Ports, Transport, and Energy Efficiency:

Power Transitions and Decarbonisation Towards a Green Regional Economy

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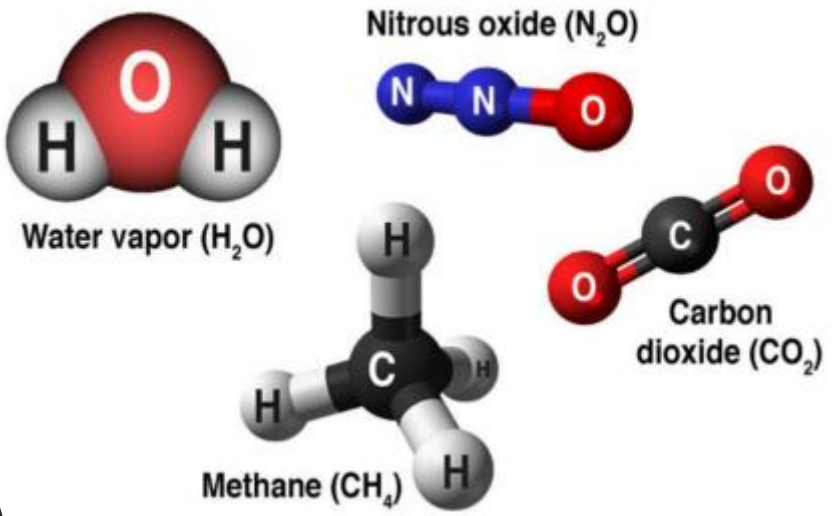
IMO Net-Zero Framework Defined

A global fuel standard that requires ships to gradually decarbonise ship fuels (i.e. how much greenhouse gas is emitted for each unit of energy used, across a fuel's life cycle); and

A pricing mechanism with set prices on the GHG emissions, to encourage the industry to reduce emissions to comply with the global fuel standard.

The Framework applies to all oceangoing ships over 5,000 gross tonnage (GT). Ships under 5,000 GT are currently not covered, but discussions are underway to possibly include ships between 400 GT and 5,000 GT in the future.

IMO Net-Zero Framework: 2025 Update



April

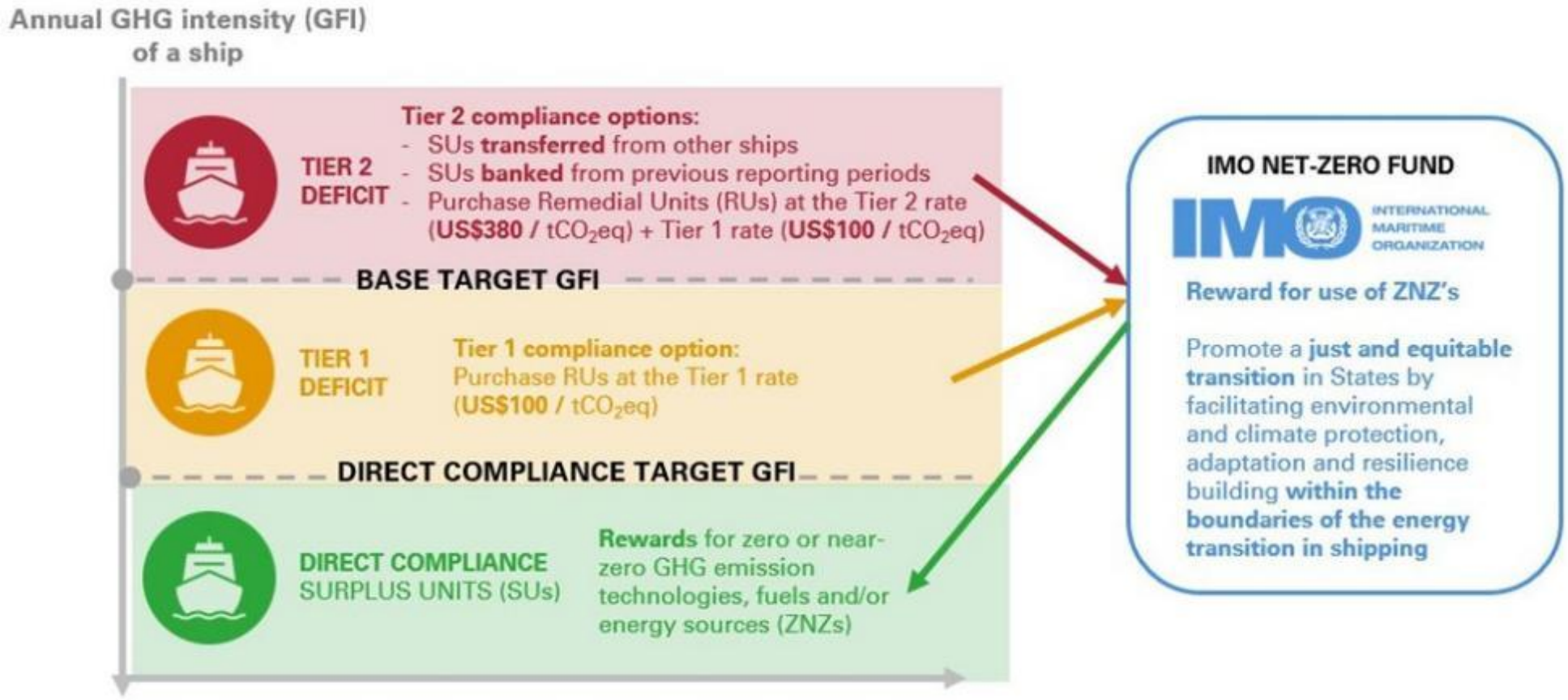
Adoption of amendments to the IMO Net Zero Framework approved at MEPC 83 by majority vote. The Framework is a set of goal-based provisions for GHG emissions reduction (revised MARPOL Annex 6).

October

Working Groups considered and developed a work plan for GHG emissions reduction-related activities, with the final discussions adjourned until **2026**.

IMO Net-Zero Framework: GHG Fuel Intensity

The framework covers emissions from the entire fuel lifecycle - from extraction and production to use on board the ship - known as the "**well-to-wake**" approach.

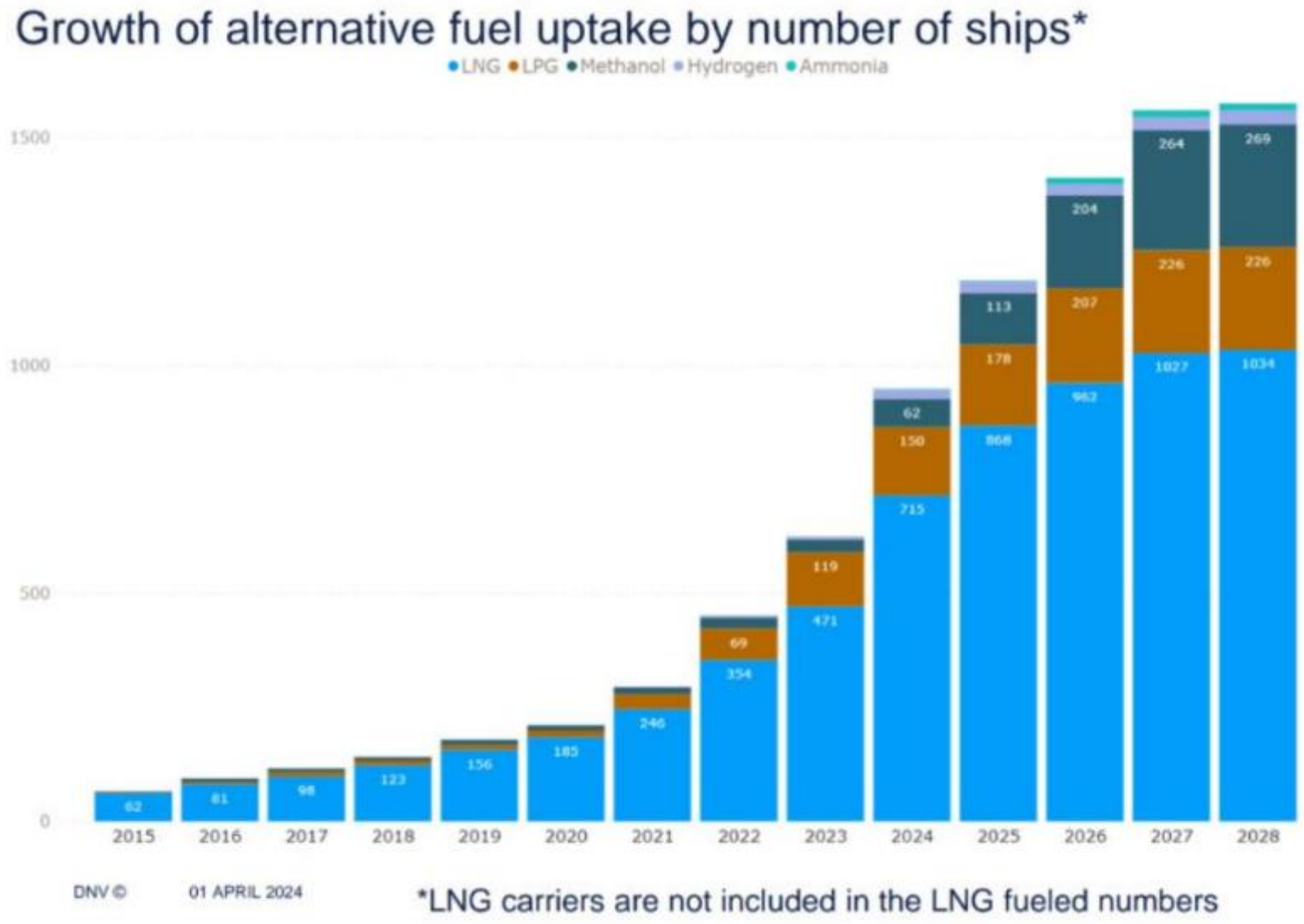


IMO Net-Zero Fund

Engagement and implementation of the Net-Zero Framework Guidelines by Member States are critical to establishing successful incentives for the IMO Net-Zero Fund.

Set-up costs for the IMO GHG Fuel Intensity (GFI) Registry have the potential to be reduced by contributions made by Member States as well as other organisations with relevant expertise.

Energy Efficiency and Green Economy



Credit: DNV

Energy Efficiency and Green Economy

The IMO Working Group On Air Pollution And Energy Efficiency discusses the environmental impacts of **port waiting time**.

All waiting time for berthing, including anchoring and drifting (or waiting time after a specified period) and all time spent within the port when the engine is stopped, including cargo operation time, represents a major inefficiency in the mitigation of GHG emissions.

Addressing these waiting times is crucial for achieving GHG reduction targets and improving overall operations efficiency.

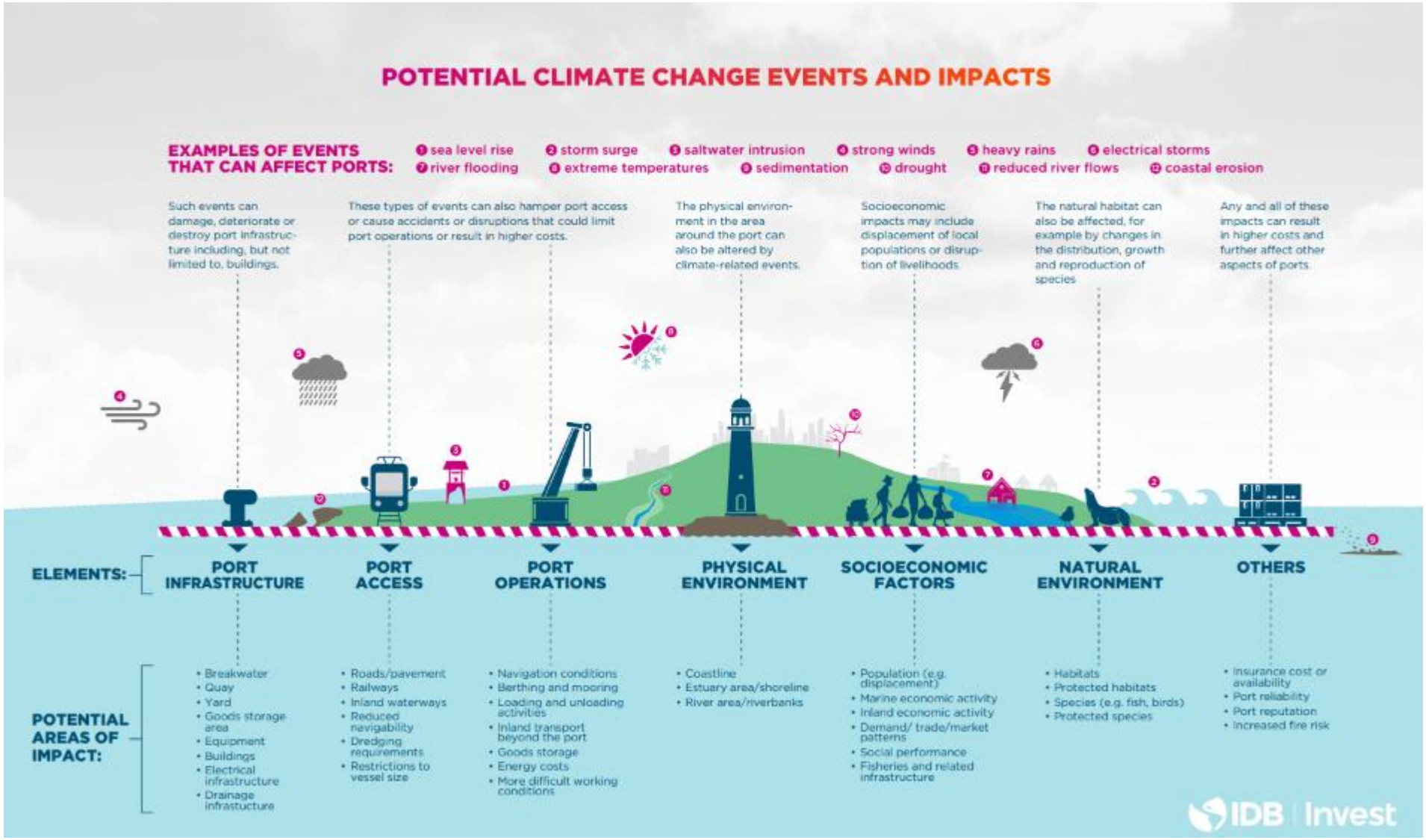
Energy Efficiency and Green Economy

How can ports and shipping cooperate to reduce emissions from shipping?

- Onshore Power Supply (preferably from renewable sources);
- safe and efficient bunkering of alternative low-carbon and zero-carbon fuels;
- incentives promoting sustainable low-carbon and zero-carbon shipping;
- support for the optimization of port calls including facilitation of just-in-time arrival of ships; and
- "*facilitating voluntary cooperation through the whole value chain, including ports, to create favourable conditions to reduce GHG emissions from ships through shipping routes and maritime hubs*".

[Reference MEPC RESOLUTION.366(79) December 2022]

Energy Efficiency and Green Economy



Energy Efficiency and Green Economy

PIANC
The World Association for Waterborne Transport Infrastructure

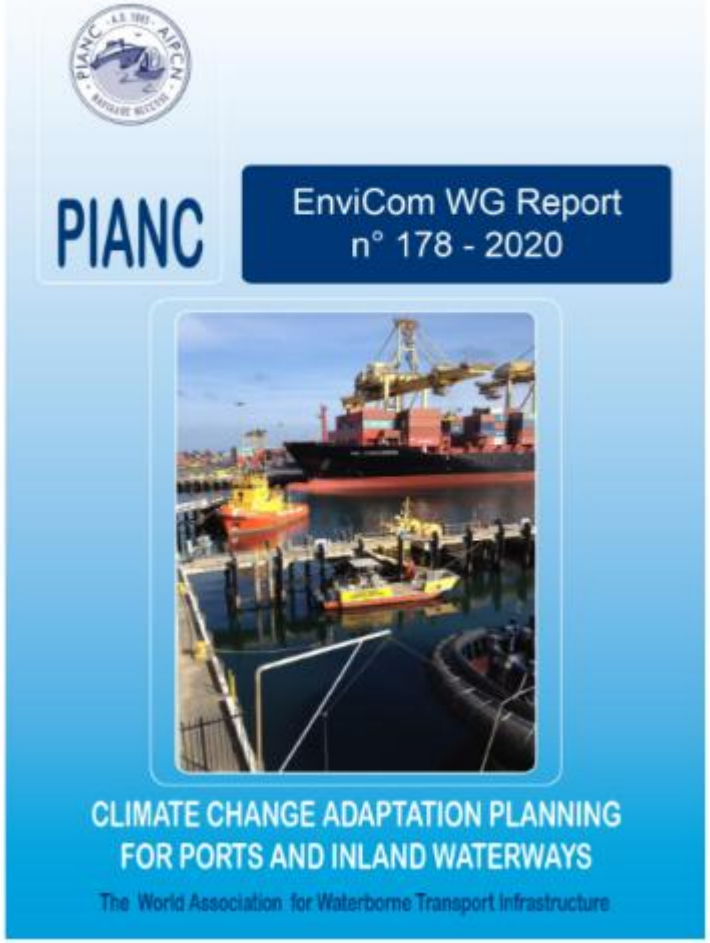
introduced a four-stage methodological framework to help port and waterway owners and operators plan for improved resilience:

Stage 1 facilitates understanding operational impacts and identification of climate change adaptation requirements;

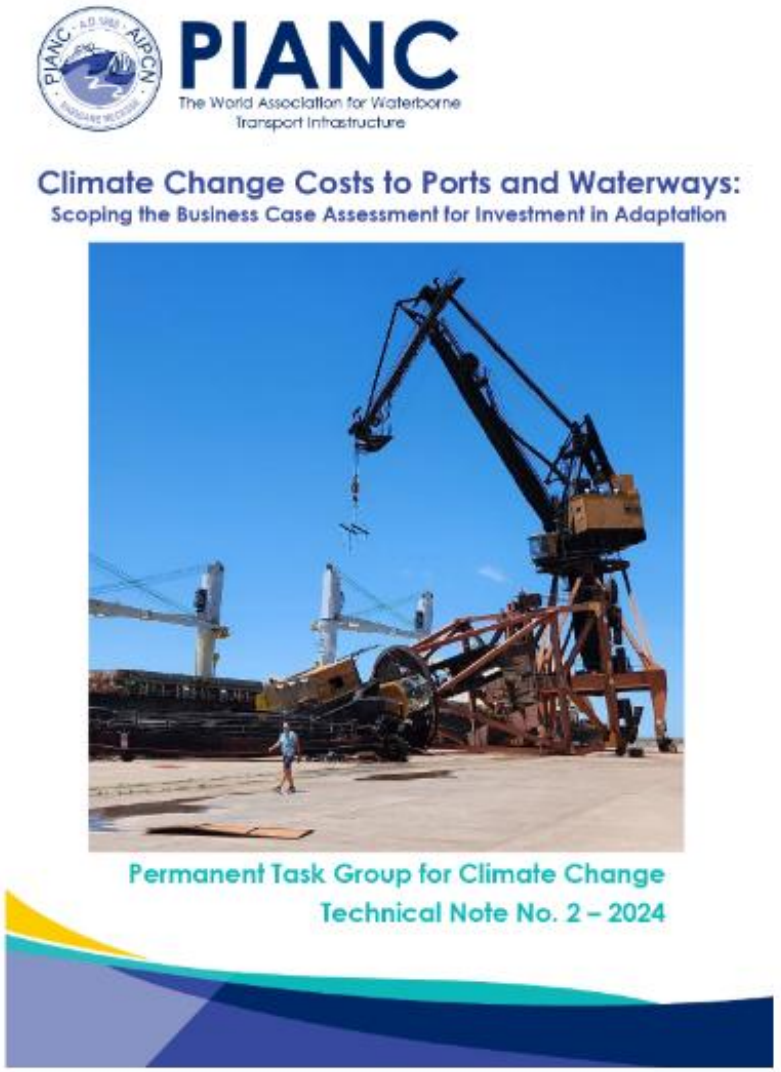
Stage 2 identifies the type of climate-related information needed for an adaptation strategy, and explains how reference to climate change scenarios can assist in understanding the range of possible future changes;

Stage 3 describes how to assess the vulnerability of waterborne transport infrastructure assets, operations and systems and analyse risk; and

Stage 4 presents a 'portfolio' of potential measures (structural, operational and institutional) to be considered when developing an adaptation pathway.



Energy Efficiency and Green Economy



What factors motivate action to strengthen resilience?

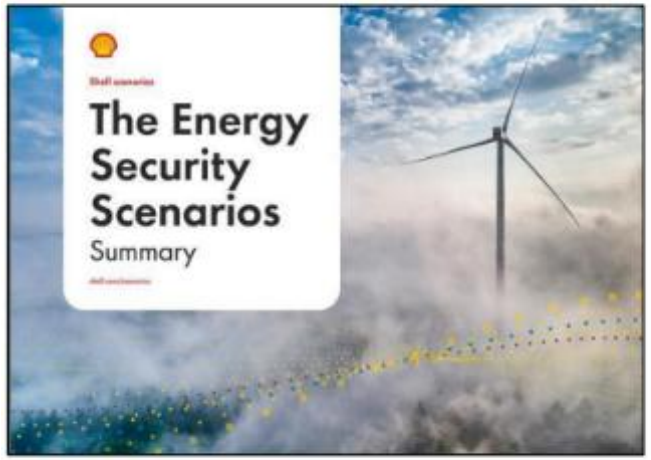
Existing motivations

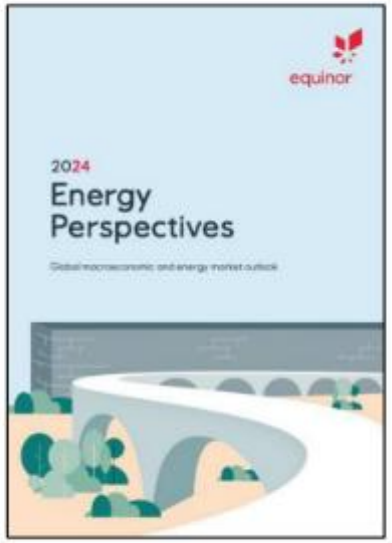
- Response to unprecedented event or more frequent extreme conditions
- Regulatory compliance (e.g. reporting) and project authorisation processes
- Good practice: reduce risks, KPIs, CSR targets

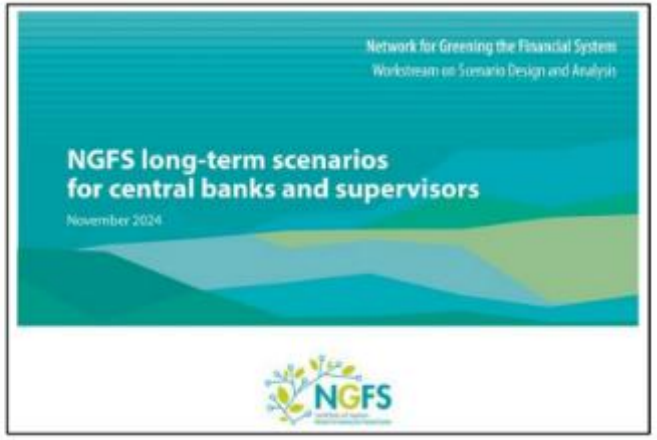
Evolving initiatives

- Insurance sector
- Finance sector
- Contractual obligations or regulatory penalties

Energy Efficiency and Green Economy





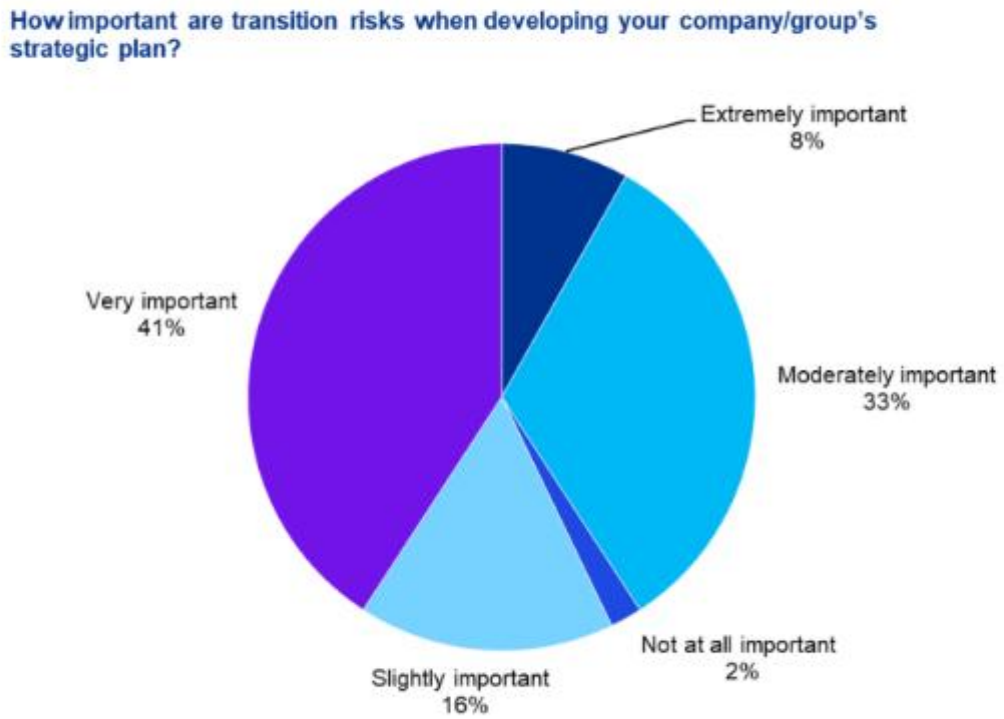


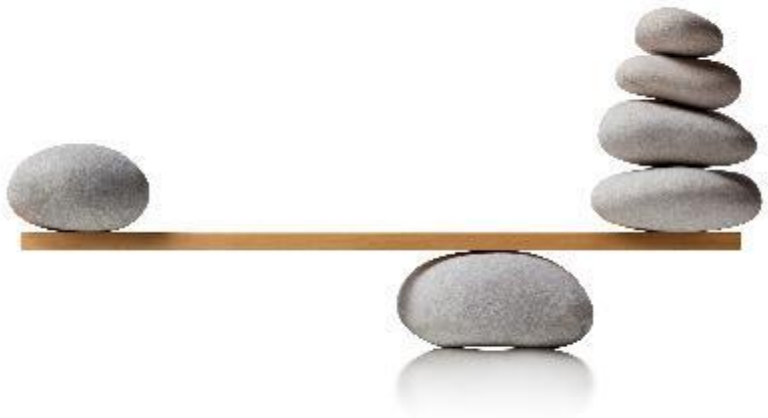
Reference: Henderson, J. (2025) "*Creating Sustainable Organisations*", Warwick Business School

Energy Efficiency and Green Economy

Underwriting the Transition

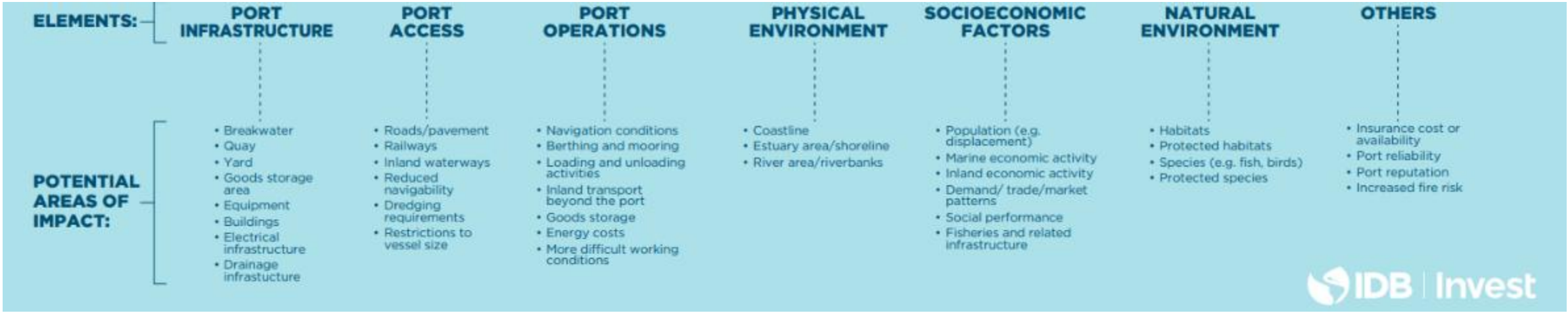
Results from the Pulse Questions – How important are transition risks when developing your company/group's strategic plan?





Looking Towards The Future

Support energy transitions by planning transition pathways and scaling technological operations.



Looking Towards The Future

The IMO Net-Zero Framework applies to all oceangoing ships over 5,000 gross tonnage (GT). Ships under 5,000 GT are currently not covered, but discussions are underway to possibly include ships between 400 GT and 5,000 GT in the future.

These are some of the first steps:

- Installation of innovative energy-saving devices on-board ships;
- Hybridisation of ships – use of battery and electric power;
- Infrastructure development for the provision and bunkering of alternative marine fuels;
- Technologies that enable ships to reduce emissions in port.

Looking Towards The Future

Climate Action Tracker

“While action at IMO/international level has been slow, at a regional level, the EU has shown accelerated action, recently adopting several regulations addressing either maritime emissions or facilities available at ports to aid the use of low or zero-carbon fuels… the EU ETS and FuelEU Maritime regulations will still be the only market-based measures and fuel standards being implemented in the near term.

Looking Towards The Future

….To decarbonise the shipping sector, it is imperative that governments not only increase their ambition at the global level through the IMO, but back this up with domestic action. This means, for example, including shipping in domestic targets, while first movers need to address the knowledge, administrative and technological barriers to scaling up zero emission fuels and technologies. To ensure an equitable transition, domestic actions by first movers should also take equity into consideration in their policies and decisions to ensure vulnerable and developing countries are not left behind, particularly around finance, technology transfer and capacity building. One mechanism that can be used to facilitate this is Green Shipping Corridors."

Reference: https://climateactiontracker.org/sectors/shipping/

Climate Action Tracker

Looking Towards The Future

Green Corridors

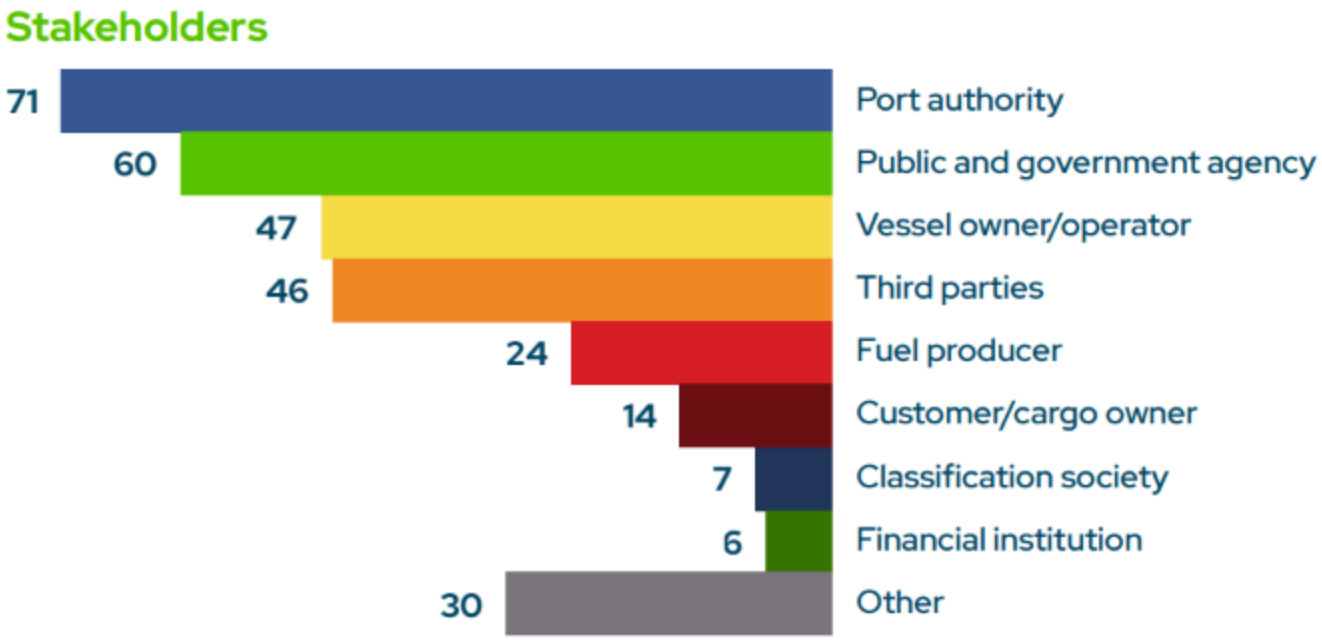
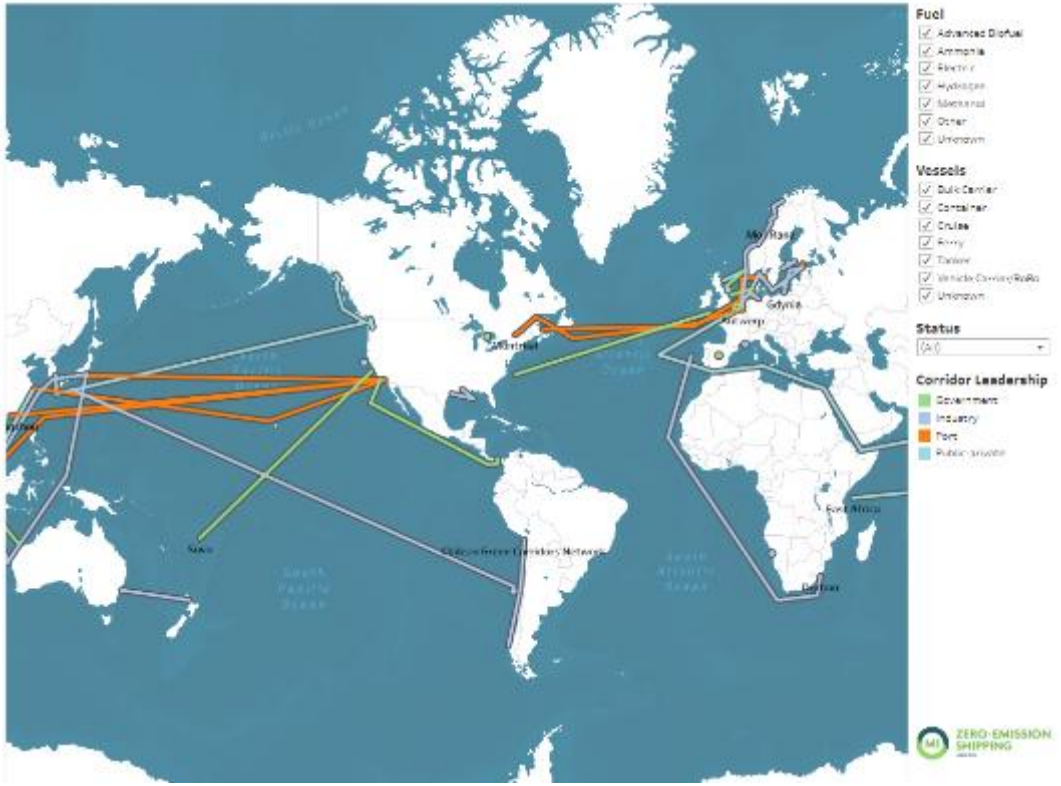


Figure 5: Number of stakeholders represented in the green corridor movement by type[3]



Reference: Global Maritime Forum (2025) "*Annual Progress Report on Green Shipping Corridors*"

Looking Towards The Future

Green Corridor Priorities

	High priority	Low priority	Wrong approach
Fuels and technologies	Fuels requiring new vessels and infrastructure (MeOH, NH3, H2)	Low- carbon drop-in fuels, port operations	Fossil fuels including "transition" fuels (LNG)
Business models	Risk-sharing, demand aggregation, green premium offerings, joint ventures, 2030 focus	Cost optimisation, hedging, 2050 focus	Business-as-usual, one-size-fits-all solutions
Policy	Economic support at national level, bilateral action, exemptions, streamlined permitting, IMO rewards	R&D, IMO compliance	Leaving it to the market, wait-and-see approach
Stakeholder management	Vision and roadmapping, programme governance, public-private dialogue, neutral facilitation	CO2 targets and reporting, project governance, directionless knowledge sharing	Allowing passive participation

Reference: Global Maritime Forum (2025) *Annual progress Report on Green Shipping Corridors*

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Спасибо за ваше внимание.
Давайте обсудим!

Thank you for your attention. Let's discuss!