MEDIA RELEASE

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11 Proposals Selected to Advance Electric Harbour Craft Designs in Singapore

The expression of interest (EOI) launched by the Maritime and Port Authority of Singapore (MPA) on 10 July 2023 for proposals on designs and to promote adoption of full electric harbour craft (e-HC) in Singapore received 55 proposals from 32 international and local companies and consortia. The results signal high interest and strong confidence by global and local participants in the development of e-HC in Singapore.

2. Participants had submitted technically strong e-HC designs, including the use of optimised aluminium hull form, high energy density batteries with active liquid cooling, battery thermal detection and protection system, among others. They had also stated in their proposals that the total cost of ownership for e-HC can be comparable to a conventional harbour craft. While e-HC currently have higher upfront capital cost due primarily to the higher cost of the batteries and associated systems, these can be mitigated by energy cost savings from operating the more energy-efficient e-HC, reduced maintenance cost and operational downtime.

3. Several participants have also proposed business models to optimise the harbour craft resource at the sector-level while lowering overall total cost of ownership to individual companies. These proposals aim to encourage more companies, especially those with smaller fleet size, to make the transition to e-HC, by presenting viable business cases based on aggregation, while enabling an efficient and responsive sector-level capability to meet the needs of ships calling into Singapore.

11 proposals selected for further cost reduction, design enhancements and demand aggregation

4. The evaluation panel has completed the evaluation of all the proposals and MPA has shortlisted a total of 11 passenger launch and cargo lighter vessel designs submitted by seven companies and consortia. Together with various research institutes (RI) such as the Institute of High-Performance Computing, Solar Energy Research Institute of Singapore, the Technology Centre for Offshore and Marine, Tropical Marine Science Institute, and Institutes of Higher Learning (IHL) such as the Nanyang Technological University, National University of Singapore, Singapore

Institute of Technology, and Singapore University of Technology and Design, MPA will support an enhancement programme for our researchers in the maritime domain to enhance the vessel designs, safety and cybersecurity, and reduce the energy requirements. This will help reduce the overall costs for these designs when scaled up and support continuous improvements. When the designs and prototypes are ready, the participants can progressively market these enhanced e-HC reference designs to interested parties and aggregate production demand from the industry. The use of ready reference designs and production at scale is expected to help reap cost savings for companies planning to make the transition to e-HCs.

5. Of the 11 e-HC designs, six have secured the relevant technical approvals from Classification Societies such as American Bureau of Shipping, Bureau Veritas, China Classification Society, DNV and RINA, and will be seeking to aggregate industry demand for their designs. The six designs submitted by the Coastal Sustainability Alliance, marinEV[1], and Pyxis Maritime Pte Ltd, demonstrate strong understanding of Singapore's requirements in areas including battery specifications, digital and cyber systems, training requirements and development of local capability. These participants will be working directly with MPA and its researchers over the next two to six months to optimise and validate their e-HC designs, depending on their current maturity and readiness.

6. The remaining five proposals were submitted by CAEV^{+} Consortium[2], China Everbright Environment Group Limited, Cyan Renewables Consortium[3], and Gennal Engineering Pte Ltd. MPA will work with these participants, together with the various IHLs and RIs, to further develop their e-HC designs. The scope of enhancements will include optimisation of the vessel hull and electrical systems design, the design of fire-resilient battery room, and cyber health monitoring system, to strengthen the vessels' energy efficiency and safety. Similarly, these designs can be progressively implemented for demand aggregation from the industry.

Other initiatives to support the harbour craft sector

7. MPA had recently announced the three vessel charging concepts to be piloted in Singapore following the call for proposal in August 2023 to develop, operate, and maintain e-HC charging points in Singapore. Insights from the data collected during the pilot will contribute toward the development of a national e-HC charging infrastructure masterplan, implementation plan, and national standards for e-HC charging infrastructure. MPA is also working with Enterprise Singapore, industry stakeholders and academia to develop a Technical Reference (TR) for e-HC charging. The draft TR is estimated to be ready for public consultation in 2Q 2024.

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[1] The consortium comprises Lita Ocean and SeaTech Solutions.

[2] The consortium comprises Contemporary Amperex Electric Vessel Technology Co. Ltd. (CAEV), Contemporary Amperex Technology Co. Ltd. (CATL), Guangdong SINOWAY Composite Materials Co. Ltd, YUET HING Marine Supplies Co. Ltd, and Seastel Marine System Shanghai) Co. Ltd.

[3] The consortium comprises Bureau Veritas Marine, PSA Marine, Strategic Marine, and technology providers SeaCabbie, Sea Forrest and Victory Petroleum.

8. In October 2023, MPA invited financial institutions and intermediaries to submit financing and insurance solutions through an EOI to help early movers with the higher upfront cost of owning e-HCs. The EOI closed on 19 December 2023 and MPA is currently evaluating the proposals submitted. These solutions will address the current gaps in the financing and insurance landscape, support the rollout of these new vessel designs and grow the maritime finance and insurance market.

9. For biofuels, blends of up to B50 are already commercially available. MPA is working with industry to develop the standards for up to B100. New harbour craft from 2030 would have the choice for their engines to be B100 biofuel capable or be compatible with net zero fuels such as hydrogen when it is more readily available.

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About the Maritime and Port Authority of Singapore (MPA)

MPA was established on 2 February 1996 with the mission to develop Singapore as a premier global hub port and international maritime centre, and to advance and safeguard Singapore's strategic maritime interests. MPA is the driving force behind Singapore's port and maritime development, taking on the roles of port authority, maritime and port regulator and planner, international maritime centre champion, national maritime representative and a champion of digitalisation and decarbonisation efforts at regional and international fora such as at the International Maritime Organization. MPA partners industry, research community and other agencies to enhance safety, security and environmental protection in our waters, facilitate maritime and port operations and growth, expand the cluster of maritime ancillary services, and develops maritime digitalisation and decarbonisation policies and plans, R&D and manpower development. MPA is responsible for the overall development and growth of the maritime domain and Port of Singapore. In 2023, Singapore's annual vessel arrival tonnage crossed 3 billion Gross Tonnage and recorded a total container throughput of 39 million 20-foot equivalent units (TEUs).

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