

Seatrium and A*STAR Join Forces to Explore New Energies and AI in Offshore and Marine Applications

Singapore, 16 April 2024 – Seatrium Limited (Seatrium, or the Group), a leading engineering solutions provider to the global offshore and marine industry, and Singapore’s Agency for Science, Technology and Research (A*STAR) today inked a Memorandum of Understanding (MoU) to explore research opportunities in new energies and artificial intelligence (AI) to develop innovative products and engineering solutions for the Offshore and Marine (O&M) sector.

The MoU signing took place during the Singapore Maritime Week and was witnessed by the event’s Guest of Honour, Dr Amy Khor, Senior Minister of State, Ministry of Transport and Ministry of Sustainability and the Environment.

The collaboration combines Seatrium’s insights into trends and opportunities within the O&M sector with the research capabilities of A*STAR and its National Platforms such as the Technology Centre for Offshore and Marine, Singapore (TCOMS). The parties aim to boost the O&M sector’s pivot to new energies efficiently and reliably, and support the global transition to a low-carbon economy. Through machine learning, manufacturing process technologies and digital solutions, the collaboration will also streamline product development and manufacturing processes, and promote innovation and sustainability in Seatrium’s operations.

The focus areas of the MoU include the co-development of:

a. New Energies

This includes the exploration of new energies such as hydrogen and ammonia solutions, specifically tailored for offshore and marine applications. A*STAR and Seatrium were part of Singapore’s first ammonia fuel trial¹ on the *Fortescue Green Pioneer*. A*STAR contributed to the development of an ammonia plume model for safety and environmental impact assessment, while Seatrium was responsible for the installation of the vessel’s fuel system and safety features. Both organisations will now focus on establishing a sustainable ammonia supply chain and addressing bunkering, transportation, and storage challenges. Coupled with carbon capture technologies, Seatrium’s suite of product solutions aims to provide sustainable energy solutions for the offshore and marine sector.

b. Artificial Intelligence (AI)

The partnership leverages AI to explore innovative solutions in engineering processes, operational efficiency, and decision-making across project lifecycles. This includes the planned development of Large Language Models (LLMs) to improve vessel design and validation turnaround by automating and streamlining parts of the process. AI will be used to automate work site inspection and surveillance for improved operational efficiency.

¹ [World’s First Use of Ammonia as a Marine Fuel in a Dual-Fuelled Ammonia-Powered Vessel in the Port of Singapore](#)

Since 2008, Seatrium's predecessor entities and A*STAR have worked on research projects such as green shipping, digital design, automation, Internet of Things (IoT) and advanced manufacturing. The outcomes have culminated in the development of new capabilities, including co-designing the world's first made-in-Singapore Low Ultraviolet (LUV) Ballast Water Treatment System². This eco-friendly system employs energy-efficient ultra-violet rays and proprietary ultra-low frequency bio-fouling control for chemical-free treatment of ballast water.

Mr Chris Ong, CEO of Seatrium, said, "The collaborative efforts between Seatrium and A*STAR are geared towards accelerating the energy transition and maritime decarbonisation. By combining our knowledge and pushing boundaries, we aim to develop advanced energy solutions that will help the industry adopt renewable sources more quickly. Through innovation, research, and sustainable practices, we are focused on minimising carbon emissions, improving operational efficiency, and promoting cleaner energy. We are committed to making a positive impact and playing a vital role in Singapore's sustainable O&M sector with the support of our partners, stakeholders, and customers.

Mr Frederick Chew, CEO of A*STAR said, "Building on our previous successful collaboration programmes in green shipping, digital design and advanced manufacturing, this latest collaboration in new energies and AI furthers Seatrium and A*STAR's shared vision of developing more smart and sustainable solutions for the O&M sector. I look forward to programme outcomes that will contribute substantively to Seatrium's and Singapore's economic and sustainability goals."

-End-

Photo of MoU Signing:



Caption: A*STAR and Seatrium partnership to drive innovation in the Offshore and Marine sector. From left to right: Professor Tan Chorh Chuan, Chairman, A*STAR, Mr Frederick Chew, Chief Executive Officer, A*STAR, Dr Amy Khor, Senior Minister of State, Ministry of Transport and Ministry of Sustainability and the Environment, Mr Chris Ong, Chief Executive Officer, Seatrium, and Mr Mark Gainsborough, Chairman, Seatrium. (Photo: Seatrium Limited).

² [Ballast Water Treatment System Performance Evaluation](#)

About Seatrium Limited

Seatrium Limited provides innovative engineering solutions to the global offshore, marine and energy industries. Headquartered in Singapore, the Group has over 60 years of track record in the design and construction of rigs, floaters, offshore platforms and specialised vessels, as well as in the repair, upgrading and conversion of different ship types.

The Group's key business segments include Oil & Gas Newbuilds and Conversions, Offshore Renewables, Repairs & Upgrades, and New Energies, with a growing focus on sustainable solutions to advance the global energy transition and maritime decarbonisation.

As a premier global player offering offshore renewables, new energies and cleaner offshore & marine solutions, Seatrium is committed to delivering high standards of safety, quality and performance to its customers which include major energy companies, vessel owners and operators, shipping companies, and cruise and ferry operators.

Seatrium operates shipyards, engineering & technology centres and facilities in Singapore, Brazil, China, India, Indonesia, Japan, Malaysia, the Philippines, Norway, the United Arab Emirates, the United Kingdom and the United States.

Discover more at www.seatrium.com.

About the Agency for Science, Technology and Research (A*STAR)

The Agency for Science, Technology and Research (A*STAR) is Singapore's lead public sector R&D agency. Through open innovation, we collaborate with our partners in both the public and private sectors to benefit the economy and society. As a Science and Technology Organisation, A*STAR bridges the gap between academia and industry. Our research creates economic growth and jobs for Singapore, and enhances lives by improving societal outcomes in healthcare, urban living, and sustainability. A*STAR plays a key role in nurturing scientific talent and leaders for the wider research community and industry. A*STAR's R&D activities span biomedical sciences to physical sciences and engineering, with research entities primarily located in Biopolis and Fusionopolis. For ongoing news, visit www.a-star.edu.sg.

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