

Initial IMO GHG Strategy

T&E Position Paper

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Introduction

The Paris Agreement set the goal of “*holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels*”. Realising these objectives is essential if the most climate vulnerable nations are to be protected and low-lying small island states are to be given a chance of survival. However, climate change driven sea level rise, increase in sea surface temperature and increasing frequency of extreme weather events will also impact the shipping industry and infrastructure, customers and suppliers. A [letter](#) signed by 20,000 scientists last year states that “The world is facing an existential threat from climate change and if rapid action is not taken, there will be catastrophic biodiversity loss and untold human misery” and that focus needs to switch from encouraging growth to conserving the planet.

Shipping is the only sector not subject to specific sectoral decarbonisation objective despite its important climate impact. If the shipping were a country, it would rank 7th highest in CO2 emissions in the world, comparable to Germany's total national emissions

The International Maritime Organization (IMO), as the UN's Specialized Agency regulating international shipping, has so far failed to implement measures to regulate the sector's climate impact. The 1997 Kyoto Protocol asked countries to work through the IMO to reduce greenhouse gas emissions from shipping. The only climate measure so far agreed at IMO level has been the 2011 design efficiency standard (EEDI) but it has failed to drive better designs or incentivise technological innovation in shipbuilding.

After several attempts to act on ship GHG, the IMO finally agreed in 2016 on a 7-year GHG Roadmap (work programme) to discuss and agree on measures to address shipping's climate impact. The organisation is meeting in London this April 3-13 to agree an Initial GHG Strategy as part of its GHG Roadmap.

IMO's Initial GHG strategy should include *a vision statement, level of ambition, commitment to immediate action* and a list of candidate *emissions reduction measures*.

Vision - *what should be the vision for decarbonising the shipping sector?*

Transport & Environment supports the objectives of the Paris Agreement (PA), namely achieving the goals to limit global temperature increases to “*well below 2°C*” and “*pursuing efforts to limit the temperature increase to 1.5°C*” compared to pre-industrial levels.

Existing scientific evidence shows that only the 1.5°C temperature goal of the PA would afford the vulnerable [nations](#), including South Pacific island states, a chance for survival. For the shipping sector this

means fully decarbonised within the first half of the XXI century.¹ Therefore, the **vision statement** in the Initial IMO GHG Strategy should include a commitment for:

“..... full decarbonisation of international shipping by 2050...”

Such a vision statement will send an important signal for industry and policy-makers alike and must be accompanied with numerical Levels of Ambition, i.e. long-term emission reduction targets that are compatible with 1.5°C temperature target, as well.

Level of Ambition for shipping - which long-term targets are compatible with Paris Agreement?

Existing scientific data on shipping and global industrial emissions allows us to estimate needed levels of ambition for international shipping based on available carbon budgets left to humanity.² Using the principles of fair share and efforts of comparable sectors, the following long-term absolute emissions reductions targets can be conceived for international shipping that is generally compatible with 1.5°C/2°C temperature goals of the PA:

- **Volumetric target: 70-100% absolute emissions reduction by 2050 compared to 2008 levels.**
- **Energy intensity target: 90-100% carbon intensity per tonne-km reduction by 2050 compared to 2008 levels.**

These proposals are not perfect but they keep the door to 1.5°C open. The long-term targets for international shipping must be complemented with an objective that absolute annual emissions must peak - at or below 2008 levels - in the immediate future and quickly reduce thereafter.

The above-mentioned targets are championed and supported by the coalition of High Ambition Countries, Clean Shipping Coalition, Greenpeace, WWF, FOEI and Pacific Environment.

However, these targets - especially long-term volumetric and energy intensity targets, are not supported by the shipping industry or some highly industrialised nations, notably Japan. Japan specifically proposes a mid-term carbon intensity (per tonne-km) reduction of 40% by 2030 and volumetric absolute emissions reductions of 50% by 2060 compared to 2008 levels. These targets are on record as supported by industry.³

Both the 2030 energy intensity and 2060 volumetric reduction targets proposed by Japan will exceed conservative interpretations of shipping's 1.5°C and 2°C carbon budgets by a large margin and put the achievement of the temperature goals of the Paris Agreement out of reach. The following graphs (Fig. 1 and 2) show the extent to which the targets proposed by Japan will overshoot the necessary level of ambition when emissions are allowed to grow unabated to 2030 (which a 40% efficiency target would allow) and reduced by only 50% by 2060.

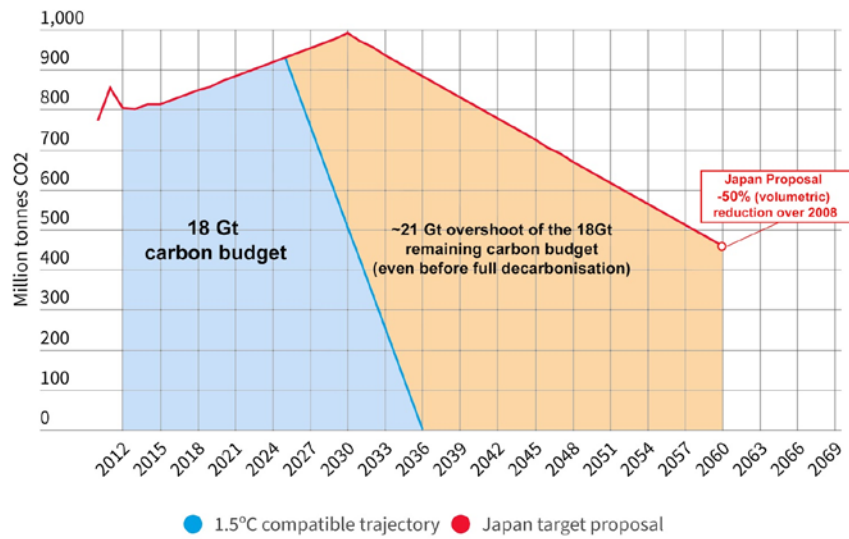
¹ Carbon Brief, *Analysis: [Just four years left of the 1.5C carbon budget](#)*; The Global Warming Policy Forum, *[Leaked IPCC draft report predicts 1.5°C warming by 2043](#)*.

² UMAS (2016), CO2 *[Emissions from International Shipping](#)*.

³ ShippingWatch, *[ICS working toward 2060 as shipping's climate deadline](#)*.

International ship CO2 emissions

1.5°C compatible trajectory vs. Japan 2060 reduction target proposal

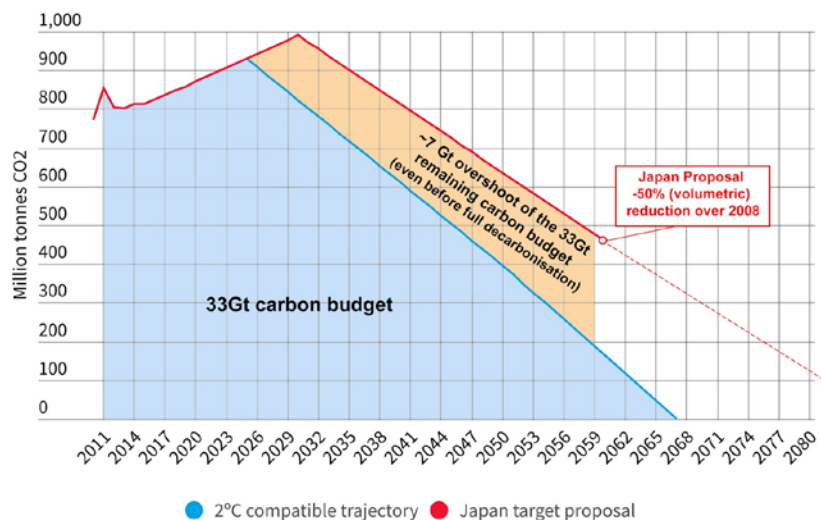


Sources: estimations based on 3rd IMO GHG study (2012), UMAS (2016), CE Delft (2017), ICCT (2017) **TRANSPORT & ENVIRONMENT**

Figure 1 – Estimations assume shipping has an 18 Gt carbon budget for 1.5°C compatible trajectory with early (2025) peaking of emissions.

International ship CO2 emissions

2°C compatible trajectory vs. Japan 2060 emissions target proposal



Sources: estimations based on 3rd IMO GHG study (2012), UMAS (2016), CE Delft (2017), ICCT (2017) **TRANSPORT & ENVIRONMENT**

Figure 2 – Estimations assume shipping has a 33 Gt carbon budget for 2°C compatible trajectory with early (2025) peaking of emissions.

These figures show the targets proposed by Japan and supported by industry will result in an overshoot of the finite 1.5°C and 2°C shipping carbon budgets by around 21Gt and 7Gt respectively by 2060. Japan's proposed objective would also have ship emissions continuing for many years beyond 2060 because it does not envisage full decarbonisation of the sector by the target year - 2060. If shipping emissions were further reduced linearly (dashed red line in Fig. 2) consistent with Japanese target beyond 2060, then the overshoot

of the shipping's finite carbon budget would be doubled. The 21Gt and 7Gt amounts alone are equal 16x and 5x Japan's to total national GHG emissions (1,321 Mt – [2015](#)).

The difference in these budgets will have knock on effect for the global climate, global economy, citizens and shipping industry itself with increased sea levels and severe weather events disrupting international trade.

Moreover, a group of nations and industry interests has called for no absolute cap on shipping emissions. However, the PA temperature goals are absolute objectives. They are not conditional on whether the global economy or the shipping industry think they are achievable or not.

T&E therefore suggest that as a sister UN agency to UNFCCC, the IMO should be framing the development of its objective primarily on the same ambitions and not continue to delay the inevitable need to decarbonise. There are many low carbon solutions available to the shipping sector, it is technically feasible for the sector to decarbonise, and all that is needed is the political will to put the sector on the decarbonisation path.

Level of Ambition - *should we start lower and ratchet up?*

The IMO's interim GHG Strategy will be revised in 2023 according to the IMO GHG reduction Roadmap. This timescale does not afford vulnerable low lying nations the luxury of further reviews to make things right should the Initial GHG Strategy fail in 2018 to put the sector on a 1.5°C compatible pathway. Considering the additional time that will take to develop, agree and implement reduction measures, such a delay in the process would make the achievement of 1.5°C target quasi-impossible.

In determining the long-term *level of ambition* for the sector, IMO states should, for the following reasons, avoid as much as possible reliance on ratchet/review mechanisms:

1. a weak long-term reduction target agreed now that relies on a possible future ratchet/review process will send the wrong signal to the industry on the need to make pragmatic investment decisions in the short-term. This is especially important because of the long-term asset value of ships;
2. ratchet/review mechanisms diminish the effectiveness of any underlying emission reduction measures, which are usually very difficult to revise once in place (the EEDI is a good example of this); and
3. ratchet/review mechanisms create unpredictability for industry by constantly shifting the goalposts. This could lead to significant disruptions in the operation of the sector and the availability of necessary alternative zero emission fuels/energy sources infrastructure to attain changing emissions reduction targets.

Therefore, T&E considers that the IMO should avoid relying on review/ratchet mechanisms in determining the *level of ambition (reduction target)* for the sector and agree a PA compatible reduction target in the April meetings. However, review/ratchet mechanisms can be used to increase the ambition of reduction measures that should help the sector to achieve its reduction targets.

Emission reduction measures

T&E calls for immediate action to peak emissions in the short-term.

There is a fixed and finite carbon budget for the sector. This is often represented as the area under the decarbonisation curve (e.g. blue area in Fig. 1 and 2). The shape of the curve is dependent not only on the available carbon budget, but also on when the abatement action takes place and how fast the sector is exhausting its budget annually.

- Firstly, the more the shipping sector emits early in the process, the less budget will be available for future years. This means there is less time to bring about the changes that will be necessary to decarbonise the fleet, often represented by a steeper decarbonisation curve. Conversely, the less the sector emits in the short-term, the longer will be the time available within the budget to completely switch to alternative carbon-free propulsion technologies.
- Secondly, committing to action in the near-term will drive investor confidence and accelerate the uptake of alternative propulsion technologies and zero emission fuels.

The process to develop, adopt and implement short-term measures must be clearly spelt out in the 2018 IMO GHG Initial Strategy. This means that immediate intersessional working group should start work on short-term measures as soon as possible after MEPC 72 in April.

Speed reduction for ships - *can it help sector preserve carbon budget?*

Emissions reductions can be put into 3 time frames: short, medium and long term which relate to the timing of the emissions reductions taking place respectively before 2023, 2030 and beyond 2030.

Speed reduction (slow steaming) has been included in the draft list of candidate short-term measure of the IMO. Proposed by the CSC (T&E's umbrella organisation at the IMO) and supported by several other state delegations, slow steaming refers to the practice whereby ships are required to operate at slower speeds, thus saving fuel, reducing CO₂ and air pollutant emissions. According to a recent report⁴, slow steaming could reduce emissions from the three major ship types - container, bulk, tanker - by a third. These three ship types alone account for 52% of global ship CO₂. Similar results can be achieved from other ship types. With slow steaming the sector will save a considerable share of the remaining carbon budget in a short time, which will allow it to use this saved budget beyond 2030 (Figure 3).

At the same time, contrary to some concerns raised, research⁵ shows that slow steaming will have marginal impact (a tenth of a percentage) on the GDP of remote countries even without taking into account the savings that would arise from reduced fuel consumption.

⁴ CE Delft (2017), [Regulating speed: a short-term measure to reduce maritime GHG emissions](#).

⁵ Ibid.

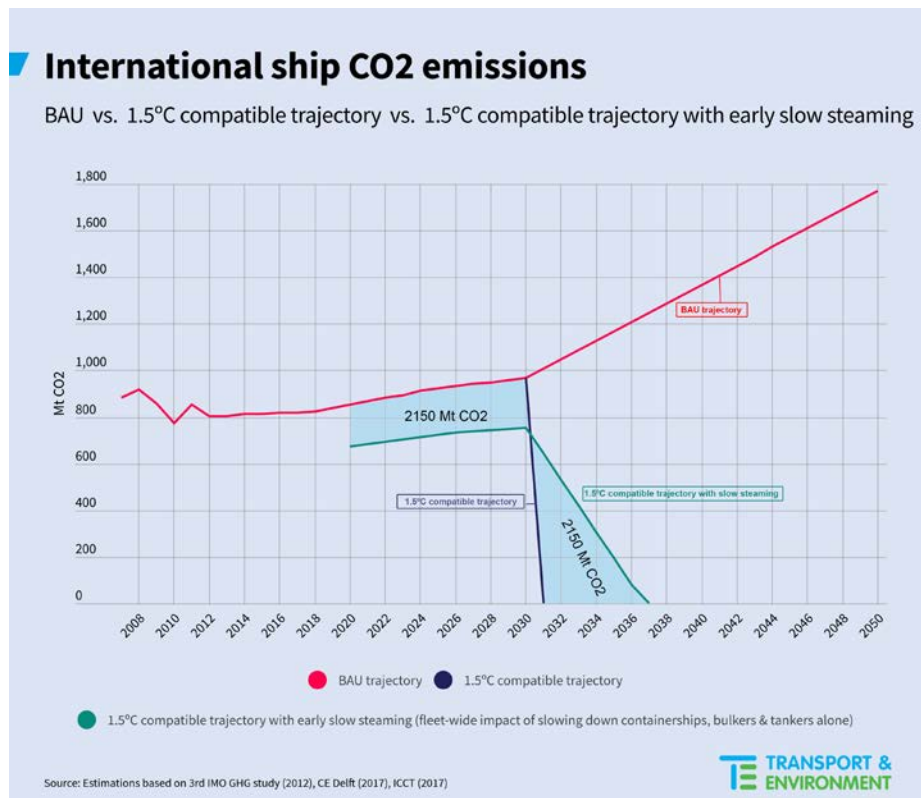


Figure 3: Early slow steaming helps to save carbon budget in the short-term and extend the time horizon for decarbonisation.

Energy Efficiency Design Index (EEDI) - *What is the state of play and what needs to be done?*

IMO adopted in 2011 a design standard, known as the Energy Efficiency Design Index (EEDI), to apply to new ships built from 2013. To incentivise the development and uptake of emissions saving technologies, the IMO EEDI regulation has set 3 targets, known as phases, which each require that ships progressively emit less CO₂ to perform the same amount of transport work. The most stringent target - Phase 3 - requires new ships to be built after 2025 to be 30% more efficient.

However, latest research⁶ shows that many existing ships in all class categories already meet and over-comply with the post-2025 requirements. Almost three-quarters (71%) of all new containerships, which emit around a quarter of global ship CO₂ emissions, already comply with the phase 3 EEDI. Additionally, the best 10% of new containerships are already almost twice as efficient as the requirement almost 10 years away. Similar over-compliance is observed in other ship types.

The evidence strongly supports the need and feasibility of strengthening the EEDI requirements but the review process over the past two years has been plagued by backsliding and unnecessary delay by vested interests.

The IMO should agree in 2018 to tighten phase 3 of the EEDI by bringing forward the implementation date from 2025 to 2022. In order to incentivise development and deployment of further energy saving

⁶ T&E (2017), [Statistical analysis of the energy efficiency performance \(EEDI\) of new ships built in 2013-2017](#).

technologies and innovative ship designs, the revision of existing and setting of future design standards should be based on the performance of the 10% best ships in the market.

The EEDI framework should be upgraded to take into account further reduction solutions after 2025, in particular by incentivising alternative fuel and hybrid machinery designs with ultimate goal of transitioning to full decarbonisation of vessels.

Carbon pricing and climate research & development funding for maritime sector - *Medium term measure*

There is also the need for effective carbon pricing to further reduce GHG emissions from ships. This could be in the form of a CO₂ charge, a fuel levy or an operational efficiency metric that would deliver equivalent savings. Some of the funds raised from any initiative could stay within the sector to incentivise fleet decarbonisation. In no circumstances should recourse be made to an out of sector offsetting mechanism. In the first instance, all sectors need to decarbonise to achieve the temperature goals the Paris Agreement. Secondly, there are evident measures that shipping sector can implement to deliver significant reductions and these must be pursued immediately.

Funds generated through carbon pricing can enable R&D, infrastructure development for zero emission bunkering and retrofitting existing ships or building new zero emission vessels.

The work to develop a Maritime Fund or a Fuel levy should in no way delay work on agreeing and implementing immediate reduction measures which should start to deliver reductions before 2023 and not conflict with the negotiation or deployment of short term measures, notably, slow steaming and revision of EEDI.

Further information

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