



**GETTING TO ZERO
COALITION**

GLOBAL MARITIME FORUM

ANNUAL PROGRESS REPORT ON GREEN SHIPPING CORRIDORS

2024 edition



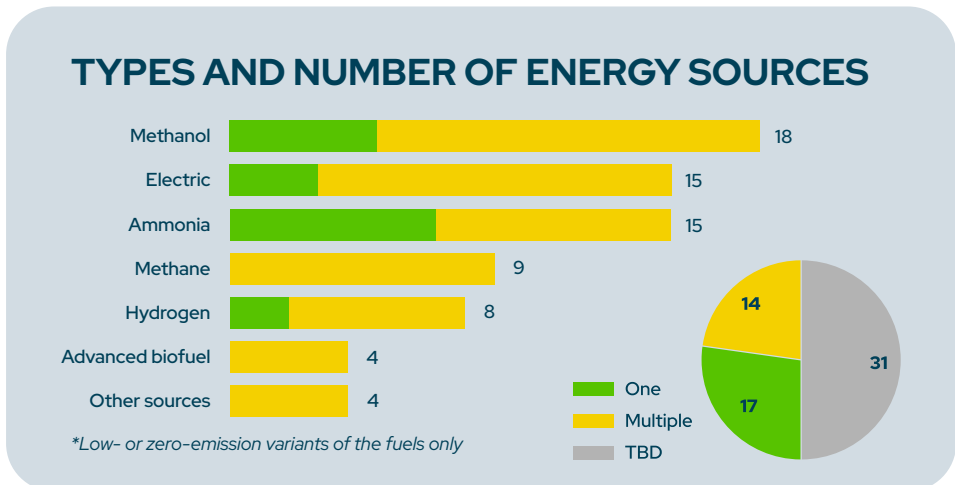
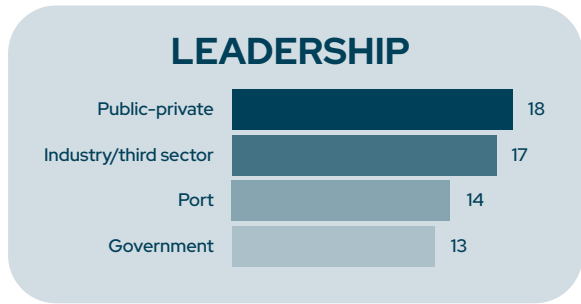
Executive Summary

Green shipping corridors – specific trade routes where the feasibility of zero-emission shipping is catalysed by public and private action – are becoming increasingly mature, but risk hitting a “feasibility wall” if economic challenges are not resolved.

The third edition of the Annual Progress Report on Green Shipping Corridors provides an overview of progress within green corridors in the three years since their emergence at COP26.

62 initiatives
244 stakeholders

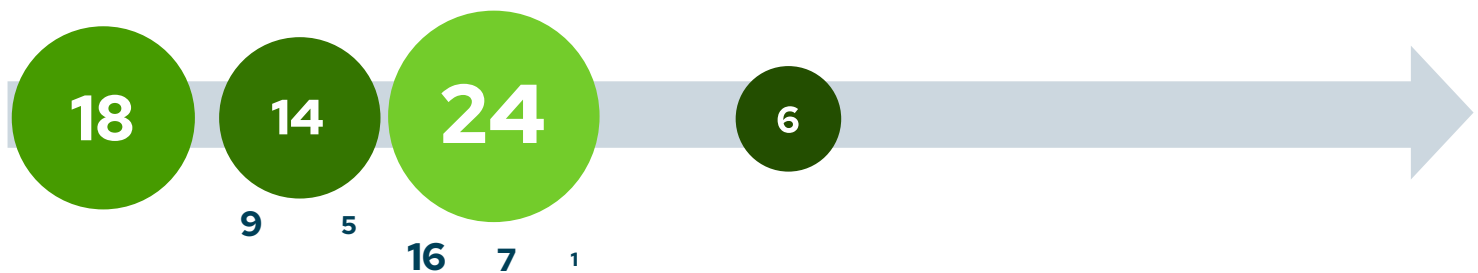
+18 since the previous edition



It reveals that the green corridor movement has continued to grow, with 18 new initiatives emerging since last year’s edition. There are now 62 ongoing initiatives worldwide in various stages of development. These now cover all regions, almost all ocean-going shipping segments, scalable zero-emission fuel pathways, and just under 245 stakeholders from across the shipping and energy value chains.

Existing efforts have made healthy progress, with two-fifths advancing to a new phase of development over the past year. In a milestone for the movement, at least six initiatives have now progressed beyond mere exploration towards enabling real-world implementation.

INITIATION	EXPLORATION		PREPARATION		REALISATION	
-	EARLY	ADVANCED	PRE-COMMERCIAL	COMMERCIAL	CONSTRUCTION	OPERATION
Establishing an initiative	Aligning on what the opportunity looks like	Understanding what needs to happen to realise the opportunity	Removing shared barriers to realisation	Taking the actions needed for realisation	Vessels, infrastructure and/or fuel plant built	Zero-emission shipping begins on corridor



This group of front-runners, which are the focus of this edition, have now completed feasibility studies and cost assessments. The major shared emphasis among these corridors is on fuel supply and economics, as evidenced by their efforts to aggregate demand for zero-emission fuel, identify cost and risk-sharing mechanisms, and map available policy enablers. These efforts have begun to yield results and show signs of innovation, such as signalling collective demand for zero-emission fuels, aligning on preferred carbon intensities for zero-emission fuel, and policy papers that identify key supporting policies.

Crucially, while customer demand and voluntary action are expected to support the corridors' economics, it has become increasingly clear that national governments have a central role in breaking through the "feasibility wall" and unlocking the business case. The lack of national policy incentives to bridge fuel costs has emerged as a key bottleneck and will soon place a limit on how far these initiatives can reach.

At the same time, there is an emerging split among front-runners. While some are positioned as projects, with a defined set of participants attempting to jointly deliver investments, others instead resemble programmes, with a broader set of participants who coordinate activities informally and collaborate to remove barriers to investments that may be taken independently of the initiative. These two governance approaches both come with their own set of challenges, and the difference will become even more relevant as the green corridors move closer to realisation.

With this in mind, this report concludes that:

1. Timely, accessible **public support to bridge the fuel cost gap** must be the immediate priority for governments committed to making green corridors a success. **Coalescing around green market-maker schemes, such as H2Global**, may be the most cost-effective and timely option.

Indeed, there is an immediate opportunity around the front-runners. These efforts alone could require over 2 million tonnes of hydrogen-based fuel per year by 2030. They centre on ten countries, of which six have already committed funding to demand-side support for hydrogen. By coming together to offer shipping auctions under the H2Global mechanism or an equivalent, these governments could create a watershed moment not only for green corridors but shipping decarbonisation more broadly.

2. Stakeholders must **take advantage of corridors as protected spaces for exploring innovative commercial arrangements**. Given the challenging economics of zero-emission solutions, green corridor initiatives must put business-as-usual thinking aside and prioritise commercial innovation around fuel procurement and chartering/cargo.
3. Initiatives need to **adopt a more flexible, programmatic approach to governance**. By allowing for wider participation and a variety of collaborative mechanisms in fuel purchasing and chartering, these approaches may be better equipped to handle experimentation, achieve scale, and share risks.
4. There is a need to **explore what policies and sources of finance can support the realisation of green corridors and zero-emission fuel supply chains in the Global South**. Corridors based in the Global South, as well as those that intend to import fuel from the South, face specific challenges that will need to be addressed in a bespoke fashion. Closer engagement with multilateral development banks can help identify solutions.
5. **Rallying behind the existing initiatives and leveraging the growing body of best practices** may be the best strategy to maximise the potential of the global green corridor portfolio. The steadily growing number of initiatives shows that there is continued interest in establishing green corridors. However, given limited public and private resources and narrowing timelines, supporting existing efforts should be the main priority going forward.

Annual Progress Report on Green Shipping Corridors 2024

November 2024

Authors

Joe Boyland

Elena Talalasova

Data collection

Aninda Annisa

Layout

Trine Kirketerp-Møller

Editor

Justin Cremer

This report has been produced by the Global Maritime Forum on behalf of the Getting to Zero Coalition. The views expressed are the authors' alone.

Acknowledgements

The Global Maritime Forum would like to thank the representatives of green shipping corridor initiatives and Clydebank Declaration signatories for their support in the preparation of this report. We are especially grateful to the following interview participants for their valuable insights:

- » Sweden-Belgium Green Shipping Corridor: Therese Jällbrink, Lau Blaxekjær
- » The Silk Alliance: Carlo Raucci, Charlie McKinlay, Dana Rodriguez
- » Maersk Mc-Kinney Møller Center for Zero-Carbon Shipping: Johan Byskov Svendsen
- » Australia-East Asia Iron Ore Green Corridor: Anna Rosenberg
- » Singapore-Rotterdam Green and Digital Shipping Corridor: Eleanor Criswell, Naomi van den Berg, Patrick Walison, Minerva Lim
- » Stockholm-Turku green corridor: Lotta Andersson, Mika Laurilehto
- » C40 Cities: Yana Prokofyeva, Maggie Messerschmidt
- » The Nordic Roadmap: Eirill Bachmann Mehammer

Table of contents

Executive Summary	2
Introduction	7
How do we assess progress?	7
Data collection and validation	8
Overview of initiatives	9
Segment and geography	11
Fuel pathway	12
Policy and stakeholders	13
Progress	16
State of advanced initiatives	16
Progress against the timeline	17
Determining the fuel pathway	19
Mobilising customer demand	20
Enabling policy environment	21
Cross-value chain collaboration	24
Knowledge development and exchange	25
Conclusions and recommendations	27
Appendix: Best practices for early-stage initiatives	33

Introduction

It has been three years since green corridors – routes where the feasibility of zero-emission shipping is catalysed by public and private action – entered shipping’s vocabulary with the launch of the Clydebank Declaration for Green Shipping Corridors at COP26. Many green corridor initiatives have emerged since then, along with a plethora of definitions and approaches to developing them. In the meantime, the wider shipping decarbonisation landscape has evolved significantly, moving from isolated technology pilots and demonstration projects to zero-emission vessel orders and increasingly stringent regulation.

In the face of these changes, green corridors remain as important as ever in helping the sector reach its 5% tipping point.¹ Indeed, with several key pieces of the shipping transition falling into place, the role green corridors can play in the sector’s decarbonisation is becoming clearer. As shipping nudges closer to a mass market transition, green corridors can be seen as vehicles for enabling the deployment of zero-emission assets, rather than mere demonstration projects. This is because of their potential to:

- provide the necessary **scale and coordination** to support investments in zero-emission fuel production and infrastructure, making zero-emission fuel available,
- de-risk the use of zero-emission fuels by encouraging **commercial innovation and public-private collaboration**, making zero-emission fuel acceptable and affordable, and
- maximise the likelihood and impact of **policy incentives** by targeting efforts on the most favourable routes for early action.

The previous edition of the Annual Progress Report on Green Shipping Corridors concluded that “if green corridors are to hit their targets and fulfil their function, 2024 must be a breakthrough year in which front-running initiatives begin to execute their plans and others are primed to quickly follow”. As such, in addition to tracing the state of the movement, this year we zoom in on progress within these front-runners to understand to what extent they are leveraging their potential to act as enablers for zero-emission asset deployment.

How do we assess progress?

A [2022 Getting to Zero Coalition discussion paper](#) highlighted two emergent approaches to governing green corridors – a programme model and a project model. In the project model, members of the corridor act together to realise defined deliverables towards a shared business goal. In the programme model, the corridor initiative provides a platform for collaborative action alongside independent action by members. This distinction has shown to have major implications for assessing the progress of green corridors. As they advance, it is becoming clear that commercial project development frameworks, against which corridor progress has previously been measured, do not always accurately capture the

¹ The 5% tipping point refers to an estimated share of scalable zero-emission fuels required to unlock the diffusion phase of the transition, [first suggested by the Getting to Zero Coalition in 2021](#).

state of programmatic corridors. In addition, these project-centric frameworks do not always adequately value the benefits of green corridors as protected spaces for exploration and innovation.

In parallel, with the continued maturation of the movement, there is growing clarity around the steps that must be taken to make a green corridor a reality.

To better accommodate the diversity of approaches to corridor development and reflect these learnings, this year’s report adopts an updated approach to measuring corridor progress.

INITIATION	EXPLORATION		PREPARATION		REALISATION	
-	EARLY	ADVANCED	PRE-COMMERCIAL	COMMERCIAL	CONSTRUCTION	OPERATION
Establishing an initiative	Aligning on what the opportunity looks like	Understanding what needs to happen to realise the opportunity	Removing shared barriers to realisation	Taking the actions needed for realisation	Key assets built	Zero-emission shipping begins on corridor
<i>Example activities</i> <ul style="list-style-type: none"> Stakeholder workshops Country-level assessment Formation of core stakeholder group Governance agreed 	<i>Example activities</i> <ul style="list-style-type: none"> Fleet baselining Fuel selection Pre-feasibility study 	<i>Example activities</i> <ul style="list-style-type: none"> Feasibility study Gap analyses Implementation roadmap Target setting Cost modelling 	<i>Example activities</i> <ul style="list-style-type: none"> Policy dialogue Policy paper Discussions on commercial innovation Technical studies and working groups 	<i>Example activities</i> <ul style="list-style-type: none"> Design and engineering Commercial vehicles established Policy incentives accessed Regulatory updates and approvals Tenders issued Contracts signed 	<i>Example activities</i> <ul style="list-style-type: none"> Vessels built/retrofitted Bunkering infrastructure built/expanded Fuel plant built/converted 	<i>Example activities</i> <ul style="list-style-type: none"> Pilots and demonstrations Additional vessel orders and offtakes

Figure 1: Corridor progress framework used in this report

We outline four stages of corridor development – Initiation, Exploration, Preparation, and Realisation² – which are split into more granular phases, each characterised by a core challenge. Notably, a distinction is made between a Pre-commercial and Commercial Preparation phase, which allows for a better assessment of a corridor’s investment readiness.

The progress phases are in turn marked by characteristic activities – actions undertaken to tackle the core challenge in each phase. While this list of activities is not exhaustive, they act as helpful indicators of progress.

For the purposes of this report, “advanced initiatives” are defined as those which have successfully completed the Advanced Exploration phase and progressed to the Preparation stage. In practice, this means completing feasibility studies, cost assessments, and establishing workstreams tackling specific barriers to realisation.

Data collection and validation

Though a diversity of approaches to green corridor development is generally encouraged, well-defined boundaries for what constitutes a green corridor are essential for maximising the movement’s potential, minimising conceptual confusion, and avoiding accusations of greenwashing.

² The Initiation stage remains unchanged, while Exploration, Preparation, and Realisation correspond to the Planning, Execution, and Operation stages in last year’s report.

To be counted as a green corridor, an initiative must meet the Getting to Zero Coalition definition of being “a route on which the feasibility of zero-emission shipping is catalysed by public and private action”. Specifically, it must:

- work toward the use of zero-emission fuel or energy for primary ship propulsion,³
- support the commercialisation of non-commercial fuels or energy sources in shipping, and
- feature a high level of cross-value chain collaboration, including close engagement and input from national/regional governments.

It must also meet two new criteria, introduced for this edition:

- To avoid organisations repackaging activities as green corridors, an initiative must call itself a green corridor from the point of initiation.
- To reflect the nature of green corridors as a specific tool for decarbonising the shipping sector, and their tight link with the 5% tipping point, only initiatives with a focus on zero-emission ocean-going vessels are counted towards progress.⁴ Efforts focused on zero-emission harbour craft, offshore vessels, inland barges and other smaller, non-ocean-going vessels are treated as parallel to, but separate from, green corridors.

Based on these criteria, eight initiatives announced between 2022 and 2024 were excluded from this edition.

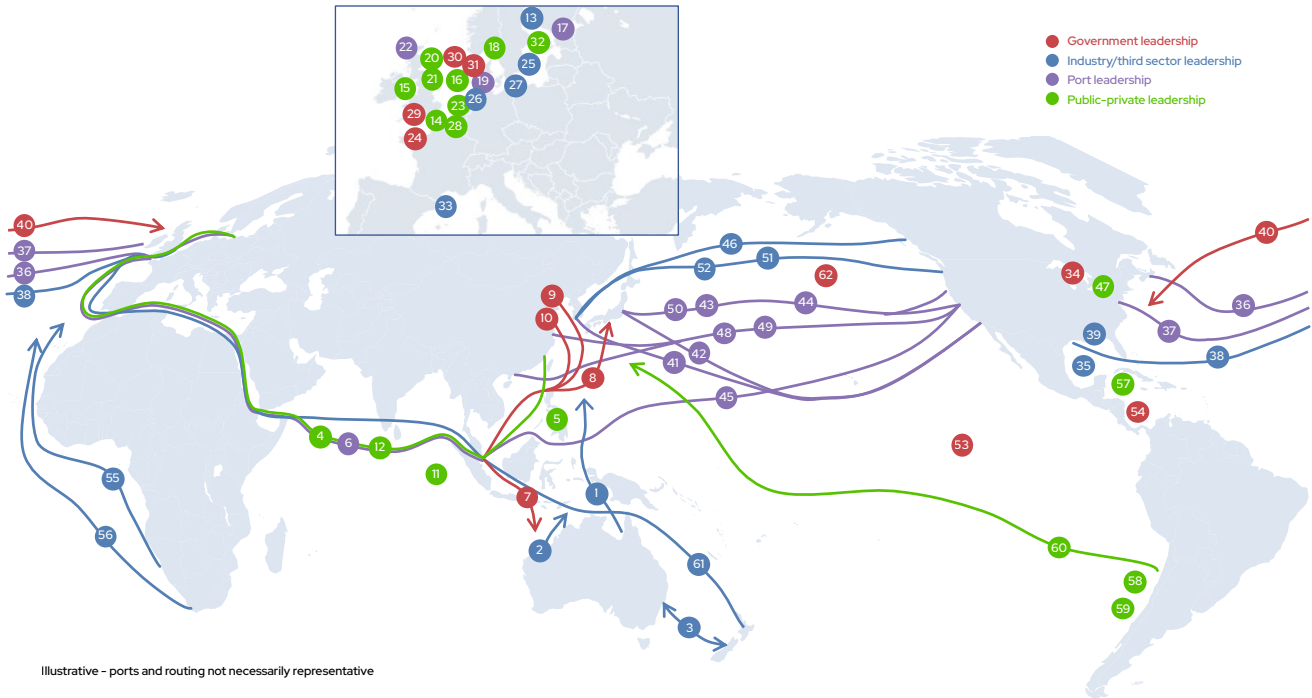
Progress data was collected via a combination of desktop research, a survey of the involved organisation, and interviews with representatives from the advanced initiatives. Information for over two-thirds of all the initiatives was validated by initiative representatives. Information was extracted from public sources for the rest.

Overview of initiatives

As of 30 October 2024, 62 green corridor initiatives have been announced, of which 18 are new. This represents a third consecutive year of steady growth in the number of green corridor efforts, suggesting continued interest in the concept.

³ Defined as fuels with the potential to achieve zero- or near-zero greenhouse gas emissions on a lifecycle basis. See the [Getting to Zero Coalition’s definition of zero carbon energy sources](#) for further clarification.

⁴ Encompassing container ships, bulk carriers, general cargo ships, passenger ships, tankers, cruise ships, and vehicle/roll-on roll-off vessels.



- | | | |
|------------------------------------------|----------------------------------------------|--------------------------------------------------------------|
| 1. Australia Bauxite | 25. Stockholm-Åbo | 45. Los Angeles/Long Beach-Singapore GDSC |
| 2. Australia-East Asia Iron Ore | 26. Sweden-Belgium | 46. North Pacific Green Corridor Consortium |
| 3. Australia-New Zealand | 27. Trelleborg-Lübeck | 47. Pacific Northwest to Alaska Green Corridor |
| 4. Hamburg-Shanghai | 28. Tyne-Ijmuiden | 48. LA-Guangzhou |
| 5. Philippines Corridors | 29. UK-Belgium | 49. Port of Los Angeles-Port of Long Beach-Port of Shanghai |
| 6. Rotterdam-Singapore GDSC | 30. UK-Denmark | 50. Port of Oakland-Yokohama |
| 7. Singapore-Australia GDSC | 31. UK-Norway | 51. Seattle and Tacoma-Busan |
| 8. Singapore-Japan GDSC | 32. Vaasa-Umea | 52. Seattle and Tacoma-Korea PCTC |
| 9. Singapore-Shandong | 33. West Mediterranean Cruise | 53. US and Pacific Blue Shipping Partnership Green Corridors |
| 10. Singapore-Tianjin GDSC | 34. Great Lakes Iron Ore | 54. US and Panama Green Corridors |
| 11. The Silk Alliance | 35. Gulf of Mexico Green Shipping Corridor | 55. Namibia Corridors |
| 12. UK-Singapore-ASEAN | 36. Halifax-Hamburg | 56. South Africa-Europe Iron Ore Corridor |
| 13. Åland Mega Green Port | 37. Ireland-to-Indiana container | 57. The Caribbean Green Shipping Corridor Initiative |
| 14. Dover-Calais/Dunkirk Ferry | 38. Port of Houston-Port of Antwerp-Bruges | 58. Chile Piscicultura |
| 15. Dublin-Holyhead | 39. US Green Bulk | 59. Chile Sulfuric Acid |
| 16. Esbjerg-Immingham | 40. US-UK Green Shipping Corridors Taskforce | 60. Chile-Japan/Korea copper concentrate |
| 17. FIN-EST | 41. Hueneme-Pyeongtaek Green Automotive | 61. Taurange-Zeebrugge |
| 18. Gothenburg-Frederikshavn Pilot Study | 42. Hueneme-Yokohama Green Automotive | 62. West Green Shipping Corridor |
| 19. Gothenburg-Rotterdam | 43. LA-Nagoya | |
| 20. Larne-Liverpool | 44. LA-Yokohama | |
| 21. Liverpool - Belfast | | |
| 22. Northwestern England-Ireland | | |
| 23. Oslo-Rotterdam Pilot Study | | |
| 24. St Helier-St Malo | | |

Segment and geography

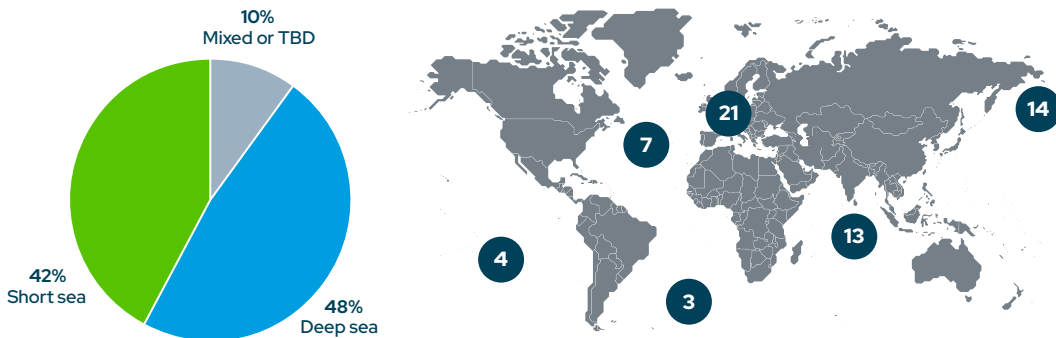


Figure 2: Scope of the corridors (left, % of initiatives) and indicative geography (right, number of initiatives)

While the movement encompasses multiple opportunities across all continents, clear geographic hotspots can be observed. Europe alone accounts for a third of all activity, with the North Pacific and Asia Pacific each representing roughly one-fifth of activity.

Initiatives cover 21 of the 27 Clydebank Declaration signatory countries and various non-signatory countries, such as China, South Africa, Namibia, Panama, and Estonia. Both deep-sea corridors and short-sea corridors are well-represented. Short-sea activity is relatively concentrated in Northern Europe, while the global picture shows more emphasis on deep-sea opportunities.

The global portfolio shows good representation of shipping's different segments, with all major segments except oil and gas tankers now covered. This has been aided by the announcement of three initiatives focused on car carriers, which had not previously been represented.

The roll-on/roll-off (ro-ro) and ferry segment is now the most active. At the other end of the scale, the cruise segment now has two initiatives with the addition of one since the last report.

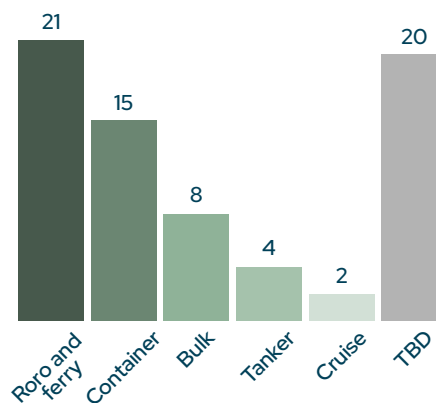


Figure 3: Representation of different shipping segments within the corridor portfolio

Fuel pathway

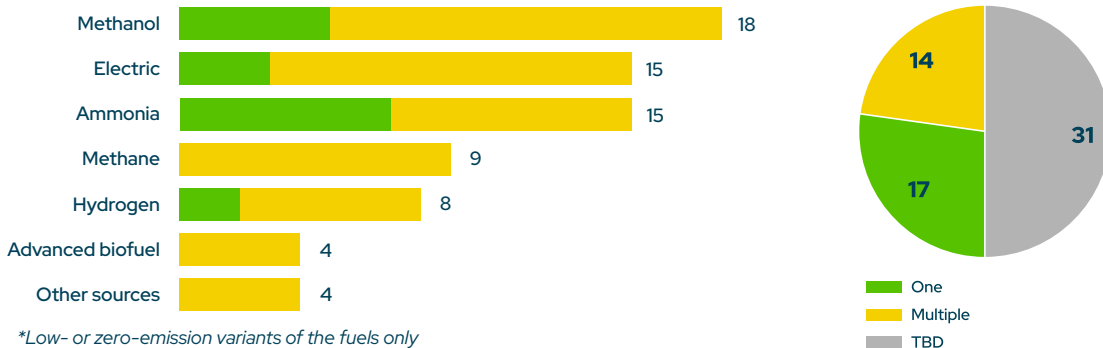


Figure 4: Representation of different fuels/energy sources in the green corridor movement (left) and proportion of initiatives opting for one fuel, multiple, or TBD (right)

There has been limited change in the number of fuel pathway decisions since the last edition. Overall, 14 new and 17 existing initiatives are yet to commit to a fuel pathway. Given that these are disproportionately led by governments and ports, this lack of progress could potentially reflect their struggle to attract key stakeholders or insufficient mandates to make fuel decisions.

The share of initiatives opting to focus on one fuel versus multiple fuels also remains largely unchanged. For some, pursuing a multi-fuel pathway signifies continued uncertainty. For others, it reflects a conscious decision to enable a multi-fuel future or is indicative of a focus on hybrid technology solutions or plans for co-production of multiple fuels.

Among the initiatives that have selected a fuel pathway, methanol, ammonia, and electric are the most popular options.

Methanol is the focus of 18 initiatives, making it the best-represented fuel overall. This includes corridors across all segments, but particularly container, ferry, and cruise. In the container segment, methanol's popularity likely reflects mounting methanol dual-fuel vessel orders and a relatively high technology readiness level. Both cruise initiatives in the portfolio also focus on methanol, which is a frontier technology for that segment.

Ammonia is featured in 15 initiatives. It is the most common fuel among bulk carriers, while it is also considered an option in a handful of fuel-agnostic initiatives, including as a frontier technology for container ships.

Of the 15 initiatives focusing on battery electric, 12 foresee it as primary propulsion and three as a hybrid solution, using electric to reduce consumption of zero-emission fuel. These overwhelmingly focus on short-sea routes, most commonly in Northern Europe.

A lower but rising level of interest in methane can be observed, with nine corridors across the container and ferry segments considering this fuel. Notably, all but one of these corridors are connected to Europe, potentially due to upcoming EU compliance requirements and greater accessibility of the fuel in this region. In contrast to ammonia, which is often considered as a single fuel, methane only features as part of a portfolio of fuels. Hydrogen enjoys a similar level of continuing interest, featuring in eight initiatives. There remains limited representation of advanced biofuels, with just four corridors focusing on this pathway.

Policy and stakeholders

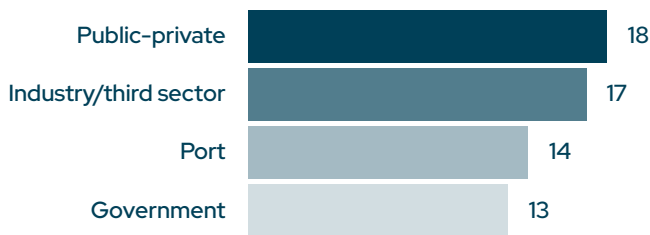


Figure 5: Number of green corridor initiatives by leadership type

Thirty-one initiatives feature at least some involvement from the public sector. Thirteen are a mix of efforts managed by governments and bilateral framework agreements, almost all of which feature the United States, the United Kingdom, or Singapore. Nine are public-private collaborations, while nine are led by industry but have received government funding for conducting feasibility or pre-feasibility studies.

Beyond action by the United Kingdom, the United States, and Singapore, there has been a broadening of government participation. In total, 20 national governments and 22 regional or local governments are now participating in green corridors in some capacity. Several countries stand out for an intensification in their engagement over the past year:

Emerging government leaders in green corridors

Australia

- Green corridors are to feature in Australia’s forthcoming [Maritime Emissions Reduction National Action Plan](#), supported by an industry consultation to gather inputs on how best to support the movement.
- The government has established the bilateral Australia-Singapore Initiative on Low Emissions Technologies (ASLET) programme, providing \$20m AUD/SGD of joint funding to support research, pilots, and demonstration projects linked to Singapore and Australia green and digital shipping corridors.
- The government is in discussions about establishing public-private programmes, with defined deliverables and roles for industry and government, to support the implementation of ongoing green corridors initiatives from the country.

Republic of Korea

- A first-of-a kind *Special Act for Supporting the Establishment of Green Shipping Corridors* [bill has been tabled at Korea’s National Assembly](#). The bill would see the Korean government outline expectations for corridor development, including a definition of green corridors in the Korean context,⁵ and take measures including:
 - » creating five-year plans for progressing green corridors,
 - » establishing a Green Shipping Corridor Support Council to facilitate corridor development,
 - » signing international memoranda of understanding to promote the establishment and expansion of corridors, and
 - » putting in place policies to upskill the workforce, support research and development projects, and offer financial support for green corridors.

Germany

- Green corridors are to feature as one of several action areas in Germany’s forthcoming National Action Plan for Climate-Friendly Shipping, [announced in May 2024](#).
- The Federal Ministry for Digital and Transport Affairs and NOW have partnered with UMAS and the Global Maritime Forum to identify favourable green corridors and support the formation of potential green corridor consortia through public-private workshops.

⁵ “Green Shipping Corridor” refers to a route designated and notified by the Minister of Maritime Oceans and Fisheries in accordance with Article 6 as a route in which green ships operate between two or more eco-friendly ports using carbon-free fuels and eco-friendly technologies and do not emit carbon in the entire process of maritime transportation” (translated from Korean)

Governments are part of the more than 240 stakeholders involved in green corridors (compared to 171 in the previous edition). Similar to last year, the stakeholder numbers reveal strong participation by port authorities and shipping companies.

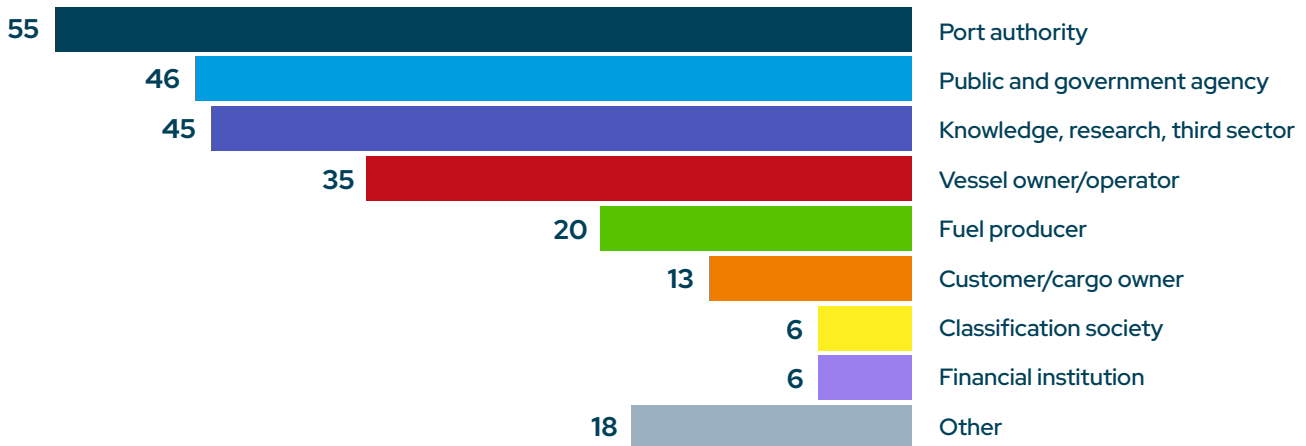


Figure 6: Number of stakeholders represented in the green corridor movement by type⁶

Including charterers, the vessel owners and operators involved in the movement account for just under half of the existing and ordered ammonia and methanol fleet.⁷ They comprise six of the ten companies with the biggest methanol-capable fleets and key early movers in ammonia-powered shipping, including CMB, Exmar, NYK, Fortescue, and DFDS.

45 organisations across the knowledge, research, and third sector are involved. NGOs, universities, and consultants account for over half of this group, with additional participation from various networks and innovation platforms, industry associations, and regional development organisations.

Fuel producer involvement has improved and now includes around 20 companies, both energy incumbents and dedicated renewable/hydrogen project developers.

In contrast, direct cargo owner involvement remains relatively weak, with just 13 organisations. Most of these are bulk cargo owners across chemicals, mining, and agricultural goods, participating as charterers/vessel operators, but companies across the food and automotive sectors are also represented. The number of participating financial institutions also remains low, with just two multilateral development banks – the Asian Development Bank and World Bank – and four traditional financial institutions involved in green corridors.

⁶ “Knowledge, research, third sector” category includes universities, NGOs, industry associations, innovation platforms and hubs, consultants, regional cooperation and development organisations, research and business intelligence organisations. “Other” category includes port and terminal operators, shipbuilders, ship brokers, ship managers, engine manufacturers.

⁷ 17 of 34 ammonia-capable vessels and 151 of 345 methanol-capable vessels recorded by Clarkson’s World Fleet Register as of October 2024.

Progress

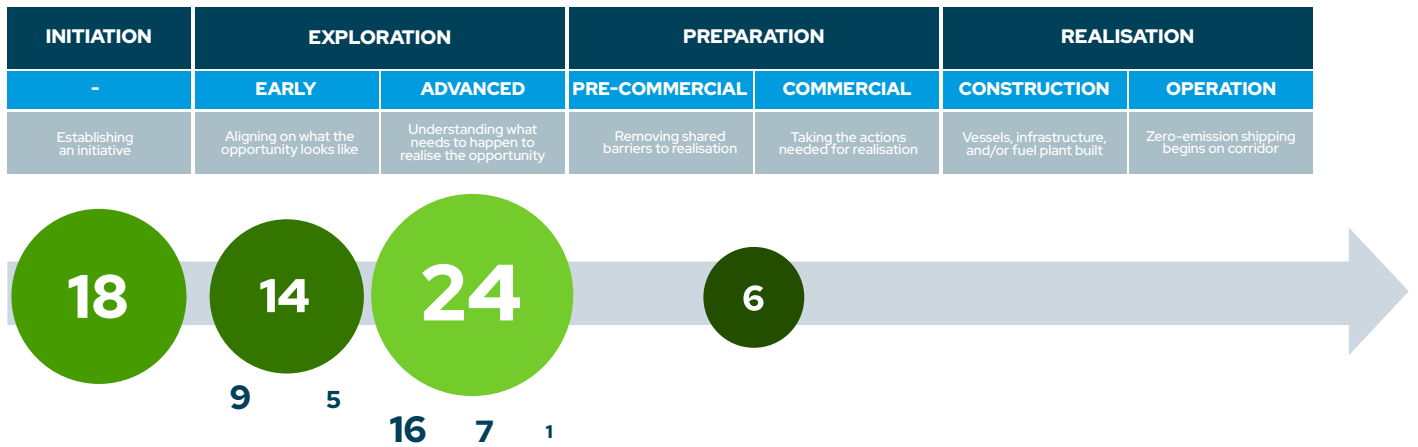


Figure 7: Number of initiatives at each progress stage

The green corridor portfolio has shown steady progress, with 17 existing initiatives completing key activities or advancing to a new timeline phase since the last edition. This represents two-fifths of the initiatives recorded last year.

There is ample evidence that early-stage initiatives are becoming more concrete. Nine of the initiatives in the Initiation or Early Exploration phases in last year's report have shown measurable progress. Indeed, while the single biggest progress phase in the last edition was Initiation, this year it is Advanced Exploration.⁸ Government framework agreements, which proliferated at the Sharm El-Sheikh and Dubai COPs, have also begun to advance through funding studies or enlisting support from third parties.

At the other end of the spectrum, a major milestone has been reached by the front-runners. At least six initiatives have made it to the Preparation stage, where there were none last year.

At the same time, we see the first green corridors being put on hold. These partly consist of initiatives that have been reorganised and streamlined into core consortia, such as the Nordic Roadmap, US–Republic of Korea corridors, and the Decatrip project. Four have been discontinued, for reasons ranging from refocusing on more immediate commercial opportunities to not being able to attract key stakeholders.

State of advanced initiatives

As noted, at least six initiatives globally have successfully completed the Advanced Exploration phase and progressed to Preparation, with several more stand on the cusp of doing the same.

⁸ 2023 data updated and adapted to reflect new progress categories.

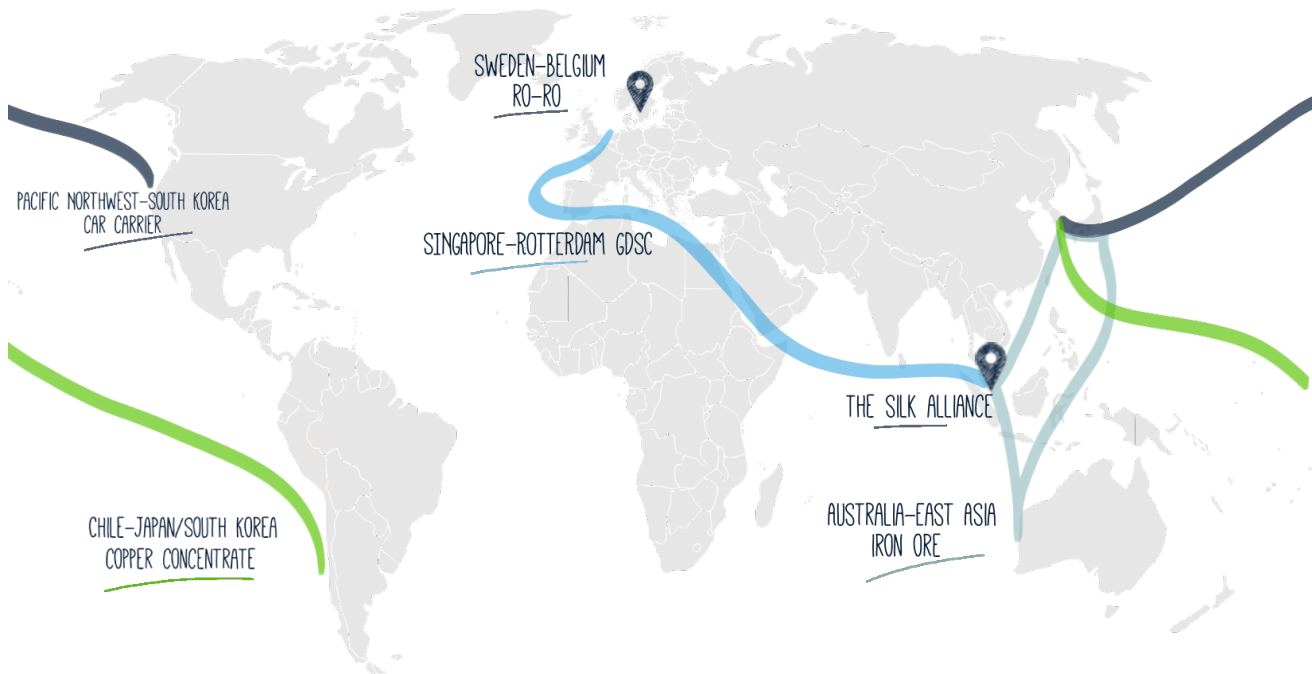


Figure 8: Initiatives known to have progressed to the Preparation stage (as of October 2024)

While they differ in many respects, this section summarises common developments and challenges facing these efforts, while also highlighting notable innovations coming from the movement.

Progress against the timeline

These initiatives have ambitious targets for introducing zero-emission vessels, in some cases backed by an implementation roadmap or plan detailing the actions needed to get there.

For ammonia, the relevant efforts are collectively aiming to deploy up to 35 vessels between 2027 and 2030, equivalent to the total number of ammonia vessels on order today. For methanol and methane, timelines are generally earlier, with ambitions to have methanol dual-fuel vessels on the water between 2026 and 2030 and earlier still for methane. There is less clarity on vessel numbers for these two fuels, likely due to sensitivities stemming from the multifuel pathways of the corridors where they are represented.

	2024 HIGHLIGHTS	2025	2026	2027	2028	2029	2030	SCALE-UP
THE SILK ALLIANCE	Fuel carbon intensity alignment, fuel demand signalling		Pilot MeOH vessels	Pilot NH3 vessels	Scaled MeOH supply and deployment		Scaled NH3 supply and deployment	
AUSTRALIA-EAST ASIA IRON ORE	Exploring innovative chartering and demand aggregation, forming public-private programme, adjacent activity				~8 NH3 vessels		~20 NH3 vessels	
SINGAPORE-ROTTERDAM GDSC	Policy paper, demand potential publication, Hapag-Lloyd ZEMBA win	Pilot bio-CH4 vessels					20-30 zero-emission vessels	
SWEDEN-BELGIUM RO-RO	Absorbing cost while exploring grant funding options such as Innovation Fund						2+ NH3 vessels	
PACIFIC NORTHWEST-SOUTH KOREA CAR CARRIER	Aligning fuel choice across the ports' different green corridor initiatives		2-4 MeOH vessels		4-8 MeOH vessels			
CHILE-JAPAN/SOUTH KOREA COPPER CONCENTRATE	Close engagement with government in the Global South				First NH3 vessel		2 NH3 vessels	9 NH3 vessels

Figure 9: Progress highlights and near-term deployment targets for the advanced initiatives (as of October 2024)

Overall, 2024 marked a move to action. Feasibility studies have now been completed and working groups set up to cover a variety of identified barriers, priorities, and knowledge gaps have witnessed steady progress. This has resulted in several publications, and multiple meetings and engagements.

Meanwhile, there is evidence of commercial and piloting action adjacent to the initiatives. This trend, noted last year (and exemplified by NYK Bulk, Oshima Shipbuilding, and Sumitomo's collaboration to design a fleet of up to 15 ammonia-powered bulk carriers connected to the Chilean Green Corridors Network) has intensified this year, with several further examples surfacing:⁹

- The [Global Centre for Maritime Decarbonisation conducting](#) a ship-to-ship ammonia transfer pilot in the Pilbara region, on the Australia-East Asia iron ore route
- [Fortescue and COSCO collaborating](#) to explore jointly building and deploying green ammonia-fuelled vessels on the Australia-China iron ore route
- [Hapag Lloyd winning](#) the Zero-Emission Buyers Alliance's (ZEMBA) first tender, with plans to operate a biomethane vessel on the Singapore-Rotterdam container route
- [BHP shortlisting companies](#) to build, operate, and supply fuel for an ammonia-powered vessel on the Australia-East Asia iron ore route
- [DFDS exploring grant funding options](#) such as the EU Innovation Fund and the Hydrogen Bank, for support to build and operate up to four ammonia-powered ferries, including between Sweden and Belgium
- Pilbara Ports initiating zero-emission bunkering plans

⁹ Further examples from the previous edition included: (1) Port of Rotterdam announcing a port dues reduction for container vessels bunkering alternative fuels on its premises as part of ZEMBA; (2) Yara Clean Ammonia and the Pilbara Ports Authority completing a study on the feasibility of clean ammonia bunkering in the Pilbara; (3) DFDS working on the design and approvals for an ammonia-powered roll on/roll-off (ro-ro) vessel; (4) CMA acquiring freight and passenger company La Méridionale with an ambition of using its lines to create green corridors in the Mediterranean Sea.

- The Northwest Seaport Alliance, Port of Seattle, and Port of Tacoma initiating programmes to enhance port readiness for alternatively fuelled vessel calls and bunkering in the Puget Sound
- [Wasaline conducting](#) zero-emission pilot voyages on the Vaasa-Umeå corridor
- [Fortescue conducting](#) ammonia bunkering and operational trials in Singapore

While it is impossible to ascribe this progress to the corridors alone, and some instances probably reflect correlation rather than causation, several of the involved stakeholders attributed their efforts to engagement with green corridors. This reinforces the emergent view of green corridors as vehicles for accelerating the deployment of assets and the associated business models.

Notwithstanding this progress, the front-runner initiatives are increasingly hitting a so-called “feasibility wall”. Virtually all feel they can only progress so far before the cost gap inevitably pushes their timeline back or forces a downscaling of ambition. One exception is the Sweden-Belgium corridor, which has managed to push through this wall by committing to deploy two ammonia-powered vessels despite the cost gap. This may not, however, be replicable across the board, due to different regulatory environments and scales.

Determining the fuel pathway

Consistent with the green corridor value proposition, the chicken-and-egg problem of enabling investments in the zero-emission supply chain has emerged as a key focus area, with most initiatives either having a dedicated workstream or an indirect lens on the issue.

These activities have already yielded initial outputs, including signals around the potential near-term zero-emission fuel demand on the corridors, and, in one case, an alignment on the desired carbon intensity reductions from the fuel used on the corridor.

Discussions about structures for aggregating zero-emission fuel demand are shaping up to be the next frontier of these efforts. In some cases, the focus is being placed on connecting multiple corridor efforts into would-be fuel hubs. Others are exploring whether participating ports can play a matchmaking role in bringing together sources of supply and demand for the fuels.¹⁰

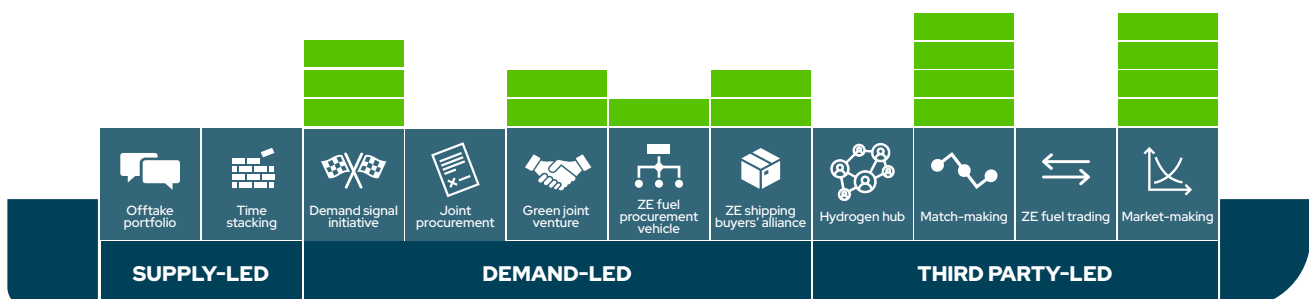


Figure 10: Number of advanced initiatives considering each of the fuel demand aggregation options identified by the Getting to Zero Coalition

¹⁰ Matchmaking efforts involve a third party connecting potential buyers and sellers of zero-emission fuel.

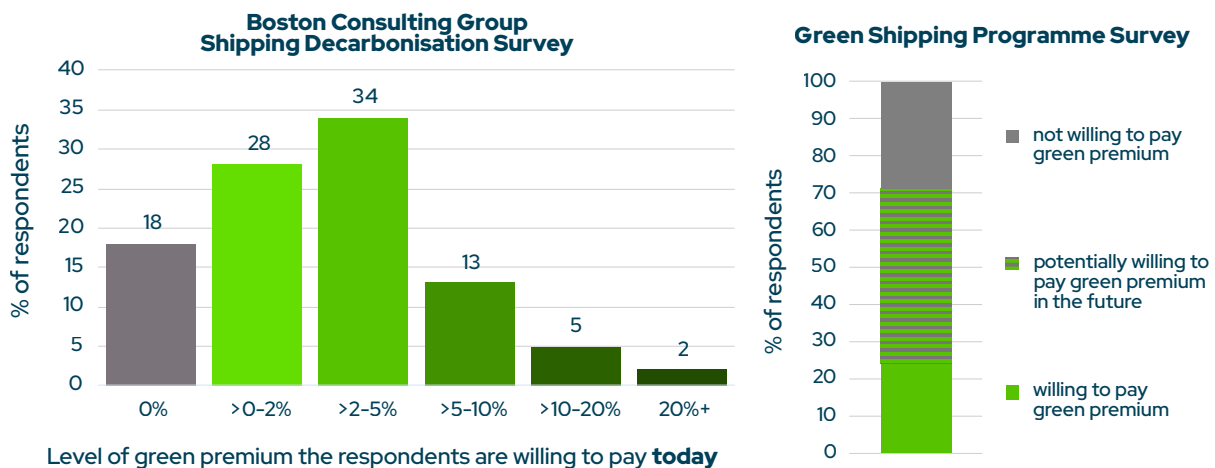
Some initiatives, often port-led, have placed an emphasis on the technical elements of providing an enabling environment for the fuels, including harmonising new bunkering standards, fuel certification, and bunkering modality and risk assessments. These efforts are usually bilateral, focused on the ports at either end of the corridor route, but sometimes stretch to benefit other green corridors and the broader shipping ecosystem. While these efforts are generally seen as helpful, some front-runners see the issues as “teething problems”.

Mobilising customer demand

All the initiatives report engaging cargo owners as part of their activities, suggesting they have recognised the importance of premium customers in realising their objectives.

This has taken several different forms, from dialogues and surveys to structured workstreams, and even pilots in the case of the Vaasa-Umeå corridor, which ran vessels on biomethane one day a week for one month last year to test whether cargo owners on the route would direct their cargo to these voyages to reduce emissions.

The outcomes of this engagement suggest that cargo owners on the corridors will not be able to fully close the cost gap by 2030. In some cases, the willingness of charterers or cargo owners has been found to stretch to a handful of ships, but it is not able to absorb cost beyond this point. This mirrors sentiment in the sector at large, with recent industry-wide surveys revealing that while a relatively high number of cargo owners are willing to pay a premium for green shipping, this willingness is uneven, generally at a small level, and subject to conditions.



“More than 80% of shipping customers are prepared to pay a premium for green shipping, with the **average premium currently at 4%**. The projected growth rates ... **fall short of the levels required** for significant decarbonization.”

“The most important barrier ... was the **availability of green alternatives**, followed by **regulations** facilitating green investments while preserving fair **competition**.”

Figure 11: Results of industry-wide cargo owner green premium surveys

Sources: 2023 [survey](#) conducted by the Boston Consulting Group (left) and 2024 survey conducted under the Green Shipping Programme (right)

In the absence of widespread customer interest, several of the shipowners/operators in the initiatives are stepping up to absorb the cost of a limited number of vessels. Others are exploring innovative ways to leverage the fragmented willingness to pay that does exist. These attempts are reflected in the rise of corridor-adjacent joint ventures and efforts to position corridors as marketable Scope 3 offerings. For example, the Decatrip project on the Stockholm–Turku corridor examined the feasibility of several mechanisms that could enable extra costs to be passed through to customers. This included an option for passengers to pay an extra €4 per trip to offset emissions using biofuel and a certificate system to market green conferencing onboard the vessel.

Meanwhile, cargo owner alliances, such as ZEMBA, are advancing adjacent to the corridors. ZEMBA's first tender was notably won by Hapag Lloyd, with a vessel intended to run on the Singapore–Rotterdam route. The bid was independent of the corridor initiative but the overlap between the two is suggestive of the potential to leverage ZEMBA to advance corridor goals.

Enabling policy environment

This year has seen convergence among the most advanced initiatives on the central role of national and regional governments in bridging the fuel cost gap.

Cost analyses performed by the initiatives have consistently revealed a large premium for meeting corridor targets. The use of zero-emission fuels, which are expected to be multiple times more expensive than conventional fuel, is identified as the overwhelming driver of this gap. Due to the uncertain outcome from MEPC 83 and similar meetings in 2025, developments at the International Maritime Organization (IMO) have not yet been integrated into most of these analyses, however EU regulations have. They have been found to positively affect the business case for those corridors touching on the EU, albeit not sufficiently to fully close the cost gap. Investment in new dual-fuel ships has generally not been found to be a major roadblock.

Green corridors in a changing regulatory landscape

A forthcoming study by UMAS for the Global Maritime Forum examines the business case for green corridors in three shipping segments: ammonia carriers, container shipping, and dry bulk. To understand how future regulation could affect the outlook for green corridors, it compares the cost of establishing corridors with other pathways for meeting a global fuel standard aligned with the IMO's 2023 GHG Strategy targets.¹¹

¹¹ Global fuel standard assumed to come into effect in 2027.

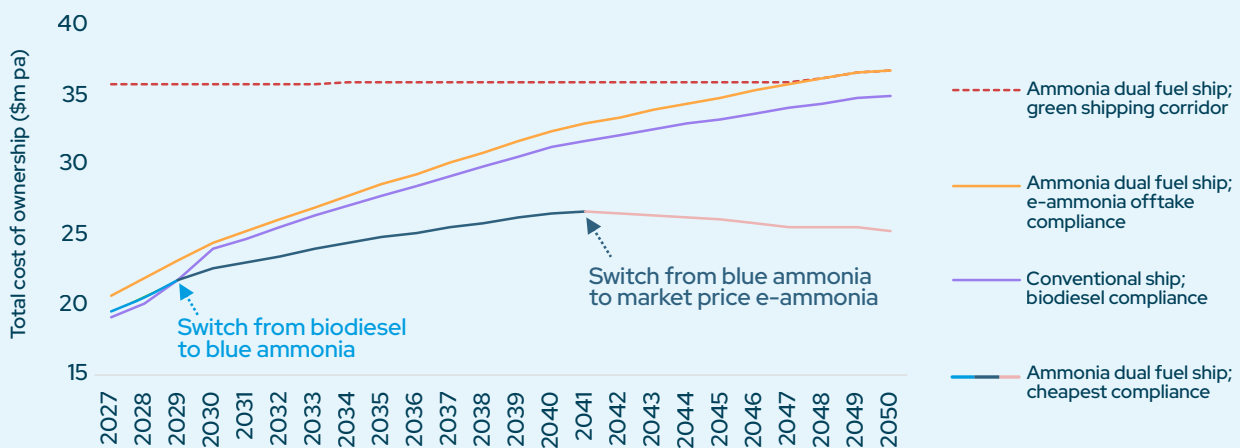


Figure 12: Total cost of ownership (TCO) for a green shipping corridor versus alternative compliance pathways for potential global fuel standard

Source: 'Building a Business Case for Green Shipping Corridors', UMAS for Global Maritime Forum (forthcoming)

In the case of the ammonia carrier, four compliance pathways were assessed:

1. The cost of a dual-fuel ammonia gas carrier fully running on e-ammonia (representing the green corridor)
2. A conventional gas carrier running on an increasing biodiesel blend
3. A dual fuel ammonia gas carrier running on the lowest cost mix of low sulphur fuel oil, biodiesel, blue ammonia, or e-ammonia over time
4. A dual-fuel ammonia gas carrier running on just enough e-ammonia to meet compliance over time

The green corridor was found to face a premium of \$64-72m per year during the five years between 2027 and 2031. While this gap narrows over time, the cost of the corridor does not converge with the other pathways until 2046.

Although the nature of the mid-term measures at IMO is still to be decided and may not fully match the scenario in the analysis, the study demonstrates the importance of ambitious IMO policy in securing the long-term business case for scalable zero-emission fuels. At the same time, it highlights the magnitude of the challenge in the near term, and urgency of introducing additional measures to close the pre-2030 cost gap.

Among the several initiatives that have conducted policy mapping exercises, the dominant perception is that there are currently no fit-for-purpose schemes for closing the fuel cost gap. A partial exception is the EU Innovation Fund, which offers funding for additional capital and operational costs, with dedicated funding for zero-emission shipping. However, initiatives note the Fund has very high barriers to entry, with a 500-page application process and low success rate.

Indeed, only a handful of Clydebank Declaration signatory governments have made support of any form available to derisk the realisation of green corridors. One example is the United Kingdom, which has [provided £77m through the Zero-Emission Vessels and Infrastructure competition](#), including a dedicated green corridor theme. At the opposite end of the Atlantic, the Canadian Green Shipping Corridor Program’s Clean Ports Stream has [offered \\$127m CAD of funding](#). Meanwhile, [Norway continues to offer relevant support](#) for zero-emission vessel projects through its Enova programme, with, for example, nine hydrogen and six ammonia vessels being supported in its most recent round of funding. However, these programmes are all limited to capital expenditures.

COUNTRY	CORRIDOR-RELATED FUNDING	AMOUNT AVAILABLE
Australia	R&D	\$6.7m+
Canada	R&D, CAPEX	\$110m+
Denmark	Pre-feasibility studies, feasibility studies	Undisclosed
Finland	Feasibility studies	Undisclosed
Norway	Feasibility studies	Undisclosed
Sweden	Feasibility studies	Undisclosed
Singapore	Pre-feasibility studies, R&D	\$7.7m+
United Kingdom	Pre-feasibility studies, feasibility studies, CAPEX	\$249m+
United States	Pre-feasibility studies	\$1.5m+
Netherlands	Feasibility studies	\$0.6m+
Ireland	Feasibility studies	\$0.5m+

Figure 13: Clydebank Declaration signatories that have provided funding related to green corridors, defined as funding that mentions or explicitly targets green corridors (non-exhaustive)

Many of the advanced initiatives have, therefore, placed a focus on developing and making policy asks targeted at the national governments on one or both ends of their route. In several cases, this ask has been codified in a dedicated policy paper. While differing in detail, the efforts are coalescing around the potential of green market-making, demand-side hydrogen incentives, and demand aggregation measures.

Consortia are now in discussions with policymakers (and funding schemes) about next steps, either on an ad hoc or more structured basis, with a few corridors establishing public-private programmes to facilitate further dialogue. This engagement has generally been with single governments; few of the initiatives have engaged the governments on both ends of the corridor together at this stage.

In general, the initiatives note a gap between their expectations and the willingness of the Clydebank signatory governments to deliver targeted support. Multiple stakeholders reported confusion and frustration about the Clydebank signatory governments' role and what their pledge to create an enabling policy environment for the corridors means in practice. In parallel, a gap can be observed between the growing funding for hydrogen and the funds available for green corridors, which, given the ir potential to act as an early source of demand for hydrogen, may be rooted in coordination issues between energy and shipping ministries.

76% of the Clydebank governments have hydrogen funding schemes in place.
The United States, Germany, and Japan have announced the most funding.

Cross-value chain collaboration

The composition of the front-runner initiatives has remained relatively stable, with limited changes to their membership. Exceptions are the Sweden-Belgium green corridor, which expanded to encompass the Port of Antwerp-Bruges, and the Singapore-Rotterdam Green and Digital Shipping Corridor, which added Hapag Lloyd as a fifth liner member, the A*STAR Centre for Maritime Digitalisation, SLNG, and Gate Terminal. In general, the initiatives cover either the full value chain or most of the value chain, indicating limited gaps in stakeholder participation.

In a new frontier for green corridors, the Sweden-Belgium and Los Angeles-Shanghai corridors are working on strategies for engaging civil society and local stakeholders on their routes, which may help create community acceptance of new fuels.

Engaging existing stakeholders is where initiatives often diverge and have sometimes struggled. Two different governance structures have emerged. Some efforts have the characteristics of projects, with a defined set of participants attempting to jointly deliver investments, while others can be seen as programmes, with a broader set of participants who coordinate activities informally to identify and remove barriers to investments that may be taken independently of the initiative. In most cases, this has not been the product of an active decision but rather reflects the nature of the underlying route. Efforts on smaller-scale

routes, which have fewer shipping companies operating on them, may naturally coalesce into a project, while large-scale routes, which are an ecosystem of different shipping companies, see a more natural niche for pre-commercial collaboration.

While there is no clear evidence of differences in real-world deployment readiness between project and programme-based corridors at this point, the two modes of governance have affected their approaches to the Preparation stage.

In general terms, the project-based initiatives, with a non-competitive consortium and high specificity, have been able to navigate this stage more easily. The narrower scope of these efforts has allowed for a calculation of the green premium and the funding needed for a corridor of this type and size. In contrast, representatives of programmatic corridors report taking several months to outline work areas and witnessing a decrease in the level of participation once defined. Indeed, a growing concern among these initiatives is an unwillingness to share among partners, with frustration about the disconnect between the inside-corridor discussion and the outside-corridor corporate action. Several strategies have been attempted to improve the connection, including bringing external presenters to talk about latest developments and doing more regular one-on-one meetings with partners. At the same time, these corridors have seen more progress in the areas of policy engagement and commercial innovation.

Knowledge development and exchange

The increasing maturity of the wider zero-emission shipping landscape and foregrounding of programme governance models has resulted in an increased focus on “out-in” knowledge sharing—bringing knowledge into the corridors, such as findings from external studies and projects. This has taken place alongside continued “in-out” knowledge sharing, with the corridors extending their learnings to the wider shipping community. For some, this has involved publishing key conclusions from their working groups, while others have provided input to IMO regulatory development. For example, the Singapore and Rotterdam ammonia working group is developing a framework to assess the life cycle greenhouse gas intensity of green ammonia fuel. This is intended to support ongoing efforts by the IMO to develop the Life Cycle GHG Assessment framework and guidelines for alternative marine fuels.

Maybe the most relevant development is the perceived dip in knowledge sharing between the advanced initiatives. Despite grappling with similar issues, common nondisclosure agreements (established to support internal freedom of sharing) and a lack of platforms that encompass the advanced initiatives appear to be narrowing the scope of possibilities.

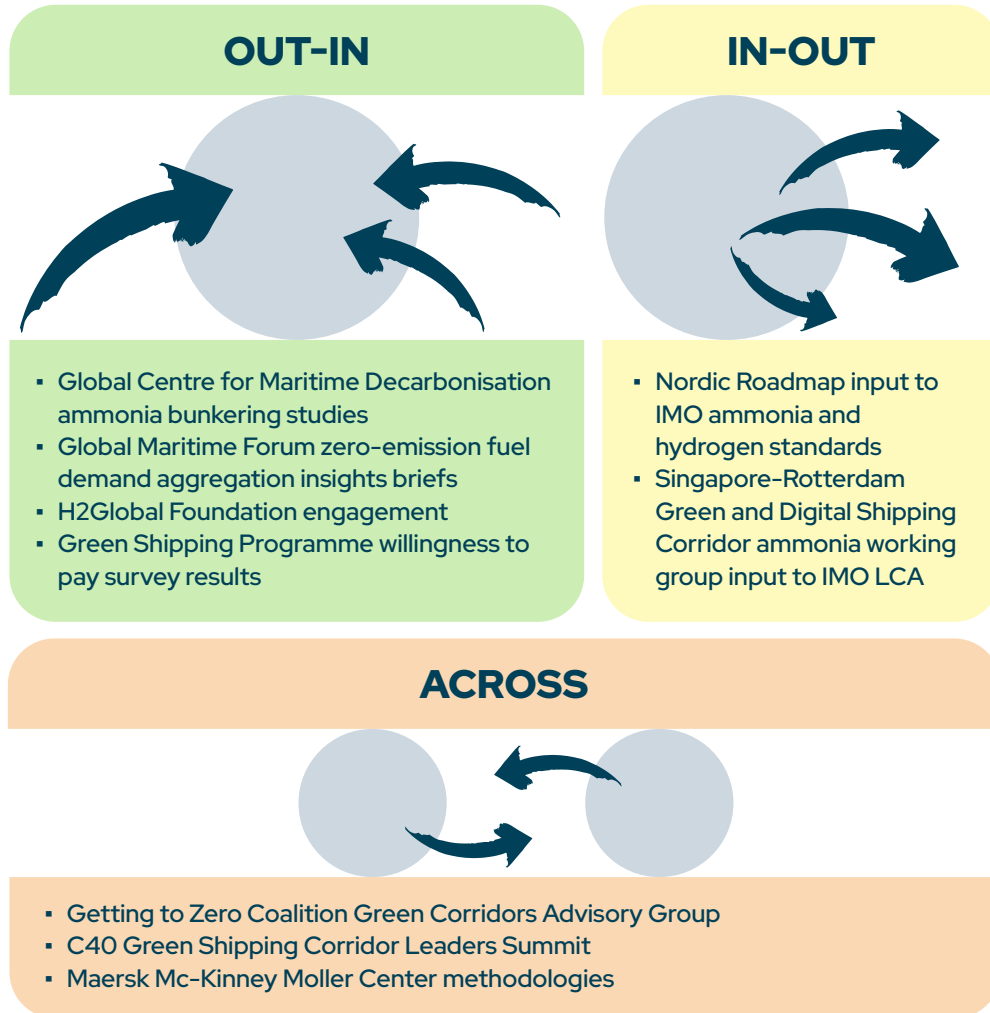


Figure 14: Examples of bringing knowledge into the corridors (out-in knowledge sharing), corridors sharing learnings with the wider shipping community (in-out), and knowledge exchange across the initiatives. Box colours indicate our evaluation of the trajectory; green – positive, yellow – mixed, red – negative.

Finally, new topics are emerging on the green corridor agenda that may merit action by knowledge institutions. With increased geographic diversity of the global portfolio, and shipping’s just and equitable transition high on the agenda, special challenges around projects in the Global South are becoming apparent. These include a higher cost of capital, an inability to compete with subsidies in the North, geographic remoteness and the associated trade cost sensitivity, water stress, and competition for resources with domestic applications. Despite these challenges, it is paramount that the transition not only taking place in rich countries, but embraces all regions, ensuring sustainable decarbonisation of the global maritime industry.

Conclusions and recommendations

Last year's report stated that "If green corridors are to hit their targets and fulfil their function, 2024 must be a breakthrough year in which front-running initiatives begin to execute their plans and others are primed to quickly follow." In many regards, 2024 has lived up to this challenge, with several key breakthroughs among the most advanced initiatives and growing maturity within the wider movement. At the same time, remaining bottlenecks are starting to become existential barriers, requiring a concerted and urgent effort.

Looking ahead, as the demands of near-term compliance become more pressing and company bandwidths tighten, it is essential that green corridors remain true frontrunners. Critically, the initiatives must not get locked into a waiting posture in advance of the adoption of the IMO measures in early 2025, with green corridors remaining needed to demonstrate and scale solutions that will enable the compliance to come.

To ensure progress in this context, this report offers five recommendations:

1. Take advantage of corridors as protected spaces for exploring innovative commercial arrangements

Given the challenging economics of zero-emission solutions, green corridor initiatives must put business-as-usual thinking aside and prioritise commercial innovation. This includes new operational models, contracts, and business arrangements that spread costs, risks, and rewards, and collaborative mechanisms to aggregate demand and unlock supply chain investments.

Many options are available in these areas, with the best choices likely to differ for different corridors. An overview of some of these options is provided below. Introduced in last year's report, it has been updated to reflect the latest areas of discussion in the front-running initiatives:

COMMERCIAL CHALLENGE AREA	COMMERCIAL INNOVATION OPPORTUNITIES
CHARTERING AND CARGO	<ul style="list-style-type: none"> • Aggregation of demand for and forward procurement of zero-emission shipping services by cargo owners, e.g., through initiatives like ZEMBA • Joint ventures between corridor participants to share risks and rewards in zero-emission investments • Positioning green corridor action as a voluntary zero-emission shipping offering • Employing cargo logistics optimisation and portfolios of small-scale contracts of affreightment to lower the threshold for commitment by charterers • Aligning Incoterms and credit for emissions reductions with willingness to pay
FUEL PURCHASING	<ul style="list-style-type: none"> • Forming zero-emission vessel pools or a dedicated fuel procurement vehicle to jointly purchase zero-emission fuel • Governments and/or ports connecting buyers and sellers of zero-emission fuel, including across land-based sectors and different shipping segments • Trading companies and governments acting as intermediaries in buying and reselling zero-emission fuel • Direct investment in fuel production or offtake structuring to stimulate the availability and secure access to fuels

Figure 15: Commercial innovation opportunities identified by the advanced initiatives

The advanced initiatives are now in the early stages of this process, and it will be essential that the rest follow suit. All initiatives should take advantage of the protected space offered by green corridors to explore and test the most interesting options openly, ready for either implementation or sharing the reasons for failure. As the IMO adopts its mid-term measures, this can help the involved companies pre-empt and/or go beyond compliance with current and future regulations.

Concerns that commercial innovation, particularly collaboration among competitors, violates competition law are often based on perceptions rather than legal assessments. Engaging lawyers early on may help clarify the true boundaries and provide the platform necessary for innovation.

2. Adopt a more flexible, programmatic approach to governance to scale purchasing and investments

Green corridors are well-suited to enable the early deployment of zero-emission assets due to their potential to provide scale and coordination, unlock commercial innovation and public-private collaboration, and maximise the likelihood of policy incentives.

There is reason to believe that more flexible, programmatic approaches may ultimately prove more effective in realising that potential. By allowing for wider participation and a variety of collaborative mechanisms in fuel purchasing and chartering, these approaches may be better equipped to handle experimentation, achieve scale, and share risks broadly. Indeed, it is possible that limited fuel demand may eventually force project-based initiatives to attract new stakeholders and adopt a more layered approach to participation. While programmatic approaches are likely to present immediate trade-offs in the quality of engagement and managing commercial sensitivities, they may be better positioned overall, provided these challenges are suitably navigated.

3. National and regional governments should provide clear strategies and take urgent action on the fuel cost gap

To manage the growing expectation gap with the industry, and address calls for clarity, governments should lay out strategies for how they plan to support the realisation of green corridors and the scope of their commitments under the Clydebank Declaration.

In particular, lessons from the front-runners clearly show that a lack of government support to close the cost gap for scalable zero-emission fuels is the main limiting factor to further progress. This means timely, accessible public support for funding the fuel cost gap must be the immediate priority for governments committed to making green corridors a success.

To ease the administrative burden and accelerate timelines, it may make sense to focus on existing measures. In this regard, several advanced initiatives have demonstrated interest in green market-makers. The flagship scheme in the hydrogen space is H2Global; as an auction platform with a global reach, and one that is built to enable bilateral commitments from multiple governments, it fits green corridors well both conceptually and in terms of scale. As such, it provides a mechanism that could be ideally suited to make such funding available.

Providing this support – be it through H2Global or another means – will require greater coordination both domestically and internationally. Domestically, priority should be given to dialogue with the energy ministries, which have the greater means and, arguably, incentives to support the corridors. Internationally, bilateral policy action should be prioritised to reduce the cost burden of incentives on individual governments. Thus, governments should collaborate across energy, transportation, and foreign ministries to explore how this can be done.

Indeed, there is an immediate opportunity around the front-running corridors. These corridors alone could require over 2 million tonnes of hydrogen-based fuel per year by 2030 to meet their goals. The cost gap for this fuel estimated to be around \$2 billion per year.¹² However, with IMO and EU policy intensifying and green corridors’ potential to share costs and risks, the true gap should be substantially smaller. For comparison, [a recent estimate](#) suggests that meeting EU and UK ambitions in the aviation sector would require around 660kt of e-SAF by 2030, at an annual cost gap of \$3 to 5 billion.

These initiatives centre on ten countries, six of which have committed funding for existing H2Global auction windows or hydrogen demand incentives.¹³ By coming together and expanding their action to offer shipping auctions, these governments could create a watershed moment not only for green corridors but shipping decarbonisation more broadly.

COUNTRY	LINK TO H2GLOBAL	OTHER H2 SUPPORT
Australia	Funding commitments	Yes
Netherlands	Funding commitments	Yes
Chile	Outreach	Yes
Japan	Outreach	Yes
Republic of Korea	Outreach	Yes
Belgium	Active discussions	N/A
United States	Outreach	Yes
Sweden	N/A	N/A
China	N/A	N/A
Singapore	N/A	N/A

Figure 16: Status of H2Global engagement and allocated hydrogen funding among the countries hosting advanced corridor initiatives

To support this process, green corridor initiatives will need to provide clear policy asks that link to specific national priorities, including those of the energy departments, and offer evidence-based opportunity narratives.

¹² Global Maritime Forum estimates. Fuel demand is based on initiative 2030 targets, where available. Where fuel demand is not stated in initiative targets, it is extrapolated using IMO 4th Greenhouse Gas Study fuel consumption assumptions. Where 2030 targets are not available, expected dual-fuel vessel replacements on the route are used. Cost gap is indicative only. Estimated based on VLSFO price of \$600 per tonne, delivered green ammonia costs of \$1000 per tonne, and delivered green methanol costs of \$1200 per tonne. The impacts of policy and industry cost sharing are not included.

¹³ Includes the Netherlands which has allocated \$330 million and Australia which has allocated \$220m to H2Global auctions to-date. In both cases, this has been matched by funding from the German government.

4. Explore what policies and sources of finance can support the realisation of green corridors - and zero-emission fuel supply chains - in the Global South

Corridors based in the Global South, as well as those that intend to import fuel from the South, have unique challenges that will need to be addressed in a bespoke fashion. They include a higher cost of capital, scarcity of bankable offtakes, and greater sensitivity to the design of the IMO mid-term measures, with equity considerations having a direct effect on initiatives' economics.

With less capacity for national government incentives, these corridors will need to develop tailored policy approaches and leverage additional sources of finance to enable investments. Engaging multilateral development banks and the global climate finance community could be a positive first step in this direction. For this engagement to be effective, demonstrating how decarbonising shipping can contribute to the economic development of the geography in question is required, as well as investments in training and reskilling of the workforce.

5. Maximise the potential of the global green corridor portfolio by rallying behind the existing initiatives and leveraging the growing body of best practices

The steadily growing number of green corridor initiatives shows that interest in establishing new green corridors has not yet been exhausted. Indeed, an analysis of the global portfolio reveals a few remaining gaps in geographic coverage. With India's fuel production potential, favourable policy landscape, and ambitions across both the energy and shipbuilding spaces, the country's absence from the global green corridor map is striking. In turn, while already part of the movement, China's potential for both inland shipping decarbonisation and large-scale trade flows signifies an opportunity to dial up the country's green corridor activity.

Yet, with all continents and most Clydebank signatories covered, and given limited public and private resources and narrowing timelines, rallying behind the existing initiatives should be a greater priority overall.

Initiatives should build on the now substantial best practices generated within the movement. Early-stage green corridors should leverage learnings from the more advanced ones (see Appendix). This should be complemented by a ramp-up in information sharing and a renewed emphasis on publishing the status, outputs, and findings of the individual corridors to support momentum.



Appendix: Best practices for early-stage initiatives

Involve key stakeholders early in the process

Building a core of critical stakeholders within a green corridor initiative ensures a foundation for genuine action. Ambitious vessel owners and operators are particularly crucial; without their active commitment – in the form of time, resources, and direction – it is not possible for the corridor to progress. This is especially relevant for port-led and, to some extent, government-led initiatives, where bilateral memoranda of understanding provide an expedient way to engage with green corridors. In their case, onboarding ambitious vessel owners or operators first may save time and reduce the risk of the initiative stalling later.

Meanwhile, active participation from fuel producers/suppliers and cargo owners grows in importance as initiatives mature. Indirect engagement through existing networks marks a good first step to both familiarise these actors with the concept of green corridors and gather initial information related to these parts of the value chain. However, by the Advanced Exploration phase, a structure to facilitate deeper engagement by these stakeholders is generally needed.

Focus on the technology transition

While reducing the sector's emissions is the end goal of shipping decarbonisation, the logic of green corridors and the goal to have at least 5% zero-emission fuel use by 2030 is to help the industry reach a tipping point that will allow it to enter a period of rapid diffusion of zero-emission technologies after 2030. This makes emissions reductions a result of green corridors, rather than their main objective.

A one-sided focus on emissions reduction is likely to lead to the prioritisation of low-hanging fruit and, therefore, fail to deliver the technologies needed for the broader transition. While setting goals that stretch beyond 2030 and consider emissions reductions can be important for making the economic case and attracting stakeholders, setting goals related to the operation of zero-emission vessels in the period to 2030 is recommended. This could include targets for vessel numbers, fuel amounts, and intermediate milestones related to the readiness level of infrastructure and technology. These targets are more valuable if they are an output of analysis and discussion as a corridor progresses, rather than pre-defined at its outset.

Think critically about which route(s) to pursue

The location of the existing green corridors has in many cases been determined organically, based on stakeholder interest. While this has helped the movement gain a critical mass, a more robust approach to deciding which route(s) to focus on can pay dividends later in a corridor's development.

In general, a favourable route should significantly contribute to global shipping's energy transition, while still being comparatively feasible from an implementation standpoint and within a reasonable timeframe. This makes prioritising routes a multicriteria decision problem, which can be assessed through a combination of qualitative and quantitative indicators, such as:

IMPACT		FEASIBILITY				
SCALE	CARBON INTENSITY	FUEL POTENTIAL	TYPE OF CARGO	OTHER ROUTE CHARACTERISTICS	POLICIES	STAKEHOLDERS
Cargo volume on the route, expected future growth in the sector(s), energy demand on the route	Carbon intensity and current emissions on the route	Availability and cost of the supply of zero-emission fuel on the route	Traded goods, relative price increase and scope 3 importance within the sector	Age of the fleet; Number of ports of call and cargo owners; Regularity	Alignment of national policies of the participating countries	Ease of the stakeholder environment on the route

Figure 17: Suggested green corridor prioritisation criteria

Strive for specificity on fuel

Although the overall diversity of fuels in the global green corridor portfolio is positive, at the level of individual corridors, decisiveness on fuels has been shown to separate successful initiatives from stalling ones. As such, initiatives should strive to identify and focus on a specific fuel pathway.

The two approaches available – multi- and mono-fuel – have their distinctive advantages and disadvantages. The choice of which approach to adopt should, therefore, be based on a careful examination of the context and a thorough consideration of the trade-offs, which may include:

	PROS	CONS
MONO-FUEL	<ul style="list-style-type: none"> + More manageable in development and operation; likely to move faster + May aggregate higher levels of demand for each fuel and achieve cost advantages + May be easier to design a specific and clear policy ask 	<ul style="list-style-type: none"> - May preclude the involvement of important stakeholders - May increase immediate technology and operational risk - Policy advocacy may be harder due to policymakers' preference for technology neutrality
MULTI-FUEL	<ul style="list-style-type: none"> + May enable earlier impact, depending on the combination of zero-emission fuel pathways + May help hedge immediate technology and operational risk + Policy ask is in line with policymakers' preference for technology neutrality 	<ul style="list-style-type: none"> - Resource intensive - May fragment first-mover fuel demand - Policy ask may be more complex - Unlikely to be best way to hedge technology and operational risks at fleet level - Likely to be impractical on many smaller routes

Figure 18: Example pros and cons associated with mono-fuel and multi-fuel strategies in green corridors

In the Initiation and Early Exploration phases, considering multiple fuel options will be beneficial in many cases. From the Advanced Exploration phase, however, a mono-fuel approach will generally offer more advantages, support more targeted efforts, reduce complexity, and strengthen the investment case for fuel production and infrastructure.

The involved fuel buyers/users should have the greatest influence over this decision. This is especially important in port-led initiatives, where the needs of those who will make the largest commercial decisions related to fuels need to be considered alongside port-centric activities and port-to-port collaboration. The availability, affordability, and acceptability of the different fuels on the specific route in question should also be given due consideration, as some routes will provide comparatively better conditions for early demonstration and scaling of certain fuels than others.

Appropriate governance structures can accelerate progress

As cross-sectoral, multi-stakeholder initiatives, green corridors are complex, and governance issues have stalled progress in many cases.

Good corridor governance can be thought of as the ability to piece individual stakeholder activities together into a whole that is greater than the sum of its parts. In the early phases of development, these activities will define the corridor opportunity. As the initiative matures, they generate implementation plans. The task is to find an effective way to do so that responds to their individual circumstances.

In general, an emphasis should be placed on:

- **Stakeholder alignment:** Have a clear understanding of the purpose of the corridor and what it is trying to achieve from the start. Participation in the initiative should be predicated on sharing this vision; this is generally more important than breadth of representation.
- **Co-creation and co-ownership:** Spend the time required to build consensus and commitment. Regular, open workshops between partners and participatory/stakeholder-led planning are among best practices. The engagement of senior executives and organisational decision-makers is often beneficial for similar reasons.
- **Multi-level participation:** While some actions and decisions require a whole green corridor initiative, many do not. To help manage complexity without sacrificing impact, a multi-level governance approach can be considered. This could include a strategic level, in which required actions are defined and advocacy takes place, and a working level made up of smaller groups that advance specific pieces of research and/or actions.

Prioritise learning by doing rather than standardised templates for action

Support frameworks for different aspects of green corridor development have been in high demand and have proliferated in line with the growth of the movement.

In practice, many aspects of green corridor development are too context-specific to be able to fully rely on standardised methodologies. Many challenges can be traced to the specificities of the involved segments, included geographies, and sometimes all the way down to the individual organisations. Against this background, initiatives should be prepared to lean more towards learning by doing rather than relying on a standardised path. Sharing best practices and discussing challenges is a good way to make sure an initiative gains the necessary confidence and knowledge to progress while tailoring its approach to its unique situation.

Against this background, initiatives should be prepared to lean more towards learning by doing rather than relying on a standardised path. Sharing best practices and discussing challenges is a good way to make sure an initiative gains the necessary confidence and knowledge to progress while tailoring its approach to its unique situation.



**GLOBAL
MARITIME
FORUM**



**GETTING TO ZERO
COALITION**
GLOBAL MARITIME FORUM

About the Global Maritime Forum

The [Global Maritime Forum](#) is an international not-for-profit organisation committed to shaping the future of global seaborne trade. It works by bringing together visionary leaders and experts who, through collaboration and collective action, strive to increase sustainable long-term economic development and human well-being. Established in 2017, the Global Maritime Forum is funded through a combination of grants and partner contributions. It operates independently of any outside influence and does not support individual technologies or companies. Most of its roughly 45-person staff is based in the organisation's headquarters in Copenhagen, Denmark.

About the Getting to Zero Coalition

The [Getting to Zero Coalition](#) is a powerful alliance of more than 200 organisations (including over 180 private companies) within the maritime, energy, infrastructure, and finance sectors. The Coalition is committed to getting commercially viable zero-emission vessels powered by zero-emission fuels into operation by 2030. Hitting this milestone is essential if we are to achieve maritime shipping's moon-shot ambition of full decarbonisation by 2050.