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**Press release**

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## **MAN Energy Solutions to Provide Climate-Neutral District-Heating to Danish City**

**First cross-sectoral, heat-pump solution – MAN ETES (Electro-Thermal Energy Storage) – will decarbonise heat supply in Esbjerg using renewable energy**

Gunnar Kilian – member of the Board of Volkswagen and Chairman of the Supervisory Board of MAN Energy Solutions – and Dr Uwe Lauber – CEO, MAN Energy Solutions – have visited Esbjerg, Denmark, where the world's first installation of MAN's ETES (Electro-Thermal Energy Storage) heat-pump technology is being built for Danish multi-utility company, DIN Forsyning.

Upon completion, the new plant will provide climate-neutral district-heating to 25,000 households in Esbjerg. DIN Forsyning is owned by the municipality of Esbjerg and Varde and supplies some 1 million MWh of district heating per annum.

The purpose of the visit was to meet project partners and get a concrete idea of the progress on-site. Jesper Frost Rasmussen, Mayor of Esbjerg, and Christian Udby Olesen, CEO DIN Forsyning, hosted Kilian and Lauber.

Kilian said: "Sustainable energy solutions are the future. Innovative technologies like the ETES from MAN Energy Solutions are therefore important elements on our way to zero. I'm particularly pleased that Esbjerg is taking on a pioneering role in decarbonization in the area of heat supply, and hope that other municipalities will follow its example."

Lauber said: "Converting energy into concrete economic and social benefits – while helping our customers to reduce emissions – lies at the core of MAN Energy Solutions' business. This project demonstrates how energy harvested from the increasingly-important renewable sector can be harnessed outside of the power grid, and how essential sector-coupling will be to a decarbonised energy-future. Esbjerg is an important lighthouse project for us that showcases our ability to deliver innovative solutions."

### **About the Esbjerg ETES plant**

The project was announced in February 2021 when DIN Forsyning commissioned MAN Energy Solutions to supply a turnkey solution for heat-generation featuring two MAN ETES heat-pump systems.

With an overall heating capacity of 50 MW, the coming district-heating plant will supply around 100,000 local inhabitants with approximately 235,000 MWh of heat annually. The location at the Port of Esbjerg will enable the use of renewable power from nearby wind farms and seawater as a heat source for the generation of heating energy. The new district-heating plant will thus guarantee an emission-free alternative to the city's current, coal-fired power plant, which at present provides

approximately half of Esbjerg's district heating and is scheduled for closure by April 2023.

Frost Rasmussen said: "Esbjerg has been viewed as an 'energymetropolis' on account of its significant, hydrocarbon sector. However, for the past decade, Esbjerg has become the European market leader within offshore wind, building on over fifty years of experience with offshore oil and gas. Consequently, energy transition has the highest priority, and our stated ambition is to become carbon-neutral by 2030, ultimately making Esbjerg a sustainable energymetropolis in the process. This ETES project will enable us to make the quantum leap from fossil to green energy through exploiting our vast resources of offshore wind renewables. It's a trailblazing project for how the green transition can be executed and I'm proud that Esbjerg is a global frontrunner in this instance."

Udby Olesen said: "DIN Forsyning is writing history with this heat-pump solution that facilitates the transition from coal to green energy, not just in Esbjerg and within the district-heating sector but within the green segment in Denmark as a whole. This unique story marks a new chapter in economically- and environmentally-friendly district heating by consigning coal in Esbjerg to the past. It also shows – by thinking innovatively and creatively – that there are multiple paths to a green future."

## About MAN ETES

The ETES heat pump system is one of the three available configurations of the electrothermal energy-storage system, called MAN ETES, which was developed by MAN Energy Solutions Switzerland in cooperation with ABB Switzerland. At the highest level, the technology offers heat production, storage, and reconversion into electricity. It is, in effect, a complete energy-management system that also allows the sector integration of energy.

ETES technology enables the exploitation of excess power from renewable energy sources. The operational flexibility of the solution makes it possible to generate electrical balancing-power in the short term for the electrical grid.

The basic principle is the conversion of electrical energy into thermal energy, which is stored in the form of hot water and ice in insulated reservoirs. The electrothermal process not only allows the distribution of the generated heat and cold to users according to demand and margins, but also offers the option of converting it back into electricity as an additional usage variant.

ETES' key, innovative feature is the use of toxicologically and environmentally-safe CO<sub>2</sub> as a refrigerant for the entire system-cycle. The CO<sub>2</sub>-based heat-pump plant in Esbjerg will be the largest of its kind ever used in the world.



Pictured in Esbjerg: Jesper Frost Rasmussen – Mayor of Esbjerg; Gunnar Kilian – Member of the Board, Volkswagen and Chairman of the Supervisory Board, MAN Energy Solutions; Dr Uwe Lauber – CEO, MAN Energy Solutions; Christian Udby Olesen – CEO DIN Forsyning; Bjarne Foldager – Senior Vice President and Country Manager, Denmark, MAN Energy Solutions



Two MAN ETES heat pump systems will decarbonise Esbjerg's heat supply

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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.