



**REQUEST FOR INFORMATION (“RFI”)
FOR FREIGHT AND INSURANCE COSTS TO
TRANSPORT AMMONIA INTO SINGAPORE**

Issued on 17 April 2024

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REQUEST FOR INFORMATION (“RFI”) FOR FREIGHT AND INSURANCE COSTS TO TRANSPORT AMMONIA INTO SINGAPORE

1. INTRODUCTION

- 1.1 As a clean fuel that can be used to generate electricity, low or zero-carbon hydrogen has the potential to decarbonise various sectors comprising power generation, energy and chemicals, as well as our maritime and aviation sectors.
- 1.2 Due to its low energy density, hydrogen gas will need to be liquefied or converted into a hydrogen carrier for transport and storage. Ammonia is currently one of the most technologically-ready hydrogen carriers as it has an established supply chain with multiple end-use pathways.
- 1.3 Singapore launched our National Hydrogen Strategy in October 2022, where we announced our intention to embark on hydrogen pathfinder projects, beginning with the use of ammonia. To this end, following their evaluation of proposals received by participants of an Expression of Interest (“**EOI**”), the Maritime and Port Authority of Singapore (“**MPA**”) and the Energy Market Authority of Singapore (“**EMA**”) have shortlisted six (6) consortiums to participate in a restricted Request for Proposal to build, own and operate an end-to-end low- or zero-carbon ammonia power generation and bunkering solution in Jurong Island, Singapore (“**Restricted RFP**”).

2. PURPOSE OF RFI

- 2.1. MPA is launching this **non-binding Request for Information** (“**RFI**”) to invite interested parties (each a “**Participant**”) to submit a proposal (“**Proposal**”) that would allow MPA to better understand and assess the extent to which, insurance and transportation costs of ammonia into Singapore can be reduced and kept low. The RFI will allow MPA and/or other Statutory Boards or Government Agencies to aggregate demand of ammonia in Singapore, identify, compare and assess the available rates of freight and insurance costs for the transportation of ammonia (on a SGD per tonne of ammonia basis) from potential source countries into Singapore from 2026, so as to benefit from economies of scale.
- 2.2. MPA will assess the Proposals received pursuant to this RFI and may approach one or more Participant(s) directly to seek further clarifications on the Proposals, after the RFI closes. MPA may also explore collaborative opportunities for the Participant(s) to work with the eventual successful consortium of the Restricted RFP.

3. RFI REQUIREMENTS

- 3.1 The Participant shall ensure that its Proposal meets the requirements in this Section 3 as well as all other requirements as set out in **Appendix A**, and shall

provide supporting reasons if there are any deviations therefrom or if it is unable to furnish any of the requisite details.

- 3.2 The Participant shall detail in its Proposal, the lowest freight and insurance costs to transport ammonia from one or more of the following export regions to Singapore:
 - 3.2.1 Arabian Sea, India
 - 3.2.2 Bohai Sea, China
 - 3.2.3 Bay of Exploits, Canada
 - 3.2.4 Chilean Sea, Chile
 - 3.2.5 Gulf of Oman, Oman
 - 3.2.6 Queensland, Australia
 - 3.2.7 Red Sea, Saudi Arabia
 - 3.2.8 US Gulf Coast, United States of America
- 3.3 For each of the routes proposed, the Participant shall provide in its Proposal, the freight and insurance costs from the proposed port(s) located within each selected export region(s) to Singapore in respect of the following quantities of ammonia to be transported into Singapore:
 - 3.3.1 at least 0.1 million tonnes per annum (MTPA) of ammonia to Singapore by Q3 2026; and
 - 3.3.2 at least 0.3 MTPA of ammonia to Singapore by end 2027 for a minimum period of 5 years therefrom.
- 3.4 The Participant shall also provide details of vessels that would be used to transport ammonia to Singapore, as more particularly described in Clause 4.3 of **Appendix A**.
- 3.5 The Participant shall and shall ensure that its Proposal and operations comply with all applicable laws and regulations.
- 3.6 For the avoidance of doubt, participants of EMA's and MPA's Restricted RFP may also participate in this RFI.

4. ASSESSMENT CRITERIA

4.1 Proposals will be assessed based on:

4.1.1 Quality and strength of Participant's technical and commercial proposals including but not limited to the compliance with the delivery timeline and the requirements of the RFI summarised in Section 3 and detailed in **Appendix A**.

4.1.2 Freight and insurance cost quoted on a per tonne of ammonia basis.

4.1.3 Proven financial strength, experience track record, and capability of the Participant in transporting ammonia.

4.2 Only Proposals submitted before the Closing Date will be considered.

5. ADMINISTRATIVE DETAILS

5.1 Participants are to submit their Proposals, together with the completed **Appendix A** of this RFI, in softcopy in **Microsoft Word** and **PDF** formats via email to both of the following email addresses:

ammonia_transport_RFI@mpa.gov.sg

5.2 All Proposals must reach MPA via email no later than **2.00pm (Singapore Time) on 17 May 2024** ("Closing Date"). Any submissions sent after the Closing Date will not be considered by MPA. Any extension of the Closing Date is at the sole discretion of MPA.

5.3 MPA will acknowledge receipt of all Proposals submitted via email by 5.00pm (Singapore Time) on 22 May 2024. Please promptly contact Mr Kenneth Pang (Kenneth_PANG@mpa.gov.sg) and Mr Tan Chong Yuan (TAN_Chong_Yuan@mpa.gov.sg) if you do not receive an acknowledgement of your Proposal by then.

5.4 Should a Participant wish to make any changes to its Proposal after submitting via email but before the Closing Date, the Participant should submit a fresh Proposal. The fresh Proposal must clearly state that the fresh Proposal supersedes the earlier Proposal, failing which MPA reserves the right to reject both Proposals.

- 5.5 For the avoidance of doubt, this is a non-binding RFI. All Proposals submitted shall be on a non-binding basis and MPA shall not be bound or under any obligation to accept any Proposal submitted.
- 5.6 Together with the submission of its Proposal, each Participant must also appoint and authorise an official point-of-contact, who shall be responsible for and authorised to liaise with, receive instructions from and give information to MPA on all matters in connection with this RFI. Documentary proof of such authorisation must be provided.
- 5.7 MPA reserves the right at any time to withdraw this RFI at its absolute discretion and shall not be liable to any person in respect of the same whatsoever.

6. CLARIFICATIONS

- 6.1 All enquiries/clarifications relating to the RFI should be submitted via email at least seven (7) working days before the Closing Date to ammonia_transport_RFI@mpa.gov.sg.
- 6.2 After the Closing Date, MPA may invite Participants to make presentations to MPA with regard to their Proposals. Details of such presentations, if necessary, will be arranged by MPA. In the event MPA requests for written clarification with regard to any aspect of the Participant's Proposal, the Participant shall use reasonable endeavour to provide full and comprehensive responses within seven (7) working days of such a request. MPA may decline to assess the Proposal(s) of any Participant(s) that fails to respond to any such invitation for a presentation or to provide written clarification.

7. CONFIDENTIALITY

- 7.1 MPA reserves the right to disclose any information submitted by Participants in this RFI to its Representatives for the purposes of or in connection with this RFI and for assessing the Participant's Proposal(s). For the purposes of this Section 7, (a) "Representatives" shall mean MPA's directors, officers, employees, contractors, agents, consultants and professional advisers and those of MPA's Affiliates; and (b) "Affiliates", in the context of MPA, means MPA's subsidiaries, companies of which MPA is a member of, and any Ministry, Department, Agency, administrative or statutory body or corporation under the control of the Government of Singapore.
- 7.2 MPA reserves the right to share aggregated or anonymised information publicly on a need-to basis, for the purposes of benefitting Maritime Singapore's multi-fuel transition.

7.3 Nothing in this MPA shall prohibit MPA from disclosing any information to any Ministry, Department, Agency, administrative or statutory body or corporation under the control of the Government of Singapore in compliance with MPA's internal reporting and approval requirements.

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RFI REQUIREMENTS

Instructions: Please ensure that your Proposal meets the requirements set out in Section 3 of the RFI, as well as the requirements set out in this Appendix A. Participants shall include in its Proposal all supporting documents, justifications or key assumptions, where applicable.

1. Participant's name, country of incorporation, registered business address, contact person's name, designation, email and contact number.
2. Profile of Participant and its partners, if any, and details of relevant experience in the transportation of ammonia. If the Participant consists of a consortium of companies, the Participant shall also list the key personnel from each company.
3. Most recent 3 years' financial information in respect of the Participant and its partners in the consortium, if any.
4. The Participant shall provide the following in its Proposal.
 - 4.1 Selection of ports where ammonia would be shipped
 - 4.1.1 The Participant shall select one or more of the following export regions where the Participant may assume that the ammonia will be loaded from, and exported to Singapore.
 - 4.1.1.1 Arabian Sea, India
 - 4.1.1.2 Bohai Sea, China
 - 4.1.1.3 Bay of Exploits, Canada
 - 4.1.1.4 Chilean Sea, Chile
 - 4.1.1.5 Gulf of Oman, Oman
 - 4.1.1.6 Queensland, Australia
 - 4.1.1.7 Red Sea, Saudi Arabia

4.1.1.8 US Gulf Coast, United States of America

4.1.2 For each region selected in Clause 4.1.1, the Participant shall provide a shipping route which (i) incorporates a port or ports in the export region(s) as may be selected by the Participant pursuant to Clause 4.1.1, (ii) Singapore and (iii) any other port where ammonia would be loaded or unloaded.

4.2 Amount of ammonia to be transported

4.2.1 For the port(s) selected in Clause 4.1.2 that is located in the region as indicated in Clause 4.1.1, the Participant is required to be able to transport:

4.2.1.1 at least 0.1 million tonnes per annum (MTPA) of ammonia from the specified port(s) to Singapore by Q3 2026; and

4.2.1.2 at least 0.3 MTPA of ammonia to Singapore by end 2027, and for a period minimum period of 5 years therefrom.

4.2.2 The Participant shall detail the duration, frequency and tonnage of ammonia transported per shipment to Singapore that can fulfil the requirements stated in Clause 4.2.1.

4.2.3 The Participant may provide a Proposal to transport ammonia beyond the volumes stated in this Clause 4.2.

4.3 Vessel used to transport ammonia

4.3.1 For each of the routes detailed in Clause 4.1.2, the Participant shall provide details on the vessel that would be used to transport ammonia which include but are not limited to the following:

4.3.1.1 Proposed ship owner

4.3.1.2 Proposed ship manager

4.3.1.3 Proposed ship operator/charterer

- 4.3.1.4 Classification Society certification, Flag State and other approvals indicating that the proposed vessels are in Class with an IACS Classification Society, are appropriately insured, and meet Flag State and Singaporean maritime regulatory requirements.
 - 4.3.1.5 Cargo carrying capacity
 - 4.3.1.6 Ship dimensions and details
 - 4.3.1.7 Type of bunker fuel
 - 4.3.1.8 Pollution emergency plans in line with the requirements of MARPOL Annex II and Flag State requirements
- 4.3.2 The Participant shall ensure that all vessels provided under Clause 4.2.1 are Singapore-flagged prior to the start of the first shipment of ammonia.

4.4 Cargo operations

- 4.4.1 The Participant shall provide in detail the methodology employed to perform ammonia cargo handling operations, including the step-by-step process that is proposed to ensure safe ammonia cargo discharging.
- 4.4.2 The Participant shall also provide the standards and guidelines that will be followed for ammonia cargo handling, including safety certification and compliance with industry standards, guidelines, and practices including (but not limited to) International Maritime Organization (“IMO”) regulations, International Safety Guide for Oil Tankers and Terminals (“ISGOTT”), etc.
- 4.4.3 The Participant is required to provide information on the following technical aspects of the ammonia cargo handling system:
 - 4.4.3.1 Method of ammonia transfer (e.g. receipt and export)
 - 4.4.3.2 Pumping and valve arrangements
 - 4.4.3.3 Transfer systems for ammonia discharge (loading arms, hoses, etc.)
 - 4.4.3.4 Cargo manifold connection arrangement and design

- 4.4.3.5 Line clearing and purging operations for ammonia discharge
 - 4.4.3.6 Ammonia pipe continuous recirculation (if applicable)
 - 4.4.3.7 Control and communication for cargo transfer operations
 - 4.4.3.8 Ship / terminal interface plan
 - 4.4.3.9 Cargo boil-off gas management and ship tanks' vapour space management
- 4.4.4 The Participant is required, at a minimum, to address the following technical safety aspects pertaining to ammonia cargo operations:
- 4.4.4.1 Spill control measures and prevention of vapour release
 - 4.4.4.2 Ventilation to manage and disperse released ammonia
 - 4.4.4.3 Emergency response and scenario planning
 - 4.4.4.4 Firefighting measures
 - 4.4.4.5 Quick coupling / decoupling connections
5. Commercial Details - The Participant shall provide in its Proposal, the following figures for each route detailed in Clause 4.1.2 and Clause 4.1.3:
- 5.1 The freight cost in SGD per tonne of ammonia specifically between the port selected in Clause 4.1.1 and Singapore.
 - 5.2 The insurance cost in SGD per tonne of ammonia specifically between the port selected in Clause 4.1.1 and Singapore.
 - 5.3 Any other relevant costs incurred in the transport of ammonia that is not included in Clause 5.1 or Clause 5.2, if applicable.
6. The Participant shall provide in its Proposal, details on the overall timeline, management, and risk details. These include but are not limited to the following:
- 6.1 Timeline. Key tasks and milestones, including but not limited to technical studies, regulatory and permitting approvals.

- 6.2 Risk Assessment. Identification of potential show-stoppers that may impact the technical and commercial viability of the Proposal and their associated mitigation measures, if any.
- 6.3 Technical and Commercial Non-Compliance. The Participant shall state clearly any non-compliance to the technical and commercial requirements stated in the RFI. For all non-compliance, the Participant shall explain the extent and reason of the deviation and provide mitigation measures if possible.
- 6.4 Regulatory Non-Compliance. To state clearly any regulatory requirements or standards that could not be met, or are at risks of being breached. Participants are to provide the amount of deviation, and explanations for such non-compliance.

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