



RIGHTSHIP



A sustainable road map

A white paper prepared by
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A unified approach to maritime sustainability

The maritime industry is characterised by rich history. But with that history comes old ways of operating and systemic behaviours that are difficult to change. We know that shipping causes significant environmental challenges to our oceans, climate and humans, too.

While we are seeing shifts occurring, our industry is falling behind other forms of transportation. The advent of app-based ride-sharing technology and the explosive growth of electric vehicles has disrupted the automotive industry, yet the complexities of maritime logistics have made unified goal setting and strategy implementation difficult. RightShip proactively supports the maritime industry's goal to meet International Maritime Organisation (IMO) sustainability targets. There has been a broad uptake of the objectives, with 193 countries adopting the IMO's 2030 Agenda for Sustainable Development in 2015. The agenda outlines 17 Sustainable Development Goals (SDGs).

By 2018, the IMO had developed a strategy outlining steps for the reduction of shipping's GHG emissions, with long-term aspirations of complete eradication.

The 2020s are set to be a decade of true action if we are to meet our 2030 targets. There are varying levels of ambition, with the following directions.

1

Carbon intensity of vessels to decline through use of the energy efficiency design index (EEDI) of new ships

2

Carbon intensity of international shipping to decline through reduced CO₂ emissions in transportation. This includes staggered objectives of at least 40 per cent by 2030, and an ambition of 70 per cent by 2050, compared to 2008

3

GHG emissions to reach a peak and then decline as soon as possible. I.e: we should not continue to see emissions rising. We need to see a reduction in line with Paris Agreement temperature reduction goals



Scope 1, 2 and 3 emissions

How do we get from our present position to 2030, ensuring we are meeting short-term milestones in the process? The IMO highlights a need for a shift to lower and zero-carbon fuels and additional energy efficiency, but we know there are several barriers to overcome. RightShip's recommendation is to begin with measurement of your current environmental impact. Only with a clear understanding of your baseline can you begin to plan for the future.

The immediate opportunity for charterers is access to products that help to measure an existing emissions profile and subsequently reduce impact. Since launching our GHG Rating in 2012, we have already seen significant shifts in market drivers, with those using it seeing benefits in both emissions reduction and a market advantage, as banks increasingly seek to engage in responsible lending.

The GHG Rating compares a ship's theoretical CO₂ emissions relative to peer vessels of a similar size and type using an easy to interpret A – G scale. Those who choose to operate efficient ships are rewarded, with their results clearly displayed in our platform data, increasing the likelihood that their vessel will be an attractive charter option.

Our Carbon Accounting tool, established in 2016, adds another layer of rigour to sustainability progress. Our expert team can calculate your output and provide practical steps to reduce your environmental impact. We have the largest, most comprehensive database of vessel efficiency insights. Once we've calculated your carbon output, our team will guide you through the steps required to meet corporate social responsibility targets, while also helping to work towards IMO targets.

Historically, companies have focused on greenhouse gas (GHG) emissions from their own operations under scope 1 and scope 2 emissions. Increasingly, companies understand the need to account for GHG emissions along their supply chains (scope 3 emissions) to comprehensively manage GHG-related risks and opportunities.



Scope 1

From sources owned or controlled by a company

Vehicles & equipment
Stationary combustion
Wastewater treatment
On-site landfill



Scope 2

From the generation of electricity, heat or steam purchased by a company

Purchased electricity
Purchased heating/cooling
Purchased steam



Scope 3

From sources not owned or directly controlled by but related to a company

Shipping activity
Freight services

Scope 3 emissions often represent the largest source of a company's GHG emissions, and in some cases can account for up to 90% of the total carbon impact. For example, 1500 shipments each year could equate to three million tonnes of CO₂. We work with many companies across the supply chain to reduce their overall emissions, allowing them to create an easy-to-follow path to hit their environmental, social and governance targets.

Indeed, reaching these targets must be measurable over time for success to be achieved, this is why Carbon Accounting is effective. It gives you a clear insight into your present position, but we also give you clear directions for improvement that enables you to track your progress in feasible increments. In addition, it works to support the broader maritime industry goals such as the Sea Cargo Charter, and emissions disclosure reporting standards such as the CDP.

That said, RightShip supports a collaborative approach to meeting and exceeding IMO targets. In the following pages, we will outline the present position for our industry, as well as holistic requirements for associations, governments, and regulation reform needed to ensure all industry players are aligned.



Where are we currently positioned?

According to the United Nations Conference on Trade and Development (UNCTAD) World Investment Report 2020 the global flow of Foreign Direct Investment (FDI) remains challenged by the impacts of Covid-19. The report indicates that resources are expected to decline by approximately 40 per cent from \$1.54 trillion in 2019, to below \$1 trillion – the first time we've seen the figure fall below \$1 trillion since 2005. The projection is a continued fall of five to 10 per cent in 2021, with recovery beginning in 2022.

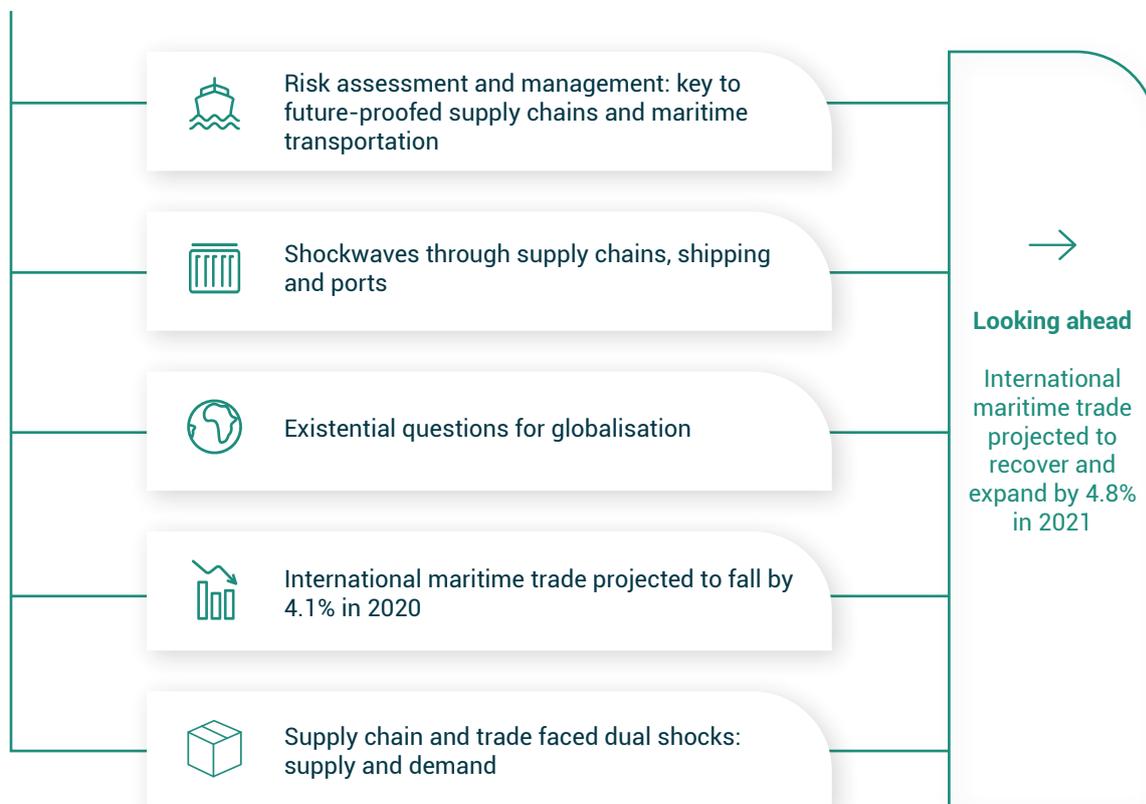
Yet, from a financial perspective, the maritime industry has weathered the storm reasonably well. According to UNCTAD's Review of Maritime Transport 2020:

"At the beginning of 2020, the total world fleet amounted to 98,140 commercial ships of 100 gross tons and above, equivalent to a capacity of 2.06 billion dwt. In 2019, the global commercial shipping fleet grew by 4.1 per cent, representing the highest growth rate since 2014, but still below levels observed during the 2004–2012 period."

During 2020, we saw some volatility in the dry bulk sector as a result of the pandemic, but overall, the industry was able to weather the worst of the market conditions. Sustainability, however, remained an ongoing concern. The Review of Maritime Transport indicates that some gains have been made in terms of the recycling of inefficient ships, and the rise of efficient vessel design, but are not enough in isolation if we are to reach 2050 targets.

The implementation of the IMO 2020 sulphur limit, ballast-water management and exploration of new and alternative marine fuels were key focuses of 2020.

COVID-19 Disruption



But among the biggest shifts in 2020 and 2021, is the meteoric rise of responsible lending. Simply put, financiers are placing increasing pressure on owners and operators to run more efficient operations. We are seeing this filter down the supply chain, and charterers must play their part in this process, ensuring their ESG programs are in line with industry goals.

For example, in 2018 the European Commission developed a technical expert group on sustainable finance (TEG) to support the Commission's legislative proposals, including:

- ✓ An EU classification system – known as the EU taxonomy - to determine whether economic activities are sustainable

- ✓ An EU Green Bond Standard

- ✓ EU climate benchmarks

- ✓ Guidance for corporate disclosure of climate-related information

Industry drivers – what can charterers do?

As the cargo owners, charterers have an inherent responsibility to lead by example. RightShip sees a strong link between responsible banking and chartering, with those expectations filtering through to owners and operators out of necessity.

Those taking their commitment a step further are seeking to reduce their environmental impact across the value chain. This includes sustainable measures in the production of goods and processing, through to end-of-life and recycling. The benefit is two-fold, with costs often decreasing due to energy efficiency across their operations, and corporate social governance goals being met. However, there may also be short-term costs in terms of energy saving technology investment and implementation.

When it comes to emissions management and reduction strategies cargo owners within the container sector are further advanced than dry bulk. This is due to the increasing scrutiny of large retailers and wholesalers with consumer-facing operations. Consumers are demanding transparency and change, so these cargo owners have an inherent market-driven need to improve, as they risk their reputation and customer base if they remain stagnant.

Simply, charterers must begin to measure and reduce their impact if they are to maintain their present and future cash flow status. Without clear sustainability targets, you run the risk of falling behind.

How Carbon Accounting works

We know that there is a growing need for charterers to report on their present emissions through Carbon Accounting, not just for internal corporate social responsibility initiatives, but also for external obligations such as working towards IMO targets.

Through Carbon Accounting, we look at your total emissions and your emissions trajectory and can drill down into specific insights, such as total emissions coming out of specific routes, ship types or cargo types.

In assessment of the various filters, we identify areas in which carbon emissions are too high. Customers can use these not only for their own internal considerations, but also to work with their third-party suppliers to implement solutions, or indeed as a measure of which suppliers might need to be phased out of their supply chains. For example, you may work with a logistics organisation that moves the cargo to your vessel that presents concerns, and in turn decide to choose a partner that can offer more sustainable solutions.

Our extensive vessel database allows for the assessment of vessel design and operational performance, which when viewed together provide powerful insights. As our Carbon Accounting is aligned with the European Standard for scope 3 emissions, it also covers the life cycle of fuel, including the extraction and all ship types. With these additional insights, you'll be able to develop more holistic emissions reduction strategies to help you improve your efficiency and performance.



Carbon Accounting example insights

The below images are examples of insights that RightShip pulls from the collected data which then inform the customer's decision making.

1 Cargo and voyage EEOI spread

The Energy Efficiency Operational Index (EEOI) uses fuel consumption information to monitor fleet and operational emissions intensity performance over time. Here, vessel operational performance (EEOI) and design performance (GHG Ratings) are plotted against one another to show how the vessel operates in relation to its design, providing powerful insights. Use these insights to instigate conversations with ship operators to improve their performance and reduce their emissions. Common trade routes and cargo types are also highlighted for easy comparison.



2 Company performance target

Here, company annual emissions totals (tCO₂-e) are plotted against industry wide targets (IMO GHG reduction strategy) and internal company goals, which are flexible and can be tailored to an individual company. Results are shown on an emissions intensity or total emissions basis.

RightShip can benchmark and track emissions per voyage and over time, which can aid the development of a carbon emissions baseline and an overall reduction target. By benchmarking and tracking progress against company and industry emissions targets, you could future proof your operations.



3 Goal Tracker

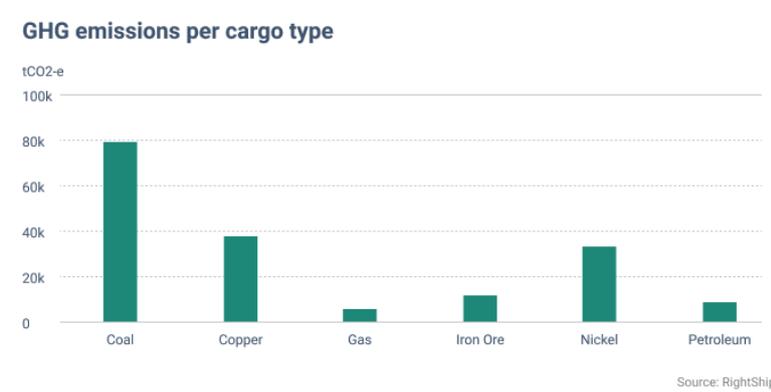
Once you have your targets in place, we help you to use real time performance tracking against an industry wide or internal company target. Monitor quarterly emissions results against that required each quarter to be on track to meet your targets. Real-time feedback allows you to implement emissions reduction strategies in a more timely and appropriate manner based on actual performance.



4 Total GHG emissions per cargo type

This graph displays GHG emissions attributable to each cargo type.

Understand which parts of your business are emissions intensive, and create quantifiable reduction targets based on your specific cargo activities. Track emissions on a cargo type level to monitor business efficiency performance across different segments over time and implement effective reduction strategies to meet company goals.



5 GHG emissions year-on-year

We monitor year-on-year performance, drilling down into the ship type, cargo type and business quarter. With this information, we're able to compare annual performances in total emissions and emissions intensity and develop carbon reduction strategies



6 Supplier comparison

Suppliers of a certain ship type and size segment are plotted against one another and the industry average and median performance, based on their average EEOI (operational emissions performance on a per tonne of cargo per nautical mile basis).

Track and attribute emissions to specific suppliers to make appropriate vessel and supplier selections. Understand where your suppliers sit in relation to each other, and against industry averages. Discover insights into efficiency trends over time and instigate discussions with suppliers to improve their vessel performance.



7 Voyage frequency

This graph displays the emissions attributable to different regions and specific routes.

Understand the emissions intensity profiles of your voyage routes and corridors. Link to cargo sourcing information and prioritise cargoes sourced from ports closer to your activities as part of a comprehensive emissions reduction strategy. Once RightShip has accounted for factors such as voyage frequency, the customer is ready to consider their carbon emissions reduction strategy, as outlined in the below case study for Ixom.



Case study: Ixom Operations Pty Ltd

Ixom is a market leader in water treatment and chemical distribution in Australia and New Zealand. It also has a growing presence in North and South America and Asia. Ixom offers several products and services including manufactured and traded chemical products, as well as logistics solutions across mining, oil and gas.

As part of its environmental responsibility commitment, Ixom engaged RightShip to account for its maritime emissions output and help to reduce its impact.

Ixom employed an emissions reduction strategy part way through their 2019/2020 FY period. Through combining their two trade lanes operating from Asia to Australia, and to New Zealand, voyage routes were optimised.

As a result, Ixom have reduced their voyage distance (nm) and enabled the selection of larger, more efficient vessels (on a per tonne of cargo, per nautical mile basis). To provide a comparison of the two routes, voyages of the 'Sun Triton' and the 'Navig8 Sky' vessels were reviewed to determine the relative performance with each voyage option.

Separate voyages



Sun Triton's 2018/2019 separate voyages from Japan to NZ, ballast to Japan and then to Australia

Combined voyage



Navig8 Sky's 2019/2020 combined voyage from Japan, to NZ and then to Australia

Voyage examples

To provide a comparison of the two routes: the cargo, distance and emissions totals of the two separate voyages were combined and compared to the optimised voyage.

- > Sun Triton (B rated) was used by Ixom in separate voyages to travel to NZ and to Australia.
- > In comparison, Navig8 Sky (B rated) delivered cargo to NZ and Australia via one optimised voyage.

Table 1 provides the outcomes from the separate (Sun Triton) and optimised (Navig8 Sky) voyages. The optimised route (Navig8 Sky) provided:

- > Increased total cargo quantity carried.
- > Reduced distance travelled (nautical miles).
- > Reduced GHG emissions (t-CO₂e).

Table 1: Case study #1 voyage comparison

	Sun Triton (Separate)	Navig8 Sky (Optimised)
Cargo Quantity (tonnes)	21,400	23,760
Distance (nm)	13,848	10,204
GHG Emissions (t-CO₂e)	1,654	1,447
Emission savings = 207 t-CO₂e 13% of voyage emissions		

In this example, despite the fact that the Navig8 Sky carried more cargo, total emissions were reduced demonstrating the improved performance. From an intensity perspective, emissions per tonne of cargo also showed an improvement from 0.077 to 0.061 tCO₂e per tonne of cargo (~21% saving).

Key learnings

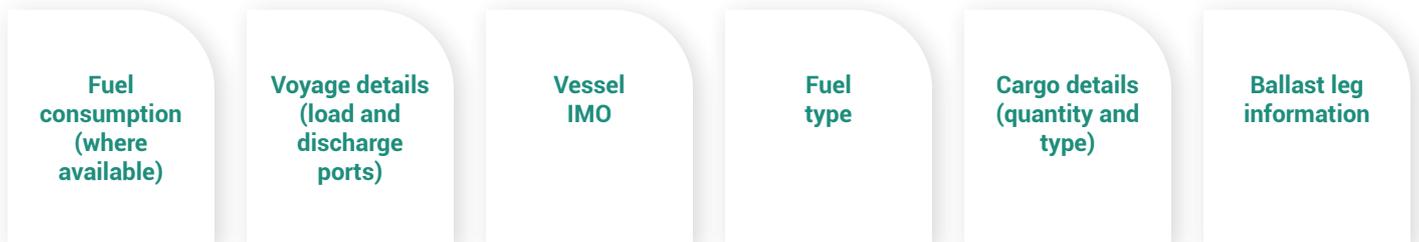
Through significantly reducing voyage distance, and allowing the selection of larger vessels, Ixom was able to demonstrate improved emissions outcomes.

The results show improved emissions outcomes by between 13% (total emissions) and 21% (emissions intensity). In Ixom's case extrapolating these figures based on the 11 optimised voyages required to meet the expected cargo quantity for the year, it is estimated that Ixom will save between ~2,200 – 5,700 tCO₂e annually. Demonstrating significant emissions savings through voyage route optimisation.



Data collection requirements

The RightShip team understands that data collection can be the most difficult part of emissions reporting and has therefore tried to make the process as seamless as possible. To undertake the calculations, we require voyage details and fuel use information as outlined below.



While the industry is becoming increasingly transparent with information, sometimes fuel use data can be difficult to obtain, especially for voyage charters. RightShip's EU standard methodology can step in to fill in the gaps for voyage emissions and provide a more holistic view of a company's emissions profile. These figures are based on voyage information and our extensive vessel specific database, which is aligned with the EU standard.

In addition, because RightShip has the capability to understand the expected fuel use range for a certain voyage based on the vessel particulars and our Carbon Accounting methodology, we can use this information to cross check the fuel use data that has been provided for extra rigor. Ultimately, high quality data is the most important factor in an accurate result.

With this in mind, we are in the process of enhancing our Carbon Accounting tool in order to obtain this information directly from the ship owner to make the process easier for charterers.

Reporting for Sea Cargo Charter signatories

RightShip is pleased to support the Sea Cargo Charter, which provides a global framework for reporting on the emissions intensity of ship chartering and supply chain activities. The Charter is supported by several influential signatories, such as Cargill and Anglo American, and helps to drive accountability and action in emissions reduction.

The Sea Cargo Charter supports the International Maritime Organisation (IMO) targets, in particular, reducing shipping's total annual GHG emissions by at least 50% by 2050.

As part of each signatory's commitment to the Sea Cargo Charter, they undergo annual assessments of their activities to establish their present impact so they can plan for the future.

Signatories reporting on their annual emissions need to provide intensity data that can be measured against the International Maritime Organisation's GHG reduction strategy. An outcome will either be above or below the required intensity to be on track to meet targets.

Once appointed by a signatory, RightShip performs voyage and annual carbon intensity and climate alignment calculations on their behalf. We provide a complete reporting package including a verification statement and results outcomes to enable the charterer to successfully meet their Sea Cargo Charter obligations.



The following items are required in the report:

- ✓ Voyage climate alignments reported against required CO₂ intensities.

- ✓ Category climate alignments (defined by ship type and size) reported as a +/- percentage.

- ✓ Total annual activity, climate alignment reported as a +/- percentage.

Disclosure requirements

- ✓ Percentage of eligible chartering activities non-reporting.

- ✓ Percentages of the chartering activities for which the preferred and allowed pathway tracks were used.

- ✓ Percentages of eligible chartering activities for which measured and estimated data were used and the source for estimated data

- ✓ A list of the names of the third parties used, to complete the calculations and the associated verification statement / report.

The outcome of your report will give you a clear picture of your present position and where you sit on the way to meeting maritime industry environmental objectives. The output will ultimately be a figure above or below the required intensity.

For example, the below table provides a sample result that a signatory might receive in their reporting:

Year	Transport Work (Mtnm)	CO ₂ (t)	Alignment Delta (%)
2020	122,421,435,851	676,593	4%



What is a good outcome?

Ultimately, a customer will want to achieve a negative alignment delta. In this case, the four per cent is above the required intensity (a positive result, rather than a negative), so this customer will want to drive emissions down, so that they arrive at a negative figure in the future. But how is this achieved? RightShip recommends completing further Carbon Accounting, in order to receive bespoke insights that in turn help them to identify problem areas and reduce or eradicate the emissions impact.

It is only with these accounting insights that chartering customers can develop a roadmap to reduce emissions over time.

Existing regulation and long-term aspirations

Broadly our industry supports sustainability regulations that have been set by various bodies. Internationally, frameworks developed by the United Nations and delivered by the IMO are respected and implemented at a national level by each flag state.

The IMO's International Convention for the Prevention of Pollution from Ships (MARPOL) sets the regulatory framework for marine pollution from international shipping.

In addition, the IMO also oversees The Energy Efficiency Design Index (EEDI) and the Ship Energy Efficiency Management Plan (SEEMP). The EEDI is now used to set standards for all new ship builds, with the objective of reducing CO₂ emissions in line with targets.

RightShip also acknowledges the Energy Efficiency Existing Ship Index (EEXI) and Carbon Intensity Indicator (CII), while also looking at how we can best utilise it into the future with the view to have an updated strategy in the second quarter of 2021.

RightShip Global Sustainability Manager, Kris Fumberger says, "Overall, we are very excited to see the IMO move so swiftly to introduce the regulation, however there are some specific details to be ironed out. Factors such as how speed is calculated, and also the perceived bias towards Engine Power Limitation (EPL) for emissions reductions are items which we suggest could be strengthened."

In 2020, RightShip introduced an EPL criteria – align to level 1 IMO minimum propulsion guidelines – which has 'evened the playing field' and very quickly seen propulsion upgrades become back in favour. We suggest will drive innovation in the market.

"Innovation in the market aligns with RightShip's mission and vision, that's what we are trying to achieve with GHG rating," Fumberger says.

The SEEMP focuses on reducing fuel consumption. While these are positive initiatives, they are not enough in isolation given the continued growth in demand of maritime operations. Unfortunately, carbon reduction strategies remain inconsistent across the flag states, so there is more to be done.

Similarly, bespoke programs such as the Sea Cargo Charter and the Sustainable Shipping Initiative, have an impressive reach, but we still have a relatively small number of participants engaged with these agreements when we look at the world's fleet. Charterers also face the challenge of deciding which industry-led frameworks to follow, which results in severely fragmented levels of commitment, with objectives from one company to another being markedly different.

In the dry bulk sector, we need a systemic shift in thinking. Traditionally, the central business focus has been on the costs associated with transporting freight, so we must first look to shift the dynamic from freight economics to the long-term viability of our industry.

This begins with transparency and reporting completed by charterers.



RightShip recommendations: actions to take

Improve data collection for Carbon Accounting

RightShip understands that the data collection process can be complex, however the more accurate the information you provide is, the clearer the outcome. That said, we are working to enhance our Carbon Accounting tool in order to generate additional data insights that are collected directly from ship owners to make the process seamless.

Work with specialists such as RightShip to report on that data

While many organisations have sophisticated data insight teams, there are often gaps in data availability. RightShip has some of the most advanced data insights in the world, and therefore can help you to form a view of your present position, while also making clear recommendations for reduction. Additionally, we are well placed to provide an unbiased view, and insights that compare your position to the world's fleet.

Implement a strategy to reduce emissions over time

Understanding your annual emissions contribution is a great start, but acting on it and seeking improvement is what's truly important. RightShip can help charterers to understand their reporting outcomes and recommend operational changes that help to reduce your environmental impact over time.

Educate and incentivise owners and operators, as well as Scope 3 parties

It's not necessarily the role of charterers to educate owners, operators and Scope 3 suppliers, but there can be great value found in passing knowledge to these groups. RightShip sees transparency and education as a key factor in reaching IMO goals. We cannot work in silos and must develop programs for change as a collective.



To learn more about RightShip's Carbon Accounting and Sea Cargo Charter reporting capabilities, visit: [RightShip.com](https://www.rightship.com)