



## **eMobility at MAN: customised through modularity**

Hanover, September 21, 2016

**MAN Truck & Bus electric buses are based on a modular system.**

- **MAN will showcase a modular concept vehicle with rapid and overnight charging technology at the IAA 2016**
- **From years of experience with hybrid buses, MAN is able to offer technologically sophisticated e-mobility solutions**
- **Production of a series of completely electric battery-driven buses will begin before 2020, with the first test fleets operational from the end of 2018**

**MAN Truck & Bus**  
Dachauer Straße 667  
D-80995 Munich

**Should any questions arise,  
please contact:**  
Anne Katrin Wieser  
Phone: +49 89 1580-2001  
[Presse-man@man.eu](mailto:Presse-man@man.eu)  
[www.mantruckandbus.com/press](http://www.mantruckandbus.com/press)

Providing optimum drive technology for each area of application is and has always been an important aspiration for MAN. Today, the Lion's City bus family offers, alongside diesel technology, a wide range of alternative drives in all length variants. MAN aspires to offer its customers commercially viable and sophisticated vehicles. This applies both to diesel buses and alternative fuels as well as e-mobility solutions in the city bus segment.

Thanks to many years of experience with electrified drivetrains and components in the MAN Lion's City Hybrid, MAN Truck & Bus is also in an excellent position to provide transport companies with a practical and efficient solution in the electric bus segment. MAN relies on a modular approach, through which charging technology can be selected and combined as needed, with the number of storage modules depending on the required range and transport capacity. As a first step, MAN is concentrating on the established technologies of rapid charging (via automated conductive interface) and overnight charging (via CCS interface). To offer transport companies the flexibility they expect in terms of on-road configuration and capacity planning, the initial portfolio includes both 12 m solo and 18 m low-floor articulated buses. This is because a combination of different vehicles and charging technologies is likely in actual daily operations depending on purpose, line management and

MAN Truck & Bus is one of Europe's leading manufacturers of commercial vehicles and supplier of transport solutions, with revenues of approximately €9 billion a year (2015). The product portfolio includes trucks, buses and diesel engines, as well as services related to passenger and cargo transport. A subsidiary of Volkswagen Truck & Bus GmbH, MAN Truck & Bus employs more than 35,500 people worldwide.



topography. This means that overnight charging vehicles with a battery capacity of at least 300 kWh will be able to cover a range of over 200 km. The charging will be executed with up to 100 kW for a period of four to seven hours. Buses with a pantograph on the other hand, require a capacity of 250 to 450 kW on the charging pole to absorb enough energy for a range of 20 km in five to ten minute. The batteries therefore only need a capacity of around 80 to 160 kWh. Additional selection options will also be available for installations such as heating/air conditioning. Options here will include purely electrical systems or hybrid variants.

At the IAA 2016, MAN will be demonstrating the integration of different charging systems in a single modular concept vehicle. By 2018, the MAN e-mobility roadmap will offer the public a pre-series bus version of a battery electric vehicle (BEV). Series production of a 100 percent electrically driven city bus will commence before 2020. Before 2030, MAN Truck & Bus plans to have 50 percent of its sales in the city bus segment consisting of emission-free vehicles.

In principle, the same charging and storage technologies will be employed in buses and trucks. In addition, being part of the Volkswagen Group means that MAN is able to utilise synergies within the Group here and profit from the dynamics of the passenger car sector.

### **Challenge of standardisation in charging technology**

MAN sees standardisation of interfaces for charging technology as an important, but still unmet, challenge. This is because standardisation is a prerequisite for flexibility, interoperability and planning security for urban bus fleet operators and consequently the prerequisite for the successful entry of emissions-free drive technologies into cities. This is why MAN is participating in the "eBusCS" (Electric Bus Charging System) promotion project, for example, supported by the German Federal Ministry for Economic Affairs and Energy. From the perspective of manufacturers, the focal points for standardisation include the charging communication according to ISO 15118, positioning of automated charging equipment and positioning of the charging inlet on the vehicle.