Promising options for low carbon maritime

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REA – Decarbonising trucks, trains, boats and planes

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Ports matter – the UK's main global gateways, catalysts for coastal prosperity, hubs for economic activity

The UK's global gateways

- 95% of the UK's global physical trade moves via its ports
- 8 out of 10 cars made in the UK are exported via a port
- Half our food & feed needs are imported via a port
- £9.7bn direct value to UK plc

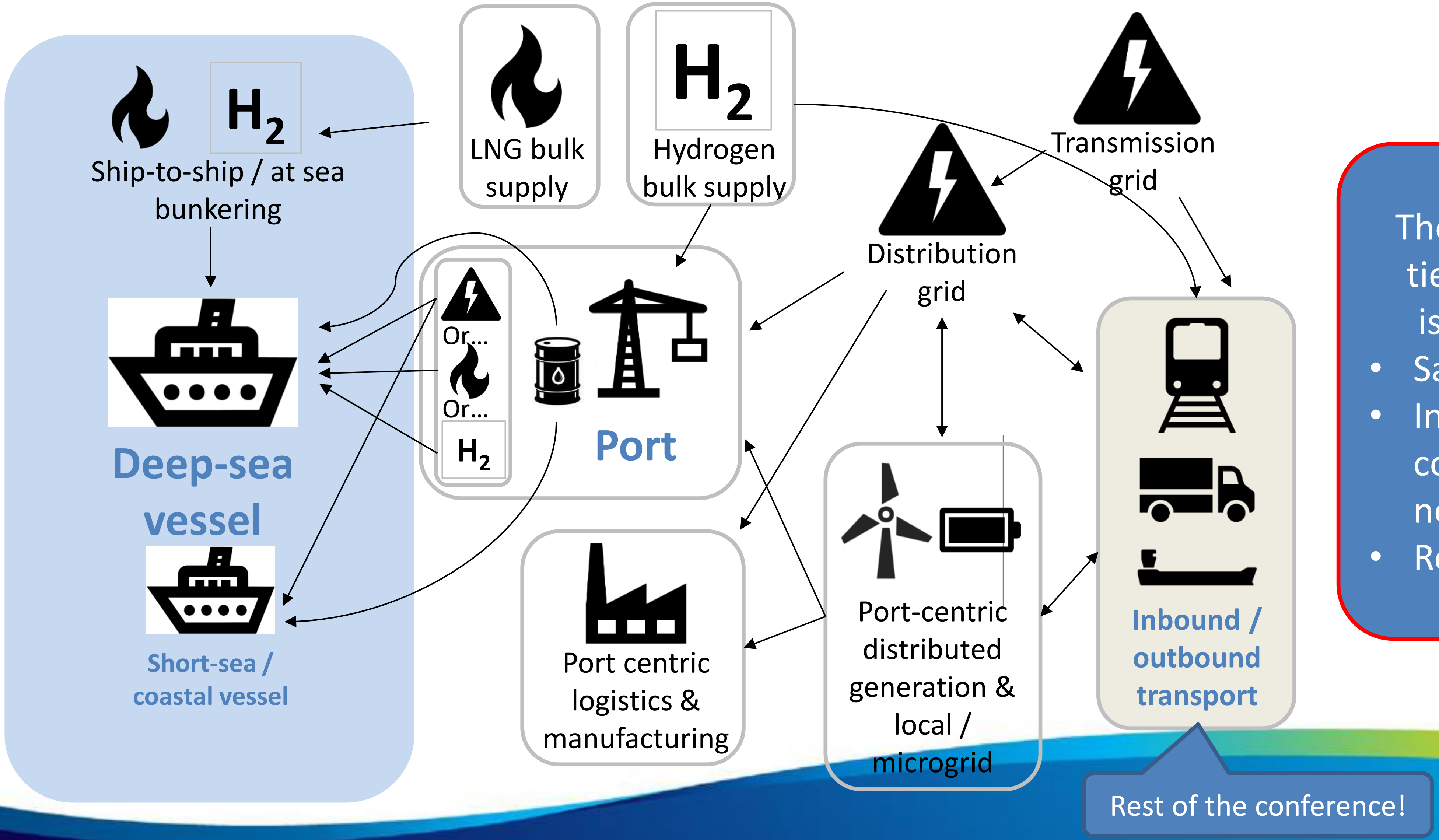
Catalysts for coastal jobs & prosperity

- £600m investment annually
- 115,000+ people are directly employed in UK ports
- 7 jobs for each direct job
- £1 spent on a port road scheme generates £4 for the wider coastal economy

Hubs for economic activity

- Bases for maritime industries – cruise, offshore wind etc.
- 'Port-centric' models of logistics & manufacturing
- Hubs for value addition – manufacturing and infrastructure development
- Even film studios!

Maritime – on sea, on land via a complicated ecosystem of pipes and wires (and regulation & competitiveness)!



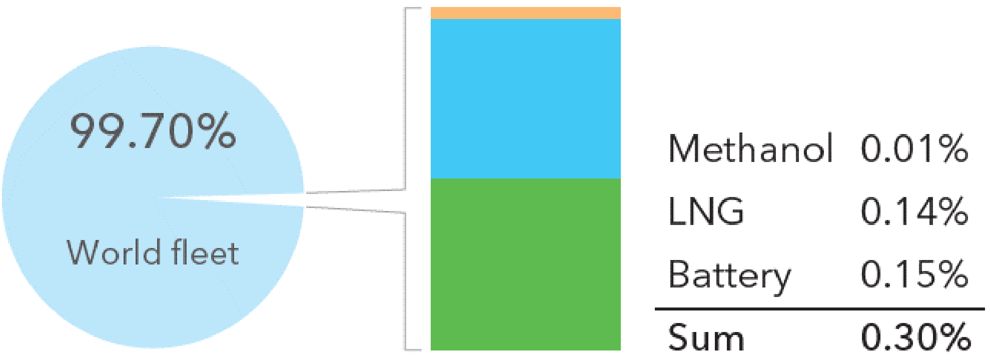
The ‘physical’ tied up with issues like:

- Safety
- Investment & competitive-ness
- Regulatory

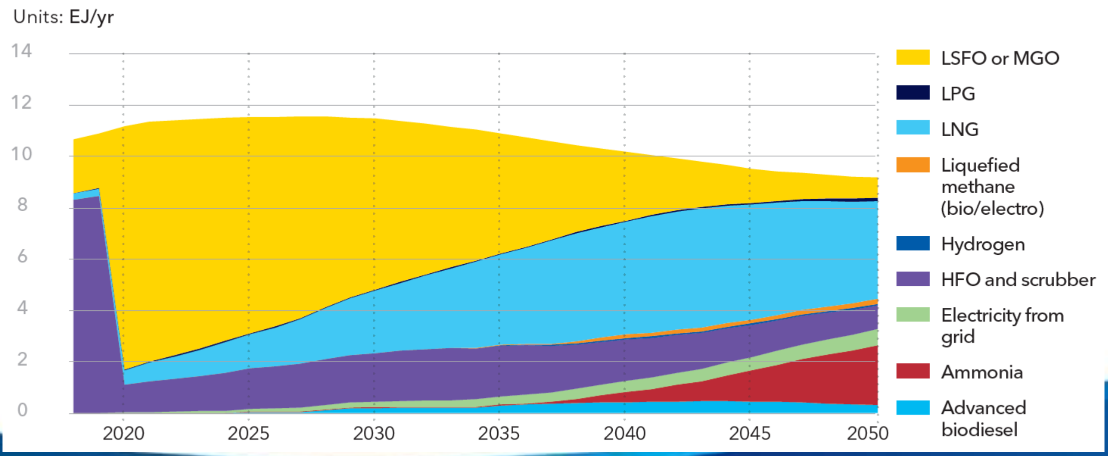
For vessels – we're starting from a low base (although change is happening) and the future is a mix

Alternative fuel uptake (percentage of ships)[a]

Ships in operation



Energy use and projected fuel mix 2018-2050 for the simulated IMO ambitions pathway with main focus on design requirements



Sources: DNV "Energy Transition Outlook 2019"; Port of London Authority / Goodchild Marine; Carnival

A patchwork of solutions, with some crucial enablers

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Reduce and replace

- **Reduce demand for (any) fuel –** efficiency / optimisation, supplemental renewables
- **Replace more polluting kit / fuel** – retrofit, EN590
- **The human interface** – kit, training, incentives, 'hearts & minds'

Provide a transition

- **LNG / CNG**
- **Biofuels**
- **Scrubbers?**

Grow alternatives

- **Electrification**
- **Alternative fuels (H2, NH4…)**
- **Renewables**

Financing
Public, Private

Regulation
Maritime, Terrestrial

Government ambition & desire to take leadership – Clean Maritime Plan

Maritime 2050 zero emission shipping ***ambition***:

"In 2050, zero emission ships are commonplace globally. The UK has taken a proactive role in driving the transition to zero emission shipping in UK waters and is seen globally as a role model in this field, moving faster than other countries and faster than international standards. As a result, the UK has successfully captured a significant share of the economic, environmental and health benefits associated with this transition."

Government wants to be a ***leader***:

- Maritime Minister repeatedly talks about international leadership
- High Ambition coalition in IMO negotiations
- UK will host and Chair COP26 in Glasgow in December 2020

Some ***financial commitment*** but more to be looked at (hopefully):

- Some R&D funding calls
- Consultations on RTFO extension & other non-tax incentives
- Government eager to use its convening power

Sounds great! Why isn't it happening right now / faster?

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Technology uncertainty

Demand – Low, variable

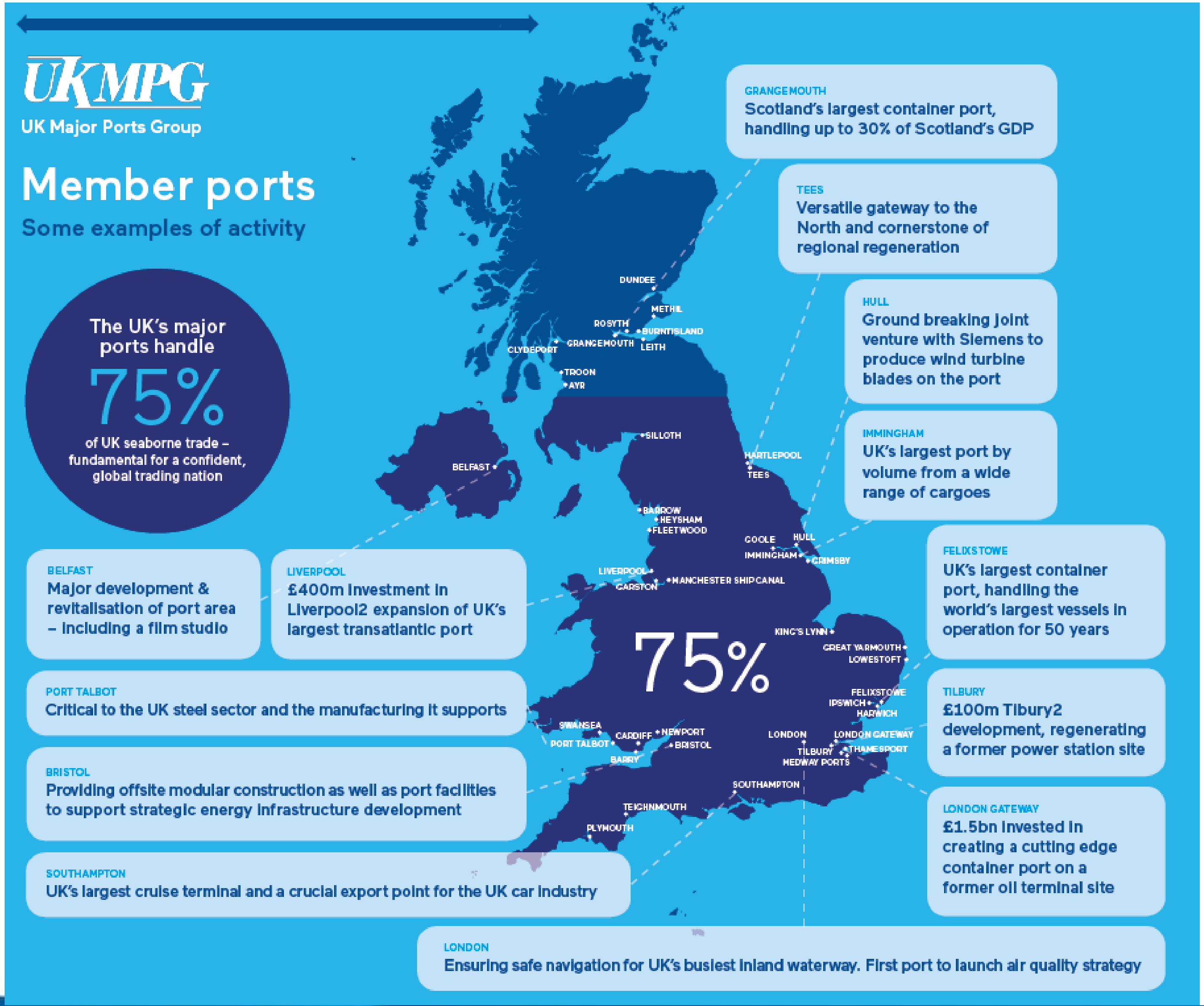
Supply – Infrastructure needs, cost recovery

Global, fragmented sector

Summary

- Decarbonising maritime is more than ships, and it interacts with the ‘terrestrial’ landscape
- Different types of vessels & activities / ports probably lend themselves to different solutions
- A complex patchwork of options is emerging, with different time horizons
- The UK Government is ambitious for change, but currently there’s not a lot of money behind it
- That’s important because the ‘commercial’ business case is not there yet for accelerate change
- **Major port operators are committed to playing their role in a zero emissions future**

Thank you!



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