

UN 
environment
programme

finance
initiative

Climate Target Setting for the Shipping Sector

Emerging Practices Report

March 2026

Disclaimer

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Mention of a commercial company or product in this document does not imply endorsement by the United Nations Environment Programme or the authors. The use of information from this document for publicity or advertising is not permitted. Trademark names and symbols are used in an editorial fashion with no intention on infringement of trademark or copyright laws.

The views expressed in this publication are those of the authors and do not necessarily reflect the views of the United Nations Environment Programme. We regret any errors or omissions that may have been unwittingly made.

© Maps, photos and illustrations as specified

Suggested citation: Technical Paper on Shipping

Production: United Nations Environment Programme Finance Initiative.

Cover photo: unsplash.com/photos/ocean-wave-photography-3dK05zuot8c

Purpose of the paper

This document outlines the complexities and choices banks face when accounting for financed emissions and setting climate-related targets for the shipping sector. Its aim is to serve as practical guidance highlighting prominent methodologies, emerging practices and lessons learned.

This document is intended to support banks, and it is not prescriptive in specifying when and how they are expected to decarbonize their sector-specific lending and investment portfolios.

Given the rapid evolution of policy, regulation, guidance, scenarios, science and real-economy developments, this document reflects practices at the time of publication.



Acknowledgements

This document is based on work conducted by the UN Environment Programme Finance Initiative (UNEP FI) Shipping Working Group.

Contribution to this document is not intended to convey current or intended alignment with, or endorsement of, the information contained within.

The report was reviewed by the Environmental Defense Fund Europe (EDF) and the Rocky Mountain Institute (RMI).

This publication was compiled and edited by representatives of UNEP FI.



Contents

- Acknowledgements iii
- Executive summary v
- 1. Financing shipping in the context of climate change mitigation 1
- 2. Methodologies supporting Paris-aligned target setting 4
- 3. Design choices for target setting 7
 - 3.1 Define target scope 8
 - 3.2 Calculate emissions baseline 13
 - 3.3 Selecting scenario pathways..... 22
- 4. Reviewing the role of unsecured financing 25
- Conclusion 27
- References 28

Executive summary

The Guidance for Climate Target Setting (UNEP FI, 2025) was developed to support banks in setting sectoral emission-reduction targets to support the real economy transition and to establish robust practices in line with the Paris Agreement. This Emerging Practice Paper on Shipping complements UNEP FI's **Guidance for Climate Target Setting for Banks (2025)** by outlining the prominent methodologies and practices currently available for shipping finance.

Emerging practices

A number of banks, equivalent to around 80 per cent of global shipping financing, use the Poseidon Principles¹. These have emerged as an industry standard to manage and disclose the decarbonization progress of their shipping portfolios in line with the Greenhouse Gas Strategy released by the International Maritime Organisation (IMO).

Banks typically draw on the Poseidon Principles as the core framework to develop an institutional approach for portfolio steering, either by adopting the methodologies outlined in the framework or by modifying specific elements to align the approach with their own portfolio structures and assessment of practicality.

Design choices for Paris-aligned target setting

To be aligned with Guidance for Climate Target Setting (UNEP FI, 2025), lenders may draw on several design options when scoping and steering Paris-aligned targets for the shipping industry, as outlined below.

Design choice	Current practices and considerations
Financial products	<ul style="list-style-type: none">Asset-level lending to secured vessels
Sector scope	<ul style="list-style-type: none">Ships owned and operated by a shipping company
Vessel scope	<ul style="list-style-type: none">Vessels with over 5,000 gross tonnages¹ and above, voyaging internationally (in line with IMO MARPOL Annex IV)Passenger vessels: cruise, ferry passenger, ferry roll-on/off (and passenger)Cargo/freight vessels: (bulk carrier, chemical tanker, container, general cargo, liquefied gas tanker, oil tanker, other liquid tankers, refrigerated bulk carrier, roll on/roll off, vehicle carrier)

¹ poseidonprinciples.org/finance/

Design choice	Current practices and considerations
Emissions	<ul style="list-style-type: none"> ■ The IMO GHG strategy (2023) was expanded to include well-to-wake emissions ■ Targets may cover tank-to-wake (Scope 1), Scope 2 (purchased electricity/shore power), and/or well-to-tank (upstream Scope 3) emissions. The most common standard is the well-to-wake approach, which sums these components (Scope 1, and the upstream part of Scope 3).
Metrics	<ul style="list-style-type: none"> ■ Absolute emissions can be used, but these have limited impact on steering the decarbonization of a portfolio ■ Intensity-based emissions have the strongest impact on measuring and steering a portfolio. Three asset-based metrics are available: <ul style="list-style-type: none"> □ The Annual Efficiency Ratio (AER) $\text{AER} = \frac{\sum (\text{fuel consumed} \times \text{well-to-wake CO}_2 \text{ emission factor of each fuel type})}{\sum (\text{deadweight at maximum summer draught} \times \text{distance travelled})}$ □ The Energy Efficiency Operational Indicator (EEOI) $\text{EEOI} = \frac{\text{Total CO}_2\text{e Emissions}}{\text{Cargo carried (tons)} \times \text{Distance traveled (nautical miles)}}$ □ The Climate Alignment Score <p>Vessel Alignment Score</p> $= \left(\frac{\text{Vessel's AER} - \text{gCO}_2\text{e allowed per ship type as set by decarbonisation trajectory}}{\text{gCO}_2\text{e allowed per ship type as set by decarbonisation trajectory}} \right) 100$
Scenarios and pathways	<ul style="list-style-type: none"> ■ Scenarios available for the shipping sector are: <ul style="list-style-type: none"> □ The “Striving for” and “Minimum” decarbonization pathway, based on the IMO greenhouse gas (GHG) strategy and developed for the Poseidon Principles □ DNV 1.5°C (degrees Celsius), a bottom-up decarbonization pathway □ IEA NZE 2050 □ SBTi decarbonization pathway
Data	<ul style="list-style-type: none"> ■ Ship owners are legally required to collect and report to the IMO Data Collection Service (DCS) data on: <ol style="list-style-type: none"> 1. amount of fuel consumption for each type of fuel in metric tonnes 2. distance travelled 3. hours underway 4. technical characteristics of the ship, including deadweight tonnage (DWT), at maximum summer draught <p>The data can be requested from clients to calculate the Annual Efficiency Ratio; e.g. using the Poseidon Principles’ Data Request Template.</p>

1. Financing shipping in the context of climate change mitigation

The shipping industry forms the backbone of the global economy, enabling the movement of 80 per cent of global trade by volume each year. While the sector upholds global supply chains across almost all industries, it also is responsible for an estimated 1036 metric tonnes (Mt) of carbon dioxide equivalent (CO₂e) per year.² This equates to around 2–3 per cent of global greenhouse gas (GHG) emissions.³ Curbing the sector’s GHG emissions is therefore crucial. In response, the International Maritime Organisation, a United Nations (UN) agency that regulates international shipping, has introduced several decarbonization policies for the sector.

The key pillars of the IMO decarbonization policies are:

- A **greenhouse gas strategy** (updated in 2023): outlining emission reduction targets for 2030 (-20 per cent to -30 per cent), 2040 (-70 per cent to -80 per cent) compared to 2008, and a net-zero target by or around 2050, which serves as the benchmark against which international shipping’s decarbonization progress is assessed.
- **Compliance with carbon intensity benchmarks:** design-related intensity such as the Energy Efficiency Design index (EEDI) Energy Efficiency Existing Ship Index (EEXI); operational intensity metrics such as the Carbon Intensity Indicator (CII)⁴ aimed at improving operational performance of vessels and incorporated into the Ship Energy Efficiency Management Plan (SEEMP).
- **Net-Zero Framework** (adoption under discussion):⁵ a global marine fuel standard that progressively reduces the GHG intensity of marine fuels, coupled with a carbon pricing mechanism that seeks to create economic incentives for low-carbon fuels and technologies.

2 EU (2025) : climate.ec.europa.eu/eu-action/transport-decarbonization/reducing-emissions-shipping-sector_en

3 T&E (2025): transportenvironment.org/topics/ships/climate-impact-shipping

4 Going forward, ships will need to meet increasingly stringent CII ratings and to comply with EEXI limits. To meet the requirements, financing the retrofitting of vessel to improve efficiency will become integral to the sector’s decarbonization success and to alignment with regulation.

5 The Marine Environment Protection Committee (MPEC 83) approved the Net-Zero Framework in April 2025. The Framework was expected to be formally adopted by the Member States in October 2025 but the vote to approve its adaption was moved to 2026. More information on the Net-Zero Framework can be found here: imo.org/en/mediacentre/hottopics/pages/faqs-the-imo-net-zero-framework.aspx

While the IMO's binding policies govern the maritime industry, they signal a clear road-map for the sector's transition that banks can reinforce through net-zero aligned lending decisions. Setting net-zero-aligned sectoral targets for shipping can therefore be seen as a starting point for a broader strategy designed to transition the sector and to achieve the following:

- **Portfolio assessment:** understand the climate alignment of the business portfolio in line with the newest available science, methodologies and policy drivers
- **Corporate and policy engagement:** engage corporate clients in the development of their net-zero strategies, transition plans and adherence to regulatory changes
- **Strategic outlook:** anticipate investment needs and opportunities, and create fit-for-purpose financing products
- **Transparency:** build trust through standardized, comparable and transparent reporting around emissions targets and progress
- **Internal processes:** update own internal processes such as due diligence, credit criteria, risk assessment or pricing

As a hard-to-abate sector, shipping presents unique challenges when it comes to financing its decarbonization, due to its high capital requirements,⁶ volatile markets, mobile assets and still-maturing technology alternatives. With vessels typically having an economic life cycle of 20–30 years, new vessels purchased today will still be in use in the late 2040s–2050s. Modernizing today's fleets and retrofitting already-in-use vessels are therefore important steps to ensuring that emissions decline over the time period and at the scale required. Such investments imply a substantial need for financing. This includes long-term financing for innovative solutions and alternatives to fossil fuel that currently lack commercial viability and maturity.

Banks may finance targeted decarbonization levers and use these to shape their broader strategic approach, as outlined in Table 1.

6 Transitioning the shipping industry to achieve a 50 per cent emissions reduction between 2030 and 2050 will cost an estimated USD 40–60 billion annually, resulting in a total investment of around USD 0.8–1.2 trillion (Global Maritime Forum 2020)

Table 1: Decarbonization levers

Decarbonization lever	Explanation
Client investment and operating expenditures needed to decarbonize their operations	
Investing in modern ships: Fleet renewal with next-generation vessels and modern design	Replacing older vessels with more fuel-efficient models and vessels capable of using low- or zero emissions fuels
Vessel retrofiting⁷	<p>Refers to changes in design and engineering of vessels. Examples include optimizing hull design and vessel shape, and incorporating clean power and propulsion systems (such as wind-assisted propulsion). It also includes innovative solutions such as onboard carbon capture and storage, battery-electric vessels, hybrid engines, fuel cells and lightweight materials.</p> <p>Conversion of existing vessels to accommodate new alternative fuels, including</p> <ul style="list-style-type: none"> ▪ Installing energy-saving devices (ESDs) ▪ Converting engines to alternative fuels ▪ Adding scrubbers or ballast water treatment systems ▪ Structural changes to hull or cargo systems
Alternative (maritime) fuels	<p>Alternative fuels refer low-carbon substitutes for fossil fuels produced from either biomass (“biofuel”) or synthetic sources (such as “e-fuels” manufactured using hydrogen). Typical sources are biomass, hydrogen, ammonia or methanol.</p> <p>Off-take agreements for these alternative fuels are emerging as key enablers to meet the net-zero pathways.</p>
Decarbonization measures in a client’s transition plan	
Operational energy efficiency	Refers to energy efficiency measures that reduce fuel consumption of a vessel or fleet; e.g. through reducing the speed or ‘slow steaming’, as well as reducing demand. Such measures range from improving processes around logistics and packaging and introducing further taxes and charges through to minimizing transport requirements through manufacturing innovations such as 3D-printing.
Related infrastructure finance	
Low-carbon port infrastructure	Refers to the modernization of ports to accommodate new eco-friendly vessels, including measures such as the electrification of ports (and equipment), green fuel, bunkering stations and cold ironing (i.e. providing shoreside electricity to vessels).

7 First-of-a-kind projects can be established together with Export Credit Agencies (ECAs) and development banks to promote retrofiting measures that go beyond just switching fuel types.

2. Methodologies supporting Paris-aligned target setting

To facilitate the transition of the shipping sector, several sector-specific frameworks have been developed to scope, monitor and report emissions from vessels owned and operated by shipping companies. The chapter introduces the Poseidon Principles, a prominent reporting and transparency framework that can be adapted for Paris-aligned target setting.⁸ It also outlines how the Partnership for Carbon Accounting Financials (PCAF) could be applied as a supporting framework to calculate emissions attribution. The presented frameworks are consistent with the Guidance for Climate Target Setting for Banks (UNEP FI, 2025).

Note: The Science Based Target initiative (SBTi) has developed a Maritime Guidance for shipping companies that are setting science-based targets and has endorsed the Poseidon Principles within its Financial Institutions Net Zero Framework (SBTi, 2025). The paper therefore refers to the SBTi where distinctions or additional clarifications between the SBTi and the Poseidon Principles are relevant.

The **Poseidon Principles** (2023)⁹ comprise a set of voluntary, climate-aligned principles designed specifically for banks to manage and disclose the climate alignment of their shipping portfolios following the release of the IMO GHG strategy in 2018.

At the time of publication, 36 major shipping lenders representing nearly 80 per cent of global ship finance already apply the Poseidon Principles. The framework has emerged as a standard for computing and monitoring GHG emissions in lending for the shipping sector.

However, some banks have also developed institution-specific approaches whereby setting a fit-for-purpose target for their lending portfolios. These approaches are often based on learnings linked to the methodologies presented here. Typically, they apply methodological elements derived from the Guidance for Climate Target Setting for Banks (UNEP FI, 2025).

8 Paris-aligned targets are emissions reduction targets towards which a bank steers its in-scope portfolios, covering a bank's lending and investment portfolio in a specific sector that "should align with the goals of the Paris Agreement, aiming to limit global warming to well below 2°C, striving for 1.5°C, as established by world governments in 2015, be science-based, and support the global transition towards a net-zero economy" (UNEP FI, 2025, p. 4).

9 The Poseidon Principles consist of a methodology document, a technical guidance document, as well as supporting documents. Resources and background documents for the implementation of the Poseidon Principles can be accessed here: poseidonprinciples.org/finance/resources/. For the full methodology, refer to: poseidonprinciples.org/finance/wp-content/uploads/2019/07/Poseidon_Principles.pdf

The **Partnership for Carbon Accounting Financials** is an industry-led initiative that aims to help financial institutions consistently measure and disclose the GHG emissions of their individual financing activities. PCAF developed the Global GHG Accounting and Reporting Standard for the financial industry. This standard consists of three separate standards; namely, for accounting financed emissions (lending and investment), facilitated emissions (capital markets issuance) and insurance-associated emissions. It has emerged as the primary sector-agnostic methodology for calculating absolute and intensity-based financed emissions across different high-emitting portfolios. While the standard is not designed specifically for target setting, financial institutions usually apply the methodology to calculate emissions associated with their lending and investment activities (i.e. financed emissions as part of the target setting process). They also use it to make methodological adjustments for certain sectors as required. Examples of bank applying such practices to the shipping industry are explored further below.

Table 2 outlines the key benefits and challenges of the prominent methodologies for target setting.

Table 2: Overview of methodologies supporting Paris-aligned target setting

Framework	Pros	Cons
Methodologies for climate-alignment for the shipping sector		
Poseidon principles	<ul style="list-style-type: none"> Strong benchmarking value Widely adopted standard across shipping lenders In line with IMO regulation to achieve net zero by 2050 Signatories banks have access to verified asset-level data Provision of clear guidance on how to apply the Annual Efficiency Ratio (AER) and Climate Alignment Score The AER, which is based on a variety of intensity metrics for shipping assets, is in line with data reported to the IMO 	<ul style="list-style-type: none"> Climate Alignment Score is specific to the sector and cannot be replicated across other lending portfolios Climate Alignment Score is a point-in-time reference and does not allow comparison over multiple years The Poseidon Principles are mainly applicable to secured financing and therefore do not cover on-balance sheet activities in their entirety
SBTi	<ul style="list-style-type: none"> SBTi is a widely adopted methodology applicable to multiple sectors and aligned with the GHG Protocol and other standards on emission quantification and monitoring SBTi has endorsed the Poseidon Principles for setting targets intensity-based on AER Provides guidance in case an Energy Efficiency Operation Indicator (EEOI) is used for an intensity-based target 	<ul style="list-style-type: none"> Maritime Guidance is written for the shipping industry and does not provide detail guidance for lenders to shipping EEOI requires cargo quantities which banks do not have access to making this an impractical metric/scenario for climate alignment

	<ul style="list-style-type: none"> ▪ In line with the IMO regulation to achieve net zero by 2050 ▪ SBTi is a widely recognized institution for Paris-aligned target validation ▪ Maritime companies wishing to set verified Paris-aligned targets would apply the Maritime Guidance (which covers all commercial shipping segments and all capacity above 5,000 gross tonnages) 	
Institution-specific approaches	<ul style="list-style-type: none"> ▪ Applies methodological elements relevant to a bank's portfolio (e.g. scope, selected metrics, pathways, data collection) ▪ Allows for consistency across a bank's different sector portfolio ▪ Permits a fit-for-purpose methodology 	<ul style="list-style-type: none"> ▪ Alignment with IMO ambitions depends on methodological choices ▪ Comparability with peers depends on transparent disclosure around methodological choices
Methodologies supporting the target setting process		
PCAF	<ul style="list-style-type: none"> ▪ Allows for consistency across different sector portfolios 	<ul style="list-style-type: none"> ▪ No sector-specific methodology ▪ Sensitive to economic fluctuations ▪ Low data quality for computation as data are not aligned with IMP reporting requirements

Box 1: How to steer the portfolio using a Paris-aligned target (illustrative example)

Many banks integrate Paris-aligned targets into their ship financing processes. As such, they assess vessel emissions and alignment with IMO decarbonization targets to take into account in their credit decisions and portfolio management along with traditional banking risks. This has led to a trend where banks prioritize financing for vessels and ship owners that demonstrate stronger environmental commitments and pathways toward net zero emissions.

- **Emission performance assessment methods:** Banks perform due diligence on historical Annual Efficiency Ratio (AER) data for existing vessels and estimate future AER for new vessels based on specifications, often with third-party support to analyse emissions and trends confidentially.
- **Internal guidelines shaping lending:** Some European banks report using internal guidelines (e.g. prioritizing higher efficiency or alternative fuel vessels, or calibrating tenor/age/size criteria) as one of several risk management and portfolio steering tools.
- **Strategic financing considerations:** Banks prioritize transactions that support their 2030 climate targets, by financing energy-efficient vehicles for instance. This reflects an evolving approach to managing climate-related risks in shipping finance.

3. Design Choices for target setting

The Guidance for Climate Target setting for Banks (UNEP FI, 2025) recommends individual banks to independently set and publicly disclose long-term and intermediate targets in support of a net zero GHG emissions goal and steer their portfolio towards the Paris Agreement goals¹⁰—namely, preventing the increase in global temperature to well below 2°C by 2050, while striving for an increase of below 1.5°C.

To set targets in line with existing standards, the overall target setting process is based on six steps (Figure 1). Each of these steps is prone to different design choices to scope and compute a Paris-aligned target. The chapter outlines the considerations for steps 1–3 in more detail.

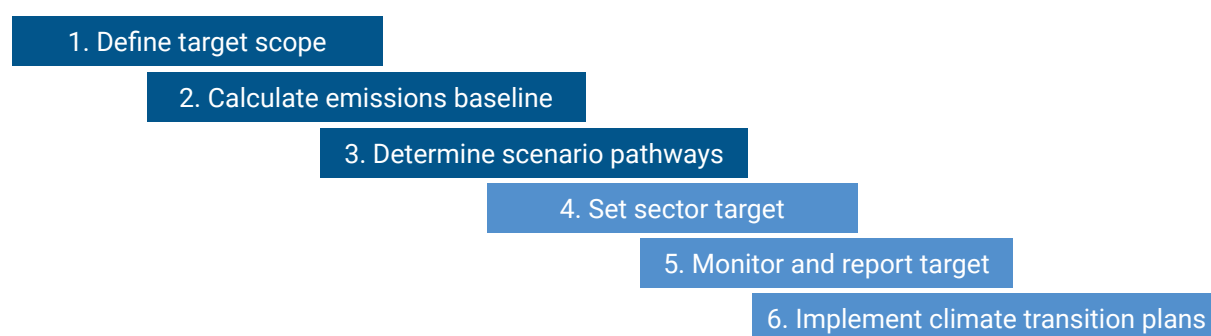


Figure 1: Steps to set a Paris-aligned sector target (own depiction)

¹⁰ The consensus of climate scientists is that global warming must be limited to 1.5°C above the pre-industrial average by the end of the century in order to avoid the worst impacts of climate change, leaving a small window for action (UNEP FI, 2025).

3.1 Define target scope

3.1.1 Financial scope

Main findings:

- Targets are set for asset-level lending for secured vessels, covering up to 90 per cent of a bank's shipping portfolio.

On-balance sheet financing in the shipping sector is predominantly conducted at the asset level. Around 90 per cent of lending¹¹ is provided through secured instruments, such as loans and credit facilities, where the financed vessel serves as collateral. Most banks therefore do not include unsecured financing in their metric (e.g. general purpose loans) due to methodological drawbacks and data limitations at this point (chapter 5).

3.1.2 Sector boundaries and vessel types

Main findings:

- Ship owners and operator purview to are in line with the MARPOL (Annex VI) and the DCS reporting requirements: i.e. over 5,000 gross tonnage and above, voyaging internationally.
- The vessels in scope are defined in the Poseidon Principles for freight/cargo and passenger vessels.

Targets set by shipping lenders primarily focuses on secured vessels which are subject to IMO MARPOL (Annex VI) and the DCS reporting, i.e. over 5,000 gross tonnages¹² and above, voyaging internationally (Figure 2).-



Figure 2: Sector scope

Ship use by owners and operators

By focusing on secured financing consistent with the Poseidon Principles for clients or vessels subject to the IMO DCS, access to verified asset-level emissions data is ensured.

Vessel types

Banks have further distinguished between vessel categories for **freight/cargo** and **passenger vessels** (Table 3). This follows the classification outlined in the IMO's Fourth GHG Study (2020), which covers around 85 per cent of total carbon dioxide (CO₂) emissions from international shipping. As outlined in more detail in Chapter 3.2, the selection of

¹¹ The number provided reflects an estimate as expressed by the banks of the Working Group.

¹² The IMO regulations (MARPOL, Annex VI) include vessels over "5,000 GT that not solely engaged in voyages within waters subject to the sovereignty or jurisdiction of the State the flag of which the ship is entitled to fly".

vessel types impacts the metrics used to set a target; namely, gCO₂e/GT-nm for passenger and gCO₂e/DWT-nm for cargo vessels.

Table 3: Comparison of sector scope: Vessel types eligible for target scope

	Poseidon Principles	SBTi
Sector boundaries	Ship owners with vessels over >5,000 gross tonnage	Ship owners and operators Cargo shippers / logistic service providers
Vessels in scope	Passenger vessels Cruise, ferry passenger, ferry roll-on/off (and passenger)	
	Cargo vessels Bulk carrier, chemical tanker, container, general cargo, liquified gas tanker, oil tanker, other liquid tankers, refrigerated bulk carrier, roll on/roll off, vehicle carrier	
	In addition: offshore	

Source: Poseidon Principles, 2025a

Call to action to improve Scope 3 emissions reporting linked to shipping transportation by non-shipping companies

Scope 3 disclosure gaps

As shipping activities are essential for supply chain management, cargo transportation can be managed by companies and financed outside of a bank’s shipping business unit. To capture all emissions linked to shipping activities, adequate Scope 3 reporting by global firms becomes essential.

Shipping as part of supply chain activities often goes unreported in corporate emissions disclosures or is rarely distinguished between road, maritime or air-based transportation emissions (Scope 3, category 4).

Data limitations

Companies frequently lack visibility over freight arranged by third parties, particularly in containerized trade. Direct fuel consumption data from logistics providers are rarely shared, which leads companies to rely on generic emission factors per tonne-kilometre (e.g. DEFRA, GLEC Framework, Smart Freight Centre [SFC] Clean Cargo).

Methodological consistency issues

Different emission factors (e.g. tank-to-wake vs. well-to-wake) are applied. Few corporates clarify their methodological choices, leading to data uncertainties and limitations in comparability.

Available frameworks

Frameworks such as the GLEC Framework and guidance developed by the SFC provide approaches to improve transparency and comparability.

3.1.3 Greenhouse gas emission scope and boundaries

Main findings:

- The IMO GHG strategy encompasses well-to-wake emissions, taking into account the life-cycle emissions of fuels
- According to an analysis of the 2024 reporting by former NZBA members, banks applied varying emissions boundaries; while the majority focused on Scope 1 (and 2) emissions, a minority included Scope 1, 2 and 3. Going forward, the scope of reported emissions can reasonably be expected to expand in line with the IMO GHG strategy.

The largest share of GHG emissions originates from the combustion of fossil fuels during the use phase of a vessel, emitting primarily CO₂ emissions, followed by emissions released during fuel extraction and production. With its 2023 update of the GHG Strategy, the IMO expanded the scope of GHG emissions included in its reduction targets from **tank-to-wake**¹³ to **well-to-wake** emissions. This broadens the scope to include life-cycle emissions associated with fuel extraction, processing and transportation (Figure 3).

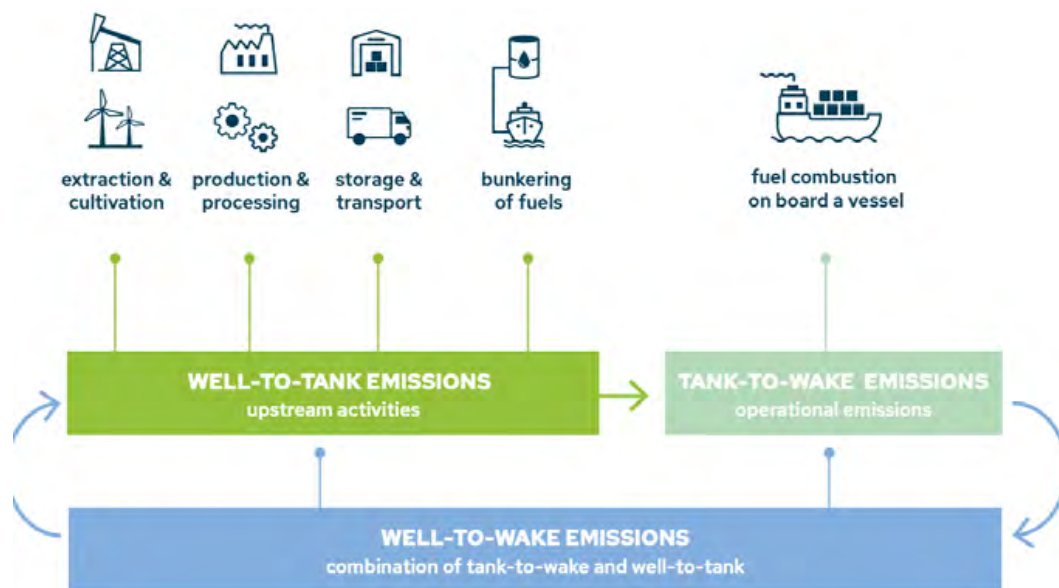


Figure 3: Well-to-wake emissions in Poseidon Principles (RMI, 2024b)

13 The initial IMO GHG (2018) was still focused on tank-to-well emissions. The Fourth GHG Emissions Study by the IMO also included tank-to-wake emissions. The updated Fifth GHG Emissions Study is expected to be expanded to focus on well-to-wake emissions, with a corresponding update of IMO's technical guidance. The study is scheduled to commence in 2026 and will include inventory of GHG emission from international shipping and estimates of GHG fuel intensity, plus projections for future international shipping emissions.

Similarly, the European Union¹⁴ has adopted a **well-to-wake** approach in its policy frameworks supporting the decarbonization of the shipping sector. While the IMO provides the global decarbonization trajectory for shipping, European Union-level instruments such as FuelEU Maritime are operationalizing this direction by imposing increasingly stricter well-to-wake targets and penalties.

The inclusion of life-cycle emissions reflects efforts to integrate the impact of fuel production and supply chains, thereby promoting investments in low-carbon fuel alternatives and transition-ready vessels.

Client’s emissions scope

For ship owners, well-to-wake emissions can be classified into Scope 1, 2, and 3 emissions, as outlined in Table 4.

Table 4: Client emissions (vessel owners and operators)

Clients’ emissions	Scope categories	Decarbonization levers	Included by banks in targets	Material emissions for ship owners
Scope 1	All (equivalent to tank-to-wake emissions)	Alternative fuels Eco-friendly vessels Energy efficiency measures	Yes	Yes
Scope 2	All		Partly	No
Scope 3—upstream	Category 2: Capital goods Category 3: Fuel- and energy-related activities (equivalent to well-to-tank emissions)	Efficient materials use in ship building Alternatives fuels	Partly	Yes ¹⁵

14 The European Commission has initiated several incentives to decarbonize the shipping sector: (1) As part of the European Commission’s Fit for 55 legislative package, the FuelEU Maritime regulation was introduced to promote the use of renewable, low-carbon fuels and clean energy technologies for ships; and (2) In 2024, the EU Emission Trading System was expanded to include emissions from all large ships (>5,000 gross tonnage) entering EU ports. The system currently includes CO₂ emissions and will expand to include methane (CH₄) and nitrous oxide (N₂O) emissions from 2026. The regulation and further details can be accessed here: climate.ec.europa.eu/eu-action/transport-decarbonization/reducing-emissions-shipping-sector_en

15 Example: The Norwegian company Wallenius Wilhelmsen (2025) attributes approximately 82 per cent of its overall emissions to Scope 1. Scope 2 and 3 account for 0.1 per cent and 18 per cent, respectively (with 76 per cent of the latter linked to well-to-tank emissions).

Application of emissions scope by former NZBA members

The NZBA Progress Report (UNEP FI, 2024) outlines a preference for targets focused on a client's Scope 1 (and 2) emissions across the 27 former NZBA members that had set targets by 2024 covering the 2023 reporting period (Figure 4). However, more banks are expected to revisit their targets to also cover Scope 3 emissions in response to the IMO GHG strategy update.

Client emissions scopes covered by the targets



Figure 4: Emission scope of targets set by former NZBA member banks in 2024 (UNEP FI, 2024)

Box 2: Conversion from tank-to-wake (TTW) to well-to-wake (WTW)

According to the SBTi Maritime Guidance (2023), the following assumptions are required when converting tank-to-wake emissions to well-to-wake emissions:

Lloyd's Register & UMAS (2019) provide upstream emission factors for different fuel classes, which include CO₂, N₂O and CH₄ and are converted into CO₂e using Global Warming Potential (GWP)₁₀₀ conversion factors from the IPCC AR5, consistent with Faber *et al.* (2020).

In addition, the Poseidon Principles (2025a) and the FuelEU Maritime regulation (EC 2023, Annex II) provide emission factors for different fuel types to calculate well-to-wake emissions.

3.2 Calculate emissions baseline

3.2.1 Data sources

Main findings:

- Data is readily available in many cases in this sector as ship owners are required to report emissions data to the IMO Data Collection System (DCS)
- Signatories to the Poseidon Principles have access to verified asset-level data that have been reported to the IMO DCS, while non-signatories can request the data from their clients using templates provided by the Poseidon Principles
- In contrast, third-party data providers typically rely on modelled estimates rather than actual report vessel-linked data.

The IMO requires ship owners to annually report their operational and emissions data to the IMO Data Collection System (DCS)¹⁶ for vessels of 5,000 gross tonnage and above for each year. This requirement includes data for:

1. Amount of fuel consumption for each type of fuel in metric tonnes
2. Distance travelled
3. Hours underway
4. Technical characteristics of the ship, including DWT at maximum summer draught

The fuel consumed annually by the vessels are converted to well-to-wake GHG emissions (CO₂e) using the emission factors prescribed by the Poseidon Principles technical guidance or other recognized sources (e.g. Fuel EU Maritime).

While the IMO DCS database is not openly available, signatories of the Poseidon Principles can have access to data reported to the IMO's DCS. Non-signatories can further request the data from clients (e.g. by using the Poseidon Principles Data Request template). Because the regulation requires all ship owners to annually collect and report variables relevant to the calculation of carbon intensity, the administrative burden placed on ship owners by such data requests is minimized.¹⁷

Third-party data providers do not have access to the vessel-linked data reported to the IMO DCS, and therefore rely on estimates.

16 The IMO DCS is an amendment to the MARPOL regulation.

17 The Poseidon Principles provide a variety of resources, including a template for data collection. The information can be access here: <https://www.poseidonprinciples.org/finance/resources/>. The template to request data can be downloaded directly here: [poseidonprinciples.org/finance/wp-content/uploads/2022/09/PPA-Data-Collection-Template.xlsx](https://www.poseidonprinciples.org/finance/wp-content/uploads/2022/09/PPA-Data-Collection-Template.xlsx)

3.2.2 Target metrics

Main findings:

- The asset-based metrics, the Annual Efficiency Ratio (AER), became the prevailing asset-based metric for vessel emissions intensity following its integration into the Poseidon Principles. It is used by non-signatories to set targets. AER, deadweight or other capacity measures are used for calculation.
- The Energy Efficiency Operational Indicator (EEOI) is rarely used by banks for target setting, although it is more representative of actual transport work. Data on actual cargo, which is required for calculating the EEOI, is not reported to the IMO DCS.
- The Climate Alignment Score demonstrates the alignment of a portfolio and vessel at a point in time and outlines how a vessel or fleet performs in relation to a Paris-aligned trajectory. However, it does not show progress on a year-by-year basis. For this reason, some signatories of the Poseidon Principles have opted out of using the alignment score and instead use other intensity-based metrics to express their targets.

The Guidance for Climate Target Setting (UNEP FI, 2025) recommends setting targets based on either absolute (e.g. annual tonnes of CO₂e [tCO₂e]) or intensity-based emissions (e.g. annual kilograms of CO₂e per square metre [kgCO₂e/m²]), which shall be disclosed annually. The following section outlines each metric type in detail.

Absolute emissions: Absolute emissions refer to the total quantity of GHGs released into the atmosphere by an entity in a given year. While it provides a direct link to a Paris-aligned carbon budget, it is less well-suited to manage and track individual vessel and portfolio performance or to allow for comparability, as vessels have different production units.

Growing shipping demand can obscure any improvements in emissions reductions by clients that are making progress towards a more fuel-efficient fleet, if only an absolute emissions-based metric is used. This is particularly true for larger vessels as they tend to emit far more emissions in absolute terms but transport more cargo per tonne of GHG emissions.

Intensity emissions: Targets expressed in intensity terms measure emissions relative to an activity or output (e.g. tonne-mile). They allow for the evaluation of the climate performance of individual vessels and portfolios irrespective of the economic growth of a client. As such, the emission intensity metric does not disincentivize key transition efforts. For this reason, and the fact it can also be used in client engagement, risk management and policy development, it has emerged as the preferred metric to steer portfolios.

The shipping sector has different ways of expressing an asset-based intensity metric that is consistent with IMO's GHG framework, namely:

- The **Annual Efficiency Ratio (AER)**
- The **Energy Efficiency Operational Indicator (EEOI)**
- The **Climate Alignment Score**

Annual Efficiency Ratio (AER)

The Annual Efficiency Ratio (AER) was first introduced by the IMO’s Marine Environment Protection Committee (MEPC) to monitor the intensity of CO₂ emissions from international shipping. The carbon intensity metric corresponds to the grams of CO₂e emitted (C_{e_i}) (i.e. fuel consumed) divided by the distance (D_i) travelled by the vessel (i) and normalized by the deadweight or gross tonnage (DWT or GT¹⁸ in metric tonne units) of the vessel (Equation 1 and 2).

Equation 1: Formula for Annual Efficiency Ratio (AER)—simplified

$$\text{Annual Efficiency Ratio (AER)} = \frac{\sum_i C_{e_i}}{\sum_i \text{dwt} \cdot D_i}$$

OR

Equation 2: Formula for Annual Efficiency Ratio (AER)—explained

$$\text{Annual Efficiency Ratio (AER)} = \frac{\sum(\text{fuel consumed} * \text{well-to-wake CO}_2 \text{ emission factor of each fuel type})}{\sum(\text{deadweight at maximum summer draught} * \text{distance travelled})}$$

An AER is the computation of the operational energy efficiency in real conditions of a specific vessel. Results can be volatile based on external market conditions (such as port congestion, pandemics, demand and supply imbalance, etc.), the client’s operational strategy (percentage of biofuel, speed, routes) and the performance of the vessel (engine, size, energy efficiency). The emission factors used for the metric includes CO₂, CH₄ and N₂O (if any) and is expressed in CO₂e emissions.

A differentiation is further made between passenger and cargo vessels, impacting the denominator of an intensity-based metric (Table 5).

Table 5: Adjustments of the AER

Metric	Used for	Denominator meaning	Formula
gCO ₂ e / GT-nm	Passenger ships (cruise, ferries, etc.)	Gross tonnage (GT) represents internal volume (a proxy for transport service provided to people [space, amenities]).	AER= $\frac{\text{CO}_2\text{e}}{\text{GT} \times \text{distance (nm)}}$
gCO ₂ e / DWT-nm	Cargo ships (bulkers, tankers, containers, general cargo, etc.)	Deadweight Tonnage (DWT) represents carrying capacity (the ship’s payload capacity for cargo).	AER= $\frac{\text{CO}_2\text{e}}{\text{DWT} \times \text{distance (nm)}}$

Detailed technical guidance is provided in the Poseidon Principles. The metric is endorsed by the SBTi, as one of two options to set asset-based intensity level emission targets.

¹⁸ DWT is calculated by subtracting the ship’s light displacement (known as lightweight) from its loaded displacement. Loaded displacement includes the ship’s own weight, cargo, fuel and supplies onboard. On the other hand, light displacement is the weight of a ship with all its permanent additions, excluding the cargo, crew, fuel, provisions, water and all other inconstant materials on board. Gross tonnage (GT or gt) is a measure of a ship’s overall internal volume and is determined by dividing by 100 the contents (measured in cubic feet) of the vessel’s enclosed spaces.

Energy Efficiency Operational Indicator (EEOI)

The EEOI was introduced by the IMO in 2009 to measure a ship's energy efficiency during actual operation, producing the closest measure of a vessel's true carbon intensity. The standard unit of the indicator is grams of CO₂ per nautical-mile (gCO₂/tonne-nm).

Equation 3: Calculation of Energy Efficiency Operational Indicator (EEOI)

$$\text{EEOI} = \frac{\text{Total CO}_2\text{e Emissions}}{\text{Cargo carried (tons) x Distance traveled (nautical miles)}}$$

The indicator is rarely used by banks for target setting as it requires data for actual cargo carried by a vessel, which is currently not reported under the IMO DCS. Some ship owners and charterers calculate the EEOI, however, and it is the metric used by the Sea Cargo Charter, which provides a global framework for aligning chartering activities with responsible environmental behaviour.

The guidance documents for both the AER (in the form of CII) and EEOI have not yet been updated by the IMO to account for the full life-cycle emissions of fuels. Current guidance encompasses operational CO₂ emissions only.¹⁹

Detailed technical guidance to calculate the metric is **not** provided in the Poseidon Principles. The metric is covered by the SBTi in its maritime guidance and was named as one of two options to set asset-based intensity level emission targets.

Comparison of the AER and EEOI

In theory, using the EEOI for target setting would provide a more accurate reflection of the actual transport work conducted and the impact of decarbonization measures on the performance of individual vessels and portfolios. However, the practical application of EEOI remains constrained by data limitations. In contrast, the AER uses approximations of carried cargo. It does so by using a vessel's designed deadweight or gross tonnage capacity instead of actual transport work. This approach assumes a continuous cargo carriage through a cargo ship's use. In future, the European Union's regulations on monitoring, reporting and verification (MRV) will require the actual cargo of larger commercial vessels to be reported. These data will serve as the foundation for the EU Emissions Trading Scheme and FuelEU Maritime. This will result in an improvement in both the quality and availability of data for the European Economic Area.

¹⁹ Technical guidance is provided by the IMO (2009). See: cdn.imo.org/localresources/en/OurWork/Environment/Documents/Circ-684.pdf

Table 6: Comparison of AER and EEOI

	EEOI	AER
Strength	True reflection of transport work and the impact of operational decarbonization	Requires only fuel consumption and distance sailed for calculation Scalable and auditable metric due to high data availability
Weakness	Unstable for financial institutions due to a lack of accessible data	Less precise in terms of actual operational efficiency due to standardized cargo assumptions
Used by	Ship operators, owners, charterers, etc.	Financial institutions and ship owners
Data requirements covered by IMO DCS	Partly, as actual cargo information is not covered by IMO DCS	Yes
Covered in sector specific methodologies		
Poseidon Principles	No	Yes
SBTi	Yes, as one of two options in its maritime guidance	Yes, as one of two options due to its endorsement of the Poseidon Principles

Climate Alignment Score

The Climate Alignment Score indicates the decarbonization performance of a vessel (AER) as well as a portfolio (aggregated AER) compared to a selected emissions reduction pathway. The indicator is unique to the sector, with the only other sectors using anything similar being aviation, steel and aluminium.

The Climate Alignment Score is computed as the per cent (%) of difference of the actual emissions intensity (AER) and the allowed intensity, as set by a selected pathway. If the difference is positive (portfolio alignment delta of >0%, red dots), the vessel is misaligned; on the other hand, if the difference is negative, then the vessel is aligned ($\leq 0\%$, green dots) (Figure 5).

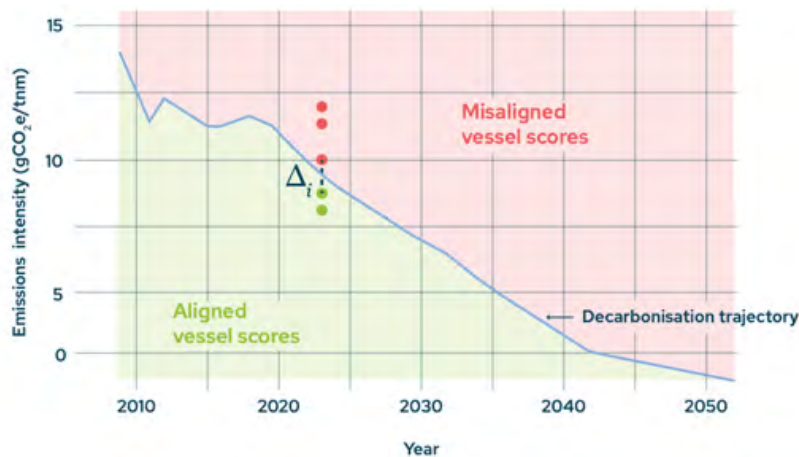


Figure 5: Visualization of the climate alignment score (RMI, 2025b)

The Climate Alignment Score is calculated based on a vessel’s AER (expressed in grams of CO₂ per deadweight tonne-nautical mile [gCO₂e/DWT-nm]) and the target AER (i.e. required emissions intensity) for the respective ship type and size, as defined by the selected scenario pathway (Equation 4 and 5):

Equation 4: Vessel alignment score – simplified

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

x_i = is the emissions intensity of vessel i (AER)

r_s = emissions intensity for the ship type and size class (target AER)

Equation 5: Vessel alignment score—explained

Vessel Alignment Score

$$= \left(\frac{\text{Vessel's AER} - \text{gCO}_2\text{e allowed per ship type as set by decarbonisation trajectory}}{\text{gCO}_2\text{e allowed per ship type as set by decarbonisation trajectory}} \right) 100$$

The concept of alignment and misalignment intends to account for the heterogeneous nature of the sector due to vessels of different tonnage required on different international trade lanes or ports’ capacity

To aggregate the climate alignment for a shipping lending portfolio, banks determine the reported exposure to each client using the debt outstanding of each vessel in the portfolio. In other words, each individual vessel’s alignment score (Equation 4) is weighted according to the debt exposure associated with the asset as a percentage of the full fleet eligible scope (Equation 6).

Equation 6: Climate Alignment Score calculation—simplified

$$\Delta_p = \sum_{i=1} w_i \Delta_i$$

Aggregated Climate Alignment Score = Vessel’s share of outstanding debt x Vessel’s Climate Alignment Score

Δ_i = is the vessel’s climate alignment score

w_s = vessel’s outstanding debt as a share of the total debt outstanding

The Climate Alignment Score demonstrates the alignment of a portfolio and vessel at a point in time and outlines a vessel or fleet's under- or over-performance in relation to a Paris-aligned trajectory. It therefore does not readily allow for comparison of progress on a year-by-year basis. Some signatories of the Poseidon Principles therefore prefer to use other intensity-based metrics to express their targets.

Detailed technical guidance is provided in the Poseidon Principles.

Application of metrics by former NZBA members

In summary, banks predominantly use the AER for target setting, either as a stand-alone carbon intensity metric or as a baseline for the Climate Alignment Score. Almost three in four (74 per cent) of former NZBA members used the Climate Alignment Score as their indicator of choice in 2024.

Metric used for target setting

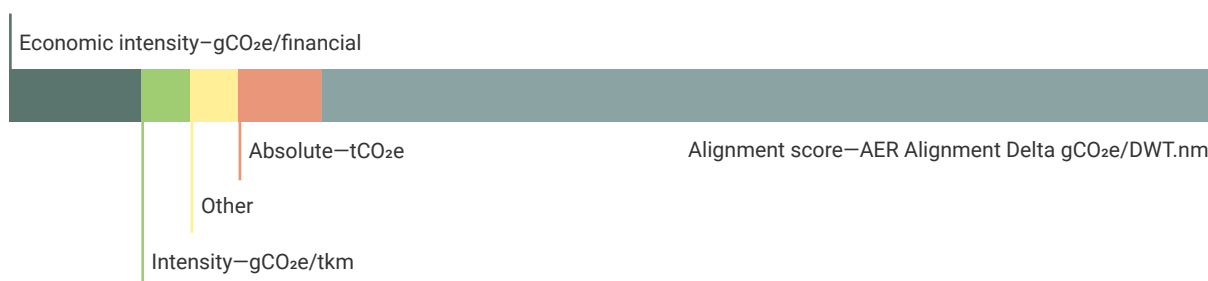


Figure 6: Metrics used for target setting (UNEP FI, 2024)

Portfolio intensity computation

Banks may use an aggregation method different from the one applied in the Poseidon Principles to calculate the average intensity of their shipping lending portfolio. To do this, they assess the reported exposure for each vessel based on its outstanding debt and compare it to the total outstanding debt of the entire shipping portfolio, as illustrated in Case Study 1.

Case Study 1: Computing the portfolio AER (intensity) with exposureweighted averaging (Example for Bank A)

Objective: Applied by a European bank (Bank A) to calculate financed emissions for its shipping lending portfolio. Using PCAF provides Bank A with the ability to track emissions reduction over time and report annual comparisons, as well as apply the same methodology across different portfolios. However, it is not possible to compare the decarbonization performance of each vessel to a selected trajectory.

Finance scope: On-balance sheet lending (drawn amount) is included in the scope. Any capital market products or unsecured lending are excluded from the calculation.

Sector scope: Focus is on those cargo vessels (above 5,000 gross tonnage) that are eligible under the Poseidon Principles, excluding any passenger vessels

Data: Required data are sourced through the Poseidon Principles

Conversion to well-to-wake: Carbon emission factors (as outlined in the Poseidon Principles) are used to convert the reported fuels burnt for each vessel to a well-to-wake CO₂ equivalent.

Formula: The PCAF formula for financed emissions (for business loans) has been adjusted to include the sum of all vessel emissions multiplied by the share of the bank's financing to the respective vessels (Equation 7).

Example of calculation: The below example looks at three different vessels in a fictional portfolio, including specifications for the gross outstanding amount and Bank A's share, plus conversions to calculate well-to-wake emissions.

	gross outstanding	BANK A share	CO2e WtW	distance	DWT	TEU
<i>source :</i>	<i>Internal BANK A</i>	<i>Internal BANK A gross outstanding / amortized value of the ship</i>	<i>Based on DCS data</i>	<i>Based on DCS data</i>		
Vessel A	35	40%	20.447	61.020	92.997	0
Vessel B	60	50%	20.712	48.719	73.981	0
Vessel C	20	60%	21.447	56.998	23.023	1.500
Portfolio	115					

Selecting scenario pathways

Calculation of the AER as per Poseidon Principles (PP)

The three fictional examples are calculated and assessed using the AER, helping to determine a climate alignment score for the overall portfolio:

Computation for PP purpose			
AERe	AERe target	AERe ratio	PP alignment weighted
<i>=CO₂e WtW / distance x DWT</i>	<i>Based on trajectory provided by PP secretariat</i>	<i>AERe - AERe target / AERe target</i>	<i>=AERe ratio weighted by gross outstanding</i>
3,60	3,46	4%	1%
5,75	6,40	-10%	-5%
16,34	15,07	8%	1%
			-3%

Calculation of Portfolio AER

For the same three vessels, for **portfolio intensity (AER)**, Bank A applies a simple **exposureweighted average** across vessels, resulting in Equation 7:

Equation 7: Portfolio AER formula

$$AER_{\text{portfolio}} = \frac{\sum_i (AER_i \times \text{Outstanding Debt}_i)}{\sum_i \text{Outstanding Debt}_i}$$

Computation for NZ purpose		
Financed emissions	Financed production	Intensity (PCAF)
<i>=CO₂e WtW x BANK A share</i>	<i>=distance x DWT x BANK A share</i>	<i>=financed emissions / financed production</i>
8.179	2.269.870.776	3,60
10.356	1.802.140.170	5,75
12.868	787.358.972	16,34
31.403	4.859.369.918	6,46

3.3 Selecting scenario pathways

As per the Guidelines for Climate Target Setting (UNEP FI, 2025), banks are recommended “to use widely accepted science-based decarbonization scenarios to set both long-term and intermediate targets that are aligned with a net-zero goal and the goals of the Paris Agreement” (p. 16). This section outlines the most commonly used scenarios developed by industry practitioners.

The IMO “Striving for” pathways

IMO “Striving for” pathways are based on the most ambitious interim targets set by the IMO and agreed to by member states. They call for reducing total GHG emissions, striving a decrease of 30 per cent by 2030 and of 80 per cent by 2040 (both relative to 2008). The corresponding trajectory has been interpreted and developed for the Poseidon Principles, called “Striving for”. As part of the Poseidon Principles, the IMO “Minimum pathways” represents the lower end of the IMO GHG reduction targets. Despite its recognized ambition and the fact that it is stated by the international regulatory body overseeing the industry, it is not yet confirmed as aligned with the IPCC C1 scenario as “low or no overshoot”.

DNV scenarios

DNV was commissioned in 2023 by 11 former NZBA member banks to develop a net-zero, 1.5°C trajectory consistent with NZBA requirements. The goal was to provide a bank-specific alternative to existing frameworks. In response, DNV modelled 12 scenarios on a bottom-up analysis of verified IMO DCS data. The scenarios incorporated assumptions on efficiency gains, vessel replacement cycles and future demand growth.

SBTi Maritime Trajectory

SBTi provides a decarbonization pathway with its Maritime Guidance. The pathway is steady in the next coming years, after which it requires a steep emissions reduction from 2030–2040. This rapid decline anticipates the timescale within which alternative fuels should start to comprise a meaningful portion of the fleet feedstock.

IEA Net Zero by 2050 (IEA NZE)

The IEA Net Zero by 2050 (IEA NZE) scenario is a widely adopted benchmark against which decarbonization efforts are measured and targets are set, allowing for enhanced comparability across loan book if used consistently. For shipping, the scenario is expressed in CO₂ emissions, available for both absolute emissions and intensity, which can be computed due to the available transport work data (expressed in ton/km). As the scope of vessels within the scenario is unclear, it is difficult to define an intensity-based pathway. The IEA scenario is currently the only scenario taking only tank-to-wake emissions into account. As such, any pathway based on the IEA NZE requires modifications in case it is used for calculating a Climate Alignment Score in line with the Poseidon Principles.

Overall, comparing the different decarbonization scenarios is challenging as assumptions and accounting methodologies vary. The respective reduction trajectories are based on different assumptions linked to retrofit rates or to the update of alternatives fuels such as biofuel and e-ammonia. One of the shortcomings that the scenarios share is a heavy reliance on biofuels. The resulting changes in biofuel demand have knock-on effects for land use changes, which are not usually reflected in most sector- and industry-specific scenarios.

Table 7: Comparison of emission reduction targets per scenario (relative to a 2020 baseline)

Scenario	Unit	Absolute Emissions Reduction 2020–2030	Absolute Emissions Reduction 2020–2040	Absolute Emissions Reduction 2020–2050
IEA NZE	Gt CO ₂ TtW	13%	61%	86%
Poseidon Principles “IMO Striving”	Gt CO ₂ WtW	27%	79%	100%
SBTi	Gt CO ₂ WtW	36%	96%	100%
DNV	Gt CO ₂ WtW	49%	94%	100%

Source: Poseidon Principles, 2024; DNV, 2025

Table 8: Overview of key considerations per Paris-aligned scenario

Scenario	Indicator	Pros	Cons
SBTi	Energy Efficiency Operational Index (EEOI) in grams of CO ₂ e / tonnage x nautical miles Based on well-to-wake emissions	Takes into account the true efficiency of the asset ²⁰ and penalizes empty transit or non-optimized ballast leg.	Requires availability and quality of data regarding tonnage, the collection of which is not mandated by any regulation. No public transcription of the trajectory into AER or misalignment / alignment approach. The trajectory after 2030 is deemed very steep and challenging to accomplish.
IMO striving for	Annual Efficiency Ratio (AER) in gCO ₂ e/ DWT-nm displaying alignment or misalignment of an individual vessel as well as portfolio-level Based on well-to-wake emissions	Information directly required to report to the IMO Capitalizes on Poseidon Principles framework Considered more ambitious	Proxy of transport based on the gross tonnage or dead-weight tonne of each vessel (rather than actual transport work).

20 The metric is still affected by operational parameters and might influence the actual efficiency of the asset.

Scenario	Indicator	Pros	Cons
DNV	Climate alignment [%] vs. defined trajectories Portfolio climate alignment as exposure weighted average of vessels climate alignment Actual performance and trajectories based on AER (gCO _{2e} /DWT-nm) respectively cgDIST (gCO _{2e} /GT-nm) in well-to-wake perspective	Capitalizes on the IMO CII indicator and regulation, translated into well-to-wake perspective, and further differentiated per ship segments Fair across all vessel segments and sizes, with no bias related to portfolio mix	Specific for shipping; i.e. not part of an industry-overarching framework, as with IEA NZE 2050 Less public acknowledgment than IEA or Poseidon Principles, as developed by DNV for an informal initiative of 11 banks
IEA	Provides information in gCO ₂ /tonne km in tank-to-wake perspective	One common credible and recognized framework covering all industry segments, avoiding “cherry picking” of methodologies and allowing for consistency with other sector targets Ambitious reduction percentage for the industry by 2030 Push for technological and operational changes in the short to medium term; drive for innovation and investment, especially on green fuels in the long term	No differentiation of vessel segments and sizes Scenario reaches 94 per cent intensity reduction in 2050 vs 2022, thus not leading to full net zero.

Application of scenarios by former NZBA members in 2024

A wide range of scenarios is used by financial institutions for their target setting by former NZBA members by 2024 (prior to it ceasing activities) (UNEP FI, 2024). It needs to be noted that the reports analysed cover the reporting period for 2023 and therefore may not fully reflect the updates and changes to the scenario selection following the updates of the IMO in 2023.

Scenarios used in target setting

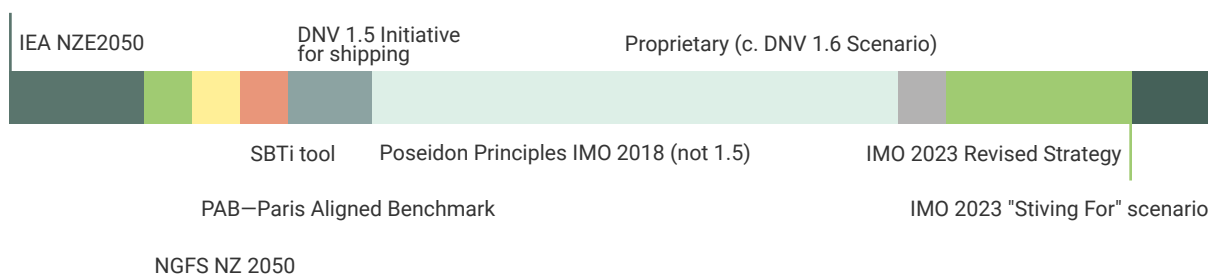


Figure 7: Scenarios used by former NZBA members (UNEP FI, 2024)

4. Reviewing the role of unsecured financing

Unsecured vessel financing (such as general-purpose loans) is currently missing from banks' Paris-aligned shipping targets. This needs to change for banks to achieve full coverage of their on-balance-sheet portfolios. Methodologies to bridge this gap are not yet sufficiently mature to be implemented to cover all financing activities in the shipping sector at the time of publication.

An initial methodological approach to address these challenges has been proposed by RMI (2024). RMI's proposal is built on a tiered approach that depends on the status of ownership and operations of vessels, thereby allowing banks to gradually include different clients (Table 9). RMI recognizes that data acquisition and accuracy become increasingly difficult as new clients are added. As such, it suggests selecting the tier(s) based on two main factors; namely, the profile of a bank's ship finance portfolio, and where data acquisition can be managed. Individual companies might also be linked to different tiers through different business activities.

Table 9: Four-tier classification as developed by RMI

Included in target setting (at the moment)	
Tier 1	Vessels owned by clients (owners and operators) that are linked (i.e. used as collateral) to a secured financing provided to that client, excluding shipping activities occurring e.g. in the oil and gas sector
Vessel financing excluded in target setting (at the moment)	
Tier 2	Vessels that are owned and operated by clients that have been provided with a financing that is not secured by vessels
Tier 3	Vessels that are owned but not operated (i.e. leased-out vessels) by clients that have been provided with financing that is not secured by vessels
Tier 4	Vessels that are operated but not owned (i.e. leased-in vessels) by clients that have been provided with financing that is not secured by vessels

Source: RMI, 2024

Consequently, methodologies offer little accuracy beyond a broad approximation. Furthermore, they remain inconsistent. As such, it is common practice among banks to exclude them in their net-zero target for shipping. The reasons for doing so are as follows:

- **Predominance of secured financing:** Over 90 per cent of lending in the maritime sector is secured, indicating that unsecured loans are a negligible portion of overall financing. Unsecured lending to ship owners is restricted to very few names, most of which are investment grade.
- **Complex scope:** Defining which clients (owners, operators, shippers, carriers) fall into the scope might lead to a situation in which many clients are in need of an enormous amount of data. While shipping is central to numerous value chains, shipping itself is often only a small part of the overall activities of those companies that own or lease vessels.
- **Risk of misleading data:** On the secured financing, GHG emissions data are gathered from the client for each vessel, which helps make the information as accurate as possible. Yet this approach would not be feasible for unsecured loans. Instead, estimated data would have to be used, increasing the risk of inaccurate or misleading results. In turn, this would undermine the integrity of existing reporting standards, such as the Poseidon Principles.
- **Alignment with industry practices:** The Poseidon Principles are already aligned with established global business practices, focusing primarily on secured financing. It is accepted as the benchmark for lenders to the sector.
- **Resource allocation:** The effort and resources required to incorporate unsecured loans could be better utilized in enhancing a bank's existing secured financing strategies and support client decarbonization.
- **Limited impact on sustainability goals:** Unsecured loan clients are often already clients via secured loans; therefore, the client engagement and follow-up of their transition is done as required by existing sectoral guidelines. Including unsecured loans may not significantly contribute to sustainability objectives, given their minimal presence in the market and their marginal impact on the emissions trajectory.



Conclusion

The transition of the shipping sector towards meeting the goal of the Paris Agreement will require action from all players across the shipping value chain, as well as the financial sector and policymakers. Decarbonization of the sector is primarily driven by regulatory advances from the International Maritime Organization (IMO), the body of the United Nations responsible for regulating international shipping. The IMO's GHG strategy framework, first adopted in 2018 and revised in 2023, lays out ambitious emissions reduction targets and supporting instruments to guide the sector towards (near) net zero by 2050: at least a reduction of 30 per cent by 2030 (striving for 40 per cent) and at least 70 per cent by 2040 (striving for 80 per cent) compared to 2008 emissions.

As the IMO provides legally binding regulations that set the pace and define timelines, it also provides a regulatory structure within which the sector adjusts and plans its transition and can be supported by banks. To date, banks have largely adopted the recommendations of the Poseidon Principles to transparently report their emissions for their secured financing portfolio or to establish a baseline for developing an institutional approach to the setting of Paris-aligned targets.

As a result, banks' targets are broadly, conceptually, similar. The main differences stem from the choice of indicators, such as whether to apply the Annual Efficiency Ratio alongside or instead of the Climate Alignment Score, or the choice of decarbonization pathways, such as whether to pick the Poseidon Principle's "Striving for", the DNV 1.5°C or the IEA NZE 2050 scenarios.

References

- DNV (2025). *1.5°C Initiative—Decarbonization Trajectories for the Shipping Industry*. brandcentral.dnv.com/download/DownloadGateway.dll?h=BE1B38BB718539CC0AB58A5F-F2EA7A83DD96B05ACDD653D8CF-F4A9A4864728883FF88CB5168F20CF46E9455E0A916D98
- European Commission (2023). *FuelEU Maritime Regulation*. (Regulation (EU) 2023/1805). transport.ec.europa.eu/transport-modes/maritime/decarbonizing-maritime-transport-fueleu-maritime_en
- ICCT (2025). *Greenhouse gas emissions and air pollution from global shipping, 2016–2023*. theicct.org/publication/greenhouse-gas-emissions-from-global-shipping-2013-2015/
- IMO (2009). *Guidelines For Voluntary Use Of The Ship Energy Efficiency Operational Indicator (EEOI)*. cdn.imo.org/localresources/en/OurWork/Environment/Documents/Circ-684.pdf
- IMO (2020). *Fourth IMO Greenhouse Gas Study 2020*. imo.org/en/ourwork/environment/pages/fourth-imo-greenhouse-gas-study-2020.aspx
- IMO (2025). *Draft revised MARPOL Annex VI*. cdn.imo.org/localresources/en/MediaCentre/HotTopics/Documents/Circular%20Letter%20No.5005%20-%20Draft%20Revised%20Marpol%20Annex%20Vi%20%28Secretariat%29.pdf
- Lloyd's Register & UMAS (2019). *Zero-Emission Vessels: Transition Pathways*. sustainableworldports.org/wp-content/uploads/Lloyds-Register-and-UMAS_2019_Zero-emission-vessels-transition-pathways-report.pdf
- PCAF (2022). *The Global GHG Accounting & Reporting Standard for the Financial Industry. Part A—Financed Emissions*. 2nd edition. carbonaccountingfinancials.com/en/standard#a
- Poseidon Principles (2019). *Poseidon Principles*. poseidonprinciples.org/finance/wp-content/uploads/2019/07/Poseidon-Principles.pdf
- Poseidon Principles (2024). *Poseidon Principles A global framework for ship finance*. poseidonprinciples.org/finance/wp-content/uploads/2019/07/Poseidon-Principles.pdf
- Poseidon Principles (2025a). *Technical Guidance*. poseidonprinciples.org/finance/wp-content/uploads/2025/07/Poseidon-Principles-Technical-Guidance-v-5.2.pdf?utm_source=chatgpt.com
- Poseidon Principles (2025b). *Poseidon Principles. Annual Disclosure Report 2024*. poseidonprinciples.org/finance/wp-content/uploads/2024/11/Poseidon-Principles-Annual-Disclosure-Report-2024.pdf
- RMI (2024). *Discussion: Adapting the Poseidon Principles for NZBA-compatible target setting*. climatealignment.org/wp-content/uploads/2024/04/Final_RMI-Finance-Poseidon-Principles-report_042224.pdf
- SBTi (2023). *Science Based Target Setting for Maritime Transport Sector*. sciencebasedtargets.org/resources/files/SBTi-Maritime-Guidance.pdf

- SBTi (2025). *Financial Institutions Net Zero Standard*. files.sciencebasedtargets.org/production/files/Financial-Institutions-Net-Zero-Standard.pdf
- UMAS (2023). *Implications of the Revised IMO GHG Strategy for national, regional and corporate Action*. u-mas.co.uk/wp-content/uploads/2023/09/MEPC-80-implications-of-the-IMO-GHG-strategy-add.1.pdf
- UNCTAD (2022). *Roadmap to decarbonize the shipping sector: Technology development, consistent policies and investment in research, development and innovation*. unctad.org/news/transport-newsletter-article-no-99-fourth-quarter-2022
- UNEP FI (2024). *NZBA Progress Report 2024*. unepfi.org/wordpress/wp-content/uploads/2024/10/NZBA-2024-Progress-Report.pdf
- UNEP FI (2025). *Guidance for Climate Target Setting for Banks—Version 4*. unepfi.org/industries/banking/guidance-for-climate-target-setting-for-banks-version-4/
- Wallenius Wilhelmsen (2025). *Sustainable Finance Framework 2025*. walleniuswilhelmsen.com/storage/images/Wallenius-Wilhelmsen-Sustainable-financing-framework-2025.pdf
- World Bank Group (2025). *Key to energy-efficient shipping*. openknowledge.worldbank.org/entities/publication/784beaaa-f4a3-4307-b1d1-ba3dda7cf471



UNEP Finance Initiative (UNEP FI) brings together a large network of banks, insurers and investors that catalyses action across the financial system to deliver more sustainable global economies.

For more than 30 years the Initiative has been connecting the UN with financial institutions from around the world to shape the sustainable finance agenda establishing the world's foremost sustainability frameworks that help the finance industry address global environmental, social and governance challenges.

Convened by a Geneva, Switzerland-based secretariat, more than 500 banks and insurers with assets exceeding USD 100 trillion are individually implementing UNEP FI's Principles

[unepfi.org](https://www.unepfi.org)

for Responsible Banking and Principles for Sustainable Insurance. Financial institutions work with UNEP FI on a voluntary basis to apply the sustainability frameworks within their industries using practical guidance and tools to position their businesses for the transition to a sustainable and inclusive economy.

Founded in 1992, UNEP FI was the first initiative to engage the finance sector on sustainability. Today, the Initiative cultivates leadership and advances sustainable market practice while supporting the implementation of global programmes at a regional level across Africa & the Middle East, Asia Pacific, Europe, Latin America & the Caribbean and North America.



[unepfi.org](https://www.unepfi.org)



info@unepfi.org



UN Environment Programme Finance Initiative