Importance of short-term measures in long-term decarbonization

A shipowner's practical experience

MEPC 84, 27th April 2026

Klaveness Combination Carriers

Klaveness Combination Carriers

Norwegian shipowner with
80 years of history

Designed, own & operate
19 Combination Carriers

Vessels flagged:

15 ×

4 ×

Represented in:

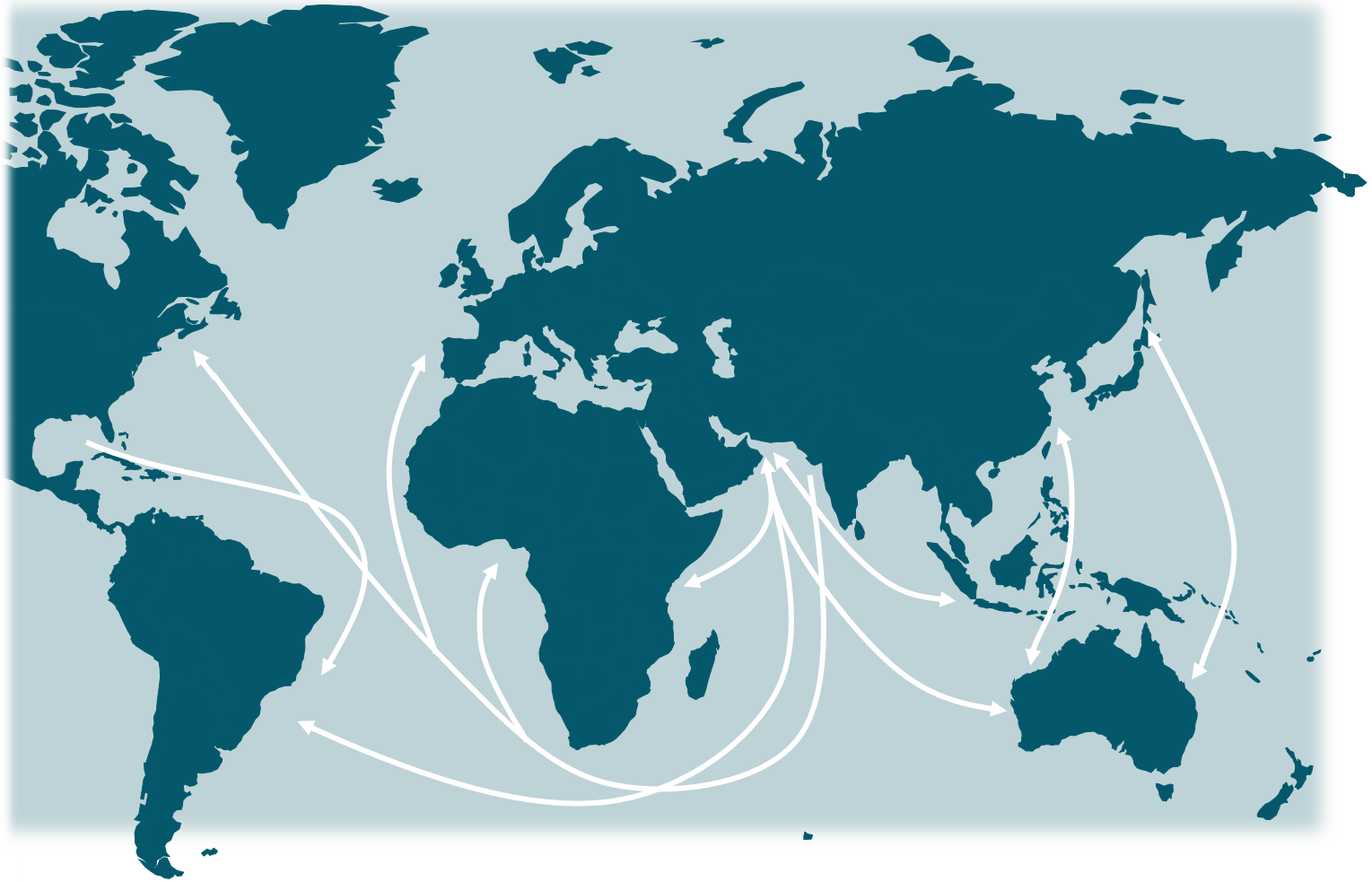
SEA CARGO CHARTER

Norges Rederiforbund
Norwegian Shipowners' Association

SSI
Sustainable Shipping Initiative

MarTrans

KCC trades last 12 months:

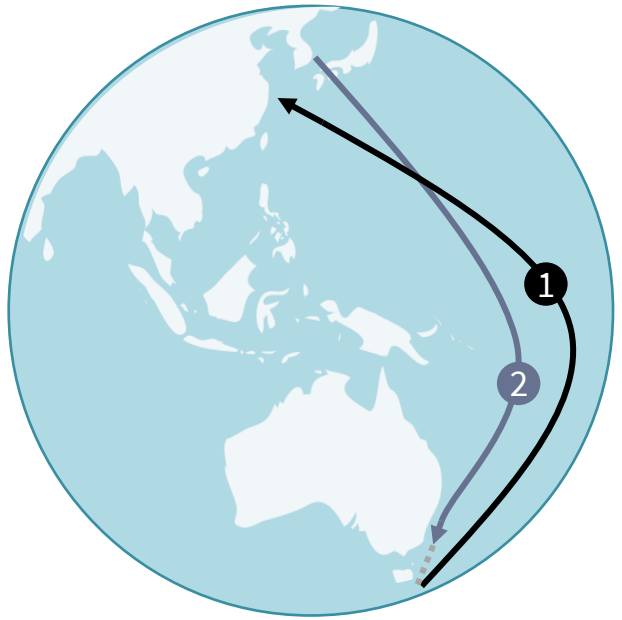


Combination carriers use 30-40% less fuel per tonne cargo than standard vessels

Panamax dry bulk
~40-50% trading empty

Product tankers
~30% trading empty

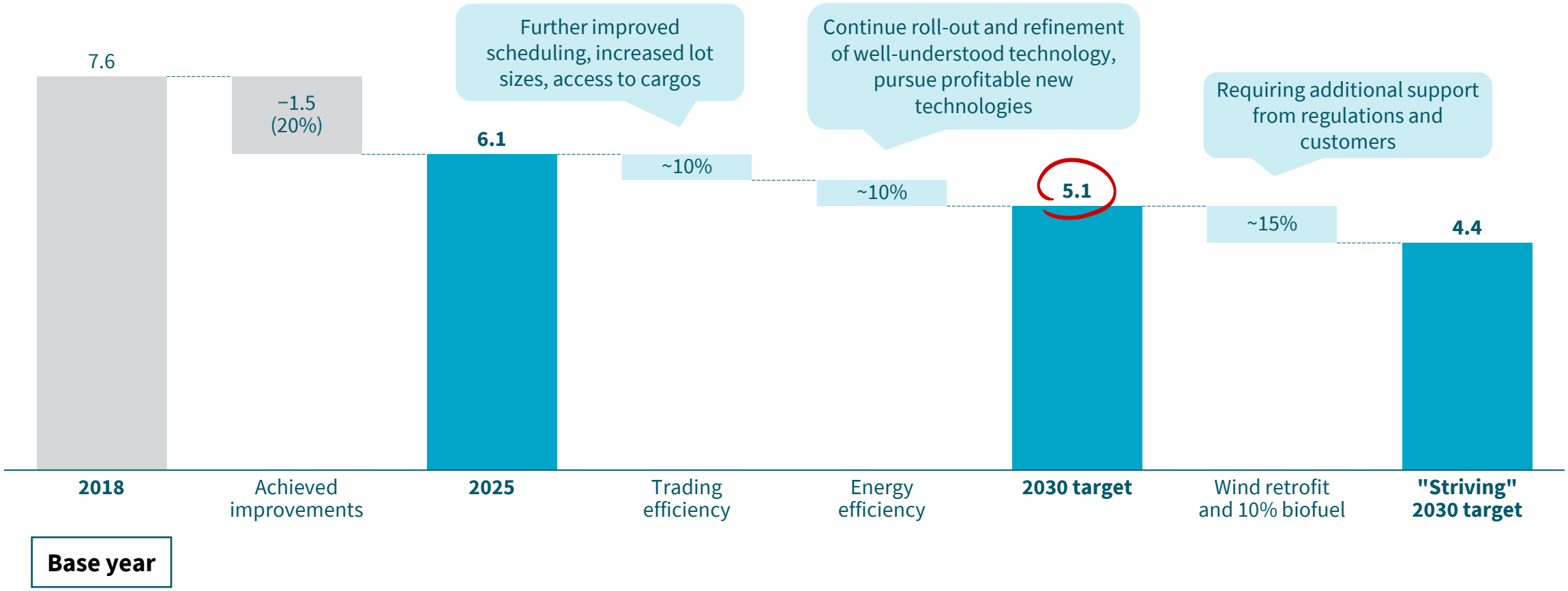
KCC's solution
~10% trading empty



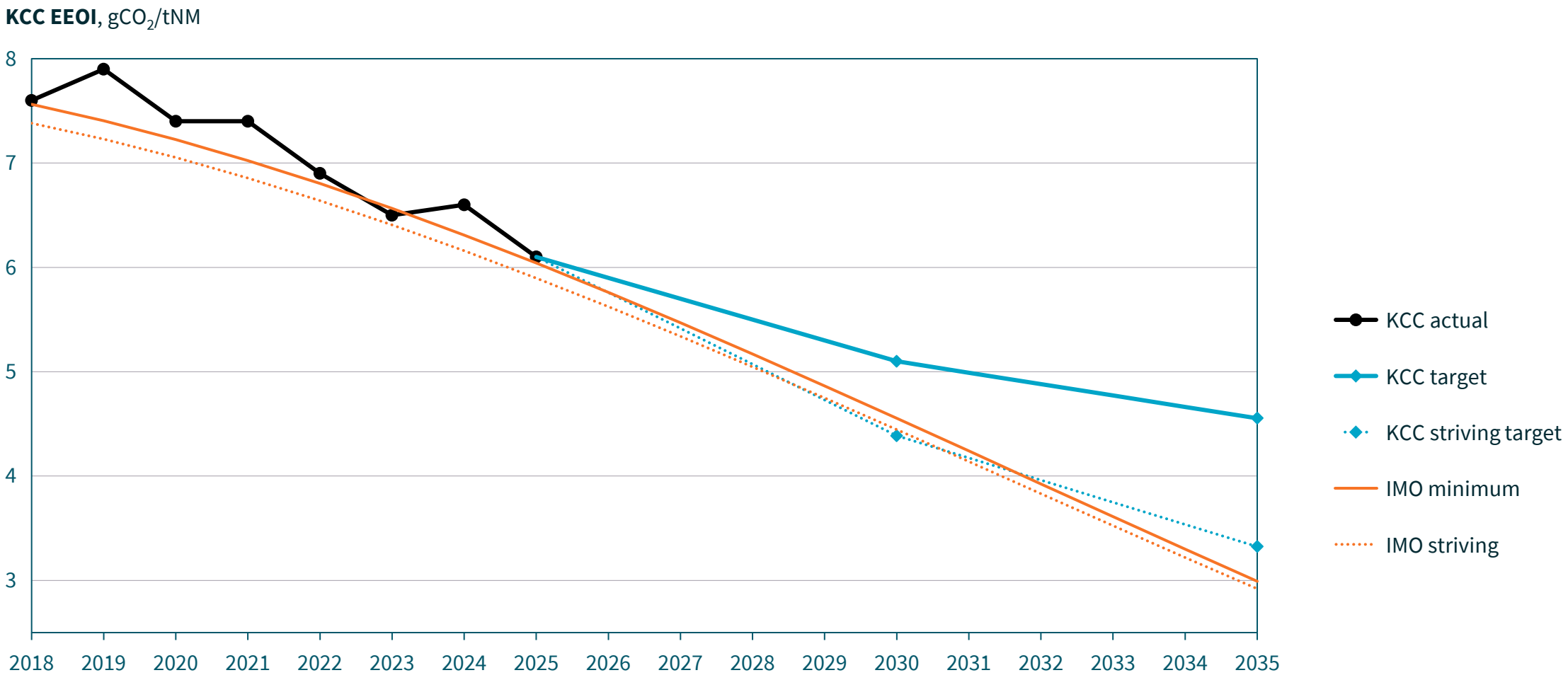
1 **Dry bulk** 2 **Tank** 3 **Ballast (empty)**

KCC has an ambitious decarbonization strategy

KCC GHG emissions intensity, gCO2/tNM



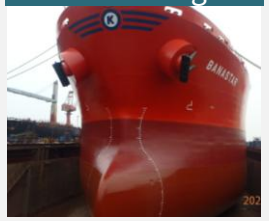
KCC "striving" target is in line with IMO ambition: proving it is achievable, with regulatory support



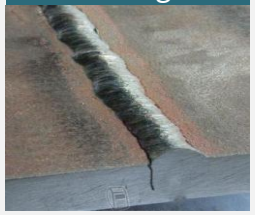
Investments in complex initiatives depend on future fuel price expectations

"Low-hanging fruit"

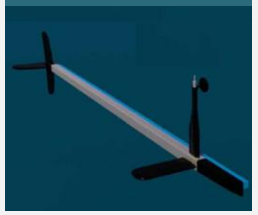
Silicone antifouling



Welding seam fairing

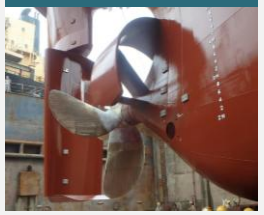


Cleaning drones

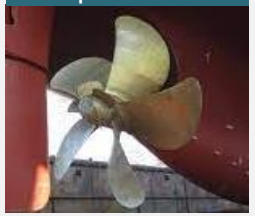


Engine load management

Mewis ducts



Propeller pro fins

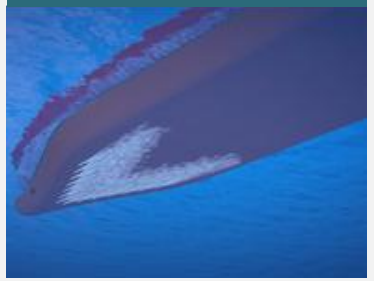


Ultrasonic prop-eller protection

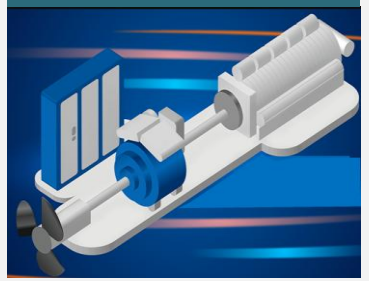
LED lights

Complex / expensive initiatives

Air lubrication system



Shaft generator

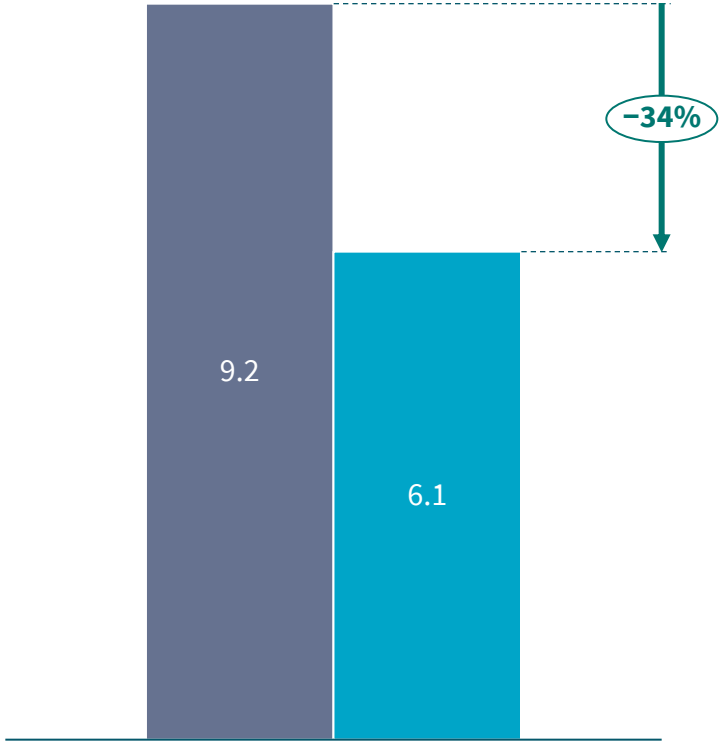


Wind assisted propulsion

How do existing regulations affect KCC?

CII issue #1 | Incentivizes sailing with less cargo

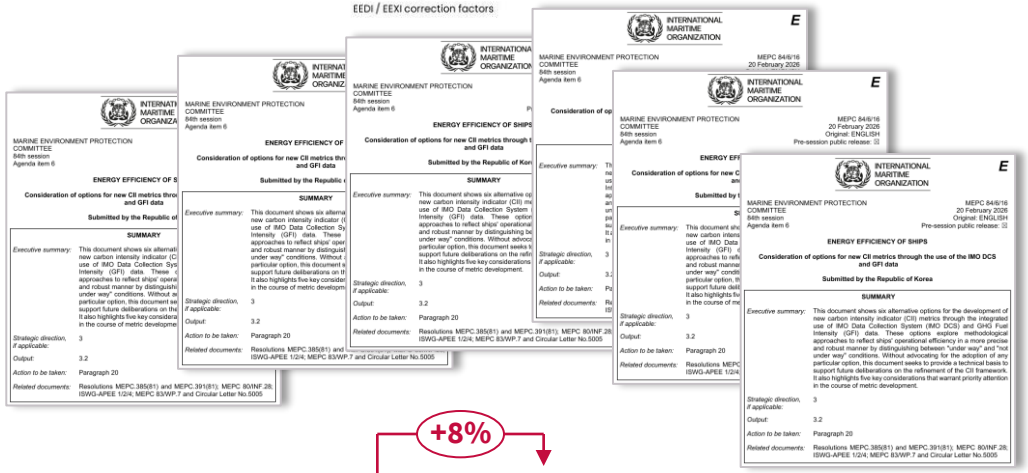
Standard vessels gCO2:
KCC vessels

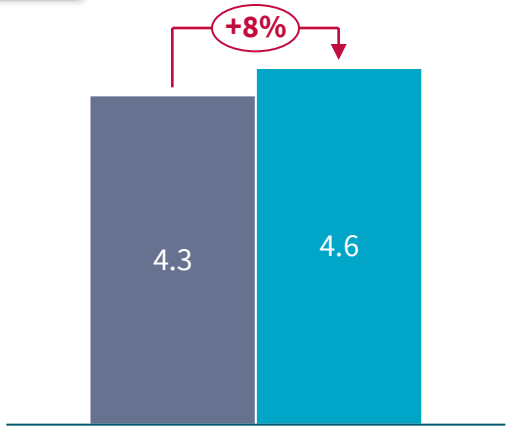


2025 EEOI: emissions per
tonne cargo × distance

$$CII_{Attained} = \frac{\sum_j C_{Fj} \cdot \{FC_j - (FC^*_{voyage,j} + TF_j + (0.75 - 0.03y_i) \cdot (FC_{electrical,j} + FC_{boiler,j} + FC_{others,j}))\}}{f_i \cdot f_m \cdot f_c \cdot f_{iVSE} \cdot Capacity \cdot (D_t - D^*_x)}$$

Ship correction factors
* Voyage correction factor
EEDI / EEXI correction factors





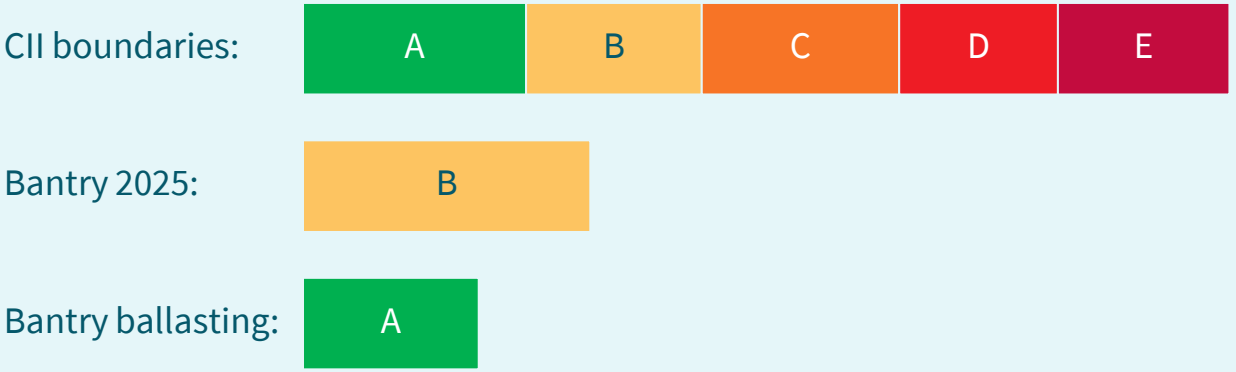
2025 CII: emissions per
DWT × distance

Example: MV Bantry could have improved CII in 2025 by taking less cargo

KCC vessel MV Bantry had 9 long sailing legs in 2025, all **laden with cargo**:

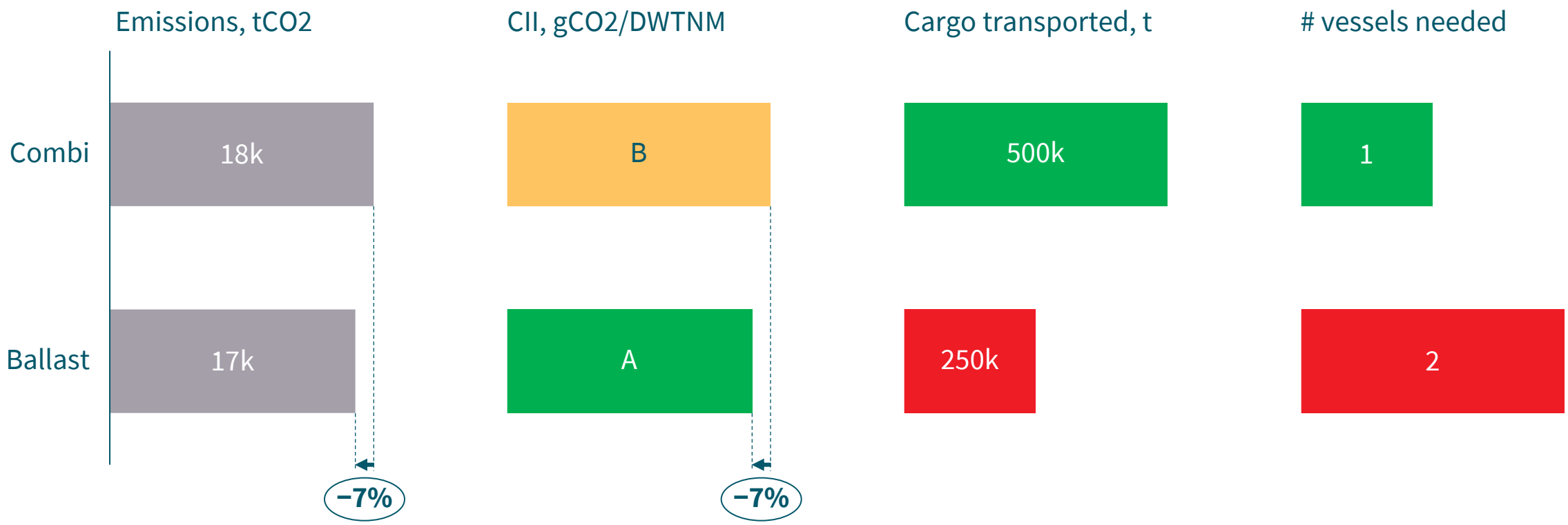
Sailing leg	Emissions	Emissions if ballast
#1	1 497	1 198
#2	1 487	1 487
#3	1 365	1 092
#4	1 327	1 327
#5	1 279	1 024
#6	1 023	1 023
#7	1 307	1 046
#8	1 047	1 047
#9	827	662
Total	**11 160**	**9 905**

Sailing ballast would have improved CII from B to A:



If half of this sailing had been ballast instead, emissions would have been over 1 000 tCO2 lower, due to being less deep in the water.

Example: MV Bantry could have improved CII in 2025 by not taking cargo



CII issue #2 | Incentivizes sailing longer distances

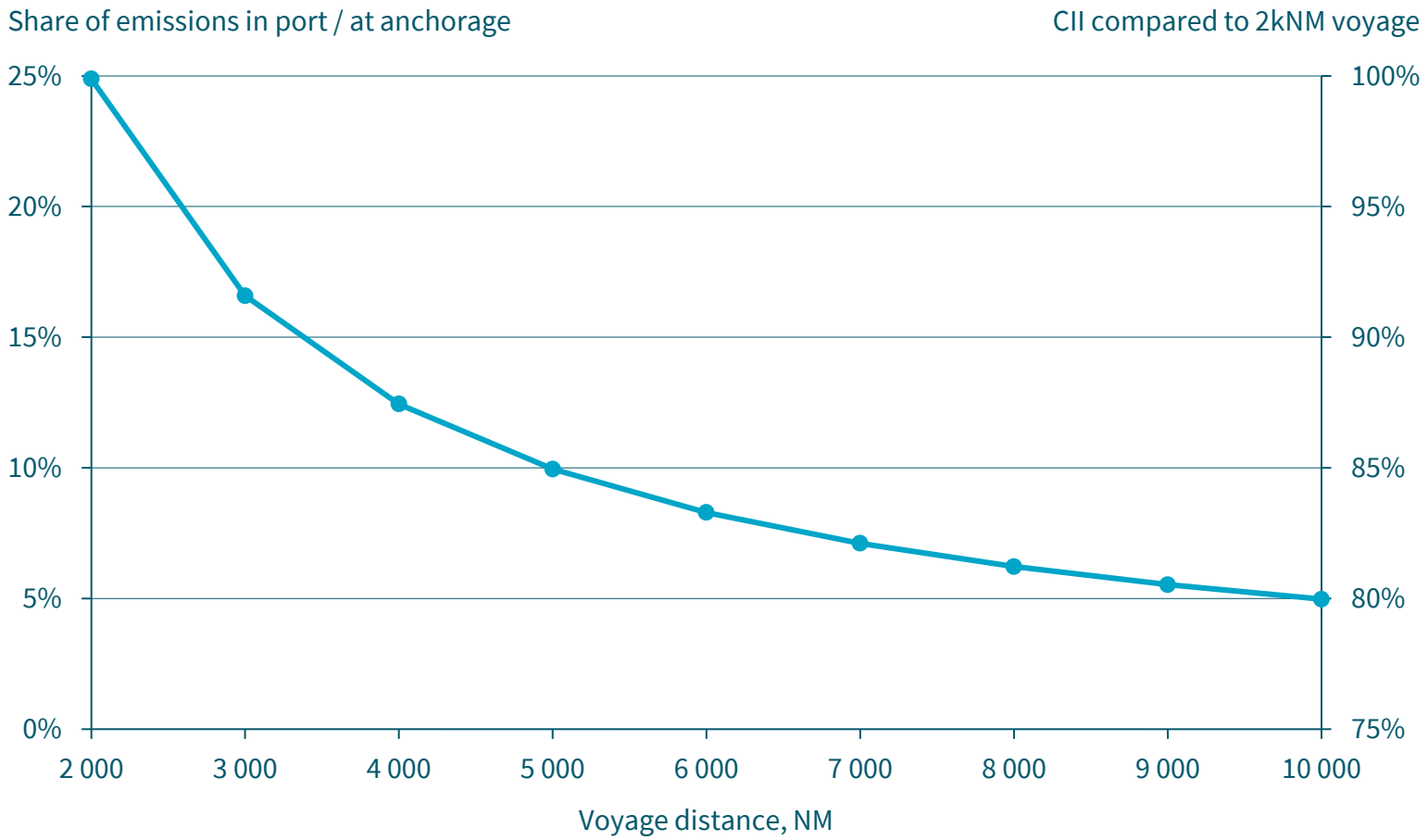


Illustration assuming 12kts sailing speed, 10 total port days, fuel cons 4t/day in port, 25t/day while sailing.

Shorter trades are currently penalized by CII.

But shorter trades are **more** carbon-efficient than longer trades: sourcing cargo nearby reduces unnecessary transport work.

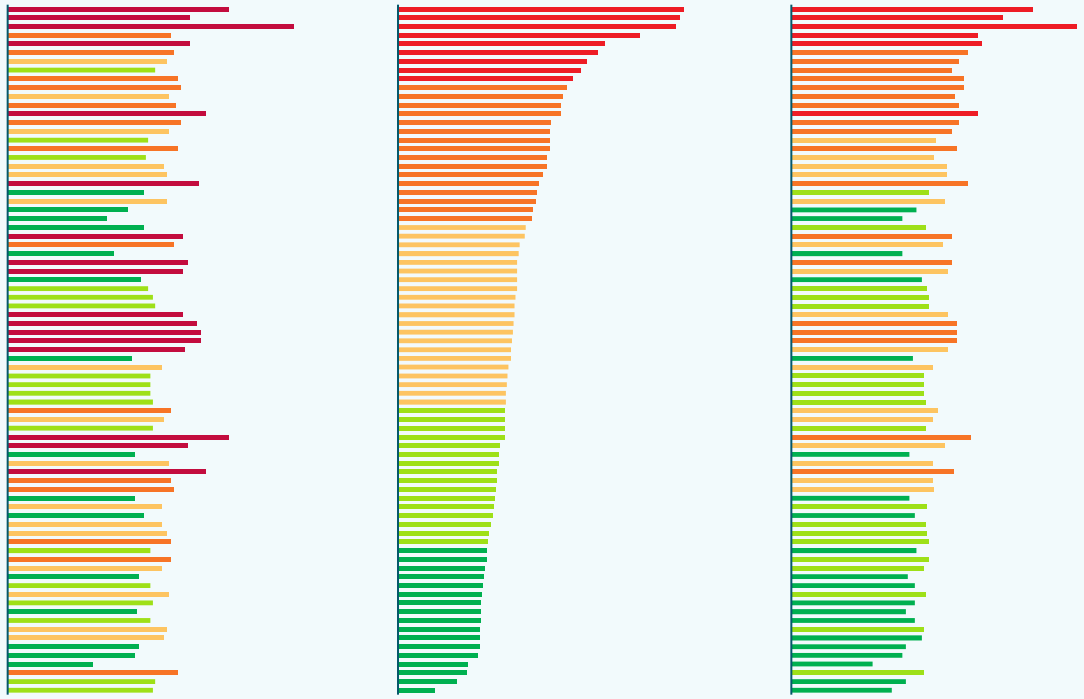
CII's two main issues could be easily fixed

Remove incentive to sail empty

Currently: DWT CII
less cargo is better

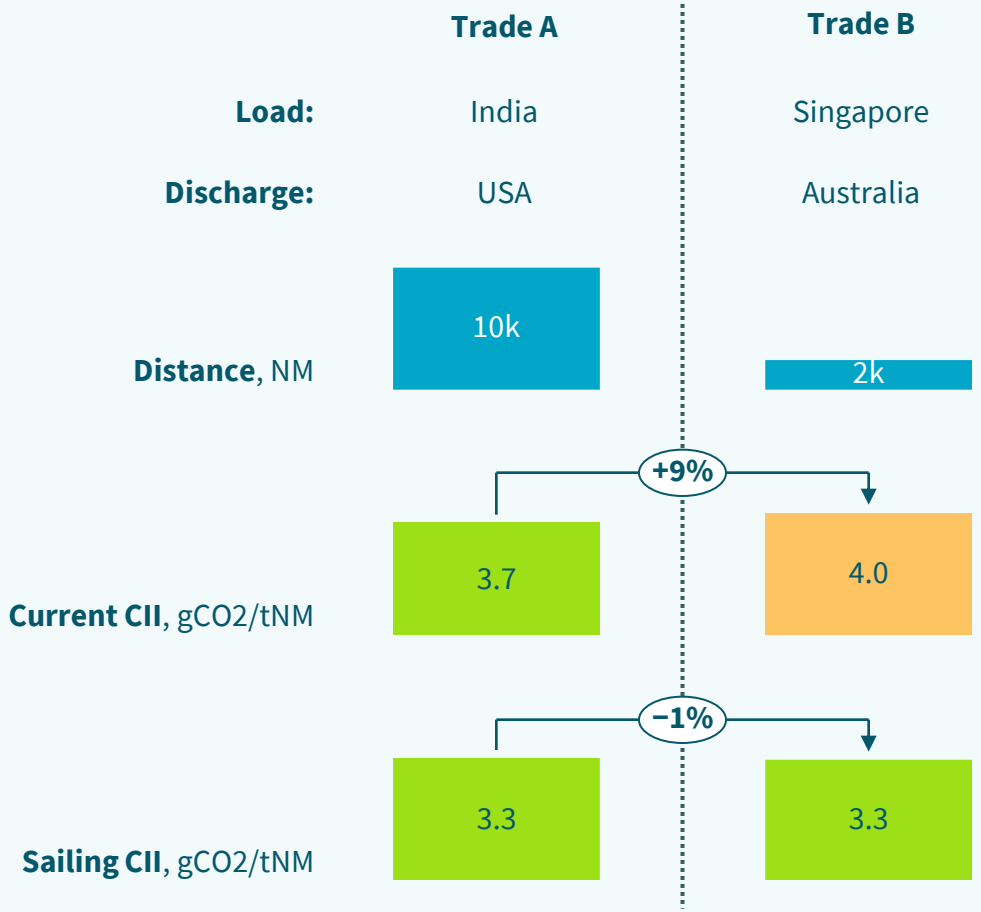
using cargo quantity
more cargo is better

correcting for draft
neutral to cargo qty

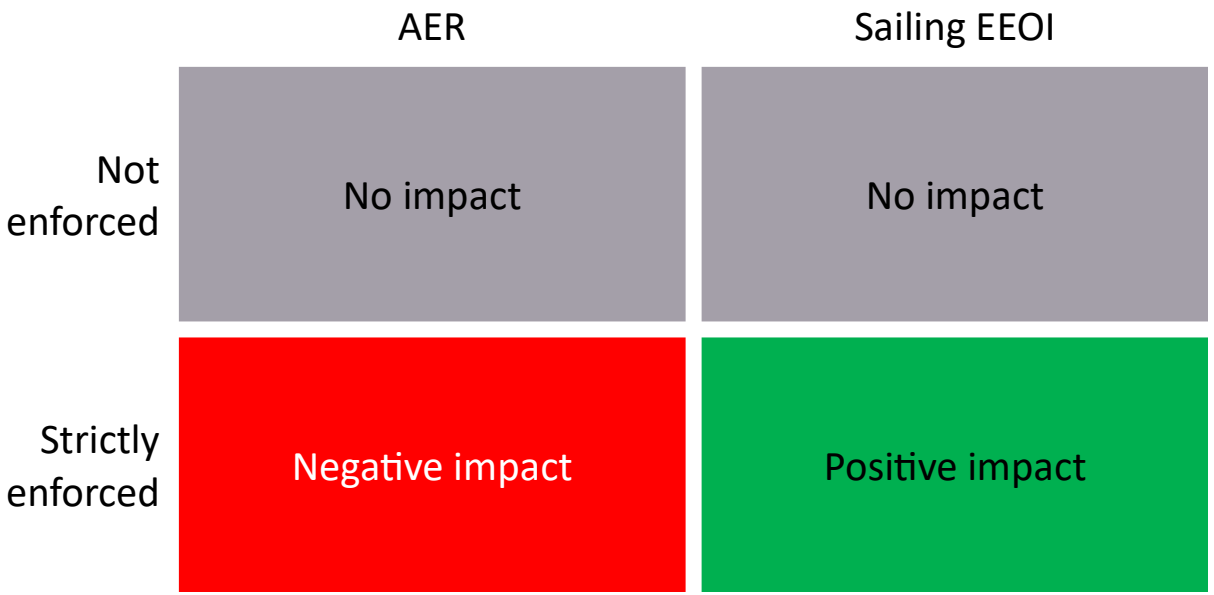


Set of vessels in example trade: caustic soda from China to Australia.
Shown: relative CII score, relative EEOI score, relative draft-adjusted CII score.

Remove incentive to sail long distance



...but CII must be both fixed + enforced in order to have a positive impact



How can the industry decarbonize right now?

Real decarbonization is underway... but now facing an existential challenge

Energy efficiency

Klaveness Combination Carriers moves into wind propulsion with sails on newbuilding

Commercial innovations

Carbon pricing: KCC agrees first charter that links earnings to CO2 emissions

Deal with South32 applies to caustic soda shipments

Engebret Dahm says shipping needs a price on carbon to incentivise efficiency improvements, cut waste and start to transition to new fuels.
Photo: Torvald Klaveness

This year, the owner will start to receive more money if emissions go below the base level, and will get less if they are above this mark.

Any additional cash paid by the charterer will go towards investments in energy efficiency measures for the dry and wet combination carriers.

2023

Industry benchmarking

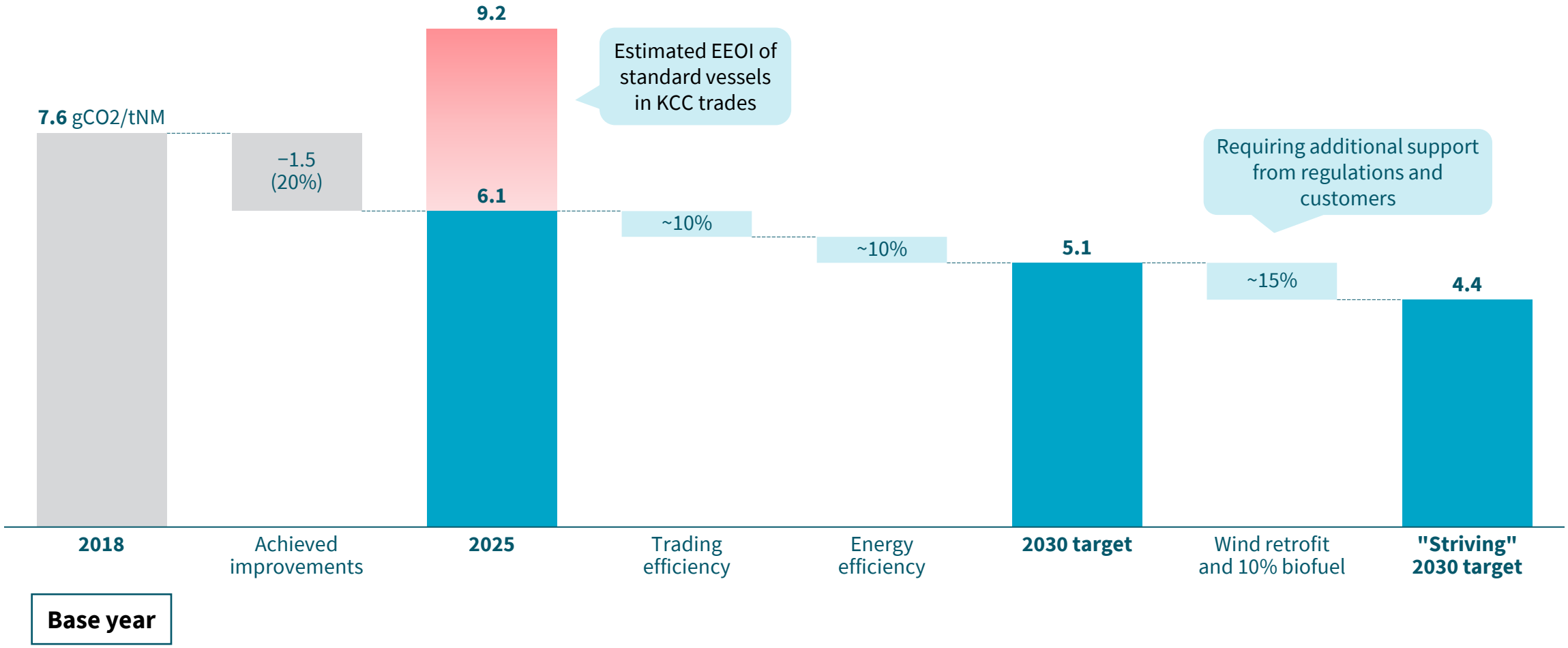
New report reveals maritime emission progress, yet challenges remain in reaching climate alignment

SEA CARGO CHARTER

Annual Disclosure Report 2025

<u>The industry cannot put a global price on carbon, or requirements on energy efficiency.</u>

There is great untapped potential in efficiency — but to go further, we need more ambitious regulations



FUTURE BOUND

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