



Discussion: Adapting The Poseidon Principles For NZBA-Compatible Target Setting



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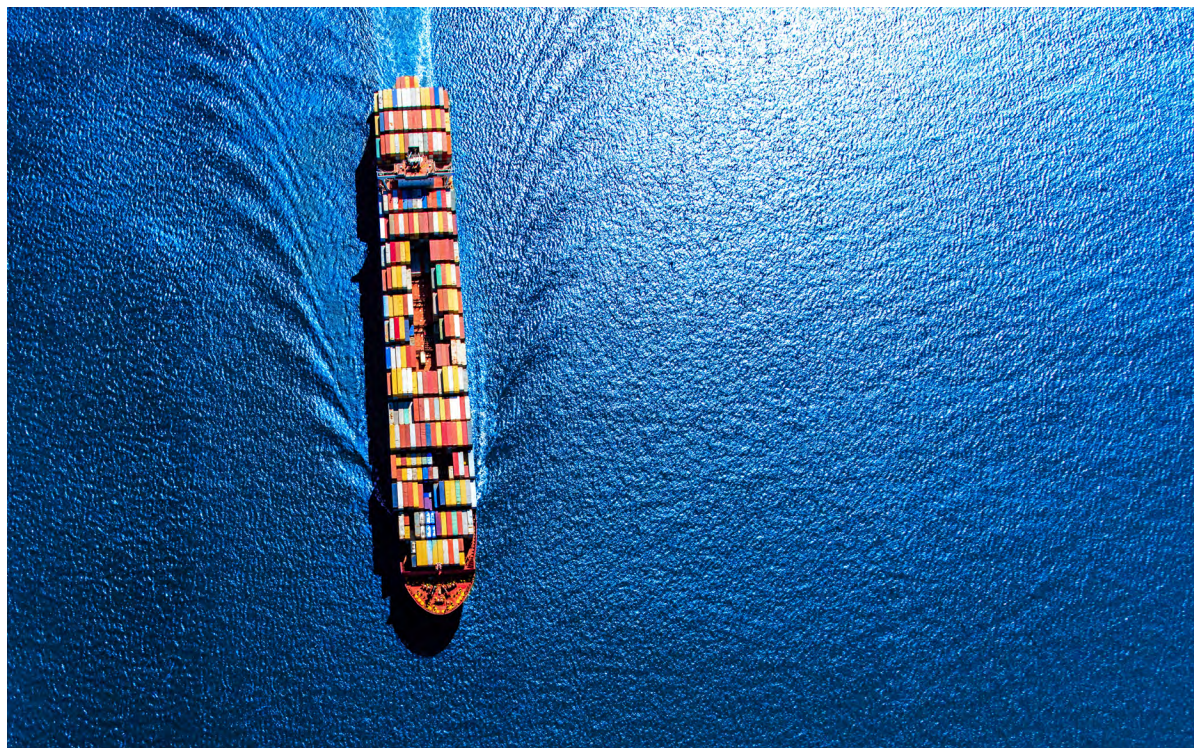
About RMI

RMI is an independent nonprofit, founded in 1982 as Rocky Mountain Institute, that transforms global energy systems through market-driven solutions to align with a 1.5°C future and secure a clean, prosperous, zero-carbon future for all. We work in the world's most critical geographies and engage businesses, policymakers, communities, and NGOs to identify and scale energy system interventions that will cut greenhouse gas emissions at least 50 percent by 2030. RMI has offices in Basalt and Boulder, Colorado; New York City; Oakland, California; Washington, D.C.; and Beijing.

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1. Introduction



The purpose of this paper is to provide recommendations and clarifications for adapting the Poseidon Principles' climate alignment assessment methodology for Net-Zero Banking Alliance (NZBA)-compatible shipping portfolio target setting. Recommendations and clarifications are given in three areas: target metrics, financial scope and methodology, and scenario selection. Incorporating some of the recommendations of this paper into bank target-setting efforts may require further work by banks, their clients, and others.

It is acknowledged at the outset that NZBA published updated target setting guidelines in March 2024. This paper references version one of the guidelines because only these were available at the time of writing. Footnotes have been added where necessary to ensure that the recommendations of this paper are accurate to version two of the guidelines.

This paper is not intended to supplant the Poseidon Principles, the NZBA Target-Setting Guidelines and Supporting Notes (hereafter NZBA Guidelines), or any other framework. RMI supported the development of the Poseidon Principles and serves as a technical advisor to the Poseidon Principles Association today.¹ RMI has a partnership agreement with NZBA, the intent of which is to support the harmonization of sectoral target-setting approaches.² This paper is intended to support this aim.

This paper has been written independently by RMI. It is not associated with the Poseidon Principles Association or NZBA. Implementation of the recommendations and clarifications provided in this paper should be undertaken by banks working on an individual basis.

1.1 Overview: Net-Zero Banking Alliance

NZBA is a bank-specific commitment platform that brings together banks from diverse regions, representing over 40% of global banking assets. NZBA members commit to transitioning the operational and attributable greenhouse gas (GHG) emissions from their lending and investment portfolios in line with 1.5°C-aligned pathways by 2050 or sooner. To join NZBA, banks must make a range of commitments. For the purposes of this paper, the most relevant is the commitment to set targets in line with the NZBA Guidelines.³

The specific, relevant requirements of the NZBA Guidelines are discussed in detail in following sections of this paper. The NZBA Guidelines on target setting can be summarized as follows:

- Set 2030 and 2050 targets covering GHG-intensive sectors.
- Targets must include Scope 1, 2, and 3 emissions as significant and possible.
- Targets must be based on absolute emissions or an emissions intensity measure.
- Targets must be based on no- or low-overshoot scenarios aligned with 1.5°C.
- Targets must cover all on-balance-sheet lending and investment activities.ⁱ
- Banks must report on targets annually.

1.2 Overview: Poseidon Principles

The Poseidon Principles are a commitment platform and framework that require signatories to measure and disclose the climate alignment of their shipping portfolios on an annual basis. The Poseidon Principles were launched in 2019 and have grown to 35 signatories, which represent more than 70% of the global ship finance portfolio.⁴ The Poseidon Principles are governed by the Poseidon Principles Association, which consists of signatory financial institutions and is supported by technical advisors.⁵ Because of the importance of debt in capital-intensive ship finance, the Poseidon Principles are the de facto global standard for benchmarking shipping assets and portfolios in the banking sector.

The Poseidon Principles are built around four principles, which can be summarized as follows. Relevant sections of the Poseidon Principles technical guidance are discussed in more detail later in this paper.

- 1. Assessment** prescribes a methodology for computing vessel and shipping portfolio climate alignment scores. Alignment scores are based on CO₂ equivalent (CO₂e) well-to-wake (WtW) intensity.
- 2. Accountability** prescribes the data that can be used for calculating and disclosing portfolio climate alignment scores. The Poseidon Principles rely solely on data from the International Maritime Organization Data Collection System (IMO DCS) because it is the best verified, global, and asset-level data set available at this time.

ⁱ NZBA Guidelines version two require that facilitated emissions from capital markets activities are included in targets by November 1, 2025. Facilitated emissions can be included in existing financed emissions targets or can be used to set separate targets for facilitated emissions alone.

- 3. Enforcement** prescribes that any signatory to the Poseidon Principles must include a standard covenant clause in new contracts. This covenant clause facilitates access to IMO DCS data via shipping clients.
- 4. Transparency** prescribes that signatories will publicly acknowledge that they are a signatory and disclose the climate alignment of their shipping portfolio annually.

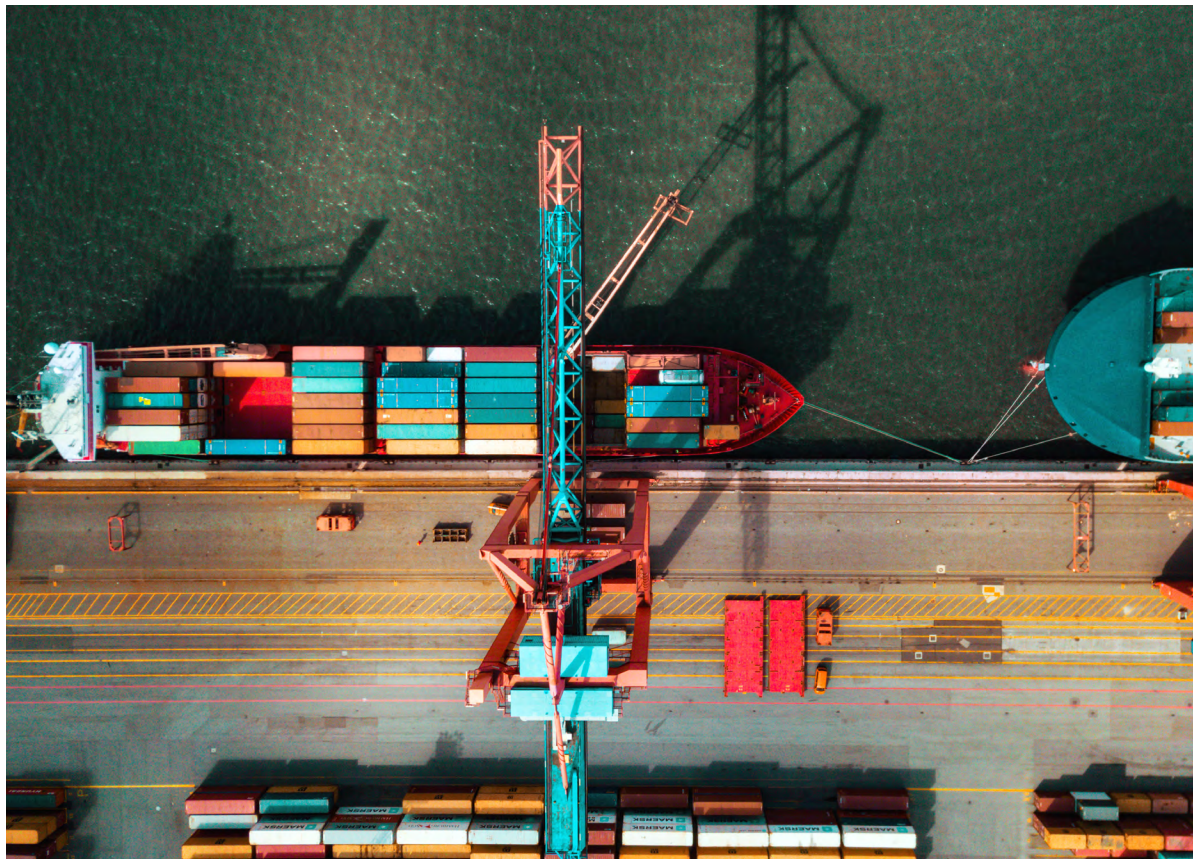
1.3 Clarifications and Adaptations Required for NZBA Target Setting

There are three clarifications or adaptations that are required to use the Poseidon Principles climate alignment assessment methodology for NZBA-compatible target setting:

- 1.** Based on the NZBA Guidelines, it is unclear whether targets set using the Poseidon Principles alignment score metric are fully NZBA compliant. This paper requests clarification from NZBA and makes interim recommendations.
- 2.** The financial scope of the Poseidon Principles is narrower than that of the NZBA Guidelines. The financial scope of the Poseidon Principles must be expanded to enable inclusion of unsecured lending (e.g., general corporate purpose financing) to ensure compliance with NZBA Guidelines. This requires adapting both the Poseidon Principles climate alignment assessment methodology and financial scope, for which this paper makes recommendations and provides discussion.
- 3.** Because of the acknowledgment of the Poseidon Principles in version one of the NZBA Guidelines and the unique role of the IMO in determining globally agreed-upon climate ambition for the shipping sector, target scenario selection requires additional clarifications relative to other sectors. This paper seeks to provide some of this clarification.

These clarifications and adaptations are explored in the following three sections.

2. Selecting a Target Metric



Under the Poseidon Principles, signatories publicly report portfolio alignment scores on an annual basis. The portfolio alignment score is expressed as a percentage, which represents the weighted average of individual vessels' alignment scores. Vessel alignment scores represent the percentage deviation of a vessel's CO₂e WtW intensity from a specified benchmark. Given that the NZBA Guidelines require the establishment of targets in terms of absolute and/or sector-specific emissions intensity, it is not entirely clear whether targets set using the Poseidon Principles alignment score metric are compliant with the NZBA Guidelines. This section provides background on the Poseidon Principles alignment score, requests clarification from NZBA, and makes recommendations for financial institutions that choose to set targets using the Poseidon Principles alignment score.

2.1 Background

Box 1, *Summary of NZBA Guidelines on target metrics*, summarizes the NZBA Guidelines relevant to the selection of a target metric.^{6 ii}

ii NZBA Guidelines version two do not directly mention the Poseidon Principles alignment score; however, they do create a path for acknowledging additional methodologies that are designed for incentivizing real-world emissions outcomes. This includes creating additional sector-specific resources to do so, presumably through NZBA sector working groups.

Summary of NZBA Guidelines on Target Metrics

- Banks shall set a 2050 target to support meeting the temperature goals of the Paris Agreement.
- Banks shall set an interim target of 2030 or sooner and may set further interim targets prior to that date.
- Targets shall be set based on:
 - Absolute emissions; and/or
 - Sector-specific emissions intensity (e.g., CO₂e/metric). These metrics should be physical metrics (e.g., kilowatt-hour, square meter, ton of product), but may be financial metrics if the rationale for not using a physical metric is provided.
- Although a bank's targets may be supported by other approaches (e.g., production volume trajectories, technology mix) or measurements (e.g., financing targets), the targets shall nonetheless be set in absolute and/or intensity terms.
- No specific methodology is mandated to calculate values for the above metrics. However, banks should strive to use credible sources and explain the methodologies used for calculating their emissions profile. Where methodologies are not publicly available and there are data challenges, banks should explain the allocation approach used, data sources and their limitations, approaches to estimation, proxies used if data is not available, and key assumptions. Banks should provide an assessment of the data quality used in their calculations. If several data sources are available, data with the highest quality is expected to be used, unless justified.

Under the Poseidon Principles, signatories publicly report portfolio alignment scores on an annual basis. The portfolio alignment score is expressed as a percentage, which represents the weighted average of individual vessels' alignment scores. Vessel alignment scores represent the percentage deviation of a vessel's CO₂e intensity from a specified benchmark in a given year. Alignment scores of zero or negative values indicate alignment (i.e., on or below the benchmark), and positive alignment scores indicate misalignment (i.e., above the benchmark).

The Poseidon Principles measure emissions intensity using the annual efficiency ratio (AER) metric. AER is a CO₂e intensity metric that is implemented using data from the IMO DCS. AER gauges a vessel's operational efficiency by dividing the total CO₂e emissions associated with a vessel's annual fuel consumption by the vessel's capacity in a vessel size unit (capacity hereafter) and annual distance traveled in nautical miles.ⁱⁱⁱ AER is expressed as g CO₂e/capacity-nm.

Although some sustainable shipping initiatives use a more precise CO₂e intensity metric, the energy efficiency operational indicator (EEOI), this metric is not implementable on a global scale by financial institutions, particularly with measured and verified data. This is because it requires cargo data not

ⁱⁱⁱ In the Poseidon Principles framework, different vessel types utilize different size units to measure capacity, including deadweight tonnage (DWT), gross tonnage (gt), twenty-foot equivalents (TEU), and cubic meters (cbm).

currently collected by the IMO DCS. AER uses a proxy value for cargo (i.e., capacity). Should the relevant data become available to make it implementable, we recommend that financial institutions use the EEOI metric in target-setting efforts.

Although the Poseidon Principles are fundamentally based on CO₂e emissions intensity, alignment scores are not strictly in line with the NZBA Guidelines because they are expressed as a percentage.

2.2 Recommendations

We recommend that NZBA clarify that the Poseidon Principles alignment score metric is compliant with the NZBA Guidelines.

The nature of the maritime shipping sector poses challenges to the concept of sector target setting by financial institutions. This is due to the fact that ships of different types and sizes have vastly different efficiencies, but all are needed to service the global economy. Targets set using a single emissions intensity benchmark could be met by shifting portfolio composition toward larger vessels. Targets set using absolute emissions alone could disincentivize financing larger vessels, which have far higher absolute emissions but move far more cargo per ton of GHG emissions.

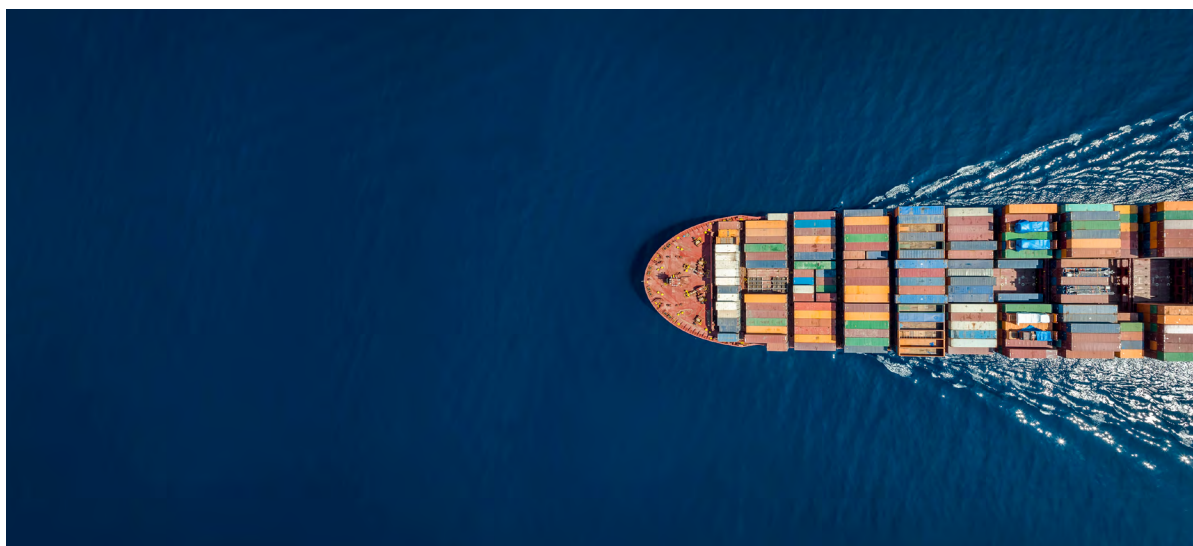
It is important that shipping portfolio targets create incentives to decarbonize portfolios through improving clients' energy efficiency and accelerating fuel switching instead of altering portfolio composition. The Poseidon Principles climate alignment assessment methodology, which is emissions intensity based, is the best globally implementable methodology for achieving these aims.

Where financial institutions choose to set targets using the Poseidon Principles alignment score metric in advance of clarification by NZBA, they should adopt the following recommendations:

- In baseline and annual disclosures, disclose the Poseidon Principles alignment score and sector-specific emissions intensity associated with the shipping portfolio.^{iv}
- Disclose the specific scenario against which targets have been set (e.g., Poseidon Principles IMO Striving).
- All other requirements, which are outlined in the *Guidelines for Climate Target Setting for Banks and Supporting Notes*, still apply.

iv The simplest way to meet this recommendation is to make multiple emissions intensity disclosures, each of which covers a different part of the shipping portfolio. AER is expressed as gCO₂e/capacity-nm, where capacity can represent DWT, gt, TEU, or cbm depending on the vessel type. Figures with different capacity units cannot be directly aggregated. See page 66 of *Poseidon Principles Technical Guidance v5.0*.

3. Adapting the Financial Scope and Methodology of the Poseidon Principles



The Poseidon Principles climate alignment assessment methodology focuses mostly on assessing the climate alignment of financings secured by specific vessels. The NZBA Guidelines specify that all on-balance sheet lending and investment activities shall be included in targets.⁷ Thus, in order to employ the Poseidon Principles climate alignment assessment methodology for fully NZBA-aligned target setting, it is necessary to make adaptations to the financial scope and methodology of the Poseidon Principles.

This section recommends three adaptations:

- **Expanding the financial scope** from secured financings to all forms of on-balance-sheet lending.
- **Adapting the climate alignment assessment methodology for use in secured and unsecured lending** to enable banks to consider the climate alignment of shipping corporate entities in addition to shipping assets.
- **Adapting portfolio alignment calculations** to enable computation of portfolio climate alignment scores using the expanded climate alignment assessment methodology.

In summary, these recommendations propose an approach for maintaining the existing Poseidon Principles climate alignment assessment methodology that measures the alignment of individual vessels, and defining an alignment assessment methodology for shipping corporations that considers all owned and operated vessels. In doing so, the recommendations are intended to allow for the use of the Poseidon Principles climate alignment assessment methodology with a wider range of financial products: financial products for which a vessel or vessels do not clearly serve as collateral.

To-the-letter alignment with the NZBA Guidelines would require that shipping targets cover all forms of on-balance-sheet lending and cover emissions from owned and operated vessels. **However, even with the recommendations and discussion below as a guide, to-the-letter compliance with the NZBA Guidelines is not possible today due to methodological limitations and the feasibility of collecting asset-level data.** This is discussed further at the end of this section.

As such, the purpose of these recommendations is dual. First, the recommendations in Sections 3.2–3.5 are intended to enable banks to leverage the Poseidon Principles climate alignment assessment methodology in a manner that allows the fullest possible compliance with the NZBA Guidelines today. Second, the discussion in Section 3.6 points to future work that could enable fuller alignment with NZBA Guidelines in the future.

These recommendations are set out in three parts: background, recommendations, and discussion of challenges and potential future work.

3.1 Background: Financial Scope of the Poseidon Principles and the NZBA Guidelines

This section describes the financial scope of the Poseidon Principles and the expectations set out by the NZBA Guidelines. The Poseidon Principles are focused solely on secured financings, which are straightforward to link to specific vessels.

The Poseidon Principles must be applied by Signatories in all Business Activities that are 1) credit products—including bilateral loans, syndicated loans, club deals, and guarantees—secured by vessel mortgages, finance leases secured by title over vessel, or unmortgaged ECA loans tied to a vessel and 2) where a vessel or vessels fall under the purview of the IMO (i.e., vessels 5,000 gross tonnage and above which have an established Poseidon Principles trajectory whereby the carbon intensity can be measured with IMO DCS data).⁸

The NZBA Guidelines have broader expectations. The scope of the NZBA Guidelines can be summarized as follows:

- **On-balance-sheet lending:** All types of lending that appear on the bank’s balance sheet are to be included in NZBA targets and reporting, including secured financings, unsecured financings, and general corporate purposes lending.
- **On-balance-sheet investments:** Although the NZBA Guidelines mention on-balance-sheet investments, they leave room for these to be managed under alternative frameworks to accommodate the distinct operational structures within banks. On-balance-sheet securities held for client facilitation and market-making purposes are excluded.
- **Future inclusions:** The NZBA Guidelines set out that off-balance-sheet activities, such as capital markets activities, are excluded but will be considered in a future version.^v

^v NZBA Guidelines version two require that facilitated emissions from capital markets activities are included in targets by 1 November 2025. Facilitated emissions can be included in existing financed emissions targets or can be used to set separate targets for facilitated emissions alone.

- **Transparency:** In recognition of possible challenges, the NZBA Guidelines state that “banks should be clear about which parts of the balance sheet the targets encompass. Over time, banks should increase the volume of investment activities covered by the targets in line with methodological developments.”^{9, vi}

3.2 Step 1: Identify In-Scope Clients and Vessels

Recommendations under step 1 are designed to enable banks to identify in-scope balance sheet items and collect the data required for target setting. Step 1 provides an ideal definition of in-scope clients and vessels (i.e., a definition that is in full alignment with NZBA Guidelines). Because implementation in line with this ideal definition is likely infeasible, two recommendations are made: limiting in-scope vessels to those that fall under the purview of the IMO DCS and further limiting scope using a tiered approach to defining in-scope clients and vessels. This approach is intended to recognize methodological limitations and data acquisition challenges while also encouraging banks to set robust targets in greatest possible alignment with NZBA Guidelines. The methodological recommendations in Sections 3.3–3.5 are designed to be implementable with any combination of tiers.

Defining In-Scope Clients and Vessels

Full alignment with the letter of the NZBA Guidelines would require that GHG emissions from owned vessels and vessels that are operated but not owned are included in shipping portfolio target setting.^{vii}

We recommend limiting in-scope clients and in-scope vessels in two ways.

First, because the recommendations below are designed on the basis that IMO DCS will be used as the primary source of data for shipping portfolio target setting, we recommend considering only vessels that fall under the purview of the IMO DCS in scope. The effect of this twofold. This recommendation establishes an emissions boundary for shipping targets using the Poseidon Principles definition of WtW emissions. This recommendation also limits in-scope vessels to those that are 5,000 GT and above and which fall under the purview of the IMO.

Second, because of methodological limitations and expected data acquisition challenges, we expect that it will not be feasible to set targets in full alignment with NZBA Guidelines. We therefore recommend a tiered approach for defining in-scope clients and in-scope vessels from those clients, where the expected difficulty of data acquisition increases with each tier.

We outline these tiers below. We recommend that banks select the tier(s) they wish to use to set their NZBA targets. The methodological recommendations in Sections 3.3–3.5 are designed to be implementable with any combination of tiers. Banks should select tier(s) based on the profile of their ship finance portfolio and the feasibility of data acquisition. Furthermore, in line with NZBA’s emphasis on transparent reporting, we recommend that banks disclose the parts of their balance sheet that are included in their targets.

vi NZBA Guidelines version two maintain this emphasis on transparency in acknowledgement of methodological limitations.

vii The categories of owned vessels and operated vessels do not cleanly translate to client Scope 1 and Scope 3 emissions. Shipping companies typically apply the concepts of financial and/or operational control to determine emissions scope. These are concepts from the Greenhouse Gas Protocol.

Box 2

Building on the IMO DCS

Because the Poseidon Principles rely solely on IMO DCS for fuel consumption, distance traveled, and capacity, the recommendations in this section are built around using IMO DCS data.

The IMO DCS was adopted by the Marine Environment Protection Committee in 2016 (Resolution MEPC.278[70]), which came into force in January 2019. It applies to ships of 5,000 GT and above. Since 2023, this data has been also used to calculate ships' operational carbon intensity index. Under the IMO DCS, shipping companies are required to report data points related to fuel consumption, distance traveled, and capacity. These data points allow for the calculation of emissions per unit of transport work, of AER under the Poseidon Principles. Data covering the previous calendar year must be reported annually to flag states, which verify the data and consolidate it before sending to the IMO. Flag states may entrust data verification to conformity assessment organizations that are recognized or accredited (i.e., classification societies and certification bodies).

Although sourcing IMO DCS data directly from clients has worked well for secured financings (i.e., tier 1), expanding to tiers 2–4 will add challenges. Both the IMO DCS, under MARPOL Annex VI, and EU Monitoring, Reporting and Verification (EU MRV) system have established that the entity responsible for compliance is the shipowner or any other organization or person that “has assumed the responsibility for operation of the ship from the owner of the ship and who on assuming such responsibility has agreed to take over all the duties and responsibilities imposed by the International Management Code for the Safe Operation of Ships and for Pollution Prevention.”¹⁰ Thus, although the regulation targets shipowners, responsibility for compliance and reporting can be delegated to charterers and technical managers. This delegation can complicate the collection of IMO DCS data for banks if their clients are not directly managing the reporting process or if they own but do not operate their vessels. This complexity is further magnified for clients that own and/or operate large fleets of vessels. Implementation of tiers 2 and 3, which focus on shipping corporations instead of single ships, is a challenge because of the need to create clear definitions of vessel ownership, data collection by clients, and data consolidation. Tier 4, which focuses on vessels that are operated but not owned, adds considerable complexity because it would require additional guidance to be developed on emissions attribution.

Although data acquisition and consolidation are challenging, there is growing consensus around vessel specific emissions accounting in the shipping sector. Such an approach is the backbone of both regulatory and voluntary initiatives, including the IMO's carbon intensity index, EU emissions trading system, the Science Based Targets Initiative (SBTi) Maritime Guidance, Sea Cargo Charter, and Global Logistics Emissions Council Framework. Over time we expect that this will help ease the burden of implementation.

Recommended tiers for defining in-scope clients and in-scope vessels:

Tier 1 — Vessels owned by clients that are linked (i.e., used as collateral) to a secured financing provided to that client

Tier 1 covers the majority of ship finance portfolios. It mirrors the financial scope of the Poseidon Principles, for which signatories have been successfully acquiring IMO DCS data from clients since the Poseidon Principles were founded in 2019. This data acquisition is aided by the Poseidon Principles enforcement principle, under which signatories use a loan covenant ensuring access to IMO DCS data. It is noteworthy that data is acquired regardless of whether the client operates the vessel.

Tier 2 — Vessels that are owned *and* operated by clients that have been provided with a financing that is not secured by vessels

Under IMO DCS regulations, the responsibility for emissions reporting typically falls to the shipowner but can be delegated. In cases where the shipowner both owns and operates the vessels, they are expected to complete emissions reporting for the IMO DCS. Thus, we would recommend that for financings that are not secured by vessels, banks request IMO DCS data for all vessels that are owned *and* operated by clients.

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

Although the client is the owner and the emissions are attributable to them under IMO DCS reporting, obtaining IMO DCS data may be challenging for this tier if the client is not preparing the emissions reporting itself. Reporting this data may require the client to request information from third parties operating the vessels. Over time, this might be aided through the inclusion of a clause on emissions disclosures in charter party agreements. Tier 3 is likely to present more challenges than tiers 1 and 2.

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

The responsibility for reporting emissions to the IMO DCS for chartered vessels may vary based on the specific conditions set out in charter party agreements. For longer-term charters, the ship operator often assumes responsibility for the operation of the ship from the owner and is typically responsible for the vessel's technical management, including emissions reporting. In cases where a client has received an unsecured financing and operates long-term leased-in vessels, they will often be responsible for emissions reporting under the IMO DCS and thus may be able to provide emissions data to lenders. However, if operating on short-term leases, emissions data — particularly IMO DCS statements of compliance — may not be easily accessible to the operator. There will be additional challenges of emissions attribution, which is expected to be a particular challenge for short-term leases. Collecting this information regularly and consistently is likely to require further work to standardize client asks.

Materiality Threshold

As banks work to identify in-scope clients, applying a materiality threshold may support effective reporting on the emissions that are most significant to their portfolio. Capturing the complete spectrum of exposure in compliance with these recommendations may not be feasible, particularly when emissions from a client's vessels represent an insubstantial portion of their total emissions. Implementing a materiality

threshold may allow banks to manage and report their shipping exposure in a manner that is consistent and concentrated on exposure that materially affects the climate alignment of their portfolios. When applying a materiality threshold, it is important that the parameters of the thresholds are clearly articulated in any target setting and reporting to support transparency and adhere to the NZBA Guidelines.

Relevant NAICS and NACE Codes

NAICS and NACE codes are provided in Exhibits 1 and 2. They are intended for reference only to support the identification of potential in-scope clients and vessels. Determining in-scope clients depends not on these codes, but instead on the definitions outlined above.

Exhibit 1

Relevant NAICS Codes

Code	Client or vessel
483111	Deep sea freight transportation
483112	Deep sea passenger transportation
483113	Coastal and Great Lakes freight transportation
483114	Coastal and Great Lakes passenger transportation
532411	Commercial air, rail, and water transportation equipment rental and leasing

RMI Graphic. Source: United States Census Bureau

Exhibit 2

Relevant NACE Codes

Code	Client or vessel
50.10	Sea and coastal passenger water transport
50.20	Sea and coastal freight water transport
77.34	Rental and leasing of water transport equipment

RMI Graphic. Source: European Commission

3.3 Step 2: Identify In-Scope Balance Sheet Items

Once in-scope clients have been identified, banks can determine the relevant financial exposure for reporting. We recommend that financings be considered in-scope if they are defined as credit products — including bilateral loans, syndicated loans, and club deals — that have been provided to in-scope clients. For syndicated financial products, climate alignment calculations should be based on the lender's portion of the financing. Example financial products recommended for inclusion include asset finance, bank guarantees, bridge loans, buyer credits, export finance, factoring programs (both recourse and non-recourse), general corporate purpose loans, letters of credit, revolving credit facilities, revolving loans, swinglines, term loan facilities, and working capital facilities.

The final judgment on which financings to include within the scope rests with lenders. Lenders should apply discernment to ensure that the reporting is not only aligned with regulatory standards but also true to the operational realities of ship finance.

Data Acquisition

This section summarizes the data acquisition requirements for balance sheet items deemed in-scope.

For financings secured by a specific vessel, the process is unchanged from the current Poseidon Principles methodology. Banks use the following data to calculate alignment:

- **Loan size:** The total amount of the loan provided.^{viii}
- **Vessel information:** Specific details for each vessel tied to the loan, including its total emissions, the distance it travels annually, its capacity, and the benchmark intensity tailored to the vessel's type and size^{ix}

The data collection for in-scope financings that are not secured by a vessel is more comprehensive. All unsecured financings or financings secured by a majority of non-vessel assets in terms of value (engines, building facilities, etc.) are considered unsecured financings for the purposes of this methodology. For these financings, we would recommend that banks gather:

- **Loan size:** The total amount of the loan provided.^x
- **Client revenue data:** On an optional basis, the overall revenue of the client, and the share of that revenue stemming from shipping operations. This information may be used in later portfolio-level calculations.

viii Loan size can be determined as the credit limit of the in-scope financing (i.e., committed amounts) or the outstandings under the in-scope financing on December 31 annually. Whichever method the lender selects must be applied consistently throughout all portfolio calculations and the method should be disclosed for transparency.

ix Please see *Section 2: Assessment of Climate Alignment* and *Appendix 3: Definition of Global Decarbonization Trajectory* of the Poseidon Principles v5.0 for definitions and guidance on the benchmark intensity that should be used to calculate alignment under the Poseidon Principles.

x Loan size can be determined as the credit limit of the in-scope financing (i.e., committed amounts) or the outstandings under the in-scope financing on December 31 annually. Whichever method the lender selects must be applied consistently throughout all portfolio calculations and the method should be disclosed for transparency.

- **Fleet data:** A complete data set for all the relevant vessels owned or operated by the client according to the tiered system outlined in step 1. This includes emissions, the work each vessel performs calculated by its distance traveled and capacity, and the benchmark intensities relevant to each vessel.

Inclusion of Subsidiaries

In line with financial reporting principles, when collecting data on owned and operated vessels, emissions data should encompass the consolidated figures from both the client entity and controlled subsidiaries. To determine which subsidiaries are in-scope, banks may consider factors including, but not limited to:

- Any use-of-proceeds features of the financing
- The level of direct operational or financial support between the parent company and the in-scope subsidiary
- Whether the parent company is considered part of the bank’s shipping portfolio

To avoid doubt, we recommend that banks request IMO DCS data that covers their client’s emissions and the emissions of that client’s subsidiaries; it is not necessary to include emissions data of parent entities.

3.4 Step 3: Assess In-Scope Vessels

The recommendations under step 3 enable banks to calculate the climate alignment for each in-scope vessel. The calculations below remain consistent with the established Poseidon Principles methodology. The emissions intensity (r) for a ship owned and/or operated by company C , S_c , is calculated as the actual emissions, $E_{s,c}$, divided by the product of the ship’s capacity, $W_{s,c}$, and the total annual distance traveled in nautical miles, $T_{s,c}$.

$$r_{s,c} = \frac{E_{s,c}}{W_{s,c} T_{s,c}}$$

The benchmark intensity $b_{s,c}$ can be taken directly from the methodology of the Poseidon Principles. The ship’s climate alignment score can then be calculated as follows:

$$\Delta_{S_c}^A = \frac{r_{s,c}}{b_{s,c}} - 1$$

At the conclusion of this step, banks will have calculated climate alignment scores for each of their in-scope vessels.

3.5 Step 4: Calculate Portfolio Alignment

With individual vessel climate alignment scores determined, the next step is to aggregate these results to derive a comprehensive climate alignment score for the entire shipping portfolio. Recommendations in this step enable banks to aggregate vessel-level alignment to the portfolio level. This aggregation considers the proportionate impact of each vessel weighted by the exposure to that vessel.

Vessel Exposure Weight

The portfolio alignment score reflects the overall climate alignment of a bank's entire shipping loan portfolio. It is important that each vessel in the portfolio is appropriately weighted to accurately capture its contribution toward the portfolio's overall alignment.

To calculate the vessel exposure weight, we recommend that banks consider their total exposure to each vessel in three ways:

- 1. Loan size:** This represents the bank's relative financial commitment to each shipping client and may be determined as either the credit limit or the outstanding amount under the financing, as discussed in step 2 in Section 3.3.
- 2. Total annual distance traveled in nautical miles (unsecured financings only):**^{xi} For financings not secured by vessels, the total annual distance traveled in nautical miles weight is used to proportion the total financing amount to individual vessels that are owned and/or operated by a client.
- 3. Revenue share (optional, unsecured financings only):** Revenue share represents the proportion of revenue that each company generates from shipping activities relative to its total corporate revenue. Revenue share is intended to reflect the extent to which a company's business is concentrated in the shipping sector.^{xii} The application of the revenue share weight is an optional tool at the bank's discretion, allowing for flexibility based on the bank's best judgment and the specific context of each unsecured financing. Revenue share weight should be considered only with unsecured financings. Other metrics aside from revenues may be used to weigh unsecured financings to accurately account for shipping exposure. Since revenues may vary significantly from year to year, and may be recognized differently across different shipping companies, lenders may opt to use alternative metrics, such as capital expenditures, debt, or asset value data (i.e., a data set recording the distribution of a company's capital expenditure spending, debts, or assets across its business lines). When referencing the guidance in the next paragraph, the chosen metric should be substituted instead of the weight V^{Sh} .

xi Annual distance traveled in nautical miles is used for this purpose to achieve two objectives: to ensure that weighting reflects use of vessels and to rely on data that is already available. Transport work (defined as capacity x distance traveled) would be a better measure but cannot be used for this purpose due to the employment of different capacity measures for different kinds of vessels under the Poseidon Principles (e.g. DWT, gross tonnage, cubic meters, and twenty-foot equivalent units). Distance traveled is preferable to other options, such as weighting using total emissions, using a measure of capacity, or giving all vessels equal weight. A potential future piece of work could include the development of a conversion factor to allow for the use of transport work.

xii The need for including a revenue weight draws on similar principles as those used in the Paris Agreement Capital Transition Assessment methodology. The inclusion of a revenue weight helps contextualize the financial exposure based on the intensity of a company's involvement in shipping activities relative to its overall business. When applied to unsecured financings, where funds are not directly tied to specific vessels, the revenue share becomes a critical determinant. It allows banks to differentiate between general corporate financings for companies with varying degrees of involvement in shipping. Without this weighting, banks might overstate or understate the climate impact of their lending activities within their shipping targets and reporting.

The weight assigned to each vessel in a **secured financing** for the portfolio-level calculation remains consistent with the established Poseidon Principles methodology.^{xiii} For a financing secured by ship S_c owned by company C , the weight assigned to that vessel, $w_{s,c}$, is the size of the financing provided to the client, $D_{Sec}(C)$, divided by the total size of the bank's shipping portfolio. The total size of the bank's shipping portfolio is defined as the sum of all secured financings (D_{Unsec}) added to the sum of the unsecured financings (D_{Unsec}) weighted by the share of the relevant client's total revenue that is generated in the shipping sector (V^{Sh}).

$$w_{s,c} = \frac{D_{Sec}(C)}{\sum_{i=1}^n (D_{Sec}(C_i)) + \sum_{i=1}^n (V^{Sh}(C_i) D_{Unsec}(C_i))}$$

The weight assigned to each vessel owned and/or operated by a client that has been provided with **unsecured financing** is the product of the three weights above divided by the total size of the bank's shipping portfolio. The weight assigned to ship S_c owned by company C is therefore calculated as the product of the loan size of the financing, $D_{Unsec}(C)$, the share of company C 's total revenue that is generated in the shipping sector, $V^{Sh}(C)$, and the total annual distance traveled in nautical miles by ship S_c as a proportion of the total distance traveled by all ships owned and/or operated by company C , $T_{weight,s,c}$, divided by the total size of the bank's shipping portfolio.

$$T_{weight,s,c} = \frac{T_{s,c}}{\sum_{s=1}^n (T_{s,c})}$$

$$w_{s,c} = \frac{D_{Unsec}(C) V^{Sh}(C) T_{weight,s,c}}{\sum_{i=1}^n (D_{Sec}(C_i)) + \sum_{i=1}^n (V^{Sh}(C_i) D_{Unsec}(C_i))}$$

After repeating this calculation for each in-scope vessel, banks will have the weights required for aggregating vessel climate alignment scores up to the portfolio level.

Calculating the Portfolio Alignment Score

The portfolio alignment score is calculated by taking the sum of weighted vessel climate alignment scores. Vessel climate alignment scores are weighted by their respective vessel exposure weights.

The delta alignment for the portfolio Δ_p^A is calculated as the summation of the product of each vessel exposure weight $w(S_i)$ and the climate alignment of that vessel $\Delta_{S_i}^A$. These figures are calculated for each vessel in steps 3 and 4.

$$\Delta_p^A = \sum_{i=1}^n (w(S_i) \Delta_{S_i}^A)$$

This calculation derives a portfolio alignment score that shows the difference between a bank's measured portfolio intensity and the benchmark 1.5°C-aligned intensity associated with its portfolio for that year.

^{xiii} In line with the established Poseidon Principles methodology, if a secured financing covers multiple vessels, a weighting should be applied according to the debt outstanding designated to each vessel. See page 23 of *Poseidon Principles Technical Guidance – Version 5.0*.

3.6 Discussion: Challenges and Potential Future Work

Although the shipping sector is fortunate to have a global database of asset-level emissions (IMO DCS), data acquisition is the principal challenge to expanding the Poseidon Principles climate alignment assessment methodology to all on-balance-sheet lending. Because the recommendations in this section are intended to expand on the Poseidon Principles, they assume that reliance on IMO DCS data should be maintained and that the alignment of shipping corporations should be defined as the summation of the alignment of vessels that are operated and vessels that are owned, regardless of operation. This section reviews the data challenges of this approach, the future work that may be needed to overcome them, and an alternative methodological option that may become feasible through this future work.

Double Counting

Under the proposal in Sections 3.2–3.5, double counting is possible when a bank finances both a ship under a secured financing and its owning company separately and also when a bank provides separate financings to a vessel’s owner and operator. Although this is a concern for absolute emissions reporting, our recommendations focus on emissions intensity. The emissions intensity approach aims to ensure that the aggregated intensity reflects the actual portfolio composition and allows for a proportional representation of the financed vessels. Thus, the recommendations in this paper make no attempt to avoid double counting because it is recognized that if a bank’s portfolio has multiple exposures to the same vessel, then that vessel should have a higher weight in the portfolio alignment score.

Feasibility of Data Acquisition

Although sourcing IMO DCS data directly from clients has worked well for secured financings (i.e., tier 1), expanding to tiers 2–4 adds challenges. These challenges include feasibility of data acquisition (i.e., whether clients have the data and are willing to share it), the need to develop clear reporting guidance for clients built on emissions accounting standards to ensure that it is collected accurately, and the likely need to ease data collection. There are two potential pathways to overcoming these challenges:

- Ease collection of asset-level data. Developing client reporting guidance could make accurate, comparable data collection easier. If still based on IMO DCS data, this would require selecting on a scope (or tier) that is viewed as feasible to implement and developing clear guidance for clients based on emissions accounting standards. This would almost certainly have to be developed with the input of shipping corporations. Furthermore, developing a data collection template to provide a standardized framework for collecting data from clients could also ease the burden of data collection for both banks and clients. This approach has been employed under the Sustainable Steel Principles (SSP). The SSP also allow for the collection of data via a data provider. The use of a data provider could prove difficult in the shipping sector because of the difficulty of establishing ownership of vessels for the global fleet; implementation is likely to still require vessel-level information from clients.
- Develop an alternative approach for tiers 2–4 that collects summary information from shipping corporations, which enables the use of the fundamentals of the Poseidon Principles methodology without the collection of data for every underlying asset. This approach forms the basis for the high-level exploration of the alternative methodology below.

Until this work is undertaken, we recommend that — in line with the expectations of the NZBA Guidelines — banks are clear about which parts of the balance sheet their shipping targets cover. For banks with

heavy exposure to financings secured by vessels, the tiered approach should be helpful in establishing what is feasible to implement today. Such banks might also consider setting multiple targets for shipping portfolios, where an alternative methodology (e.g., financed emissions) is used for parts of the portfolio for which the Poseidon Principles climate alignment assessment methodology is infeasible to implement. For banks with heavy exposure to financings that are not secured by vessels, it may be appropriate to consider setting shipping targets initially using alternative approaches (e.g., financed emissions) that can more easily use data from the public disclosures of shipping companies.^{xiv}

Alternative Proposal for Future Work: Aggregated Fleet Metrics

This section discusses a proposal for future consideration. This proposal outlines aggregate data points that banks could collect from clients for calculating the alignment of unsecured balance sheet items (i.e., tiers 2–4) and a methodology for using these data points. Although the vessel-level data approach laid out above is more accurate and allows for a more precise assessment of alignment against the benchmarks, we explore this alternative in acknowledgment of current limitations.

This proposal effectively pushes the burden of calculations from bank to client, which could bring challenges in implementation. As such, we expect that the following would need to be developed to make it feasible to implement:

- Clear reporting guidance for clients. This guidance would need to be built around a clear definition of in-scope vessels. If this proposal were expanded to tier 4, considerable complexity would be added.
- Standard data collection templates.
- Some degree of assurance of calculations made by clients.
- Implementation at scale.

Step-by-Step Guidance for Alternative Proposal

This proposal offers a more consolidated method for data collection, shifting the focus from vessel-level metrics to fleet-level metrics. The approach maintains the same scope for vessels and clients as above (see Section 3.2) but changes the data points requested from clients, making the data collection process potentially more feasible and less burdensome.

Under this approach, when reporting on unsecured financings, banks could ask their clients to aggregate the data at the fleet level by vessel type, instead of sharing data for individual vessels. For the purposes of this guidance, “vessel type” refers to the 13 vessel types for which the Poseidon Principles provides benchmarks.

xiv Similar considerations should be taken by banks when deciding to set separate or combined financed and facilitated emissions targets under NZBA Guidelines version two.

Data points requested from clients with unsecured financing(s):

- 1. Total emissions (E_{total}):** Clients report the absolute emissions for their entire fleet for the year, disaggregated by vessel type.
- 2. Weighted average capacity ($W_{avg_weighted}$):** Clients provide a weighted average capacity (W) for their fleet, disaggregated by vessel type. The weighting factor would be the total annual distance traveled in nautical miles (T) by each vessel i . The weighted average capacity is calculated as:

$$W_{avg_weighted} = \frac{\sum_{i=1}^n (T_i W_i)}{\sum_{i=1}^n (T_i)}$$

- 3. Total annual distance traveled in nautical miles (T_{total}):** Clients report the total nautical miles covered by the fleet during the reporting period.

Because the client would be asked to disaggregate the above data points by vessel type, the banks would receive these three data points for sub-client-level fleets, or sub-fleets, where each sub-fleet represents all of the vessels of a specific type owned and/or operated by the client. A sub-fleet-level AER ($AER_{sub-fleet}$) can then be calculated as:

$$AER_{sub-fleet} = \frac{E_{total}}{(W_{avg_weighted} T_{total})}$$

The weighted average capacity figures could then be used to derive a tailored benchmark ($b_{sub-fleet}$) for each sub-fleet according to its vessel type, harmonizing with the Poseidon Principles vessel type-specific continuous benchmark curves.

Banks would then be able to calculate a sub-fleet level climate alignment score, as follows:

$$\Delta_{sub-fleet}^A = \frac{AER_{sub-fleet}}{b_{sub-fleet}} - 1$$

A client-level climate alignment score can then be derived by aggregating weighted sub-fleet climate alignment scores. As with the exposure weight in the main methodology proposal (see section 3.5), we recommend that banks weight the sub-fleets by the total annual distance traveled in nautical miles by all the vessels within the sub-fleet to reflect the actual use of the vessels. For company C , owner and/or operator of $sub - fleet_{i,c}$, a client alignment score could be calculated as follows:

$$\Delta_C^A = \sum_{i=1}^n (\Delta_{sub-fleet_{i,c}}^A \left(\frac{T_{total}(sub - fleet_{i,c})}{\sum_{i=1}^n (T_{total}(sub - fleet_{i,c}))} \right))$$

The above calculations yield a climate alignment score for clients with unsecured financing(s). For secured financings, the climate alignment score can be derived as per the current Poseidon Principles methodology.

Using this data, banks would be able to calculate an alignment score for their entire portfolio, as follows:

1. Calculate a client exposure weight using a similar methodology as described in section 3.5. For company C , the weight that will be used, $w(C)$, is the size of the financing provided to the client divided by the total size of the bank's shipping portfolio. The total size of the bank's shipping portfolio is defined as the sum of all secured financings added to the sum of the unsecured financings weighted by the share of the client's total revenue that is generated in the shipping sector. See section 3.5 for more detailed definitions and additional guidance.

For secured financings:

$$w(C) = \frac{D_{Sec}(C)}{\sum_{i=1}^n (D_{Sec}(C_i)) + \sum_{i=1}^n (V^{Sh}(C_i) D_{Unsec}(C_i))}$$

For unsecured financings:

$$w(C) = \frac{V^{Sh}(C) D_{Unsec}(C)}{\sum_{i=1}^n (D_{Sec}(C_i)) + \sum_{i=1}^n (V^{Sh}(C_i) D_{Unsec}(C_i))}$$

2. Calculate a portfolio-level alignment score, as follows:

$$\Delta_P^A = \sum_{i=1}^n (w(C_i) \Delta_{C_i}^A)$$

4. Target Scenario Selection

Because of the acknowledgment of the Poseidon Principles in the NZBA Guidelines and the unique role of the IMO in determining climate ambition for the shipping sector, target scenario selection requires additional consideration relative to other sectors. This section summarizes the NZBA Guidelines for scenario selection, discusses those guidelines, and then discusses their implications for the selection of scenarios for shipping portfolio target setting.



Summary of NZBA Guidelines on Scenario Selection^{11,xv}

- Banks shall use widely accepted science-based decarbonization scenarios to set both long-term and intermediate targets that are aligned with the temperature goals of the Paris Agreement.
- The scenarios selected shall be no-overshoot or low-overshoot scenarios (e.g., scenarios P1 and P2 of the *Special Report: Global Warming of 1.5C Summary for Policymakers* from the Intergovernmental Panel on Climate Change [IPCC]). Where committed to net zero, banks shall select only no- or limited-overshoot scenarios with a >50% probability of limiting global warming to 1.5°C by the end of the century.
- The scenarios used by banks shall come from credible and well-recognized sources, and banks should provide rationale for the scenario(s) chosen.
- IPCC scenarios and scenarios derived from IPCC-qualifying models that meet the criteria outlined below are strongly recommended.
- Scenarios such as those by the International Energy Agency (IEA) (e.g., Net Zero Emissions by 2050, or NZE2050) or sector-specific scenarios (such as the shipping decarbonization trajectories developed under the Poseidon Principles) may be used if the individual scenarios are expected to be aligned with the temperature goals of the Paris Agreement.
- There may be instances where selecting alternative regional sectoral scenarios is appropriate, such as when they provide greater regional granularity of the sphere in which bank clients operate, though this should occur only where regional scenarios are demonstrably equivalent to, or more ambitious than, alternative available pathways derived from net-zero targets.
- Current publicly available scenarios as of this writing that meet the objectives of the NZBA commitment include:
 - IEA's NZE2050 scenario
 - NGFS' net-zero scenarios
 - University of Technology Sydney's One Earth Climate Model
 - Principles for Responsible Investment's Inevitable Policy Response 1.5°C Required Policy Scenario
- The above list, however, is not exhaustive and does not include sector-specific or country-specific scenarios: if a scenario is published that meets the broader requirements of the target-setting guidelines and the net-zero commitment made by the bank, then a bank may select it. Other, for instance regional, scenarios that are not typically referred to as net-zero scenarios may be used provided they meet or exceed the level of ambition required for 1.5°C.

xv NZBA Guidelines version two clarify that targets should be set in line with 1.5°C as defined by AR6. The explicit mention of the Poseidon Principles scenarios has been removed from NZBA Guidelines version two. However, the use of sector-specific scenarios is allowed so long as they are aligned with 1.5°C and widely accepted. These changes do not materially impact our analysis.

4.1 Interpreting the NZBA Guidelines

The IPCC is the United Nations body for assessing the science related to climate change. The IPCC publishes assessment reports roughly every seven years as well as special reports outside of this cycle. The NZBA Guidelines were built on the recommendations of *Special Report: Global Warming of 1.5°C* (SR1.5), published in 2018.¹² The IPCC *Sixth Assessment Report* (AR6) was published in 2021–22 and provides the latest compilation of climate science.¹³ Because AR6 supersedes SR1.5, it is used to inform the discussion below where appropriate.

NZBA Guidelines indicate that scenarios selected for target setting shall be no overshoot or low overshoot. Similarly, the NZBA Guidelines state that the Poseidon Principles decarbonization trajectories may be used “if the individual scenarios are expected to be aligned with the temperature goals of the Paris Agreement.”¹⁴

Whereas SR1.5 refers to “no and low overshoot,” AR6 refers to “no or limited overshoot.” The meaning of the phrases is essentially equivalent. No and low overshoot refers to scenarios that SR1.5 categorizes as P1 and P2. P1 and P2 scenarios are global scenarios that have the following characteristics:

- Warming exceeds 1.5°C by up to about 0.1°C before 2100.
- Warming is limited to below 1.5°C with 50%–66% likelihood.

No or limited overshoot refers to scenarios that AR6 categorizes as C1. C1 scenarios are global scenarios that have the following characteristics:

- Warming exceeds 1.5°C by up to about 0.1°C for up to several decades this century.
- Warming is limited to 1.5°C by 2100 with a probability greater than 50%.

According to AR6, the corresponding global budget from 2020 onward for achieving 1.5°C with a 50% probability is 500 Gt CO₂ and for achieving 1.5°C with a 67% probability is 400 Gt CO₂. Thus, sectoral scenarios must be assessed against these global budgets.

However, several factors must be noted before attempting to interpret the alignment of sectoral scenarios using these global budgets: AR6 refers to a global CO₂-only budget, there are no SR1.5 or AR6 scenarios that achieve 1.5°C with a greater than 67% probability, and 50%–67% is a continuum associated with cumulative global CO₂ emissions from 2020 onward.

NZBA’s supporting notes indicate that “banks shall use scenarios applying ambition levels analogous to P1 and P2 scenarios of the IPCC, and not P3 and P4.”¹⁵

In SR1.5, P1 and P2 scenarios are representative of no- and low-overshoot scenarios, respectively, that minimize the use of negative emissions technologies and lean heavily on energy efficiency measures. In AR6, these kinds of scenarios belong to category C1.

NZBA’s reference to P1 and P2 scenarios is to ensure that targets are not set on scenarios that allow for higher CO₂ emissions in the short term on the assumptions that, in the long term, the difference is made

up through CO₂ removals via bioenergy with carbon capture and storage and the agriculture, forestry and other land use sector.^{xvi}

The NZBA Guidelines indicate that banks shall use widely accepted science-based decarbonization scenarios. No further clarification is given in the supporting notes.

Three shipping-specific scenarios are discussed below: IEA's NZE2050, the Poseidon Principles emissions intensity trajectories based on the 2023 IMO GHG Strategy, and the SBTi Maritime Guidance. Henceforth, each of these will be referred to as scenarios for the sake of clarity.

It is taken as a given that all scenarios meet NZBA's "widely accepted" and "P1 and P2 negative emissions" criteria. This judgment is made for the NZE2050 scenario because it is explicitly recognized in the NZBA Guidelines as compliant and is widely used. It is acknowledged, however, that the SBTi Maritime Guidance is highly critical of the 2021 NZE2050 shipping scenario in terms of overall level of ambition, underlying assumptions around retrofitting that limit ambition, and the use of biofuels.¹⁶ This should be considered by any financial institution that is considering use of the NZE2050 to set shipping portfolio targets.

This judgment is made for the Poseidon Principles scenarios because they are recognized by the NZBA Guidelines as compliant so long as they are aligned with the temperature goals of the Paris Agreement and they are used widely.^{xvii} This judgment is made for the SBTi scenario because of its rigorous development process.

4.2 Applying the NZBA Guidelines in Target Scenario Selection

This section discusses the 1.5°C alignment of the NZE2050, Poseidon Principles, and SBTi scenarios. Summary information for each scenario is provided in Exhibit 3.

IPCC scenarios are global and economy-wide. Because a CO₂ budget can only be associated with temperature rise on a global scale, establishing a sector carbon budget requires making assumptions about emissions reductions from other sectors as well. This is where the principal challenge lies.

There is no single methodology for dividing the remaining carbon budget between sectors or nations. Relative to other sectors, the maritime shipping sector has an additional complicating factor that must be considered when selecting a target scenario. The IMO, a specialized United Nations agency, is the sector's global regulator and is tasked with setting out and implementing GHG strategies. Its most recent climate strategy is referred to as the 2023 International Maritime Organization Greenhouse Gas Strategy (2023 IMO GHG Strategy).¹⁷

xvi This intent is better clarified in NZBA Guidelines version two.

xvii NZBA Guidelines version two do not mention the Poseidon Principles. However, because the Poseidon Principles scenarios are widely used, make no assumptions about negative emissions technology use, and are publicly available, our judgement is that they are compliant with NZBA Guidelines versions one and two so long as they are aligned with 1.5°C as defined by NZBA. This topic is discussed in this section.

Exhibit 3

Cumulative Emissions and Emissions Reductions Relative to 2020 Baseline

	2020-2050 Cumulative Emissions	Unit	Absolute Emissions Reduction 2020 - 2030	Absolute Emissions Reduction 2020 - 2040	Absolute Emissions Reduction 2020 - 2050
NZE	15.4	Gt CO ₂ TtW	13%	61%	86%
Poseidon Principles "IMO At Least"	17.4	Gt CO ₂ e WtW	18%	69%	100%
Poseidon Principles "IMO Striving"	15.2	Gt CO ₂ e WtW	27%	79%	100%
SBTi	12.2	Gt CO ₂ e WtW	36%	96%	100%

Note: IEA NZE2050 figures are calculated by RMI using the 2020 baseline figure taken from the 2021 version of IEA NZE2050; 2021, 2022, 2030, 2035, 2040, and 2050 figures taken from the 2023 *World Energy Outlook*; and applying linear interpolation between available figures. SBTi figures are taken directly from the SBTi Maritime Guidance. Poseidon Principles IMO At Least and IMO Striving figures are calculated by RMI using the methodology described in the Poseidon Principles technical guidance v5.0. This methodology is anchored in a 2018 baseline figure, which is taken from the *Fourth IMO GHG Study*. Poseidon Principles figures have been confirmed by UMAS.¹⁸

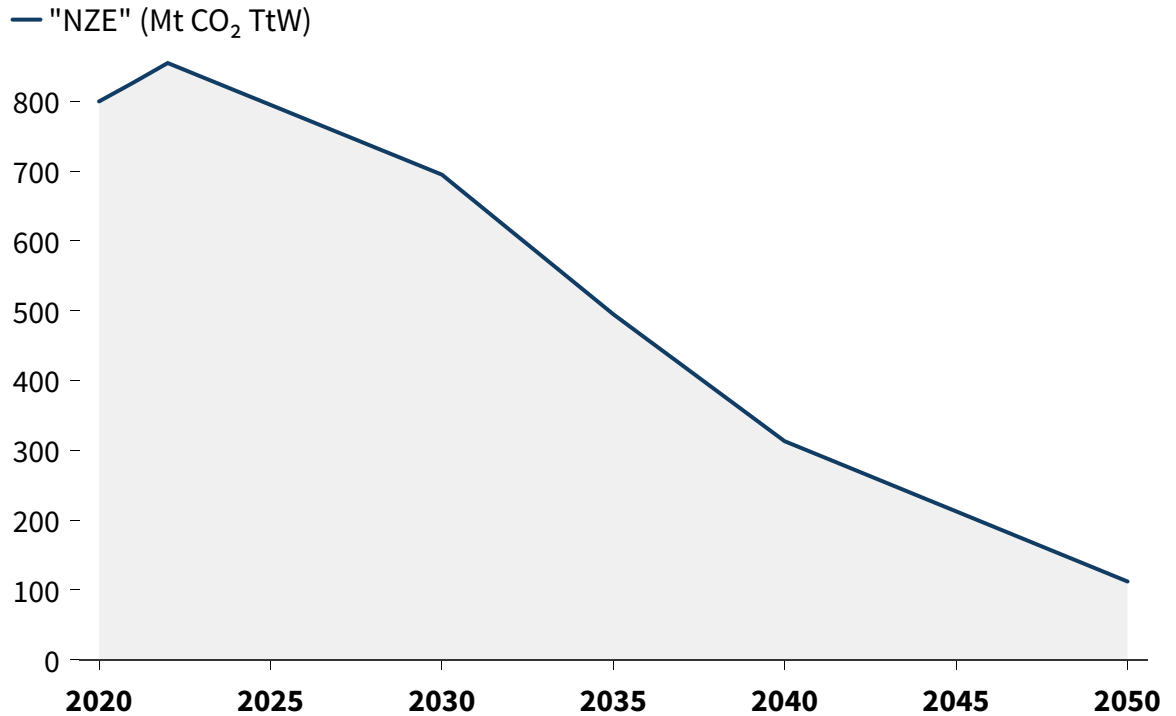
RMI Graphic. Source: RMI calculations using source data from IEA, Poseidon Principles Technical Guidance v5.0, and SBTi Maritime Guidance.

4.3 IEA NZE2050 Scenario

The NZE2050 scenario is characterized as a target-seeking scenario that “shows a pathway for the global energy sector to achieve net-zero CO₂ emissions by 2050, with advanced economies reaching net zero emissions in advance of others.”¹⁹ The NZE2050 scenario determines sector CO₂ budgets through modeling the global energy sector under a set of assumptions. The IEA states that the NZE2050 scenario is consistent with “limiting the global temperature rise to 1.5°C with at least a 50% probability ... in line with the recommendations of AR6.”²⁰

Exhibit 4

Annual Emissions of NZE Shipping Scenario



RMI Graphic. Source: RMI calculations based on data from IEA.

In the NZE2050 scenario, shown in Exhibit 4, 2020–50 cumulative emissions from the shipping sector are 15.4 Gt CO₂. To understand this figure, it is important to note two factors. First, the shipping sector does not reach zero emissions by 2050, implying that it continues to emit past that date. Second, NZE2050 is a CO₂-only scenario, so direct comparisons with cumulative CO₂e figures should not be made.

To enable comparison, Exhibit 3 provides emissions reduction relative to a 2020 baseline. This comparison indicates that the NZE2050 is less ambitious than the 2023 IMO GHG Strategy, as represented by the Poseidon Principles IMO At Least and IMO Striving scenarios. Thus, **although the NZE2050 scenario is recognized as compliant in the NZBA Guidelines themselves, it is less ambitious than the unanimously agreed-upon level of ambition for the shipping sector. We would recommend that any financial institution that chooses to set shipping portfolio targets using NZE2050 recognizes this and provides a justification for doing so.**

The NZE2050 scenario cannot be used with the Poseidon Principles climate alignment assessment methodology without significant modification.

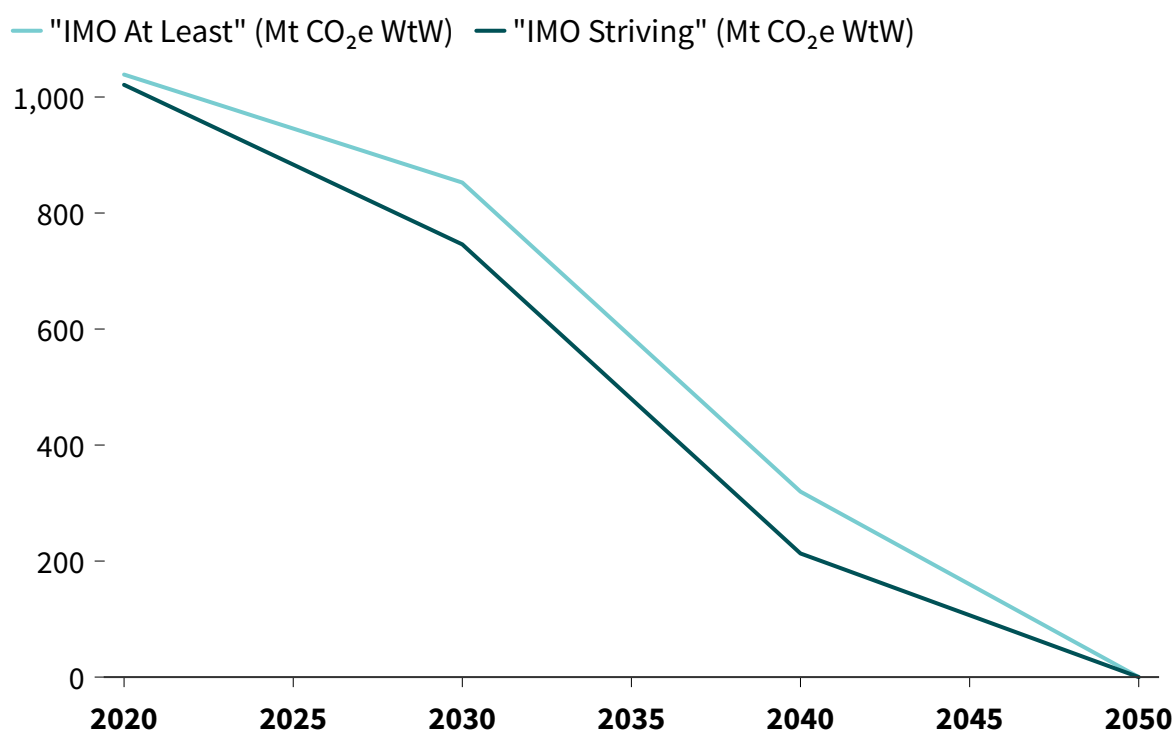
4.4 Poseidon Principles Scenarios

The Poseidon Principles scenarios were developed by UMAS, advisor to the Poseidon Principles Association. To create these scenarios, specific elements of the 2023 IMO GHG Strategy were translated into two separate GHG intensity trajectories: IMO At Least and IMO Striving. The IMO's indicative checkpoints are used to establish targets for 2030 and 2040. Regarding the indicative checkpoints, the 2023 IMO GHG

Strategy sets out the following: “to reduce the total annual GHG emissions from international shipping by at least 20%, striving for 30%, by 2030, compared to 2008; and to reduce the total annual GHG emissions from international shipping by at least 70%, striving for 80%, by 2040, compared to 2008.”²¹

The IMO’s intent to reach net-zero GHG emissions “close to 2050” is used to establish the 2050 target of 100% reduction relative to the 2008 baseline.²² The methodology that underpins these scenarios assumes that the emissions reductions implied by the 2023 IMO GHG Strategy begin in 2018 because this is the latest data available from the *Fourth IMO GHG Study*. A full explanation can be found in the Poseidon Principles technical guidance v5.0.²³

Exhibit 5 Annual Emissions of Poseidon Principles IMO At Least and IMO Striving Scenarios



RMI Graphic. Source: RMI calculations based on Poseidon Principles Technical Guidance v5.0.

As depicted in Exhibit 5, the 2020–50 cumulative emissions for the IMO At Least scenario are 17.4 Gt CO₂e WtW, and for the IMO Striving scenario they are 15.2 Gt CO₂e WtW.^{xviii} The use of a 2008 baseline for emissions reductions targets is due to the IMO’s use of 2008 as its baseline for the 2023 IMO GHG Strategy. Exhibit 3 provides reduction percentages relative to a 2020 baseline to enable easier comparison of scenarios.

^{xviii} RMI calculations confirmed by UMAS.

Because the Poseidon Principles' scenarios were derived from a political agreement instead of being developed inside of a whole-economy model or derived from specific findings of the IPCC, establishing 1.5°C alignment requires comparing 2020–50 cumulative emissions with available reference points. For this, there are two approaches to consider.

Under the first approach, because the NZE2050 scenario is recognized by NZBA as compliant and both the IMO At Least and IMO Striving scenarios are more ambitious, both scenarios are likely to be considered compliant with the NZBA Guidelines. This view is compliant with the NZBA Guidelines and similar to that employed by SBTi in its 2021 pan-sector *Pathways to Net-Zero* report.²⁴ However, it is somewhat awkward in application because it relies on a scenario that has greater 2020–2050 cumulative emissions than the 2023 IMO GHG Strategy, which represents the unanimously agreed-upon minimum level of ambition for the shipping sector, to determine the 1.5°C-aligned emissions budget for the shipping sector.

The second approach is to evaluate alignment with 1.5°C by comparing scenarios' CO₂ budgets with a proportion of the global CO₂ budget. This approach has been employed in previous analyses and is rooted in the unique nature of the shipping sector itself: the sector has a global regulator that sets out GHG strategies for the sector that are rooted in a historic baseline. There is no standard way to make this assessment, but in general such analysis relies on the assumption that the shipping sector's share of the global CO₂ budget should be proportional to its share in a given year. The challenge with applying this second approach is that several assumptions must be made to do so. These include the following:

- **Establishing the global CO₂ budget:** AR6 establishes that from 2020 onward, the global budget for achieving 1.5°C with a 50% probability is 500 Gt CO₂ and the global budget for achieving 1.5°C with a 67% probability is 400 Gt CO₂. NZBA Guidelines state that “banks shall only select no or limited overshoot scenarios with a >50% probability of limiting global warming to 1.5°C by the end of the century,”²⁵ which is aligned with the AR6 definition of C1 scenarios. Recent analyses of the 2023 IMO GHG Strategy by the International Council on Clean Transportation (ICCT) and UMAS used a 400 Gt CO₂ budget.²⁶ Analysis by Bullock et al. used a 500 Gt CO₂ budget.²⁷
- **Selecting a baseline year to set shipping's proportional share of the global CO₂ budget:** Because shipping emissions represent a different proportion of global CO₂ emissions year over year, the selection of a baseline year affects what can be considered a 1.5°C-aligned CO₂ budget for the shipping sector itself. There is no standard approach for selecting a year to set shipping's proportional share of the global CO₂ budget. The IMO's Initial and 2023 GHG strategies use 2008 as a baseline. ICCT uses recent data from the *Fourth IMO GHG Study* to do so.²⁸ Bullock et al. suggest using 2008 or 2022 to set shipping's proportional share, but use a slightly different measure (i.e., voyage-based emissions).²⁹
- **Converting between CO₂e WtW to CO₂ tank-to-wake (TtW) to enable comparison of budgets:** AR6 establishes a CO₂ budget. The Poseidon Principles scenarios include other GHGs and a WtW emissions boundary (i.e., they measure CO₂e WtW). Thus, a conversion is necessary to evaluate the alignment of the Poseidon Principles scenarios with 1.5°C. ICCT's approach, for example, is to estimate the ratio of CO₂e WtW to CO₂ TtW emissions for international shipping based on fuel use in the *Fourth IMO GHG Study*. This gives a result of 1.21-to-1. This is then used to establish a 1.5°C-aligned WtW CO₂e budget against which the IMO's 2023 GHG Strategy is evaluated.³⁰
- **Estimating emissions from 2019 to 2023:** 2018 is the last year for which the *Fourth IMO GHG Study* provides data, thus it is necessary to estimate emissions from the shipping sector from 2019 to 2023

to evaluate the alignment of Poseidon Principles scenarios with 1.5°C. Different approaches exist for doing so. UMAS's approach, which underpins the Poseidon Principles scenarios, is to start the emissions reductions implied by the 2023 IMO GHG Strategy in the latest available data (i.e., 2018).³¹ ICCT's approach is to project annual emissions growth of 1.3% up to 2023 and then begin the emissions reductions implied by the 2023 IMO GHG Strategy.³² Bullock et al. estimate 2022 emissions using data from the IEA.³³ Because these different approaches produce different figures for 2020–23 emissions, they influence cumulative emissions of the scenarios or IMO GHG strategies being evaluated.

Under this second approach, it is difficult to consider the Poseidon Principles IMO At Least scenario in line with 1.5°C. It may be possible to consider the Poseidon Principles IMO Striving scenario aligned with 1.5°C under favorable assumptions. These assumptions include a favorable methodology for estimating 2020–23 emissions, a 500 Gt global CO₂ budget, and a relatively favorable baseline year with which to set the shipping sector's proportion of that global CO₂ budget selected from the third or fourth IMO GHG Study.

This analysis is intended neither to definitively resolve whether the 2023 IMO GHG Strategy is aligned with 1.5°C nor to specify the degree to which it is aligned. Instead, it seeks to provide clarification — in full recognition of the assumptions required to do so — to support the selection of target scenarios under NZBA Guidelines. Furthermore, any conclusions about the alignment of the Poseidon Principles scenarios using such a methodology are highly sensitive to whether immediate GHG reductions are made in the shipping sector.

The Poseidon Principles trajectories can be used without modification with the current Poseidon Principles technical guidance v5.0.

For the sake of clarity, the Poseidon Principles scenario derived from the Initial IMO GHG Strategy, which is available in the Poseidon Principles technical guidance v4.2, cannot be considered aligned with net zero or 1.5°C. It is therefore incompatible with the NZBA Guidelines.

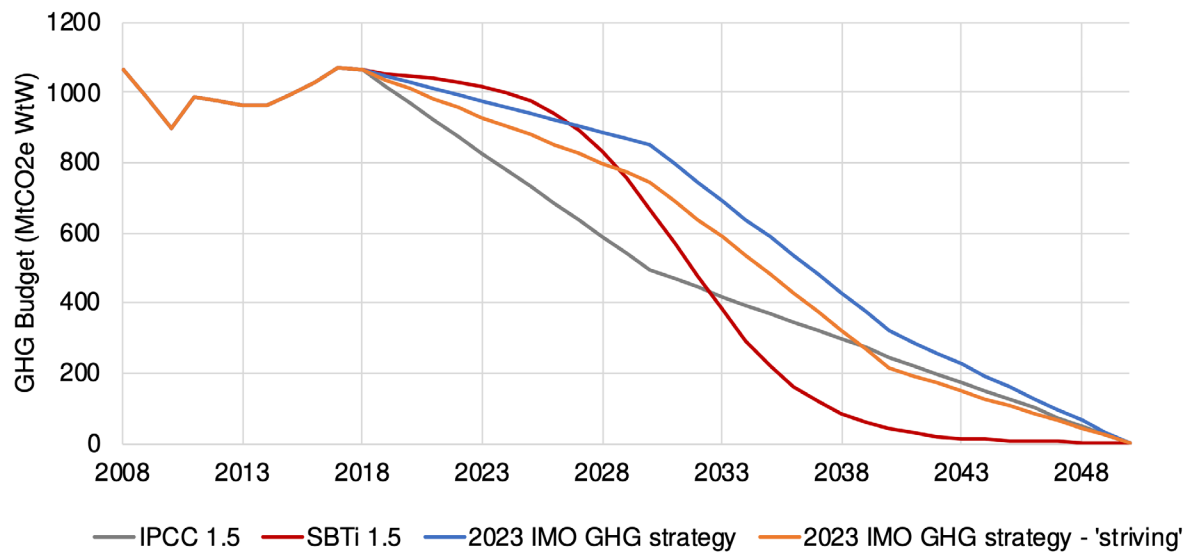
4.5 SBTi Maritime Guidance

The Maritime Guidance sets out the SBTi requirements for target setting in the maritime sector.^{xix} The primary audience for this guidance is shipping corporations.

xix SBTi Maritime Guidance was developed by World Wide Fund for Nature (WWF) on behalf of SBTi, with support from Smart Freight Centre and UMAS.

Exhibit 6

Annual Emissions of SBTi Scenario and Other Scenarios



Source: UMAS, <https://www.u-mas.co.uk/wp-content/uploads/2023/09/UMAS-MEPC-80-implications-of-the-IMO-GHG-strategy.pdf>

SBTi's scenario development process started by determining a 1.5°C-aligned emissions budget for the sector. This was computed by establishing two phases of linear reduction in shipping emissions: 2018 to 2030 and 2030 to 2050. These linear reduction phases aligned with the following finding of SR1.5: "In [global] model pathways with no or low overshoot of 1.5°C, global net anthropogenic CO₂ emissions [from all sectors combined] decline by about 45% from 2010 levels by 2030 (40–60% interquartile range), reaching net zero around 2050 (2045–2055 interquartile range)."³⁴

The 2010 baseline for the shipping sector was established using a 2010 CO₂e TtW emissions figure from the *Third IMO GHG Study*, which was converted to WtW emissions. This scenario, IPCC 1.5 in Exhibit 6, was associated with 2020–50 cumulative emissions of 12.2 Gt CO₂e WtW. Following consultation, the shape of the scenario was changed, but the 2020–50 cumulative emissions remained the same at 12.2 Gt CO₂e WtW. This produced the SBTi 1.5 scenario in Exhibit 6, which underpins the SBTi Maritime Guidance.³⁵

Thus, rather than establishing 1.5°C alignment by comparing the cumulative emissions of the SBTi scenario with those of whole-economy models (e.g., NZE2050) or with the shipping sector's share of global emissions in a specific baseline year, the SBTi Maritime Guidance establishes 1.5°C alignment by applying the necessary global rate of emissions reductions from all sectors — as defined by SR1.5 — to the shipping sector's 2010 CO₂e WtW emissions. Because of this, it is not necessary to evaluate the alignment of the SBTi scenario using another method. If the second approach from Section 4.4 were to be applied to the SBTi scenario, it would indicate that the SBTi scenario is unambiguously aligned with 1.5°C.

The SBTi Maritime Guidance is likely to be difficult to implement for financial institution target setting. The SBTi Maritime Guidance is built around the EEOI metric, whereas the Poseidon Principles climate alignment assessment methodology is built around the AER metric. The Poseidon Principles rely on IMO DCS data to calculate AER, but there is no similar source of verified data at global scale to implement EEOI-based targets.

AER-calibrated SBTi Maritime Guidance trajectories were provided to Poseidon Principles signatories in 2023. The 2020–50 cumulative emissions associated with these trajectories are identical, but the intensity figures are different due to the use of proxy cargo values. These AER-calibrated SBTi Maritime Guidance trajectories can theoretically be used with an older version of the methodology, which is outlined in Poseidon Principles technical guidance v4.2.^{xx} Should data become available through the IMO DCS to use the EEOI metric for target setting, we would recommend that financial institutions do so.

xx Because no scenario explanation has been published, it may be difficult for banks to assure targets set using AER-calibrated SBTi Maritime Guidance trajectories. This may limit the usability of this scenario in practice.

Appendix

Example Calculation

An example calculation is provided below. Exhibits 7 to 10 apply the methodology described in Sections 3.2–3.5. Calculations are made using a simplified hypothetical portfolio. Using the Poseidon Principles excel tool, the same calculations could be performed for a future year (e.g., 2030) to identify an interim shipping portfolio intensity target.

Exhibit 7

Step 1, Identify In-Scope Clients and Vessels

Client	Vessel	Vessel Type	Capacity (DWT)	Annual Distance Traveled (nm)	Emissions (gCO ₂ e WtW)
Client #1	Vessel #1	Chemical Tanker	25,665	78,736	20,808,722,975
Client #2	Vessel #2	Bulk Carrier	39,264	92,712	16,958,454,057
Client #2	Vessel #3	Bulk Carrier	42,298	68,686	18,145,337,954
Client #3	Vessel #4	Oil Tanker	30,283	41,117	12,747,587,704
Client #4	Vessel #5	Oil Tanker	64,809	41,977	18,817,335,254
Client #4	Vessel #6	Oil Tanker	94,800	43,061	19,853,352,027
Client #4	Vessel #7	Oil Tanker	46,758	83,359	35,423,700,045
Client #4	Vessel #8	Chemical Tanker	24,733	30,385	9,568,686,729

Exhibit 8

Step 2, Identify In-Scope Balance Sheet Items

Financing	Exposure Type	Client	In-Scope Vessels	Loan Size (mm)	Shipping Revenue (% of total)	Revenue Adjusted Exposure (mm)
Financing #1	Secured	Client #1	Vessel #1	80	100%	80
Financing #2	Secured	Client #2	Vessel #2	175	80%	175
Financing #3	Secured	Client #2	Vessel #3	50	80%	50
Financing #4	Secured	Client #3	Vessel #4	250	50%	250
Financing #5	Secured	Client #4	Vessel #5	30	100%	30
Financing #6	Unsecured	Client #4	Vessel #5, #6, #7, #8	500	75%	375

Exhibit 9

Step 3, Assess In-Scope Vessels

Financing	Emissions Intensity (gCO ₂ e/capacity-nm)	2023 IMO Striving Benchmark (gCO ₂ e WtW/capacity-nm)	Alignment Score
Vessel #1	10.30	11.16	-8%
Vessel #2	4.66	5.64	-17%
Vessel #3	6.25	5.39	16%
Vessel #4	10.24	11.51	-11%
Vessel #5	6.92	6.70	3%
Vessel #6	4.86	5.12	-5%
Vessel #7	9.09	8.46	7%
Vessel #8	12.73	11.45	11%

Exhibit 10

Step 4, Calculate Portfolio Alignment

Financing	Revenue and Distance Adjusted Exposure	Vessel Exposure Weight
Vessel #1	80	8%
Vessel #2	175	18%
Vessel #3	50	5%
Vessel #4	250	26%
Vessel #5	109	11%
Vessel #6	81	8%
Vessel #7	157	16%
Vessel #8	57	6%

Portfolio alignment

-4.0%

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