



GLOBAL MARITIME FORUM

INSIGHT BRIEF

National and regional policy for international shipping decarbonisation

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This insight brief is the second in a series of publications on national policy for international shipping decarbonisation - an overview of how countries can support the different stages of the transition towards zero emissions and thus complement private sector and global efforts. The first insight brief, focusing on national support for green shipping corridors, can be found [here](#).

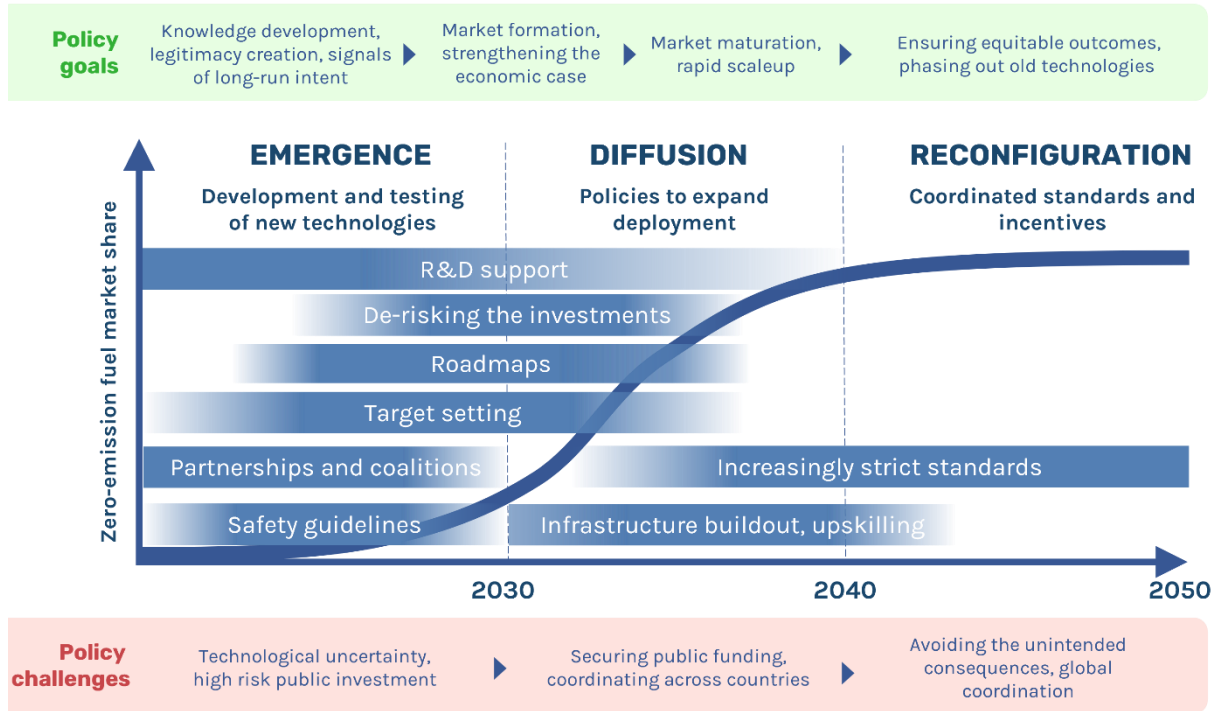
Introduction

The introduction of the FuelEU maritime initiative, the inclusion of shipping in the EU Emission Trading Scheme, and the launch of the Clydebank Declaration for green shipping corridors have set a precedent for a new type of national and regional action for shipping decarbonisation and challenged the long-standing assumption that international shipping lies outside of the jurisdictions of individual countries. In this insight brief, we argue that more countries can support international shipping's transition to zero emissions, that the options for meaningful contributions by governments are plentiful, and that the policy pathway for each country is determined by a combination of the nation's strengths, ambitions, and current and envisioned place in the global shipping ecosystem.



National policy needs at different stages of the transition

The non-linear nature of technological transitions, in which the speed of adoption follows an S-curve rather than a straight line, means that the policy needs shift over time.



Source: adapted from *A Strategy for the Transition to Zero-Emission Shipping* (UMAS, Getting to Zero Coalition, 2021)

Emergence

At the beginning of the emergence phase, research and development (R&D) policies that are guided by the emerging transition targets and other signals of long-run intent are key. Towards the end of the emergence phase, when the first generation of promising technologies has crystallised, policy needs gradually shift towards facilitating market introduction. At this stage, successful policies contribute to matching supply and demand by bridging the cost gap and de-risking the initial commercial roll-out. The need for R&D continues throughout this stage, but its nature shifts towards efficiency improvements and developing new solutions.

Diffusion

Throughout the diffusion stage, policies targeting the build-out of infrastructure gradually take over. At this stage, the main policy goal is to ensure that the energy production capacity, shipyard capacity, and port infrastructure all support a large-scale transition. Investments in infrastructure and human capital represent common policy measures to support this phase. In parallel to national policy action, international policy measures can be expected to be rolled out at scale during this phase, such as a global fuel standard and various market-based measures.

Reconfiguration



This phase sees an acceleration of efforts to ensure universal implementation of new technologies and a phasing out of old technologies, through increasingly stringent standards, bans and economic measures. The International Maritime Organization (IMO) is often the most effective platform for meaningful policy contributions at the reconfiguration phase.



The need for knowledge-intensive development at the emergence phase, the scale of investments required at the diffusion stage, and the complex, multi-technological nature of the overall transition mean that any action at the international level must be complemented, and often preceded, by ambitious, coordinated, and timely national action.

Appropriate national policy action is defined by its capacity to not only react to the challenges specific to each stage of the transition but to anticipate them. Some of the current misalignment of expectations on the role of governments stems from the fact that the sector is approaching the overlap between the emergence and the diffusion phase, accelerated by the introduction of the IMO's 2030 targets¹. While the need for emergence-related national policies remains, governments are facing increasing pressure from the industry to start thinking about supporting market formation and even diffusion and to provide clarity and guidance on the timeline of the transition.

Synergies between the domestic and international policy action

Supporting domestic and international shipping is inherently different due to variations in technological solutions, policy levers, and stakeholder complexity. Nonetheless, some policy overlap is present, where supporting domestic shipping and developing national action plans may also lead to a meaningful contribution to international shipping decarbonisation. R&D and infrastructure are two policy areas where these synergies are often present. Recognising this overlap, calls have been made by, for example, Green Voyage 2050², to assess countries' contributions to international shipping in designing the scope of national action plans³, which have traditionally focused on domestic shipping.

Different countries may be more equipped to tackle different stages of the transition and may see their role as primarily supporting the emergence, diffusion, and/or reconfiguration phases. All three represent valid strategies with their own risks, benefits, success factors and distinct and evolving policy pathways that span the whole transition. For example, being a first-mover country is often a high-risk, high-reward strategy. Through research and development and market formation policies, the collective actions of first-mover countries steer which technologies are ready for widespread adoption. For these countries, the speed of mobilising funding to support early technological development often represents a key success factor.

¹ 5% (striving for 10%) uptake of zero or near-zero GHG emissions technologies, fuels and/or energy sources by 2030. Read about the [implications of the 2023 IMO GHG Strategy on national action](#) (UMAS, 2023)

² [National Action Plan to address GHG emissions from ships](#) (Green Voyage 2050, 2022)

³ On 20 November 2020, MEPC 75 adopted a [Resolution](#) to encourage Member States to develop and submit voluntary National Action Plans to address GHG emissions from ships.



Countries' roles in the shipping decarbonisation ecosystem

Countries can also differentiate their contributions to international shipping decarbonisation based on their current and envisioned roles in the global shipping ecosystem. Each of these potential roles comes with its own incentives, trade-offs, and policy measures. They entail different degrees of proximity to the traditional shipping value chain and varying strengths of national policy mandate compared to industrial and international policy.



The range of countries that can accelerate the transition in a way that also benefits their national well-being is broader than traditionally assumed. Decarbonisation brings shipping, an industry simultaneously intertwined with the global economy and often marginalised in policy decisions at national and global levels, closer to other sectors. It is increasingly clear that international shipping cannot only be a beneficiary of the global energy transition but must also play an active role in shaping its pace and direction. Likewise, shipping may act as a catalyst for modernising international trade regulations and spurring innovations applicable to other sectors. For countries active in these spaces, international shipping may not be a strategic priority as such, and there may be limited understanding of its potential to deliver on other strategic objectives. Extending the reach of national policies to international shipping is, therefore, often hindered by poor institutional capacity and a lack of understanding of these linkages.

In contrast, countries with a traditionally strong maritime profile generally understand shipping's role in boosting prosperity, as it often provides a direct and sizeable contribution to a nation's gross domestic product (GDP). At the same time, some of these countries, such as flag states or seafarer nations, may see decarbonisation as a threat to the status quo rather than an opportunity to modernise and future-proof their economies.



Finally, across different profiles, decarbonisation presents an opportunity for new entrants to contribute to spaces previously dominated by a handful of countries.

Understanding the economic and political case for supporting international shipping within each of these profiles, and the limitations for doing so, are key to designing a successful policy intervention.

Role	Opportunity	Examples of policy measures
Energy producers	Leverage early fuel demand within shipping to bring fuel production projects to the final investment decision stage and diversify market segments for the fuels	Combined demand- and supply-side subsidies, faster permitting processes, fuel sustainability standards
Logistics and bunkering hub	Secure or increase future bunker market share and the volume of maritime traffic	Demand aggregation (matchmaker model), hydrogen hubs in proximity to ports, port-level incentives (fee reductions, reduced waiting times)
Shipbuilding, ship repair, retrofitting	Seize market share within green niches, such as zero-emission vessel repair, vessel retrofitting, research-intensive shipbuilding, or green ship finance	R&D, shipyard capacity expansion, concessional loans, loan guarantees
Trading nations	Secure critical trade flows and invest in resilient, future-proof supply chains	Bilateral climate regimes, tariffs, export subsidies, sustainability-linked loans, reforming the global trade framework
Climate leaders	Use international shipping industry as the next frontier in tackling Scope 3 emissions	Taxation, bilateral climate regimes, carbon border adjustment mechanism, advocacy at IMO
Flag states	Prepare registries for the increasingly strict requirements on transparency and accountability	Green ship certification schemes, tax and fee rebates, streamlining vessel design approvals
Education and skills providers	Future-proof the workforce and secure employment opportunities	Training framework development, investments in (re)training and human capital, cross-sectoral just transition commissions
Shipowning, innovation and finance	Influence future ship technology choices to secure the long-term success of the industry	R&D and CAPEX subsidies, additional risk coverage beyond the scope of protection and indemnity clubs

Energy producers

Countries with strong energy production potential may choose to expand their future market by targeting export activities and supplying zero-emission fuels to major bunker ports. One challenge for these countries is the perceived competition with domestic uses of energy. Domestic industries, particularly within hard-to-abate sectors, often enjoy more widespread national policy support since they are subject to taxation and contribute to the country's emission footprint.



For a highly scalable and increasingly global hydrogen market, this narrative of competition can be transformed into one of synergies. Countries may leverage early demand contained within international shipping to bring fuel production projects to the final investment decision stage, benefiting other demand segments through faster and, in the long term, cheaper deployment. In some cases, shipping offtakes may be seen as a risk mitigation strategy. By diversifying fuel demand across multiple segments, governments may reduce the risks of not reaching their hydrogen policy objectives.

The hydrogen policy landscape has recently undergone a shift in direction now that it has become clear that demand represents a major bottleneck for early market formation. Countries are increasingly adopting economic support measures that stimulate both the demand and supply of hydrogen, as opposed to only focusing on supply. In addition, with more countries adopting support measures, a need to align fuel sustainability standards is starting to emerge.

Logistics and bunkering hubs

This category includes alternative fuel bunkering hubs that either import zero-emission fuels or produce them domestically, as well as maritime logistics hubs.

For countries with both energy production and bunkering potential, the economic case for supporting international shipping is rooted in contributions to the local, regional, and national economies. At the same time, the scale of investments in renewing the port infrastructure acts as a bottleneck. Establishing hydrogen hubs near ports is one way to support infrastructure build-out in a cost-effective way while bridging the demand and supply market gap and drawing synergies between shipping and other demand segments.

For bunkering hubs reliant on fuel imports, securing or expanding the future bunkering market share represents the main economic opportunity, while the main challenge is related to the lack of stable access to the fuels. Early governmental action should, therefore, focus on securing long-term supplies at an affordable rate, often through partnering with international actors. Initially, this may be done through bilateral agreements with energy-exporting countries, followed by governments acting as demand aggregators and forming public buyers' alliances with other countries.

Port-level incentives, such as port fee reductions and reduced waiting times for zero-emission vessels, are a key tool in logistics hubs' decarbonisation toolbox, and a main policy lever for chokepoints (narrow routes of passage with high marine traffic volumes). Initially, port fee reductions represent a net negative economic impact on port activities, which may need to be compensated by increasing the fees for conventional vessels. This, in turn, creates a risk of rerouting if companies choose other ports to avoid stringent policy measures. In the mid-term, however, the increased cost of fuel may make rerouting a less attractive option, which broadens the range for safe fee increases.

Shipbuilding, ship repair and retrofitting

For nations active in shipbuilding, ship repair and retrofitting, maintaining market share is the main driver behind contributing to decarbonisation, though an overlap between domestic shipping and the defence industry is often observed. Countries with a large share of state-owned enterprises within shipbuilding have both strong incentives to



contribute to shipping decarbonisation and a broad range of policy measures at their disposal.

These countries have the potential to play a more active role in the energy transition by seeking various green niches, for example within zero-emission vessel repair, vessel retrofitting, or research-intensive shipbuilding (with a focus on improved ship designs). The existing issues with shipyard capacity and the recent consolidation of the shipbuilding industry present an opportunity for new entrants to contribute in the medium to long term.

Shipbuilding nations are also well-positioned to work together with banks and export credit agencies on green ship finance, for example by providing loan guarantees or concessional loans for zero-emission vessels. This, however, requires a higher degree of transparency among export credit agencies. So far, the recently established Net Zero Export Credit Agency Alliance⁴ features no representation of prominent shipbuilding nations.

In addition, shipbuilding countries may need to align with ship recycling nations on areas such as sustainable decommissioning of first-generation zero-emission vessels, design for recyclability, and recycled content requirements.

Trading nations

The negative impacts of decarbonising shipping on trade costs and trade flows have been highlighted elsewhere, with impacts disproportionately borne by middle-income exporter nations and small island developing states⁵. Trading nations with a significant zero-emission fuel production opportunity may be able to mitigate these impacts by accounting for the positive contributions to GDP from fuel exports. For those without fuel export opportunities, lowering import tariffs and adopting trade facilitation measures may counteract part of the loss. In addition, these countries may look beyond trade measures and explore investments in port-side efficiencies and logistics infrastructure, potentially with financial support from development banks and the IMO, to balance negative effects on trade.

Countries reliant on international trade to supply critical materials, as well as exporters of goods within sectors that have begun their transition to net zero, may see supply chain decarbonisation as a way to secure these flows. For these countries, early action ahead of regulation may be seen as an investment in resilient, future-proof supply chains, and an opportunity to differentiate their products and help companies meet their Scope 3 targets. Bilateral action to decarbonise trade may also bring about geopolitical benefits, where shipping decarbonisation is part of the broader bilateral or regional cooperation agenda.

Policy measures favouring exports or putting imports at a disadvantage come with a risk of being viewed as trade-distorting. Here, countries may need to work together to facilitate the exchange between the global shipping community and the global trade community,

⁴ [Net-Zero Export Credit Agencies Alliance](#) (UNEP FI, 2023)

⁵ [Understanding Maritime Decarbonization's Impacts on Trade Costs to Unlock a Just Transition](#) (UNCTAD, 2023)



and advocate for reforming the World Trade Organization framework to account for supply chain sustainability.

Climate leaders

Countries that strive for global climate leadership may see international shipping as the next frontier in tackling Scope 3 emissions. This may present an opening for faster and easier adoption of more radical policy measures, such as international shipping taxation or stricter fuel standards. For climate leaders with large international shipping traffic, the mere introduction of these measures can significantly accelerate the transition, while for countries with moderate to low shipping traffic, the main effect is generating policy learnings that can later be applied at an international level.

Flag states

Flag state status is not necessarily associated with strong action on decarbonisation. However, an opening for a more ambitious line of action is emerging. Instances of carriers with high environmental, social, and governance standards reflagging their vessels to countries with higher levels of transparency may put flag-state accountability higher on the agenda going forward. The vulnerability of some of the flag states to the effects of climate change might act as an additional trigger for action.

Flag states may speed up the rollout of alternative vessels by, among other measures, introducing green ship certification schemes (see, for instance, Singapore's green notation scheme⁶), adopting tax and fee rebates for zero-emission vessels, and streamlining the approval procedures for new vessel designs. Within all these areas, flag states may consider adopting coordinated policies, for example by harmonising the vessel approval processes and standards across countries.

Education and skills providers

For countries that train seafarers, early action on decarbonisation is directly linked to securing employment. Countries looking to take part in the early phases of the transition may need to invest in training frameworks prior to international guidelines becoming available. In many cases, this leads to the need to partner with other countries to secure knowledge transfer or access to training assets and infrastructure. Towards the diffusion phase, large-scale investments in retraining become the most impactful policy lever. To ensure an equitable transition, any efforts would have to be conducted in collaboration between the industry, unions, and the government. Many countries can leverage existing just transition commissions in the areas of energy and transport for that purpose.

Shipowning, innovation and finance

Unlike other industries, the benefits from the shipping sector are often not fully absorbed into the national economies of shipowning nations through tax revenues, even when parallel tax regimes are established (see, for example, the UK's tonnage tax). Instead, the contributions are accrued through employment, provision of adjacent services, such as legal, finance and asset management, and ties to the country's image and position in the global economy. These countries are often incentivised to influence future ship

⁶ [Notations for Singapore Registry of Ships \(SRS Notations\)](#) (Maritime Port Authority of Singapore)



technology choices to secure the long-term success of their industry. This is typically done through ambitious shipping-specific R&D programmes and capital expenditure subsidies.

Determining a successful national policy strategy

While a degree of country specialisation is evident, nations would often have either strengths or ambitions across multiple categories, and a unique profile defined by their combinations. Mapping where a country stands in each of these categories marks the first step in designing a national policy strategy for supporting international shipping.

Both narrowly specialised countries, with strengths in one or two dimensions, and well-rounded profiles with strengths across multiple categories have their advantages. A narrowly specialised country often has an easier time securing fiscal support and buy-in from all parts of government. However, these countries may be highly dependent on international collaboration within the areas of weakness.

In turn, a well-rounded profile may expand the toolbox of available policy instruments. For example, a country active within both shipbuilding and shipowning may make use of scrap-and-build subsidies⁷ to accelerate the renewal of its fleet. On the other hand, designing the strategy may be harder since the incentives are scattered across different parts of the economy and complex intragovernmental coordination is often required.

In defining a strategy, country-specific dimensions, such as population, income level, political stability, land area, and length of coastline, need to be assessed in parallel, as they provide additional insights into the viability of different types of policy measures. For example, an importer nation with a high GDP per capita may leverage the willingness to pay green premia to support the emergence phase.

Country example: India

Current strengths: energy opportunity, seafaring, ship recycling

Primary opportunities: energy production (diffusion), shipbuilding (diffusion)

Secondary opportunities: bunkering (diffusion), seafaring (diffusion)

A large coastline and proximity to important international trade routes make India one of the world's prominent maritime nations. India's Port of Mumbai is one of the top 20 global bunkering hubs. In addition, the country trains a significant number of seafarers, with its nationals representing around 8% of the global seafaring workforce. The Indian town of Alang hosts the world's biggest shipbreaking yard, and overall, the nation recycles around a third of the global tonnage of ships. This year, India has announced its ambitions to enter the global top five in shipbuilding, a significant increase from its current position of less than 1% of the global gross tonnage.

India's climate, economic and political landscapes place it among the list of countries with significant hydrogen production potential, particularly in the mid to long term. India's energy security concerns create strong incentives for expanding hydrogen production capacity, while the country's position as a leading producer of steel,

⁷ Combined incentive schemes for acquiring new ships and phasing out of old ships



ammonia, and agricultural products create diverse domestic demand for the fuels. This makes India well placed to support the diffusion phase of the transition through large-scale investments in fuel production near ports. Focusing early action on bunkering on one port (Mumbai being a good candidate) and partnering with first-mover countries may help generate the necessary learnings to enable a quick build-out in the 2030s.

Strong ambitions in shipbuilding, coupled with a relatively small capacity at present, means that India may move rapidly to establish itself as a scaler nation within green shipbuilding, possibly leveraging its access to scrap metals. Given that the speed of infrastructure build-out is key for scaler nations, the country must start thinking now about optimising its permitting and approval processes, as well as investing in skills and education.

Conclusions

There are two dimensions through which national policy for international shipping decarbonisation can be assessed: the temporal and the topical.

Exploring the temporal dimension by mapping policy goals, challenges, and measures against the stages of the transition may help countries design fit-for-purpose policy instruments and anticipate future policy needs. Exploring the topical dimension by understanding the country's role in the global shipping decarbonisation ecosystem may aid in designing a proper portfolio of policy measures across multiple domains. In turn, companies may use this framework to help design realistic policy asks that appeal to the strongest policy incentives for a given country and address the main policy challenges.

The successful decarbonisation of international shipping requires a shift in the maritime policy narrative across a variety of countries. It demands a step up in the level of ambition among countries with strong maritime profiles as well as bold and rapid action from new entrants. But it also creates a unique set of challenges, such as those related to the need to coordinate policies on multiple levels, reform governance processes within countries, and establish strong accountability and transparency frameworks.