MEDIA RELEASE
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A*STAR, EDB, JTC AND ECOSYSTEM PARTNERS TO EXPLORE TESTBED FACILITY FOR ACCELERATING INDUSTRY ADOPTION OF EMERGING CARBON CAPTURE AND UTILISATION TECHNOLOGIES

The Carbon Capture and Utilisation Translational Testbed (CCUTT) will be conceptualised to enable companies to rapidly pilot and scale-up new CCU technologies, with its intended location on Jurong Island. An MoU to officiate the CCUTT was signed with 13 ecosystem partners including public research institutes and private sector enterprises keen on preparing for a low carbon future.

SINGAPORE – The Agency for Science, Technology and Research (A*STAR), the Singapore Economic Development Board (EDB) and JTC will be working with ecosystem partners to study the development of a Carbon Capture and Utilisation Translational Testbed (CCUTT).

This initiative was announced today by Minister for Trade & Industry, Mr Gan Kim Yong, during the launch of the Sustainable Jurong Island report. CCUTT was officiated at the Industrial Transformation Asia-Pacific (ITAP) event through the inking of a Memorandum of Understanding (MoU) between A*STAR and 13 ecosystem partners.

The MoU formalises a Public-Private Partnership (PPP) to conceptualise a national infrastructure to translate emerging CCU technologies. Through the MoU, ecosystem partners will be able to better meet their organisational needs by providing valuable inputs to influence the concepts and designs of the envisioned CCUTT, and encourage long-term relevance by solving industry-related challenges in decarbonisation, sustainability, and beyond.

The ecosystem partners at present are: Chevron Singapore Pte Ltd; Evonik (SEA) Pte Ltd; ExxonMobil; IHI Asia Pacific Pte Ltd; Keppel Infrastructure Holdings Pte Ltd; Nanyang Technological University; National University of Singapore; Pan-United Corporation Ltd; Pavilion Energy Pte Ltd; Singapore LNG Corporation Pte Ltd; Surbana Jurong Infrastructure Pte Ltd; YTL PowerSeraya Pte Limited; as well as SG MEM and START Centre, hosted by NTUitive.

CCUTT: Supporting a Sustainable Future

The CCUTT initiative is led by A*STAR's Institute of Chemical and Engineering Sciences (ICES) and supported by EDB and JTC. Researchers from ICES will jointly explore carbon capture and utilisation (CCU) approaches with industry players and local research performers, including institutes of higher learning, in order to seed a CCU ecosystem that supports Singapore's plan for a sustainable future.

By using pre-automated plug-and-play modular units which can be configured and operated on demand, the CCUTT initiative aims to address the industry's needs for translating emerging CCU technologies by providing early data and insights under industrially-relevant conditions to scale up with speed, flexibility, and cost-effectiveness. The CCUTT concept is also positioned to support and de-risk business decisions towards technology investments in Singapore.

Benefits to Industry

The plug-and-play, modular CCUTT is meant to be flexible and operated on demand within weeks for different CCU technologies. In comparison, companies currently intending to testbed a technology will need to build a dedicated testbedding facility, which can take between 12 to 18 months to complete. The CCUTT initiative aims to speed up the first scale-up of emerging CCU technologies compared to conventional approaches.

The plug-and-play infrastructure of the CCUTT is meant to allow rapid evaluation and testbedding of emerging low-energy technologies which can capture carbon dioxide and convert them into useful products such as methanol, kerosene, or formic acid, under industrial-relevant conditions. These CCU technologies may include next generation carbon capture and conversion materials including membranes, solvent absorbents, solid adsorbents and catalysts.

The intended infrastructure of the CCUTT aims to support the end-to-end CCU technology testbedding requirements of the industry. The team is keen to partner like-minded interested players through various collaboration modes to identify first use cases, and to establish the initial pipeline of projects for the testbedding facility.

Professor Alfred Huan, Assistant Chief Executive of A*STAR's Science and Engineering Research Council, said: "Carbon capture and utilisation technologies play an important role in Singapore's transition to a low carbon future. The development of the Carbon Capture and Utilisation Translational Testbed aims to bridge the translational gap in emerging carbon capture and utilisation technologies and convene an ecosystem enabled by trusted public-private partnerships to collectively drive a national imperative. The testbed will be an accelerator of carbon capture and utilisation technology developments and a driver for decarbonising local industries, to reinforce Singapore's competitive edge as an innovation hub."

Damian Chan, Executive Vice President of EDB said: “The CCUTT will be the first-of-its-kind facility globally that uses modularisation and digital twinning to help companies and researchers rapidly translate emerging CCU technologies from lab scale towards commercialisation and adoption. It complements the ongoing R&D efforts in Singapore, including those supported under the Low-Carbon Energy Research Funding Initiative that was recently announced. We look forward to working with the industry to develop new CCU solutions that can achieve our Sustainable JI vision.”

Alvin Tan, JTC’s Assistant Chief Executive Officer of Industry Cluster Group said: “JTC supports the transition towards a low-carbon economy, and welcome collaborations to make Jurong Island a living testbed and model for renewable energy, energy storage systems and low-carbon technologies. Following the success of the Jurong Island Circular Economy study and strong support from the Jurong Island companies, we believe that Jurong Island can play a leading role in spurring game-changing technologies. Such testbeds bring us one step closer to Jurong Island’s transformation into a sustainable energy and chemicals park, making it more competitive and sustainable in the long run.”

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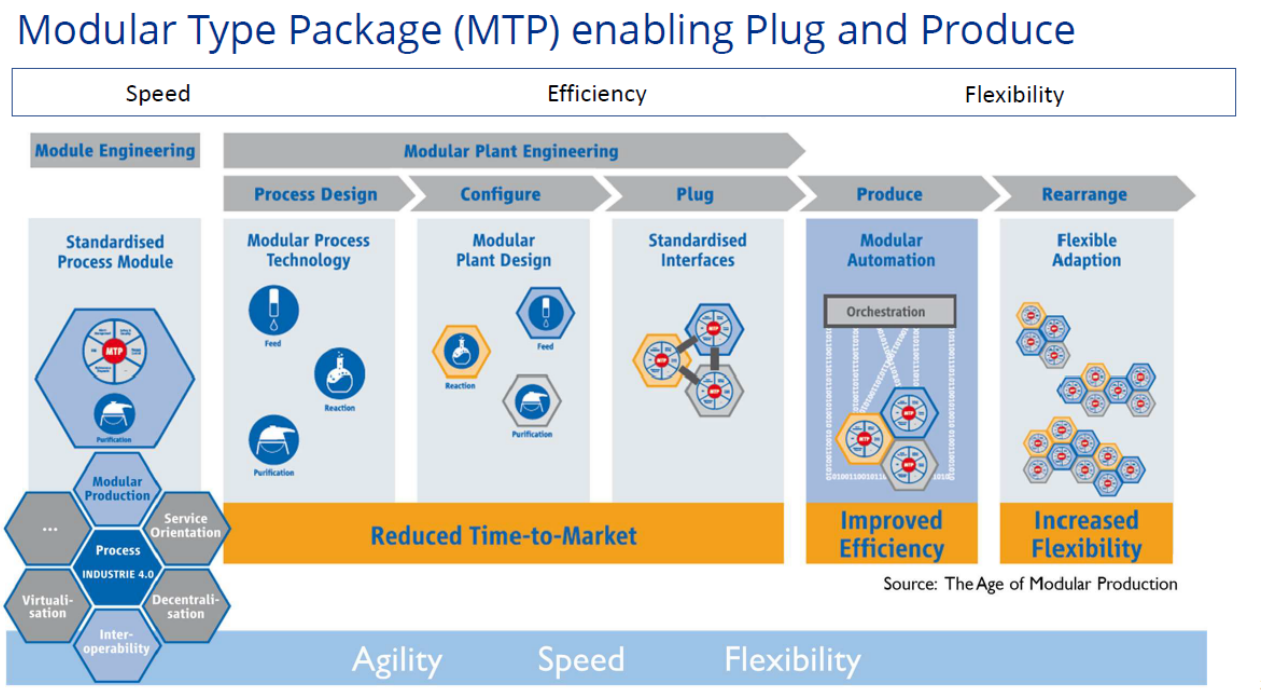

Figure 1: Concept for new plug and produce modular production and testbedding approach enabled by Modular Type Package (MTP)

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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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About the Singapore Economic Development Board

The Singapore Economic Development Board (EDB), a government agency under the Ministry of Trade and Industry, is responsible for strategies that enhance Singapore's position as a global centre for business, innovation, and talent. We undertake investment promotion and industry development, and work with international businesses, both foreign and local, by providing information, connection to partners and access to government incentives for their investments. Our mission is to create sustainable economic growth, with vibrant business and good job opportunities for Singapore and Singaporeans.

For more information on EDB, please visit www.edb.gov.sg.

About JTC

Since its inception in 1968, JTC has played a strategic role in ensuring Singapore stays innovative and dynamic amid global manufacturing trends.

As a government agency under Singapore's Ministry of Trade and Industry, JTC is paving the way forward for Singapore's industrial landscape with clean, green and smart estate masterplans such as one-north, Seletar Aerospace Park, Jurong Innovation District, and Punggol Digital District. Our estates attract new investment and foster collaborative ecosystems that strengthen Singapore's position as an advanced manufacturing hub. We also drive innovation in the Built Environment sector by piloting new construction technologies.

For more information on JTC, visit www.jtc.gov.sg.

For more information on Jurong Innovation District, visit https://estates.jtc.gov.sg/jid.