# PORT DECARBONISATION AND ENVIRONMENTAL SUSTAINABILITY

10:15 – 11:45

## Port Eco Systems, Current Status and Future Directions

### Port Industry Challenges

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In association with **Redshift Associates**

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# Ports Decarbonisation

## Current Industry Challenges

# The British Ports Association

The national membership body for ports: we represent the interests of operators that handle 86% of all UK port traffic, to Westminster and devolved Governments, and other national and international bodies.

The BPA represents 350+ ports, terminals and port facilities across the whole of the UK. We also have a strong network of Associate Members who add much to the value of membership.

**This presentation: Ports have bold ambitions for reducing emissions but action needed from government to support and smooth the transition.**

# Sector Snapshot

125,000 jobs across the country, often in areas of high deprivation

UK maritime jobs are well paid, skilled, and highly productive

Ports generate £7.6 billion in GVA annually and pay £2bn in tax to the Exchequer every year. Port infrastructure investment topped £1bn in 2021

Ports handled 458m tonnes of cargo in 2022 but there’s an increasing break between port growth and cargo/passenger volumes

UK is an import driven economy. A large economy on a small island with a well developed road network plus ports policy has led to a unique ports sector

# UK Ports Policy

UK ports policy supports a market-led, competitive sector that is independent of government in governance and funding

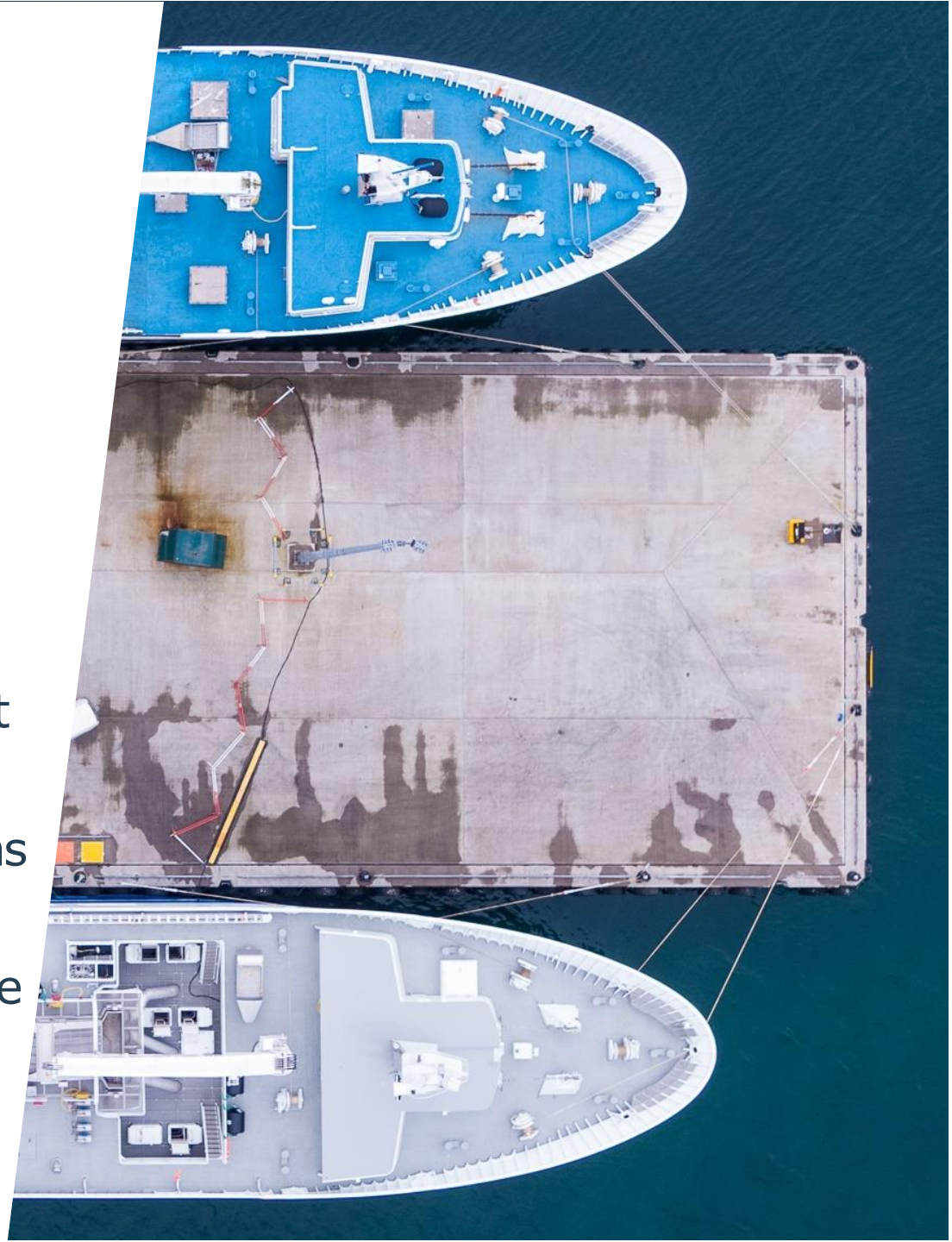
Privatisation in 90s, stopped in ‘97. Mixed model of port ownership: **private**, **trust** and **municipal**

Port ‘ecosystem’ is fragmented with lots of different models and differing levels integration

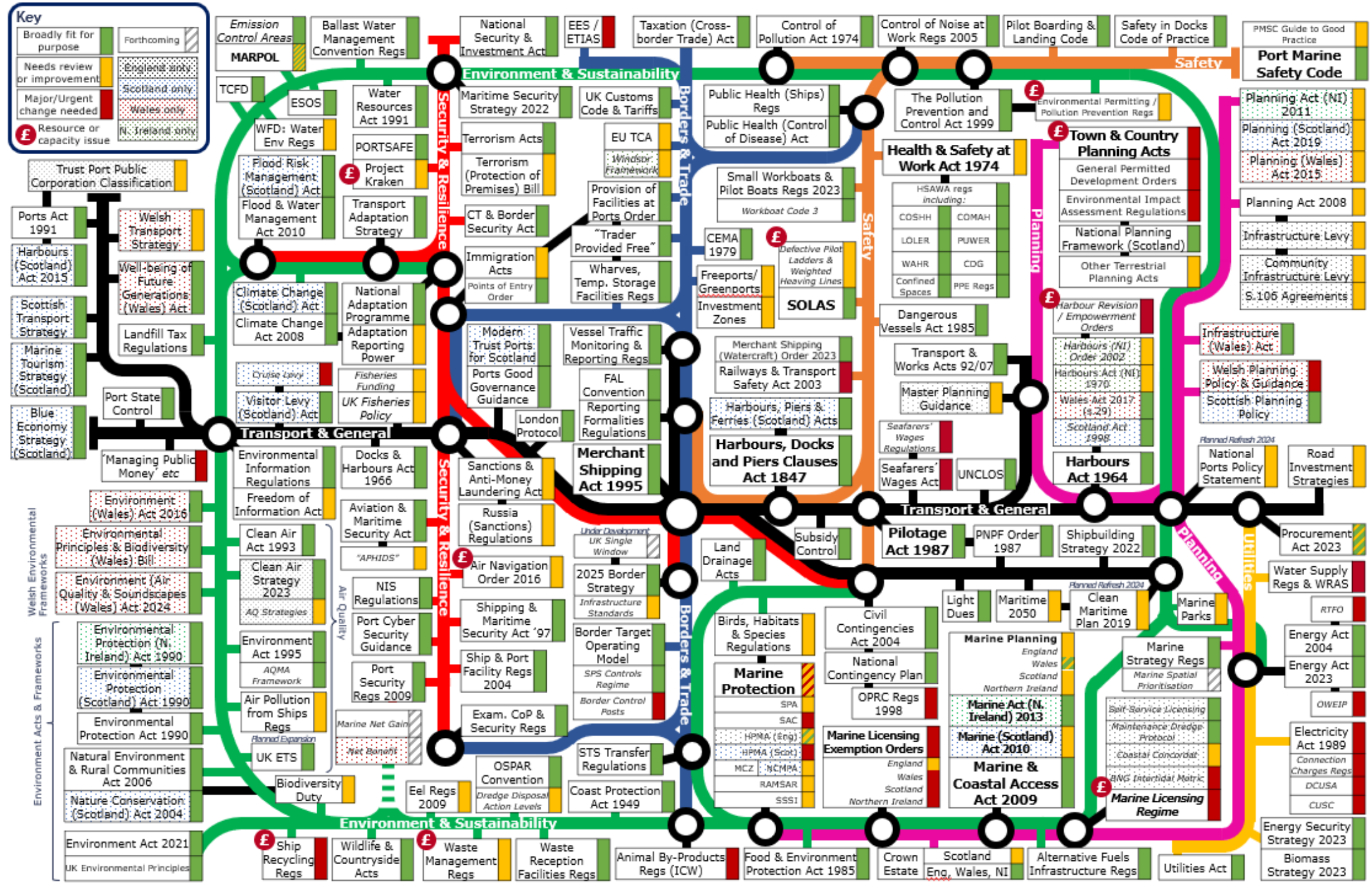
Ports policy is devolved but shipping, trade, customs and some environment is reserved

Devolution of ports policy meaning some divergence in marine licensing, approach to the crown estate and other areas

New government, new approach to public funding?



# Port Regulatory Health Ratings



# Clean Maritime Policy

**UK Transport Decarbonisation Plan:** 2021 plan says that ports have a role to play in achieving net zero

**Maritime 2050 / Clean Maritime Plan:** DfT's 2019 plan that sets out government's expectation and ambitions for decarbonising UK maritime. Due for refresh

**UK SHORE and CMDC/ZEVI:** UK Office dedicated to greening maritime with funding and support for projects and innovation like green corridors and 'Project Zero'

**'Net Zero Ports':** Forthcoming consultation on UK government policy proposals for decarbonising ports (and shipping?)

**UK (and EU) ETS:** UK and EU Emissions Trading Schemes both moving to include shipping, including emissions at berth in the UK

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**National Wealth Fund / Great British Energy:** New funding for 'renewable ready ports'

**<u>Policy is not the only driver for maritime decarbonisation</u>**

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# Climate Change top of European ports' environmental priorities

*Source: ESPO's Top 10 Environmental Priorities of the European Port Sector, 2023*

| | 1996 | 2004 | 2009 | 2013 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Port development (water related) | Garbage/ Port waste | Noise | Air quality | Air quality | Air quality | Air quality | Climate change | Climate change |
| 2 | Water quality | Dredging: operations | Air quality | Garbage/ Port waste | Energy consumption | Climate change | Climate change | Air quality | Air quality |
| 3 | Dredging disposal | Dredging disposal | Garbage/ Port waste | Energy consumption | Climate change | Energy efficiency | Energy efficiency | Energy efficiency | Energy efficiency |
| 4 | Dredging operations | Dust | Dredging operations | Noise | Noise | Noise | Noise | Noise | Noise |
| 5 | Dust | Noise | Dredging disposal | Ship waste | Relationship with the local community | Relationship with the local community | Relationship with the local community | Water quality | Water quality |
| 6 | Port development (land related) | Air quality | Relationship with the local community | Relationship with the local community | Ship waste | Ship waste | Water quality | Relationship with the local community | Ship waste |
| 7 | Contaminated land | Hazardous cargo | Energy consumption | Dredging operations | Garbage/ Port waste | Water quality | Ship waste | Ship waste | Relationship with the local community |
| 8 | Habitat loss/ degradation | Bunkering | Dust | Dust | Port development (land related) | Garbage/ Port waste | Dredging operations | Garbage/ Port waste | Port development (land related) |
| 9 | Traffic volume | Port Development (land related) | Port development (water related) | Port development (land related) | Dredging operations | Dredging operations | Port development (land related) | Port development (land related) | Garbage/ Port waste |
| 10 | Industrial effluent | Ship discharge (bilge) | Port development (land related) | Water quality | Water quality | Port development (land related) | Garbage/ Port waste | Dredging operations | Port Development (water related) |

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# Challenges for ports in decarbonising operations

# Challenges & Barriers

## Cost & Technical Challenges

- As infrastructure operators, ports are experts in planning and executing significant long-term investments.
- Investment in decarbonisation harder to build business cases for and finance, also can in some cases come with early mover risks
- In many cases, for both ports and their users, technology is either not yet fully developed or demonstrated, or it is unclear which technologies will prevail in the long term

# Challenges & Barriers

## Energy Capacity (1)

- Most ports in the UK are already at their ceiling in terms of available power
- Difficult to predict future energy needs and vectors from port users, which make up the bulk of future demand
- There are over 600 projects in the queue for connection to the transmission network (i.e. projects with large demand), with wait times 10-15 years for those joining the queue
- Significant cost and time investment in securing power with ongoing charges, with little guarantee the power will be needed or used

# Challenges & Barriers

**Energy Capacity (2)**

- Connection reform is underway at all levels but delays will get worse before they get better
- Electricity prices for business users in the UK is already higher than competitor countries
- BPA analysis in 2020 found UK power hungry industries paid 10.96p per kWh, before tax compared to:
  - Germany 7.75p
  - Norway 7.35p
  - USA 5.69p
  - France 5.67p
  - Netherlands 5.31p
  - Sweden 4.62p

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# Port Energy Usage

- BPA work in 2020 focused on examining potential power demand from ships at berth. Analysis we commissioned tracked every vessel that stopped at a UK berth in 2019, logged how long they dwelt there, and estimated their peak power demand.
- This modelling suggested that vessels at berth in the UK used over 640 GWh in 2019. Removing vessels that were at berth for less than two hours, that number falls to 500 GWh. Research by Frontier Economics for the Department for Transport in 2019 forecasted energy demands from UK ports from shore power under a business as usual scenario to be around 5GWh in 2026 and over 200GWh in 2051. Under an ambitious decarbonisation scenario where shore power plays a key role the shore power demand could be double that in 2051. (i.e. industry and government estimates roughly aligned).
- In 2019, 7 out of 10 ports in England and Wales were at or near to the ceiling of available grid power already.  Ports have their own demands for increasing power capacity to support their decarbonisation plans.

# Challenges & Barriers

## Organisational Barriers

- Sector is highly competitive and fragmented: lots of overlapping organisations in and around ports. Common for harbour authorities to overlap and many different business models.
- Overwhelming quantity of emissions in a port are not in a port's scope 1 or 2 emissions.
- Split incentives are common – one organisation needed to invest for benefits to accrue elsewhere, often to highly mobile or global businesses.
- What is a 'port' and what do we/government expect of the industry?

# What are ports doing?

## Scope 1 & 2:

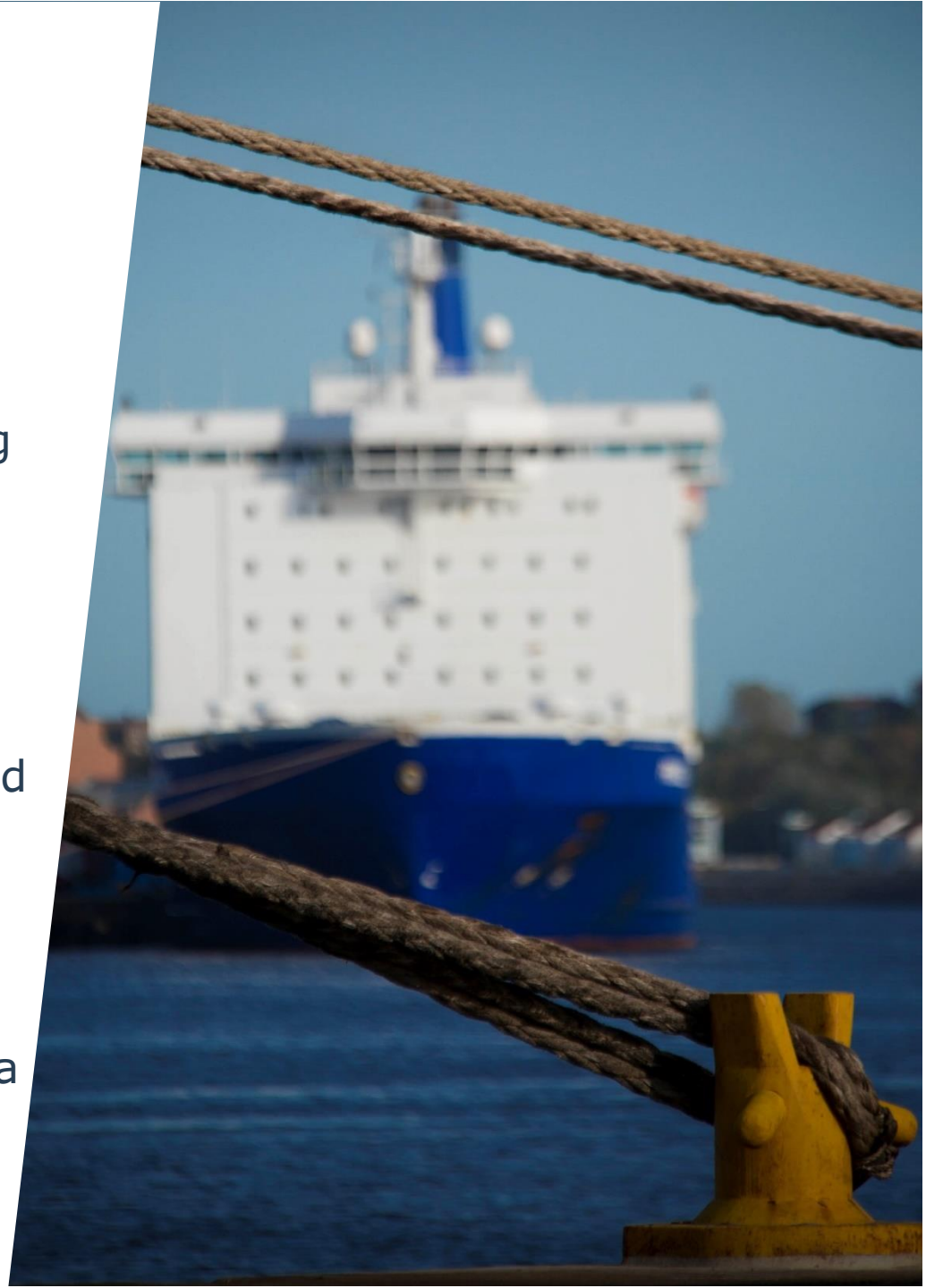
**Overall:** Investing in generation and efficiency, monitoring and modelling emissions, incentivising emission reduction

**Marine:** Use of HVO and biofuels increasingly common (although there are challenges) as a transition whilst market for zero emission workboats develops

**Landside:** Decarbonising buildings and vehicles common, some investment going into electrifying port equipment and machinery, at a cost (and sometimes performance) premium. Drop-ins increasingly common.

## Beyond...

Shipping: Different segments at very different places in their decarbonisation journeys (and often heading there via different pathways). Shore power very much a means and not an ends in itself. Landside, tenants are increasingly interested, although experience varies widely.



# What do we need?

**Clear, tech-neutral, policy frameworks:** Clean Maritime Plan refresh, ‘net zero ports’, UK ETS, Alternative Fuels Policy, RTFO etc. Industry is already delivering on net zero, so Government policy must be built on genuine partnership focusing on breaking down existing barriers.

**Broader ports policy** must support port development so we can deliver what customers need for net zero (HRO and planning reform)

**Reverse the Department for Transport’s opposition to second and third generation biofuels for maritime** and allow their use specifically to meet the Renewable Transport Fuel Obligation.

Government **regulators** and bodies that are adequately resourced

The right **funding** in the right place, with a long horizon

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# Summary

Ports are already investing in reducing their emissions and the emissions of port users

Government policy still developing along with approach to public funding and collaboration

There remains significant uncertainty in future demand and technologies and other significant barriers, particularly around energy capacity

Goveernment must act quickly to set clear, long-term and tech-neutral policy and funding frameworks and ensure it has the capacity to support the industry