



KUOK MARITIME GROUP



# Coastal Sustainability Alliance

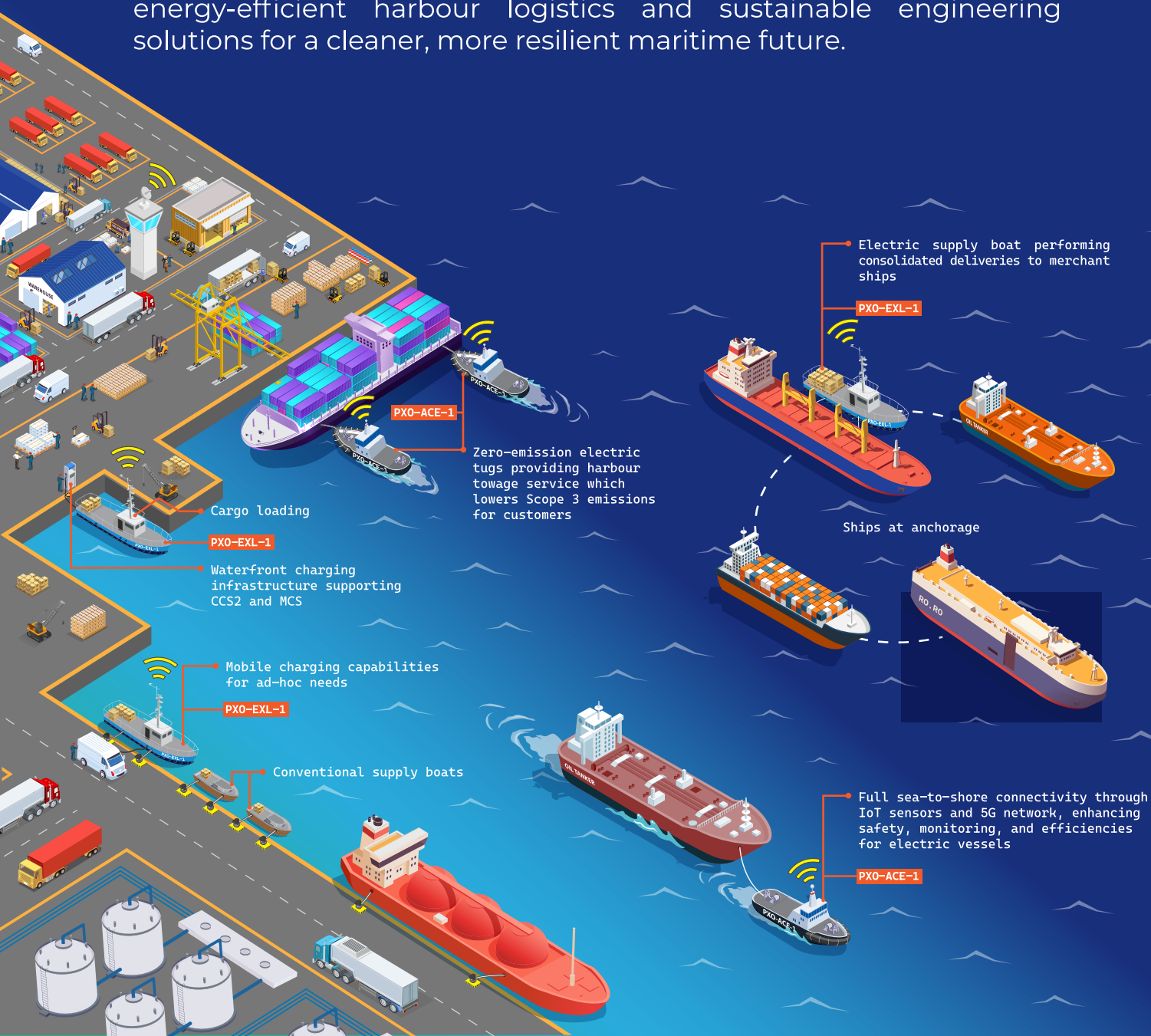
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# Coastal Sustainability Alliance

The Coastal Sustainability Alliance (CSA), an industry-led collaboration spearheaded by Kuok Maritime Group (KMG), is driving the decarbonisation of Singapore's maritime sector and shaping its next-generation ecosystem. CSA's mission is to electrify, decarbonise, and transform port logistics into a greener and more efficient industry.

Aligned with the Maritime and Port Authority of Singapore's net-zero goals for 2050, CSA champions the adoption of zero-emission fully electric vessels, along with the supporting infrastructure and technology to enable their seamless integration. By bringing together stakeholders across the supply chain, CSA advances the progressive deployment of electric vessels, shore and mobile charging solutions, renewable energy adoption, marine and land logistics optimisation, and sea-to-shore technology innovations.

As a collaborative platform, CSA continues to connect coastal players and ecosystem partners, fostering the implementation of energy-efficient harbour logistics and sustainable engineering solutions for a cleaner, more resilient maritime future.



# PXO-EXL-1 Electric Supply Boat

The energy-efficient PXO-EXL-1 electric supply vessel meets best-in-class electric harbour craft design guidelines and is designed for greater energy and operational efficiency with innovative features.

1. Selected by MPA as one of the Tier 1 electric harbourcraft designs featuring energy-efficient enhancements for better hydrodynamic performance of up to 10% reduction in power requirements at full load.
2. Capable of cruising at 8 knots for 80 nautical miles with a payload of 40 tons or 60 pallets.
3. Smart technology including digital twin and IoT sensors to track performance and optimise operations in real-time.

<b>Classification</b>	Bureau Veritas and RINA
<b>Notation</b>	BV: I, ✱HULL, ✱MACH, Launch, Battery System RINA: C✱, Electric Harbour Craft - Cargo, NAV 30-"C"
<b>Flag</b>	Singapore
<b>Length</b>	26.09 m
<b>Breath Moulded</b>	6.39 m
<b>Depth Moulded</b>	3.00 m
<b>Design Draught (to keel)</b>	1.62 m
<b>Complement</b>	Crew: Up to 4 Passengers : Up to 12
<b>Cargo Deck Area</b>	60 pallets
<b>Cargo Deck Load</b>	1 ton/m <sup>2</sup>
<b>Cargo Deck Capacity</b>	40 MT
<b>Propulsion</b>	2 x 300 kW
<b>Charging Standard</b>	CCS2
<b>Energy Storage System</b>	Approx. 2 x 500 kWh *(LFP)

\*LFP: lithium iron phosphate



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# PXO-ACE-1 Electric Tug

The PXO-ACE-1, supported by MPA's Maritime Innovation and Technology (MINT) Fund, is the first fully electric tug designed to pioneer sustainable towage operations in the Port of Singapore.

1. The zero-emission, all-electric propulsion system is optimised to reduce energy consumption compared with conventional diesel-powered tugs.
2. Modular design with accessibility for future technology adoption and compartments for additional energy storage systems (ESS).
3. Supports potential hybrid energy configuration including ammonia / hydrogen / methanol fuel cells.

<b>Classification</b>	Bureau Veritas
<b>Notation</b>	BV: I, ✱HULL, ✱MACH, Tug(standardized design Bollard Pull =50T), Unrestricted Navigation, ✱AUT-UMS, Battery System
<b>Flag</b>	Singapore
<b>Length</b>	29.00 m
<b>Breath Moulded</b>	10.50 m
<b>Depth Moulded</b>	5.35 m
<b>Design Draught (to keel)</b>	3.85 m
<b>Bollard Pull</b>	50 Ton
<b>Complement</b>	Crew: Up to 10
<b>Propulsion</b>	2 x 1500 kW fixed pitch azimuth thruster
<b>Charging Standard</b>	MCS / CCS2
<b>Energy Storage System</b>	Approx. 2 x 1500 kWh *(LTO)

\*LTO: lithium titanium oxide



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# COASTAL SUSTAINABILITY ALLIANCE



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