
Press release

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MAN Energy Solutions SE
Stadtbachstraße 1, 86153 Augsburg
GermanyPostal address:
86224 Augsburg, Germanywww.man-es.com

Group Communications
Jan Hoppe
P +49 821 322 3126
Jan.hoppe@man-es.com

New power plant in Jena expected to halve CO₂ emissions

MAN Energy Solutions is supplying gas engines for a new cogeneration plant

A consortium made up of MAN Energy Solutions and the general contractor MMEC MANNESMANN GMBH has been tasked with constructing a combined heat and power (CHP) gas engine power plant in Jena, Germany. The client is TEAG Thüringer Energie AG (TEAG) and they want to expand an existing gas and combined cycle power plant at the same location. The new plant is expected to start operating in the 2021/22 heating period and is expected to significantly reduce emissions at the site.

With five 12.6 MW MAN 20V35/44G TS gas engines and a total capacity of approximately 63 MW, following production the TEAG plant will operate the most powerful gas engines installed in Germany. Thanks to two-stage turbocharging, the generator sets are also particularly efficient. The flexibility of the power plant is further increased thanks to a heat storage with a capacity of around 600 MWh.

Engines with two-stage turbocharging come with a low-pressure compressor and a high-pressure compressor, which work connected in series and therefore achieve improved power density and efficiency.

The expansion to the power plant is part of a comprehensive modernization project with the objective of reducing the CO₂ emissions of the Jena cogeneration plant. TEAG is investing approximately €80 million in the district heating site for this.

"The signed contract is also a climate protection pact since the expansion to the power plant reduces emissions of the greenhouse gas CO₂ by almost half when compared with the current status," explains TEAG board spokesman Stefan Reindl.

"We are very happy with the trust that our customer TEAG has shown in us and about the fact that, with this CHP project, we are setting a new standard in the German market," adds Hajo Hoops, Senior Manager in the Power Plants division at MAN Energy Solutions. "In Jena, we are not only installing the largest gas engines in Germany, but we are also achieving degrees of utilization beyond 90 percent while, at the same time, achieving a power to heat ratio greater than one. This translates into high efficiency both during heat extraction and also during electricity production."

MAN Energy Solutions is a leading provider of gas-engine power plants for combined heat and power in Germany. In 2018, the company commissioned a 30 MW power plant at the Stuttgart Gaisburg site for EnBW; in May, currently being optimised is also a plant for Stadtwerke Schwäbisch Hall, which also uses a 35/44G TS engine. A 51 MW CHP plant for Frankfurt (Oder) municipal utilities is expected to be commissioned in the 2021/22 heating period.

"Gas engines have some very important advantages regarding the challenges we are facing in the light of the green energy transition," says Hoops. "For example, exceptional flexibility for starts and stops, which helps to complement the fluctuating power generation from renewable energies. Our machines achieve full power in three minutes and can be switched on and off as required. This allows our customers to operate in a way that is operation- and market-oriented as well as extremely flexible. Combined with a heat storage, as is the case here in Jena, operators can respond to pricing signals on the electricity market with the power plant while guaranteeing a safe and highly efficient supply of heat at all times."



TEAG Thüringer Energie AG Headquarters in Erfurt

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.