

Written evidence from UK Chamber of Shipping

Written evidence submitted by:

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Thank you for the opportunity to provide written evidence to the EAC's call for evidence on shipping's voyage to net zero, published on 20 July 2021.

I am responding on behalf of the Chamber of Shipping which is the trade association and voice of the UK shipping industry, representing more than 200 members and associate members across the maritime industry.

As an island nation where 95% of trade is transported by ships, the UK economy and development are highly dependent on shipping. In 2017, shipping and the maritime sectors contributed an estimated £47 billion in turnover. That is significantly higher than the contribution from rail, air and road sectors.

As a preface to our response, I would like to stress that the UK Chamber of Shipping and its members are committed to continuously reduce shipping's footprint on the environment and protect it for present and future generations. The UK Chamber of Shipping supports the UK Government position to net-zero by 2050 and seeks to help the shipping industry decarbonise in line with the Paris Agreement goal of keeping the global temperature to 1.5°C pre-industrial era levels.

The call for evidence asks for some 8 questions, and below is our input.

Of course, the Chamber of Shipping is willing to provide further detailed written and oral evidence as required and constructively assist in this process.

What contribution can operational efficiencies make to reduce emissions from aircraft/shipping vessels, and over what timescale could these have an effect on emissions?

Transport by sea is the most carbon-efficient mode of transport. Over the last decade, the global shipping industry has made great strides by reducing its share of world CO₂ from 3.2% to 2.4% (2009-2020) whilst facilitating a 30% increase in global trade. This is done through the optimisation of ship operations and investment in technology and alternative fuels.

The shipping industry is the only global industry with a comprehensive framework that addresses the operational energy efficiency of the global fleet. Since 2011 the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) has included a new Chapter 4 containing Regulations on Energy Efficiency for Ships in Annex VI; specifically, the Energy Efficiency Design Index (EEDI), which applies to new ships, and the Ship Energy Efficiency Management Plan (SEEMP) for all ships.

The IMO legislation on the Energy Efficiency Design Index is currently into its third phase, aiming to increase the design efficiency of new buildings by up to 50% in 2022 based on the 2013 baseline. Negotiations on the strengthening of the fourth phase are currently being held with the IMO.

The EEDI framework is a technical measure and has stimulated continued innovation and technological development of all the components influencing the fuel efficiency of a ship from its design phase. As the operational phase is by far the most demanding period of a ship's life cycle in energy terms, a well-defined operational profile from the early design stages is a promising way to develop an energy-efficient ship of high quality. Subsequently, the EEDI framework has directly impacted the improvement of the operational efficiency of international shipping.

The Ship Energy Efficiency Management Plan (SEEMP) is a practical approach to help shipowners manage and improve their ship and fleet efficiency in a cost-effective manner. The SEEMP is intended to be a tool that allows ship operators to consider new technologies and practices when seeking to optimise the performance of a ship. These measures include improved voyage planning or more frequent propeller cleaning or introducing technical measures such as waste heat recovery systems or a new propeller.

In addition, in June 2021, as part of implementing the Initial IMO GHG Strategy, the IMO adopted a goal-based operational efficiency measure, the Carbon Intensity Indicator (CII) measure. The CII enters into force in 2023 and aims to improve the efficiency of the global fleet by at least 40% by 2030 by setting specific mandatory operational efficiency targets on individual ships. To achieve the CII targets, shipowners will need to consider a wide variety of measures. Some of these include speed optimisation, route planning and alternative fuels.

The UK Chamber believes that the CII measure, which is also accompanied by a technical efficiency measure for existing ships (EEXI), will effectively improve the operational efficiency of the industry in the short term. However, in the mid and long-term, a broader systemic shift is required if the shipping sector is enabled to transition towards sustainability – specifically the development of net-zero carbon fuels, technologies and green port infrastructure. These are critical to helping the industry shift towards a more sustainable operating space, specifically for zero-emission vessels.

How close are zero-carbon fuels to commercialisation for aviation/shipping? What role should transitional fuels such as alternative hydrocarbon fuels play?

For the shipping industry to meet the UK's and IMO's level of ambition for 2050 and given the 20 to 30-year lifetime of ships and their international nature, commercial deployment of zero-carbon fuels, ships, and global fuel infrastructure should need to start latest by 2030.

While there are a number of pilot and demonstration projects underway in the UK and other parts of the world that aim to drive the industry towards a zero-emission future, these resources currently being dedicated are not of the scale that is required to ensure the commercialisation of zero-carbon fuels and ships by 2030.

The research conducted by Ricardo (see link below) underscores the magnitude and scale of the challenge required to increase Technology Development Levels to the necessary extent to support the decarbonisation of international shipping.

https://cdn.ricardo.com/rsc/media/media/research_and_development_requirements_for_zero_carbon_shipping_online_visual.pdf

As concern alternative hydrocarbon fuels, they may have the potential to low or have zero net emissions when used for ship propulsion. Currently, LNG has gained traction, mainly due to the IMO policy push to improve the air quality in ports and coastal areas. It represents today the most cost-effective solution that offers emission reductions. However, its long-term contribution to climate change mitigation would depend on fuel and technological development. The introduction of renewable liquefied methane, either from bio or synthetic sources, could see LNG ships being effectively carbon-neutral in the future. To this end, Japan is currently working on a project that looks at LNG transitions to carbon-recycled methane.

Alternative fuels can also be used as “drop-in” fuels (such as biodiesel); however, they are still applied in shipping on an experimental basis.

What new technologies are there to reduce emissions from shipping vessels, and how close to commercialisation are they?

As mentioned above, and according to the Global Maritime Forum, currently, there are around 66 zero-emission pilot and demonstration projects for shipping globally. Most of them involve hydrogen fuels and ammonia. These projects aim to show the viability of the technologies to achieve zero-emission via

1. Safety,
2. Environmental impact,
3. Economic costs, and
4. Generation of knowledge and experience that can be used to improve technologies further.

In addition, there are several renewable energy source technologies for shipping applications such as wind, solar, photovoltaics, biofuels, wave energy, batteries and supercapacitors. Their technological maturity and cost-effectiveness are in different stages, and very few designs will target 100% renewable energy or zero-emissions for primary propulsion.

Overall, substantial R&D is needed for most of the above options to reach the deployment and commercialisation stage.

How should the Government's net-zero aviation strategy support the UK industry in the development and uptake of technologies, fuels and infrastructure to deliver net-zero shipping and aviation?

Technological innovation is a critical accelerator and enhancer of implementing the ambitious UK and IMO GHG goals. However, the maritime industry is the less funded transport sector in the UK in terms of R&D for the decarbonisation of the sector. Also, the UK Chamber and its members are acutely aware that, compared to countries like Norway, Germany and Singapore, the UK is behind in providing an equivalent level of financial and fiscal support for the decarbonisation of the shipping industry.

Therefore, as a matter of priority, the UK Government should level up the shipping industry with its automotive and aviation counterparts to provide investment for accelerated projects which could support the industry on its decarbonisation journey. In particular, the Government should back the industry at the upcoming Spending Review with serious funding to assist R&D and deployment of zero-emission shipping and green port infrastructure.

Increased funding for the industry would provide the UK with an opportunity to serve as a test and demonstration centre for the deployment of new fuel types and technologies. This will potentially provide the full breadth of the UK maritime sector a competitive advantage in new green technologies, creating opportunities for jobs and growth and providing a first-mover advantage to UK shipping companies.

What is the most equitable way to reduce aircraft passenger numbers (e.g. reforming air passenger duty and taxes, frequent flyer levies, bans on domestic flights where trains are available, restrictions on airport capacity)? Are there any policy mechanisms that could reduce our reliance on shipping?

The shipping industry should be seen as a facilitator of the UK's path to decarbonisation. Moving goods from roads and air to sea reduces emissions and congestion and improves our roads' safety.

The new report published by Department for International Trade (see the link below) highlights the role of the shipping industry as a facilitator of green free trade that helps accelerate the global transition to a low-carbon economy. The shipping transport, which according to the report, generates 25 to 250 times fewer emissions than trucks, enables the transportation of goods with low GHG impact, which helps the environment. In summary, more international trade and shipping can actively help cut global GHG output.

<https://www.gov.uk/government/news/new-trade-report-argues-uk-should-reject-green-protectionism-and-harness-free-market-to-address-climate-crisis>

What further action is needed by the International Civil Aviation Organization and International Maritime Organization to drive emissions reductions? What can the UK Government do to drive international action on emissions?

Shipping is an inherently international industry that depends on a global regulatory framework to operate efficiently. Without international action through the IMO, there will not be sustainable progress in reducing global emissions due to carbon leakage and will have a significant impact on the cost of reduction for the UK.

Besides, as an island nation that is heavily dependent on shipping, the UK has a definite interest in the international community to achieve meaningful emission reductions. The UK has shown that it can take a leadership role at the IMO to ensure that measures and agreements are designed to be efficient, effective, and equitable.

Therefore, the UK should take a leading role in ensuring that the reduction targets set by the IMO are met. This should be done by influencing the regulatory process of the IMO in a constructive and balanced way. To this end, the UK should seek the IMO to bring into force an IMO Maritime Research Fund by 2023 and an International Market-Based-Measure (MBM) that would effectively cost the impact of the existing fuels on the environment and will encourage the transition towards decarbonisation.

Finally, the UK domestic policy mustn't lead to conflicting regulations with the IMO rules, but rather seek coherence, supplement them and contribute to their effective and efficient implementation.

How effective will the global offsetting scheme for international airlines (ICAO's CORSIA) and the UK and EU ETS be at stimulating technology improvement and/ or behaviour change to reduce emissions from aviation/shipping?

There is yet no EU ETS in force for shipping, and it is too early to assess the effectiveness of the EU's proposal as it is expected to go through some changes and negotiations before entering into force. However, the shipping industry sees regional schemes as an ineffective way of regulating international emissions. They cover only a very small amount of global emissions due to the high risk of shifting the issue to other parts of the world. In addition, they introduce additional complexity for the shipping industry relative to other forms of carbon pricing. The proliferation of regional or national ETS could result in a lack of harmonisation on carbon pricing, which would be undesirable in the context of establishing consistent price signals to support investment in global supply chains for alternative low- and zero-carbon fuels for shipping. In addition, they have the potential of distracting the much-needed work at the IMO and could potentially lead to market distortions.

The link below includes a preliminary and independent report commissioned by ECSA and ICS on "the Implications of the application of the EU Emissions Trading System (ETS) to international shipping and the potential benefits of alternative Market-Based Measures (MBMs)".

<https://www.ecsa.eu/sites/default/files/publications/ECSA-ICS-2020-Study-on-EU-ETS.pdf>

How should the UK define its ownership of international aviation and shipping emissions (i.e. arrivals, departures or both) in order to include them in legislative targets?

In the past, the UNFCCC has investigated various options for allocating CO2 emissions from international shipping to individual countries. This was followed by a discussion of the economic and regulatory issues related to these options and the consequences of applying them. This evaluation showed no single allocation option that can be regarded as environmentally effective, legally effective and allowing for fair burden-sharing. Therefore, international shipping fuel emissions have been excluded from the Kyoto Protocol, recognising the international nature of shipping and the need for global solutions.

Till recently, the UK has been reporting to the UNFCCC the estimated CO2 emissions based on marine bunker fuel sales to international shipping as a “memo” item. A memo item does not form part of national inventory (i.e. those emissions for which the country is responsible).

However, in March 2021, the UK Government agreed to include its international bunker fuel emissions in its sixth carbon budget. As the current practice of CO2 emissions reported data is based on UK refiners' declared sales of marine bunker fuels for international navigation from UK ports, there are challenges associated with using this method for their inclusion in the legislative targets.

At present, there is no international agreement on how global shipping emissions should be brought within a national inventory. Ships are mobile emitters and, when engaged in international trade, cross different jurisdictions. This makes the allocation of emissions very complex and prone to carbon leakage.

Nevertheless, the UK Chamber of Shipping is looking forward to work closely with the Government and explore other possible methods and instruments of measuring the UK's international shipping emissions to ensure their fair allocation in the UK's national budgets that avoids double counting and overlapping with the IMO and other countries legislations.

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