CONFERENCE APRIL 29th 2026 • KEYNOTE

Shipping & Energy

Transporting the world's fuels in a decarbonising era

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AGENDA

What we'll cover

01 Energy security

Hormuz today: why decarbonisation IS energy security.

02 The world's response

The IMO Net-Zero Framework — and what's being decided this week at MEPC 84.

03 Alternative fuels & supply chains

Fuel options, orderbook, costs, bunkering hubs and infrastructure.

04 Outlook & takeaways

What shipowners, charterers and policymakers should do next.

Shipping is the world's energy artery

~80%
of global trade
moves by sea

~30%
of seaborne trade
is energy itself

~550
bcm LNG / year
almost all by ship

THE FLEET THAT MOVES IT

- **Crude tankers**
  VLCC, Suezmax, Aframax — the spine of oil supply.
- **Product tankers**
  MR/LR — refined fuels: gasoline, diesel, jet.
- **LNG carriers**
  Cryogenic, fastest-growing — set to overtake VLCCs end-2026.
- **LPG / gas carriers**
  Petrochemical and energy demand.

THROUGH NARROW CHOKEPOINTS

~20%	**Strait of Hormuz** of global oil and LNG transits here.
~25%	**Strait of Malacca** largest oil chokepoint into Asia.
~12%	**Suez / Bab el-Mandeb** Red Sea: re-routing since 2024.
—	**Panama, Turkish & Danish Straits** climate-, traffic-, geopolitically-exposed.

Sources: UNCTAD Review of Maritime Transport 2025; Clarksons Research; EIA.

Energy security at sea

● LIVE / APR 2026

Strait of Hormuz: closed since 28 February

~13 m b/d
supply shut-in

~20%
of global oil & LNG

$95+
Brent /barrel

4-5×
war-risk insurance

Decarbonisation leads to energy security.

Every tonne of fossil fuel a ship doesn't burn is a tonne that doesn't have to transit a chokepoint, clear an insurance market, or depend on a single producing region. Alternative fuels diversify the energy supply geographically — moving production to renewables-rich regions outside legacy crude geopolitics.

Beyond Hormuz: the structural risks

Multiple chokepoints

Red Sea, Hormuz, Black Sea, Panama , concurrent disruption is the new normal.

Sanctions & shadow fleet

~1,140 tankers move sanctioned crude in opaque trades , spill, safety, compliance risk.

Concentration risk

Korean & Chinese yards dominate LNG/tanker building, single-point bottleneck.

Climate disruption

Panama drought and Arctic variability now reshape route reliability and tonne-miles.

Sources: Wikipedia '2026 Strait of Hormuz crisis'; CRS R45281 (Mar 2026); UN News (Apr 2026); UKMTO; Kpler.

How the Net-Zero Framework works

The world's response: a global price on shipping carbon — agreed in principle, being finalised this week at MEPC 84.

Two pillars, one system

TECHNICAL ELEMENT

Global fuel standard (GFI)

Each ship's annual GHG fuel intensity (gCO_2eq / MJ) measured well-to-wake, compared against two tightening targets:

- Tier 1 — Direct Compliance Target (stricter): below this, ship earns Surplus Units.
- Tier 2 — Base Target: above this, ship has a compliance deficit.

ECONOMIC ELEMENT

Global GHG pricing mechanism

Ships in deficit must acquire Remedial Units (RUs), paid into an IMO Net-Zero Fund. For 2028–2030:

$100 / tCO_2eq	$380 / tCO_2eq
Tier 1 RU (lower)	Tier 2 RU (penalty)

Timeline

● HAPPENING THIS WEEK — MEPC 84

Apr 2025	Oct 2025	Apr 2026	Oct 2026	2028	2050
Net-Zero Framework approved (MEPC 83)	Adoption vote adjourned (MEPC ES.2)	**MEPC 84 — guidelines & next steps**	Resumed adoption vote expected	Earliest entry into force	Net-zero target

MEPC 84 (27 Apr – 1 May 2026): Member States are debating LCA guidelines, ZNZ rewards, fund design and the timing of the resumed adoption session. Sources: IMO; Global Maritime Forum.

The alternative fuel landscape

No single fuel wins. The fleet is heading for a portfolio of pathways. LNG sits separately — it's a transition fuel, not zero-emissions.

TRANSITION FUEL — NOT ZERO

LNG

Mature, lower SOx/NOx, dominates today's orderbook (~962 vessels). But still fossil — methane slip cuts well-to-wake GHG benefit. A bridge to ZNZ fuels, not a destination.

ZERO / NEAR-ZERO EMISSION (ZNZ) PATHWAYS

Methanol

●●●●○ *Readiness*

PROS Liquid at ambient; easy retrofit; fastest-growing in containers.

CONS Green methanol scarce and expensive today.

Ammonia

●●●●○ *Readiness*

PROS Carbon-free at use; hydrogen carrier; deep-sea fit.

CONS Toxic; NOx/N_2O risk; safety + bunkering still maturing.

Biofuels

●●●○○ *Readiness*

PROS Drop-in into existing engines; immediate impact.

CONS Feedstock scrutiny; sustainability + supply limits.

Hydrogen

●●○○○ *Readiness*

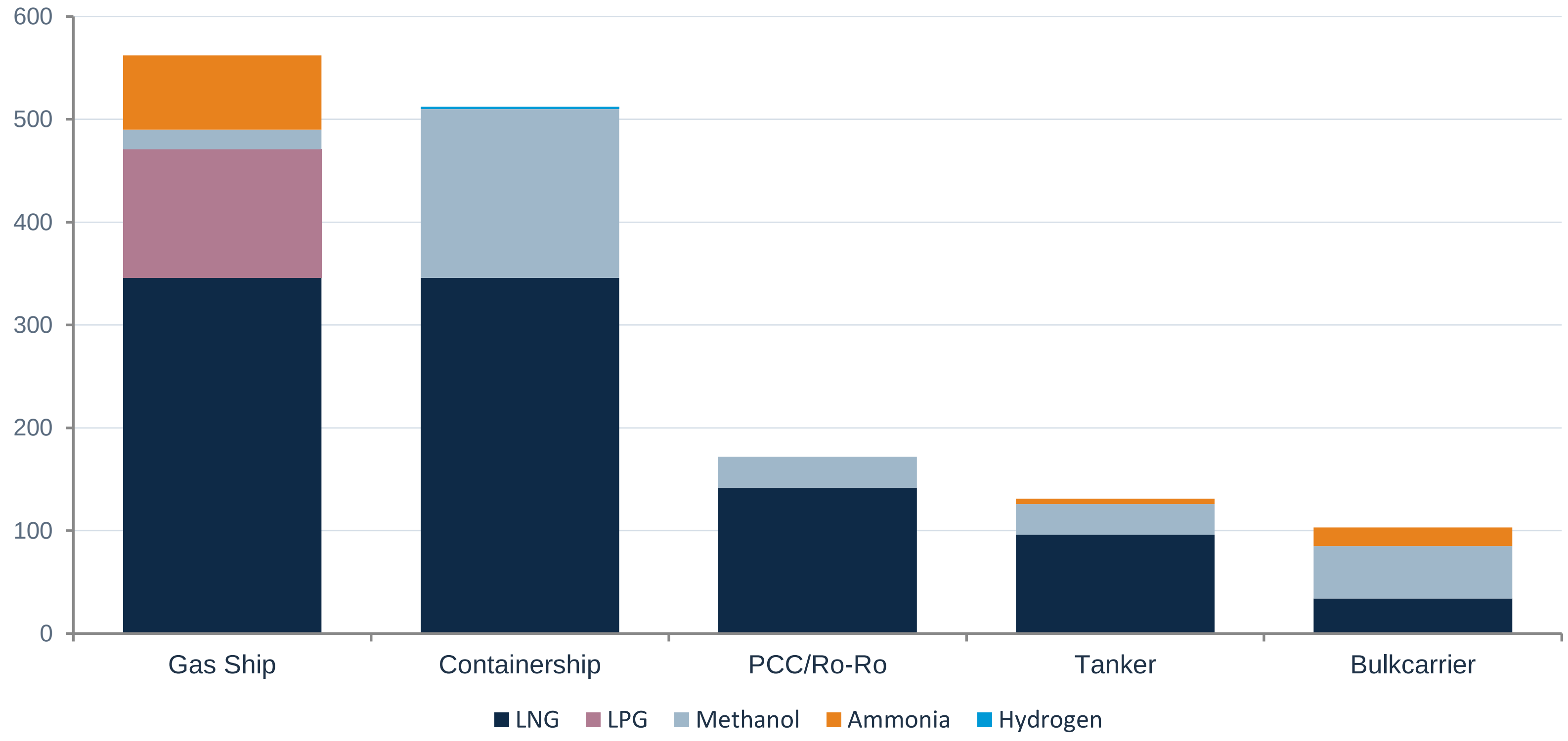
PROS Zero carbon at use; long-term option.

CONS Volume, storage, range; mostly short-sea today.

Where the orderbook is going

The alternative-fuel orderbook is concentrated in five vessel types — gas ships, containerships, PCC/Ro-Ro, tankers and bulk carriers. LNG dominates today, but methanol and ammonia have visible footholds where deep-sea routes and chemical-handling expertise overlap.

Alternative-fuel-capable orderbook (number of vessels)



1,481

alt-fuel-capable vessels in the top 5 ship types

LNG leads

in containerships, PCC/Ro-Ro and tankers — bridge fuel of choice.

Methanol scales

fastest in container shipping (164 vessels) — Maersk-led.

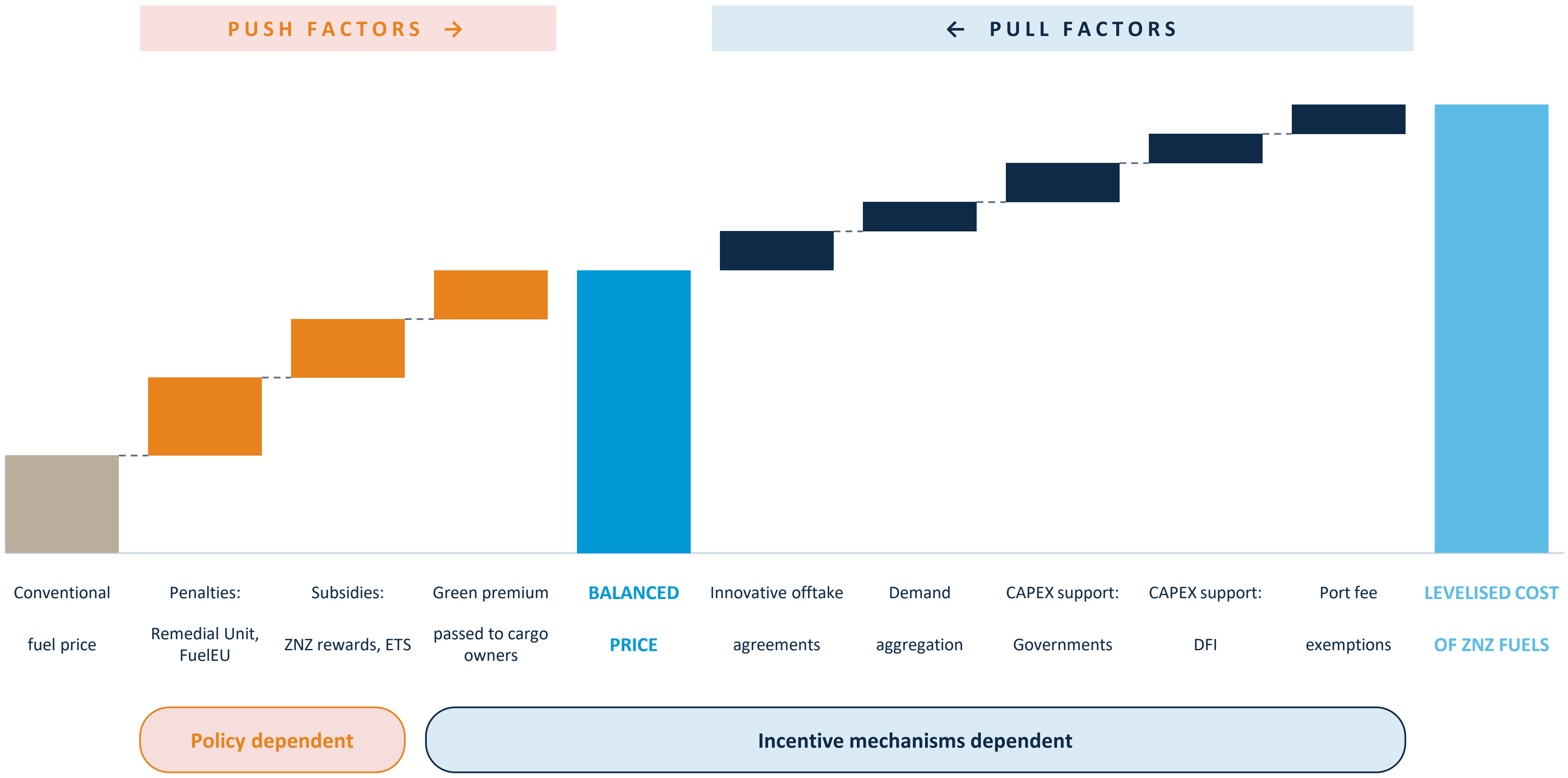
Ammonia footprint

is concentrated in gas carriers (72) — natural fit for handling.

Source: Clarksons, S&P Global, Lloyd's Register Database. Top 5 ship types by alt-fuel orderbook; vessels capable of multiple fuels are counted once per fuel.

Closing the cost gap to ZNZ fuels

Policy push factors lift the conventional price toward a 'balanced' level cargo owners can absorb. Incentive pull factors then close the remaining gap to the levelised cost of zero/near-zero (ZNZ) fuels.



Adapted from Lloyd's Register Maritime Decarbonisation Hub. Bar sizes are illustrative — they do not reflect the relative impact of each factor.

WHY THIS MATTERS

No single lever closes the gap.

Policy sets the floor (carbon price + penalties + ZNZ rewards).

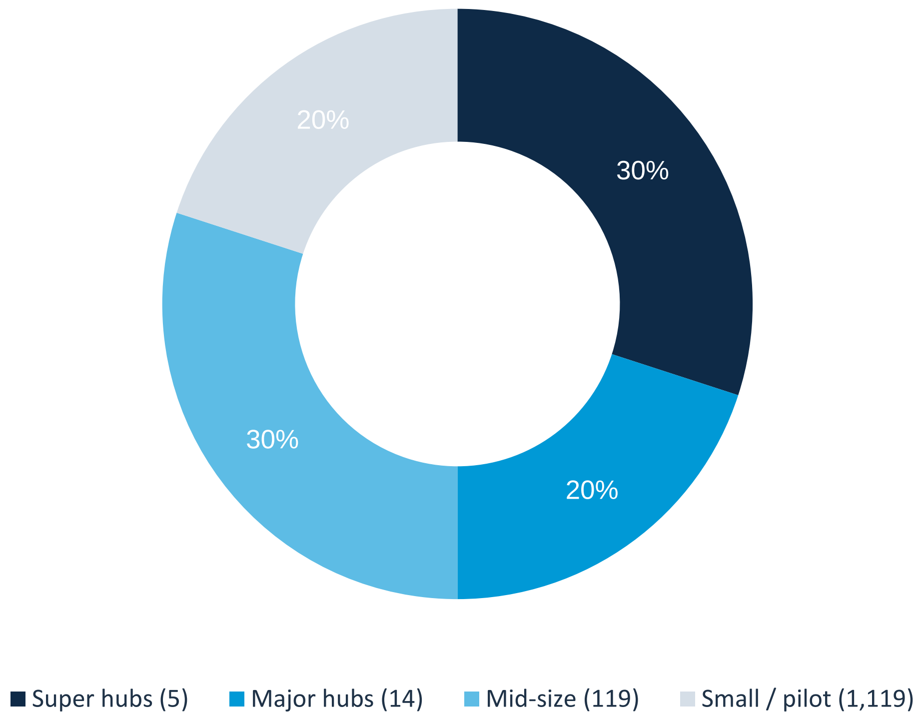
Cargo owners absorb a green premium for visibility.

Incentives - offtakes, CAPEX support, port fee relief - bridge the rest.

Bunkering is highly concentrated

The world bunkers >200 Mt of marine fuel a year — but a small group of ports moves most of it. That concentration is where early sustainable-fuel infrastructure will be built.

Share of global bunkering volumes by port tier



Top 19 ports = ~50%

Singapore alone

~25% of global bunkering volumes.

ZARA cluster

Amsterdam–Rotterdam–Antwerp–Zeebrugge ≈ 8% — the second largest hub.

Other major hubs

Fujairah, Hong Kong, Shanghai, Busan, Gibraltar, Algeciras, Panama.

Source: Lloyd's Register Maritime Decarbonisation Hub, 'Building the Sustainable Maritime Fuel Supply Chain' (2026).

Emerging trade patterns for sustainable fuels

Lloyd's Register identifies 127 e-fuel projects and ~87 biofuel projects with credible maritime export potential. The map shows where they sit, where today's bunkering demand is — and the early trade-route pairs that will connect them.

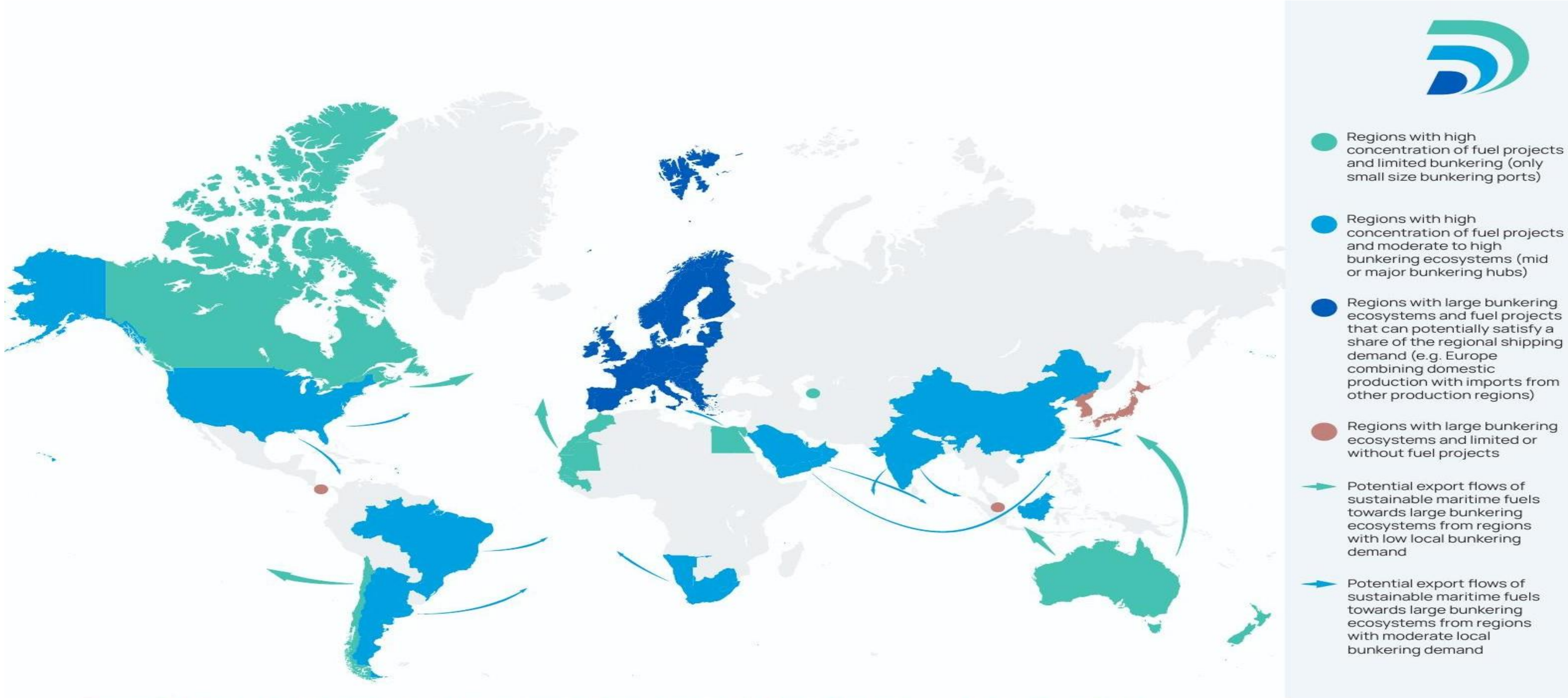


Figure 6 Global map showing potential regional patterns and early trade for sustainable maritime fuels.

IMPORT-DEPENDENT

Asia-Pacific hubs

Singapore, Japan, Korea concentrate demand but produce little. Supply via Middle East (Duqm, Salalah, Khalifa, Fujairah) and Australia.

HYBRID MODEL

Europe

Domestic e-fuel & biofuel projects across the Nordics, Iberia, Germany. EU ETS + FuelEU shape a mix of local production and imports.

EXPORT-LED

Americas, Africa & parts of Asia

Production-led regions with limited domestic demand. Export-first models likely from Mauritania, Namibia, Patagonia (Argentina, Chile), Brazil.

82% of identified fuel-distribution ports are NOT today's top bunkering hubs — early markets will form as export-gateway-to-bunkering-hub linkages.

Source: Lloyd's Register Maritime Decarbonisation Hub, 'Building the Sustainable Maritime Fuel Supply Chain' (2026), Figure 6.

The bottleneck is infrastructure, not molecules

Bunkering as a three-layer delivery stack

01 **Shore-side**

Tanks, segregated storage, blending, jetties, loading arms — segregation, not total volume, is the binding constraint.

02 **Last-mile delivery**

Bunker barges, truck-to-ship, pipeline-to-berth. The first dedicated barge is a major fixed-cost step.

03 **Assurance & permits**

Standards, custody transfer, safety cases — methanol and ammonia need new exclusion zones and emergency response.

Dual-role front-runners

Ports that combine active bunkering with links to BOTH e-fuel and biofuel projects:

Rotterdam	Shanghai	Dalian
Santos	Savannah	

Plus likely early movers: Singapore, ZARA cluster, Fujairah, Khalifa, Duqm, Salalah, Tanger Med, Hamburg, Vancouver, LA.

Source: Lloyd's Register Maritime Decarbonisation Hub (2026).

What it all means

Plan for portfolio fuels

No silver bullet. Owners and ports should hedge across LNG, methanol, ammonia and biofuels — not pick a single winner.

Price carbon into every decision

Even with adoption adjourned, the $100/$380 RU prices already set a clear forward signal investors and charterers can plan against.

Decarbonisation is energy security

Hormuz closed since Feb 2026 — alt fuels reduce chokepoint exposure as much as they cut emissions.

Build hubs first, not everywhere

The top 19 ports move ~50% of bunkers (LR, 2026). Concentrate first investments where demand, industry and logistics already overlap.

Efficiency first, always

Wind assist, hull design, slow steaming and digital routing cut fuel demand under any fuel scenario.

Watch MEPC 84 this week

Member States are debating LCA guidelines, ZNZ rewards and fund design these decisions shape the investment case as much as the headline targets.

THANK YOU

Questions & discussion

Shipping sits at the intersection of energy security and climate ambition.
The choices made between now and 2030 will shape both for decades.

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Sources: IMO, UNCTAD Review of Maritime Transport 2025, Clarksons Research, Global Maritime Forum, DNV, Lloyd's Register Maritime Decarbonisation Hub.