

MEDIA RELEASE

Kuala Lumpur, 30 August 2023, Wednesday

MISC & SHI'S FLOATING CO₂ STORAGE UNIT (FCSU) RECEIVED APPROVAL IN PRINCIPLE FROM DNV

MISC Berhad (MISC) secured an Approval in Principle (AiP) for their innovative Floating CO₂ Storage Unit (FCSU) that aims to lead the way in enhancing the efficiency of the carbon capture and storage (CCS) value chain within the maritime industry. The jointly developed FCSU concept with Samsung Heavy Industries (SHI) is a culmination of the partnership between MISC and SHI which took root following the signing of a Memorandum of Understanding in January this year. The AiP from DNV confirms the technical feasibility of the concept as well as initial conformity to the applicable rules, industry codes, and standards.

Leveraging MISC's maritime expertise and SHI's shipbuilding as well as offshore engineering prowess, the FCSU is a dynamic and versatile solution that is crafted to meet the unique demands of diverse offshore-related CCS projects worldwide. It addresses a critical gap, particularly when CO₂ emitters lack access to nearby sequestration sites, necessitating seamless maritime transportation and storage of CO₂.

MISC's President & Group CEO, Captain Rajalingam Subramaniam, said, *"Today, we move a step further in our collaboration to "build a better world". Through our engagement with SHI and DNV, our team has been able to obtain the AiP for the FCSU solution in managing societal emissions. The FCSU is a result of our collective ambition to steer the maritime sector and other hard-to-abate sectors towards greener horizons.*

This aligns seamlessly with MISC's long-term vision of safely, efficiently, and sustainably moving energy, further amplified by purposeful partnerships and an unwavering commitment to advancing a just energy transition. So, the solution is there, and we invite the hard-to-decarbonise industries to collaborate and do just for society and planet Earth," Captain Rajalingam added.



3D Visual of the MISC-SHI Floating Carbon Storage Unit with Injection Capability (FCSU-i)



From left to right : Mr. Khairul Azhar Bunyamin, Malaysia Country Chair, DNV, En. Mr. G. J. Yoon, Director/Vice President, Offshore Engineering Management Team, Samsung Heavy Industries, Mr. M Denny M Isa, MD & CEO of MMS and Project Sponsor of the MISC New Energy & Decarbonisation Department and Mr. Lukasz Luwanski, Regional Business Development Director, SEA, Pacific & India, DNV

Key attributes of the FCSU :

- **Agile:** The FCSU can be deployed across multiple depleted oil and gas fields offshore that have been earmarked as potential CO₂ storage sites. It introduces alternative approaches to carbon storage in comparison to the traditional pipeline method.
- **Versatile:** The FCSU serves a dual role by functioning either as an intermediate CO₂ storage unit or, in tandem, as an injection vehicle (known as FCSU-i) for offshore CO₂ reservoirs. Efforts are currently ongoing to explore a wider range of potential applications and for example, to include CO₂ liquefaction facility, amplifying its utility and practicality.
- **Adaptable:** Designed with a total storage capacity of 100,000 cubic meters and an injection capacity of 5 million metric tons per annum (MTPA), the FCSU's scalability and storage capabilities make it suitable for a broad range of CCS projects in the maritime space.

SHI's Head of Engineering Management, Vice President GJ Yoon said, "SHI has various solutions in pipeline including CO₂ Carriers to address era of low carbon. Whereas LCO₂ Carriers focus on transportation, FCSU can act as Offshore Terminal and capable of injecting CO₂ into subsea wells with Topside facility. SHI will continue to spearhead developing solutions to meet CCS market demands based on abundant experience and technical expertise."

Adding to this, Cristina Saenz de Santa Maria, Regional Manager South East Asia, Pacific & India, Maritime at DNV, said, "We are pleased to be awarding the AiP for this landmark project to MISC and SHI, signifying the compliance of this innovative unit with our classification rules. This AiP is a testament to the confidence and trust that the industry holds in DNV's expertise and capabilities. We hope to continue this excellent collaboration with both parties in the areas of decarbonization and new energy, with a focus to grow the regional CCS value chain towards a more sustainable future."



Both MISC and SHI firmly believe that the FCSU concept will redefine the CCS landscape, setting a new benchmark for sustainable advancements. This pioneering partnership underscores their unwavering commitment to drive transformative change, aligning with global aspirations to mitigate carbon emissions and forge a path toward a greener future.

Note :

- *The AiP indicates that the classification society DNV has reviewed and approved the concept design of the FCSU and FCSU-i as well as affirms that they comply with the intent of the most applicable regulatory requirements and safety criteria.*

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About MISC Berhad

MISC Berhad (MISC or the Group) is a global leader in delivering energy-related maritime solutions and services with more than 50 years of experience in the maritime industry. Our principal businesses comprise energy shipping and its related activities, owning and operating offshore floating solutions, marine repair and conversion, integrated marine services, port management and maritime services as well as maritime education and training.

The Group's modern and diverse fleet consists of more than 100 owned and in-chartered vessels comprising of Liquefied Natural Gas (LNG) and Ethane carriers, Petroleum and Product vessels, Floating Production Systems (FPS) as well as LNG Floating Storage Units (FSU) with a combined deadweight tonnage (dwt) capacity of more than 13 million tonnes.

We are a proud constituent of the DJSI Emerging Markets Index and FTSE4Good Bursa Malaysia Index, a testament to our sustainability performance and strong Environmental, Social and Governance (ESG) practices. MISC Berhad is listed on the Main Board of Bursa Malaysia.

For more information, visit www.misc.com.my

About Samsung Heavy Industries (SHI)

Samsung Heavy Industries has successfully completed many of the world's first and largest shipbuilding and offshore EPC projects, with the sole aim of establishing global leadership in each market segment.

Since its inception in 1974, SHI has secured orders for 1,416 ships and offshore facilities and successfully delivered 1,260 units as of February 28, 2023. Most notably, it has achieved unbeatable leadership in the high-tech shipbuilding sector by maintaining the world's no.1 share in the drillship, LNG carrier, FPSO and FLNG markets.

The company has developed and built the world's first Arctic shuttle tanker and LNG FPSOs and has pioneered new markets by developing innovative products such as LNG FSRUs, various ships for polar regions, Arctic ice-breakers and container ships.

In the offshore facilities sector, SHI has fortified its reputation through its excellent technology and rich experience. For example, it successfully delivered the world's largest FLNG and SHI achieved 75% market share in new build FLNG.

For more information, visit www.samsungshi.com/Eng



Issued on behalf of MISC Berhad by the Group Corporate Communications (GCC) Division of MISC Berhad. For media inquiries, please contact:

<p>Shanni Muthiah Head, Group Corp. Communications Group Corporate Communications MISC Berhad Tel : +603-2275 2224</p> <p>Email : shanni.muthiah@miscbhd.com</p>	<p>or</p>	<p>Maisara Noor Ahmad Head, External Communications Group Corporate Communications MISC Berhad Tel : +603-2275 3496</p> <p>Email : maisara.noorahmad@miscbhd.com</p>
<p>Mansurah Raisa Ab Rahim Manager, External Communications Group Corporate Communications MISC Berhad Tel : +603-2275 3250</p> <p>Email : mansurah.raisa@miscbhd.com</p>	<p>or</p>	<p>Rahimi Yunus Executive, External Communications Group Corporate Communications MISC Berhad Tel : +603-2275 3594</p> <p>Email : rahimi.yunus@miscbhd.com</p>