

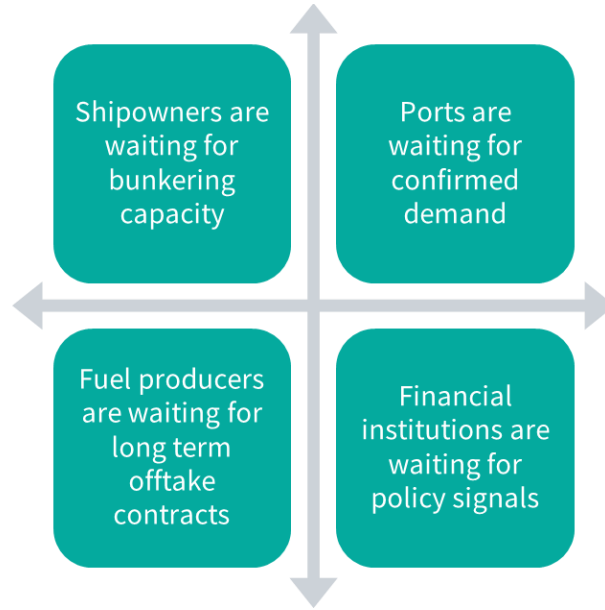


Green Fuel- Implementation Roadmap (6 months)



Structural Deadlock in India’s Maritime Green Fuel Transition:

India’s green fuel ecosystem is currently locked in a circular dependency. Each stakeholder is waiting for another to move first.

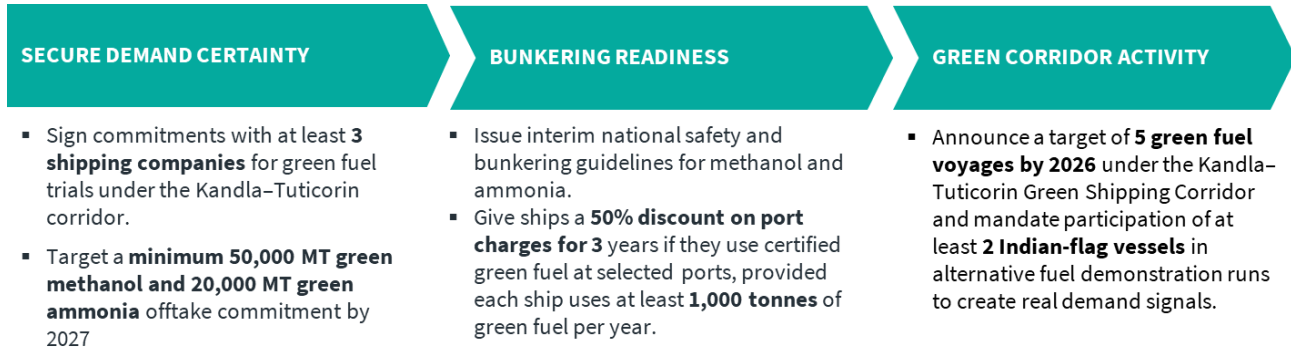


The table below summarises India’s stated position on maritime fuels under the Future Fuel Strategy for Maritime India:

Fuel	Strategic Role	Target Share	Current Status and Aims
LNG / LPG	Transitional fuel	40% by 2030 15% by 2050	<ul style="list-style-type: none"> LNG bunkering at Kochi, Mundra, Dabhol, Hazira, Jafrabad, Dahej and Ennore by 2030 1 million metric tonnes per annum LNG bunkering capacity target Ensure availability of Green LNG or Bio LNG by 2030
Methanol	Bridge fuel between conventional fuels and zero carbon fuels	3% by 2050	<ul style="list-style-type: none"> Marine engines commercially available Methanol bunkering at Kandla and JNPT by 2030 350,000 metric tonnes bunkering capacity targeted by 2030 Transition toward green or bio methanol by 2050
Green Ammonia	Significant role in long haul shipping. Primary zero carbon fuel pathway	44% by 2050	<ul style="list-style-type: none"> Production through renewable energy driven electrolysis and ammonia synthesis Targeted investment in ammonia synthesis facilities by 2040 Hydrogen and ammonia terminal infrastructure at selected ports by 2030
Hydrogen	Mainstream fuel for medium haul and coastal shipping	19% by 2050	<ul style="list-style-type: none"> Increase hydrogen adoption by 2030 with 20% fuel mix share targeted by 2040 Large scale hydrogen production linked to renewable energy expansion Development of hydrogen terminal infrastructure at selected ports
Biofuels	Suitable for coastal and inland waterways	19% by 2050	<ul style="list-style-type: none"> National Biofuel Policy supports blending Biofuel bunkering at selected west and east coast ports by 2030 150,000 metric tonnes per annum availability by 2030 900,000 metric tonnes per annum

Short Term Targets:

To address the demand and supply deadlock the following steps are needed in the first 6 months:

**Basis:**

- Singapore issued **TR129 Methanol Bunkering Standard** and conducted live methanol bunkering trials before full commercial rollout, and has announced **time-bound methanol bunkering licences for 2026–2030**, creating regulatory certainty before large-scale demand materialises.
- Singapore provides **up to 100% port dues concession from 2025–2027** under the Maritime Singapore Green Initiative for vessels using zero and low-carbon fuels, directly lowering operating costs to stimulate early adoption.
- Industry proposals received by Singapore indicate potential supply of **more than 1 million tonnes per year of low-carbon methanol by 2030**, showing that early regulatory clarity translates into bankable volume commitments.
- Hong Kong’s Action Plan targets **more than 60 green bunkering operations per year by 2030**, involving **over 200,000 tonnes of green maritime fuel annually**, demonstrating the use of measurable activity targets rather than infrastructure announcements alone.
- Hong Kong’s Green Maritime Fuel Bunkering Incentive Scheme provides up to **HKD 500,000 per bunkering operation**, capped at **HKD 2 million per fuel type**, specifically to de-risk pioneer operations and break the early supply–demand deadlock.

References for DGS for creating Bunkering Guidelines:

- Spanish Ports LNG Bunkering Guidelines:



Common_Guidelines
_for_LNG_Bunkering_

Book 1



Common_Guidelines
_for_LNG_Bunkering_

Book 2

- Europe Maritime Safety Agency (EMSA) guidelines on LNG Bunkering:



EMSA Guidance on
LNG Bunkering.pdf

- EMSA guideline on safe biofuels bunkering (includes bio-methanol):



Guidance Safe
Bunkering of Biofuel +

4- LR's Methanol Bunkering Checklists:



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___Ship_Bunker_Load_Ship_Portable_Tank___Terminal_Supplier_Truck_Portable_Tankg___Truck_Supplier_Canol_Bunkering___Tec



Methanol_Bunkering
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