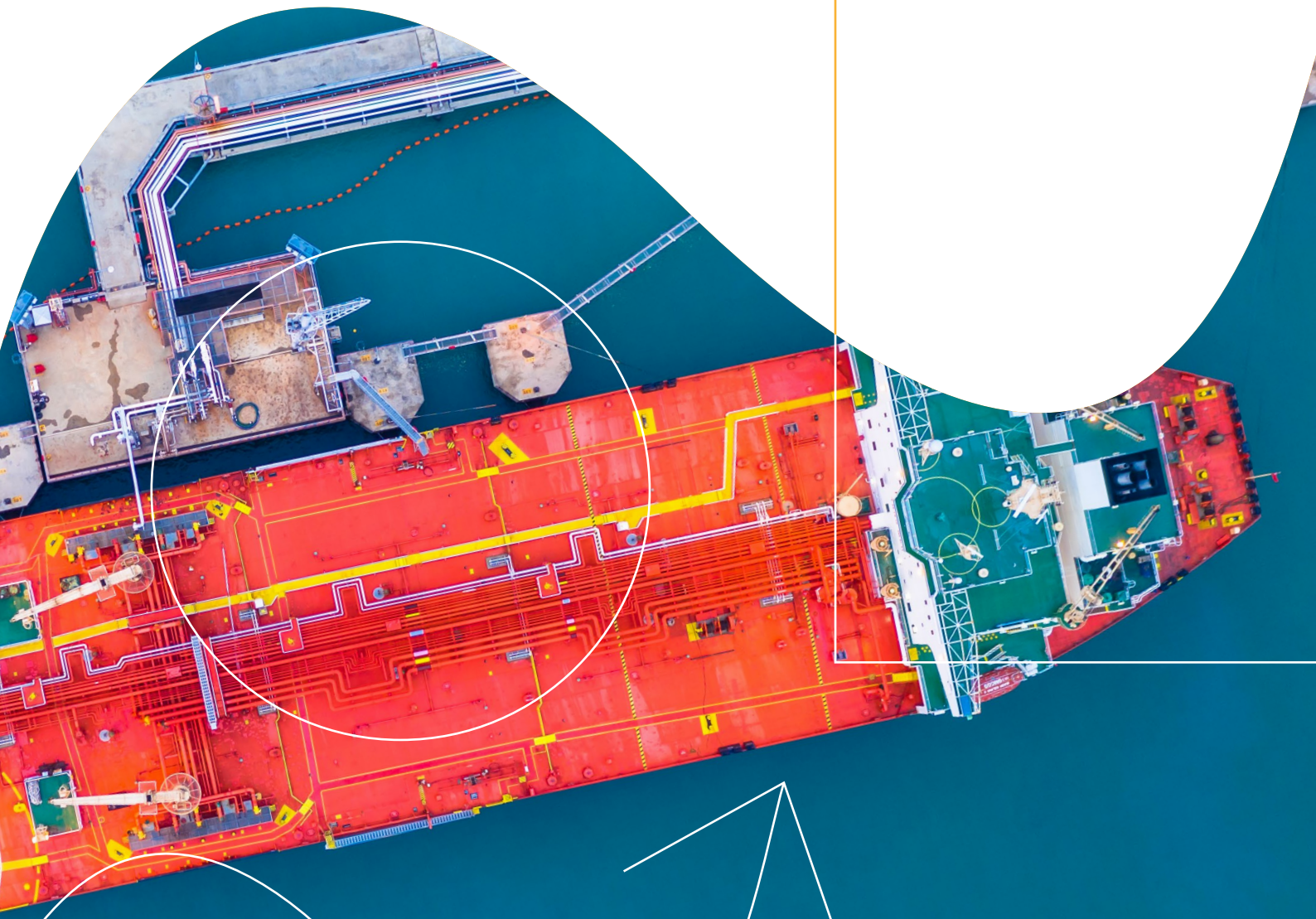
SEA CARGO CHARTER

Aligning global shipping with society's goals



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"Sea Cargo Charter" is a reference to the arrangements set out in the Membership Agreement and the Governance Rules of the Sea Cargo Charter Association, a non-profit association registered in Denmark, which are available on www.seacargocharter.org and any interested party is encouraged to consult. This document is intended only as guidance and does not interpret, replace or amend the Membership Agreement or the Governance Rules.

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The Sea Cargo Charter

As Chair and Co-Chair of the Sea Cargo Charter, we are proud to share our commitment to addressing the environmental impacts of global seaborne trade.

Inspired by the launch of the Poseidon Principles in June 2019, the Sea Cargo Charter was developed in recognition of our responsibility towards promoting responsible environmental stewardship throughout the maritime value chain. We believe that industry-wide change is possible when we all take responsibility for contributing to meeting the greater goals of the society we serve.

The Sea Cargo Charter is consistent with the policies and ambitions of the International Maritime Organization (IMO), including its 2023 revised Strategy for greenhouse gas (GHG) emissions from international shipping to drop to net-zero around 2050 compared to 2008 levels with indicative checkpoints at 2030 and 2040 on a well-to-wake basis. It shares common principles with the Poseidon Principles and the Poseidon Principles for Marine Insurance. As such, it sets a standard for reporting emissions, thus enhancing transparency and creating a global baseline to support and work towards the greater goals for our society and the goal to align our maritime activities to be environmentally responsible.

The Sea Cargo Charter has from its inception been opened to all charterers. Recognising the key role played by shipowners in the decarbonisation of shipping and the interest demonstrated by some for reporting under the same framework, the Sea Cargo Charter adapted its framework in 2024 to also allow shipowners who do not necessarily charter-in vessels to join. The Sea Cargo Charter therefore welcomes all shipowners and charterers of ships in the dry bulk and tanker trades. It is applicable to companies that occupy any position along the charterparty chain: charterers, sub-charterers, disponent owners, registered owners with commercial control[1]. The Sea Cargo Charter applies globally, to all chartering activities of charterers and shipowners in the dry bulk and tanker trades where a vessel or vessels fall under the purview of the IMO.

Currently, climate alignment is the only factor considered by the Sea Cargo Charter. However, we recognise that we are intended to evolve over time and regularly review our framework to ensure that the Charter is practical and effective, aligned with the goals set by the IMO, and that further adverse impacts are identified for inclusion in due course. While the Sea Cargo Charter establishes a global baseline for charterers and shipowners to assess and publish the climate alignment of their chartering activities[2], we recognise that some signatories may wish to go beyond this individually, and nothing in the Charter prevents that.

1 Mindful of the corporate structure of shipowning entities, which often involves special purpose vehicles that own vessels ("SPVs") but delegate the management of ships to another group entity, it is such group entity that would become SCC member, rather than the individual SPV. In view of the variety of corporate structures and models, the Sea Cargo Charter Secretariat will discuss the optimal solution for each prospective Owner member.

2 Chartering activities refer to bulk chartering-in and/or chartering-out activities of charterers and shipowners as defined in the Governance Rules of the Sea Cargo Charter.

As signatories, we commit to implementing the Sea Cargo Charter in our internal policies, procedures, and standards, and to work in partnership with our business partners on an ongoing basis to implement the Charter. The Sea Cargo Charter will not only serve our institutions to improve decision making at a strategic level, but will also shape a better future for the shipping industry and our society.

We believe now is the time to take this initiative, and we invite you to join us.

Rasmus Bach Nielsen
Chair, Sea Cargo Charter Association
Global Head Fuel Decarbonisation,
Trafigura Maritime Logistics

Eman Abdalla
Vice Chair, Sea Cargo Charter Association
Global Operations and Supply Chain
Director, Cargill Ocean Transportation

Preamble

The maritime sector has provided efficient economic services that have played a key role in enabling the growth of global trade and global economic development. However, this has not been without some adverse consequences unique to the maritime sector. The continued success of the maritime sector is intrinsically linked to the well-being and prosperity of the society we serve. Therefore, all industry participants must play a role in addressing adverse impacts. Financial institutions already took the first step in June 2019 by launching the Poseidon Principles, which the Sea Cargo Charter supports.

As charterers and shipowners, we also recognise that our role in the industry affords us opportunities to promote responsible environmental stewardship throughout the maritime value chain. Thus, we have established the Sea Cargo Charter, which serves as a framework for creating common, global baselines that are consistent with, and supportive of, broader climate goals. This will enable us to better align our chartering activities with responsible management of environmental impacts.

The Sea Cargo Charter is consistent with the policies and ambitions of the IMO, including its 2023 revised Strategy on Reduction of GHG Emissions from Ships (2023 IMO GHG Strategy), which calls for the emissions from international shipping to drop to net-zero around 2050 compared to 2008 levels with interim targets in 2030 and 2040 on a well-to-wake basis.[3] They share common principles with the Poseidon Principles and are also intended to support other initiatives, such as the United Nations' Sustainable Development Goals, the Cargo Owners for Zero Emission Vessels (CoZEV), the Global Logistics Emissions Council (GLEC) Framework, the Carbon Disclosure Project (CDP), Energy Transitions Commission, and the many others that are developing to address adverse impacts.

As signatories, we commit to implementing the Sea Cargo Charter in our internal policies, procedures, and standards. We will work in partnership with our business partners on an ongoing basis to implement the Sea Cargo Charter. We welcome the establishment of global baselines through the Sea Cargo Charter and recognise that some signatories may choose to go beyond them. This offers significant benefits to us as signatories, to the global maritime industry, and to society as a whole.

The Sea Cargo Charter recognises that there are different types of charterers and shipowners and wants to facilitate participation by giving signatories reporting options. The Sea Cargo Charter will always strive to achieve the best balance between wide adoption, transparency as to options chosen, and confidentiality as to the reporting voyages.

We recognise that the Sea Cargo Charter is intended to evolve over time and agree to contribute to a review process when we, as signatories, decide to undertake it. This process will ensure that the Sea Cargo Charter is practical and effective and is linked to and supports the development of IMO's measures for emissions reduction.

3 Well-to-wake emissions: a combination of tank-to-wake and well-to-tank. This accounts for both the emissions from upstream activities and operation of a vessel, or the "full lifecycle".

Scope

1. The Sea Cargo Charter welcomes all charterers and shipowners of ships in the dry bulk and tanker trades.
2. Eligible companies to join the Sea Cargo Charter are companies that occupy any position along the charterparty chain: charterers, sub-charterers, disponent owners, registered owners[4].
3. Companies that are not eligible for membership are *(a)* third party management companies, which have no corporate relationship with the shipowning entity: and *(b)* shipowning entities that charter out the ship on bareboat charterparty terms.
4. The Sea Cargo Charter must be applied by signatories in bulk chartering activities that are:
    1. on time or voyage charters, including contracts of affreightment and parceling, with a mechanism to allocate emissions from ballast voyages,
    2. for voyages carried out by dry bulk carriers[5], chemical tankers, oil (crude and product) tankers and liquefied gas carriers,
    3. and where a vessel or vessels are engaged in international trade (excluding inland waterway trade).[6]
5. Eligible companies that fulfil the criteria of both charterers and shipowners shall declare annually the basis upon which they report their voyages (charterer or shipowner or both).
6. In recognition of the diversity of a charterer's role, the Sea Cargo Charter adopts a twin approach: firstly, flexibility as to the signatories' choice of reporting segments, so as to encourage the widest adoption possible; secondly, certain minimum reporting requirements so as to maximise impact.

4 Mindful of the corporate structure of shipowning entities, which often involves special purpose vehicles that own vessels ("SPVs") but delegate the commercial management of ships to another group entity, it is such group entity with commercial control that would become SCC member, rather than the individual SPV. In view of the variety of corporate structured and models, the SCC Secretariat will rely on the declaration of the new signatory to determine the situation of the prospective signatory.

5 Applying also to general cargo vessels carrying dry bulk cargo.

6 Vessels under 5,000 gross tonnage were excluded until 31 December 2021 and are included since 1 January 2022.

As to the choice of reporting segments, in the case of charterers:

- **SEGMENT C1** – Charterparties where the signatory is the only time charterer and there is no charterparty chain or, if there is a charterparty chain, the signatory is the final time charterer.

- **SEGMENT C2** – Charterparties where the signatory is the voyage charterer.

- **SEGMENT C3** – Charterparties where the signatory is an intermediate time charterer in a charterparty chain, or the bareboat charterer.

- **SEGMENT C4** – Owned vessels: if, in addition to being a charterer on certain transactions, signatories or companies within the same group also own vessels, they can also choose to include voyage of their owned vessels in their reporting.

As to minimum reporting requirements for charterers:

- Segments C1 and C2 are mandatory. All signatories must report their activities that fall within those segments. As to Segment C1, the percentage of non-reporting voyages is expected to be zero, or close to zero. As to Segment C2, the percentage of non-reporting voyages is expected to be higher, as the data need to be sourced from business partners. As adoption of the Sea Cargo Charter spreads within the industry, the percentage of non-reporting voyages is expected to decrease.

- Segment C3 is optional. If a signatory chooses to report within this segment, the percentage of non-reporting voyages is expected to be similar to those in Segment C2 because the signatory would similarly rely on data sourced from business partners.

- Segment C4 is optional and is only open to signatories who are also reporting in Segments C1-3. The percentage of non-reporting voyages within Segment C4 is expected to be low, especially as owners would need to collect such data for other mandatory purposes. If a charterer voluntarily reports owned vessels under segment C4, they are required to report all owned vessels under segment S1, i.e. vessels that they voyage-charter out.

- As of the Annual Disclosure Report 2026 (reporting on 2025 data), segment C4 will also be mandatory, unless a voyage is time-chartered out.

As to the choice of reporting segments, in the case of shipowners:

- **SEGMENT S1** - Voyage charterparties, where the signatory is the owner.

- **SEGMENT S2** - Time charterparties, where the signatory is the owner.

- **SEGMENT S4**[7] - Chartered vessels: if, in addition to being an owner on certain transactions, signatories or companies within the same group also charter-in vessels, they can also choose to include voyages of their chartered vessels in their reporting under C1, C2 or C3 above.

7 There is no Segment S3 for shipowners. The numbering of segments for shipowners mirrors the one used for charterers.

As to minimum reporting requirements for shipowners:

- Shipowners are expected to report the entirety of the owned fleet within their group. If vessels are excluded (for example, due to extended drydocking or short period of ownership), this must be stated and explained in the annual report, and the percentage of non-reported fleet calculated.

- Segment S1 is mandatory. All signatories must report their activities that fall within this segment. The percentage of non-reporting voyages is expected to be zero, or close to zero. As adoption of the Sea Cargo Charter spreads within the industry, the percentage of non-reporting voyages is expected to decrease.

- Segment S2 is optional, in recognition of the fact that shipowners have limited operational control. If a signatory chooses to report within this segment, the percentage of non-reporting voyages is expected to be low and decrease over time.

- Segment S4 is optional and is only open to signatories who are reporting under segment 1-2. If a shipowner voluntarily reports chartered-in vessels under segment S4, they are required to report all chartered-in vessels under segments C1 and C2, i.e. time-chartered in vessels and voyage-chartered in vessels.

- As of the Annual Disclosure Report 2026 (reporting on 2025 data), segment S4 will also be mandatory, unless a voyage is time-chartered out.

The Sea Cargo Charter does not extend to parties involved in a contract for the purchase and sale of commodities, if such parties do not occupy the position of a charterer (e.g., FOB sellers or CIF/CFR/DES/DAP buyers). However, the Sea Cargo Charter recognises that such parties can influence maritime decarbonisation and, therefore, signatories are encouraged to persuade their contractual counterparties who occupy the position of a charterer in a trade to become signatories of the Sea Cargo Charter.

Climate alignment to the IMO net-zero GHG emissions ambition is currently the only environmental factor considered by the Sea Cargo Charter.

The scope of the Sea Cargo Charter will be reviewed and may be expanded by signatories on a timeline that is at their discretion.

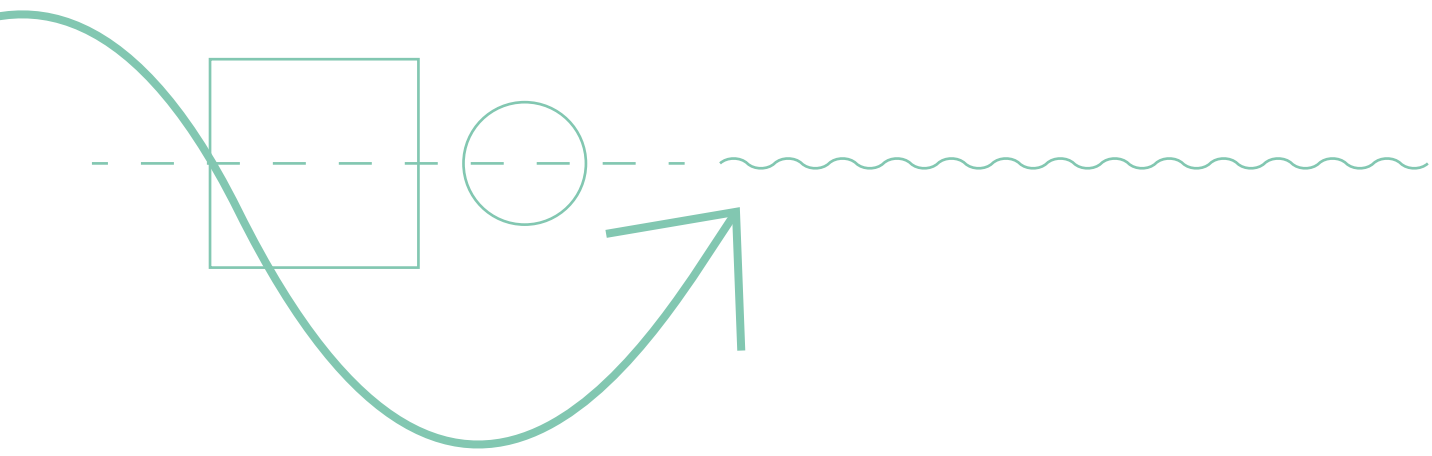
Principle 1

Assessment

We will annually assess climate alignment in line with the Technical Guidance for all relevant chartering activities.

Our commitment:

Signatories will measure the emissions intensity of their chartering activities on an annual basis and assess their climate alignment relative to established decarbonisation trajectories. This assessment is based on a robust industry- appropriate methodology outlined in the Technical Guidance.
The requirement to assess climate alignment takes effect the calendar year after becoming a signatory.



Principle 2

Accountability

We recognise the important role that verification mechanisms play in providing unbiased information to the industry. We will make our best effort to rely on such mechanisms, and any mandatory regulations, as explicitly identified in the Technical Guidance, for the provision of information used to assess and report on climate alignment.

Our commitment:

For each step in the assessment of climate alignment, signatories will rely exclusively on the data types, data sources, and reporting pathways identified in the Technical Guidance.

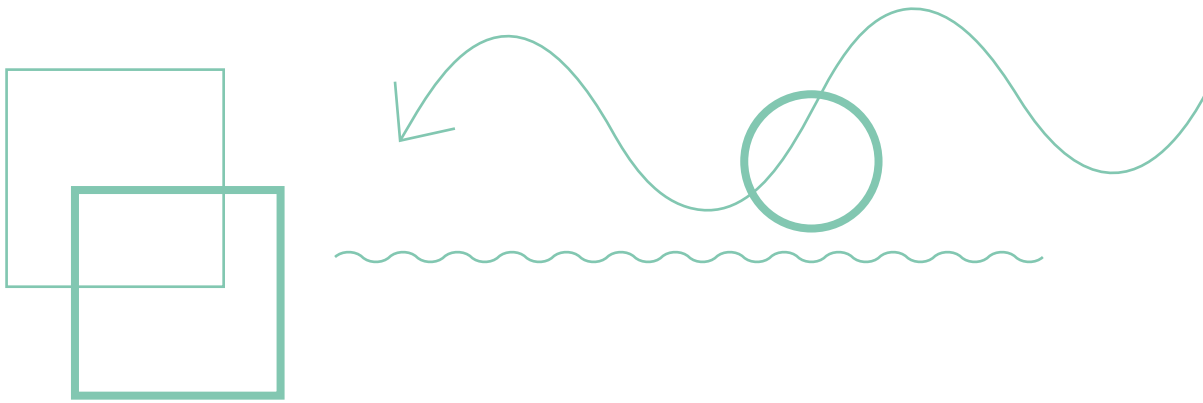
Principle 3

Enforcement

We will ensure ongoing compliance with the Sea Cargo Charter for new chartering activities through contractual means by using the Sea Cargo Charter Clause in charter parties. We will work together with relevant business partners to meet this requirement.

Our commitment:

Signatories agree to work with all relevant players (charterers, owners, disponent owners and other business partners in the charter party chain) to collect and process the information necessary to emissions intensity and assess climate alignment.



Principle 4

Transparency

We will publicly acknowledge that we are a signatory of the Sea Cargo Charter and we will publish the results of the climate alignment scores of our chartering activities on an annual basis in line with the Technical Guidance.

Our commitment:

1. Upon becoming a signatory, the signatory will publicly acknowledge that it is a signatory of the Sea Cargo Charter.
2. On an annual basis, each signatory will report the vessel category climate alignment scores and total annual activity climate alignment score of its chartering activities and supporting information, as per the Accountability requirements, to the Secretariat no later than April 30. This requirement takes effect for each signatory in the calendar year after the calendar year in which it became a signatory.
3. On an annual basis, each signatory will publish the vessel category climate alignment scores and total annual activity alignment score of its chartering activities in relevant institutional reports on a timeline that is appropriate for that signatory. This requirement takes effect for each signatory in the calendar year after the calendar year in which it became a signatory.

Technical guidance

1

Introduction

The purpose of the Technical Guidance is to clearly state the requirements and expectations for each principle under the Sea Cargo Charter: Assessment, accountability, enforcement, and transparency.

The Sea Cargo Charter is a framework for assessing and publishing the climate alignment of signatories' chartering activities. It is supported by a robust and industry-appropriate climate alignment methodology and carefully considered accountability and enforcement requirements that support practical and robust data collection and analysis practices. The Sea Cargo Charter also establishes transparency requirements for signatories.

These requirements are stated in the boxes at the top of each section of the guidance, followed by a more detailed overview of what these requirements entail. A general timeline of the requirements for signatories is shown in Figure 1.

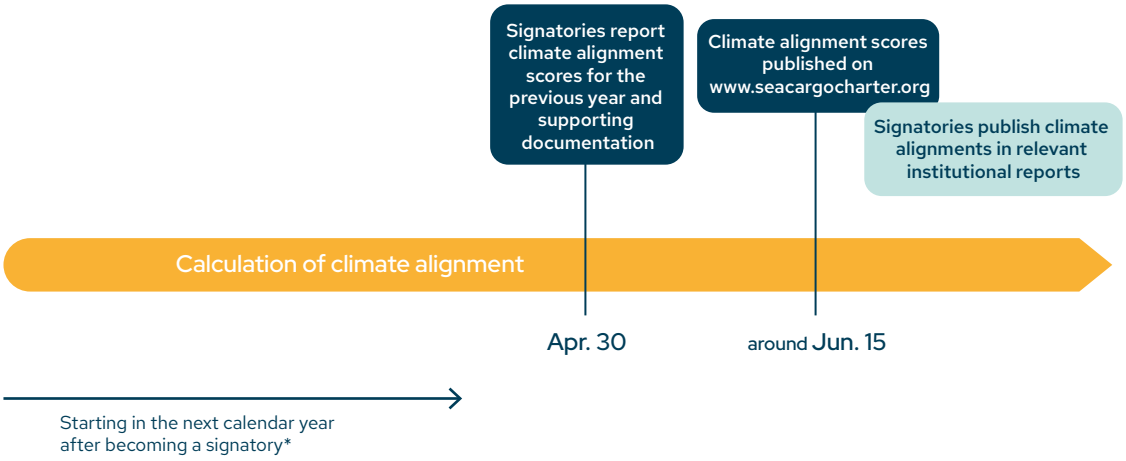


Figure 1.
Timeline for implementation of the Sea Cargo Charter

*The first calendar year of reporting, the signatory reports on its chartering activities for the previous year (year of becoming a signatory), starting from the next fiscal quarter date after the date of becoming a signatory. Fiscal quarters starting dates are set as follows: Q1 - January 1, Q2 - April 1, Q3 - July 1, Q4 - October 1.
Starting from the second calendar year of reporting, the signatory reports on the entire previous calendar year.

The Sea Cargo Charter is consistent with the ambitions of the IMO, including its 2023 IMO GHG Strategy for GHG emissions from international shipping to drop to net-zero around 2050 compared to 2008 levels with indicative checkpoints in 2030 and 2040 on a well-to-wake basis. Furthermore, the emissions boundary includes the impact of CO_2e emissions (having now expanded from only covering CO_2 emissions, to also including non-CO_2 GHG species such as methane (CH_4) and nitrous oxide (N_20).[8]

It is recognised that some signatories may choose to go beyond their obligations set by the Sea Cargo Charter. They may choose to do this by assessing their chartering activities relative to the Paris Agreement's well-below 1.5°C objectives, which require a steeper decarbonisation trajectory. It is recommended that, where possible, these additional efforts rely on the assessment, accountability, enforcement, and transparency practices established by the Sea Cargo Charter to ensure that these further efforts are robust in their demonstration of industry leadership.

It should be noted that, while being a signatory of the Sea Cargo Charter does not preclude the use of emissions offsetting, this mechanism is not considered when reporting emissions; thus, the full extent of lifecycle emissions is captured in the assessment of climate alignment.

8 IMO MEPC. (2023). 2023 Strategy on reduction of GHG emissions from ships MEPC.377(80)

2

Assessment

PRINCIPLE

> We will annually assess climate alignment in line with the Technical Guidance for all relevant chartering activities falling under the scope of the Sea Cargo Charter

REQUIREMENTS

Signatories will, on an annual basis, calculate the emissions intensity of their chartering activities, and will assess their climate alignment (emissions intensity relative to established decarbonisation trajectories). This requirement takes effect for each signatory in the following calendar year after the calendar year in which it became a signatory.

This section provides step-by-step guidance for measuring the climate alignment of signatories' annual emissions intensity. The guidance is framed in the context of the existing IMO environmental regulations and climate agreements. This will apply for international voyages carried out by dry bulk carriers[9], chemical tankers, oil (crude and product) tankers, combination carriers and liquefied gas carriers.

Shipping's governing body, the IMO, approved a revised GHG Strategy ("the 2023 IMO GHG Strategy") in July 2023 to reduce GHG emissions generated by international shipping activity to net-zero by or close to 2050, which represents a significant shift in climate ambition for a sector that currently accounts for 2%–3%[10] of global GHG emissions. This IMO strategy sets out the following absolute reduction levels of ambition:

1. To reduce the total annual GHG emissions from international shipping by at least 20%, striving for 30%, by 2030, compared to 2008.
2. To reduce the total annual GHG emissions from international shipping by at least 70%, striving for 80%, by 2040, compared to 2008.
3. To peak GHG emissions from international shipping as soon as possible and to reach net-zero GHG emissions by or around, i.e. close to 2050.
4. Carbon intensity of international shipping to decline to reduce CO_2 emission per transport work, as an average across international shipping, by at least 40% by 2030, compared to 2008.

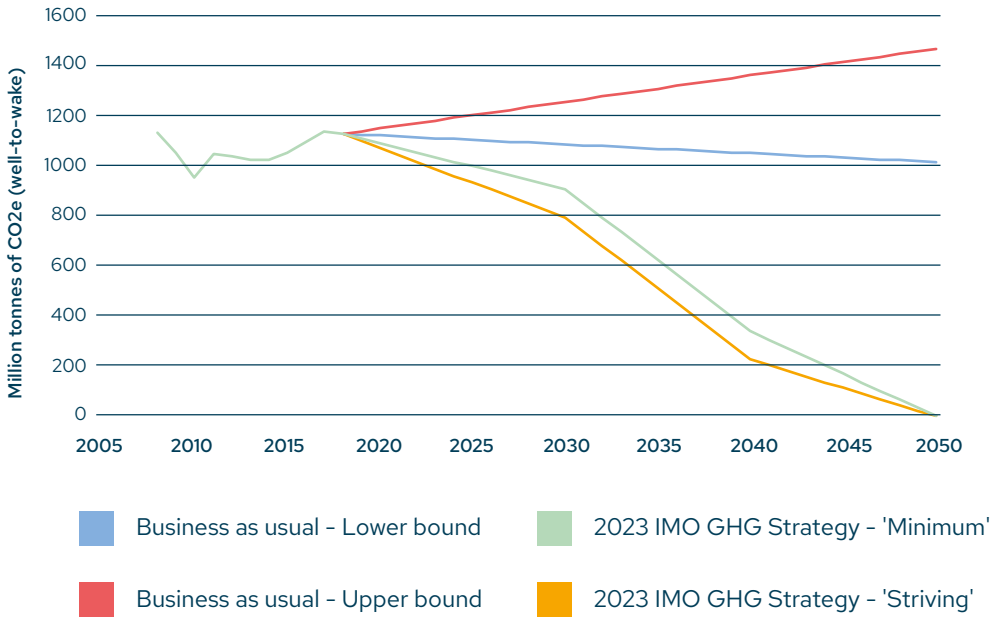


Figure 2.
Global fleet's emissions targets and trajectories defined by the 2023 IMO GHG Strategy (million tonnes of well-to-wake CO_2e)[11].

9 Applying also to general cargo vessels when carrying dry bulk cargo.
10 Faber, J., Hanayama, S., Zhang, S., Pereda, P., Comer, B., Hauerhof, E., Schim van der Loeff, W., Smith, T., Zhang, Y., Kosaka, H., Adachi, M., Bonello, J. M., Galbraith, C., Gong, Z., Hirata, K., Hummels, D., Kleijn, A., Lee, D. S., Liu, Y., ... Xing, H. (2020). Fourth Greenhouse Gas Study 2020. International Maritime Organization.
11 The business-as-usual trajectory depicts yearly level of CO2e associated with regular or typical activities without significant changes or interventions to reduce emissions.

Additionally, the 2023 IMO GHG Strategy specifies that any activity related to emissions reduction and climate alignment in shipping will need to consider well-to-wake emissions as well as all the relevant GHG species as specified by the IMO:

"The levels of ambition and indicative checkpoints should take into account the well-to-wake GHG emissions of marine fuels as addressed in the Guidelines on lifecycle Emissions intensity of marine fuels (LCA Guidelines)[12] developed by the IMO with the overall objective of reducing GHG emissions within the boundaries of the energy system of international shipping and preventing a shift of emissions to other sectors."

The IMO absolute targets can be converted into an emission intensity target. Figure 3 below shows intensity trajectories consistent with the 2023 IMO GHG Strategy compared to the pathway drawn using the IMO legacy intensity target.

The IMO intensity target is misaligned with the absolute reduction targets being significantly less ambitious as it was not updated to match the absolute target and the wording of the 2023 IMO GHG Strategy does not state that meeting the intensity target ensures compliance with the IMO absolute target. For these reasons, the Sea Cargo Charter will be linked to the IMO absolute target.

The Sea Cargo Charter fully supports the increased level of ambition set up by the 2023 IMO GHG Strategy and therefore includes global decarbonisation trajectories that are aligned with the outcome of the 80th Marine Environment Protection Committee (MEPC 80). In order to take this change into account, the Sea Cargo Charter will use two trajectories for reporting:

- 2023 IMO GHG Strategy – 'Minimum': defined by the 'minimum' requirement of the 2023 IMO GHG Strategy with a 20% reduction in 2030, a 70% reduction in 2040 (compared to 2008 emissions) leading to net-zero by 2050.
- 2023 IMO GHG Strategy – 'Striving': defined by the higher level of ambition set in the 2023 IMO GHG Strategy with a 30% reduction in 2030, an 80% reduction in 2040 (compared to 2008 emissions) leading to net-zero by 2050.

12 The Marine Environment Protection Committee adopted Resolution MEPC.376(80) containing the Marine Fuel life Cycle GHG Guidelines (LCA Guidelines) and agreed on a work program for further enhancement of the guidelines on specific areas via the existing correspondence group. MEPC 81 adopted the 2024 Guidelines on life cycle GHG intensity of marine fuels (2024 LCA Guidelines) RESOLUTION MEPC.391(81).
Following a request from MEPC 81, the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) has established a Working Group on Life Cycle GHG Intensity of Marine Fuels (**GESAMP-LCA Working Group**), with a view to help the IMO further develop their emission factors at MEPC future sessions.

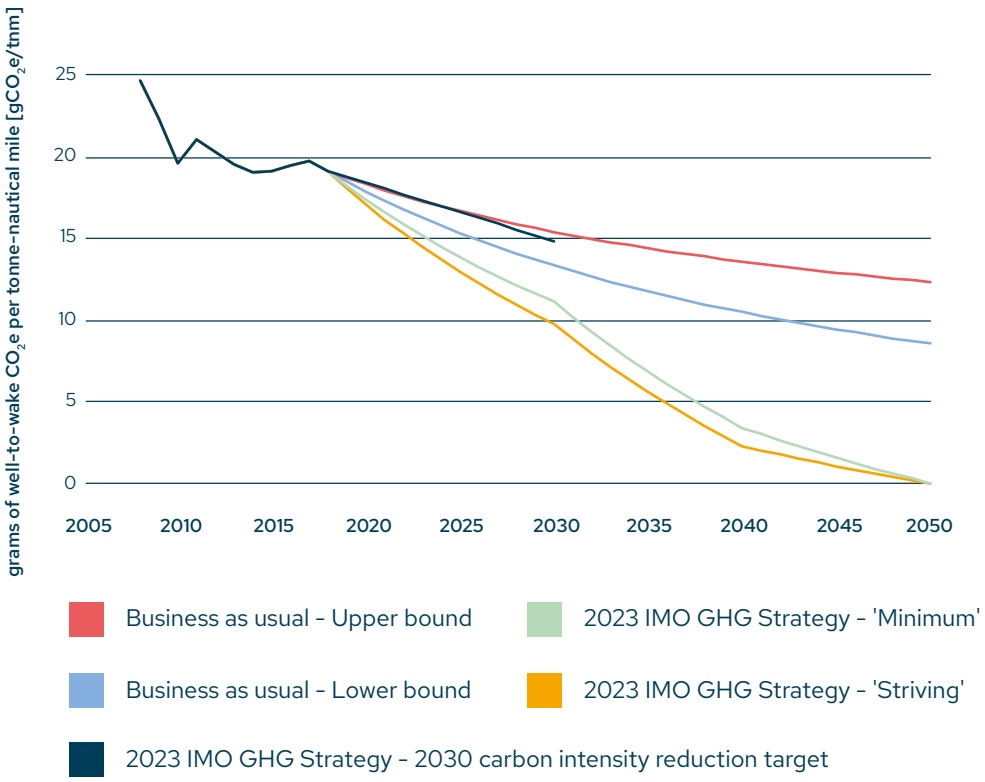


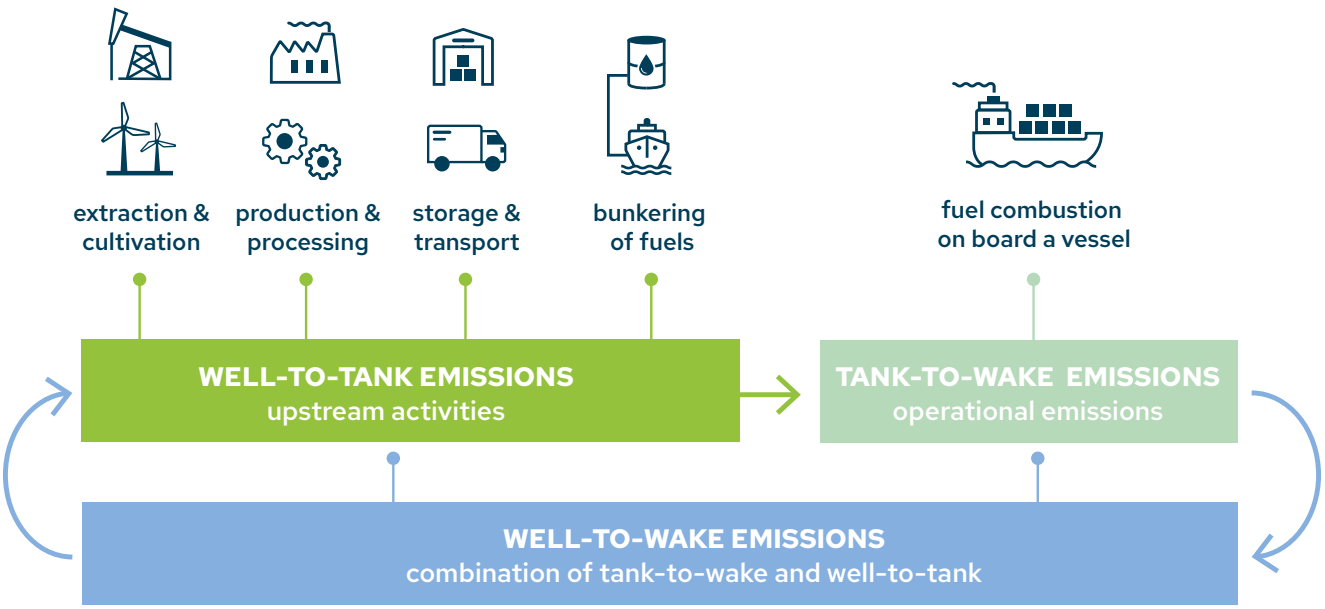
Figure 3.
Global fleet's emission intensity targets and trajectories based on the 2023 IMO GHG Strategy (grams of CO_2e per tonne-nautical mile [gCO_2e/tnm])

Tank-to-wake and well-to-wake emissions, what is the difference?

Well-to-tank emissions: attributed to upstream activities only, including extraction, cultivation, production, processing, storage, transport, bunkering of fuels.

Tank-to-wake emissions: attributable to operational emissions only from fuel combustion on board.

Well-to-wake emissions: a combination of tank-to-wake and well-to-tank. This accounts for emissions from both upstream activities and operational activities of a vessel, or the "full lifecycle".



2.1 Selecting the right metric for measuring climate alignment

Both absolute and intensity-level measurements of GHG emissions are useful to assess progress towards meeting the IMO levels of ambition, and both measurements are recommended by other initiatives (e.g. CDP, GLEC etc.). Absolute emissions are important as they represent the total emissions figure that will ultimately need to be reduced to mitigate climate change. However, an absolute emissions measure is not well-suited to the management or comparison of emissions/decarbonisation at the level of individual voyages as these need to be compared on a like-for-like basis. For this reason, a relative intensity-level metric is used in the Sea Cargo Charter.

Moreover, to enable alignment with climate goals (IMO), the intensity metric used in the Sea Cargo Charter will be linked to the IMO Absolute Target.

Due to the changes in the 2023 IMO GHG Strategy, emissions intensity now represents the total GHG emissions (well-to-wake) to satisfy a supply of transport work (grams of well-to-wake CO_2e per tonne-nautical mile [gCO_2e/tnm]). Emissions intensity is typically quantified for multiple voyages over a period of time (e.g., a year). To provide the most accurate representation of a voyage's actual climate impact, the emissions of a voyage should be measured from its performance in real conditions (e.g. following the Energy Efficiency Operating Indicator (EEOI)), instead of using a design specification metric (e.g., the Energy Efficiency Design Index (EEDI)).

The selection of this single metric is guided by an ambition to use an instead of a emissions intensity metric which produces the closest measure of the voyage's true emissions intensity in operation, to a high level of granularity.

The EEOI does not distinguish between the role of the shipowner and the charterer in terms of subsequent use and reporting of this information, so implying that the approach is applicable to all stakeholders. The emissions intensity metric requires the following data to compute:

1. The amount of fuel consumption for each type of fuel in metric tonnes (over both ballast and laden legs)
2. The GHG emission factor[13] of each fuel type
3. Actual distance traveled in nautical miles (while laden with transported cargo)
4. Amount of cargo transported in metric tonnes over the given voyage as per the bill of lading[14]

The IMO's EEOI[15] sets out data requirements for calculating carbon intensity on a voyage basis as per Equation 1.

$$x_i = \frac{C_i}{T_i D_i}$$

Equation 1.

Where C_i is the total CO_2 emissions computed using the fuel consumption and emission factor of each type of fuel, T_i is the amount of cargo transported[16], and D_i is the laden distance travelled on voyage *i*.

13 See Appendix 4 for the fuel GHG emission factors for the most up to date factors by the IMO, complemented by other reliable sources. Therefore, some of the emission factors used for reporting in 2025 differ from the emission factors used for reporting in 2024.
14 For liquified gas carriers, the amount of cargo discharged is to be used for the calculation.
15 Guidelines For Voluntary Use Of The Ship Energy Efficiency Operational Indicator (EEOI) - MEPC.1/Circ.684
16 See Appendix 3 for guidance on particular cases.

However, for the purpose of the Sea Cargo Charter, the IMO's EEOI carbon intensity calculation equation has been modified to:

$$x_i = \frac{Ce_i}{T_i D_i}$$

Equation 2.

Where Ce_i is the total CO_2e emissions computed using the fuel consumption and emission factor of each type of fuel, T_i is the amount of cargo transported, and D_i is the laden distance travelled on voyage i.

For the purposes of this framework, a voyage shall be considered to start at the point of discharge of the previous cargo and continue to the point of discharge of the cargo for the voyage under consideration.

While there is no standardised method of operational data collection, the most basic form of reporting is the noon report which can provide all required information to calculate emissions intensity. Shipowners and operators are obliged to document this data to comply with the IMO Data Collection System (DCS) and the EU Monitoring, Reporting and Verification (MRV) schemes. However, charterers may not always have access to this data, prohibiting them from calculating emissions intensity directly. The emissions intensity is computed for all voyages that end during the reporting period, i.e. a calendar year.

2.1.1 Emissions boundaries adaptation

Following the adoption of the 2023 IMO GHG Strategy, the emissions boundary for reporting against the IMO's level of ambition had to be changed from a tank-to-wake CO_2 to a well-to-wake CO_2e perspective. The 2023 IMO GHG Strategy establishes 2008 as the baseline year for setting the ambition for emissions reduction, although the IMO only provides a tank-to-wake (TtW) CO_2 figure for 2008 in the Third IMO GHG Study. During the development of the Sea Cargo Charter, a methodological decision was made to determine a weighted conversion factor based on the historic fuel mix and emission factors from a study conducted by Lloyd's Register and UMAS in 2019[17]. This took into account the technologies at the time and pre-2020 sulphur cap upstream emissions which resulted in an uplift of around 13% from tank-to-wake CO_2 to well-to-wake CO_2e.

The methodology also provides emission factors to the signatories to process the measured data provided by owners and determine WtW CO_2e emissions (see Appendix 4). A set of the latest emission factors was provided at the end of 2023 which was based on the interim lifecycle assessment (LCA) guidance published by the IMO (and complemented by Fuel.EU Maritime regulation and other reliable sources to fill in any missing values). This set of factors differed from the ones used for the definition of the 2008 emission budget. Using these latest figures, one would see a weighted uplift of around 20% from TtW CO_2 to WtW CO_2e (based on the same fuel mix assumption) making alignment with the revised trajectory more challenging.

In order to eliminate this discrepancy, an updated TtW CO2 to WtW CO_2e conversion factor has been developed by UMAS. This conversion factor:

- Is based on the most recent emission factors listed in Appendix 4,
- Is weighted by the estimated fuel mix at the time (as previously),
- And applies to the 2008 emissions budget and 2018 continuous baseline benchmark.

The update resulted in a new set of continuous baselines that are around 6.2% less stringent (in terms of required emissions intensity) than those used in the Annual Disclosure Report 2024 (on 2023 data). This is a uniform effect across all vessel types and sizes and all years up to 2050.

17 Lloyd's Register, & UMAS. (2019). Fuel production cost estimates and assumptions.

2.2 Sourcing of data

The chartering regime in bulk shipping can be broadly divided into time charters (TC) and voyage charters (VC)[18]. When on TC, charterers pay a daily rate for a fixed time period as well as all voyage costs including bunker. Given that the charterers also dictate operations, all three elements (fuel, load and distance) required to calculate emissions intensity on distinct voyages are already known to them. In situations where required data is not known to the charterer, the vessel owner or the disponent owner shall be requested to commit to provide noon reports or voyage reports to the charterer in the charter party, thus establishing an agreement to share the relevant data. In this case, all emissions from the laden leg, ballast leg and port emissions are included implying full transparency between owners and charterers.

More typical in the wet bulk market, on VC, the charterer pays a transactional rate (usually per tonne of cargo or on WorldScale) based on the route and amount of cargo transported, with the owner bearing both the operational costs and voyage costs. In this case, charterers do not, in normal circumstances, have access to fuel consumption for the voyage and, in the case of vessels carrying multiple cargoes, the proportion of cargo each charterer has on board is unknown. For the purposes of calculating emissions intensity, the exact distance sailed is also unknown although it may be estimated or obtained from standard route tables.

In both cases, data and consent for use is to be provided by owners to signatories of the Sea Cargo Charter through additional clauses in the respective charter parties as described under Principle 3 – Enforcement.

In some cases, there may be a chain of charters; for example, a company may take a vessel on a long-term TC arrangement and then charter out on a VC arrangement. In such a case it would be expected that the time charterer, who has all the necessary information, would provide the subset of information relevant for the voyage charterer to meet the requirements of the Sea Cargo Charter.

Shipowners should have all the necessary data (fuel, load and distance) at hand for both time charters and voyage charters and can therefore source all data internally. However, consent for use of the data is to be provided by charterers to signatory head owners or signatory disponent owners, who are using additional clauses in the charter parties, such as provision b. in the Sea Cargo Charter Clause.

18 Bareboat charter can be considered a special case of TC.

2.3 Assessing climate alignment

For the purposes of the Sea Cargo Charter, climate alignment is defined as the degree to which voyage emissions intensity of a vessel category is in line with a decarbonisation trajectory that meets the 2023 IMO GHG Strategy ambition of reducing total annual well-to-wake GHG emissions to net-zero by 2050 based on 2008 levels, with interim indicative checkpoints in 2030 and 2040.

A decarbonisation trajectory is a representation of how many grams of CO_2e can be emitted to move one tonne of goods one nautical mile on a well-to-wake basis (gCO_2e/tnm) over a time horizon (as shown in Figure 3). The decarbonisation trajectory relies on two assumptions:

- projections of transport demand for different shipping sectors out to 2050, including those available in the Fourth IMO GHG Study[19],
- the total CO_2e shipping emissions permitted to be in-line with the 2023 IMO GHG Strategy.

In order to eliminate a discrepancy observed between the emission factors used for reporting in 2024 and the conversion factors used to convert the 2008 emissions budget from a Tank-to-Wake CO2 perspective to a Well-to-Wake CO2e perspective, the trajectories were updated in January 2025.

To assess the climate alignment of a single voyage, the voyage emissions intensity is compared to the required baseline emissions intensity for its respective ship type and size category. To assess climate alignments at the vessel category and annual activity level, the voyage emissions intensities are aggregated as described in Section 2.5.

In Figure 4, each dot represents the emissions intensity of a voyage and the blue curve represents the required emissions intensity baseline for a given ship type and size. The green dots are aligned, and the red dots are misaligned.

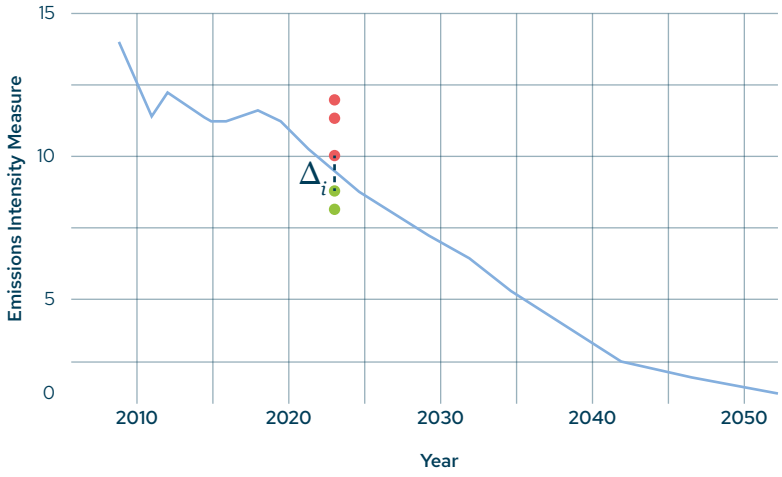


Figure 4.
Assessing alignment at the voyage level

19 Jasper Faber, Shinichi Hanayama, Shuang Zhang, Paula Pereda, Bryan Comer, Elena Hauerhof, Wendela Schim van der Loeff , Tristan Smith, Yan Zhang, Hiroyuko Kosaka, Masaki Adachi, Jean-Marc Bonello, Connor Galbraith, Ziheng Gong, Koichi Hirata, David Hummels, Anne Kleijn, David S. Lee, Yiming Liu, Andrea Lucchesi, Xiaoli Mao, Eiichi Muraoka, Liudmila Osipova, Haoqi Qian, Dan Rutherford, Santiago Suarez de la Fuente, Haichao Yuan, Camilo Velandia Perico, Libo Wu, Deping Sun, Dong-Hoon Yoo and Hui Xing. 2021, Fourth IMO GHG Study 2020. International Maritime Organization, London, K.

Climate alignment at the voyage level is the percentage difference between a voyage emissions intensity and the decarbonisation trajectory at the same point in time. It is expressed as a (+/-) %. In mathematical terms, alignment at a particular year is:

$$\Delta_i = \left(\frac{x_i - r_s}{r_s} \right) 100$$

Equation 3.

Where x_i is the emissions intensity (from Equation 1) of voyage i and r_s is the required emissions intensity for the vessel for the year multiplied by 100 to convert into percentage terms. A positive alignment score means a voyage is misaligned (above the decarbonisation trajectory), whereas a negative or zero score means a voyage is aligned (below or on the decarbonisation trajectory).

2.4 Decarbonisation trajectory

A global decarbonisation trajectory is provided by the secretariat of the Sea Cargo Charter based on agreed and clearly-stated assumptions. This is accompanied by a baseline for each ship type as defined in the Fourth IMO GHG Study[20] and is produced in a format that allows for simple weighting aggregation. This is to ensure that once the emissions intensity of voyages is understood, it is simple and practical to understand climate alignment. This also ensures that numbers are comparable between signatories.

Appendix 4 describes the method used for establishing the target emissions intensity for a given ship type and size class in a given year. This is carried out by calculating a decarbonisation-consistent emissions intensity up to 2050. The method is derived from the IMO Secretariat commissioned Fourth IMO emissions intensity Study and EU MRV data. Assumptions for formulating the trajectory are also taken from the 2023 IMO GHG Strategy, including the use of a 2008 baseline.

2.5 Calculating alignment at the vessel category level and total annual activity

In order to fulfill the requirements under the Sea Cargo Charter, one must calculate the climate alignment of an activity within the type and size category (also called vessel category)[21], as well as the overall annual activity climate alignment.

Example 1 below shows a simple calculation of climate alignment. Appendix 5 illustrates climate alignment calculations for bulk and chemical parceling.

20 In January 2025, a baseline for combination carriers has been added. While combination carriers are not part of the ship types as defined in the Fourth IMO GHG Study, their distinct operating profile warranted the inclusion of their own baseline under the Sea Cargo Charter framework.

21 See Appendix 3 for guidance on particular cases and Appendix 4 for further clarification on the provision of trajectories and definition of vessel categories.

Steps for calculating climate alignment by vessel category:

The vessel category activity alignment is computed by applying Equation 4.

$$\Delta_j = \frac{\Sigma_{i=1}^{N_j} CO_2 e_i}{\Sigma_{i=1}^{N_j} W_i * r_{sjDWT}} - 1$$

Equation 4.

Where Δ_j is the category activity alignment for N_j voyages by vessels in category *j* with GHG emissions CO_2e_i and transport work *W* with *r* being the required emissions intensity for the vessel category and size for the year under assessment.

Steps for calculating climate alignment of total annual activity:

The annual activity alignment is computed similarly by applying Equation 5 over all voyages.

$$\Delta_k = \frac{\Sigma_{i=1}^{N_k} CO_2 e_i}{\Sigma_{i=1}^{N_k} W_i * r_{sjDWT}} - 1$$

Equation 5.

Where Δ_k is the annual activity alignment for N_k voyages, with GHG emissions CO_2e_i and transport work *W* with *r* being the required emissions intensity for the vessel category and size for the year under assessment.
The following table determines the vessel size categories used in the worked example on page 25.

Vessel type	Vessel size category	Size	UNITS
Bulk Carrier	1	0-9999	DWT
Bulk Carrier	2	10000-34999	DWT
Bulk Carrier	3	35000-59999	DWT
Bulk Carrier	4	60000-99999	DWT
Bulk Carrier	5	100000-199999	DWT
Bulk Carrier	6	200000-+	DWT
Chemical tanker	1	0-4999	DWT
Chemical tanker	2	5000-9999	DWT
Chemical tanker	3	10000-19999	DWT
Chemical tanker	4	20000-39999	DWT
Chemical tanker	5	40000-+	DWT
Liquefied gas tanker	1	0-49999	CBM
Liquefied gas tanker	2	50000-99999	CBM
Liquefied gas tanker	3	100000-199999	CBM
Liquefied gas tanker	4	200000-+	CBM
Oil tanker	1	0-4999	DWT
Oil tanker	2	5000-9999	DWT
Oil tanker	3	10000-19999	DWT
Oil tanker	4	20000-59999	DWT
Oil tanker	5	60000-79999	DWT
Oil tanker	6	80000-119999	DWT
Oil tanker	7	120000-199999	DWT
Oil tanker	8	200000-+	DWT
Combination carrier	1	20000+	DWT

Table 1.
Vessel size categories.

Example 1: Calculating alignment at the category level and total annual activity

In this example, climate alignment for 2024 is measured for a portfolio.

- Table 2 illustrates a simple example of a series of voyages showing the alignment deltas.
- The category alignment delta shown in Table 3 presents the average for each vessel category (type and size).
- The annual activity alignment in Table 4 is calculated using a weighted average according to Equation 5. Weighting is applied according to transport activity undertaken by each category.

The signatory's chartering activities are climate-aligned with the "minimum" required emissions intensity trajectory, as they are on average 0.9% below the target. However, they remain climate misaligned with the "striving" trajectory, as they are 5.1% above the required emissions intensity target.

Vessel type	Vessel size category	IMO	DWT	Voyage ID	Year	Transport Work (Mtnm)	CO_2e (t)	Actual GHG Intensity (gCO_2e/tnm)	Required Intensity (gCO_2e/tnm) 'Minimum'	Alignment Delta (%) 'Minimum'	Required Intensity (gCO_2e/tnm) 'Striving'	Alignment Delta (%) 'Striving'
Bulk Carrier	3	#######	45,000	####	2024	76.98	1,233.2	16.02	9.61	66.73	9.06	76.81
Bulk Carrier	3	#######	59,000	####	2024	109.34	1,097.5	10.04	8.38	19.81	7.90	27.05
Bulk Carrier	5	#######	188,000	####	2024	1,428.57	8,632.0	6.04	4.66	29.62	4.40	37.45
Bulk Carrier	6	#######	230,000	####	2024	1,559.63	10,481.7	6.72	4.21	59.65	3.97	69.30
Oil Tanker	3	#######	17,000	####	2024	25.46	739.9	29.06	33.50	-13.24	31.58	-7.98
Oil Tanker	2	#######	8,000	####	2024	9.24	369.9	40.03	52.01	-23.03	49.04	-18.37
Oil Tanker	4	#######	53,000	####	2024	418.99	3,699.5	8.83	17.25	-48.80	16.26	-45.69
Oil Tanker	4	#######	46,000	####	2024	348.26	3,452.8	9.91	18.73	-47.07	17.66	-43.86

Values for Actual emissions intensity and Required emissions intensity are rounded to two decimals.

Table 2.
Voyage alignment

Vessel type	Vessel size category	Year	Transport work (Mtnm)	CO_2e (t)	Weighted Average GHG intensity (gCO_2e/tnm)	Weighted average required GHG intensity (gCO_2e/tnm) 'Minimum'	Alignment delta (%) 'Minimum'	Weighted average required GHG intensity (gCO_2e/tnm) 'Striving'	Alignment delta (%) 'Striving'
Bulk Carrier	3	2024	186.32	2,330.72	12.51	8.89	40.77	8.38	49.28
Bulk Carrier	5	2024	1,428.57	8,632.01	6.04	4.66	29.62	4.40	37.45
Bulk Carrier	6	2024	1,559.63	10,481.65	6.72	4.21	59.65	3.97	69.30
Oil Tanker	2	2024	9.24	369.95	40.03	52.01	-23.03	49.04	-18.37
Oil Tanker	3	2024	25.46	739.91	29.06	33.50	-13.24	31.58	-7.98
Oil Tanker	4	2024	767.25	7,152.28	9.32	17.92	-47.98	16.90	-44.83

Values for Actual emissions intensity and required emissions intensity are rounded to two decimals.

Table 3.
Category alignment

Year	Transport Work (Mtnm)	CO_2e(t)	Alignment Delta (%) - 'Minimum'	Alignment Delta (%) - 'Striving'
2024	3,976.47	29,706.51	-0.9%	5.1%

Table 4.
Annual activity alignment

3

Accountability and enforcement

This section provides the requirements and technical guidance for both the accountability and enforcement principles for the sake of clarity and simplicity.

The accountability and enforcement principles are intended to ensure that the assessment and disclosure of climate alignment under the Sea Cargo Charter is practical, fair, and accurate. The intent of this approach is to ensure the development of trust in the Sea Cargo Charter and amongst signatories.

The Technical Guidance for the accountability and enforcement principles lays out the steps in the Sea Cargo Charter's information flow process. At each step, the assessment and enforcement requirements are clearly identified.

3.1 Accountability

PRINCIPLE

> We recognise the important role that verification mechanisms play in providing unbiased information to the industry. We will make our best effort to rely on such mechanisms, and any mandatory regulations, as explicitly identified in the Technical Guidance, for the provision of information used to assess and report on climate alignment.

REQUIREMENTS

Signatories recognise the important role that verification mechanisms play in providing unbiased information. For each step in the assessment of climate alignment, signatories will rely on data types, data sources and service providers' collaboration as outlined in the Technical Guidance.

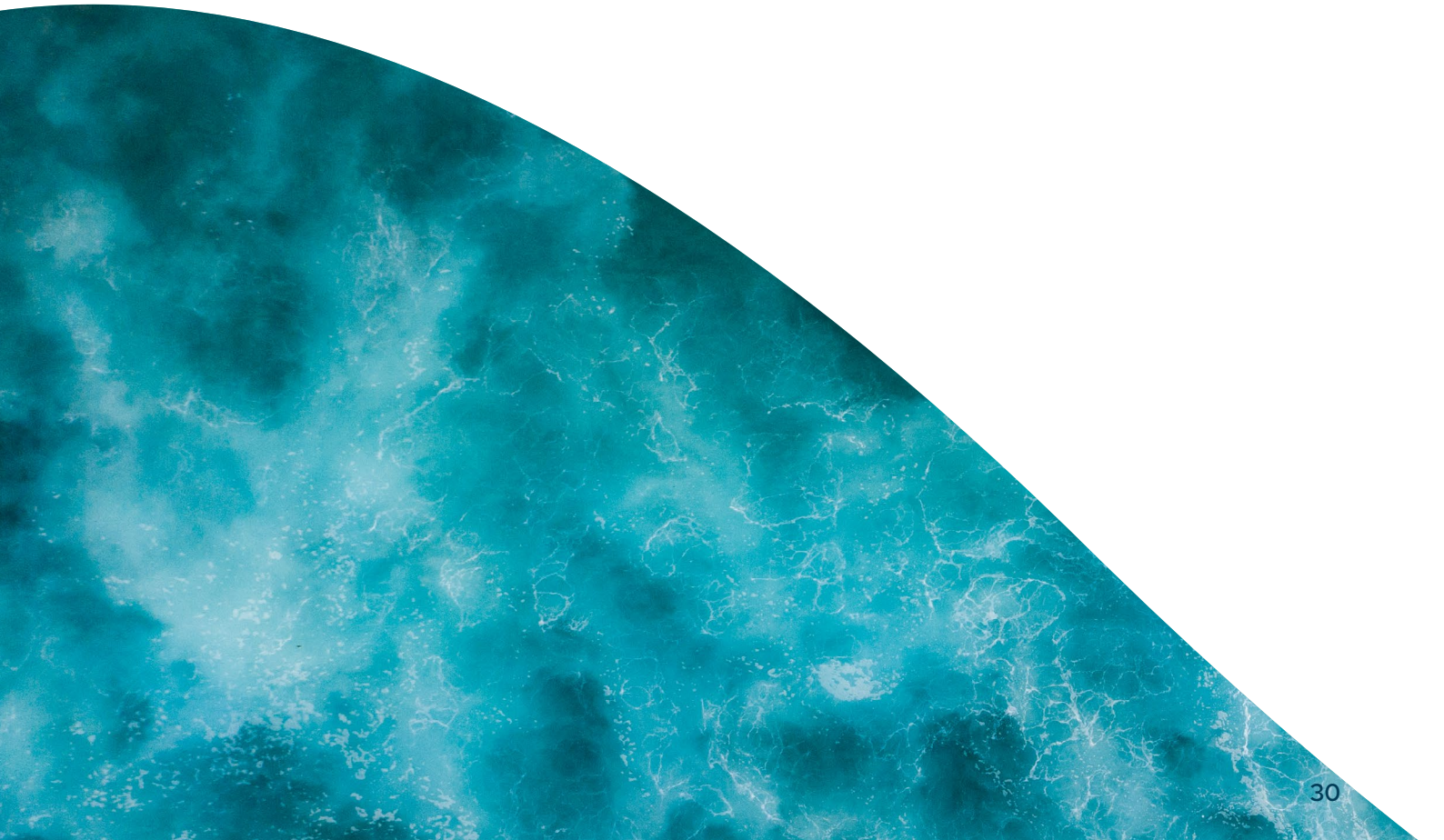
3.2 Enforcement

PRINCIPLE

> We will ensure ongoing compliance with the Sea Cargo Charter for new chartering activities through contractual means by using the Sea Cargo Charter Clause in charter parties. We will contribute to the update of the Sea Cargo Charter Clause through the annual review process.

REQUIREMENTS

Signatories will agree to work with all relevant players (charterers, owners, disponent owners and other business partners in the charter party chain) to collect and process the information necessary to calculate emissions intensity and assess climate alignment.



3.3 Requirements at each information flow step

This section is broken into four steps with information flowing from one to the next. The intent of this section is to give appropriate background and clearly demonstrate how information flows between parties. Specific accountability requirements regarding data types, data sources, and service providers are stated at each step.

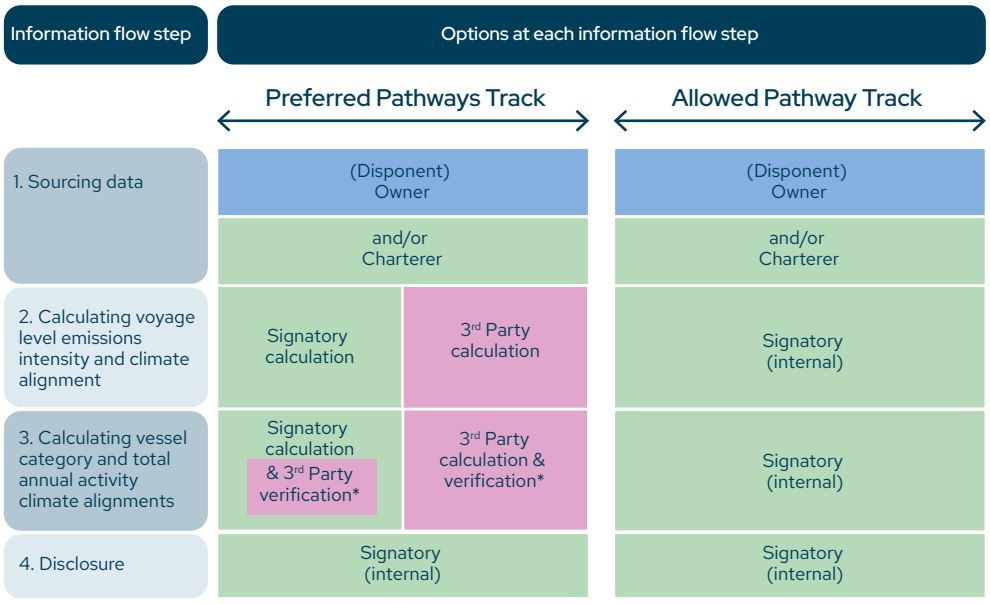
The enforcement requirement of using a recommended charter party clause is detailed in Section 3.4, while the Sea Cargo Charter Clause itself and Data Collection Templates are available on the website. The Sea Cargo Charter's information flow process relies on data that shipowners are required to compute and report directly for where they are a signatory, or to signatories who are charterers, as stated in the recommended Sea Cargo Charter Clause.

In the case of shipowner signatories reporting, consent for use of the data is to be provided by charterers to signatory head owners or signatory disponent owners, who are using additional clauses in the charter parties, such as provision b. in the Sea Cargo Charter Clause.

Figure 5 provides an overview of the potential information flow pathways. The pathways are divided into "preferred pathways" and "allowed pathways" tracks. Preferred pathways are those that include verification mechanisms to maintain data veracity.

For sake of clarity, once a signatory has chosen either the preferred or allowed pathways track, it may choose any option available for that step. For example, if a signatory chooses the preferred pathways track, it may choose to use either of the two available options for steps 2 and 3. After becoming a signatory, a company has two reporting cycles during which the signatory can choose whether to follow the Allowed Pathway Track or the Preferred Pathway Track.

After their first two reporting cycles, however, a signatory is required to move to the Preferred Pathway Track at the minimal extent of involving a third party verifier. [22]



*E.g. using the Indicative Verification Guidelines provided by the signatory

Figure 5.
Information flow pathway tracks

22 Signatories that were already members of the Sea Cargo Charter by the time that decision was made (in November 2022) can take another year before moving to the preferred pathway and as such are only obliged to do so at the latest by the 2025 report on 2024 data.

3.3.1 Step 1: Sourcing data

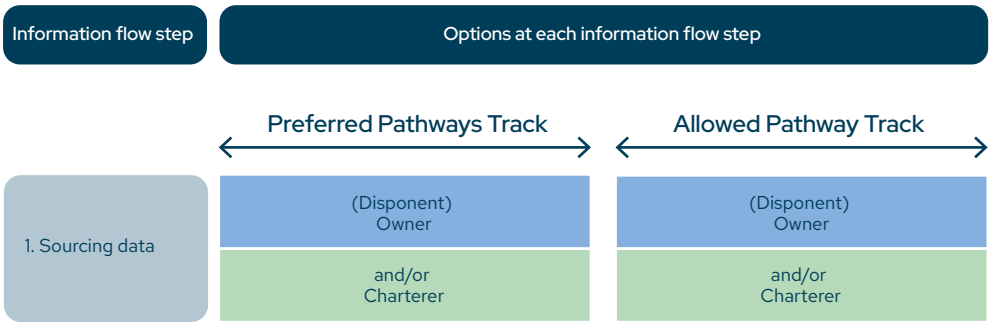


Figure 6.
Data sourcing

Step 1 requires the sourcing of data for the calculation of emissions intensity. As Figure 7 indicates, there is one method for sourcing measured data, which is applicable to both the preferred and allowed pathway tracks. Signatories who are charterers are expected to already have all the necessary data for time charters, so will likely only need to source data from owners for voyage charters. If, and only if, measured data can't be sourced for ballast legs, the signatory will source estimated data. Signatories who are shipowners are expected to have all the data for both voyage charters and time charters and can therefore source all data internally and move on to calculation stage. They may request the charterer's consent to use the information, possibly by using additional clauses in the charter parties, such as provision b. in the Sea Cargo Charter Clause. The recommended charter party clause - the Sea Cargo Charter Clause - ensures that the appropriate data and information are requested by, and provided to, signatories by their contractual counterparties, the appropriate consents are given for the sharing of data, and appropriate privacy protections are established.[23]

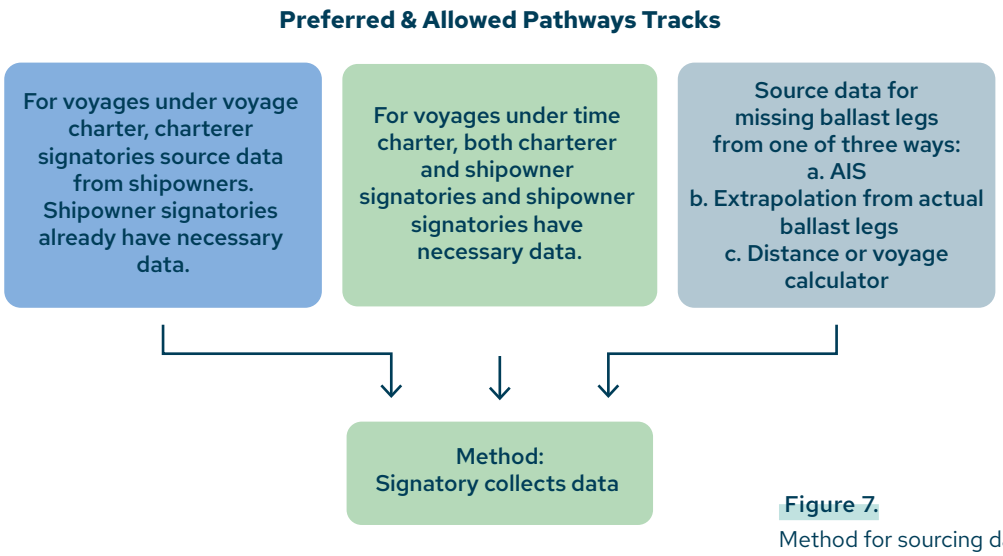


Figure 7.
Method for sourcing data

23 See Section 3.4 and Appendix 6. The Sea Cargo Charter Clause is available on the website.

Method (preferred and allowed pathways):

For charterer signatories: Owners provide measured data as noon or voyage reports for voyages under voyage charter[24]. Charterer signatory provides data for voyages under time charter.
For shipowner signatory: Owner signatory provides data for voyages under time charter and voyage charter.
In the case of signatories who are charterers and where data needs to be requested from relevant shipowners:

1. Charterer signatory requests owners to provide noon or voyage reports for each voyage under voyage charter, containing:
   a. Fuel type and consumption for all bunker consumed by main propulsion, auxiliary machinery, boilers, gas combustion unit, inert gas generators and all primary energy consumers in metric tonnes over the preceding ballast and laden leg of interest[25].
   b. Actual distance sailed laden with the charterer's cargo in nautical miles[26].
   c. Amount of cargo transported in metric tonnes over the given voyage as per the bill of lading[27].
2. Owners provide the data as requested above.
   - Charterer signatories are to ensure that obvious errors are corrected at source (vessels/shipowners from where the data originated). If data can't be corrected at source, it should be categorised and reported under the percentage of eligible chartering activities non-reporting.
   - No filters/omission should be applied to voyage EEOI result calculation for the higher order reporting (vessel category and total annual climate alignments) if the input raw data for voyages are correct (i.e., distance, cargo, consumption etc.).
3. Charterer signatory gathers the same data (1.a, 1.b, 1.c) for each voyage under time charter.
4. If and only if measured data can't be sourced for ballast legs, the charterer signatory will source estimated data.[28] Estimated data can be sourced in one of three ways:
   a. From Automatic Identification System (AIS) based estimated data.
   b. Extrapolation from actual ballast leg data for other voyages or other vessels within the missing vessel's reporting category.
   c. By using a distance table or voyage calculator with vessels' ballast speed and consumption.

Note that consent for the owner to share data with the charterer signatory is given through the recommended Sea Cargo Charter Clause.

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24 The Sea Cargo Charter provides recommended data collection templates to facilitate the collection of data needed to fulfill the reporting requirements of the Sea Cargo Charter. Furthermore, the Sea Cargo Charter provides indicative verification guidelines to support signatories and third parties with the verification process.
25 If the charterer's cargo forms only part of the total amount of cargo transported, an amount of fuel (for each fuel type) proportional to the share of the total cargo carried should be used to calcu- late the emissions.
26 In exceptional circumstances where owners are not able to provide the actual distance sailed, input from distance tables is accepted. Given that table distances are usually shorter than actual distances, this will increase emissions intensity making alignment more challenging.
27 For liquified gas carriers, the amount of cargo discharged is to be used for the calculation of emissions intensity.
28 Estimated data can only be used for missing ballast legs and as a fallback option if measured data can't be sourced. This is to ensure that the methodology does not create disincentives to source data for ballast legs when the laden leg is reported. Estimated data can't be used for voyages other than ballast legs; other data gaps will be reflected in the percentage of eligible chartering activities non-reporting in line with the reporting requirements in Section 3.3.4.

How to meet the requirements:

Measured voyage data and related noon reports or voyage reports must be sourced from the owners for each voyage under voyage charter. Data must be gathered by the signatory for each voyage under time charter. Estimated data must be sourced by the signatory for missing ballast legs if measured data can't be sourced.

3.3.2 Step 2: Calculating voyage level emissions intensity and climate alignment

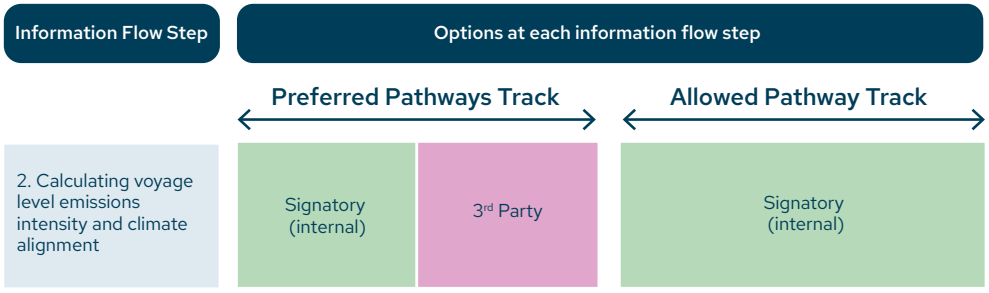


Figure 8.
Voyage climate alignment calculation

Step 2 requires the calculation of voyage emissions intensity using the shipowner's data in the case of a shipowner signatory and both from the owner and from the charterer signatory itself in the case of a charterer signatory, and the calculation of voyage climate alignment with decarbonisation trajectories. There are 2 methods for undertaking these calculations: either internally by the signatory itself or by a third party.

EEOI is used as the emissions intensity metric and is detailed in Section 2.1. Standard decarbonisation baselines for each ship type and size class are produced specifically for the purposes of the Sea Cargo Charter so that all calculations are made in the same way.[29] These are available through the Sea Cargo Charter Secretariat. Figure 9 demonstrates where to source the information and who can perform calculations.

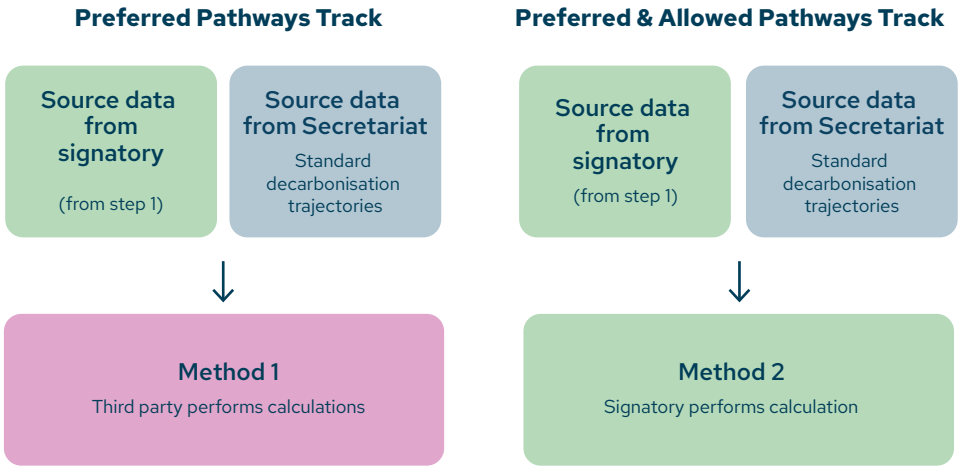


Figure 9.
Method for calculating emissions intensity & voyage climate alignment

29 See guidance in Section 2.4 and Appendix 4 for further clarification on the provision of trajectories.

Permissible methods for calculation

Method 1 (preferred pathway): Third party performs voyage emissions intensity and climate alignment calculations on behalf of the signatory.

1. The third party will source the data for all voyages from step 1 from the signatory and the standard decarbonisation trajectories from the Secretariat.
2. The third party calculates the emissions intensity of the voyages and the decarbonisation delta for the voyages.

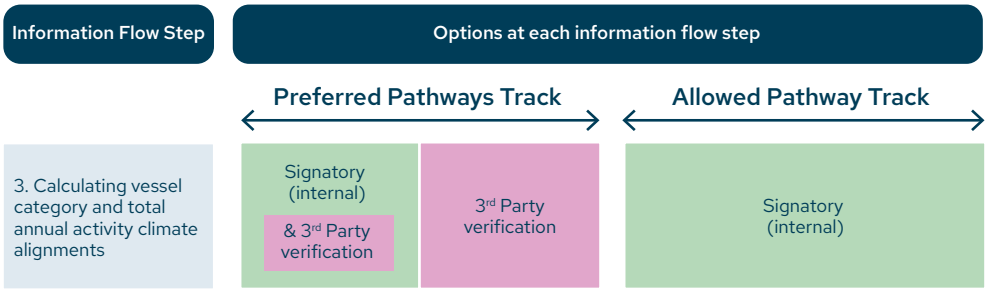
Method 2 (preferred & allowed pathways): Signatory performs voyage emissions intensity and climate alignment calculations.

1. The signatory will source the standard decarbonisation trajectories from the Secretariat.
2. The signatory calculates the emissions intensity of the voyages and the decarbonisation delta for the voyages, using data from step 1 and the decarbonisation trajectories.

How to meet the requirements

1. Voyage emissions intensity and climate alignment calculations must rely solely on reliable data for the voyages and on standard decarbonisation trajectories provided by the Sea Cargo Charter Secretariat.
2. Voyage emissions intensity (EEOI) and voyage decarbonisation delta calculations can be performed by a third party or by the signatory.

3.3.3 Step 3: Calculating vessel category and total annual activity climate alignment



*E.g. using the Indicative Verification Guidelines provided by the signatory

Figure 10.
Vessel category and total annual activity alignment calculations

Step 3 requires the calculation of vessel category climate alignment and the total annual activity climate alignment using the voyage climate alignment data from step 2. There are three methods for undertaking these calculations: under the preferred pathway track, the calculation is either performed by a third party on behalf of the signatory together with a verification of the data (from step 1) and verification of the methodology for the calculation (from step 2), or by the signatory together with a validation of the data (from step 1) and verification of the methodology for the calculation (from steps 2 and 3) by a third party. If a signatory follows the Preferred Pathway Track already earlier in the information flow, it can employ the same third party for the verification it used for the calculations as long as the third party's capacity and expertise allows so, and the verification process is independent.

Third parties are encouraged to verify the data and perform calculations using the Sea Cargo Charter's Indicative Verification Guidelines as provided by the respective signatory. They can confirm the verification by using a verification statement template created by the Sea Cargo Charter Association and provided by the signatory.

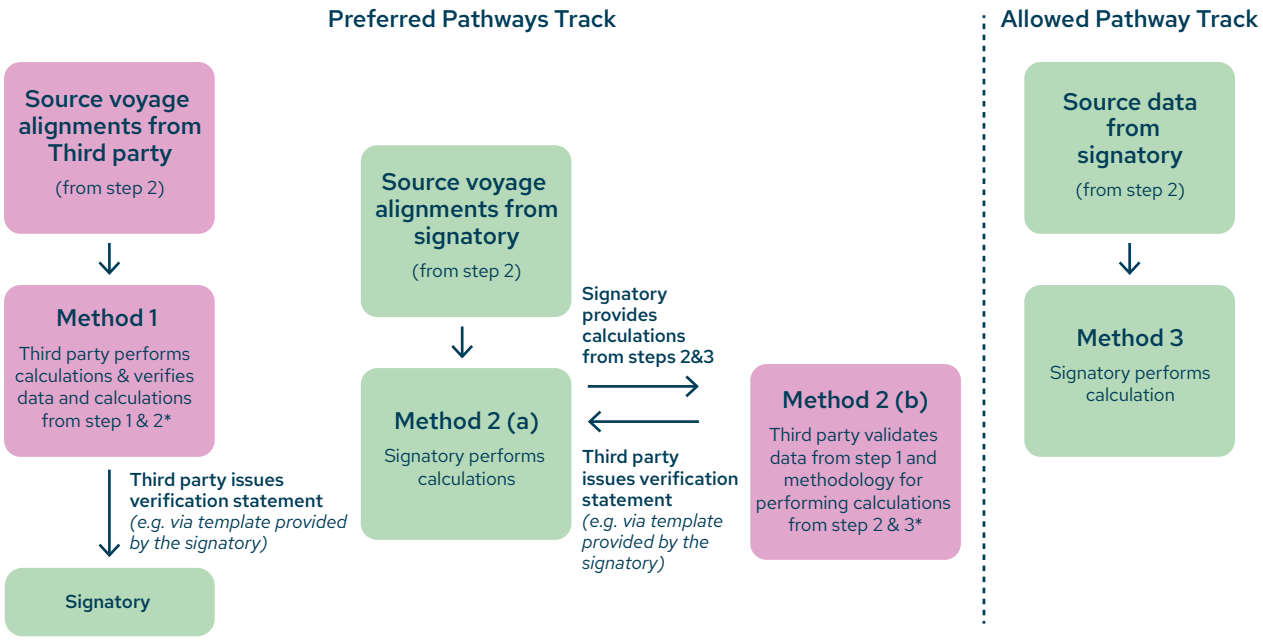
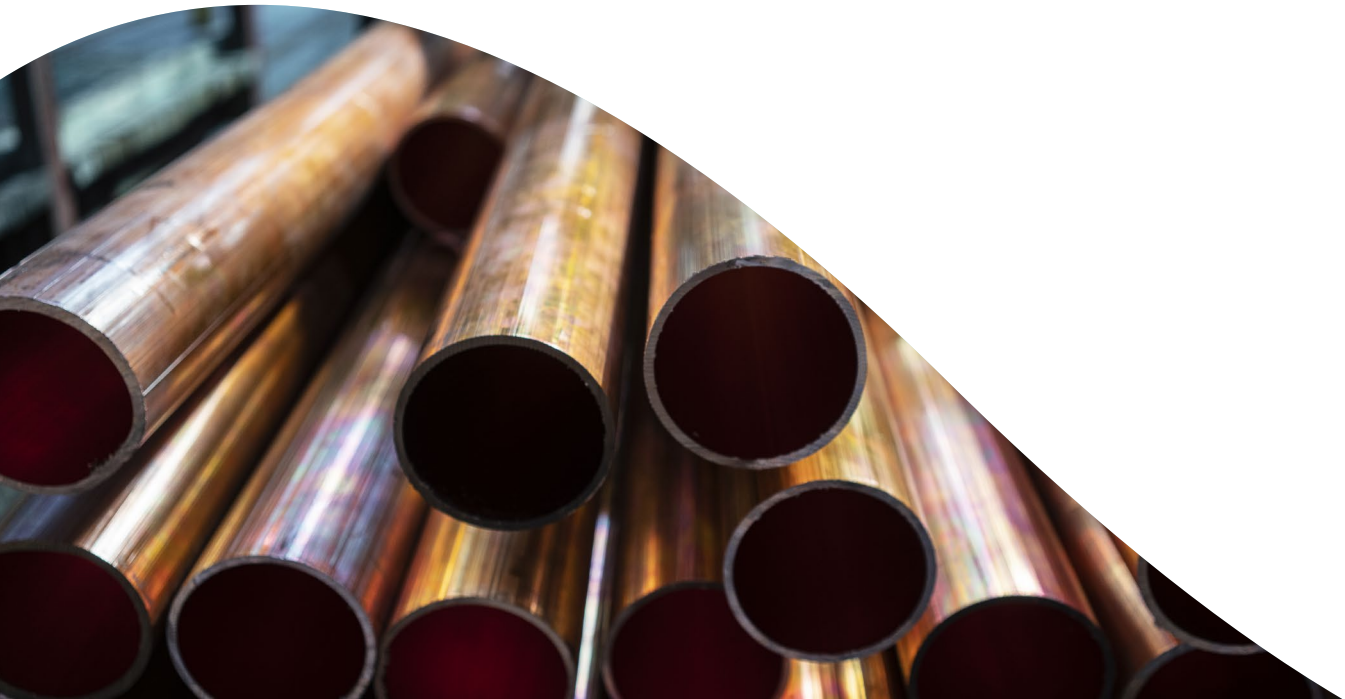


Figure 11.
Method for calculating climate alignment of chartering activities



Permissible calculation methods

Method 1 (preferred pathway): Third party performs total annual and vessel category climate alignment calculations on behalf of the signatory.

1. The third party calculates the decarbonisation delta for each vessel category and the total annual decarbonisation delta, using data from step 2.
2. The third party validates the data and methodology used to perform the calculations (step 1 & 2). The third party issues a verification statement / report, for example the verification statement template provided by the signatory.
3. The third party provides the signatory with the alignment deltas and a verification statement, for example the verification statement template provided by the signatory.

Method 2 (preferred pathway): Signatory performs total annual and vessel category alignment calculations which are verified by a third party.

1. The signatory calculates the decarbonisation delta for each vessel's category and the total annual decarbonisation delta, using data from step 2.
2. The selected third party sources calculations from the signatory.
3. The selected third party validates the data and methodology used to perform the calculations by the signatory (steps 1, 2, and 3), in line with the methodology outlined in Section 2 and for example by using the recommended Sea Cargo Charter's Indicative Verification Guidelines provided by the signatory.
4. The third party provides the signatory with the verification statement / report, for example the Sea Cargo Charter's verification statement template provided by the signatory.

Method 3 (allowed pathway): Signatory performs total annual and vessel category climate alignment calculations.

1. The signatory calculates the decarbonisation delta for each vessel's category and the total annual decarbonisation delta, using data from step 2.

How to meet the requirements

1. Calculations of vessel category and total annual activity climate alignment must rely solely on reliable data provided from the owner and on standard decarbonisation trajectories provided by the Sea Cargo Charter Secretariat.
2. Total and vessel category climate alignment can be performed by a third party or by the signatory.
3. Under the preferred pathway, the third party issues a verification statement, for example the Sea Cargo Charter's verification statement template provided by the signatory.

3.3.4 Step 4: Disclosure

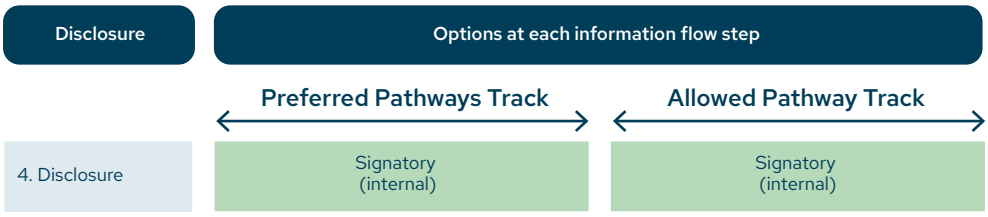


Figure 12.
Method for disclosure

Step 4 establishes disclosure requirements that will serve as a quality control mechanism. Some information outlined below will be submitted to the Secretariat and made available only to signatories with the intent of informing the actions of the Steering Committee. This is intended to establish a quality control mechanism for signatories while also ensuring that information that may be regarded as sensitive by some signatories is not publicly disclosed. There is one method, which is applicable to the preferred and allowed pathway tracks.
Figure 14 lists all information that will be disclosed publicly or shared only internally with the Secretariat and signatories.

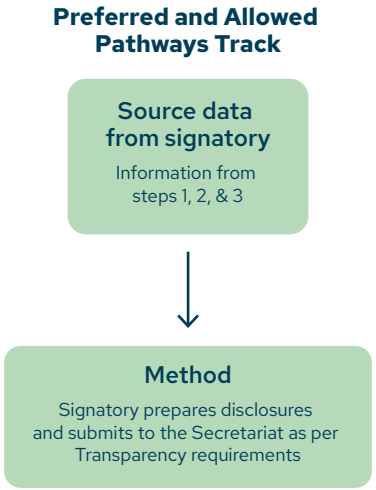


Figure 13.
Disclosure

Method (preferred and allowed pathways): Signatory prepares disclosures and submits to the Secretariat.

1. If the signatory is unable to collect data for some portion of its chartering activities, the signatory should calculate the percentage of its eligible chartering activities for which it cannot report. This percentage is calculated out of the total number of voyages, relying on the methodology outlined in section 2.5.
2. The signatory should also:
   a. calculate the percentages of eligible chartering activities reported through preferred pathway and allowed pathways tracks, relying on the methodology outlined in section 2.5;
   b. calculate the percentages of eligible chartering activities for which measured and estimated data were used, relying on the methodology outlined in section 2.5;
   c. list the source(s) used for estimated data (4.a, 4.b or 4.c as outlined in Section 3.3.1);
   d. list the names of service providers (i.e. third party) it used, if any, to complete steps 2 and 3 (i.e., those steps identified in Sections 3.3.2–3.3.3)
   e. source third party verification statement(s) / report(s).
3. The signatory should provide the following information to the Secretariat:
   - vessel category climate alignment scores (percentage),
   - total annual activity climate alignment score (percentage)[30],
   - the list of the scope's segments included in the eligible reporting chartering activities,
   - percentage of eligible chartering activities non-reporting as outlined above in (1),
   - additional information as outlined above in (2.a), (2.b), (2.c), (2.d), (2.e).

How to meet the requirements

The signatory should provide the following information to the Secretariat in line with transparency requirements identified in Section 4:

- vessel category climate alignment scores (percentages),
- total annual activity climate alignment score (percentage),
- scope's segments included in the eligible reporting chartering activities,
- percentage of eligible chartering activities non-reporting ,
- percentages of eligible chartering activities for which preferred and allowed pathway tracks were used,
- percentages of eligible chartering activities for which measured and estimated data were used,
- and a list of sources used for estimated data,
- a list of the names of the third parties it used, if any, to complete steps 2 and 3,
- and third parties' associated verification statement(s) / report(s).

30 For the Annual Disclosure Report 2025, signatories are asked to also resubmit their total activity climate alignment scores from 2024 (on 2023 data), in order to draw a meaningful comparison between the scores in 2025 and 2024.

Signatory reporting requirements

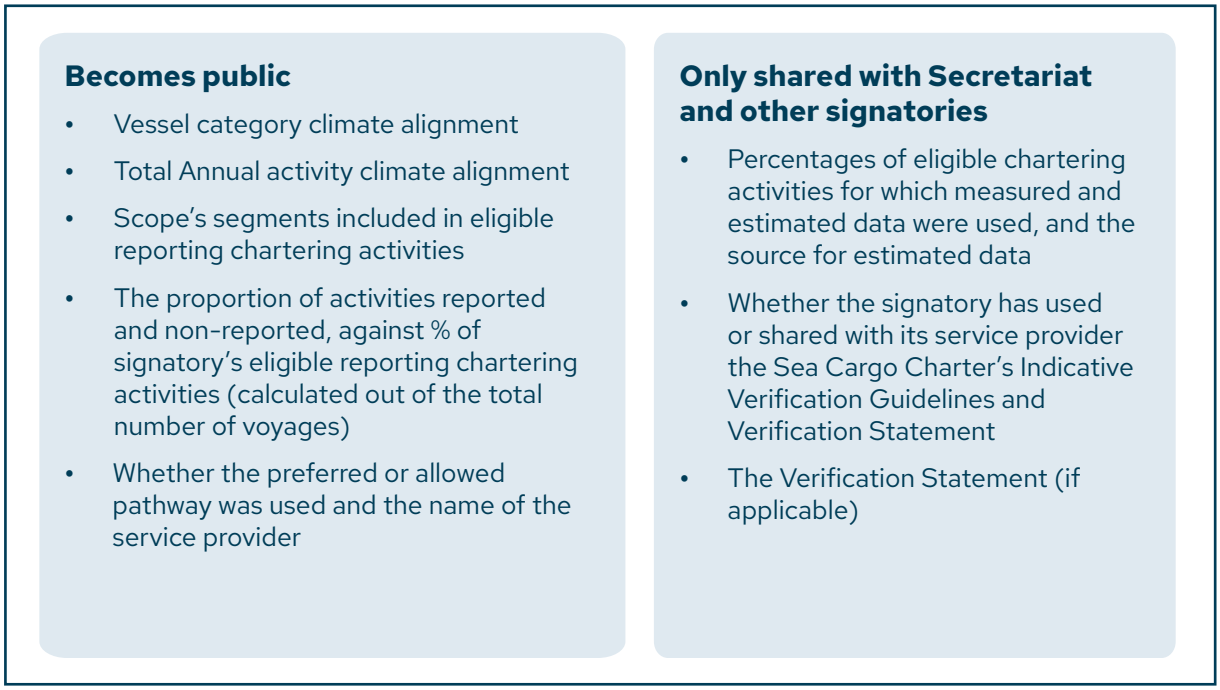


Figure 14.
Signatory reporting requirements

3.4 Recommended charter party clause

Key to supporting the accurate assessment of climate alignment and to creating an equal burden on all signatories is a contractual mechanism that ensures that the appropriate data and information are requested by, and provided to, signatories by their contractual counterparties, that the appropriate consents are given for the sharing of data, and that appropriate privacy protections are established. The mechanism agreed for the Sea Cargo Charter to achieve this is a recommended clause to be proposed and included as part of the charterparty agreement negotiated with the contractual[31] counterparty. The Sea Cargo Charter Clause and supporting Data Collection Templates are available on the website.

The Sea Cargo Charter Clause - and supporting Data Collection Templates - are designed to be generic and broad in their nature (so as to be consistent with any charter party form or type of trade) and non-prescriptive (so as to reduce the impulse for amendment from contractual counterparties).[32] It is hoped that this approach will maximise the appeal and widen the future endorsement of a charter party clause linked to the Sea Cargo Charter.[33]

How to meet the requirements

In all new chartering activities that are finalised after an organisation becomes a signatory of the Sea Cargo Charter, the signatory must use commercially reasonable efforts to include the wording, and particularly the data requirement, set out in the recommended Sea Cargo Charter Clause in the negotiated charter party documentation.

31 See Appendix 6.
32 Because there are slight differences in the way that time and voyage charter agreements are formulated, it may be necessary in the future to develop two different charter party clauses.
33 The Secretariat will endeavor to engage with those organisations to whom the market has entrusted the production of contractual terms with a view to including the wording of this recommended charter party clause as part of the recognised industry standard terms.

4

Transparency

This section states the requirements for the transparency principle and provides the expectations and intent of each requirement. It also provides an outline of the timeline for the participation in and compliance with the Sea Cargo Charter.

PRINCIPLE

> We will publicly acknowledge that we are a signatory of the Sea Cargo Charter and we will publish the results of the climate alignment scores of our chartering activities on an annual basis in line with the Technical Guidance.

REQUIREMENTS

1. Upon becoming a signatory, the signatory will publicly acknowledge that it is a signatory of the Sea Cargo Charter.
2. On an annual basis, each signatory will report the vessel category climate alignment scores and total annual activity climate alignment score of its chartering activities and supporting information, as per the Accountability requirements, to the Secretariat no later than April 30. This requirement takes effect for each signatory in the calendar year after the calendar year in which it became a signatory.
3. On an annual basis, each signatory will publish the vessel category climate alignment scores and total annual activity alignment score of its eligible chartering activities in relevant institutional reports on a timeline that is appropriate for that signatory. This requirement takes effect for each signatory in the calendar year after the calendar year in which it became a signatory.

4.1 Information flow

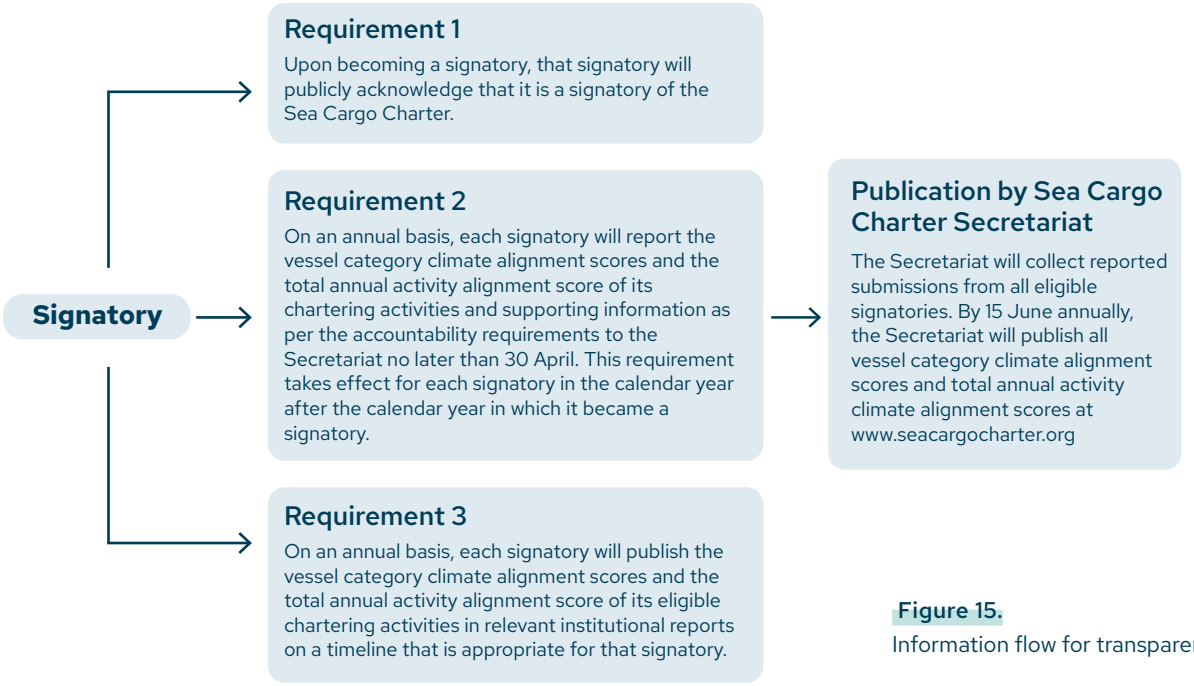


Figure 15.
Information flow for transparency requirements

Figure 15 demonstrates the information flow for each transparency requirement. Below, expectations and intent of each transparency requirement are further clarified.

How to meet the requirements

1. The expectations of transparency requirement 1 are that a signatory should make publicly known that it is a signatory of the Sea Cargo Charter in a manner that is suitable for its organisation. The intent of this requirement is to simply ensure awareness of the Sea Cargo Charter and to ensure that it is clear which organisations are signatories without creating any significant burden to them. Announcement Guidelines are available from the Secretariat.
2. The expectations of transparency requirement 2 are that a signatory should report all required information to the Sea Cargo Charter Secretariat (total annual and vessel category climate alignments and supporting information as per the accountability requirement) in a timely manner (no later than 30 April) in accordance with the Assessment, Accountability and Enforcement, and Transparency requirements in the Technical Guidance. Figure 15 shows which information becomes public and which information remains confidential. The intent of this requirement is to ensure that accurate information can be published by the Sea Cargo Charter Secretariat to www.seacargocharter.org in a timely manner (no later than 15 June). The required reporting timeline is intended to create as little burden as possible to signatories.
3. The expectations of transparency requirement 3 are that a signatory should identify relevant institutional reports and ensure that the climate alignments of its eligible chartering activities are included in them. Due to different institutional timelines, no specific expectations have been set for when reports including vessel category and total annual climate alignment scores should be published. The intent of this requirement is not to specify precisely where this information should be published or create a significant burden for signatories. Instead, it is intended to ensure awareness of the Sea Cargo Charter and its approach.

Specificities for the first calendar year of reporting:

For the first calendar year of reporting (i.e., the following calendar year after the calendar year of becoming a signatory), the signatory reports on its chartering activities for the previous year (i.e., for the year of becoming a signatory) starting from the next fiscal quarter date after the date of becoming a signatory.
Fiscal quarter dates are set as follows:

1. Q1 - starts January 1st
2. Q2 - starts April 1st
3. Q3 - starts July 1st
4. Q4 - starts October 1st

Starting from the second calendar year of reporting, the signatory reports on the entire previous calendar year (from January 1st to December 31st of that year).

Example 2: Start of reporting obligations

Signatory A becomes a signatory on 10 February 2025 (during Q1):
- Signatory A reports in 2026 on its chartering activities from 1 April 2025 (start of Q2) to 31 December 2025.
- In 2027, signatory A will report on its chartering activities for the entire 2026 year.

Signatory B becomes a signatory on 2 August 2025 (during Q3):
- signatory B reports in 2026 on its chartering activities from 1 October 2025 (start of Q4) to 31 December 2025.
- In 2027, signatory B will report on its chartering activities for the entire 2026 year.

Signatory C becomes a signatory on 20 November 2025 (during Q4):
- signatory C will not report in 2026 on its chartering activities for 2025.
- In 2027, signatory C will report on its chartering activities for the entire 2026 year.

Example 3: Transparency

In this example, a charterer becomes a signatory of the Sea Cargo Charter in May 2025.

Requirement 1: Charterer issues a press release announcing that it is a Sea Cargo Charter Signatory in May 2025.

The signatory starts collecting data for all its chartering activities from the beginning of the next fiscal quarter after becoming a signatory; in this example from the beginning of Q3, which starts on 1 July 2025.

Requirement 2: Prior to 30 April 2026, the signatory submits its climate alignment scores (total annual and by vessel category) for 2025 and supporting information as per the accountability requirements.

Requirement 3: The signatory includes in its annual sustainability report its vessel category and total annual climate alignment scores.

Publication by Sea Cargo Charter Secretariat: All eligible signatories' 2025 vessel category climate alignment scores and total annual activity climate alignment scores are be published online around 15 June 2026.

5

How to become a signatory

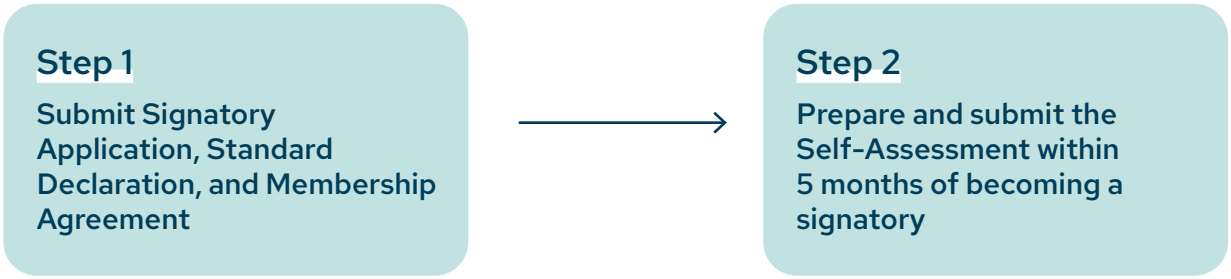
The following outlines the process for charterers and shipowners to become signatories and highlights the necessary documents.

This document is intended to be a how-to guide for the administrative aspects of implementing the Sea Cargo Charter prospective signatories.

Charterers and shipowners falling under the scope and wishing to become a signatory of the Sea Cargo Charter must adhere to the following process:

1. Using the Standard Declaration, Membership Agreement and Signatory Application provided by the Secretariat, an organisation wishing to become a signatory must complete and send both documents to the Secretariat.
2. The charterer must complete and submit the Sea Cargo Charter Self-Assessment to the Secretariat within five (5) months of becoming a signatory.

All onboarding documents are available from the Secretariat.



5.1 Standard Declaration

The Standard Declaration is the formal commitment required of charterers to become a signatory. Step one of the process, the Standard Declaration, announces the intent of the organisation to follow all legally binding requirements of the Sea Cargo Charter. This means that the institution is prepared to take the necessary steps to comply with all four Principles under the Sea Cargo Charter, and have this commitment and related reporting made public.

5.2 Membership Agreement

The Membership Agreement is the formal commitment to adhere to the Governance Rules of the Sea Cargo Charter Association. The Governance Rules are available here: The-Sea-Cargo-Charter-Association---Governance-Rules.pdf.

5.3 Signatory Application

Along with the Standard Declaration, the organisation wishing to become a signatory must also complete the Signatory Application document.

This document outlines who is responsible for contact, reporting, invoicing, and other necessary functions to implement and maintain the Sea Cargo Charter within the signatory's organisation.

5.4 Self-Assessment

Each signatory has five (5) months to complete the Self-Assessment and return it to the Sea Cargo Charter Secretariat after joining.

The purpose of this is to ensure that each signatory has made appropriate arrangements to fulfill its obligations under the Sea Cargo Charter and identified any challenges to doing so. The Self-Assessment is as brief as possible to reduce the administrative burden, while still addressing the core responsibilities of signatories of the Sea Cargo Charter. The questions focus on ensuring that signatories are aware of timelines and obligations under the Sea Cargo Charter, have engaged internal stakeholders, have engaged business partners, and have a plan for engaging the necessary third parties to verify their climate alignment assessment.

5.5 Timeline

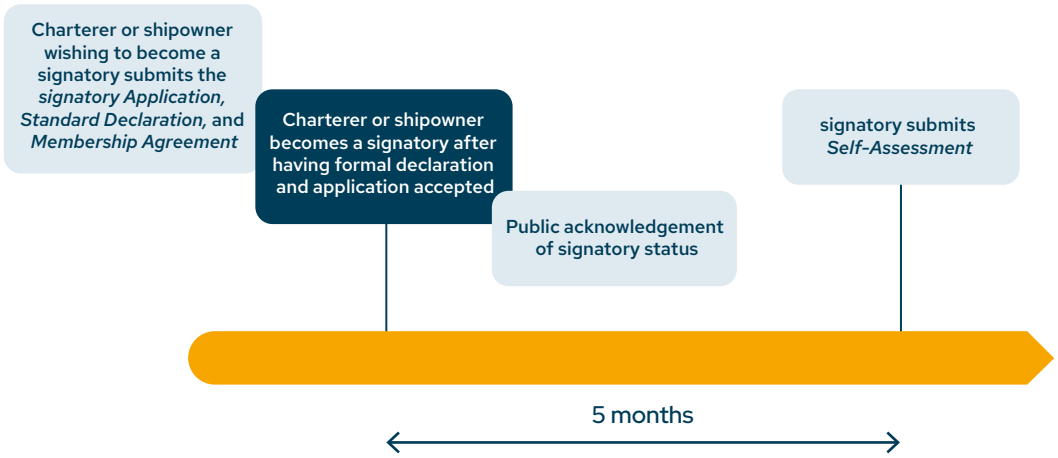


Figure 16.
Timeline for becoming a signatory of the Sea Cargo Charter

Figure 16 details the steps to becoming a signatory. The Sea Cargo Charter aims to be easily implementable and achievable for each signatory. To these ends, the timetable for implementation in Figure 1 assists the Self-Assessment so that signatories know when there are important deadlines for alignment and reporting to comply with the Sea Cargo Charter.

5.6 Governance

Information regarding the creation of the Sea Cargo Charter Association, the selection of the Steering Committee, and the role of the Secretariat can be found in the Governance Rules of the Association. These are available at https://www.seacargocharter.org/wp-content/uploads/2021/01/The-Sea-Cargo-Charter-Association-%E2%80%93-Governance-Rules.pdf.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Appendices

Appendix 1

Abbreviations

CBM	Cubic meter
CDP	Carbon Disclosure Project *a not-for-profit charity that runs a global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts.*
DWT	Deadweight tonnes *a measure of how much weight a ship is designed to carry at maximum summer draught.*
EEOI	Energy Efficiency Operational Indicator *developed by the IMO in order to allow shipowners to measure the fuel efficiency of a ship in operation. An emissions intensity metric calculated in accordance with Equation 1 as set out in Section 2.1 of the Technical Guidance.*
EEDI	Energy Efficiency Design Index *A design specification metric developed by the IMO.*
FOB & DAP	Free On Board & Delivered At Place *FOB and DAP are Incoterms (or International Commercial Terms), which are a series of terms of trade for the sale of goods published by the International Chamber of Commerce relating to international commercial law.*
GHG	Greenhouse gas
GLEC	Global Logistics Emissions Council *an industry-led partnership to drive emission reduction and enhance efficiency across global logistics supply chains.*
IMO	International Maritime Organization *a specialised agency of the United Nations, and the global standard-setting authority for the safety, security and environmental performance of international shipping.*
LCA	Lifecycle assessment
MEPC	Marine Environment Protection Committee
IMO DCS	MO's MARPOL Annex VI Data Collection System for Fuel Consumption
MRV	Measurement, reporting and verification
TtW	Tank-to-wake
TC	Time charter
tnm	Tonne-Nautical Mile
VC	Voyage Charter
WtT	Well-to-tank
WtW	Well-to-wake

Appendix 2

Glossary

Activities not reported / Non-reporting percentage
If signatories are unable to obtain data for voyages or if there are obvious errors that can't be corrected, these voyages are to be considered as activities eligible for non-reporting. Percentage of eligible chartering activities not reported (non-reporting percentage) is to be calculated out of the total number of voyages and submitted to the Secretariat in Step 4 of the information flow step.

Ballast leg (also called ballast voyage) is a voyage that takes place between ports of discharge and loading ports where the vessel is carrying no cargo and hence takes on ballast (usually water) to make the vessel more manageable at sea. Ballast legs may result from strategic decision-making by the (disponent) owner to ensure the vessel is geographically well-placed to secure a higher rate for the subsequent charter, or may result from a charterer requesting a particular vessel.

Bunkering is the supplying of fuel for use by ships.

Charterers are defined as the party who buys freight services from a (disponent) owner under time or voyage charters.

Chartering activities are defined as business activities that are 1) on time and voyage charters, including contracts of affreightment and parceling, with a mechanism to allocate emissions from ballast voyages, and 2) for voyages carried out by dry bulk carriers, chemical tankers, oil (crude and product) tankers, LNG carriers, and combination carriers, and 3) where a vessel or vessels are engaged in international trade (excluding inland waterway trade).

Climate alignment

For the purpose of the Sea Cargo Charter, climate alignment is the degree (as a percentage) to which the emissions intensity of a signatory's shipping portfolio is in line with a decarbonisation trajectory that meets the 2023 IMO GHG Strategy ambition of reducing total annual well-to-wake GHG emissions to net-zero around 2050.

Underpinning the annual activity climate alignment score signatories report in the Sea Cargo Charter are individual voyage climate alignment scores which express the degree of the measured emissions intensity against the required ship type/size decarbonisation trajectory value for the year under review.

Continuous baselines
In order to avoid bias against vessels due to their position within a vessel category due to their size which could make alignment more challenging, continuous baselines are introduced in the Sea Cargo Charter. This implies that the required emissions intensity is directly related to the size of the vessel through a power law relationship similar to what is currently in place for the Energy Efficiency Design Index (EEDI). Thus, each vessel type has an annual continuous baseline that defines required carbon intensity which are defined in Appendix 4.

Decarbonisation trajectory
A decarbonisation trajectory is produced by the Secretariat based on agreed and clearly stated assumptions. The current decarbonisation trajectory used by the Sea Cargo Charter defines the rate of reduction of emissions intensity required to be aligned with the 2023 IMO GHG Strategy absolute emission reduction ambition. The method used for establishing the decarbonisation trajectory up to 2050 is derived from emission and transport work data from the Third and Fourth IMO GHG Study.

Disponent owner is a person or company that "displaces" or takes the place of the legal, registered owner in charter parties. References to owner or shipowner include the potential for a disponent owner to have taken their place and in this case to fulfil the requirement.

Emissions intensity is the representation of the total well-to-wake emissions generated to satisfy a supply of transport work (grams of CO_2e per tonne-nautical mile [gCO_2e / tnm]). The Sea Cargo Charter uses the EEOI metric for this calculation, adapted to include upstream emissions as well as the impact of CO_2e emissions, i.e., carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O).

LCA stands for IMO's Lifecycle Assessment model. This method refers to the assessment of greenhouse gas emissions from the fuel production to the end-use by a ship (well-to-wake); it results from the combination of a well-to-tank part (from primary production to carriage of the fuel in a ship's tank, also known as upstream emissions) and a tank-to-wake (or tank-to-propeller) part (from the ship's fuel tank to the exhaust, also known as downstream emissions).

Shipowner is defined for the purpose of the Sea Cargo Charter as a registered owner with commercial control or the group entity (not a third party management company) with commercial control of a registered owner, excluding entities that charter out ships on a bareboat charterparty terms.

Signatory is a charterer or shipowner that has sent a formal declaration to the Sea Cargo Charter Secretariat, has had that declaration accepted, and has had that declaration announced.

Third party is a reputable service provider that is commissioned by the signatory to perform part of its obligations under the Sea Cargo Charter on its behalf.

Time charter is a contract for the hire of a named vessel from a (disponent) owner, for a specified period of time for the charterer's purposes subject to agreed restrictions. When on time charter, the (disponent) owner is responsible for the vessel's running expenses; the (disponent) owner operates the vessel technically, and the charterer directs the ship's commercial operations. Charterers pay a daily rate for a fixed time period and all voyage costs including bunker.

Vessel type and size (vessel categories) Emissions intensities vary as a function of ship type and size, as well as a ship's technical and operational specification. To enable the emissions intensity of ships to be compared to a peer group of ships of a similar type and size, a classification system is applied. The classification system is taken from the Fourth IMO GHG Study, to enable consistency with the IMO's process. In January 2025, a baseline for combination carriers has been added. While combination carriers are classified under the Bulk Carriers category in the Fourth IMO GHG Study, they are recognised as a unique category within the IMO CII reporting framework, and it was decided that their distinct operating profile warranted the inclusion of their own baseline under the Sea Cargo Charter framework.
Under the Sea Cargo Charter, signatories are required to report, among other, their vessel category climate alignments, which categories are defined by vessel type and size. They can be found in Appendix 4.

Voyage charter is a contract for the transportation of a stated quantity by a stated type of cargo on a named vessel between named ports against an agreed price. On voyage charter, the charterer pays a transactional rate based on the amount of cargo transported and the route. The (disponent) owner bears both the operational costs and voyage costs. In this case, charterers do not have access to the actual fuel consumption during the voyage and, in the case of vessels carrying multiple cargos, the proportion of cargo each charterer has on board is unknown. Contracts of affreightment and parceling fall under voyage charter operated under the same cost regime.

- **Contract of Affreightment** is a contracting model that can be considered as being an agreement for several voyage charters over a period of time which may include parceling.
- **Parceling** is defined as when vessels are carrying cargo from various charterers at the same time.

Appendix 3

List and guidance for particular cases

Particular cases	
Ballast legs	Ballast legs are included in each voyage by accounting for the emissions from the preceding ballast leg while no transport work is carried out, noting that, as stated below, off-hire periods due to dry-docking are specifically excluded from the calculation.
Dry bulk voyages on general cargo vessels	Voyages conducted on general cargo vessels should be included in the scope of reported voyages for the Sea Cargo Charter when carrying dry bulk cargoes. Where a general cargo vessel is reported under the Sea Cargo Charter as per the scope defined above, the trajectory for dry bulk carriers shall be used.
Drifting periods	Drifting periods, and associated emissions and distances, should be included in the overall duration of the voyage.
Floating storage / Stationary time	Floating storage/stationary time and related emission should be captured in the reporting without any exemption if it is part of the charter. In case of a pure floating storage operation where EEOI/voyage alignment cannot be calculated on a voyage basis, the operations should still be captured at the aggregated reporting levels (i.e. vessel category and annual activity alignment) by including the emissions in the annual total.
Parceling	Parceling operations are characterised by a vessel carrying multiple cargoes from various charterers. Individual cargoes often remain on board through multiple port calls before being unloaded, while other cargoes are loaded and unloaded in the interim. Within the Sea Cargo Charter, two separate situations are considered: • general parceling, • chemical parceling. For general parceling, all charterers with cargo onboard the vessel should use the emissions intensity for the whole voyage, including the ballast leg, to calculate their voyage climate alignment and as input to subsequent category and overall alignment calculations. For chemical parceling, more detailed data collection is needed to collect data for the emissions that occur in port. Climate alignment should be based on an emissions intensity value calculated for each parcel as follows: • total emissions for the parcel consist of its share of a prior ballast leg (if applicable) plus its share of the emissions across all laden journey legs that the parcel is onboard plus its share of the port call emissions • the emissions associated with any ballast legs, which are uncommon in this subsector, will be allocated to the cargoes on board on departure from the first port after the ballast leg in proportion to their share of the transport work on the first subsequent journey leg • the emissions associated with transportation are calculated on a leg by leg basis in proportion to the parcel's share of the total transport work, recognising that this will vary as other cargoes are loaded and unloaded during the voyage • the emissions associated with a port call are allocated across all cargo that is unloaded, loaded or transits through that port. This allocation is based solely on the mass share of each cargo compared to the total (i.e. distance within port is set to zero) • the total transport work for the parcel is the sum of its total transport work summed across all laden journey legs that it remains on the vessel. If a vessel leaves a port and then re-enters the same port (for example for tank cleaning or to free up a berth while awaiting access to the next point of loading / unloading), this will be considered as part of the same port call. Because vessels may spend considerable time in port, loading and unloading several cargoes, reporting of emissions for this subsector should be within 30 days of final cargo discharge. Reporting may occur at the level of an individual parcel or per fixture, i.e., covering multiple parcels belonging to the same charterer, as agreed between the shipowner and the charterer.
Voyages spanning multiple years	The voyage should be captured in the reporting period that it ends in.
Off-hire period	The amount of fuel consumption relating to off-hire periods are to be included in the voyage's overall fuel consumption unless the vessel is off-hire due to dry-docking, pre-agreed or emergency maintenance.

Appendix 4

Definition of decarbonisation trajectory, required emissions intensity and emission factors

The following describes the method applied for establishing an overall decarbonisation trajectory by defining the rate of decline of emissions intensity from 2018 out to 2050. The method used for establishing the decarbonisation trajectory up to 2050 is derived from emission and transport work data from the Third and Fourth IMO GHG Study.

Defining overall decarbonisation trajectory:

The overall improvement required in emissions intensity is calculated from:

1. a projection of the foreseeable growth in transport work (in tonne-nautical mile) across all ship types between baseline (2018) and the target year (2050),
2. the target CO_2e emissions in 2050 defined by the 2023 IMO GHG Strategy absolute emission reduction ambition.

The projection of foreseeable growth is taken from the Fourth IMO GHG Study scenario RP2.6 SSP2. This scenario is selected because it is most aligned with decarbonisation in the wider economy, and most closely represents the rate of GDP and trade growth that has been observed in recent years.[34]

The target CO_2e emissions is defined by the 2023 IMO GHG Strategy which has a net-zero target around 2050. Additionally, the strategy has indicative checkpoints for at least 20% striving for 30% reductions in 2030 on 2008 levels as well as at least 70% reduction striving for 80% reduction in 2040 on 2008 levels.

The 2023 IMO GHG Strategy is anchored to the same 2008 global emissions inventory that was estimated in the Third IMO GHG Study. This value of 921Mt of operational (tank-to-wake) CO_2 is translated to a lifecycle CO_2e value by using:
- A TtW CO_2 to WtW CO_2e conversion factor based on the emission factors listed in Table 8 used for reporting and weighted by the estimated fuel mix in 2008.
- 100-year global warming potential values aligned to IPCC Assessment Report 6 (IPCC AR6).[35]

Table 5 presents the emissions budget translation from the Third IMO GHG Study to the 2023 IMO GHG Strategy 'minimum' and 'striving' numbers. These can then be used to build a global emissions budget by using historic data from the Third and Fourth IMO GHG Studies (2008 – 2018) and then linking the subsequent checkpoints linearly.

34 For a description of the full methodology employed to project transport work including energy products, see page 218 of the Fourth IMO GHG Study+ Lloyd's Register, & UMAS. (2019). Fuel production cost estimates and assumptions. The weighted average TtW CO_2 to WtW CO_2e emission factor used is 1.157

35 100 year global warming potential values used are 29.8 for fossil methane (CH_4), 27.2 for biogenic methane, and 273 for nitrous oxides (N_2O).]

	2008	2018	2030	2040	2050
Total transport demand (billion tonne nautical miles)	46.003	59.230	81.804	100.616	119.429
Total CO_2e emissions (million tonnes) – 2023 IMO GHG Strategy 'Minimum'	1131.46	1127.85	905.17	339.44	0
Total CO_2e emissions (million tonnes) – 2023 IMO GHG Strategy - 'Striving'	1131.46	1127.85	792.02	226.29	0
Estimated aggregate emissions intensity (gCO_2e/tnm) – 2023 IMO GHG Strategy 'Minimum'	24.60	19.04	11.06	3.37	0
Estimated aggregate emissions intensity (gCO_2e/tnm) – 2023 IMO GHG Strategy - 'Striving'	24.60	19.04	9.68	2.25	0

Table 5.
Transport demand, emissions, and emissions intensity for international shipping

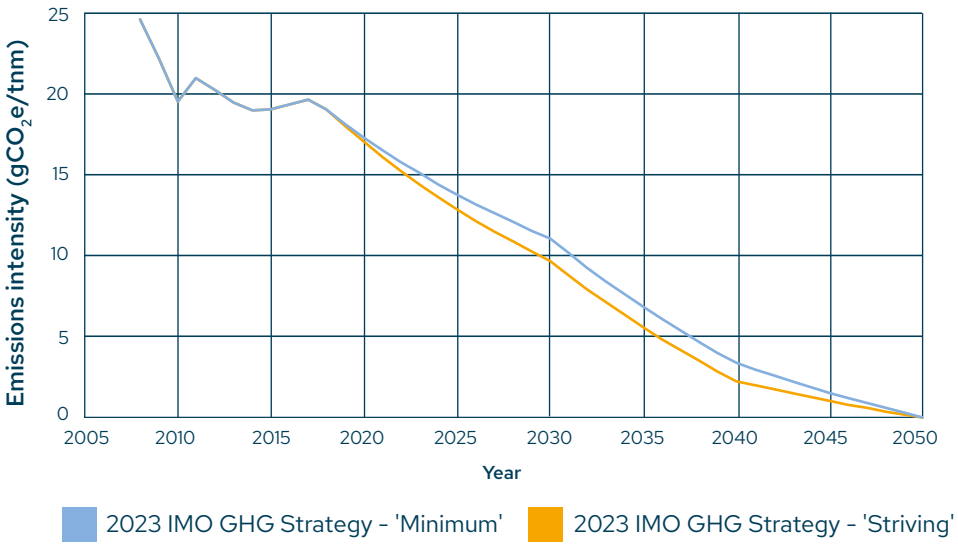

Figure 17.
Global decarbonisation trajectory

Figure 17 plots the intensity values in Table 5 and a trend line connecting them. There are many different assumptions that could be applied to specify the shape of the curve that defines the rate of emissions intensity reduction between 2018 and 2050. The chosen trajectory represents a gradual and consistent rate of improvement on average across the fleet; the assumption applied here is for a constant improvement year-on-year.

As it stands, the trajectories do not account for projected efficiency or alternative fuel technology uptake by the industry and are not designed to forecast any changes in operating profile. The nature of the trajectories provides a method to overcome uncertainty introduced by projections relating to technology uptake or operational variation.

Ship type and size definitions:

Emissions intensities vary as a function of ship type and size, as well as a ship's technical and operational specification. To enable the emissions intensity of ships to be compared to a peer group of ships of a similar type and size, a classification system is applied. The classification system is taken from the Fourth IMO GHG Study, to enable consistency with the IMO's process. In the event that the IMO updates the classification system used in future work, a decision on whether to update the classification system used in the Sea Cargo Charter will be taken.
In January 2025, a baseline for combination carriers has been added. While combination carriers are not part of the ship types as defined in the Fourth IMO GHG Study, their distinct operating profile warranted the inclusion of their own baseline under the Sea Cargo Charter framework.

Estimating the ship type and size specific emissions intensity:

The Fourth IMO GHG Study contains a dataset estimating the emissions intensities of individual ship types and sizes between 2012 and 2018. The dataset currently provides the most up to date source of IMO-recognised information for the calculation of decarbonisation trajectories, but as more recent data becomes available, the trajectories can be updated.

While emissions intensity estimates could be provided by the Advisory for more recent years than 2018, these would not have gone through the independent verification that the IMO process is intrinsically founded upon for the publication of the GHG Study. Moreover, the tumultuous years between 2020 and 2022 were anomalous which would not necessarily be representative of expected fleet activity.

Based on feedback from signatories after the first reporting cycle, the emissions intensity benchmarks set for chemical tankers and liquefied gas carriers based on the Fourth IMO GHG Study were found to not be representative. This was evidenced through extensive independent verification of measured data by the Advisory as well as evaluation of the validation carried out for the Fourth IMO GHG Study against EU MRV data.

For **chemical tankers**, uncertainty around the way that cargo on board is estimated in the Fourth IMO GHG Study is specifically high for chemical tankers when compared to EU MRV data (comparing like for like journeys). **For liquefied gas tankers** several reasons have been identified which might be causing misalignment including uncertainty around specific fuel consumption of propulsion systems, uncertainty around cargo on board which is estimated using draught and may be highly inaccurate and the difference in operating profile and vessel characteristics for smaller LPG tankers (size 1 and 2) and larger LNG tankers (size 3 and 4).

Following data analysis, the baselines for these two vessel types have been modified to be based on EU MRV data from 2021, however, the same method of curve fitted described in the following sections is applied.
The most recent and the most accurate data in the publication is for the year 2018, and therefore this is used as the historical data edge for subsequent steps of the method.

Furthermore, as of the Annual Disclosure Report 2025, combination carriers are added to the list of different ship types. Previously combination carriers were classified under the dry bulk vessel category, but due to the unique characteristics of combination carriers, a specific baseline has been developed.

Calculating the target emissions intensity in a given year as a function of the ship type and size:

The rate of reduction required per year is relative to the last historical data point (2018). The trajectory is shown relative to 2018 emissions intensity (indexed to 2018 emissions intensity) in Figure 18.

While the trajectory is presented for the time period 2018 to 2050, it is consistent with the 2008 baseline year as specified in the 2023 IMO GHG Strategy for the determination of interim checkpoints. The index value represents the required emissions intensity value relative to the emissions intensity in 2018.

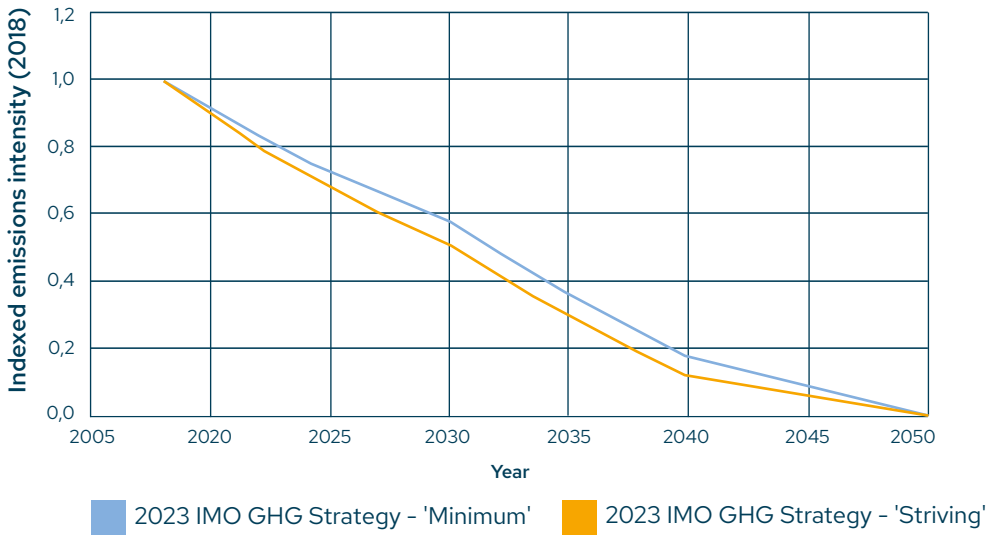

Figure 18.
Indexed emissions intensity Trajectory, from 2018 to 2050

Estimating vessel specific required emissions intensity

Continuous baselines are already widely used in maritime benchmarking such as the International Maritime Organization Maritime Environment Protection Committee (IMO MEPC) Energy Efficiency Design Index (EEDI)[36] and the more recent Carbon Intensity Index (CII) regulation[37].

Drawing on the above examples, a continuous baseline is fit through the required emissions intensity median values for each ship type covered in the Sea Cargo Charter. Figure 19 illustrates a stepped and a continuous baseline, exemplified for bulk carriers.

36 IMO MEPC. (2022). 2022 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships - MEPC.364(79).
37 IMO MEPC. (2022). 2022 Guidelines on the reference lines for use with operational carbon intensity indicators (CII Reference Lines Guidelines, G2) MEPC.353(78).

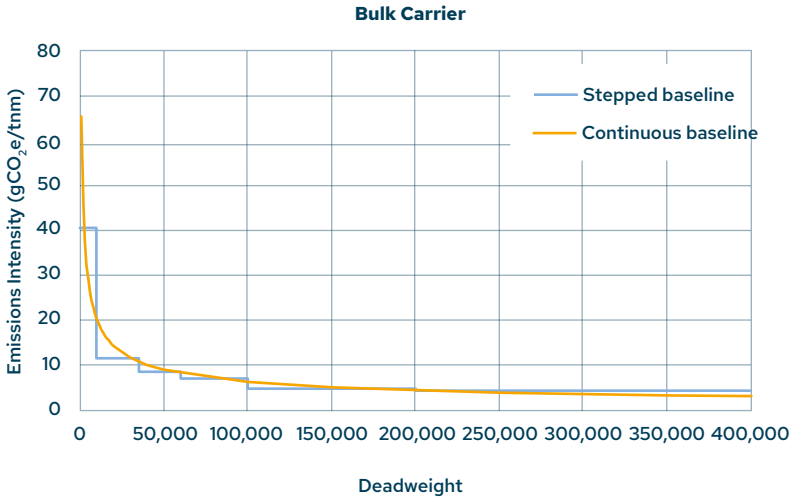

Figure 19.
Existing and proposed required emissions intensity baseline for bulk carriers for 2024 IMO GHG Strategy - 'Minimum'

To obtain the continuous baseline, a curve is fitted through a plot of the median emissions intensity of each vessel size bin vs. the median vessel size in that bin based on data published in the Fourth IMO GHG Study and EU MRV data. This results in a power law fit for the required emissions intensity values for 2024. Based on the overall decarbonisation trajectory, a continuous baseline curve is obtained for each year up to 2050.

$$r_s = (a.Year^3 + b.Year^2 + c.Year + d).Size^e$$

The required emissions intensity can be expressed by the following expression:

Where *rs* is the required emissions intensity, *Year* is the year for which the emissions intensity is required and *Size* is the size of the vessel in question in deadweight tonnage (DWT) or gas capacity (CBM). The coefficients *a, b, c, d* and *e* arising from the fitted curves can be found in Table 6 and Table 7.

Vessel type	Size Units	a	b	c	d	e
Bulk Carrier	DWT	0.1048791560	-639.2296277067	1298575.23605680	-879263714.185007	-0.5058226670
Chemical tanker	DWT	2.0640870742	-12580.43696943020	25556768.95935550	-17304457203.42390	-0.7520186430
Liquefied gas tanker <= 100,000 m³	CBM	1.3444692720	-8194.4270401351	16646725.318676500	-11271477482.6315	-0.6464410410
Liquefied gas tanker > 100,000 m³	CBM	0.0389711467	-237.5258587794	482526.44240000	-326718067.738161	-0.2984405180
Oil Tanker	DWT	0.4777687604	-2911.9603777575	5915557.525862040	-4005416811.627080	-0.5838488420
Combination Carrier	DWT	0.1690311232	-1030.2304672252	2092881.359347170	-1417087424.950450	-0.5415939430

Table 6.
Coefficients for determination of required emissions intensity for vessel types under the 2023 IMO GHG Strategy 'Minimum' trajectory[38]

38 Given the differences in operating profile and vessel design, the liquefied gas tanker trajectory has been split based on a capacity cut off of 100,000 m3 capacity which resulted in the most representative baselines for both segments.

Vessel type	Size Units	a	b	c	d	e
Bulk Carrier	DWT	0.0912780622	-555.3969263202	1126356.00621082	-761346090.324154	-0.5058226670
Chemical tanker	DWT	1.8450866405	-11226.7441300748	22768060.24996140	-15389782235.80260	-0.7520186430
Liquefied gas tanker <= 100,000 m^3	CBM	1.2018205644	-7312.6820551391	14830264.56211830	-10024329679.588200	-0.6464410410
Liquefied gas tanker > 100,000 m^3	CBM	0.0348362930	-211.9673622842	429874.023990860	-290567907.209340	-0.2984405180
Oil Tanker	DWT	0.4158100453	-2530.0670889972	5131026.34666970	-3468252334.827090	-0.5838488420
Combination Carrier	DWT	0.1649819301	-1005.5509761193	2042745.73577870	-1383140655.161700	-0.5415939430

Table 7.
Coefficients for determination of required emissions intensity for vessel types under the 2023 IMO GHG Strategy 'Striving' trajectory

Example 2

Considering a typical 80,000 DWT Panamax bulk carrier, the required emissions intensity in 2024 can be compiled as follows:

For 2023 IMO GHG Strategy 'Minimum' trajectory

a: 0.1048791560	Year = 2024
b: -639.2296277067	Size = 80,000
c: 1298575.23605680	
d: -879263714.185007	
e: -0.5058226670	

$$r_s = ((0.1048791560 \cdot 2024^3) + (-639.2296277067 \cdot 2024^2) + (1298575.23605680 \cdot 2024) + (-879263714.185007)) \cdot 80{,}000^{-0.5058226670} = 7.2\ gCO_2e/tnm$$

For 2023 IMO GHG Strategy 'Striving' trajectory

a: 0.0912780622	Year = 2024
b: -555.396926320	Size = 80,000
c: 1126356.00621082	
d: -761346090.324154	
e: -0.5058226670	

$$r_s = ((0.0912780622 \cdot 2024^3) + (-555.3969263202 \cdot 2024^2) + (1126356.00621082 \cdot 2024) + -761346090.324154)) \cdot 80{,}000^{-0.5058226670} = 6.8\ gCO_2e/tnm$$

Emission factors for well-to-wake CO_2e reporting

The alignment of the Sea Cargo Charter's methodology with the 2023 IMO GHG Strategy has required it to update its tank-to-wake (operational) CO_2 emissions based methodology to a well-to-wake (lifecycle) CO_2e based methodology. In order for signatories to report their emissions on a well-to-wake basis, the Sea Cargo Charter has compiled a set of emission factors for reporting. These were first applied in the Annual Disclosure Report 2024 (on 2023 data) and updated in January 2025 for the Annual Disclosure Report 2025 (on 2024 data). This section presents the sources and rationale behind the list of emission factors (Table 8).

The most pertinent for the purposes of the maritime industry is the lifecycle assessment (LCA) guidance published at MEPC81[39]. These LCA guidelines should provide a widely accepted framework for defining emission factors which should become the standard for the industry. However, it does not provide emission factors on all maritime fuels yet. Therefore, following extensive advice from Smart Freight Centre, the Sea Cargo Charter evaluated several options for establishing a set of emission factors that are based on the LCA guidelines and filling the gaps, where necessary. A set of emission factors had been developed and applied to the data published in the Annual Disclosure Report 2024. Since then, the list has been updated to reflect the latest emission factors provided by MEPC and complemented with factors from Fuel.EU and other sources.

Keeping the logic of transparency to ensure legitimacy and credibility for any pragmatic way forward, the Sea Cargo Charter agreed on the following cascading order of emission factor priority when coming up with a set of values:

1. Emission factors approved by MEPC should be used, where available;
2. All other emission factors, or relevant input parameters, should be taken from the Fuel EU/ecoinvent where available;
3. Any other emission factors should be taken from sources aligned with the GLEC Framework emission factors.

Where MEPC81 has not provided a necessary data point as input to the calculation this data has been sought from the final Fuel.EU regulation. Where there is still an input data gap then the required data has been sourced from an alternative, well-established, peer-reviewed source for GHG emission factors that follows the approach set out in ISO 14083 and used in the GLEC Framework.

39 MEPC approved terms of reference for the GESAMP Working Group on Life Cycle GHG Intensity of Marine Fuels (GESAMP-LCA WG). The ISWG-GHG 17 will further consider the development of the Life Cycle GHG Assessment (LCA) framework.

Table 8 presents the emission factors to be used by signatories. In the case that signatories only have basic DCS data, they are to use the default values marked on the list. If signatories have more granular data about fuels used and machinery on board (especially for LNG vessels), more specific emission factors corresponding to the information available to the signatory should be used.

Calculation approach

The well-to-wake emission factor is the sum of the well-to-tank and tank-to-wake values.

The total tank-to-wake value includes the impact of any CH_4 or N_2O released to atmosphere, either as a result of methane slip or as a result of combustion. Note that methane slip also results in less fuel being combusted and this must be allowed for the calculation of the combustion elements. As an example, the LNG Otto dual fuel (medium speed) emission factor is calculated as:

WTT	Methane slip	Amount of fuel not combusted	CO_2 emissions as combustion product	CH_4 as a combustion by-product	N_2O as a combustion by-product	WTW value
0.888 +	(0.035*29.8) +	(1-0.035)*	(2.75 +	(0*29.8)+	(0.00011*273))	=4.614g CO_2e/g

Emission factors list (default and granular factors)

	Fuel		LCV	WTT		TTW								WTW		Biogenic CO_2
Fuel Type	Fuel/engine specification	Notes	(MJ/g)	(gCO_2e /MJ)	(gCO_2e /g)	(gCO_2e /g)	(gCH_4 /g)	(gCO_2e/g) From CH_4	(gN_2O/g)	(gCO_2e/g) From N_2O	% methane slip	Total		g(CO_2e/ MJ)	**g(CO_2e/g)**	g(CO_2e/g)
												c(CO_2e/ MJ)	c(CO_2e /g)			
Heavy fuel oil (HFO)	Default	To be used when the exact grade of HFO is unknown	0.0402	16.8	0.675	3.114	0.00005	0.00149	0.000018	0.04914	0%	78.72%	3.165	95.52	**3.84**	-
	HFO (VLSFO)	ISO 8217 Grades RME through RMK, sulfur content is less than 0.5%	0.0402	16.8	0.675	3.114	0.00005	0.00149	0.000018	0.04914	0%	78.72%	3.165	95.52	**3.84**	-
	HFO (HSHFO)	ISO 8217 Grades RME through RMK, Sulfur content is greater than 0.5% (HSHFO)	0.0402	14.1	0.567	3.114	0.00005	0.00149	0.000018	0.04914	0%	78.72%	3.165	92.82	**3.73**	-
Light fuel oil (LFO)	Default	ISO 8217 Grades RMA through RMD	0.0412	13.2	0.544	3.151	0.00005	0.00149	0.000018	0.04914	0%	77.71	3.202	90.91	**3.75**	-
Diesel/Gas oil (MDO/MGO)	Default	To be used when the exact grade of MDO / MGO is unknown	0.0427	17.7	0.756	3.206	0.00005	0.00149	0.000018	0.04914	0%	76.27	3.257	93.97	**4.01**	-
	MDO/MGO (ULSFO)	ISO 8217 Grades DMX through DMB, Sulfur content less than 0.1%	0.0427	17.7	0.756	3.206	0.00005	0.00149	0.000018	0.04914	0%	76.27	3.257	93.97	**4.01**	-
	MDO/MGO (VLSFO)	ISO 8217 Grades DMX through DMB, Sulfur content between 0.1% and 0.5%	0.0427	14.4	0.615	3.206	0.00005	0.00149	0.000018	0.04914	0%	76.27	3.257	90.67	**3.87**	-
Liquefied petroleum gas (LPG)	Propane		0.0463	7.8	0.361	3.000	0.00005	0.00149	0.000018	0.04914	0%	65.89	3.051	73.69	**3.41**	-
	Butane		0.0457	7.8	0.361	3.030	0.00005	0.00149	0.000018	0.04914	0%	67.41	3.081	75.21	**3.44**	-

	Fuel		LCV	WTT		TTW								WTW		Biogenic CO_2
Fuel Type	Fuel/engine specification	Notes	(MJ/g)	(gCO_2e /MJ)	(gCO_2e /g)	(gCO_2e /g)	(gCH_4 /g)	(gCO_2e/g) From CH_4	(gN_2O/g)	(gCO_2e/g) From N_2O	% methane slip	Total		g(CO_2e/ MJ)	**g(CO_2e/g)**	g(CO_2e/g)
												c(CO_2e/ MJ)	c(CO_2e /g)			
Liquefied natural gas (LNG)	Default		0.048	18.5	0.888	2.75	0	0	0.00011	0.03003	3.5%	77.62	3.726	96.12	**4.61**	-
	Otto dual fuel (medium speed)		0.048	18.5	0.888	2.75	0	0	0.00011	0.03003	3.5%	77.62	3.726	96.12	**4.61**	-
	Otto dual fuel (slow speed)		0.048	18.5	0.888	2.75	0	0	0.00011	0.03003	1.7%	67.49	3.239	85.99	**4.13**	-
	LNG diesel		0.048	18.5	0.888	2.75	0	0	0.00011	0.03003	0.15%	58.76	2.821	77.26	**3.71**	-
	LBSI		0.048	18.5	0.888	2.75	0	0	0.00011	0.03003	2.6%	72.55	3.483	91.05	**4.37**	-
	Steam turbine & boilers		0.048	18.5	0.888	2.75	0	0	0.00011	0.03003	0.01%	57..97	2.783	76.47	**3.67**	-
Bio-LNG	Default		0.05	28.9	1.445	0	0	0	0.00011	0.03003	3.5%	19.62	0.981	48.52	**2.43**	2.86
	Otto dual fuel (medium speed)		0.05	28.9	1.445	0	0	0	0.00011	0.03003	3.5%	19.62	0.981	48.52	**2.43**	2.86
	Otto dual fuel (slow speed)		0.05	28.9	1.445	0	0	0	0.00011	0.03003	1.7%	9.84	0.492	38.74	**1.94**	2.86
	LNG diesel		0.05	28.9	1.445	0	0	0	0.00011	0.03003	0.15%	1.42	0.071	30.32	**1.52**	2.86
	LBSI		0.05	28.9	1.445	0	0	0	0.00011	0.03003	2.6%	14.73	0.736	43.63	**2.18**	2.86
	Steam turbine & boilers		0.05	28.9	1.445	0	0	0	0.00011	0.03003	0.01%	0.65	0.033	29.55	**1.48**	2.86
100% Bio-diesel	Default	(FAME)	0.0372	20.8	0.774	0	0.00005	0.00149	0.00018	0.04914	0%	1.36	0.051	22.16	**0.82**	2.83
100% Bio-Methanol	Default		0.0199	16.2	0.322	0	0.00005	0.00149	0.00001	0.0037	-	0.26	0.005	16.5	**0.33**	1.38
100% Bio-Ethanol	Default	1st generation biogenic	0.0268	47.9	1.284	0	0.00005	0.00149	0.00001	0.0037	-	0.20	0.005	48.1	**1.29**	1.91
100% HVO	Default		0.044	14.9	0.656	0	0.00005	0.00149	0.00018	0.04914	0%	1.15	0.051	16.05	**0.71**	3.12
Other	Hydrogen	Natural gas feedstock	0.12	132	15.84	0	0	0	-	-	-	0.00	0.000	132.0	**15.84**	-
	Ammonia	Natural gas feedstock	0.0186	121	2.251	0	0.00005	0.00149	-	-	-	0.08	0.001	121.1	**2.25**	-
	Methanol	Natural gas feedstock	0.0199	31.3	0.623	1.375	0.00005	0.00149	0.00001	0.0037	-	69.36	1.380	100.7	**2.00**	-
Biofuel blends	24% biodiesel (FAME)/ HFO	Based on default HFO and biodiesel (FAME) values	0.0394	17.8	0.701	2.32	0.00005	0.00149	0.00018	0.04914	0%	60.2	2.37	77.9	**3.07**	0.72
	24% biodiesel (FAME)/ HFO		0.0393	18.0	0.707	2.13	0.00005	0.00149	0.00018	0.04914	0%	55.5	2.18	73.5	**2.89**	0.90
	24% biodiesel (FAME)/ MGO	Based on default MGO and biodiesel (FAME) values	0.0412	18.4	0.763	2.35	0.00005	0.00149	0.00018	0.04914	0%	58.3	2.40	76.7	**3.16**	0.75
	30% biodiesel (FAME)/ MGO		0.0409	18.6	0.765	2.15	0.00005	0.00149	0.00018	0.04914	0%	53.8	2.20	72.4	**2.96**	0.93

Table 8. Emission factors for reporting.

Sources: IMO MEPC81 (green), Fuel.EU / RED II (light blue), IFEU / SFC (orange)

Latest emission factor update

The list of emission factors was last updated in January 2025 and thus some values differ from those used for reporting in the Annual Disclosure Report 2024. Notable updates to the factors are the following:

- The updated emission factors are based on the global warming potential (GWP) from the latest IPCC 6th Interim Assessment Report (AR6), dated 2023, i.e.:

Fossil CH_4 = 29.8, biogenic CH_4 = 27.2 and N_2O = 273

The IMO is currently using outdated values dating back to 2014 (IPCC AR5) and Fuel.EU used even older values dating back to 2007 (IPCC AR4)[40]. Given that there is no agreement between Fuel.EU and the IMO there is no established common position from these two sources, and the Sea Cargo Charter thus decided to base the list of emission factors on the latest GWP figures from 2023. The expectation is for the IMO to update to the latest GWP figures from IPCC AR6 at some point.

- LFO and LPG values are lower due to a lower WtT contribution to the total; potentially due to the new source (Fuel.EU) lagging in acknowledging the latest knowledge on methane emissions in the production phase.
- LNG and BioLNG in dual fuel medium speed engines are higher as the latest IMO value is higher than in earlier drafts or in Fuel.EU.
- Biodiesel (FAME) and HVO are lower as IMO now includes WtT values that were not previously present, and which are lower than the RED II values included previously.
- Default emission factors for four common biofuel blends have been added to the list.
- All emission factors are now compiled in one single list for a better overview. Also, details on the composure of the factors and the respective sources are provided.
- As this is an evolving topic, the Sea Cargo Charter will keep evaluating the changing landscape of fuel lifecycle assessment and evaluate whether to update the Technical Guidance.

Default emission factors for DCS-based data

Owners collecting data under the DCS resolution rely on MEPC.308(73) for emission factors which are limited to eight generic conventional maritime fossil fuels. This implies that the Sea Cargo Charter' signatories may not have access to the required information about fuel consumed and machinery on board to be able to report the most accurate emissions related to their activity. To this end, each fuel type includes a default emission factor to be used in the case where the signatory lacks detailed information about the fuel.

40 The GWP's from IPCC AR5 are CH4 = 28.0 and N2O = 265. The GWP's from IPCC AR4 are CH4 = 25.0 and N2O = 298.

Emission factors for granular fuel and machinery data

For the best possible representation of signatories' portfolio performance, a comprehensive set of emission factors is provided for those that are able to obtain more granular information about fuels consumed and propulsion systems. In that case, signatories should use the more granular emission factor that corresponds to the information they have about the fuel.

Considerations for reporting using granular data

Machinery information

Given the high global warming potential of methane and issues around fugitive methane emissions from vessels, it is important to factor in the distinction between different propulsion plants which lead to different levels of methane slip. Not all signatories may have ready access to the specifications of the vessels in their portfolio therefore it is proposed to give the following options:

If a signatory has the necessary information about vessel propulsion system, the associated granular emission factor should be used. If a signatory does not have the necessary information, this can be sourced from a third party (such as maritime intelligence service providers or class societies) and the associated emission factor used. If a signatory is still unable to access the necessary information, the default emission factor is to be used.

Unconventional fuels, biofuels or fuel blends

The way that blend percentages for biofuels are expressed (whether according to energy, mass or volume) can cause confusion and lead to small errors if they are inadvertently interchanged. The blend percentages in the previous table are expressed in terms of energy percentage, as per the recommendations from the IMO MEPC81 working group.

For biofuels, including biofuel blends, signatories who have more specific information at their disposal are free to use more representative emission factors as long as they are compiled under a reputable scheme (such as RSB, REDcert, ISCC).

Where signatories do not have specific information about the emission factor of the fuel they are using, default emission factors for selected biofuels and biofuel/fossil fuel blends are provided in Table 8. If the percentage of the blend is not known, signatories are to use the well-to-wake factor of the conventional fuel (i.e. LFO, HFO, MDO/MGO) that is blended with the biofuel.

Continuous updating of trajectories as further data becomes available:

Over the timescale that the decarbonisation trajectories are estimated, a number of the parameters that are used in their calculation may change. These include:

- The IMO may modify the objectives, including when the IMO revises its strategy (e.g., if the objectives increase in ambition, the emissions intensity trajectory will steepen).
- Transport demand growth may develop differently to the estimate used here to calculate the emissions intensity trend consistent with a 2050 absolute GHG objective (e.g., if demand growth exceeds the trend used in these calculations, the carbon intensity objective will steepen).
- Demand growth may develop differently between ship types and increase the demand for ships with different emissions intensity than the 2012 fleet (e.g., if demand modifies the fleet composition to increase the share of emissions by ships which have higher emissions intensity, the emissions intensity objective will steepen).
- Utilisation may differ from the values estimated for 2012, which will modify the relationship between EEOI and mean the climate alignment trajectory set using EEOI will need to be modified (e.g., if utilisation reduces relative to 2012, the emissions intensity objective will steepen).

Whilst the decarbonisation trajectories and the ship continuous baselines for different types have been calculated using the best available data, there remains a possibility that unforeseen circumstances may require adjusting them. Should any updates be necessary, they will be applied prospectively for future climate alignment assessments rather than retroactively altering historical climate alignment analyses.

Appendix 5

Worked examples for calculating climate alignments

Bulk parceling example

The following example sets out how the principles of the approach that can be applied to bulk parceling operations by charterers.

The example concerns a voyage where the vessel or disponent owner charters space on the vessel to two charterers who transport goods from different locations in South America to two locations in Asia.

Calculations are made at the level of the single round trip because it is a one-off journey within which all necessary information for quantification and reporting is available from empty to empty. Both charterers, and the (disponent) owner, benefit in terms of better overall efficiency from the presence of each other's cargo.

The round trip consists of the following elements:

	Ballast Leg	Laden leg 1	Laden leg 2	Laden leg 3	Total
From:	A (Asia)	B (S. America)	C (S. America)	D (Asia)	
To:	B (S. America)	C (S. America)	D (Asia)	A (Asia)	
Distance (nm)	4,085	787	6395	773	
Total Cargo (T)	0	39,369	56,855	17,486	
Charterer A Cargo (T)	0	39,369	39,369	0	
Charterer B Cargo (T)			17,486	17,486	
Total Transport Activity (tnm)	0	30,993,522	363,601,847	13,520,492	408,115,861
Charterer A Activity (tnm)	0	30,993,522	251,774,533	0	282,768,055
Charterer B Activity (tnm)	0	0	111,827,313	13,520,492	125,347,806
Fuel (LFO) (T)	381.3	83.8	780.2	82.3	1,327.5
Fuel (MGO) (T)	1.0	0.4	15.4	3.1	19.9
CO_2e (LFO) (T)	1,427.9	313.6	2,921.8	308.1	4,971.4
CO_2e (MGO) (T)	4.1	1.4	61.8	12.4	79.8
CO_2e (Total) (T)	1,431.9	315.1	2,983.6	320.5	5,051.2
Overall emission intensity (gCO_2e/tnm)					12.38

Table 9.
Characteristics of the bulk parceling example

The above is based on calculation of WTW CO_2e emissions using the values for MDO and LFO in Appendix 4. The emission intensity value of 12.38 gCO_2e/tnm is what would be used by both charterers for their subsequent alignment calculations. Charterer A would apply this for its transport activity of 282,768,055 tnm and Charterer B would apply it for its transport activity of 125,347,806 tnm.

Chemical parceling example

The following example sets out how the principles of the approach can be applied to chemical parceling operations by charterers.

The example shows how the emissions are assigned across the various charterers with an interest in the cargo onboard. Because chemical parceling vessels can spend significant periods of time in port, the vessel emissions that occur when the ship is in port are specifically included in the assignment process in the same way that ballast leg emissions so that the emissions assigned across all customers are the same as the total emissions calculated for the whole journey.

The example is based on an extract from a continuous journey, where freight belonging to Brown LLP is already on board at Port A as the example starts and freight belonging to Cork Ltd and Evans GmbH remains on board as it prepares to leave Port F. Cargoes are continuously loaded and loaded as the vessel travels between intermediate ports.

The trip and operational characteristics are as follows:

	Fuel (t)		Distance (nm)	Freight amount per charterer (t)				
Location	**MGO**	**LFO**		**Adams Inc**	**Brown LLP**	**Cork Ltd**	**Davis Int'l**	**Evans GmbH**
Port A	78.7			0 > 3,430	2,100	0 > 3,771	0	0
At sea	41.6		713	3,430	2,100	3,771	0	0
Port B	42.1			3,430	2,100	3,771 > 0	0 > 1,798	0
At sea	38.5		687	3,430	2,100	0	1,798	0
Port C	156.2			3,430 > 12,312	2,100 > 12000	0 > 9,094	1,798 > 14,110	0
At sea		441.1	9314	12,312	12,000	9,094	14,110	0
Port D		20.1		12,312	12,000	9,094	14,110 > 7,473	0
At sea		85.1	1792	12,312	12,000	9,094	7,473	0
Port E		135.5		12,312 > 5714	12,000 > 0	9,094 > 6,152	7,473 > 0	0
At sea		62.9	1102	5,714	0	6,152	0	0
Port F				5,714 > 0	0	6,152	0	0 > 20,000

x > y indicates a loading operation in port where *x* is the original value and *y* is the final value.

Table 10.
Characteristics for the chemical parceling example

	CO_2e (LFO) (t)	CO_2e (MGO) (t)	CO_2e (Total) (t)
Port A	315.7	0	315.7
At sea	166.9	0	166.9
Port B	168.9	0	168.9
At sea	154.5	0	154.5
Port C	626.7	0	626.7
At sea	0	1,651.9	1,651.9
Port D	0	75.3	75.3
At sea	0	318.7	318.7
Port E	0	507.4	507.4
At sea	0	235.6	235.6
Port F	0	172.3	172.3

Table 11.
Emission totals by leg of journey

The CO_2e emission calculation uses the emission factors for MDO and LFO in Appendix 4 and the amount of fuel used from the operational characteristics table above.

	Adams Inc	Brown LLP	Cork Ltd	Davis Int'l	Evans GmbH	Total
Port A (t)	3,430	2,100	3,771	0		9,301
At sea (tnm)	2,445,590	1,497,300	2,688,723	0	0	6,631,613
Port B (t)	3,430	2,100	3,771	1,798		11,099
At sea (tnm)	2,356,410	1,442,700	0	1,235,226	0	5,034,336
Port C (t)	12,312	12,000	9,094	14,110		47,516
At sea (tnm)	114,673,968	111,768,000	84,701,516	131,420,540	0	442,564,024
Port D (t)	12,312	12,000	9,094	14,110		47,516
At sea (tnm)	22,063,104	21,504,000	16,296,448	13,391,616	0	73,255,168
Port E (t)	12,312	12,000	9,094	7,473		40,879
At sea (tnm)	6,296,828	0	6,779,504	0	0	13,076,332
Port F (t)	5,714	0	6,152	0	20,000	31,866

Table 12.
Values used for assignment of emissions by charterer and leg of journey

	Adams Inc	Brown LLP	Cork Ltd	Davis Int'l	Evans GmbH
Port A	36.9%	22.6%	40.5%	-	-
At sea	36.9%	22.6%	40.5%	-	-
Port B	30.9%	18.9%	34.0%	16.2%	-
At sea	46.8%	28.7%	-	24.5%	-
Port C	25.9%	25.3%	19.1%	29.7%	-
At sea	25.9%	25.3%	19.1%	29.7%	-
Port D	25.9%	25.3%	19.1%	29.7%	-
At sea	30.1%	29.4%	22.2%	18.3%	-
Port E	30.1%	29.4%	22.2%	18.3%	-
At sea	48.2%	-	51.8%	-	-
Port F	17.9%	-	19.3%	-	62.8%

Table 13.
Assignment percentages by charterer and leg of journey

t CO_2e	Adams Inc	Brown LLP	Cork Ltd	Davis Int'l	Evans GmbH
Port A	116.4	71.3	128.0	0	0
At sea	61.5	37.7	67.7	0	0
Port B	52.2	32.0	57.4	27.4	0
At sea	72.3	44.3	0	37.9	0
Port C	162.4	158.3	19.9	186.1	0
At sea	428.0	417.2	316.2	490.5	0
Port D	19.5	19.0	14.4	22.4	0
At sea	96.0	93.6	70.9	58.3	0
Port E	152.8	149.0	112.9	92.8	0
At sea	113.4	0	122.1	0	0
Port F	30.9	0	33.3	0	108.1

Table 14.
Emissions by charterer and leg of journey

Sample calculation for Adams Inc, whose freight is first loaded at Port A and finally unloaded at Port F:

- Total CO_2e emission for Adams Inc is the total of their share for all port and journey legs their cargo is on board, which is actually all of the above
  = 116.4+61.5+52.2+72.3+162.4+428.0+19.5+96.0+152.8+113.4+30.9 = 1,305.5 t
- Total transport activity is the sum of their share of the transport work for journey legs = 2,4 45,590+2,356,410+114,673,968+22,063,104+6,296,828 = 147,835,900 tnm
- The emissions intensity for Adams Inc while their cargo is on board = 8.83 gCO_2e/tnm
- The value of 8.83 gCO_2e/tnm is what would be used by Adam Inc for its subsequent alignment calculations. Adams Inc would apply this for its transport activity of 147,835,900 tnm

Because Brown LLP's cargo is already on board, we would need to know about prior journey legs to perform their calculation.

There are two separate calculations for Cork Ltd. For the cargo loaded at Port A and off loaded at Port B:

- Total CO_2e emissions = 128.0+67.7+57.4 = 253.1 t
- Total transport activity = 2,688,723 tnm
- The emissions intensity for this parcel is 9.41 gCO_2e/tnm
- Cork Ltd's cargo loaded at Port C remains on board after Port F meaning we would need to know about subsequent journey legs to perform the calculation for this cargo.

Davis Int'l has cargo loaded at Port B that is fully offloaded by departure at Port E.

Total CO_2e emissions = 27.4+37.9+186.1+490.5+22.4+58.3+92.8 = 915.3 t

Total transport activity = 1,235,226+131,420,540+13,391,616 = 146,047,382 tnm

The emission intensity for this parcel is 6.26 gCO_2e/tnm

Appendix 6

Recommended charter party clause for voyage data reporting

In order to ensure consistent and complete data collection by signatories of the Sea Cargo Charter, a recommended charter party clause for voyage data reporting has been developed. The basis for this approach is set out in the following paragraphs and the recommended charter party clause itself – the Sea Cargo Charter Clause – is available on the website.[41]

In entering into charterparties envisaging carriage of goods by sea, signatories who are charterers shall use their best endeavours to incorporate into contracts with their contractual counterparties (head-owner or disponent owner) a contractual provision requiring the head owner or disponent owner to provide the information set out in the Sea Cargo Charter Clause – the recommended charter party clause – for voyage data reporting within a reasonable time from the end of the performance of the relevant contract alternatively on a monthly basis. To support data collection, various Data Collection Templates have been developed and can be found in the Sea Cargo Charter Clause on the website.

Likewise, signatories who are shipowners shall use their best endeavours to incorporate into contracts with their contractual counterparties (charterer or sub-charterer) a contractual provision requesting the charterer or sub-charterer's consent to use a duly completed fuel emission report in the format appearing in the appropriate Data Collection Template, as set out in the Sea Cargo Charter Clause.

Recognising the wide variety of contracts, the signatory and the contractual counterparty shall decide on the mechanism for incorporation into the contract, and the wording in the Sea Cargo Charter Clause is an example of a provision that may be appropriate.

41 The Sea Cargo Charter Clause is available here: https://www.seacargocharter.org/resources/

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