Press release

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MAN Energy Solutions and ABB to Cooperate on Dual-Fuel Electric Propulsion Concept for Next-Generation FSRUs and LNG Carriers

SMM agreement covers development of next-generation 'DFE+' decarbonisation solutions based on new MAN 49/60DF engine and ABB's Dynamic AC power distribution and control system

At the recent SMM trade fair in Hamburg, MAN Energy Solutions and ABB – the leading global technology company – signed a Decarbonisation Cooperation agreement regarding the development of a next-generation, Dual-Fuel, Electric+ (DFE+) propulsion concept for LNG carriers.

The DFE+ concept features the MAN 49/60DF engine – itself launched at SMM 2022 – and ABB's Dynamic AC (DAC) technology and aims to deliver the operational flexibility shipowners need to cut carbon footprints as well as fuel bills for liquefied natural gas carriers. The scope of the collaboration covers a joint concept study between the partners sharing technical data, and discussing interfaces and system integration. MAN Energy Solutions and ABB intend to jointly promote the concept to customers.

Rune Lysebo, Global Head of Sales, ABB Marine & Ports, said: "Progressive regulations on emissions have called for continuous innovation in marine propulsion. To be truly future-proof, ships that are being built today need to be able to rely on flexibility in energy sourcing. The new power and propulsion system will be optimised for efficiency and compliance, and have the flexibility needed to achieve best performance."

Elvis Ettenhofer, Head of Marine Four-Stroke – Region Asia Pacific, MAN Energy Solutions, said: "Two names like MAN Energy Solutions and ABB coming together to develop an innovative, decarbonising marine solution sends a strong signal to the market. Customers demand efficient and flexible propulsion concepts so they can react quickly to changing market conditions through the best use of their assets.

He added: "This cooperation with ABB will deliver the technology necessary to provide a new propulsion concept. In turn, this will help our customers to reduce their CO_2 footprint and fuel costs, and will provide the flexibility, for example, in operation for different trades or retrofits from an LNG carrier to floating storage units or floating storage regasification units. This concept can reduce methane slip and fuel costs compared to conventional diesle electric propulsion systems. ABB's DAC and global presence are an ideal match for our new four-stroke engine."

The DFE+ concept

Whereas the conventional DFDE concept is characterised by:

- constant-speed operating engines (gensets) over the entire engine load
- optimised for high load, for example, the 85% load point
- in part- and low-load have high methane slip and less efficiency;

the new MAN/ABB DFE+ concept comprises:

- variable-speed operating engines (gensets) over the entire engine load
- better efficiency with significant reduction of methane slip over the entire engine map.

While variable-speed applications are well established for liquid-fuel systems up to 10mW$_e$, torque requirements and the low efficiency of first-generation dual-fuel engines – including limitations in the e-systems design for diesel-electric propulsion systems over 10 mW$_e$ – killed variable speed for propulsion systems over 10mW$_e$.

ABB's Dynamic AC technology enables the operation of propulsion systems above 10 mW$_e$ at variable speed with all the accompanying benefits. In combination with the second-generation, high-efficiency MAN 49/60DF engine (with ALSi – Air Lubrication System interface, as an add-on), this DFE+ concept will provide customers with next-level efficiency and flexibility.

About ABB

ABB (ABBN: SIX Swiss Ex) is a leading global technology company that energizes the transformation of society and industry to achieve a more productive, sustainable future. By connecting software to its electrification, robotics, automation and motion portfolio, ABB pushes the boundaries of technology to drive performance to new levels. With a history of excellence stretching back more than 130 years, ABB's success is driven by about 105,000 talented employees in over 100 countries. www.abb.com

Pictured at SMM, Stig Leira, Transformation Program Manager, ABB Marine & Ports; Rune Lysebo, Global Head of Sales, ABB Marine & Ports; Vice President, Marita Krems, Head of Four-Stroke Marine & License, MAN Energy Solutions; and Elvis Ettenhofer, Head of Marine Four-Stroke – Region Asia Pacific, MAN Energy Solutions

MAN Energy Solutions enables its customers to achieve sustainable value creation in the transition towards a carbon neutral future. Addressing tomorrow's challenges within the marine, energy and industrial sectors, we improve efficiency and performance at a systemic level. Leading the way in advanced engineering for more than 250 years, we provide a unique portfolio of technologies. Headquartered in Germany, MAN Energy Solutions employs some 14,000 people at over 120 sites globally. Our after-sales brand, MAN PrimeServ, offers a vast network of service centres to our customers all over the world.