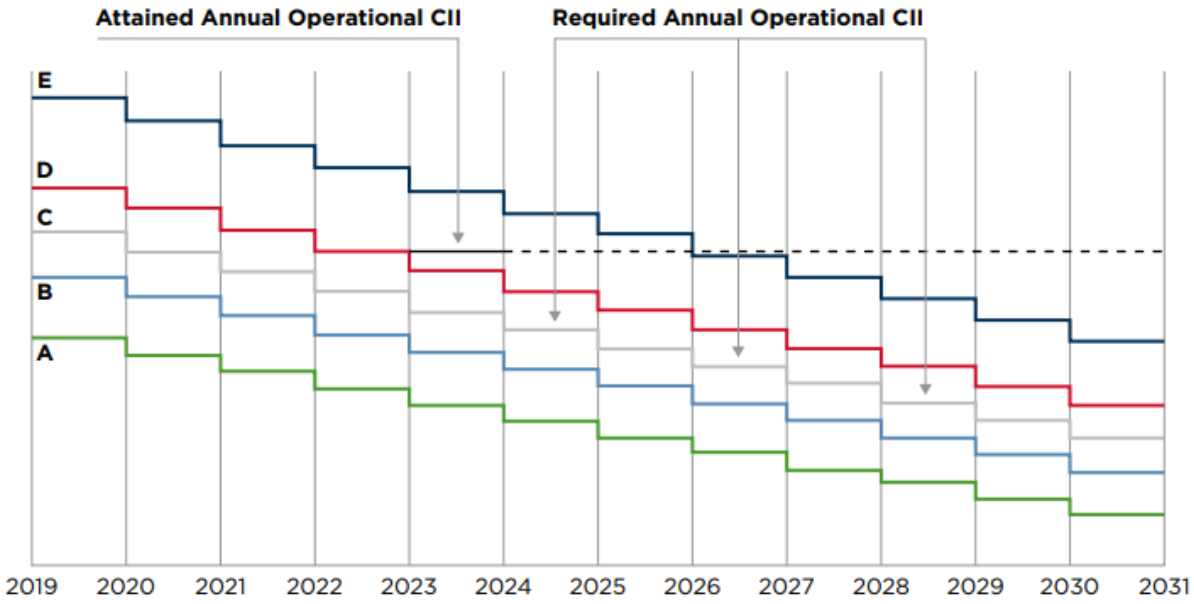
When: Vessels will need to have a EEXI technical file in place by January 1st, 2023 and a completed International Energy Efficiency (IEE) survey by end of year 2023

How: By determining attained EEXI and submitting the EEXI technical file to a RO for review and issuance of the IEE certificate upon the completion of the IEE survey



Introduction to CII

- **Who:** Ships over 5,000 GT in line with IMO DCS with any propulsion type
- **When:** Beginning January 1st, 2023
- **How:** Shipowners will need to update and receive approval of their SEEMP
- SEEMP Updates to include:
  - Part of SMS subject to verification and audits
  - Methodology: Reference, Required, Attained CII
  - Minimum 3-year implementation plan
  - Self-Assessment (Monitoring)



ATTAINED CII

$$CII = \frac{CO_2\ Emissions}{Transport\ Work} = \frac{Fuel\ Consumption \times Cf}{DWT \times Distance}$$

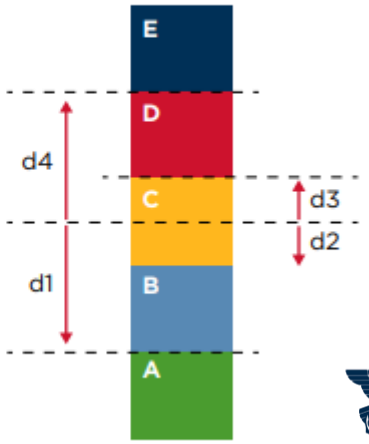
REQUIRED CII

$$CII_{ref} = a * Capacity^{c}$$

ANNUAL CII REDUCTION

$$CIIreq, year = CII_{ref}\left(1 - \frac{z}{100}\right)$$

CII RATING BOUNDARIES



Potential Impact

Number of vessels requiring improvement to become EEXI compliant

Bulk Carriers

87%
Sample 11,179 vessels

Container Ships

88%
Sample 5,080 vessels

Tankers

85%
Sample 9,546 vessels

Gas Carriers

95%
Sample 1,705 vessels

Percent of vessels requiring an operational change or **improvement by 2030 to stay within A, B or C** for CII

2020

Bulk Carriers

82%
Sample 1,377 Vessels

Container Ships

78%
Sample 731 Vessels

Tankers

70%
Sample of 1,110 Vessels

Gas Carriers

80%
Sample 128 Vessels

LNG Carriers

54%
Sample 98 Vessels

Regional Requirements – EU “Fit for 55”

EU ETS

Responsible party

The party responsible for the operation of the ship under the ISM Code is liable for the CO_2 emissions

Geographic Scope

The geographical scope of the ETS expansion includes vessels arriving at and departing from EU ports.

Phased implementation

Shipping will be phased into the ETS from 2023, with more comprehensive inclusion by 2026. 1st year – 20%, 2nd year – 45%, 3rd year 70% and 2026 – 100%

Non - compliance

Penalties and blacklisting will be levied against the shipping company for non-compliance.

FuelEU

- Annual average $GHGIE_{actual}$ to meet required value $GHGIE_{target}$
- Required GHGIE reduced over time by reduction factor on ref value (TBA)
- Well-to-Tank and Tank-to-Wake components in calculating GHGIE