



JOINT NEWS RELEASE

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NTU Singapore receives S\$12 million funding from Singapore Maritime Institute to further deepen Singapore's maritime R&D capabilities in energy and sustainable development

The **Singapore Maritime Institute (SMI)** has awarded a new core funding of S\$12 million to **Nanyang Technological University, Singapore (NTU Singapore)** to support the research efforts of the **Maritime Energy & Sustainable Development (MESD) Centre of Excellence** over a new five-year period until 30 September 2027 from this September.

The research centre was launched in October 2017 and jointly funded by SMI and NTU with the mission to deepen Singapore's maritime capability in the field of energy and sustainable development, with a focus on future port and shipping operations.

Building on the capabilities developed in Phase 1 (refer to Annex A), MESD plans to deliver high-impact research outcomes in its new Phase 2 (refer to Annex B) and be the key node for maritime decarbonisation R&D in Singapore through collaborations and co-create initiatives with industry and other research entities.

A signing ceremony to formalise the funding agreement was held today between **NTU Vice President (Innovation and Entrepreneurship) and Dean of NTU's College of Engineering Professor Louis Phee** and **Executive Director of SMI Mr Tan Cheng Peng**.

The signing was witnessed by **Senior Minister of State for Finance and Transport, Mr Chee Hong Tat**. SMS Chee was joined by **NTU Senior Vice President (Research) Prof Lam Khin Yong**, and **Chairman of SMI Mr Wong Weng Sun**.

The goals of MESD support the **NTU 2025 strategic plan**, which seeks to address humanity's grand challenges on sustainability and accelerate the translation of research discoveries into innovations, especially for the maritime industry, which mitigates human impact on the environment.

Professor Lam Khin Yong said: “NTU’s collaboration with SMI allows the University to leverage its strong interdisciplinary approaches in pedagogy and research to address some of the most pressing and complex challenges facing the maritime industry. As a leading university based in a global maritime hub, Singapore, the University seeks to contribute to this critical effort by sharing our expertise with SMI to better translate research breakthroughs into actionable solutions for the maritime industry.”

Mr Tan Cheng Peng said: “MESD, as SMI’s first maritime research centre of excellence, plays a crucial role in supporting Maritime Singapore’s industry transformation map and journey, particularly in the area of maritime energy research related to sustainability and decarbonisation. SMI is pleased to award funding to support the Centre’s second phase of R&D activities over the next five-year period. We will work closely with MESD to drive and develop impactful research on decarbonisation and emissions management to support maritime sustainability goals to address the needs of the industry.”

In the next phase of the research centre’s efforts, MESD aims to focus on alternative energy management and decarbonisation of maritime operations. This shift in focus will support Singapore’s energy strategy to switch to low-carbon alternatives.

MESD’s work will also help to develop the energy value chain to support both harbour craft operations and international shipping in Singapore.

NTU Associate Professor Jasmine Lam, Centre Director of MESD said: “We wish to thank all our stakeholders, partners and the MESD governing board for working closely with us for the past 5 years which has helped to establish MESD as one of the leading maritime R&D centres. MESD will continue to work closely with the national and international community with a clearer focus on alternative energy, emission management and sustainable maritime operation to aid the transition into a low-carbon future.” She is also from NTU’s School of Civil and Environmental Engineering.

MESD will also endeavour to drive technology translation and place additional effort to push novel concepts from research projects in Phase 1 to the next level of readiness towards industry adoption in Phase 2 by actively seeking joint projects with industry partners and agencies.

MESD identified 16 R&D projects for Phase 2 with inputs from Singapore’s Maritime and Port Authority (MPA) and is aligned with the recommendations from the Singapore Maritime Foundation (SMF) international advisory panel on maritime decarbonisation.

The R&D projects include bio-liquefied natural gas (LNG) for the decarbonisation of international shipping, safe operation of ammonia bunkering, mitigation and

environmental impact studies, methanol as a marine fuel, and carbon capture utilisation and storage.

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Annex A

MESD covered the following three R&D focus areas in Phase 1:

- Energy management using energy management tools and waste energy recovery system for enhancing the performance of ports and ships.
- Emission management through alternate, clean energy or fuel and emission control and monitoring to provide solutions for port and ship operators to meet global standard and handle future regulations.
- Sustainable maritime operations to ensure that innovative approaches are practical and economically viable for ships and ports.

Some of the projects that had been undertaken in Phase 1 include:

- Ammonia as marine fuel in Singapore;
- Technical and operational feasibility of methanol-fuelled vessels;
- Bio-LNG in shipping industry decarbonisation;
- Study of alternative sources of energy for next generation multipurpose port;
- Sustainable biofuel pathway for maritime application; and
- Methanol as marine fuel for Singapore harbour craft

Annex B

Some of the R&D projects to be undertaken by MESD in its Phase 2 include:

1. Bio-LNG for decarbonisation of international shipping
2. Ammonia bunkering operation safety, mitigation and environmental impact study
3. Methanol as a marine fuel
4. In-situ utilisation of carbon dioxide for shipboard application
5. Carbon capture utilisation & storage scale up and sea trial
6. Value chain and impact analysis of alternative maritime energy

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About Nanyang Technological University, Singapore

A research-intensive public university, Nanyang Technological University, Singapore (NTU Singapore) has 33,000 undergraduate and postgraduate students in the Engineering, Business, Science, Medicine, Humanities, Arts, & Social Sciences, and Graduate colleges.

NTU is also home to world-renowned autonomous institutes – the National Institute of Education, S Rajaratnam School of International Studies, Earth Observatory of Singapore, and Singapore Centre for Environmental Life Sciences Engineering – and various leading research centres such as the Nanyang Environment & Water Research Institute (NEWRI) and Energy Research Institute @ NTU (ERI@N).

Under the NTU Smart Campus vision, the University harnesses the power of digital technology and tech-enabled solutions to support better learning and living experiences, the discovery of new knowledge, and the sustainability of resources.

Ranked amongst the world's top universities, the University's main campus is also frequently listed among the world's most beautiful. Known for its sustainability, over 95% of its building projects are certified Green Mark Platinum. Apart from its main campus, NTU also has a medical campus in Novena, Singapore's healthcare district.

For more information, visit www.ntu.edu.sg

About the Singapore Maritime Institute (SMI)

The Singapore Maritime Institute (SMI) is a joint effort by the Maritime and Port Authority (MPA), the Agency for Science, Technology and Research (A*STAR) and the Singapore Economic Development Board (EDB).

Established in April 2011, SMI develops strategies and programmes to achieve its mission with key focus areas in sectors such as port, shipping and maritime services. SMI charts the maritime research strategy and promotes greater industry-academia R&D collaborations to be undertaken in Singapore.

Through a whole-of-government approach, SMI drives initiatives with industry-wide impacts to enhance the overall competitiveness of the local maritime industry; and to strengthen research and development (R&D) capabilities in support of Singapore as a global maritime knowledge hub.

For more information on SMI, please visit www.maritimeinstitute.sg