

PORT DECARBONISATION AND ENVIRONMENTAL SUSTAINABILITY

10:15 – 11:45

Port Eco Systems, Current Status and Future Directions



Port Industry Challenges

Mark Simmonds

Director of Policy & External Affairs,
British Ports Association



In association with **Redshift Associates**



BRITISH PORTS
ASSOCIATION

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

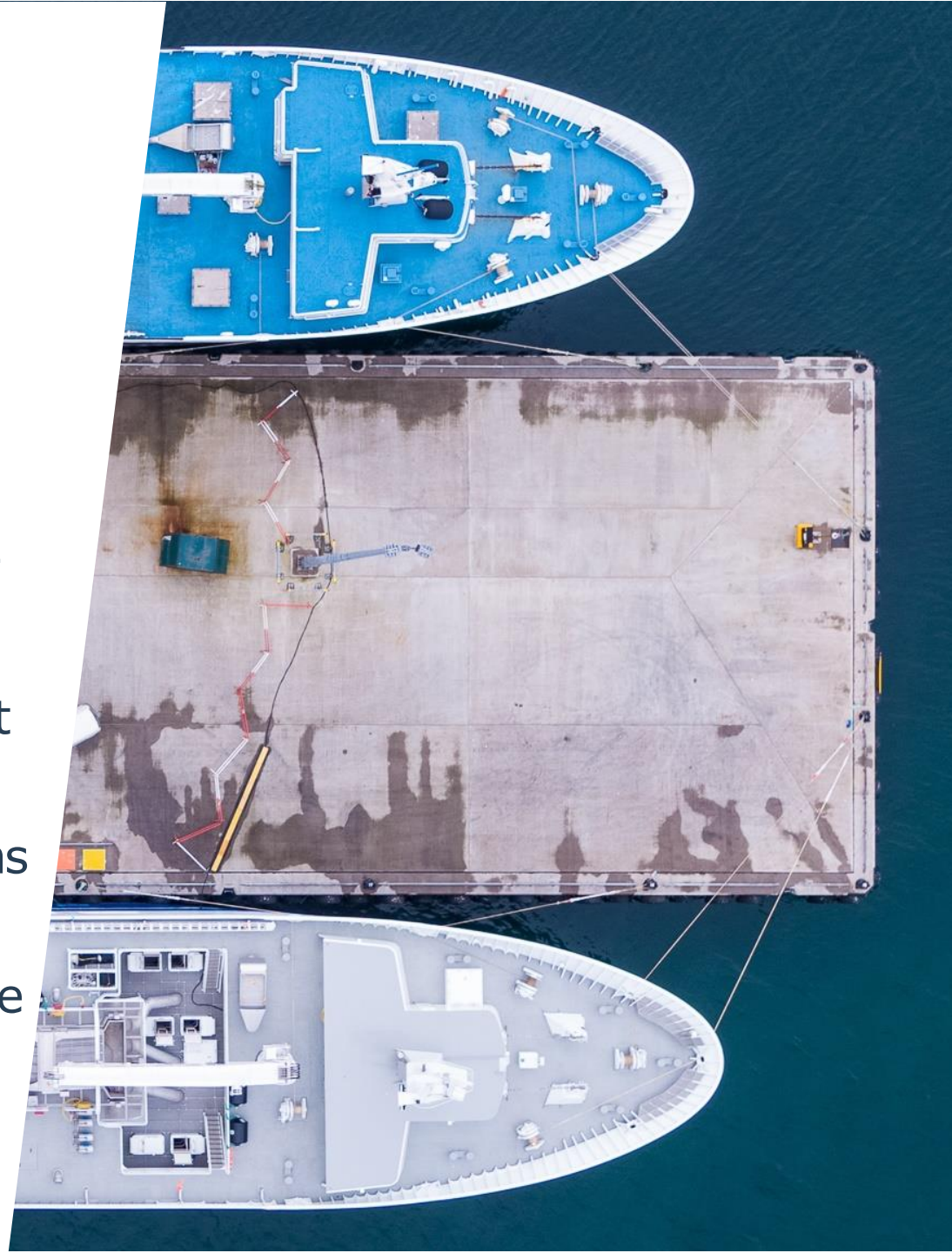
Privatisation in 90s, stopped in '97. Mixed model of port ownership: **private**, **trust** and **municipal**

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?



Key

- Broadly fit for purpose
- Needs review or improvement
- Major/Urgent change needed
- Resource or capacity issue
- Forthcoming
- England only
- Scotland only
- Wales only
- N. Ireland only

Environment & Sustainability

- Emission Control Areas (MARPOL)
- TCFD
- ESOS
- WFD: Water Env Regs
- Flood Risk Management (Scotland) Act Flood & Water Management Act 2010
- Climate Change (Scotland) Act
- Climate Change Act 2008
- Cruise Levy
- Visitor Levy (Scotland) Act
- Environment (Wales) Act 2016
- Environmental Principles & Biodiversity (Wales) Bill
- Environment (Air Quality & Soundscapes (Wales) Act 2024
- Environmental Protection (N. Ireland) Act 1990
- Environmental Protection (Scotland) Act 1990
- Environmental Protection Act 1990
- Natural Environment & Rural Communities Act 2006
- Nature Conservation (Scotland) Act 2004
- Environment Act 2021
- UK Environmental Principles
- Wildlife & Countryside Acts
- Waste Management Regs
- Waste Reception Facilities Regs
- Animal By-Products Regs (ICW)
- Food & Environment Protection Act 1985
- Crown Estate
- Scotland Eng, Wales, NI
- Alternative Fuels Infrastructure Regs
- Utilities Act
- Energy Security Strategy 2023
- Biomass Strategy 2023

Security & Resilience

- Ballast Water Management Convention Regs
- Water Resources Act 1991
- PORTSAFE
- Project Kraken
- Transport Adaptation Strategy
- National Adaptation Programme
- Adaptation Reporting Power
- Fisheries Funding
- UK Fisheries Policy
- Docks & Harbours Act 1966
- Aviation & Maritime Security Act
- "APHIDS"
- NIS Regulations
- Port Cyber Security Guidance
- Port Security Regs 2009
- UK ETS
- Biodiversity Duty
- Eel Regs 2009
- OSPAR Convention
- Dredge Disposal Action Levels
- Coast Protection Act 1949
- STS Transfer Regulations
- Exam. CoP & Security Regs
- Ship & Port Facility Regs 2004
- Shipping & Maritime Security Act '97
- Air Navigation Order 2016
- Russia (Sanctions) Regulations
- Sanctions & Anti-Money Laundering Act
- London Protocol
- Modern Trust Ports for Scotland
- Ports Good Governance Guidance
- FAL Convention
- Reporting Formalities Regulations
- Vessel Traffic Monitoring & Reporting Regs
- Immigration Acts
- Points of Entry Order
- CT & Border Security Act
- Terrorism (Protection of Premises) Bill
- Terrorism Acts
- Maritime Security Strategy 2022
- National Security & Investment Act
- EES / ETIAS
- Taxation (Cross-border Trade) Act
- Control of Pollution Act 1974
- Control of Noise at Work Regs 2005
- Pilot Boarding & Landing Code
- Safety in Docks Code of Practice
- PMSC Guide to Good Practice
- Port Marine Safety Code

Borders & Trade

- UK Customs Code & Tariffs
- EU TCA
- Windsor Framework
- Provision of Facilities at Ports Order
- "Trader Provided Free"
- Wharves, Temp. Storage Facilities Regs
- Freeports/Greenports Investment Zones
- CEMA 1979
- Defective Pilot Ladders & Weighted Heaving Lines
- SOLAS
- Merchant Shipping (Watercraft) Order 2023
- Railways & Transport Safety Act 2003
- Harbours, Piers & Ferries (Scotland) Acts
- Harbours, Docks and Piers Clauses Act 1847
- Subsidy Control
- Land Drainage Acts
- Birds, Habitats & Species Regulations
- Marine Protection
- SPA
- SAC
- HPMA (Eng)
- HPMA (Scot)
- MCZ
- NCMPA
- RAMSAR
- SSSI
- Civil Contingencies Act 2004
- National Contingency Plan
- OPRC Regs 1998
- Marine Licensing Exemption Orders
- England
- Wales
- Scotland
- Northern Ireland
- Marine Act (N. Ireland) 2013
- Marine (Scotland) Act 2010
- Marine & Coastal Access Act 2009
- Marine Strategy Regs
- Marine Spatial Prioritisation
- Self-Service Licensing
- Maintenance Dredge Protocol
- Coastal Concordat
- BNG Intertidal Metric
- Marine Licensing Regime
- Energy Act 2004
- Energy Act 2023
- OWEIP
- Electricity Act 1989
- Connection Charges Regs
- DCUSA
- CUSC

Health & Safety at Work

- Public Health (Ships) Regs
- Public Health (Control of Disease) Act
- The Pollution Prevention and Control Act 1999
- Environmental Permitting / Pollution Prevention Regs
- HSWA regs including:
- COSHH
- COMAH
- LOLER
- PUWER
- WAHR
- CDG
- Confined Spaces
- PPE Regs
- Dangerous Vessels Act 1985
- Transport & Works Acts 92/07
- Master Planning Guidance
- Seafarers' Wages Regulations
- Seafarers' Wages Act
- UNCLOS
- Pilotage Act 1987
- PNPF Order 1987
- Shipbuilding Strategy 2022
- Clean Maritime Plan 2019
- Marine Parks
- Marine Strategy Regs
- Marine Spatial Prioritisation
- Self-Service Licensing
- Maintenance Dredge Protocol
- Coastal Concordat
- BNG Intertidal Metric
- Marine Licensing Regime
- Energy Act 2004
- Energy Act 2023
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Planning

- General Permitted Development Orders
- Environmental Impact Assessment Regulations
- National Planning Framework (Scotland)
- Other Terrestrial Planning Acts
- Harbour Revision / Empowerment Orders
- Harbours (NI) Order 2002
- Harbours Act (NI) 1970
- Wales Act 2017 (s.29)
- Scotland Act 1998
- Harbours Act 1964
- National Ports Policy Statement
- Road Investment Strategies
- Procurement Act 2023
- Water Supply Regs & WRAS
- RTFO
- Energy Act 2004
- Energy Act 2023
- OWEIP
- Electricity Act 1989
- Connection Charges Regs
- DCUSA
- CUSC

Transport & General

- Trust Port Public Corporation Classification
- Ports Act 1991
- Harbours (Scotland) Act 2015
- Scottish Transport Strategy
- Marine Tourism Strategy (Scotland)
- Blue Economy Strategy (Scotland)
- Port State Control
- 'Managing Public Money' etc
- Environment (Wales) Act 2016
- Environmental Principles & Biodiversity (Wales) Bill
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Utilities

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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

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

Policy is not the only driver for maritime decarbonisation





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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:

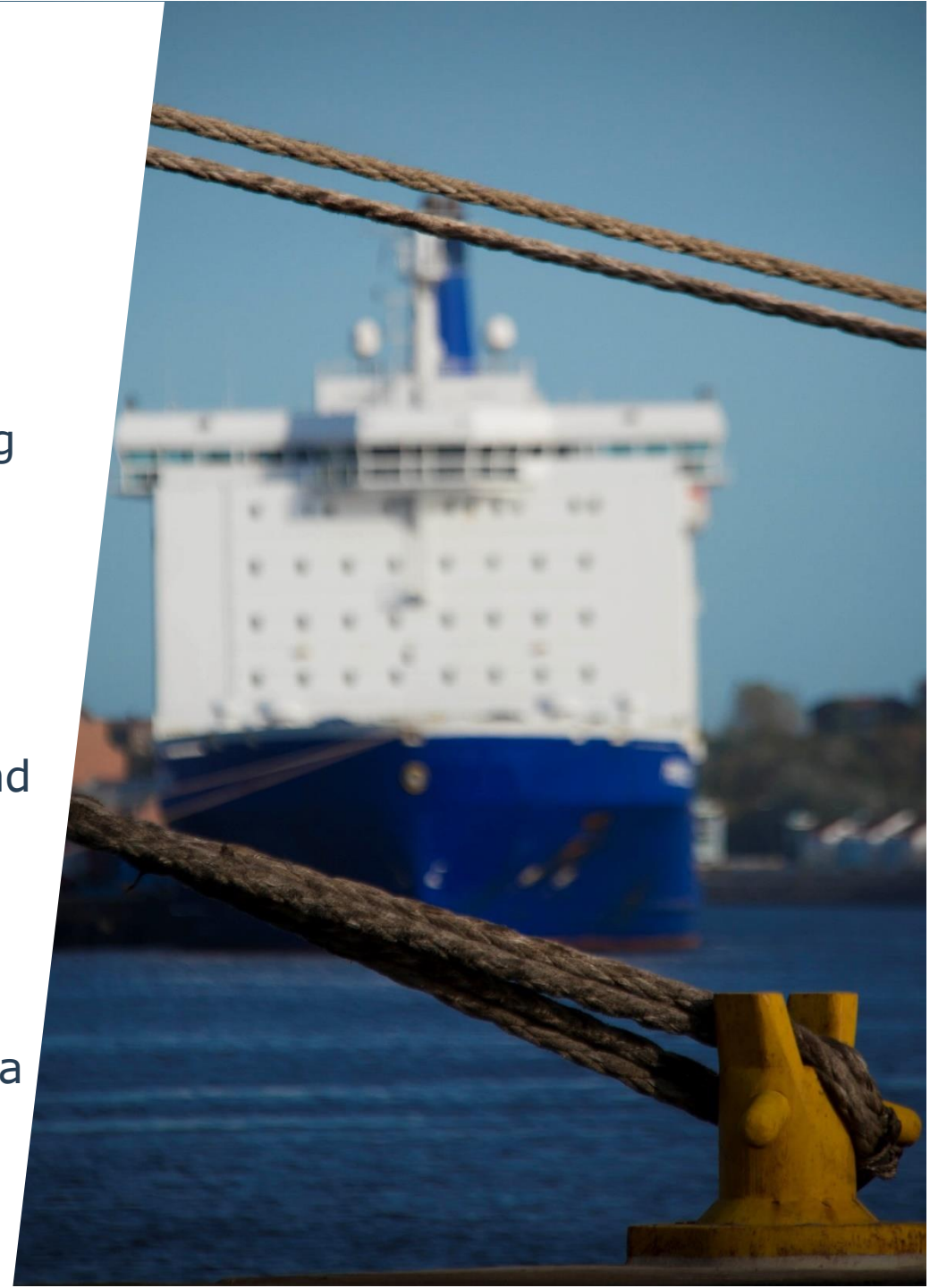
Overall: Investing in generation and efficiency, monitoring and modelling emissions, incentivising emission reduction

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

Government 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