GETTING TO ZERO COALITION
GLOBAL MARITIME FORUM

Getting to Zero Coalition Action Framework:

Documenting actions towards decarbonising shipping

2026 EDITION

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This report has been produced by the Global Maritime Forum for the Getting to Zero Coalition. The Global Maritime Forum would like to thank the participants of the Getting to Zero Drafting Group and Reference Group for their contributions to the development of the framework, as well as the Getting to Zero Coalition Strategy Group for their initial ideas and reflections.

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Executive summary

The second edition of the Getting to Zero Coalition Action Framework provides a snapshot of how Coalition members are advancing the transition to zero-emission shipping. With 95 submissions this year—86 from industry members and nine from supporting organisations—participation has grown.

The Action Framework serves as a tool for transparency, accountability, and shared learning. It documents progress across 25 action areas spanning first-mover activity, transition investments, enabling conditions, market-making, and early deployment. This year's results show modest but meaningful improvement across most categories, with average scores rising in both universally applicable and segment-specific actions.

Coalition members continue to lead the wider maritime industry, particularly in progress reporting, policy engagement, and financial transparency. These areas require limited capital expenditure but are critical in shaping the environment needed for long-term investment. Pilot and demonstration activity also remains strong, with several companies moving into early commercial deployment.

However, the Coalition and the wider maritime sector face systemic bottlenecks that require deeper commercial commitments. Green corridors, zero-emission retrofits, offtake agreements, and green premium shipping services remain in early stages, reflecting uncertainty around fuel availability, fuel costs, and the adoption of the International Maritime Organization's (IMO) Net-Zero Framework (NZF). Across the value chain, companies are reluctant to make irreversible decisions without clearer demand signals and increased predictability.

Looking ahead, this report outlines several recommendations. Industry actors should explore alternative pathways to commercialise zero-emission shipping, including innovative cost-sharing structures, early engagement with charterers and cargo owners, and advocacy for targeted support from national governments. Moreover, there are opportunities for various actors across the value chain to take on a stronger convening role, whether by helping to aggregate demand, coordinating shared infrastructure planning, or exploring demand-pooling and more flexible offtake arrangements that can lower early-stage risks. The industry should adopt a phased approach to project development, ensuring transparency, verification, and early alignment with certification bodies and financiers, to make investments more resilient. Finally, the industry must explore and leverage existing regulatory frameworks already driving the transition, i.e., FuelEU Maritime and the expanded scope of the EU Emissions Trading System (EU ETS). At the policy level, governments must establish a stable, predictable regulatory environment aligned with the IMO's greenhouse gas (GHG) reduction strategy, invest in research and development, certification, and early deployment of new fuel options, and develop harmonised training standards for seafarers. These actions will help narrow cost gaps, reduce risk, and give the industry the confidence to invest at scale.

Introduction

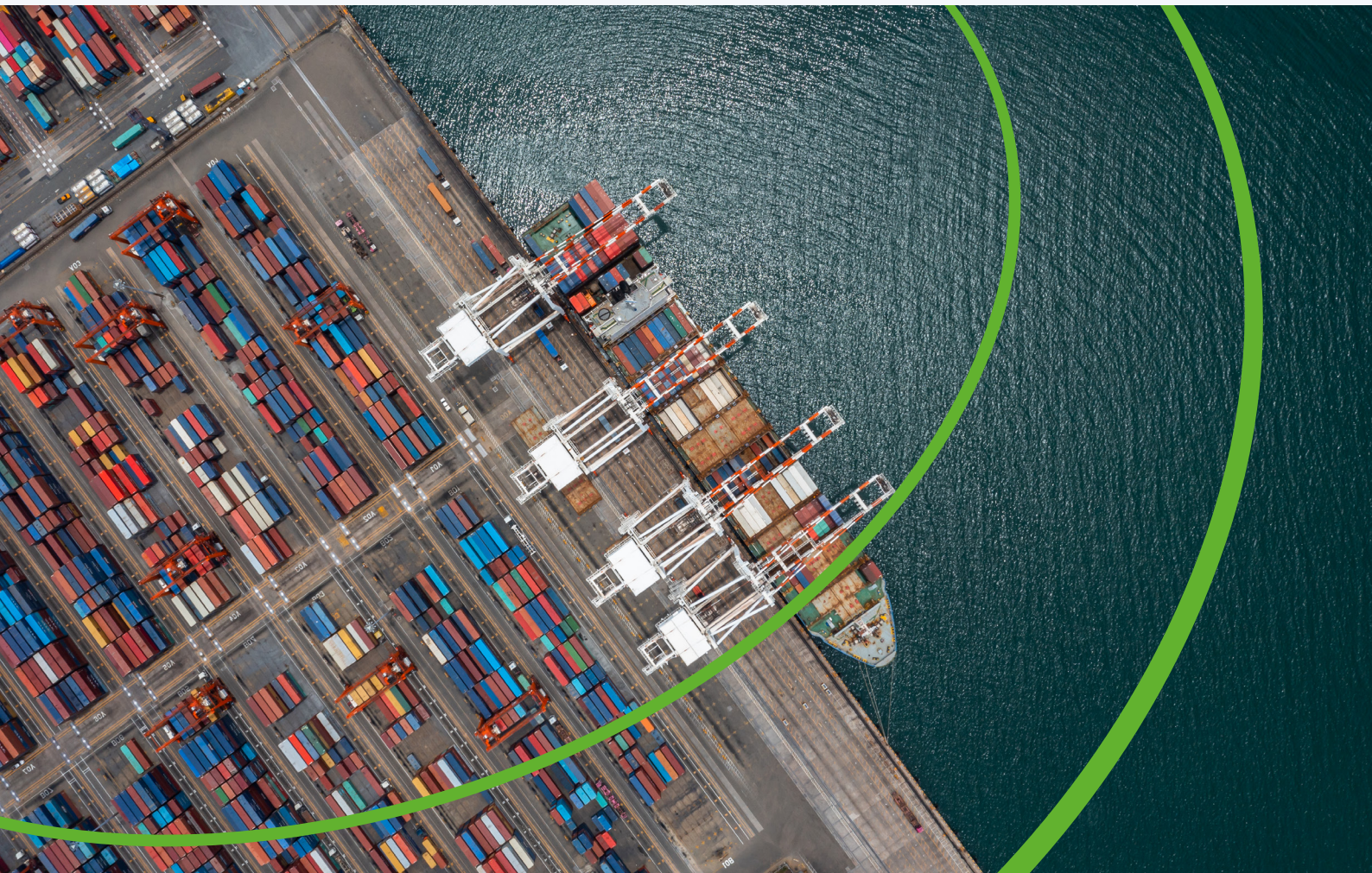
Since its launch in 2019, the Getting to Zero Coalition has expanded to over 200 companies, governments, and international organisations working together towards a shared ambition of getting commercially viable zero-emission vessels powered by zero-emission fuels into operation by 2030. Over the past seven years, Coalition members have contributed to shaping global and regional policy, advanced green corridor initiatives, and supported the early deployment of zero-emission fuels and vessels.

2025 was a pivotal year in shipping's energy transition. IMO Member States approved the NZF in April but subsequently decided to delay a vote on its official adoption. Although the October postponement has created continued uncertainty, the 2023 GHG strategy and the sector's overall trajectory toward zero-emission shipping remain clear. For the Getting to Zero Coalition, the delay only underscores the importance of its ambitions, particularly in maintaining dialogue and remaining innovative across the maritime value chain. Now more than ever, Coalition members benefit from learning from one another, sharing challenges, identifying opportunities, and reinforcing the best practices that will move the industry forward.

The Action Framework was developed to explore the Coalition's progress towards its shared ambition while highlighting emerging best practices and key barriers across the industry. The Framework includes a tiered scoring method and 25 action areas that evaluate activities ranging from policy engagement and market-making to technology development, fuel production, and vessel deployment.

In this second edition, participation has increased, with 95 submissions received from industry members, and supporting organisations. While this still represents less than half of the Coalition, the expanded dataset provides a clearer, more diverse picture of where progress is accelerating and where challenges remain.

The report continues to serve several core purposes: increasing transparency across the Coalition, highlighting first movers and emerging best practices, supporting accountability, and inspiring further action. It also aims to inform how the Coalition will evolve in the coming years, including potential strategy updates. With strengthened data and a broader set of examples, this edition provides a deeper understanding of how members are helping to unlock the enabling conditions, early markets, investment flows, and deployment pathways needed to achieve the sector's ultimate goal of reaching net-zero emissions by 2050.



Scope

This report showcases the actions Getting to Zero Coalition members are undertaking to support their shared ambition. It aims to serve not only as a benchmark for members but also as a dynamic, evolving resource that other organisations and coalitions can reference for inspiration in advancing toward the IMO's GHG strategy.

The scope of the report encompasses all industry members of the Getting to Zero Coalition. As a new addition this year, it has also expanded to the Coalition's supporting organisations.

The Global Maritime Forum, which manages the Getting to Zero Coalition, received 95 submissions in total: 86 submissions from company organisations and nine from supporting organisations. Of the 86 company submissions, seven were blank and were therefore excluded from the data analysis.[1] This left 79 valid company submissions. This represents slightly less than half of the total Coalition membership, which limits the comprehensiveness of the results. However, as this is only the second edition and submissions have increased compared to last year, there is an indication that this number will grow year on year.

Analysis of all actions

Since members of the Coalition are active across multiple segments of the shipping value chain, the input was categorised across eight main segments. Overall, 36 companies active in ship ownership, operation, and management provided input. In addition, responses were received from three classification societies, 11 energy producers, seven financial institutions and insurers, seven cargo owners, freight forwarders, and customers, 12 ports and terminals, and seven shipbuilders/equipment and technology providers. Responses came from companies headquartered in 27 different countries.

For the six actions applicable to all, the Coalition-wide scores ranged from a low of 19% of the possible maximum (green corridors) to a high of 65% (progress reporting)[2]. The overall range improved from last year, with the lowest-performing action rising by 3% and the highest by 2%. The average score for these six actions was 49%, which is 5% higher than last year.

Nineteen actions were applicable only to certain segments of the value chain. For these, the Coalition-wide scores ranged from a low of 9% of the possible maximum score (zero-emission retrofitting). On the high end, scores rose from 67% last year to 86% (transparency in ship finance). The average score across these actions was 37%, which represents about a 10% increase from last year.

The overall results from the second edition of the Action Framework show modest improvement; however, there is certainly still work to be done. Scores below 50% reflect actions that are still in their early stages. Because the actions were not benchmarked against a defined expectation of where leading companies "should" currently be, average scores below 50% may still represent leading practice relative to the sector's development.

Shipping's energy transition won't happen overnight. Technical and commercial barriers in the wider ecosystem still limit companies' progress. At the same time, the prolonged uncertainty at the IMO affects ambition across several areas. Throughout the report, a persistent underlying narrative suggests that policy uncertainty is creating a "wait and see" stance across much of the industry. Even before the NZF delay, companies repeatedly highlighted that the absence of a clear global direction makes it risky to commit to long-term fuel pathways or invest in assets that could become stranded. Many are eager to move, but fear locking into the wrong technology or betting on a fuel that may not be available at scale. Because many submissions were made just before or immediately after the October 2025 decision to delay a vote on adoption of the NZF, the full impact is not yet visible in the action-specific results. What can be inferred, however, is that the delay may very well reinforce the underlying hesitation already evident in the data. The implementation of the NZF will not necessarily solve the challenges of the energy transition, but it will clear much of the fog, providing better visibility of what comes next.

1 Coalition members were given the option to submit a blank form if they had no progress to report. Doing so confirms their continued commitment to the Coalition, even if they have no updates yet.
2 See Appendix for explanation of scoring system.

Initial impressions

The assessed actions can be seen from a transition perspective: from creating enabling conditions to deploying zero-emission shipping globally through market-making, niche initiatives, and early investments in human and physical capacity. For each action, different parts of the value chain show different levels of progress.

FIGURE 1

Actions in a transition perspective. For each action, the range of scores reflects the differences between relevant segments, so that actions with a single colour are generally most relevant for a single part of the value

As in the first edition of the Framework, the most ambitious actions (green) again sit in areas focused on creating enabling conditions—important work but generally not the kind that requires major capital commitments or commercial risk. There is also strong forward movement on certain incentives and market-making efforts, especially around port incentives and transparency in ship finance.

Where deeper investment is needed, progress is slower. Coalition members continue to fund their own pilot and demonstration projects. Still, action in areas closer to markets and commercial activities—green corridors, zero-emission shipping services, and zero-emission retrofitting—remains limited. Moving from pilots to full commercialisation is far from straightforward, and many organisations are struggling with that step.

Some companies have started investing in their own assets despite regulatory uncertainty, including infrastructure for alternative fuels and orders for dual-fuel vessels, and while the Coalition has fewer members active on the fuel production side, several of those projects are already at advanced stages.

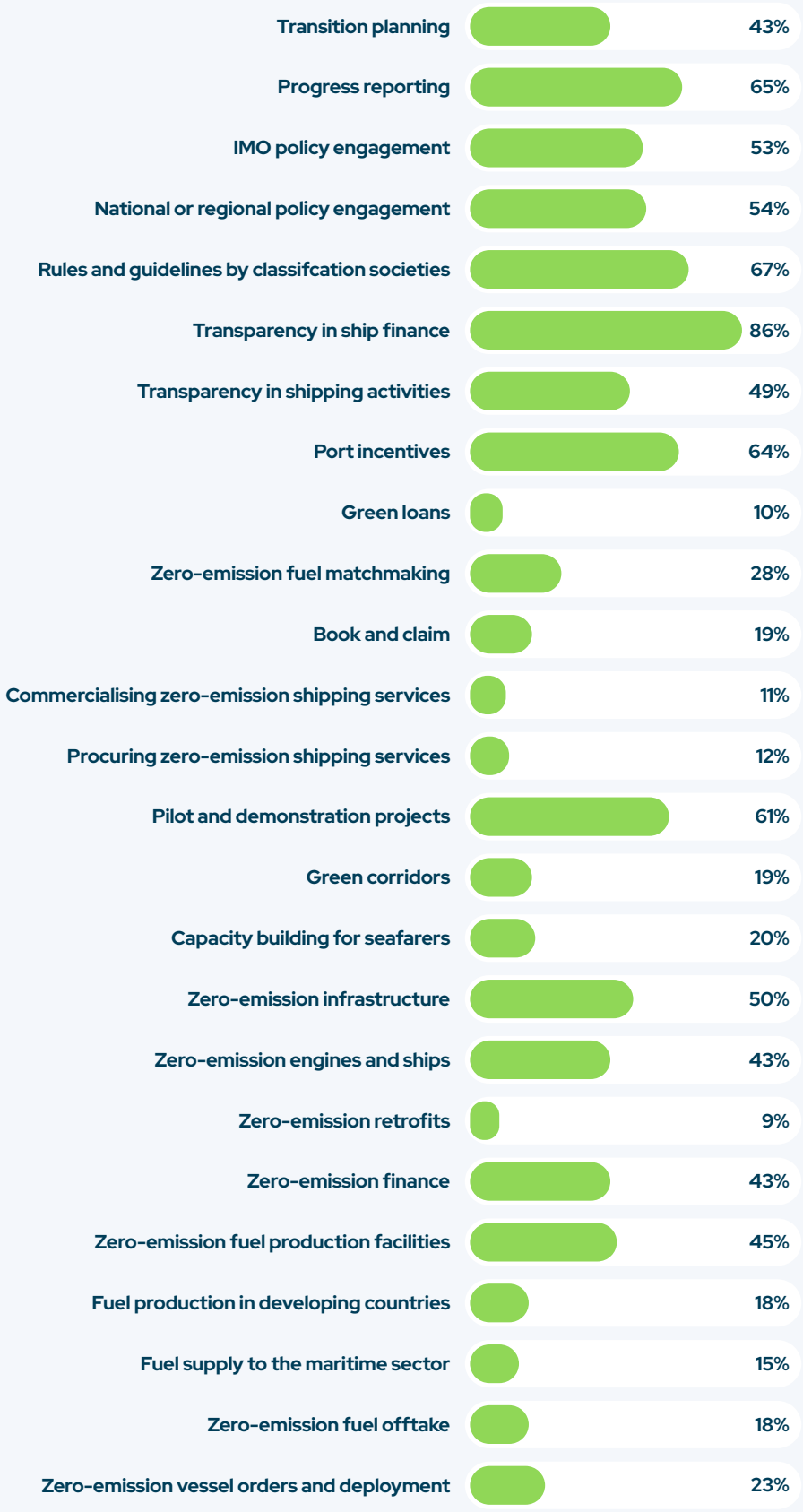


FIGURE 2

The Getting to Zero Coalition's progress compared to the wider industry

Since 2021, the annual Climate Action in Shipping: Progress Toward Shipping's 2030 Breakthrough report has assessed industry-wide progress across the global maritime value chain and tracked whether industry actions are aligned with achieving the 2030 breakthrough of 5–10% scalable zero-emission fuels (SZEFs). As this report provides an industry-wide perspective, it can serve as a (limited) benchmark for the Action Framework, which focuses specifically on the progress of Coalition members towards both the 2030 target and full decarbonisation by 2050.

Both reports highlight the importance of policy certainty as a prerequisite for large-scale decarbonisation. Unfortunately, the 2025 decision to postpone the vote on the NZF has led to continued uncertainty around mid-term measures, life cycle assessment of fuels, and the overall timing of the transition. That said, Coalition members are increasingly active in shaping the policy environment by engaging at the IMO and at national and regional levels, demonstrating their willingness to continue working to create the conditions necessary for investment, particularly those tied to bankability and long-term cost predictability.

Regarding deployment and supply-side progress, the Coalition appears broadly aligned with the wider industry. Both assessments note that zero-emission engine development is partially on track; this alignment is unsurprising given that several major engine developers are Coalition members. Fuel production remains limited at both the Coalition and global levels due to the same structural constraints, most notably the absence of strong, reliable demand signals. There is greater divergence between the reports regarding vessel ordering. While the Climate Action in Shipping report concludes that global zero-emission vessel orders are not on track, the Action Framework shows comparatively stronger progress among Coalition members, with many having already ordered dual-fuel or zero-emission-ready ships.

A similar pattern emerges when diving into first-mover activity and niche markets. Both reports find that actors across the sector are willing to pilot new technologies but remain hesitant to commit to long-term contracts or irreversible commercial decisions due to a lack of a clear business case. Coalition members mimic some of this behaviour; however, a handful of Coalition projects are already shifting from demonstration to early commercial operation, putting them in a better position once enabling conditions mature. Despite this, both the Action Framework and the Climate Action in Shipping report identify similar bottlenecks: weak and uneven willingness to pay for premium zero-emission services, low rates of offtake commitment, and limited retrofit activity. These challenges continue to undermine supplier confidence and delay final investment decisions on both fuels and vessels.

When it comes to incentives and market-making, Coalition members generally exhibit greater transparency than the wider industry. Both assessments note minimal uptake of sustainability-linked loans, largely due to the prevalence of dual-fuel ships that retain the option to operate on fossil fuels, which makes lenders less able to offer favourable terms. Coalition ports, however, appear to be moving quicker than the wider industry in developing zero-emission-ready infrastructure and offering incentives. Although demand aggregation and matchmaking among fuel producers, vessel operators, and ports are still at an early stage, these ports are emerging as important conveners for future zero-emission corridors and bunkering hubs.

Industry recommendations

1

In the face of policy uncertainty, maritime companies should explore alternative pathways to commercialise zero-emission shipping, such as innovative cost-sharing structures, and advocate for targeted support from national governments. For shipowners, this includes early engagement with charterers about operating vessels on alternative fuels and with cargo owners on cost-sharing and willingness to pay. These actions help strengthen the business case and build policymakers' confidence to adopt more ambitious measures.

2

Specific segments across the value chain should explore what additional role they can play in accelerating the energy transition. For example, ports can convene stakeholders to coordinate demand aggregation and shared infrastructure planning, helping to streamline offtake and reduce the size of the initial cost gaps. Fuel producers can provide support by exploring demand pooling or other innovative offtake structures that lower buyers' risk.

3

Maritime organisations should adopt phased development approaches that strengthen project resilience by embedding transparency, credibility, and verification from the outset. Early alignment with certification bodies, financiers, offtakers, and strategic partners helps reduce uncertainty, spread risk, and create the stable foundations needed for long-term investment and scale.

4

The maritime industry should explore and leverage existing regulatory frameworks that have started driving the transition. For example, the first year of FuelEU Maritime and the expanded scope of the EU ETS have helped spark a new approach to investment across many shipping companies, challenging conventional ways and introducing new commercial arrangements. Exploring regulatory drivers such as carbon pricing, credit trading, and multipliers,[3] combined with long-term fuel price and availability projections, can support companies' transition planning.

3 A multiplier is an incentive mechanism that increases the credited amount of a fuel. With a multiplier of 2, one unit of Renewable Fuel of Non-Biological Origin (RFNBO) used counts twice toward compliance with GHG intensity targets, reducing both the volume required and the relative cost these fuels.

Policy recommendations

1. The most important policy lever remains a stable and predictable regulatory environment at the IMO that gives companies the confidence and clarity to make long-term investments. Clear timelines, consistent rules, and durable carbon-pricing frameworks help reduce financial risk and unlock private capital for the transition.

2. Governments should ensure that national strategies actively support the development and maturation of fuels that are not yet commercially available. By investing in research and development, certification, and early deployment of new fuel options, policymakers can reduce uncertainty, narrow cost gaps, and give the industry the confidence to invest without fear of backing the wrong solution.

3. Policymakers should create harmonised training standards that equip seafarers with the skills needed to safely handle emerging fuels. Clear guidance reduces uncertainty for companies and accelerates safe operational adoption.

Methodology at a glance

This report assesses progress across five transition categories: creating enabling conditions; incentives and market-making; first-mover and niche-market development; transition investments; and the deployment of zero-emission shipping. These areas are further broken down into 25 individual actions, with five in each category.

The reporting period opened in September 2025, using a structured submission form and a four-tier scoring system. Results were aggregated by company, action, category, and segment. Multiple reviewers conducted all assessments to ensure consistency, and confidentiality was maintained throughout, with examples included only with explicit consent.

Creating enabling conditions

Creating enabling conditions

AVERAGE SCORE 56%

Companies can contribute to the transition to zero-emission shipping by creating enabling conditions for change, whether internally through target-setting, transition planning, and reporting, or externally through advocacy and input into policies, rules, and guidelines. Coalition members were asked to provide information on five actions in this area, most of which were relevant to the broadest range of members and thus received the most responses.

TRANSITION PLANNING | PROGRESS REPORTING | IMO POLICY ENGAGEMENT | NATIONAL OR REGIONAL POLICY ENGAGEMENT | RULES & GUIDELINES BY CLASSIFICATION SOCIETIES

NO ACTION — ADVANCED ACTION

Member submissions showed strong momentum across all action areas, particularly in progress reporting and classification society rules and guidelines. While more companies are taking action than in the past, persistent challenges—ranging from policy uncertainty and fragmented regulations to technological and value chain constraints—continue to limit the sector's ability to plan and invest with confidence.

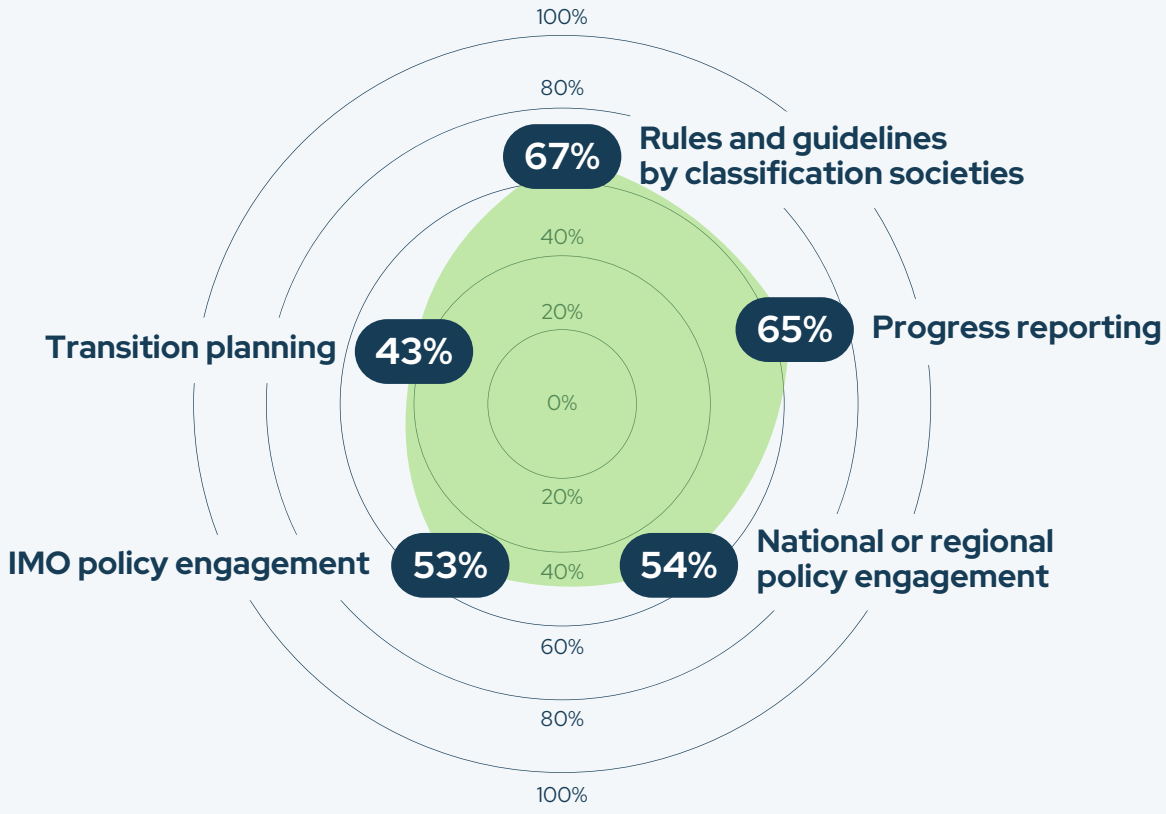


FIGURE 3 *Scores of actions within the category of "Creating enabling conditions" as a % of the maximum score*

1

43%

Transition planning

ACTION EXPLAINED

To ensure GHG emission reduction targets are met, companies should consider the practical aspects of how they plan to achieve them, establishing a transition plan or strategy that details actions to deliver on those targets. Companies were asked to provide a brief description of their transition plan and indicate whether it has been validated by a third party, e.g., the Science Based Targets Initiative (SBTi).

- **Tier 1:** Targets and transition plan are third-party validated
- **Tier 2:** Decarbonisation targets and transition plan are set and publicly communicated
- **Tier 3:** Decarbonisation targets and transition plan are set internally

ACTION ANALYSED

This action applied to all industry segments, and as such, there were 79 submissions. Of these, 52 companies are taking some action regarding transition planning. Fifteen companies were scored Tier 3, 25 in Tier 2, and 12 in Tier 1. The 27 companies that did not report any action were scored Tier 0.[4] For this action, the Coalition scored 43% of the highest achievable score, still leaving room for growth. Some companies may be opting for a wait-and-see approach to transition planning due to continued policy uncertainty and limited availability of fuels and technologies.

FIGURE 4 *Share of each tier making up the total score of "transition planning"*

Challenges and opportunities

Companies face several challenges when developing credible, actionable energy transition plans. One major hurdle is that many of their emissions (especially Scope 3) sit outside their direct control. Coalition members depend on decisions made across the wider value chain, such as vessel deployment, fuel choices, and operational practices, even though they are accountable for emissions outcomes. They also struggle with cost and technology constraints. Many low-carbon solutions remain expensive, not fully mature, or constrained by physical factors such as grid capacity, tank space, or retrofit feasibility. This makes it difficult for companies to commit to specific actions or timelines, particularly when they do not own or control key assets. On top of this, regulatory uncertainty and the need for cross-sector coordination create additional barriers. Evolving rules, uneven policy signals, reliance on port and infrastructure development, and societal acceptance challenges around new fuels make long-term planning harder. As a result, transition plans often become more conditional, less predictable, and more difficult to implement at scale.

4 See Appendix for an explanation of the Tier system

Spotlight on best practices

Alfa Laval has outlined an ambitious transition plan, aiming for a 95% reduction in Scope 1 and 2 emissions by 2027, a 50% reduction in Scope 3 emissions by 2030, and net-zero across the value chain by 2050. All targets have been validated by the SBTi. **Klaveness Combination Carriers** has committed to reducing emissions intensity by 45% by 2030, using 2018 as the baseline year. **The Port of Aarhus**, which also assesses against SBTi-validated targets, plans to achieve carbon-neutral operations (Scopes 1 and 2) by 2030.

2

65%

Progress reporting

ACTION EXPLAINED

Transparency increases awareness and fosters accountability; therefore, companies were asked to describe how they report progress against their targets. This is how companies were graded:

- **Tier 1:** Progress is validated by a third party
- **Tier 2:** Progress against targets is publicly reported
- **Tier 3:** Progress against targets is tracked internally

ACTION ANALYSED

This action applied to all 79 submissions, of which eight scored Tier 3, 20 scored Tier 2, and 35 scored Tier 1. Sixteen organisations reported no action regarding progress reporting and were thus scored Tier. 0. The progress reporting action achieved 65% of the highest achievable score. This is a slight improvement from last year, with seven additional companies reaching the tier 1 spot.

FIGURE 5 *Share of each tier making up the total score of "progress reporting"*

Challenges and opportunities

Progress reporting on GHG emissions brings both challenges and opportunities. Companies often struggle to collect accurate data across global operations, apply consistent and credible methodologies, and verify results, especially when fleets, assets, or supply chains are diverse and constantly evolving. Differences in reporting standards and the pace of decarbonisation can also make it hard to present a clear, comparable picture of progress. Yet these same processes create meaningful opportunities. Transparent reporting builds trust with stakeholders, strengthens a company's credibility, and signals a genuine commitment to sustainability. It can also become a competitive advantage, helping attract investors, customers, and partners who value strong environmental performance.

Spotlight on best practices

Some standout examples of progress reporting come from X-Press Feeders and Höegh Autoliners. **Höegh Autoliners** reports in line with the Corporate Sustainability Reporting Directive (CSRD) and European Sustainability Reporting Standards (ESRS), with its 2024 CSRD-compliant report externally assured and publicly available. The company is targeting a 30% reduction in fleet-wide carbon intensity by 2030 (from a 2019 baseline), with 2024 performance showing a 10% improvement, and all key metrics independently verified for climate-aligned finance. **X-Press Feeder** noted that its 2024 Energy Efficiency Operational Indicator (EEOI) improved by 20.4% year-on-year, and by 31.5% compared to 2021. Additionally, the company's 2024 Annual Efficiency Ratio improved by 20% compared to 2023, and by 35.7% compared to 2021. These results demonstrate that the fleet upgrade and operational efficiency measures are delivering benefits. ClassNK conducted validation.

3

53%

IMO policy engagement

ACTION ANALYSED

This action applied to all 79 submissions, and 53 reported taking some action regarding IMO level engagement. Fifteen organisations scored Tier 3, three scored Tier 2, and 35 scored Tier 1. This action achieved 53% of the maximum possible score, 6% higher than last year, indicating that Coalition members are becoming more engaged at the IMO policy level. This increased involvement is likely related to the critical period the maritime industry is currently experiencing, with the NZF still awaiting adoption.

ACTION EXPLAINED

International policy is one of the key drivers of industry decarbonisation, but its eventual implementation remains unclear. Therefore, active engagement in advocating for clear, ambitious policies at the IMO is crucial, as they can create a positive feedback loop in which international policies and industry actions reinforce each other.

For this action, companies described their climate policy engagement with industry associations that act as observers at the IMO, including key messages and how their positions align. Companies were graded as follows:

- **Tier 1:** The company supports positions and messaging aligned with those communicated by the Getting to Zero Coalition
- **Tier 2:** The company supports positions and messaging that go beyond the industry association's positions in terms of scope, specificity, or climate ambition
- **Tier 3:** The company aligns its positions and messages with relevant industry associations

FIGURE 6 *Share of each tier making up the total score of "IMO policy engagement"*

Challenges and opportunities

2025 saw increased policy uncertainty due to the lack of agreement on the IMO's NZF, making it harder for companies to choose fuel pathways or move forward with zero-emission shipping investments. A widening gap has also emerged between what is politically viable in negotiations and what industry needs to build a viable business case. This makes strong, coordinated engagement more important than ever. Coalitions need to work together to ensure industry perspectives are heard and to build stronger, more consistent dialogue with policymakers. On the flip side, the nuances of policy-level developments need to be properly translated back to the industry so companies can make informed decisions.

Spotlight on best practices

Hapag-Lloyd feeds into the World Shipping Council's position, which has identified six regulatory and economic pathways that are critical for the IMO to successfully deliver the maritime energy transition, including: a global price on carbon; transparent, well-to-wake life cycle analysis of fuels; and integrated development of global production and supply of zero-GHG fuels. In addition, through initiatives such as the Poseidon Principles and the Getting to Zero Coalition, as well as its work with the Maersk McKinney Centre for Zero Carbon Shipping, Hapag-Lloyd advocates for high ambition at the IMO, vocalising support for the Net-Zero Framework. **Bunker Holding** also supports the Net-Zero Framework and follows IMO negotiations through organisations such as the Methanol Institute, Society for Gas as a Marine Fuel, and International Bunker Industry Association (IBIA). They have also contributed to submissions on implementing the NZF, including methodologies to reward the use of zero- or near-zero-emission fuels, chain-of-custody models, and the operationalisation of the Fuel Life Cycle Label. Bunker Holding also participates in intersessional working group meetings as part of IBIA's delegation.

4

54%

National or regional policy engagement

ACTION EXPLAINED

Engagement with national and regional policymakers to advocate for ambitious policies, regulations, and legislation helps drive the changes needed to accelerate decarbonisation. The progress companies can make in relation to this action is scored as follows:

- **Tier 1:** The company supports positions and messaging aligned with those communicated by the Getting to Zero Coalition
- **Tier 2:** The company supports positions and messaging that go beyond the industry associations' positions in terms of scope, specificity, or climate ambition
- **Tier 3:** The company aligns its positions and messages with relevant industry associations

ACTION ANALYSED

This action applied to all 79 submissions, and 54 of these companies reported taking some kind of action regarding national/regional policy engagement. Fifteen scored Tier 3, five scored Tier 2, 34 scored Tier 1, and the remaining 25 organisations were scored Tier 0. This action saw a 5% increase compared to last year, indicating that Coalition members are becoming more engaged, both nationally and regionally, in policy efforts. Amid global uncertainty, industry may increasingly pressure national and regional governments to clarify the role legislation can play going forward and how it can support the energy transition, regardless of whether a global framework is introduced.

FIGURE 7 *Share of each tier making up the total score of "national or regional policy engagement"*

Challenges and opportunities

Companies noted that many of the challenges they face are similar to those experienced when engaging in IMO processes. One challenge unique to this action is the growing fragmentation of national and regional policies, which forces companies to navigate and coordinate multiple regulatory regimes across different geographies. For example, EU-bound voyages must comply with FuelEU Maritime, while operations elsewhere follow entirely different rules. This patchwork of requirements increases complexity, adds administrative burden, and makes it harder to plan investments, select fuel pathways, and maintain a consistent decarbonisation strategy across global fleets.

Spotlight on best practices

The **Port of Seattle** founded the Sustainable Maritime Fuels Collaborative in April 2025 as a public-private partnership to convene maritime and fuel stakeholders and shape policy supporting the production, supply, and bunkering of sustainable maritime fuels in Washington State. Nationally, the Port is a member of the Maritime Innovation Coalition, engaging the US government on maritime sector modernisation. The **Port of Rotterdam** has also been active over the years, serving as a key contributor to the EU Fit for 55 package and its Dutch implementation through stakeholder engagement and direct input to government officials. Its key messages emphasise a multi-fuel future and the efficient use of existing infrastructure. Another example of best practice is the Australia-East Asia iron ore green corridor task force, which meets regularly with representatives from Australia's Department of Infrastructure and Transport and other relevant federal and state departments to share knowledge about the transition to clean ammonia-powered shipping. This collaboration was founded following a Getting to Zero Coalition position paper to the Australian Government and subsequent private-public roundtables between task force members and government representatives in May 2024. Some key members include: **Yara Clean Ammonia, Cargill, BHP, Rio Tinto, StarBulk, and ClassNK.**

5

67%

Rules and guidelines by classification societies

ACTION EXPLAINED

Classification societies should increase their focus on zero-emission-ready vessels and zero-emission fuels. They can develop and publish rules and guidelines for these types of vessels and fuels, as well as establish design, construction, maintenance, and survey standards. Activities were graded as follows:

- **Tier 1:** Rules, guidelines, and/or standards are in place and are common practice
- **Tier 2:** Some rules, guidelines, and/or standards are already developed, while others are still in progress
- **Tier 3:** Classification societies have started working on developing the relevant rules and guidelines

ACTION ANALYSED

This action was only applicable to classification societies. Of the Coalition's six classification society members, three contributed to this year's Action Framework. Two managed to lock in Tier 1 scores, with the last one getting a Tier 0. Class scores improved this year, with only one Tier 1 score in last year's results.

FIGURE 8 *Share of each tier making up the total score of "rules and guidelines by classification societies"*

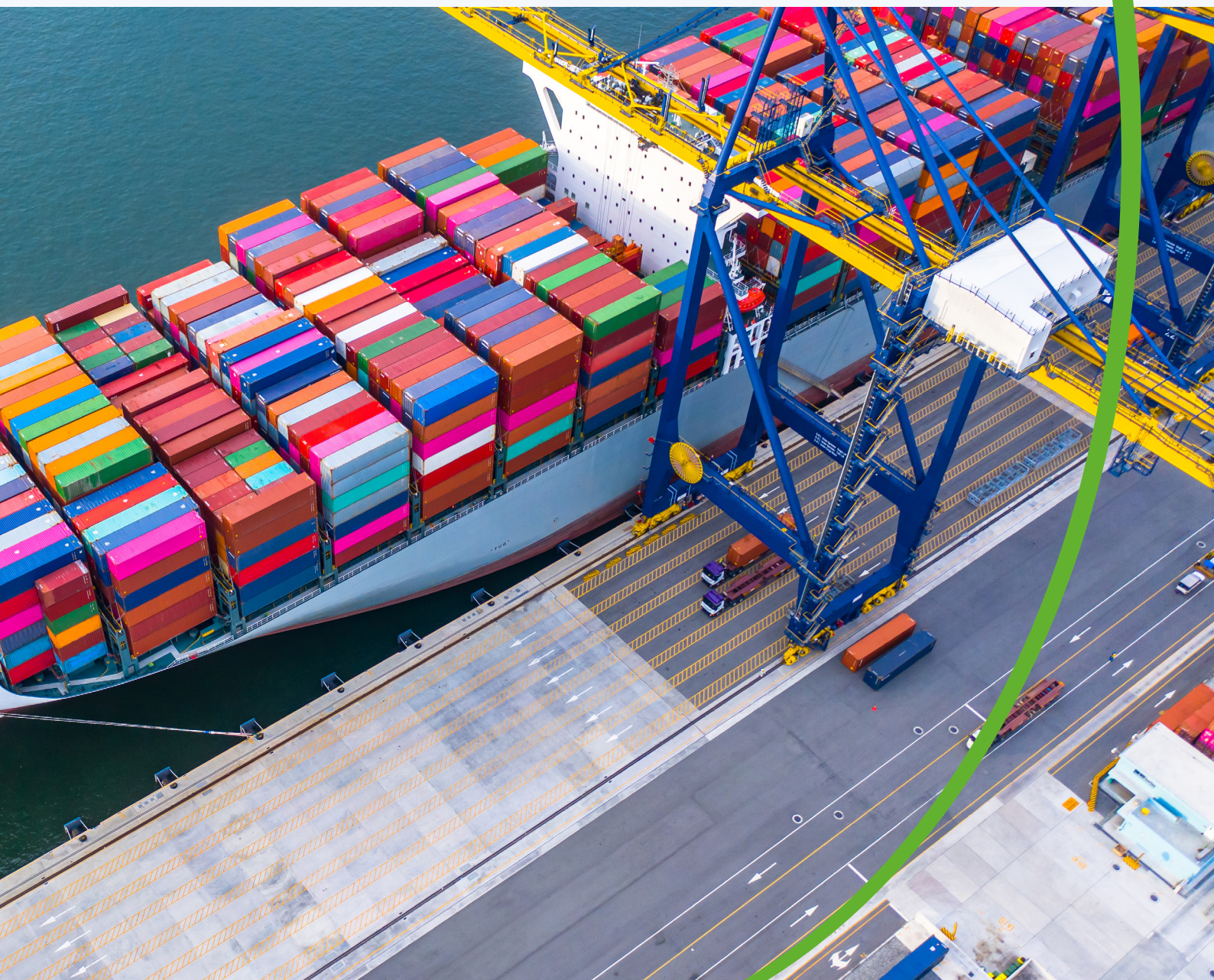
Challenges and opportunities

Respondents did not specify any particular challenges related to this action.

Spotlight on best practices

China Classification Society (CCS) has established a comprehensive regulatory framework to support zero-emission and alternative-fuel vessels. This includes the Rules for Green Ships (2022) for zero-emission-ready vessels, as well as rules and guidelines covering hydrogen, liquefied natural gas (LNG), methanol, ammonia, biodiesel, and battery-powered ships. China Classification Society also provides dedicated guidelines for bunkering vessels and operations for LNG, methanol, ammonia, and other alternative fuels.

Incentives and market-making



Incentives and market-making

AVERAGE SCORE 47%

Companies can help create the markets for zero-emission shipping by providing information, offering incentives, or making commercial connections. Getting to Zero Coalition members taking actions in this transition category include financial institutions, which provide transparent information about ship finance and incentives; charterers and shipowners, which can provide transparency about the emissions associated with their services; and ports, which may offer incentives to customers for greener operations and play a match-making role between buyers and sellers of zero-emission fuels.

TRANSPARENCY IN SHIP FINANCE | TRANSPARENCY IN SHIPPING ACTIVITY | PORT INCENTIVES | GREEN LOANS | ZERO-EMISSION FUEL MATCHMAKING

NO ACTION — ADVANCED ACTION

Transparency in ship finance stands out this year, with participation and disclosure improving significantly since last year. However, when it comes to incentives and market-making more broadly, progress is patchy. A handful of ports and financiers are beginning to reward cleaner operations and explore zero-emission fuel pathways, but overall progress remains fragmented. Most actors are still constrained by limited fuel supply, uncertain demand, and business cases that don't close the cost gap. Building a stronger ecosystem of intermediaries capable of matching emerging zero-emission fuel suppliers with credible offtakers would help scale, drive down costs, and broaden the financing tools available to support the transition.

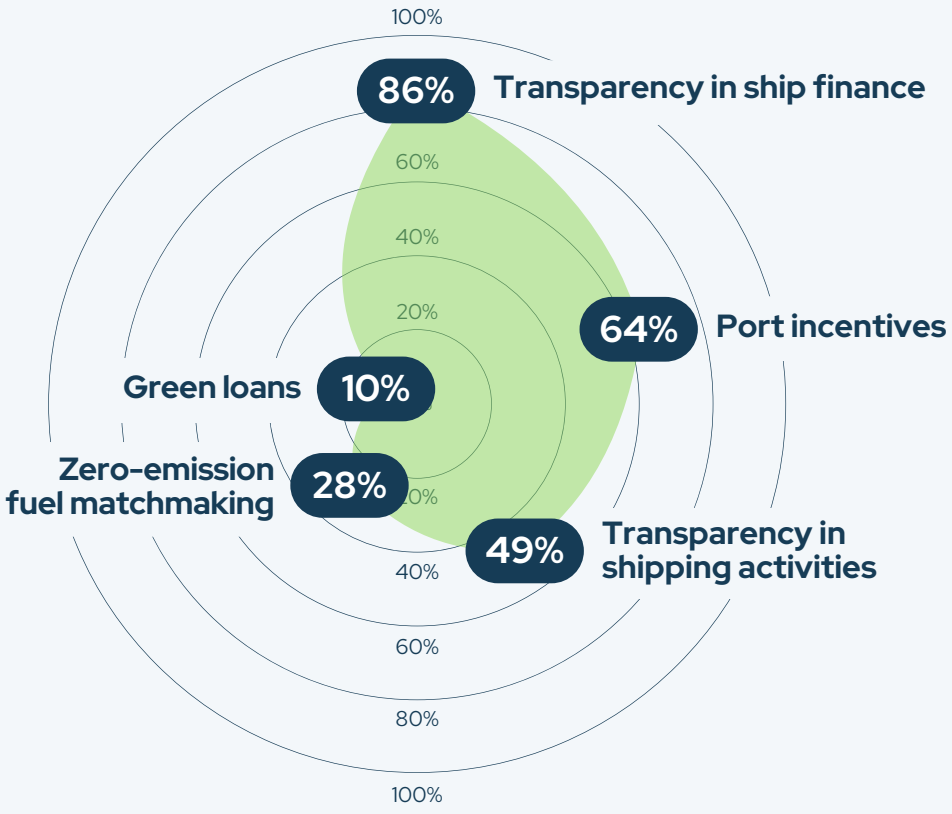


FIGURE 9 *Scores of actions within the category of "Incentives and market-making" as a % of the maximum score*

6

86%

Transparency in ship finance

ACTION EXPLAINED

Financial institutions can embed environmental considerations into their decisions and incentivise international shipping decarbonisation by increasing transparency and adopting stringent environmental, social, and governance (ESG) standards through initiatives like the Poseidon Principles. Reporting for this action was graded as follows:

- **Tier 1:** Benchmarking against the IMO trajectories or SBTi, through membership in ESG transparency organisations like the Poseidon Principles
- **Tier 2:** Benchmarking against other companies, for example, through membership in ESG transparency organisations
- **Tier 3:** Transparent disclosure of portfolio emissions in annual reports

ACTION ANALYSED

This action only applied to financial institutions and insurers, and there were seven submissions in total. Of those, six scored Tier 1, and one scored Tier 0. Not only did scoring improve from last year, but this year's report also had around twice as many companies represented. Moreover, the majority of the financial institutions and insurance companies that are part of the Coalition are also members of the Poseidon Principles and the Poseidon Principles for Marine Insurance (PPMI), thereby enhancing the Coalition's overall transparency and credibility.

FIGURE 10 *Share of each tier making up the total score of "transparency in ship finance"*

Challenges and opportunities

Even with strong participation in initiatives like the Poseidon Principles, financial institutions still face challenges in ensuring consistent, high-quality ESG reporting across diverse portfolios. Collecting accurate emissions data from clients, aligning methodologies, and keeping pace with evolving regulatory expectations can be resource-intensive.

Spotlight on best practices

Danish Ship Finance, a founding signatory of the Poseidon Principles, benchmarks against IMO trajectories and aims to align its loan portfolio fully with the Poseidon Principles trajectories. **Gard**, a founding member of the Poseidon Principles for Marine Insurance, has been a strong advocate for the initiative and its transparency aspirations, with its CEO serving as chair from 2022 to 2024. As a PPMI signatory, Gard measures and publicly reports the climate alignment of its hull and machinery portfolio against the IMO trajectory. On broader ESG disclosures and transparency, Gard has consistently achieved a gold rating in EcoVadis assessments and benchmarking.

7

49%

Transparency in shipping activities

ACTION EXPLAINED

Charterers and shipowners can increase the transparency of their shipping activities' climate alignment (e.g., via the Sea Cargo Charter or Clean Cargo Initiative) in the following ways:

- **Tier 1:** Benchmarking against IMO/ SBTi trajectories, for example, through membership in ESG-transparency organisation(s)
- **Tier 2:** Benchmarking against other companies, for example, through membership in ESG-transparency organisation(s)
- **Tier 3:** Reporting their emissions in annual reports

ACTION ANALYSED

This action applied to shipowners, operators, ship managers, and charterers. This totalled 43 companies, of which 16 scored Tier 0, ten scored Tier 3, two scored Tier 2, and 15 scored Tier 1. Many of the relevant companies for this action are members of the Sea Cargo Charter and (less commonly) the Clean Cargo Initiative. Because it benchmarks emissions against the IMO's 2023 GHG strategy, all members of the Sea Cargo Charter received a Tier 1 score.

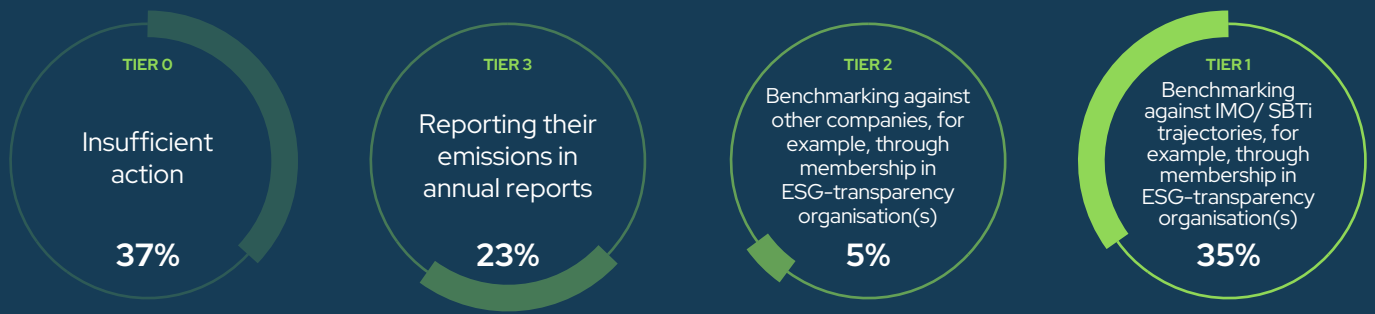


FIGURE 11 *Share of each tier making up the total score of "transparency in shipping activities"*

Challenges and opportunities

Key challenges in transparently reporting shipping activities primarily revolve around data quality, methodological consistency, regulatory complexity, and coordination with external stakeholders. Regarding data quality and methodological inconsistencies, concerns include errors in alignment calculations, inconsistent or selective use of well-to-wake emissions factors, incomplete or incorrect reporting by some market participants, and unclear technical guidance, all of which undermine the reliability and comparability of reported data. The regulatory landscape can be difficult to navigate due to differing requirements across regions that hinder the standardisation of data collection and reporting processes. Achieving alignment with external stakeholders across the supply chain further adds additional complexity.

Spotlight on best practices

Anglo American, Norden, Bunge, Klaveness Combination Carriers, Cargill, Diana Shipping, Maersk Tankers, Tata Steel, and TotalEnergies are all members of the Sea Cargo Charter and collect emissions data for ocean freight. The framework provides them with a unified, credible way to measure and disclose the climate impact of their chartering decisions, strengthening trust with regulators, customers, and financiers. By openly reporting emissions and climate alignment scores, they can select more efficient vessels, meet ESG expectations, and support responsible investing. This transparency also enables financial institutions to use accurate fuel consumption and carbon intensity data to assess whether a company's operations align with environmental benchmarks.

8

64%

Port incentives

ACTION EXPLAINED

Ports and port authorities play an important role in transitioning to a zero-emission future. They can offer commercial incentives for zero-emission shipping, such as reduced waiting times or discounted port fees. There were two tiers scored to assess the extent to which ports incentivise the energy transition:

- **Tier 1:** Actively offering incentives
- **Tier 2:** Ports and port authorities are exploring what relevant incentives can be offered

ACTION ANALYSED

This action applied only to ports and terminals (12 companies in total). Of those, four scored Tier 0, one scored Tier 2 and seven scored Tier 1. Important to note that many of the port incentives offered are currently based on the Environmental Ship Index (ESI) and therefore do not directly target the use of zero-emissions fuels or vessels. However, such incentives create a market precedent that can be expected to encompass new fuels in the future.

FIGURE 12 *Share of each tier making up the total score of "port incentives"*

Challenges and opportunities

Ports have to manage the complexity of verifying emissions reductions, especially as some vessels may claim eligibility through "virtual" mechanisms such as FuelEU Maritime pooling or voluntary book-and-claim systems that do not reduce emissions at the port itself. Policy uncertainty also makes it challenging to develop incentive schemes. As policies evolve, ports will need to adapt their schemes to ensure they genuinely support the shift to zero-emission shipping.

Spotlight on best practices

The **Port of Gothenburg** offers a 10% discount on port fees for vessels scoring 30 or more on the ESI, with an additional 20% discount for vessels that have bunkered fossil-free fuel. The **Port of Rotterdam** provides financial incentives for sea-going vessels with high ESI scores through discounts on the sustainability component of seaport dues, with greater reductions for cleaner ships. Since March 2021, the **Port of Açu** has also rewarded strong environmental performance, offering port tariff discounts of up to 10% for vessels that exceed international standards, as measured by the ESI.

9

10%

Green loans

ACTION EXPLAINED

Loans directed at zero-emission shipping (including zero-emission fuel production, infrastructure, and/or vessels) are considered green loans for the purpose of this Action Framework. To incentivise the energy transition, financial institutions can offer better terms on green loans to companies in the shipping value chain, i.e., discounts or longer maturities. Coalition members were asked to disclose the details of their green loan terms, technology/fuel focus, total green loan portfolio, and the ratio of green loans to their total portfolio. Scoring was as follows:

- **Tier 1:** Tracking the annual growth in the number of green loans
- **Tier 2:** Implementing the practice of offering better terms for green loans
- **Tier 3:** Exploring the possibility of green loans

ACTION ANALYSED

This action was for financial institutions and insurers. Seven companies were eligible; of these, one scored Tier 2, and the others scored Tier 0. Last year's results also indicated a lack of loans directed at zero-emission shipping.

FIGURE 13 *Share of each tier making up the total score of "green loans"*

Challenges and opportunities

According to some members, there is an overreliance on green finance as a solution to bridge the transition's cost gap. Financing only works when a viable business case already exists, and green finance acts as the cherry on top. Until the cost gap is addressed head-on, green loans should be deprioritised. Another unresolved issue is that financing for zero-emission vessels is effectively impossible because dual-fuel vessels can still operate on fossil fuels, so there is no assurance that green loans genuinely support zero-emission operations.

Spotlight on best practices

DNB offers green loans with a ten-basis-point rebate, but their impact is limited by its deep-sea focus and current green taxonomy rules. To drive near-term action, DNB is prioritising transition financing and has launched a transition loan product with a rebate, piloted by another Getting to Zero Coalition member, **Odfjell**.

10

28%

Zero-emission fuel matchmaking

ACTION EXPLAINED

Ports and terminals have a unique position in the shipping value chain and can act as matchmakers between the supply and demand sides of zero-emission fuels, for example, by enabling bunkering. These matchmaking abilities were graded as follows:

- **Tier 1:** Full-scale zero-emission fuel bunkering
- **Tier 2:** Procuring a solution for bunkering zero-emission fuels
- **Tier 3:** Launching a request for proposals or an expression of interest for the production and bunkering of zero-emission fuels

ACTION ANALYSED

This action applied only to ports and terminals, making 12 companies eligible. Of these, five scored Tier 0, four scored Tier 3 and three scored Tier 2.

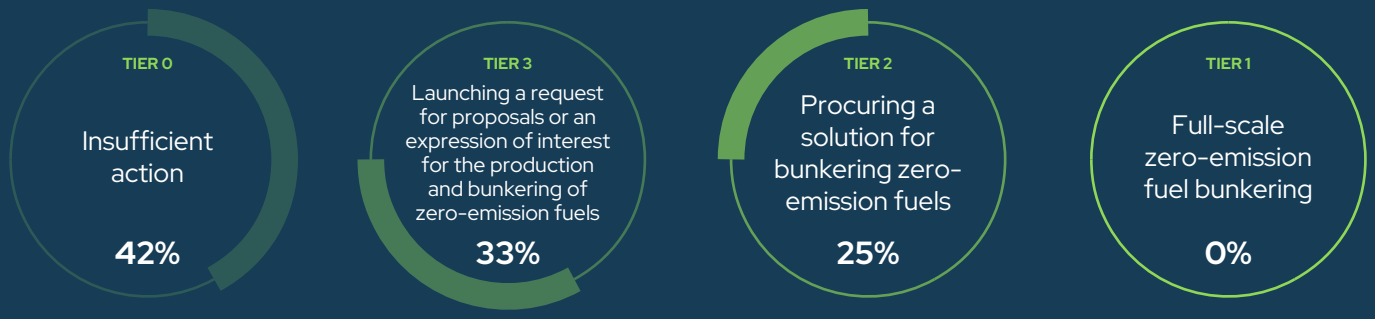


FIGURE 14 *Share of each tier making up the total score of "zero-emission fuel matchmaking"*

Challenges and opportunities

Ports and terminals face several barriers to effective zero-emission fuel matchmaking. Supply remains limited and fragmented, with emerging fuels still not available on a commercial scale. Demand is equally uncertain, as shipowners hesitate to commit without predictable pricing, clear policy signals, or confidence in future availability. Infrastructure gaps, including storage, handling, and bunkering systems, require major investments and standardised safety protocols.

Spotlight on best practices

The **Port of Gothenburg** and the **Port of Açu** are each strengthening the matchmaking between zero-emission fuel supply and demand. Gothenburg focuses on convening stakeholders and demand aggregation by bringing together think tanks, conducting gap analyses, and holding political roundtables. Currently, they are working on a 2025-2026 project to aggregate cargo owners' volumes and match them with available renewable fuel options. Building on that research, the Port will convene a zero-emission fuel buyer's roundtable later in 2026 to develop a strategy and roadmap for acquiring zero-emission fuels. The **Port of Açu** is advancing the practical deployment of next-generation fuels, including the procurement and use of renewable-content fuels for port operations, alongside green hydrogen research and development and direct air capture to fuel demonstrations. Recently, Açu partnered with Repsol Sinopec Brazil on a pioneering initiative to deploy a pilot plant to produce renewable fuels for maritime use under real operating conditions.

First movers and niche market development

First movers and niche market development

AVERAGE SCORE 24%

In recent years, several first-mover companies have started initiatives to plan, coordinate, and make initial investments in niche markets that prove the concept of zero-emission shipping. Coalition members provided input about five such actions related to pilots and demonstrations, green shipping corridors, and the commercialisation of premium-based shipping services.

BOOK AND CLAIM | COMMERCIALISING ZE SHIPPING SERVICES | PROCURING ZE SHIPPING SERVICES | PILOT AND DEMONSTRATION PROJECTS | GREEN CORRIDORS

NO ACTION — ADVANCED ACTION

When it comes to first movers and niche market conditions, the Coalition is being pulled forward by a small but determined group of organisations. The biggest barrier is the absence of consistent standards and market signals—whether for book-and-claim systems, premium zero-emission services, or long-term procurement—leaving most actors unsure how to invest or what will ultimately "count" as a zero-emission endeavour. Some standouts in the category are, like last year, the prevalence of pilot and demonstration projects, and, for the first time, operational green corridors that are proving that zero-emission solutions can work in practice.

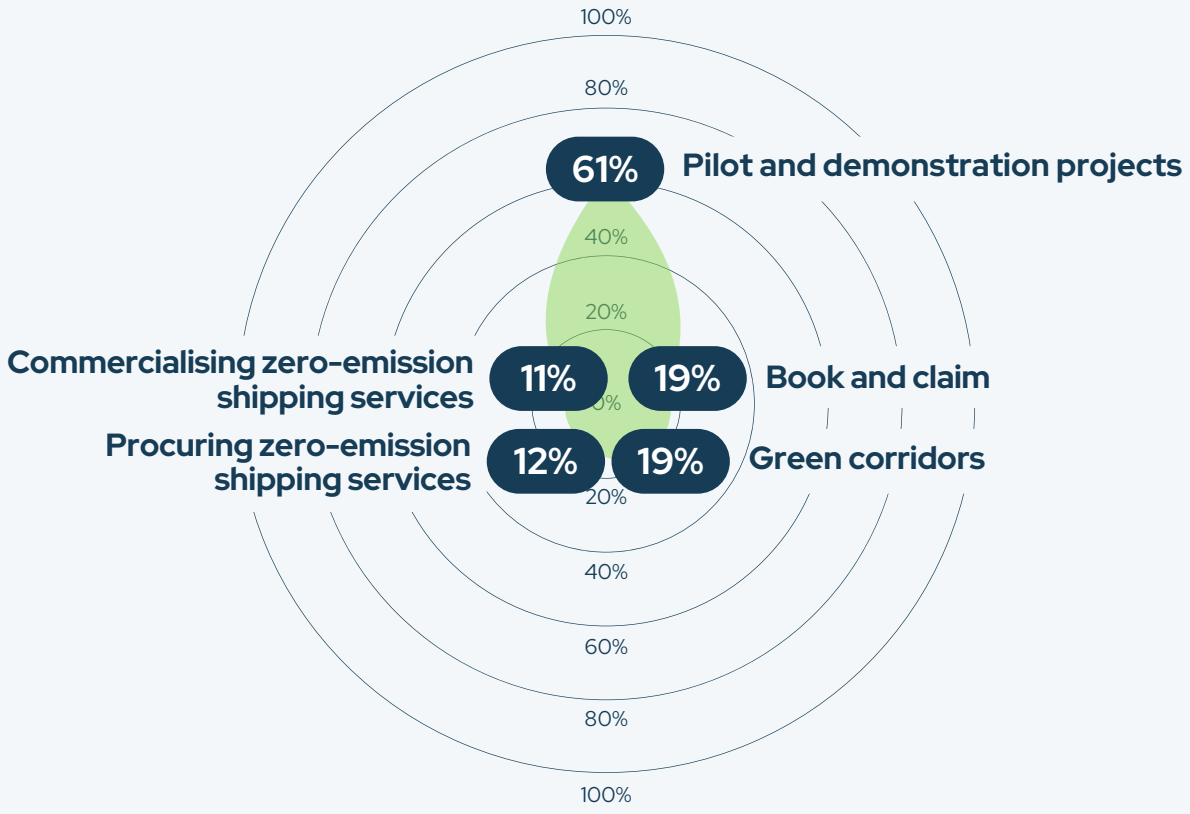


FIGURE 15 *Scores of actions within the category of "First movers and niche market development" as a % of the maximum score*

11

19%

Book and claim

ACTION EXPLAINED

This action looks at the extent to which charterers and shipowners are developing and/or implementing robust book-and-claim chain of custody systems.

A book-and-claim chain of custody system is a method for tracking specific attributes of fuel (such as GHG emissions) separately from its physical movement within the transportation supply chain. Low-emission solution providers can "book" the emissions profile associated with fuels into a tracking system. The system then allows a different customer, regardless of location, to "claim" the emissions profile of that fuel for climate disclosures. Book-and-claim systems assume the acceptability of at least one kind of "insetting", or transferring credits for emissions reductions from a company's vessel that uses zero-emission fuel to another of the company's vessels that does not. This enables companies to support low-carbon fuel production and reduce their reported emissions, even if the fuel they physically receive isn't the exact batch of fuel produced by the low-emission provider.

To earn a Tier 1 score, companies are expected to add additional assurance to the offered insets. In the context of transportation, additionality is defined as "a criterion for assessing whether a solution or a low-emissions transportation service is required by regulation". Consequently, there is a broad consensus that for a solution or low-emissions transportation service (e.g., a fuel switch to a low-carbon fuel) to be sold on the voluntary book-and-claim market, it must be additional to what is prescribed by regulation.

Here's how company actions were evaluated:

- **Tier 1:** Adding additionality assurance to the offered insets
- **Tier 2:** Company offers verified insets
- **Tier 3:** Company actively engages in working groups or initiatives related to book and claim

ACTION ANALYSED

This action applied to charterers, shipowners, operators, and managers, so 44 companies were relevant. Of those, 33 scored Tier 0. Four companies earned a Tier 3 position, five scored Tier 2, and two companies got Tier 1. While the overall results are similar to last year, the number of Tier 1 scores doubled.

FIGURE 16 *Share of each tier making up the total score of "book and claim"*

Challenges and opportunities

A core challenge raised by Coalition members is the lack of formal recognition, guidance, and standardised methodologies for book-and-claim systems—particularly in relation to climate target frameworks like the SBTi. Because of this, companies aren't sure whether buying green fuel certificates will count toward their Scope 3 targets or whether those certificates are credible. Some members see an opportunity to focus on mass balancing rather than (or alongside) book-and-claim systems, given its physical linkages within a supply chain. Mass balance allows sustainable and regular fuels to be mixed, and only the actual amount of sustainable fuel added to the system can be claimed as a benefit. This differs from book-and-claim systems, which tend to separate the environmental benefit from the physical fuel, but even in book-and-claim, a certificate can only be issued if sustainable fuel was genuinely produced and used within the system. For some, this makes mass balance feel more transparent, though both approaches ultimately rely on robust certification to ensure that claims reflect real sustainable fuel use.

Spotlight on best practices

Mitsui O.S.K. Lines (MOL) is actively expanding its carbon insetting and book-and-claim activities to help customers reduce Scope 3 emissions. In 2024, it partnered with 123Carbon to issue tradable environmental attribute certificates for low-emission voyages, becoming the first shipping company in Asia-Pacific to do so. In 2025, MOL launched the 'BLUE ACTION NET-ZERO ALLIANCE' to integrate low-emission operations, certificate issuance, and customer allocation across its fleet, and signed its first book-and-claim contract for used car transport.

DS Norden launched its book-and-claim solution in April 2023, offering verified and additional insets to both its own and external customers, including offtake agreements with companies such as Microsoft and Meta. Beyond commercial deployment, Norden is actively shaping the broader book-and-claim ecosystem by collaborating with the Smart Freight Centre and the Roundtable on Sustainable Biomaterials, serving on the governing board of the Book and Claim Community, and sitting on the expert committee of the Katalist registry. Norden is also running a pilot with RSB to adapt its certification manual and registry framework for application in the maritime sector.

12

11%

Commercialising zero-emission shipping services

ACTION EXPLAINED

Zero-emission shipping should be encouraged through incentives on both the supply and demand sides. Freight forwarders and carriers can help drive adoption by offering and promoting these services to their end customers. In the Action Framework, companies were asked to provide an explanation of what/how zero-emission shipping is offered, and grading was as follows:

- **Tier 1:** Zero-emission products constitute 10% of the total products offered
- **Tier 2:** Zero-emission products on offer grow annually
- **Tier 3:** Zero-emission product offered

ACTION ANALYSED

This action applies to freight forwarders, cargo owners, customers, shipowners, operators, and managers, covering 38 companies. Of these, 29 were scored as Tier 0, five as Tier 3, and four as Tier 2. Only four companies scored any points last year, whereas nine did this year, indicating progress. While many shipowners and charterers are interested in offering zero-emission shipping as a premium service, demand remains limited. However, providers already offering such options report steady year-on-year growth, suggesting emerging, though still fragmented, market potential. Current solutions mainly rely on biofuel blending, which, although not fully zero-emission, could align with future guidelines. The lack of Tier 1 submissions largely reflects the early transition stage; regulatory requirements for low-emission fuels remain modest, and cargo owners show limited willingness to pay, making it difficult to achieve the 10% zero-emission procurement threshold.

FIGURE 17 *Share of each tier making up the total score of "commercialising zero-emission shipping services"*

Challenges and opportunities

While demand is slowly emerging for commercialising zero-emission shipping services, broader adoption of alternative fuels will require stronger market signals, particularly regarding customer demand and willingness to pay. Scaling up the use of alternative fuels depends on collaborative efforts across the value chain, including commercial support from charterers and owners. Coalition members have repeatedly noted that their customers have little demand for zero-emission shipping services. Such demand is present only in non-price-sensitive consumer-facing companies, which represent a fairly small piece of the pie.

Spotlight on best practices

A.P. Møller – Mærsk's ECO Delivery Ocean is a good example of a commercialised zero-emission shipping service. By using green fuels such as methanol, biomethane, and biodiesel, Maersk allows customers to choose lower-emission transport, directly supporting the shift away from fossil fuels. While fossil fuels still accounted for 97% of Maersk's total energy use in 2024, renewable energy consumption increased by 37% compared to 2023. **Hapag-Lloyd's** Ship Green solution enables customers to reduce well-to-wake emissions by supporting the switch to biofuels across the company's fleet. By replacing up to 30% of conventional marine fuel with certified waste- and residue-based biofuels, Hapag-Lloyd generates verified well-to-wake emission reductions, which are allocated to customers through a transparent book-and-claim system. More than 200,000 twenty-foot equivalent units were sold in 2024. From a cargo owner's perspective, demand is clear; HapagLloyd won the Zero Emission Maritime Buyers Alliance's second sustainableshipping tender in December 2025—its second consecutive win—showing major shippers' growing appetite for credible lowemission ocean transport.

13

12%

Procuring zero-emission shipping services

ACTION EXPLAINED

This action focuses on the extent to which cargo owners are procuring zero-emission shipping services. Companies were asked to report the total volume of cargo transported using zero-emission services and the percentage this represents of their total annual cargo volume.

- **Tier 1:** Total cargo procurement of at least 10%
- **Tier 2:** Procurement of zero-emission shipping services increases year-on-year
- **Tier 3:** Procurement of some zero-emission shipping services

ACTION ANALYSED

This action applied to cargo owners, freight forwarders, customers, and charterers—a total of 14 companies. Ten scored Tier 0 and four scored Tier 3, with no Tier 1 performers this year—a regression from last year, where one company reached Tier 1. This decline may partly reflect limitations in yearonyear data comparability, which make it difficult to draw firm conclusions about shifts in procurement. Other factors may also play a role, including geopolitical uncertainty, high costs, and the commercial immaturity of zero-emission shipping solutions, which make long-term commitments—especially multi-year charters—riskier and raise concerns about technology lock-in.

FIGURE 18 *Share of each tier making up the total score of "procuring zero-emission shipping services"*

Challenges and opportunities

A primary challenge in procuring zero-emission shipping services is that many solutions are not yet commercially viable, making it difficult for companies to justify investment and manage costs. Risk sharing between charterers and shipowners remains unclear, leaving open the question of who bears the financial and operational risks. Long-term procurement also raises concerns about technology lock-in, since solutions are still evolving. Overall, the market is still maturing in terms of technology, safety, and commercial readiness, which limits procurement activity today.

Spotlight on best practices

Volvo Cars gave an example of how cargo owners can help drive the shift toward zeroemission shipping. It has been purchasing renewable biofuel for its intercontinental container transport, reducing welltowake emissions by around 55,000 tonnes of carbon dioxide equivalent (CO_2e) each year. At the same time, Volvo is supporting future zeroemission vessel solutions through its participation in the EUfunded Horizon Orcelle Wind project.

14

61%

Pilot and demonstration projects

ACTION EXPLAINED

Before the large-scale implementation of zero-emission fuels and vessels, their testing through pilots and demonstration projects is crucial. Since the projects and technologies can vary in nature, companies were asked to explain the technology/fuel focus, project scale, technological/commercial maturity, and the organisation's role in the project.

- **Tier 1:** The project is either completed or currently in the phase of normal operations
- **Tier 2:** Pilot or demonstration project enters its laboratory testing phase
- **Tier 3:** A consortium or partnership is formed, and a pilot or demonstration project is planned

ACTION ANALYSED

This action applied to all 79 submissions. Of those, 42 scored Tier 1 (five more than last year), seven scored Tier 2 (one more than last year), five scored Tier 3, and 25 companies were marked Tier 0. As documented in the annual Mapping of Zero Emission Pilot and Demonstration Projects report, Coalition members are very active in this space. The strong performance within this action is attributed to a significant number of completed pilot projects and the ongoing transition toward full commercialisation for many relevant technologies.

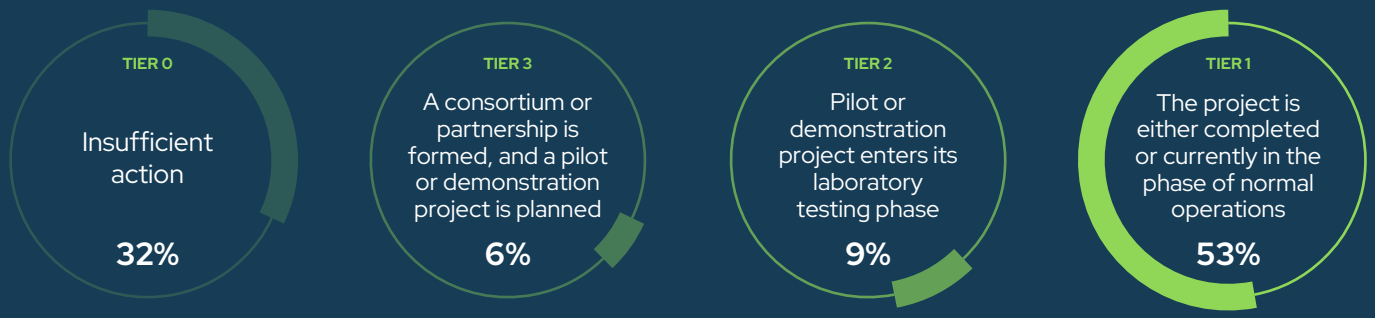


FIGURE 19 *Share of each tier making up the total score of "pilot and demonstration projects"*

Challenges and opportunities

Some members have noted a preference to let technologies and adoption mature before making full commitments. While understandable, this more cautious approach can slow momentum at a time when early demand signals are important for scaling. This often creates friction in moving from the pilot to the commercial deployment phase. LNG was given as an example demonstrating that even mature technologies require significant operational learning when deployed. This challenge is even greater with emerging technologies, such as ammonia, where practical experience and operational understanding are still developing.

Spotlight on best practices

Port of Açu is working on projects to scale renewable and low-carbon fuels in maritime operations, including Brazil's first tests of hydrotreated vegetable oil (HVO) and the first bunkering of green diesel in a vessel, demonstrating the viability of HVO as a drop-in fuel. The port has also signed a memorandum of understanding with JAQ Apoio Marítimo to explore hydrogen-powered vessels. **Pacific Basin** is targeting 14% (B100 equivalent) green fuels in its fuel mix by 2030 and has validated sustainable biofuels through multiple trials—including voyages using B100 and B24 biofuel with no worrying engine impacts. It has also partnered with **Mitsui & Co** to improve access to green methanol and provide operational training to ensure safe biofuel handling and deployment.

15

19%

Green corridors

ACTION EXPLAINED

Green corridors are specific trade routes where the feasibility of zero-emission shipping is catalysed by public and private action. Industry actors across the entire shipping value chain are encouraged to engage in deep-sea, zero-emission green corridors, with the goal of getting them into operation before 2030. This collaborative action can play a vital role in accelerating the industry transition to zero emissions. As a result, companies were asked to provide a brief explanation of their role in a green corridor, along with examples and/or details on project scale, focus, and technological/commercial maturity. The maturity of the action was divided into the following tiers:

- **Tier 1:** The green corridor is in operation
- **Tier 2:** The green corridor is in the execution stage (including asset-specific plans and investment decisions)
- **Tier 3:** The green corridor is in the planning stage (including feasibility assessments and an implementation plan)

ACTION ANALYSED

This action applied to all 79 submissions. Of these, 53 companies scored Tier 0, 10 scored Tier 3, 14 scored Tier 2, and two scored Tier 1. This level of activity is in line with the 2025 Annual Progress Report on Green Shipping Corridors, which noted that for the first time since the report's inception in 2022, four green shipping corridors have now reached the 'realisation stage', an important milestone at which the construction and/or operation of vessels, infrastructure, and/or fuel plants takes place. This helps explain the Tier 1 submissions this year, whereas there were none last year.

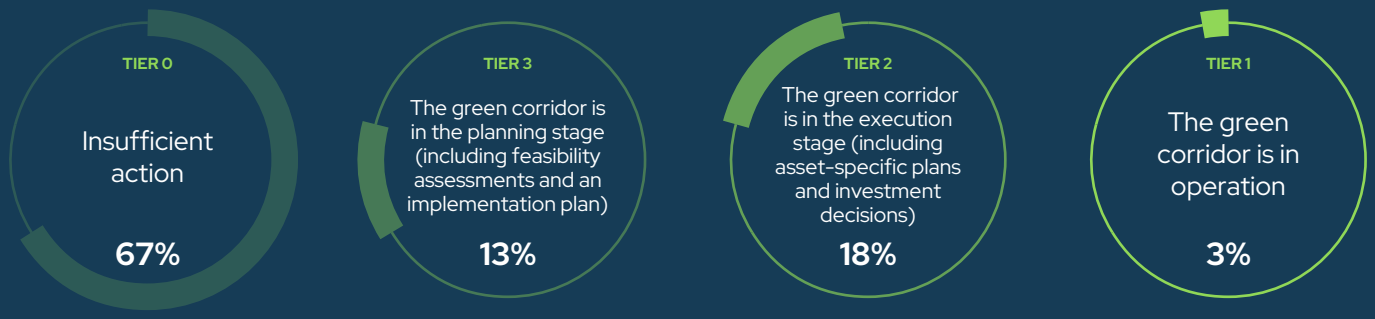


FIGURE 20 *Share of each tier making up the total score of "green corridors"*

Challenges and opportunities

Green corridors continue to stall due to a core feasibility barrier: the cost gap between conventional and zero-emission fuels. Coalition members are actively engaged in green corridor working groups, advocating for infrastructure development and implementation. Traction, however, remains limited. A clearer opportunity lies in strengthening commitment from both the demand and vessel operation sides of the value chain. Increased cargo owner participation, paired with high-level buy-in from shipping companies, is essential to improving the commercial pull needed to close the cost gap and unlock investment. The success of green corridors depends on coordinated action across the value chain, as well as on national governments' participation and exploration of enabling policies. As conveners of key stakeholders, ports can also play a critical role in moving green corridors from concept to operational reality.

Spotlight on best practices

Wärtsilä was selected as the electrical integrator for a major battery expansion project on Wasaline's roll-on/roll-off passenger (RoPax) ferry Aurora Botnia. The ferry is operating on the Vaasa–Umeå route, the first operational international green shipping corridor. The project will increase the vessel's battery capacity by 10.4 megawatt hours (MWh)—from 2.2 MWh to 12.6 MWh—making it the world's largest marine battery hybrid system currently in operation. This corridor is a good example of how regulatory alignment and publicsector support can enable a viable business case for early deployment. There are also voluntary, industry-led green corridors progressing rapidly. A key one is the Australia–East Asia green corridor, where **BHP** has already signed contracts with COSCO Shipping Bulk Co., Ltd., for the charter of two ammonia-dual-fuelled Newcastlemax bulk carriers. The two vessels, expected for delivery in 2028, will primarily transport iron ore from Western Australia to Northeast Asia.

By offering tailored protection and indemnity as well as hull and machinery insurance, **Gard** helps shipowners manage liability and asset risks, making investments bankable. Gard already insures Yara Birkeland (the world's first fully electric, zero-emission, and autonomous container ship) and supports alternative fuels such as methanol and biofuels, signalling market readiness. Currently, the Yara Birkeland services the Porsgrunn-Brevik green shipping route.

Transition investments

Transition investments

AVERAGE SCORE 33%

Beyond developing first-mover niches, companies also need to make capacity investments that will support the sector's full, mass-market transition. Member companies provided information about five action areas: seafarer capacity, land-based zero-emission infrastructure, engines and vessel construction, zero-emission retrofits, and direct finance of zero-emission assets.

CAPACITY BUILDING FOR SEAFARERS | ZERO-EMISSION INFRASTRUCTURE | ZERO-EMISSION ENGINES AND SHIPS | ZERO-EMISSION RETROFITS | ZERO-EMISSION FINANCE

NO ACTION — ADVANCED ACTION

The shipping industry is investing in the transition, but progress remains patchy and slowed by uncertainty. Across seafarer training, fuel infrastructure, engines, retrofits, and green finance, only a small share of companies are moving from the planning phase to real deployment. The sector knows the capital needed, whether for bunkering systems or next-generation engines, but hesitates amid unclear fuel pathways, high costs, and the risk of choosing the wrong technology. Even so, there are examples that show what early commitment can unlock, with some ports already operating methanol and hydrogen-carrier infrastructure, shipbuilders delivering ammonia- and hydrogen-ready engines, and other companies getting their seafarers ready to safely handle alternative fuels.

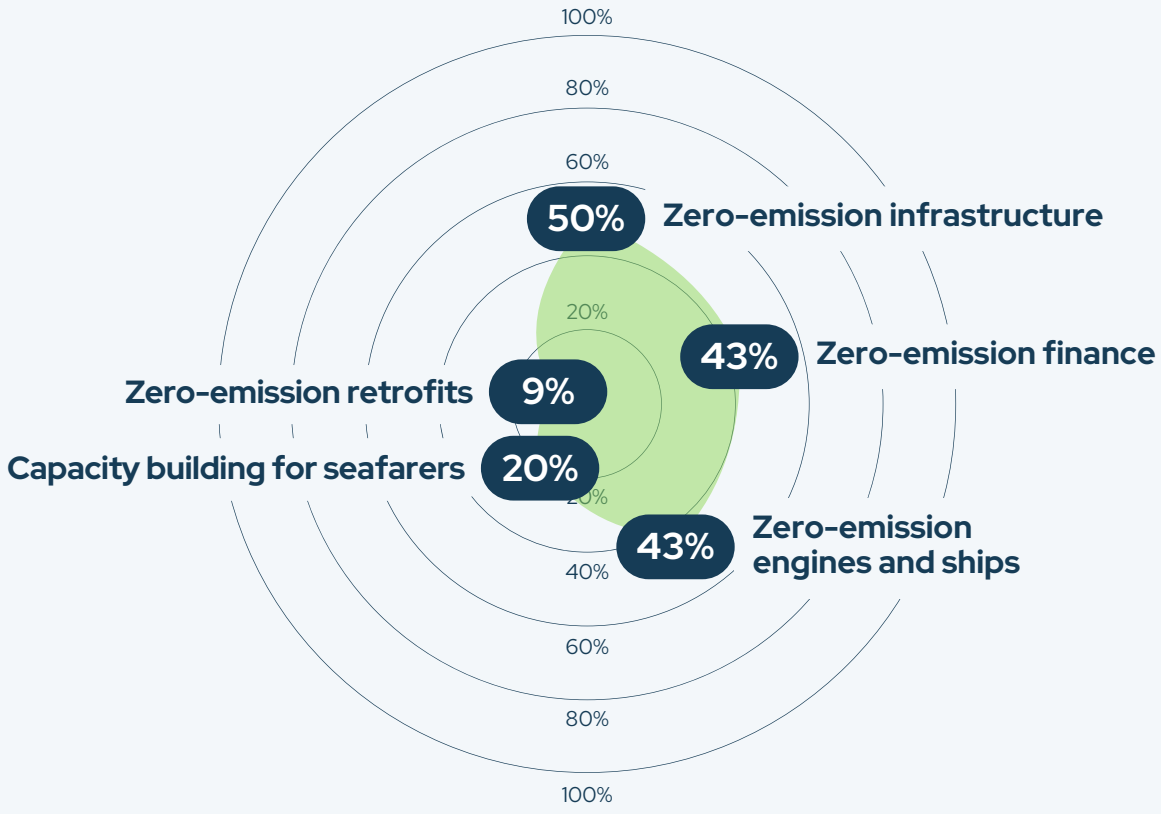


FIGURE 21 *Scores of actions within the category of "Transition investments" as a % of the maximum score*

16

20%

Capacity building for seafarers

ACTION EXPLAINED

Zero-emission fuels can be dangerous if not handled properly. Shipping companies should participate in capacity building, training development, and other similar activities to prepare seafarers to safely handle zero-emission fuels.

- **Tier 1:** Programmes and guidelines are publicly reported and/or communicated
- **Tier 2:** Training programmes are being developed
- **Tier 3:** Guidelines and documentation in place for handling zero-emission fuels

ACTION ANALYSED

This action applies to shipowners/operators/managers, charterers, ports, and terminals (53 companies). Thirty-eight of these companies scored Tier 0, six companies scored Tier 3, four companies scored Tier 2, and five companies earned a Tier 1 score. This year's results see more than double the number of Tier 1 answers. Nonetheless, progress in training seafarers to manage zero-emission fuels has remained quite slow, with many respondents highlighting uncertainties around regulations. Companies are reluctant to choose a fuel of the future to train their seafarers on, due to the potential risk of technological lock-in amid uncertainty.

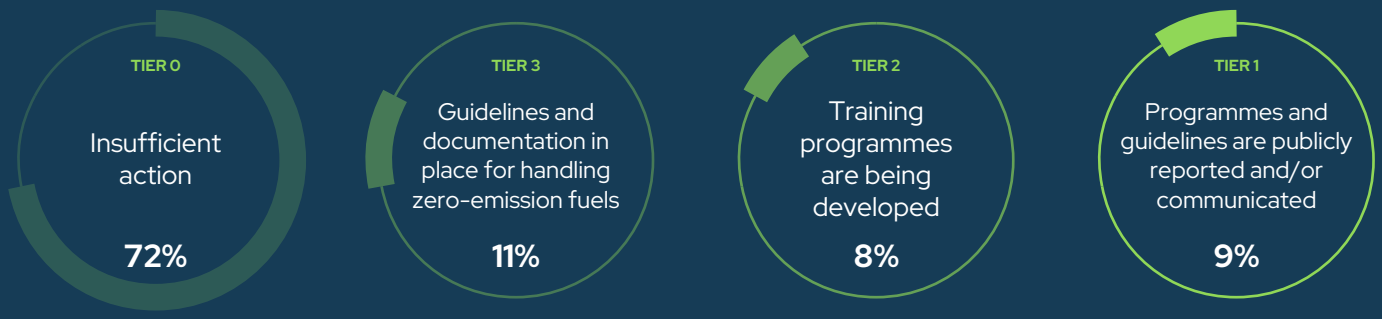


FIGURE 22 *Share of each tier making up the total score of "capacity building for seafarers"*

Challenges and opportunities

Providing seafarers with the training required to safely handle low- and zero-emission fuels in the maritime transition demands investment, time, and infrastructure. It will also involve managing uncertain, potentially unforeseen impacts arising from measures yet to be adopted. As a result, the timelines for upgrading seafarer competencies are shaky. There has been increasing discussion around the opportunities associated with building seafarer capacity, particularly if such efforts are supported or led at the policy level by regulatory authorities. This would provide greater clarity and consistency for companies as they plan and implement training initiatives.

Spotlight on best practices

Diana Shipping participates in capacity-building initiatives to train seafarers in the safe handling of zero-emission fuels. Through the METAVASEA project, coordinated by **HELMEPA** and supported by **Lloyd's Register Foundation** (both Coalition members), the company engages in training programmes focused on decarbonisation, digital awareness, and marine environmental protection. In collaboration with Ocean Technologies Group, Diana Shipping also uses computer-based training modules on its vessels, covering the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), IMO standards, ship energy efficiency, marine environmental awareness, and sustainable shipping. **Mitsui O.S.K. Lines** is already operating methanol dual-fuel vessels, indicating an already properly trained crew. It also operates a worldwide seafarer recruitment channel, including an in-house academy.

17

50%

Zero-emission infrastructure

ACTION EXPLAINED

To operationalise zero-emission fuels, zero-emission (ready) infrastructure, such as bunkering and storage facilities, is essential. Therefore, ports, infrastructure providers, and port-handling companies should make the necessary investments. Companies were asked to provide a brief explanation of their investment projects, including scale, technological focus, and the company's role in each project. Scoring went as follows:

- **Tier 1:** Zero-emission infrastructure is in operation
- **Tier 2:** Zero-emission infrastructure is financed or under construction
- **Tier 3:** Zero-emission infrastructure is planned, and bunkering guidelines are in place

ACTION ANALYSED

This action applies to ports and terminals. Of the 12 applicable companies, the scores were evenly distributed, with three landing in each of the four tiers. This marked two more companies scoring Tier 1 than last year, and one more in Tier 2.

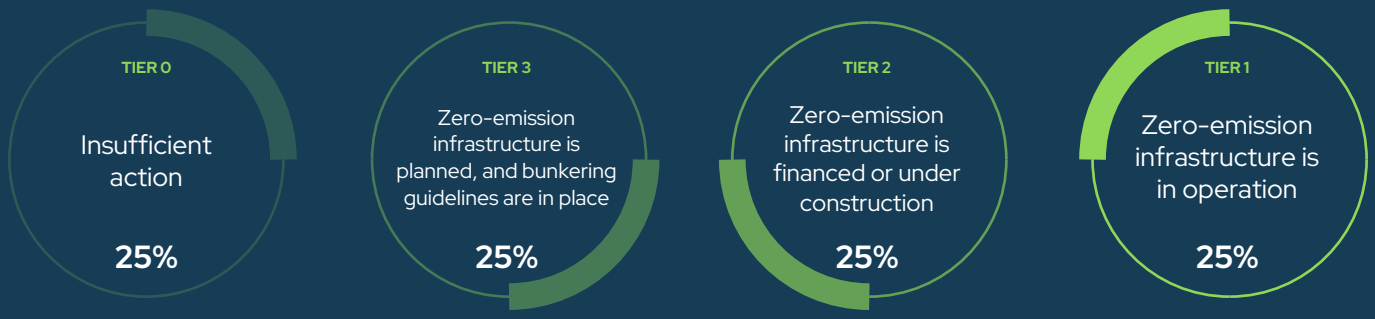


FIGURE 23 *Share of each tier making up the total score of "zero-emission infrastructure"*

Challenges and opportunities

Space constraints pose a challenge to developing zero-emission bunkering infrastructure at ports, as many facilities are already operating at capacity and lack sufficient land. The governance structure of a port further affects its ability to invest in and plan for such infrastructure. The substantial upfront capital investment required to develop bunkering and storage facilities for alternative fuels involves significant financial commitment and coordination among multiple stakeholders. These complexities, combined with regulatory uncertainty and the need for cross-sector collaboration, often delay project timelines and make the advancement of zero-emission infrastructure more difficult. Moreover, the proximity of many ports to densely populated urban areas complicates the storage of alternative fuels such as LNG and hydrogen due to safety regulations, zoning restrictions, and potential public opposition. Finally, bunkering solutions for hydrogen and ammonia are more challenging and are still under investigation.

Spotlight on best practices

The **Port of Rotterdam** already has infrastructure for methanol, methane, and bio-blended fuels. It now has two dedicated methanol bunkering barges. The **Port of Antwerp-Bruges** can already handle large volumes of hydrogen carriers, including methanol (500,000–800,000 tonnes per year over the past five years), ammonia (500,000–750,000 tonnes per year), and methane (15% of the EU gas market). To handle anticipated growth in demand, tank terminal operators at the port are building new import facilities for hydrogen carriers. The port already has bunkering infrastructure for methanol (ship-to-ship and truck-to-ship), hydrogen (truck-to-ship), and methane (ship-to-ship and truck-to-ship). The **Port of Açu** is positioning itself as a hub for the low-carbon industry and cleaner shipping in Brazil. The port updated its master plan to support the safe and sustainable use of new energy sources. As part of this, it launched a low-carbon hydrogen and derivatives hub, which has received its environmental permit following a comprehensive environmental impact assessment and public consultation. Açu is also developing research and development initiatives focused on green hydrogen applications in maritime operations. The **Port of Gothenburg** has established bunkering regulations and successfully tested liquefied biogas and methanol, with ammonia preparations currently underway. More recently, it has been developing floating storage and ship-to-ship bunkering—initially for methanol—allowing fuel delivery without onshore storage and demonstrating efforts to create flexible, early-stage access to alternative fuels.

18

43%

Zero-emission engines and ships

ACTION EXPLAINED

This action involves the construction and supply of zero-emission engines and ships and was scored as follows:

- **Tier 1:** Delivery of zero-emission engines and/or vessel orders in multiple sizes with appropriate technology
- **Tier 2:** Orders for zero-emission engines or vessels have been delivered
- **Tier 3:** Ongoing development of zero-emission engines or vessels

ACTION ANALYSED

This action applies to the shipbuilder, equipment, and technology category and resulted in six submissions. One scored Tier 0, three scored Tier 3 and two scored Tier 1. The Getting to Zero Coalition membership includes only a handful of technology manufacturers and shipbuilders, and several of these did not submit a reporting form. For these reasons, this score may be an incomplete representation of progress.

FIGURE 24 *Share of each tier making up the total score of "zero-emission engines and ships"*

Challenges and opportunities

Zero-emission ship designs face a mix of safety, integration, and operational challenges, especially when adopting new fuels like methanol. Early movers report that while methanol systems are relatively straightforward, invisible flames, toxic exposure risks, and complex ventilation requirements demand significant redesign and crew readiness. Technology availability is improving, but gaps remain—particularly for smaller auxiliary engines. There are also long lead times and high spare-part costs. Additionally, operators face commercial hurdles, including lower energy density, reduced cargo space, and regulatory constraints. Finally, current regulations don't reward companies that go beyond compliance, so it's hard for them to recover the higher cost of using green fuels.

Spotlight on best practices

Wärtsilä has secured its first commercial order for an ammonia-fuelled marine engine and sold more than 300 methanol-capable engines, demonstrating strong market adoption of low-carbon fuels. The world's first large-scale 100% hydrogen-ready engine power plant concept—based on the Wärtsilä 31 platform—has been certified by TÜV SÜD and is adaptable for marine use. In addition, Wärtsilä leads the market in hybrid and fully electric solutions, with over 400 MWh of signed battery capacity, including fully battery-electric high-speed ferries.

19

9%

Zero-emission retrofits

ACTION EXPLAINED

In addition to building or purchasing new vessels that run on zero-emission fuels, shipping companies should invest in zero-emission retrofits (i.e., converting their existing fleet to use new fuels). Companies were asked to provide details on the relevant characteristics of their vessels, including their recorded level under Lloyd's Register's 'Zero Ready Framework,' the total number of vessels, fuel type, deadweight tonnage (DWT), and status (whether ordered, delivered, or in operation). They were also asked to specify the proportion of zero-emission-ready vessels in their fleets. Here's how their submissions were assessed:

- **Tier 1:** Already have retrofitted vessels running on zero-emission fuels
- **Tier 2:** Retrofitting booked at a shipyard
- **Tier 3:** One or more zero-emission-ready vessels ordered

ACTION ANALYSED

This action applied to shipowners/operators and ship managers, resulting in 35 submissions. Of these, 28 companies scored Tier 0, five scored Tier 3, one scored Tier 2, and one scored Tier 1. This action, therefore, yielded the same results as last year. The submissions indicate that zero-emission-capable vessels and dual-fuel newbuilds seem to be the preferred options. A reason for this is the cost of retrofitting, which does not seem to be the most financially feasible option at the moment.

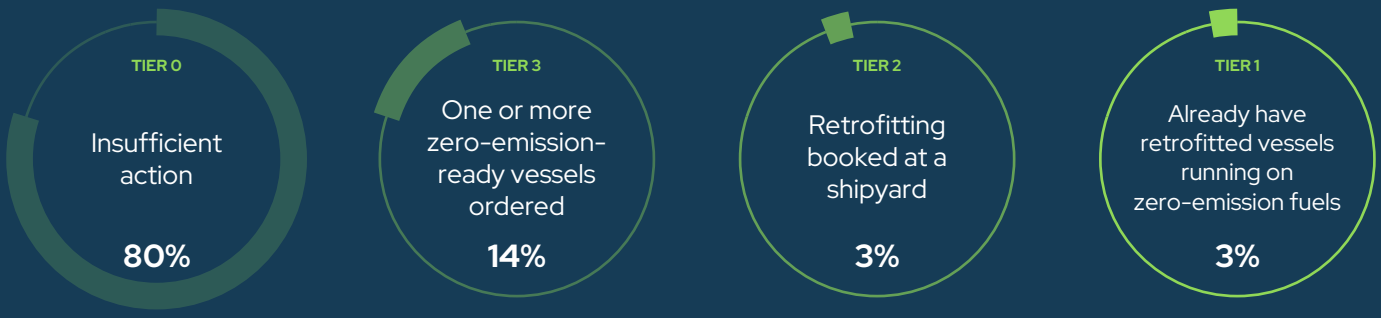


FIGURE 25 *Share of each tier making up the total score of "zero-emission retrofits"*

Challenges and opportunities

While some retrofitting initiatives, such as energy-efficiency upgrades, are underway, broader shifts from fossil-fuel engines to low-carbon alternatives appear impractical. This is due to the limited availability of low-carbon fuels, the high cost of retrofitting, and the remaining lifetimes of existing vessels, which often render the conversion both economically and technically unjustifiable. Shipowners interested in alternative fuels currently see more value in ordering dual-fuel vessels from the start. Current market offerings do not support retrofitting existing mechanical or electric engines, and retrofitting on mid-size vessels is uneconomical, leading many companies to instead invest in newbuild vessels equipped with dual-fuel and low-emission capabilities.

Spotlight on best practices

A good example of retrofitting is **Maersk's** Halifax, which is the world's first retrofitted dual-fuel methanol vessel. This milestone demonstrates that existing vessels can be adapted to lower-emission fuels, complementing the broader industry shift toward dual-fuel solutions. Today, Maersk operates 18 methanol-capable vessels and aims to expand the fleet further.

20

43%

Zero-emission finance

ACTION EXPLAINED

Investments by financial institutions in zero-emission shipping will be key to delivering a full-scale transition. Companies were asked to provide a brief description of the projects they are financing, including the type of fuel, total investment, portfolio share, and relevant time horizon. This action has two tiers of progress:

- **Tier 1:** These investments have increased year on year
- **Tier 2:** Investments in zero-emission shipping projects are made

ACTION ANALYSED

This action applies to financial institutions & insurers, so seven companies were applicable. Three scored Tier 0, three scored Tier 2, and one company earned a Tier 1.

FIGURE 26 *Share of each tier making up the total score of "zero-emission finance"*

Challenges and opportunities

Uncertainty around fuel availability, infrastructure development, and future regulatory frameworks reduces the bankability of zero-emission projects, as financial institutions struggle to assess long-term returns. The absence of standardised risk assessment models for emerging fuels such as ammonia and hydrogen further complicates evaluations of financial viability and insurability for new vessel types. There remains ambiguity around near-zero alternative fuel pathways, making it challenging for operators to commit to a specific fuel strategy. Classification challenges also hinder financing zero-emission solutions. For example, deep-sea shipping operators often favour dual-fuel technologies. However, in the current landscape these vessels cannot automatically be categorised as zero-emission, as they can still run on fossil fuels. Favourable financing would therefore likely require some commitment from the shipowner to run the vessel on zero-emission fuel to meet sustainability requirements.

Spotlight on best practices

DNB Bank finances several zero-emission fuel-ready/capable vessels. It acted as lead arranger for two fleet financings for **Hoegh Autoliners**, which also included tranches for Hoegh's ammonia-ready Aurora-class newbuilding programme. DNB Bank also finances several zero-emission domestic ferries in Norway, as well as a handful of storage facilities for new fuels. **Danske Bank** has started financing zero-emission vessels (ammonia-fueled), despite uncertainty about whether the fuel will be available at scale down the line.

Deployment of zero-emission shipping

Deployment of zero-emission shipping

AVERAGE SCORE 24%

Despite a climate of policy, economic, and technological uncertainties, companies are already beginning to invest in and even deploy some zero-emission assets. Coalition members provided input across five action areas in this category: fuel production facilities, fuel production in developing countries, fuel supply to the maritime sector, fuel offtake by shipowners and charterers, and orders and deployment of zero-emission vessels.

ZERO-EMISSION FUEL PRODUCTION FACILITIES | FUEL PRODUCTION IN DEVELOPING COUNTRIES | FUEL SUPPLY TO THE MARITIME SECTOR | ZERO-EMISSION FUEL OFFTAKE | ZERO-EMISSION VESSEL ORDERS AND DEPLOYMENT

NO ACTION — ADVANCED ACTION

The deployment of zeroemission shipping is still not where it needs to be. While a handful of companies are beginning to operate or order vessels capable of running on zero-emission fuels, most remain in the early planning stages, reflecting the sector's broader struggle to scale technologies, secure affordable zeroemission fuels, and navigate regulatory uncertainty. The landscape is shifting, though; dual-fuel orders are rising, with more and more ammonia and methanol-powered vessels emerging. The opportunities in this category are around coordinated action, clearer demand signals, and maturing fuel pathways, which, in combination, will determine how quickly zero-emission fleets become the new normal.

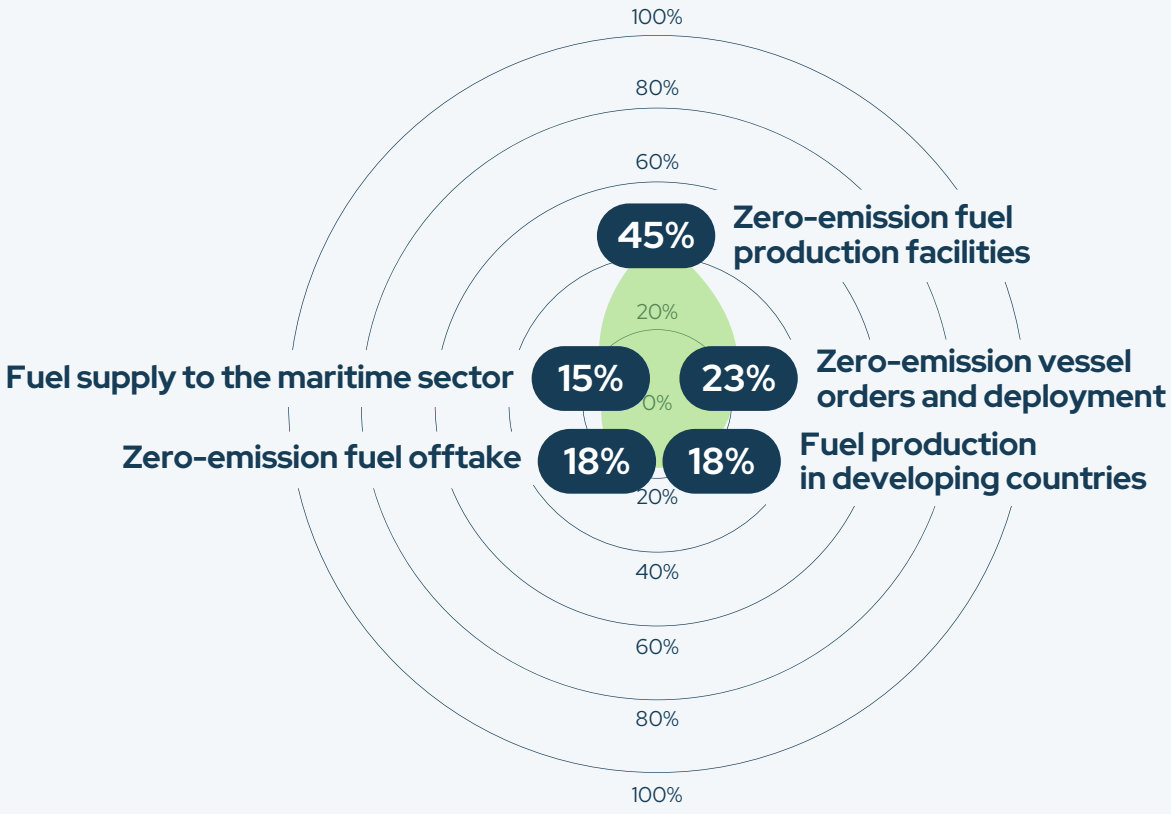


FIGURE 27 *Scores of actions within the category of "Deployment of zero-emission shipping" as a % of the maximum score*

21

45%

Zero-emission fuel production facilities

ACTION ANALYSED

This action applied to energy producers. 11 companies were eligible, of which three scored Tier 0, three scored Tier 3, three scored Tier 2, and two scored Tier 1. The Climate Action in Shipping report spotlights that SZEF supply is expanding, but unevenly. Green hydrogen targets keep rising, yet many are seen as unrealistic, and cost declines are only partially on track. Methanol bunkering is spreading, and ammonia is beginning to follow. Electrolyser, green hydrogen, and SZEF production are scaling up, with several new methanol and ammonia projects reaching final investment decisions—though cancellations create a mixed picture.

ACTION EXPLAINED

Getting to zero requires access to zero-emission fuels. Fuel producers should be developing zero-emission fuel production facilities, including those based on renewable energy and electrolyser capacity. Companies were asked to indicate their technological and commercial viability by disclosing their total production capacity, both planned and in use, as well as their ability to scale up. See the tiers below:

- **Tier 1:** Production capacity for zero-emission fuels is in operation
- **Tier 2:** Production capacity for zero-emission fuels is under construction
- **Tier 3:** Production capacity for zero-emission fuels is planned

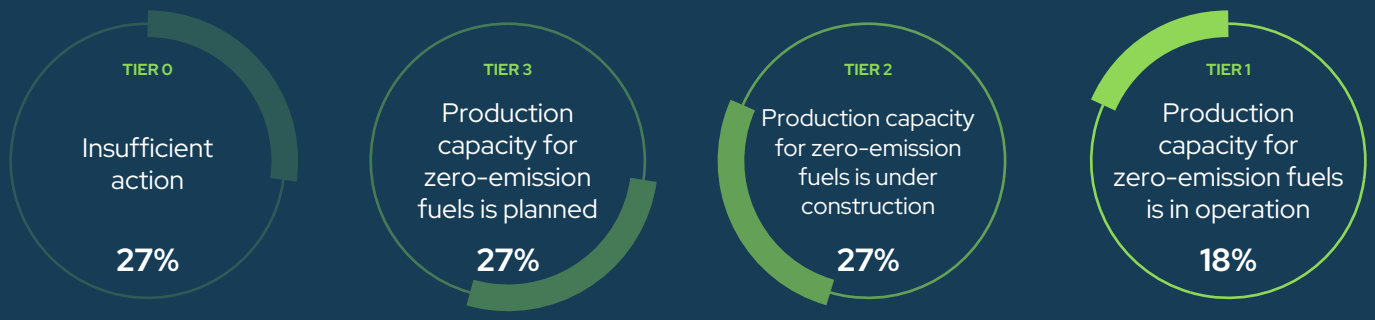


FIGURE 28 *Share of each tier making up the total score of "zero-emission fuel production facilities"*

Challenges and opportunities

Developing zero-emission fuel production facilities comes with several key challenges. A primary one is their ability to secure sufficient, bankable financing to reach a final investment decision and/or scale up production. At the same time, more technical and operational challenges remain, including navigating permits across different authorities, meeting strict RED II/III and Annex IX/V[5] GHG performance requirements, and ensuring financing timelines align with engineering progress. Budgets come under significant early pressure due to the upfront costs of sourcing and transporting raw materials, implementing digital traceability systems, and obtaining ESG certification. There is, however, an opportunity to build strong, more resilient project structures via phased roadmaps that integrate monitoring, reporting, and verification systems early on. It also helps to involve certification bodies as soon as possible and to use layered financing that mixes concessional capital, commercial loans, and export credit support. Staying closely aligned with offtakers and partners further reduces early-stage risk.

5 The EU's renewable energy framework is set by RED II (Directive 2018/2001/EU) and the newly adopted RED III (Directive 2023/2413/EU). Annex IX specifies the feedstocks eligible for advanced biofuels, while Annex V sets out the required greenhouse gas (GHG) emissionsaving criteria.

Spotlight on best practices

Avaada Group's 100 kilotonnes per annum (KTPA) e-methanol project in Maharashtra is under development. With land secured, permits underway, and engineering progressing, the project is forming the foundation for future expansion into larger e-methanol and bio-methanol capacities across India.

22

18%

Fuel production in developing countries

ACTION EXPLAINED

The transition to zero-emission energy sources is a global matter. By enhancing collaboration with developing countries, companies can unlock opportunities for a just and equitable global transformation. Therefore, fuel producers are encouraged to invest in zero-emission fuel projects in the Global South. See this action's grading below:

- **Tier 1:** Production is in its operational phase
- **Tier 2:** Production capacity for zero-emission fuels is under construction
- **Tier 3:** Investment in zero-emission fuel production in developing countries is in the planning stage

ACTION ANALYSED

This action applied only to energy producers (11 eligible responses), of which seven scored Tier 0, two scored Tier 3, and two scored Tier 2. Fuel producer activity in developing countries varies, with about half of the Coalition producers focused on the Global North and prioritising proximity to early markets and low capital costs. This indicates that additional mechanisms may be needed to reduce financing costs for projects in other regions. In this context, the role of the potential Net Zero Fund under the NZF will likely become particularly important. How the fund is structured and deployed will be crucial for enabling financing of projects in the Global South.

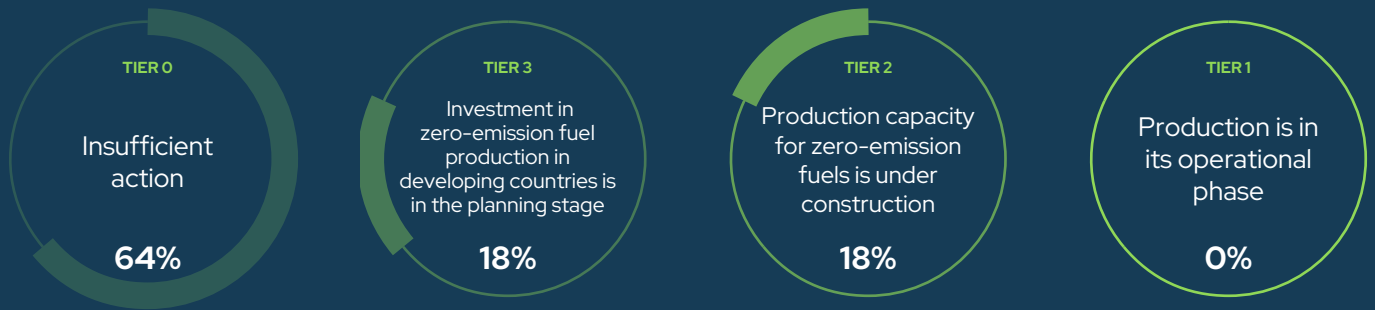


FIGURE 29 *Share of each tier making up the total score of "fuel production in developing countries"*

Challenges and opportunities

Although many companies have set net-zero targets, the Global South focus can often take a back seat to more immediate commercial priorities. Projects face high upfront costs and limited access to affordable finance, making it hard to reach commercial scale or to reach a final investment decision. Infrastructure gaps—such as weak renewable energy grids and limited port storage and bunkering facilities—add further barriers. Policy and regulatory uncertainty, especially around future demand and fuel standards, reduces investor confidence and slows progress. At the same time, local capacity to manage fuels like green hydrogen and ammonia is still developing. A dedicated fund at the IMO level could help close financing gaps, reduce risk, and accelerate these efforts in developing economies.

Spotlight on best practices

Avaada Group is developing a 0.5 million metric tonnes per annum (MMTPA) green ammonia facility in India, powered by renewable energy. The project secured a 300 megawatt energy-banking agreement, grid connectivity, key approvals, water access, and a dedicated port corridor—positioning it for future export operations. Avaada is comparing proton exchange membrane (PEM) and advanced alkaline electrolyser technologies—weighing PEM's flexibility with renewables against alkaline's proven large-scale performance and lower operating costs. The project covers the full value chain and is in its advanced development phase. **ACME Group** is working to have a portfolio of 10 MMTPA of green ammonia (or its hydrogen equivalent) by 2032. Currently, ACME operates a green ammonia pilot plant in Bikaner, Rajasthan, India, producing five metric tonnes per day.

23

15%

Fuel supply to the maritime sector

ACTION ANALYSED

This action applied only to energy producers (11 companies). Of these, one was Tier 2, three were Tier 3, and seven were Tier 0. The results marked a significant jump from last year, rising from 8% to 15% of the maximum possible score. This indicates that more fuel producers are signing offtake agreements with the maritime sector or at least receiving initial expressions of interest and undertaking feasibility studies. That said, the numbers are still low, meaning demand signals from industry remain urgent.

ACTION EXPLAINED

This action focuses on fuel producers signing offtake agreements with the maritime sector for zero-emission fuels. It was important for companies to indicate in their responses the fuel type and total annual offtake, alongside information on the expected carbon intensity of the fuel (0-30, 30-70, 70-90, or 90+ gCO2 e/MJ) and the status of the offtake agreement(s).

- **Tier 1:** Maritime offtake is growing year on year
- **Tier 2:** Offtake agreements are signed with maritime buyers
- **Tier 3:** Initial expressions of interest are executed, or feasibility studies are undertaken

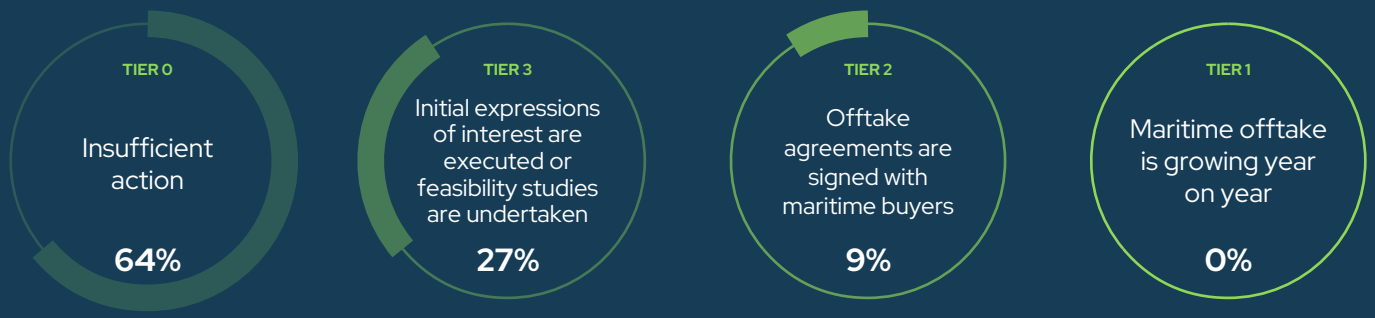


FIGURE 30 *Share of each tier making up the total scoreof "fuel supply to the maritime sector"*

Challenges and opportunities

Challenges highlighted by Coalition fuel producers when signing maritime offtakes:

1. Reluctance of companies to commit to long-term fixed pricing.
2. Misaligned procurement timelines since fuel producers require early offtake and shipping companies make fuel procurement decisions on a much shorter timeline.
3. The policy frameworks designed to encourage early uptake of e-fuels are complex.
4. Uncertainty in technology and fuel pathways.
5. Sequencing cross-border systems before infrastructure is in place. Aligning on permitting, digital traceability, and offtake agreements ahead of full infrastructure deployment is hard. It requires coordinated monitoring, reporting, verification, certification, and bonded logistics across multiple jurisdictions, as well as flexible, funder-aligned planning.

Spotlight on best practices

Avaada Group is engaging with global buyers, including maritime companies, to secure long-term offtake agreements for green ammonia and green methanol. Discussions are underway with ports, traders, and potential maritime offtakers, alongside feasibility assessments for storage, handling, export pathways, and compliance with future ammonia bunkering standards. Target offtake volumes align with the planned 0.5 MMTPA green ammonia and 100 KTPA green methanol production capacity, with parallel planning for port storage and handling infrastructure to support future marine fuel supply. RFOcean has signed a binding, long-term, fixed-price e-methanol offtake agreement with Getting to Zero Coalition member **ETFuels**, effective in 2030.

24

18%

Zero-emission fuel offtake

ACTION ANALYSED

This action applied to charterers, shipowners, operators, and managers, making 43 companies eligible. Six scored Tier 2, and nine scored Tier 3, leaving the other 28 in Tier 0. Most shipping companies indicated that they are at an early stage of the process, with many in discussions with fuel producers or participating in feasibility studies rather than being ready to sign offtake agreements.

ACTION EXPLAINED

To stimulate the production of zero-emission fuels, shipowners can sign offtake agreements with zero-emission fuel producers. In essence, these agreements involve the upfront purchase of zero-emission fuels that have not yet been produced, providing the necessary funding for fuel production. Companies were asked to indicate in their responses fuel type and total annual offtake, alongside information on the expected carbon intensity of the fuel (0-30, 30-70, 70-90, or 90+ gCO2 e/MJ) and the status of the offtake agreement(s).

- **Tier 1:** More than 5% of fuel offtake is zero-emission
- **Tier 2:** Offtake agreements for zero-emission fuels are signed
- **Tier 3:** The initial expressions of interest/feasibility studies are signed

FIGURE 31 *Share of each tier making up the total score of "zero-emission fuel offtake"*

Challenges and opportunities

Zero-emission fuel consumption faces different challenges for different fuel pathways. Lower-emission fuels such as drop-in biofuels or bio-LNG are increasingly produced and used in shipping. Drop-in biofuels, in particular, are more available at scale without the need to commit to long-term offtake. Yet availability remains limited, with demand driven significantly by existing regulations such as FuelEU Maritime. At the same time, shipowners interested in locking in their supply face pricing challenges, as few suppliers are willing to commit to pricing beyond the current year. Bio-LNG is also increasingly used, driven by its ability to generate significant credit volumes under the EU framework, but requires more active offtake agreements. Hydrogen-based fuels also require long-term offtake agreements, and their uptake remains very limited. The regulatory uncertainty has made this even more difficult, as companies are unable to project their compliance costs and returns on investments for zero-emission assets and offtakes.

Spotlight on best practices

Norden has signed deals to use drop-in biofuels that cut emissions by 80–90% (well-to-wake). It has also invested in the pyrolysis-fuel company Mash Makes, aiming for more than 85% in emissions cuts. Over the next three years, the goal is to scale production to over 100,000 tons of biofuel. **Diana Shipping** cooperates with its charterers to take up and consume biofuel blends on some of its managed vessels. To date, they have consumed a total of 2,131 metric tonnes of B30 and B24 biofuel blends. **Hapag-Lloyd** has signed a long-term offtake agreement with Goldwind for a bio/e-methanol mix of 250,000 tonnes per year, with first deliveries planned for 2026. For 2025 and 2026, it has an offtake agreement with Gasum Ltd for the delivery of 10 kilotonnes of certified liquefied biomethane in Rotterdam per year. It also has a multi-year agreement with Shell to supply ISCC EU-certified liquefied biomethane. **Maersk** has signed offtake agreements with Goldwind, **LONGi** and European Energy.

25

23%

Zero-emission vessel orders and deployment

ACTION ANALYSED

This action applied to shipowners, operators, and managers (a total of 36 companies). Of these, six scored Tier 3, five scored Tier 2, three scored Tier 1, and the remaining 22 companies scored Tier 0. While there have been limited deployments to date, the "average" shipowner/charterer included in this analysis has dual-fuel vessels on order, with a higher concentration in container ship and dry bulk orders. In line with the sector-wide findings of the Climate Action in Shipping report, many also noted orders of new liquefied natural gas vessels, which, combined with uncertainties around retrofit strategies, could create the risk of stranded assets for some Coalition members. Globally, there are currently 389 zero-emission vessels on order (ammonia, methanol, and hydrogen).

ACTION EXPLAINED

This action evaluates shipping companies' orders and the deployment of zero-emission vessels powered by zero-emission fuels. This includes both Level 1 and Level 2 vessels as defined by Lloyd's Register's 'Zero Ready Framework'. A Level 1 vessel is a near-net-zero-GHG vessel that operates entirely on zero-emission fuels. A Level 2 vessel, classified as a low-GHG vessel, can bunker and use zero-emission fuels for primary propulsion in most operating modes, although fossil fuels may also be used. Companies were asked to provide details on the relevant characteristics of their vessels, including their level under the framework, fuel type, DWT, and status (ordered, delivered, or in operation). Additionally, they were asked to specify the proportion of zero-emission-ready vessels that have been ordered or are present in the fleet. The following tiers are outlined for this action:

- **Tier 1:** The company operates zero-emission vessels using zero-emission fuels
- **Tier 2:** The company owns a zero-emission vessel but is currently operating it on conventional or low-carbon fuels
- **Tier 3:** The company has ordered dual-fuel/zero-emission vessels

FIGURE 32 *Share of each tier making up the total score of "zero-emission vessel order and deployment"*

Challenges and opportunities

The adoption of zero-emission vessels will become viable once technology and safety standards reach sufficient maturity. While vessel costs can be managed through financing and long-term planning, fuel costs remain a significant barrier. This is a systemic challenge that individual stakeholders cannot address in isolation. Instead, it requires a coordinated industry-wide approach to share responsibility through mechanisms such as demand aggregation.

Spotlight on best practices

Mitsui O.S.K. Lines and **CMB.TECH** have partnered to deploy the world's first ammonia-fuelled capesize bulkers and chemical tankers, jointly owning and chartering nine vessels powered by ammonia.

Contributions from supporting organisations of the Coalition

Across the Coalition, supporting organisations are contributing to maritime decarbonisation. Their work ranges from mapping e-fuel supply chains and modelling future fuel demand to testing the feasibility of green corridors and establishing the consortia needed to advance them. Although their activities vary, they do not operate in silos; together, they are shaping the enabling conditions, market signals, and deployment efforts that are essential to a zero-emission transition. The Coalition's knowledge partners and supporters act as intermediaries, bridging gaps between governments, industry, and finance, and providing the evidence base for informed regulatory and investment decisions that help de-risk early action by first movers.

Their submissions reveal several shared characteristics. First, most organisations are active across the maritime sector rather than specialising in a single domain, with technical analyses feeding directly into policy design and the success rates of early-stage pilots informing future investment decisions. They often face similar challenges both among themselves and with the wider maritime industry. Some examples include uncertainty around future fuel pathways, the need for stronger demand signals, and the difficulty of mobilising finance, especially in developing markets and emerging economies.

Creating enabling conditions

Coalition knowledge partners and supporters shared examples of work that has contributed to policy development, informed key dialogues, and advanced research and analysis in the policy space. **Solutions for Our Climate** has been mapping e-fuel supply chains in Asia, informing governments and the maritime sector on infrastructure needs and investment pathways that support long-term decarbonisation. The **World Bank** has focused on pre-feasibility studies and on providing policy recommendations that help governments design investment frameworks and regulatory structures. Its work in countries such as Morocco and Colombia demonstrates how technical analysis can guide national strategies and unlock financing.

Arup and UMAS showcased their joint research and scenario modelling on e-fuel supply and demand, demonstrating credible pathways for maritime decarbonisation. By quantifying infrastructure needs and emissions impacts, this work informs investment and regulatory decisions that support the transition to low- and zero-emission shipping while grounding policy in evidence. **Ricardo's** life cycle assessments of marine fuels provide robust evidence for standards development and policy review processes. By comparing the emissions profiles of conventional and alternative fuels, these studies inform regulatory frameworks and industry strategies.

Incentives and market making

When it comes to incentives and market making, we asked members to note down the meaningful work they have completed on financial flows, port incentives, green finance, and the convening of dialogues between supply and demand actors. **Furstenberg Maritime Advisory** has undertaken consultancy work on the IMO CARES II Project (Coordinated Actions to Reduce Emissions from Shipping), focusing on microfinance models that support decarbonisation capabilities in the Global South, particularly West African and Caribbean countries. **Arup** includes port incentives on offer in its Environmental Defense Fund action framework for US ports. When it comes to transparency in ship finance, **Ricardo** previously developed and implemented the European Commission's Directorate-General for Mobility and Transport (DG MOVE) ship financing portal, aimed at improving transparency in funding/financing sources for greening maritime.

First movers and niche market developments

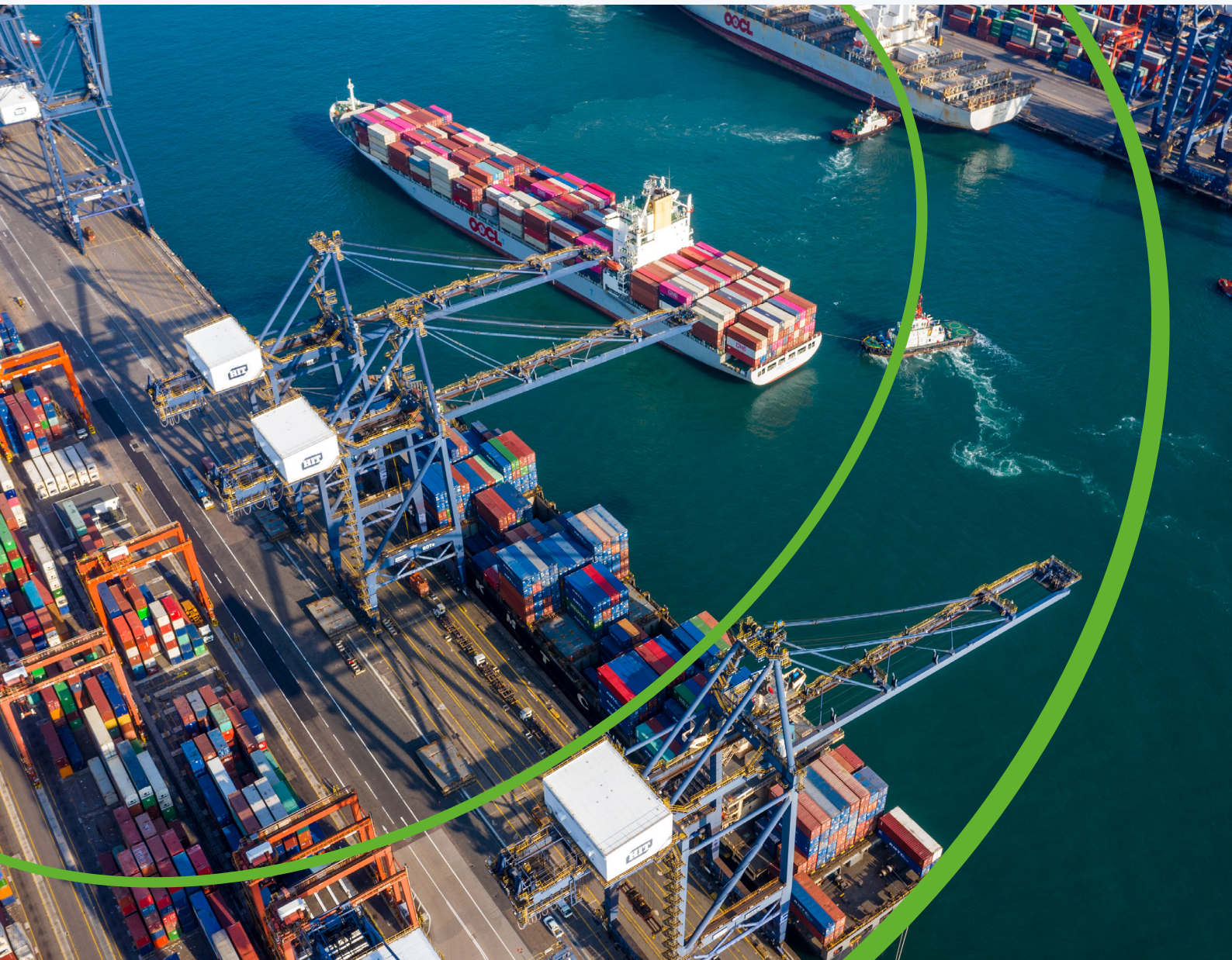
With respect to first movers and niche market developments, submissions focused on supporting, tracking, and/or managing book-and-claim systems; developing business models for the uptake of zero-emission fuels; evaluating pilots and demonstration projects; contributing to green corridor developments; and providing certification and verification schemes. **SFOC** conducts work on green shipping corridor initiatives—notably an EU-Pyeongtaek pure car and truck carrier (PCTC) corridor project—and engages shipping companies to shift demand away from conventional vessels and create clear demand signals for ZNZ-fuelled vessels. It also participates in the Korean government's public-private task force on green shipping corridor development. The **Maersk McKinney Centre for Zero Carbon Shipping**, in collaboration with the Rocky Mountain Institute, co-developed and launched Katalist, a non-profit book-and-claim registry designed to accelerate shipping decarbonisation. The **World Bank's** 2025 Morocco report outlines pilot projects that will support Morocco in developing a green hydrogen value chain. It also supports several green corridors, i.e., LA-Shanghai and LA-Singapore. In partnership with **UMAS**, the World Bank also supports the **Port of London Authority** in exploring a green shipping corridor currently in the pre-feasibility phase.

Transition investments

The transition investment submissions focused on research into alternative financing for shipping's transition, training seafarers to handle alternative fuels, and support for development banks and government strategies. **Ricardo's** recent work includes testing a dual-fuel methanol engine that may serve as a retrofit solution, leading Project FASTMOVE to assess four-stroke ammonia-fuelled engines for offshore support vessels, and contributing to a feasibility study on hydrogen floating power hubs that can cut port-operation emissions.

Deployment of zero-emission shipping

Coalition knowledge and support members also provided submissions pertaining to fuel production and use, just and equitable transition efforts, and vessel deployment pathways. **SFOC** has been researching subsidies and mapping the supply chain to advocate for policies that expand public and private finance and close the fuel cost gap. The **World Bank** is supporting prospective e-fuel producers through technical and commercial market studies and strategy development, with current projects in the pre-feasibility stage. In partnership with **UMAS**, it has published thought leadership on e-fuel supply and demand.



Conclusion

With its second edition, the Action Framework offers a more reliable picture of how Getting to Zero Coalition members are progressing across key dimensions of the maritime transition. Unfortunately, the dataset is still not exhaustive, but it is broad enough to identify meaningful patterns. The results show that Coalition members continue to face many of the same structural barriers that challenge the wider industry: persistent policy uncertainty at the IMO, lack of clarity regarding future fuel pathways, and slow development of the commercial mechanisms needed to connect future supply and demand for zero-emission fuels.

At the same time, this year's analysis highlights clear signs of growing maturity and leadership within the Coalition. Members are increasingly active in creating enabling conditions—improving transparency, strengthening transition planning, and engaging at the IMO and at national and regional levels.

Moreover, several companies are now progressing from pilots to early commercial deployment of zero-emission assets, as evidenced by the first operational green corridors coming to fruition. This signals that years of planning are finally translating into real-world implementation.

However, progress remains uneven. Demand-side action—such as procuring zero-emission shipping services, signing fuel offtake agreements, and retrofitting—continues to lag. These areas are essential for creating the predictable demand signals needed to unlock investment.

The Action Framework has quite a vast fuel scope, encompassing a wide range of zero-emission fuels. A clear trend is that industry uptake is concentrated around the more accessible, incremental transition fuels—particularly biofuels. At the same time, adoption of longterm efuels remains limited, largely due to their high cost and the absence of regulatory signals strong enough to drive a decisive shift.

This year's results suggest that the Coalition includes both first movers and a broader group that remains constrained by commercial, technological, and regulatory uncertainty. As the industry moves closer to the 2030 milestones, narrowing this gap will be essential. Clearer policy signals, stronger cross-value-chain coordination, and more robust early-market mechanisms will be critical to transforming first-mover momentum into sector-wide progress.

The Action Framework will continue to evolve as a tool for tracking and accelerating this transition. As participation grows year on year and data accumulates, this will support a more detailed understanding of progress, gaps, and emerging opportunities for the Getting to Zero Coalition.

Appendix

Assessment methodology

This report assesses progress across 25 actions organised into five transition categories: creating enabling conditions; incentives and market-making; first movers and niche-market development; transition investments; and deployment of zero-emission shipping. The design and selection of these actions were informed by previous research conducted by the Global Maritime Forum and the Getting to Zero Coalition, found in the Getting to 5%: An action plan for delivering zero-emission fuels in shipping and Climate Action in Shipping: Progress Toward Shipping's 2030 Breakthrough reports. Design was further refined through extensive engagement with the Getting to Zero Strategy Group, a drafting group of international organisations, and a cross–value chain reference group. Actions were added, removed, or modified based on two main principles:

1. The framework includes actions that extend beyond 2030 and are necessary for the full decarbonisation of the industry by 2050.
2. The actions cover the entire shipping value chain.

This year's report saw two key changes. One was a structural change where last year's action on "GHG emission reduction targets" was removed, reducing the total number of actions from 26 to 25. In the previous edition, six action areas were assessed under the theme of creating enabling conditions; this year, only five are included. The action focused on setting emission-reduction targets was removed because it proved difficult to assess consistently due to the complexity of the emissions scopes. Secondly, this year, Coalition knowledge partners and supporters were also invited to contribute insights, which are presented separately.

The reporting period opened in September 2025. Coalition members received a structured form outlining each action, guidance for responding, and the grading criteria, supported by additional information materials. Data analysis followed two steps: grading responses against predefined criteria and conducting a thematic analysis to identify patterns across the value chain. Actions were scored on a four-tier scale from zero to three points. Some actions applied only to specific industry segments; non-applicable responses were excluded from scoring but included in the thematic review.

Three types of data were analysed: new submissions, updated submissions, and previously submitted information from companies that did not report this year. Because the framework captures actions taken to date, all past information remained valid for assessing progress.

The results were then used to calculate each company's individual score and were further analysed by action, category, and industry segment. Average scores are shown as a percentage of the maximum possible score (per action, per transition area, and per stakeholder category × action). For each action, results are also broken down by tier, expressed as the percentage of responses from each.

Both the grading and thematic analysis were conducted by multiple reviewers, allowing cross-checking and the incorporation of diverse perspectives. All responses were treated confidentially, and any examples included in this report are drawn only from submissions for which explicit consent was provided.

Limitations

The purpose of this report is to evaluate actions and increase transparency among Getting to Zero Coalition members, which naturally limits the scope and sample size of the analysis. However, the report has several other limitations worth highlighting:

1. Eighty-six industry companies submitted responses to the reporting form, representing roughly 50% of the total membership and around ten more submissions than in the previous edition. Submissions from cargo owners, freight forwarders and customers, and classification societies, were particularly limited. While this limits the dataset's completeness, the sample is considered sufficiently large to provide a meaningful representation of activity within the Coalition. The overall response rate can also be attributed in part to the Action Framework's relative novelty and is expected to grow as it becomes more established.
2. The manual assessment of responses—while considered the most appropriate method given the qualitative nature of the information—introduces subjectivity and potential bias. To mitigate this, the grading and analysis were conducted and cross-checked by multiple reviewers. Also, each action had defined criteria for the individual tiers, thereby reducing subjectivity.
3. Some companies did not update their responses this year, since progress in this report is tracked cumulatively. In these cases, it was not always clear which previously submitted information was still relevant. Resolving this required substantial manual review.
4. Finally, some methodological adjustments were introduced in this second edition of the framework. In last year's report, responses submitted for actions that were not applicable to a company were graded as Tier 0. In this year's framework, these responses were instead classified as blank and excluded from scoring. Tier 0 is now reserved only for situations where a company is eligible to respond, but either they did not submit an answer or did not provide sufficient information. While this change improves the accuracy of the grading system, it may slightly affect the year-on-year comparability of certain results.