

NAVIGATING TOWARDS A NET-ZERO GHG EMISSION SHIPPING

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DMET-MERI Alumni (Singapore) Technical Meeting (in collaboration with DNV)

Members and Industry players in decarbonisation efforts

Source: MPA

Revised 2023 IMO GHG Strategy

International shipping GHG emissions reduction targets:

- At least 20%, striving for 30%, by 2030
 - At least 70%, striving for 80%, by 2040
 - Net-zero by or around, i.e. close to 2050 compared to 2008
- Uptake of zero/near-zero GHG emission technologies, fuels and/or energy sources to represent at least 5% (striving for 10%) of the energy used by International Shipping by 2030
 - Reduce CO2 emissions per transport work by at least 40% by 2030, compared to 2008

Port Terminals

Domestic Harbour Craft

Future Marine Fuels, Bunkering Standards and Infrastructure

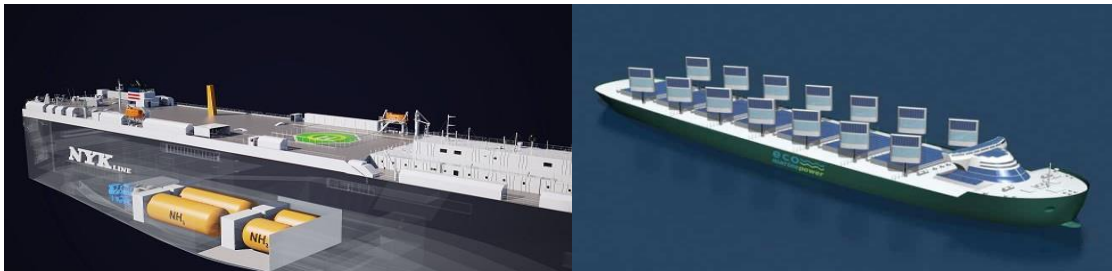
Maritime Singapore's Decarbonisation Initiatives encompass 7 key areas

Driving cooperation through the IMO and relevant platforms

Carbon Awareness, Carbon Accounting, and Green Financing

Singapore Registry of Ships

Research & Development, Talent



SSA members initiatives

Coastal Sustainability Alliance (CSA)

- New alliance to speed up decarbonisation, build next-gen maritime ecosystem by Kuok Singapore Limited (KSL) Maritime Group
- The alliance's aims are centred on five strategic areas:
 - Reduce carbon emissions by up to 50% with PXO vessel series
 - Reduce e-waste and build e-charging infrastructure network
 - Reduce marine traffic by 20% through logistics and fleet optimisation
 - Foster a sustainable green supply chain and maritime business ecosystem by supporting SMEs and start-ups
 - Talent attraction and workforce upgrading

Cyan Renewables-Led Consortium In Advancing Electric Harbour Craft Operations In Singapore

- The consortium intends to improve the scenario by focusing on “quality shipbuilding, flexible financing and customer access.”
- Other consortium members include classification society Bureau Veritas Marine, marine services provider PSA Marine, shipbuilder Strategic Marine, boat rental agency SeaCabbie, engineering firm Sea Forrest and bunker supplier Victory.
- It will be the first in Singapore to enable the leasing of renewable vessels through Cyan Renewables, thus reducing costs for operators. The consortium will also be the first to provide a “ride-hailing application for the ordering of launch boats via SeaCabbie, Cyan Renewables claims.

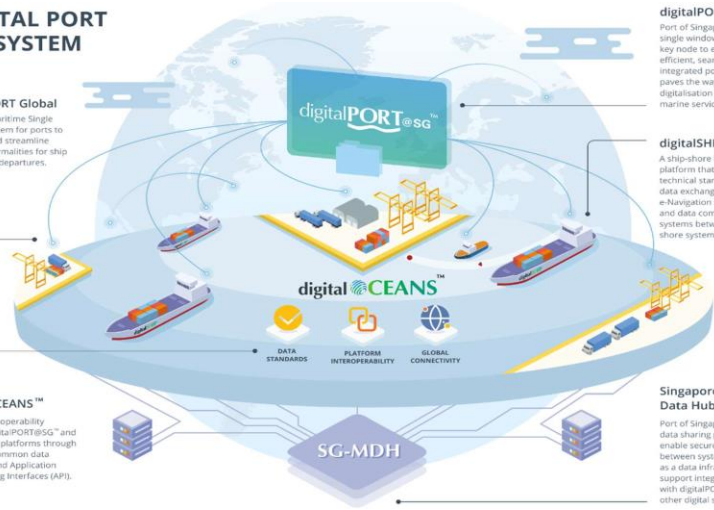


Optimise the efficiency, effectiveness & security of future maritime operations

DIGITAL PORT ECOSYSTEM

digitalPORT Global
A generic Maritime Single Window System for ports to digitalise and streamline reporting formalities for ship arrivals and departures.

digitalOCEANS™
Fosters interoperability between digitalPORT@SG™ and other digital platforms through the use of common data standards and Application Programming Interfaces (API).



digitalPORT@SG™
Port of Singapore's maritime single window that serves as a key node to enable more efficient, seamless and integrated port services, and paves the way for further digitalisation of port and marine services.

digitalSHIP™
A ship-shore interoperability platform that focuses on technical standards for data exchange of e-Navigation services and data communication systems between ship and shore systems.

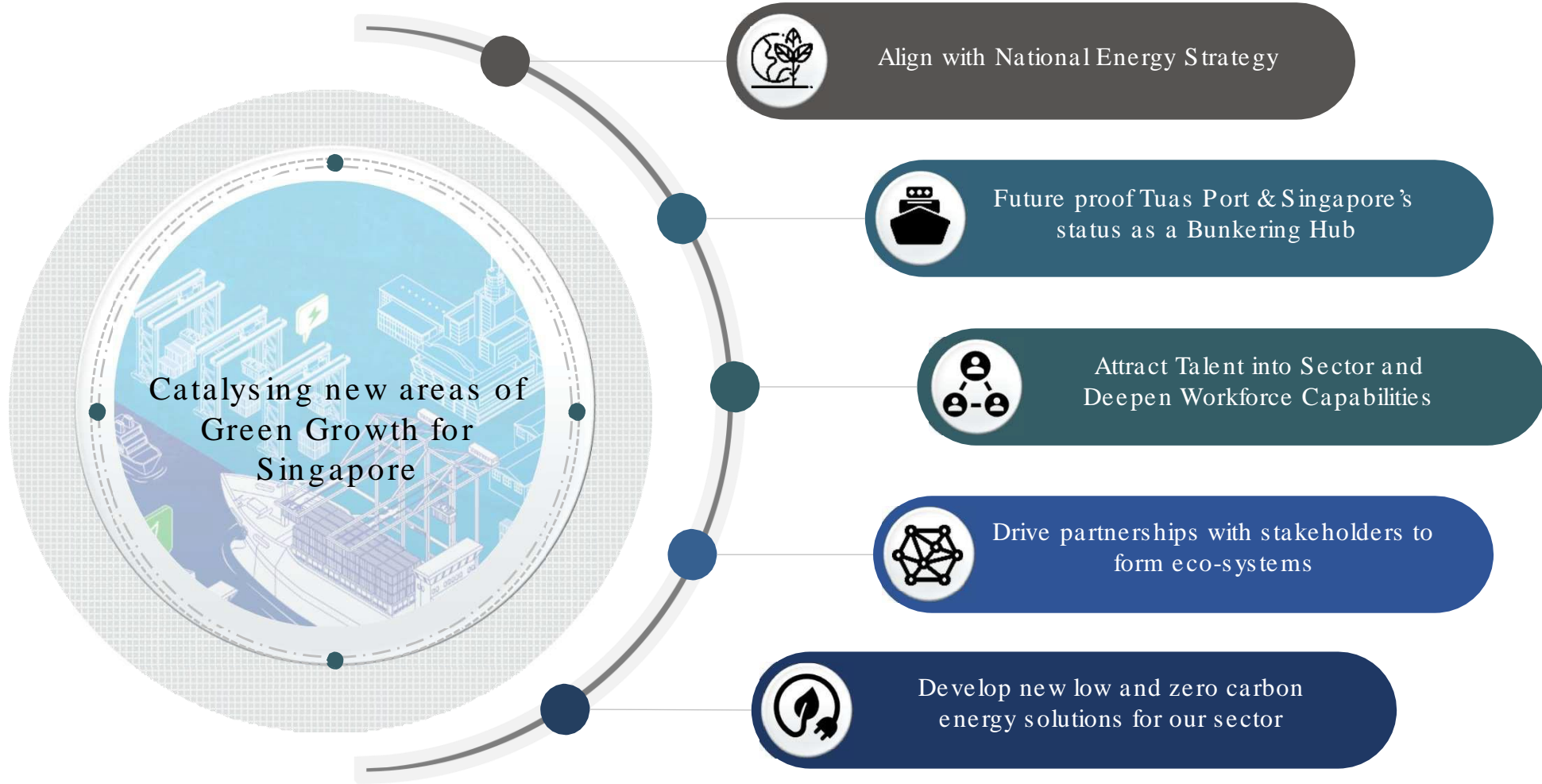
Singapore Maritime Data Hub (SG-MDH)
Port of Singapore's one-stop data sharing platform to enable secure data exchanges between systems and to serve as a data infrastructure to support integration of services with digitalPORT@SG™ and other digital systems.

- Decarbonising supply chains through efficiency gains from transshipment and digitalPORT@SG™
- MPA will establish the Maritime Cyber Assurance and Operations Centre ("MCAOC" – an expansion of the Maritime Cyber Operations Centre ("MSOC")) by 2025, to progressively raise cyber resilience of onshore information systems, vessel and offshore operational technology, through collaboration among industry players, research community and firms to undertake joint development projects.



- The Singapore Shipping Association (SSA), with support from the MPA, launched the MaritimeSG Shipping CyberSafe Scorecard.
- A baseline of cyber maturity across 4,000+ vessels (...and growing)
- An emerging understanding of where progress has been made on cyber security of shipboard systems.
- An emerging understanding of common cyber risk areas the whole sector is struggling with.

Transition of Technology Awareness, Technology Adoption and Sustainability to undertake future Shipping Net Carbon Zero Preparedness



Thank You