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**Press release**

Copenhagen, 05.05.2022

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## Tier III NO<sub>x</sub>-Abatement Engine Orders Pass 2,000 Mark

### Exhaust Gas Recirculation and Selective Catalytic Reduction systems slash NO<sub>x</sub> and optimise efficiency

MAN Energy Solutions' Two-Stroke Business has announced that it has surpassed 2,000 orders for IMO MARPOL Annex VI NO<sub>x</sub> Tier III-compliant technologies for its portfolio of MAN B&W two-stroke engines. The new milestone occurs just over a year after the company announced the passing of the 1,000 milestone in January 2021.

Bjarne Foldager – Senior Vice President and Head of Two-Stroke Business – MAN Energy Solutions, said: “This welcome milestone is built on the experience we have gathered over the past decade. Our fully-mature EGR and SCR systems deliver Tier III NO<sub>x</sub>-compliance and improve engine performance in terms of increased fuel efficiency and lower, general emissions. Our ability to treat a ship as a complete system gives us a clear market advantage that enables us to prioritise environmental considerations and system integration.”

Among other statistics, MAN Energy Solutions reports:

- Determined by bore size, 50- and 60-bore MAN B&W engines account for most NO<sub>x</sub> solutions (37%);
- EGR accounts for 724 vs 1,292 SCR solutions.

Furthermore, the company reports that some 67 engines were equipped with EcoEGR, representing about 9% of all EGR solutions. EcoEGR is a tuning method that lowers fuel consumption by recirculating a small amount of exhaust gas while operating in Tier II.

Foldager added: “Considering how NO<sub>x</sub> Tier III limits were only introduced in 2016, shipping has come a long way in a short period of time. MAN Energy Solutions is rightly proud to have brought three technologies – in the form of EGR, and low- and high-pressure SCR variants – to market such that every owner and ship designer can select what best fits their individual project.”

In relation to EGR, Stig B. Jakobsen – Senior Manager, Two-Stroke Operation – MAN Energy Solutions, said: “More than ten years of service experience with our EGR design has enabled us to introduce refinements and optimisations. The latest design is a perfect example of such optimisation since we employ our fourth-generation EGR in our low-pressure, dual-fuel ME-GA engine. EGR has become an integral tuning tool for each of our low-speed engines and its maturity will allow us to further explore the potential for optimising engine performance well into the future.”

## NO<sub>x</sub> solutions

Exhaust Gas Recirculation (EGR) prevents the formation of NO<sub>x</sub> by controlling the combustion process, while Selective Catalytic Reduction (SCR) uses a catalyst and an additive to remove the NO<sub>x</sub> generated by the combustion process as an after-treatment process.

Uniquely for the two-stroke sector, MAN Energy Solutions offers both EGR and SCR as proprietary NO<sub>x</sub> solutions. The company has long experience with EGR technology and reported its first order already in 2011, while its own in-house-developed SCR-HP (-High Pressure) won its first order in January 2019. This features a drastically reduced reactor-size, compared to rival systems, to which MAN Energy Solutions has been providing system approval since 2014.

Methanol-fuelled, MAN B&W LGIM engines have a special feature as explained by Kjeld Aabo – Director of New Technologies – MAN Energy Solutions: “Through the use of water emulsion in the methanol, we are able to reach Tier III levels in methanol fuel-mode, completely removing the need for a dedicated NO<sub>x</sub>-abatement technology. Our introduction of this on our G50-LGIM engine gains us highly valuable service experience – especially in the methanol-carrier segment – while we see a very clear demand for full Tier III-compliance across all fuel types outside this segment by means of EGR.”



*Rendering of an MAN B&W SCR-HP reactor with host two-stroke engine*



*Graphical rendering of an MAN B&W two-stroke engine with EGR system*



*From left, MAN Energy Solutions': Bjarne Foldager – Senior Vice President and Head of Two-Stroke Business; Kjeld Aabo – Director of New Technologies; Stig B. Jakobsen – Senior Manager, Two-Stroke Operation*

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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.