GHG Reduction Measures

NEWSFRONT Naftiliaki

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At the Door of 2020 and Moving Fast to 2050 Eugenides Foundation

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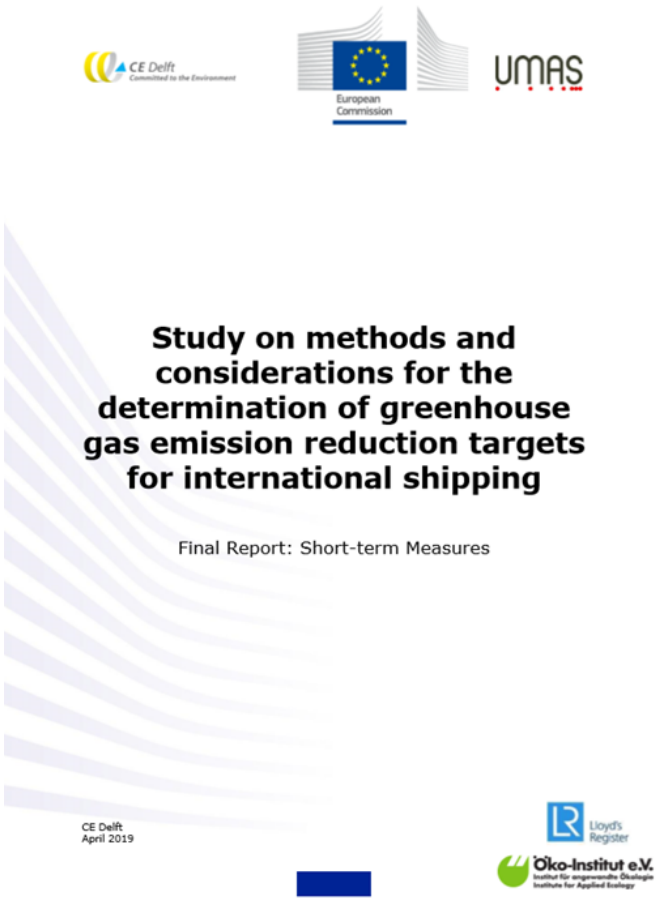
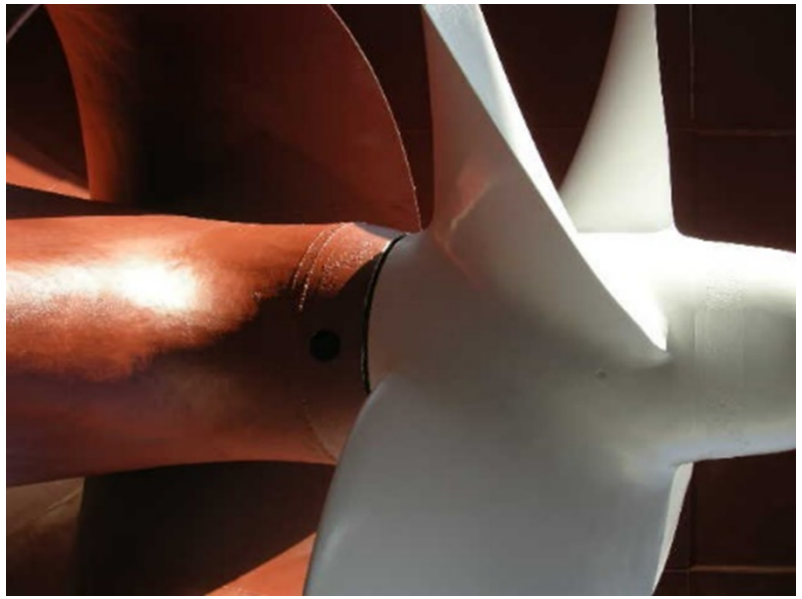
Environmental impact of the proposed measures

Measure	Impact on 2030 annual CO_2 emissions relative to BAU
Strengthening the SEEMP: mandatory goal setting	0% - 2%
Strengthening the SEEMP: mandatory periodic efficiency assessment	0% - 2%
Strengthening the EEDI for new ships	1% - 3%
Strengthening the SEEMP: mandatory retrofits of cost-effective technologies	2% - 4%
Existing Fleet Improvement Programme	2% - 4%
Applying the EEDI to existing ships	1% - 6%
Operational efficiency standards: AER 20% below 2008	5%
Speed reduction: cap average speed at 2012 level	13%
Required to meet the 2030 level of ambition on the CO_2 intensity	21%
Operational efficiency standards: AER 40% below 2008	21%
Speed reduction: cap average speed at 20% below 2012 level	24% - 34%
Operational efficiency standards: AER 60% below 2008	43%

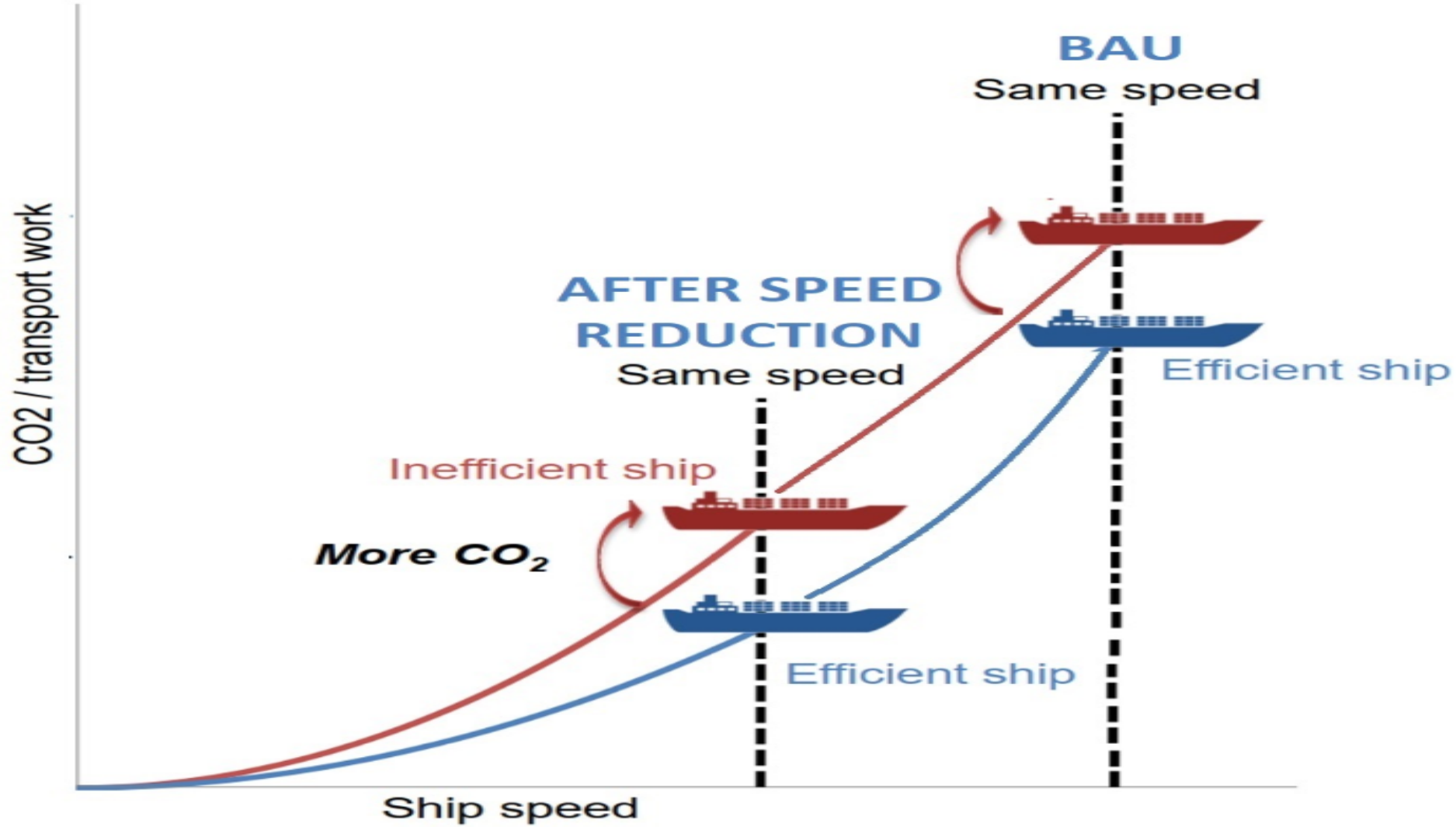


Slow Steaming (Speed or Power limits)

- Slow steaming has significant environmental benefits. (Only by putting laid up vessels back in operation would reduce CO2 by 4%).
- All ships regardless of type, size or age, contribute to emission reduction.
- Charterers are involved in the measures for GHG reductions.
- Negligible impact on states.
- Easy implementation without investment.
- It is instant, easy to monitor (speed limit).



Level Playing Field (Prescriptive Measures)



Level Playing Field (Goal-Based Measures)

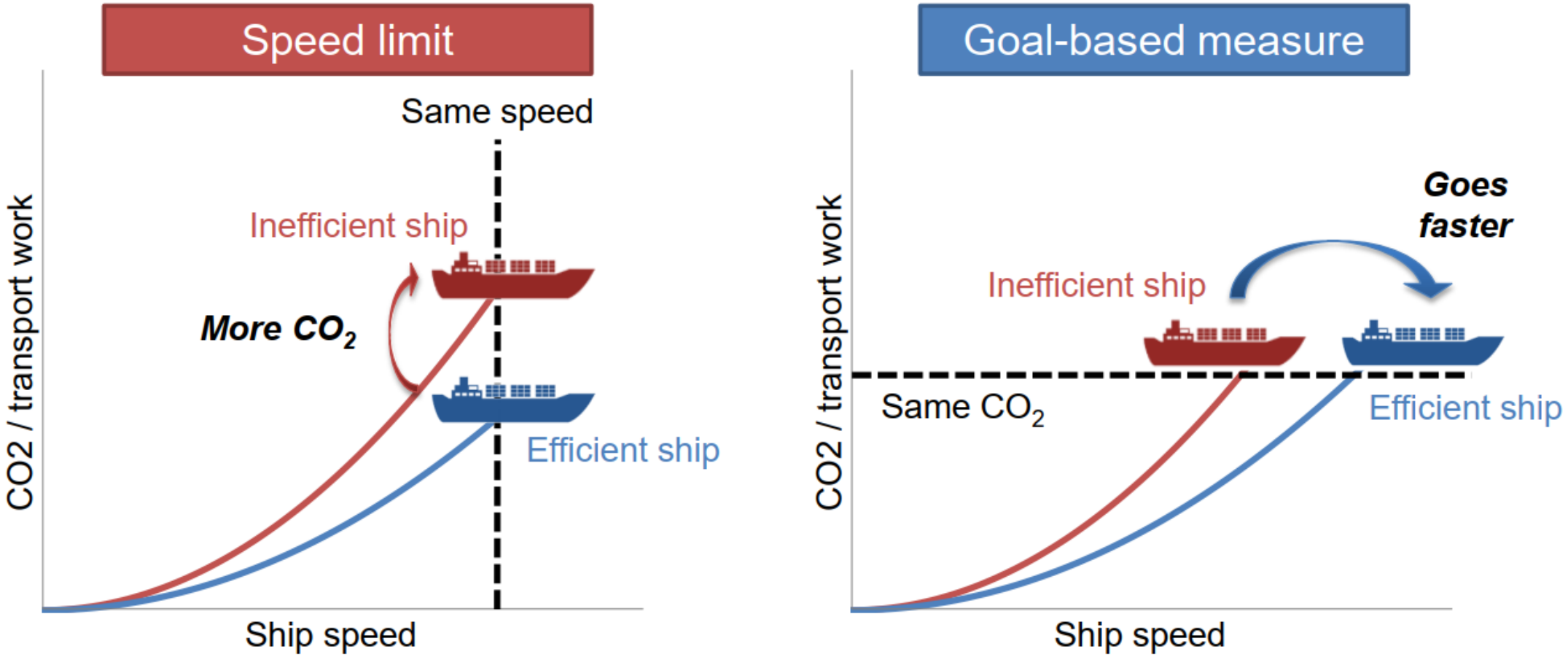


Figure from: ISWG-GHG 6/2/3
Submitted by Japan and Norway

EEXI – Ship Environmental Categories

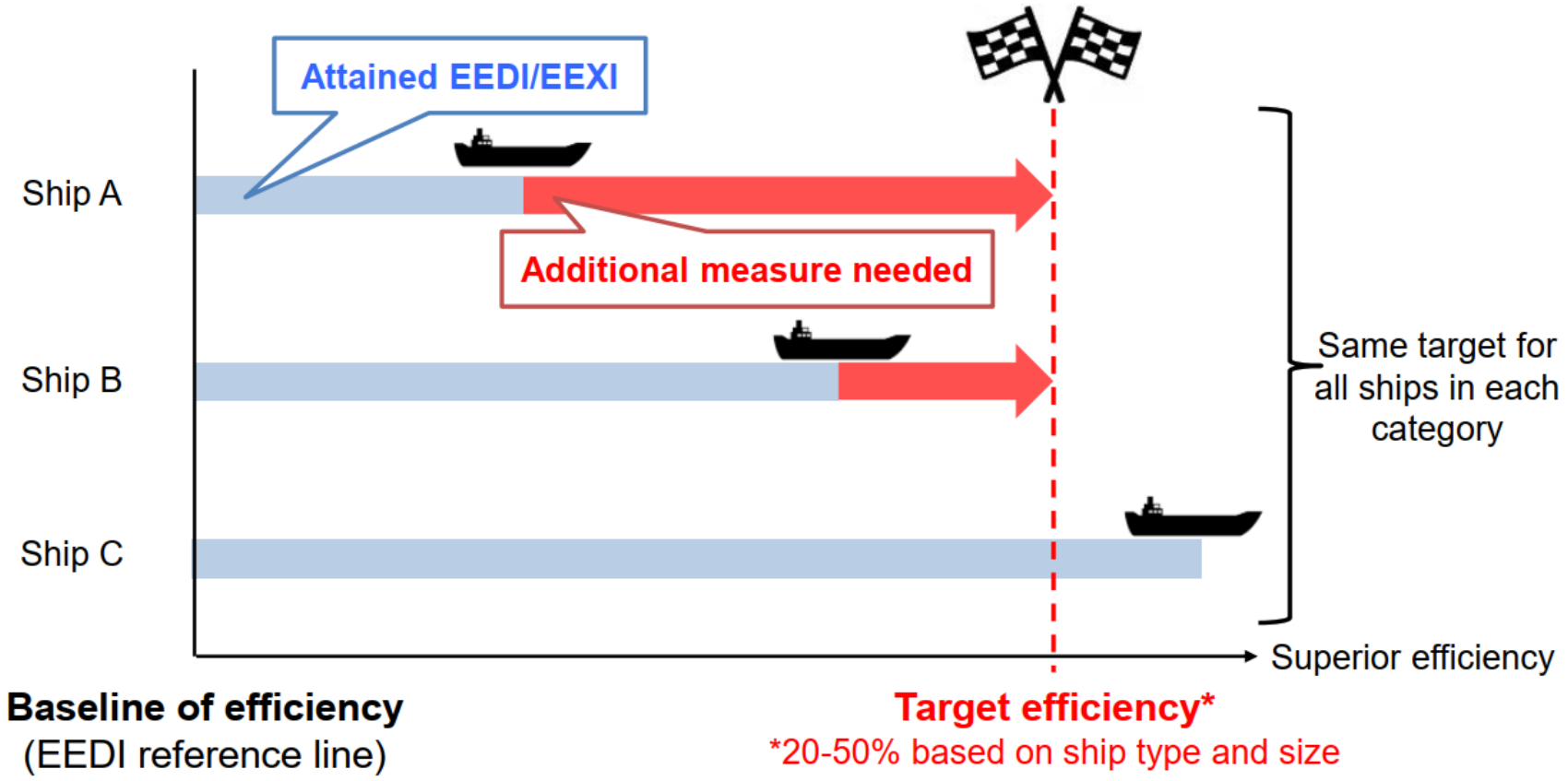


Figure from: ISWG-GHG 6/2/3
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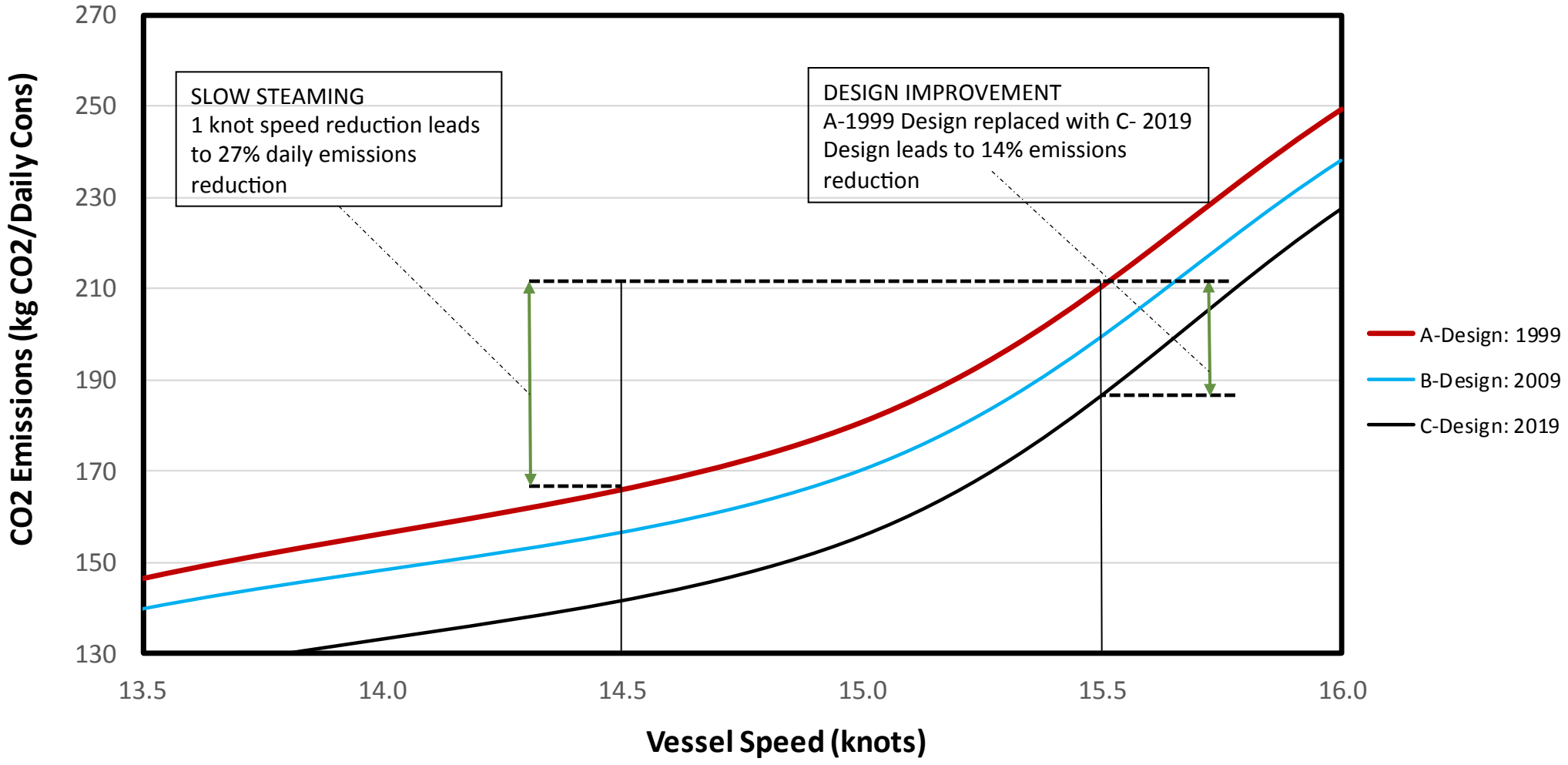
Index for Existing Ships, EEXI & Ship Rating

- Identify designs that pollute above industry average.
- Create categories of ships. Ships targeted as pollutant are pushed out of the market.
- New ships will increase their commercial advantage.
- Promotes the retrofitting of energy saving devices, investments in upgrading technology and new-buildings to keep up with competition.
- Accelerate ships' scrapping rate and ship life time is shortened.
- The environmental benefits are low and not imminent (only 2-4% after 10 years).

Capesize Vessel CO2 Emissions



Interested in Shipping Regulations

- Environmentalists
- Ship-owners and Operators
- Vessel designers
- Classifications
- Shipbuilders
- Charterers
- Makers of engines/equipment
- Refineries and bunker suppliers
- Insurers
- Financiers and banks

Environmental impact – Business opportunities

METHOD	ENVIRONMENTAL IMPACT	INVESTMENT-BUSINESS IMPACT
Slow steaming by speed or power limits	14-34%	Negligible
Super-SEEMP	0-2%	Low
Strength EEDI for new ships	1-3%	Low
Operational Carbon Indicator - Annual Efficiency Ratio AER - gCO2/ton-miles	5-43%	Medium-High
Existing fleet improvement	2-4%	High
Taxation – Levy- R&D on new technologies	unknown	Very High
Apply EEDI to existing ships (EEXI). Fleet renewal scheme	1-6%	Extremely High

Are environmental regulations made to promote investments?

Technological Revolution or War of Interests?

- Mark Carney the Governor of the Bank of England: *"(Shipping) Companies that don't adapt will go bankrupt without question."*
- Michael Parker of Citibank: *"Change (in shipping) is coming quicker than anyone can foresee and decisions that have to be taken in the next three years will determine whether the industry is viable or not."*
- Sander den Heijer, Shipyards and Maritime Equipment Association: *Targets • 2030 - new-build short sea ships and inland vessels, -50% for other ship types • 2050 - all ship types operating deep-sea trades*
- Dave Iwamoto, Committee for Expertise of Shipbuilding Specifics(CESS): *Buy time, easing over-capacity*

Accelerate Fleet Renewal

Improvement of the design efficiency of the fleet if the least efficient ships are removed.

Cut-off value	% improvement	% non-compliant ships
0% above the reference line	-14%	52%
10% above the reference line	-9%	24%
20% above the reference line	-6%	8%
30% above the reference line	-4%	4%
No cut-off	0%	0

Table from: CE Delft Committed to the Environment, European Commission, UMAS

- Accelerate fleet renewal but with which technology?
- Zero emission target?

EU - Ships Emissions Taxation

- It is expected in June 2020 as revision of ETS.
- Taxation of all ships operating within or from-to EU ports based on MRV.
- The tax per CO2 ton is still to be defined (expected between 15-25euro /CO2ton).
- The amount collected will finance R&D on shipping technology.
- Estimated financial impact: 4 billion euro/ year.
- Estimated environmental impact: unknown.

EU - Ships Emissions Taxation for R&D

- Environmental benefit difficult to predict.
- Shipping to-from EU will be reduced.
- Questions on the management of the funds. EU Governments or EU Maritime Climate fund?
- R&D of what technology will be financed?
- Shipping will finance R&D while those with access to the funds will make commercial profit from the developed technology.
- From the numerous technologies will be financed, it is uncertain whether any of them will be finally applicable to the ships.
- We can't finance something that we presently don't even know exists.


Thank you for your attention