

# eMPOWERING YOU. ALL THE WAY.

The decarbonization of road  
transport from a manufacturer's  
perspective

Electrification vs. Hydrogen

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# Transformation – the way to the new MAN eTruck

The transformation of the commercial vehicle industry and the transportation industry is upon us.

MAN is pursuing a clear strategy of switching drive technology to battery electric vehicles.

MAN makes sustainable transport easy – with the right product strategy and suitable digital solutions!

MAN expertly guides you through the transformation of the transport industry step by step.

The new MAN eTruck is launched with state-of-the-art technology, combining ecology and economy.

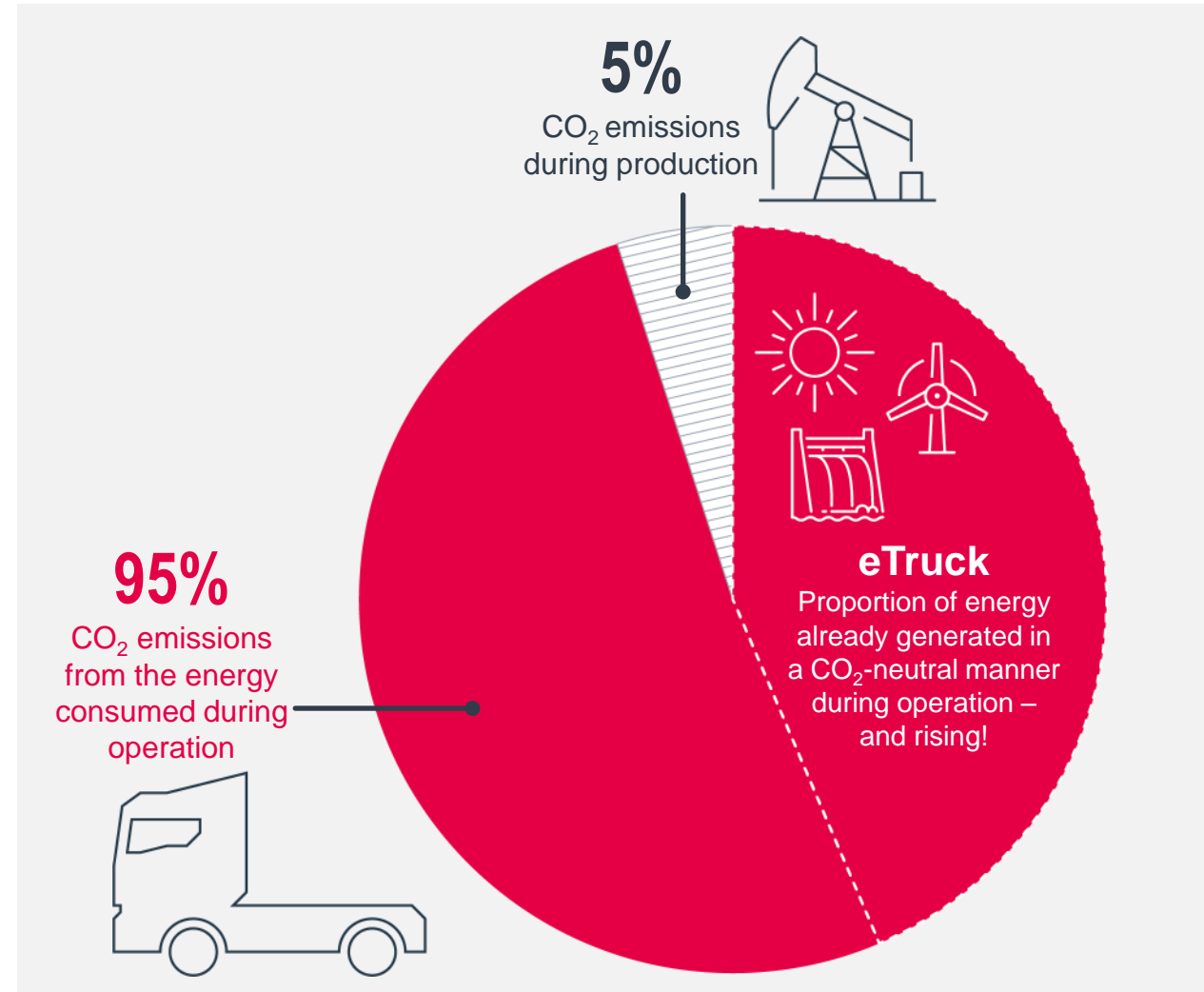
Key themes of electrification:  
state-of-the-art battery technology, sustainable charging infrastructure and a networked e-mobility ecosystem

# Why e-mobility?

## High savings potential for CO<sub>2</sub> in heavy commercial vehicles

In the case of heavy commercial vehicles, **more than 95% of the CO<sub>2</sub> emissions are caused during operation.**

This results in a considerable potential reduction in carbon dioxide if the **energy source for driving can be generated completely or partially in a CO<sub>2</sub> neutral way.**



# Alternative drives for trucks with potential for CO<sub>2</sub> reduction



**Battery electric drive with quick charging**  
BEV (battery electric vehicle)



A battery electric driveline in combination with quick charging will be the foundational technology of future CO<sub>2</sub>-neutral commercial vehicles.



**Battery electric drive with hydrogen fuel cell**  
FCEV (fuel cell electric vehicle)



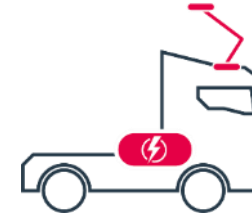
Commercial vehicles with hydrogen fuel cells can be a useful alternative to purely battery electric vehicles for certain applications.



**Internal combustion engine with synthetic diesel fuel**



Commercial vehicles powered by synthetic diesel will not prevail for ecological and economic reasons.



**Battery electric drive with overhead line**



Due to the extremely cost-intensive infrastructure, this technology will not be feasible for commercial vehicles.



**Internal combustion engine with hydrogen or biogas**

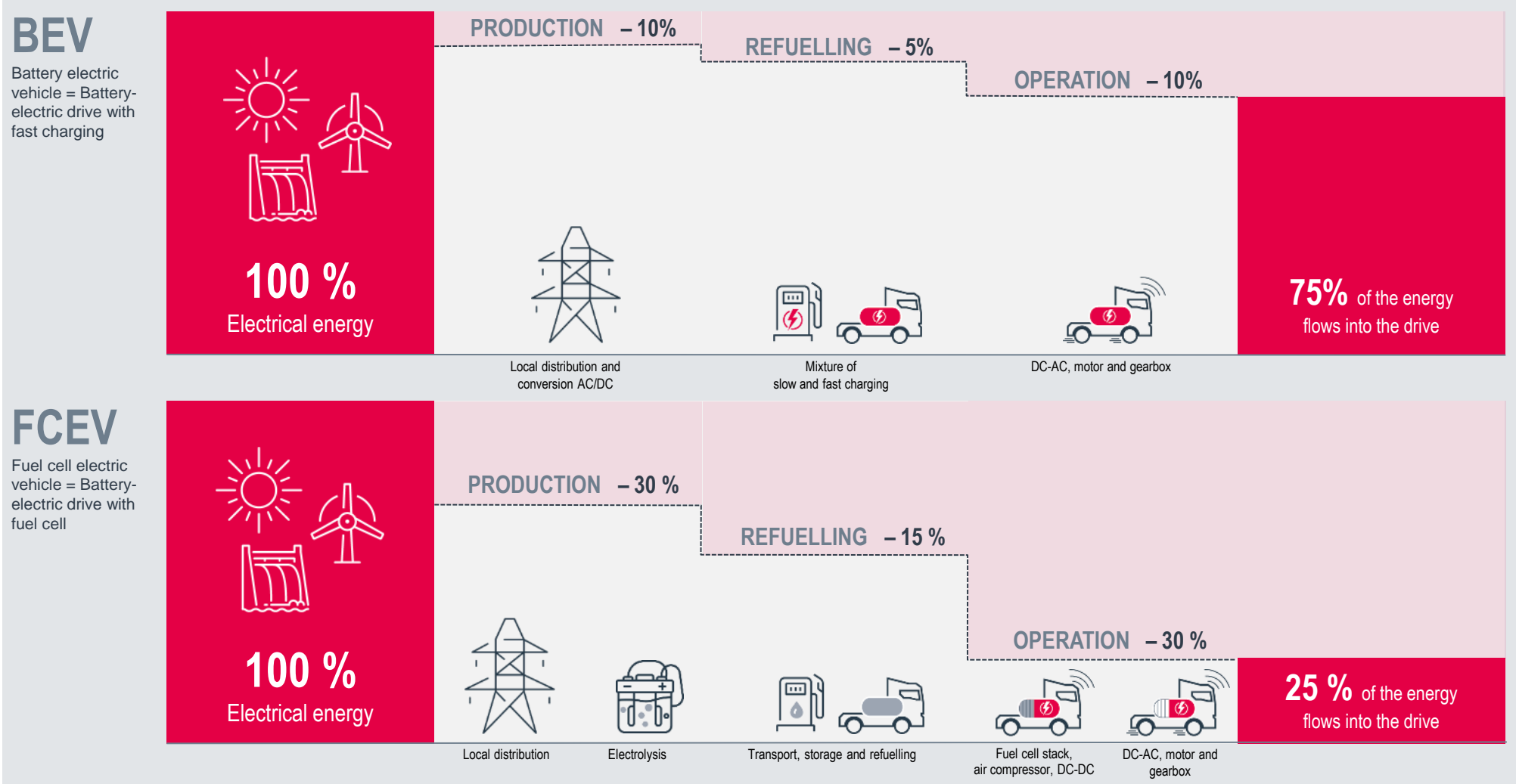


Commercial vehicles powered by gas engines will not prevail, primarily for ecological reasons.

# Energy efficiency

## Battery or fuel cell

Battery electric trucks have an advantage over hydrogen trucks in terms of energy efficiency.

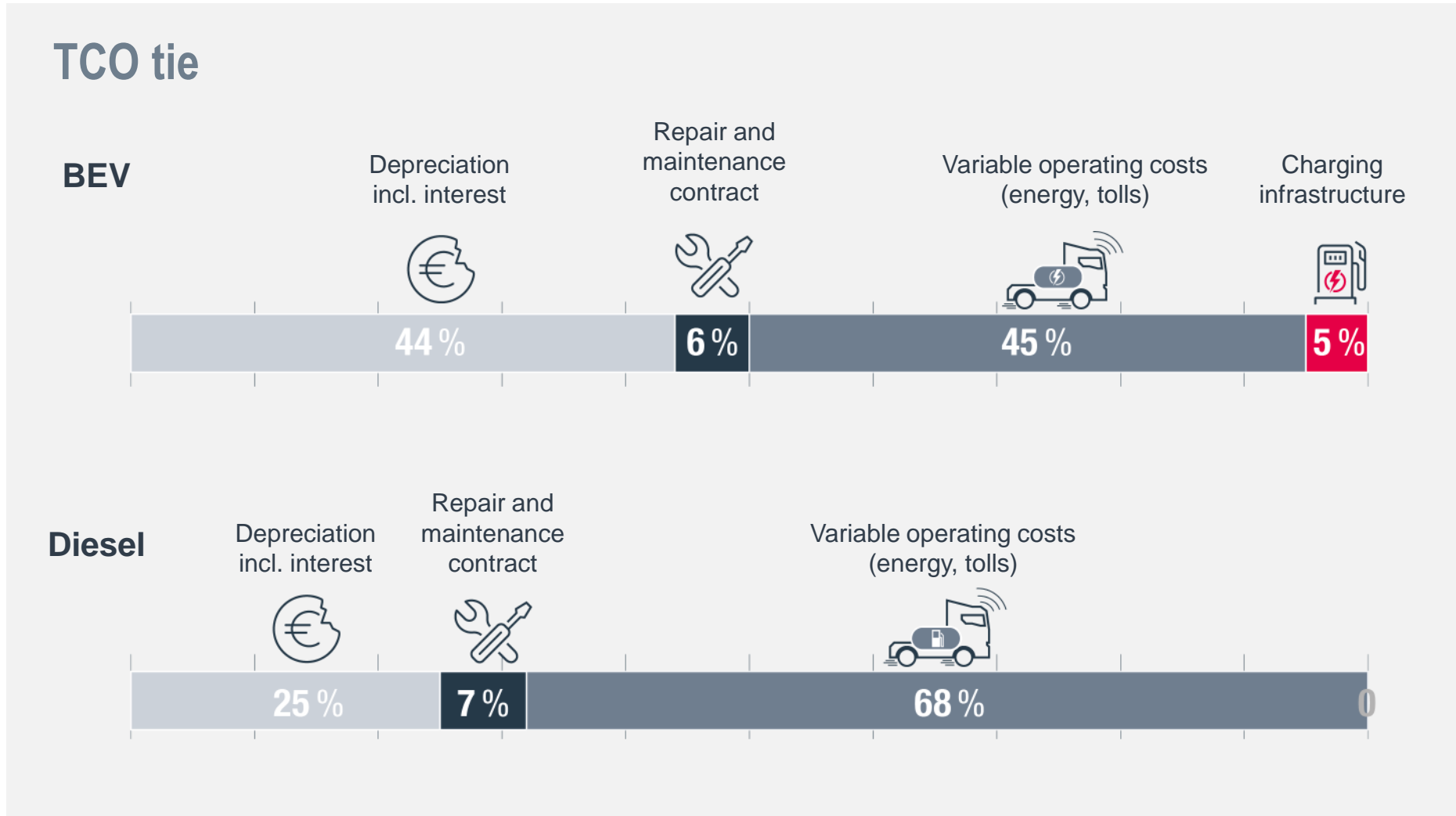


# TCO for the eTruck

## Ecology in harmony with economy

By the middle of this decade, e-mobility will be cost-neutral from a total cost perspective compared to the diesel vehicle. The significantly higher acquisition costs for the battery electric vehicle are compensated for by the reduction in variable operating costs (energy, toll).

Vehicle	TGX semitrailer, permitted gross train weight 42 t
Period of use	5 years
Daily (annual) mileage	320 km (80,000 km)
Of which on toll roads	82%



# The optimum drive technology at the right time

From  
2024

**BATTERY  
ELECTRIC DRIVE  
WITH QUICK CHARGING**  
as CO<sub>2</sub>-free basic technology



By 2030  
at the earliest

**BATTERY  
ELECTRIC DRIVE  
WITH FUEL CELL**  
as CO<sub>2</sub>-free alternative  
for certain applications



Transition  
period

**CONVENTIONAL  
DIESEL DRIVELINE** still  
available as cost-effective  
technology



# MAN has been charging ahead for decades – now also electrically



In the beginning:  
Kraftkarren ("Power  
wagons") from 1923

## BUS

Since 1933



## TRUCK

Since 1979



## VAN

Since 2018



Extremely successful with customers in many European countries for over 4 years: the **eTGM**. With ranges of up to nearly 200 km without recharging.



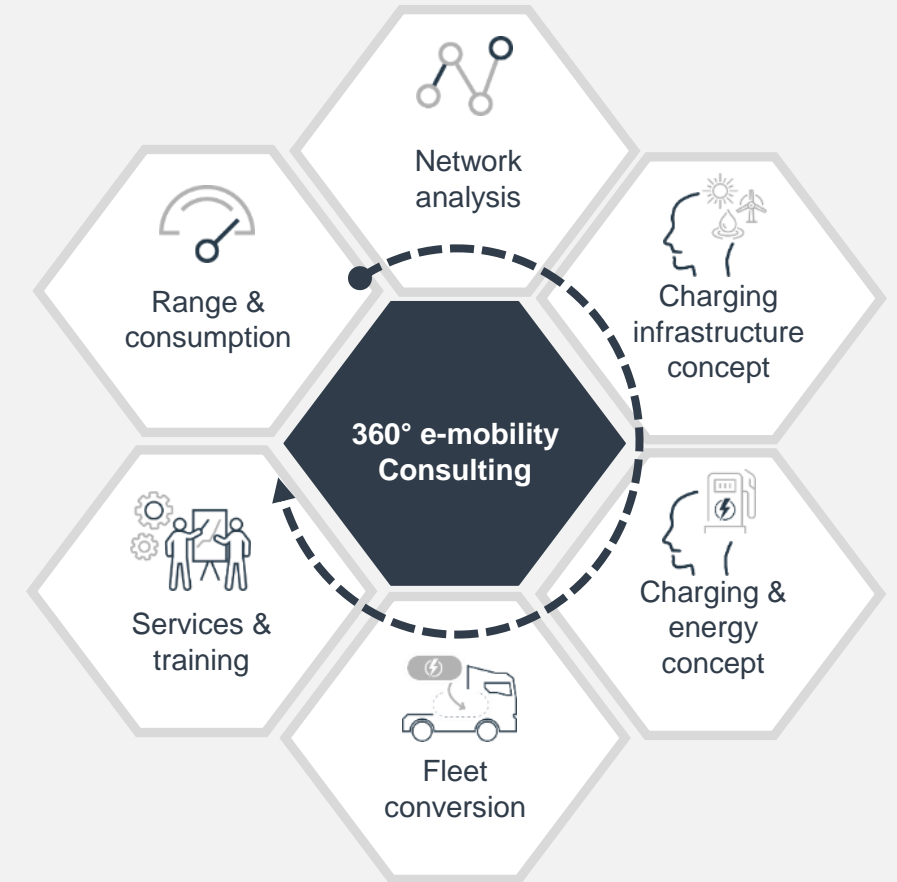
# 360° consulting for the e-mobility ecosystem

## Step by step

MAN is already supporting you today on the way to the e-mobility of the future with comprehensive consulting services.

### MAN Transport Solutions Consulting

- **Phase 1**  
You can use an interactive application to evaluate the possibility of converting your fleet to battery electric vehicles (MAN eReadyCheck).
- **Phase 2**  
Specific analysis of possible ranges and vehicle deployments, charging strategy and charging infrastructure concepts as well as energy concepts and optimisation strategies
- **Phase 3a**  
Detailed analysis of the entire network and the fleet in operation (route analysis and fleet optimisation)
- **Phase 3b**  
Data analysis (TCO optimisation) based on actual data



# MAN eReadyCheck

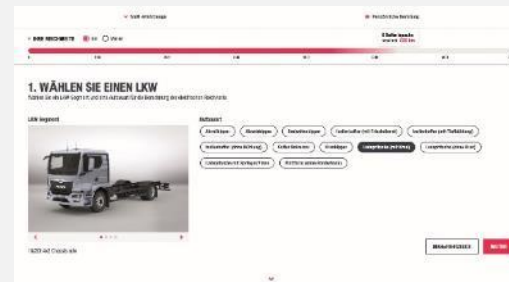
## MAN e-mobility range determination

MAN eReadyCheck was developed in response to the question: “How far can I go with a new MAN eTruck?” The application offers you the opportunity to deal with the topic of range with the new MAN eTruck in a playful way and with a few simple questions.

### STEP 1

#### Entry of framework conditions

- Maximum range at full charge
- Selection of application
- Parameters (payload requirement; climatic conditions; road type)



### STEP 2

#### Trip planning on an interactive map

- The result is a statement about the electrification of the route and how many top-up charges are necessary



### STEP 3

#### Suitable new MAN eTruck configurations

- Information on battery configuration, range and charging times



# Range

## Development progress

In the future MAN eTruck generation, intelligent use of break times (approx. 45 min) for intermediate charging means **daily ranges between 600 and 800 km** are possible.

**Up to 1,000 km daily range will be possible** in the second half of this decade with the coming battery generations.



# The new MAN eTruck

## Emission-free driveline

The **central electric drive unit** that powers the new MAN eTruck is the heart of the new electric technology. Powerful, reliable and emission-free.

Full torque – from a standstill.

This unit can be used with unprecedented sensitivity. Whether on the motorway, in the city or during difficult manoeuvres.



### Cooling/heating system

- Thermal management for engine cooling, battery conditioning and temperature control of the cab

### E-driveline

Central electric drive unit with

- E-motor
- 2- or 4-gear gearbox

### E-auxiliary systems

- Compressed-air management
- 24-volt vehicle electrical system

### Accumulator, high-voltage system

- Multi-battery system

# The new MAN eTruck

## Handling

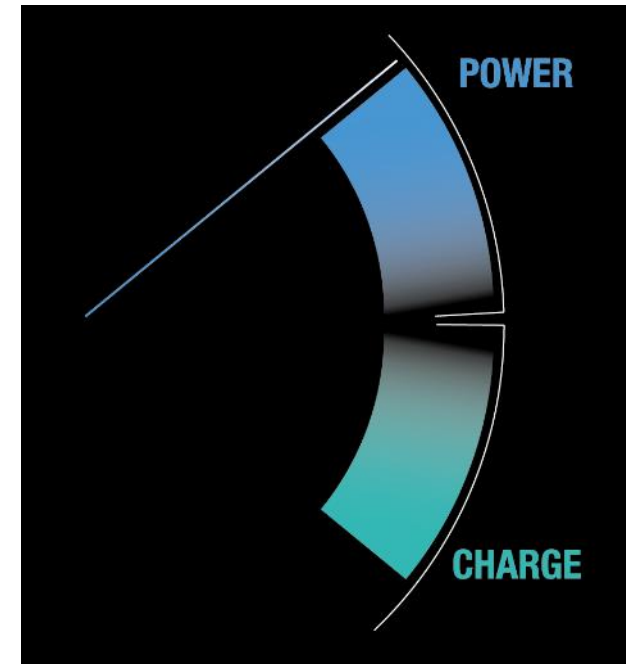
The handling of the new MAN eTruck includes many characteristic MAN features and combines them with other design-related advantages of the new e-driveline.

- Extremely sensitive manoeuvring
- E-motor speed jumps and extremely fast gearshifts
- Maximum acoustic comfort



## Simple to use

The battery-electric-specific information is displayed in the fully digital instrumentation of the vehicle so that the processes concerning the new e-driveline become transparent.



### Power meter

The power meter visualises the current energy flow as an aid to economical driving:

- Positive drive power (vehicle acceleration)
- Negative drive power (recuperation)
- Intensity/effectiveness of acceleration/deceleration and visualisation of the limit ranges

# Basic configuration and typical application

## MAN eTruck

**4 x 2 solo chassis**  
(permissible gross weight up to 20 t)

Refrigerated body



Box



Set-down skip loader



**6 x 2 solo chassis**  
(permissible gross weight up to 28 t)

Refuse collector



Roll-off skip loader



Platform body with loading crane



**6 x 2 chassis with trailer**  
(permissible gross train weight 42 t)

Refrigerated body



Vehicle for swap bodies



Roll-off skip loader



**4 x 2 semitrailer with trailer**  
(permissible gross train weight 42 t)

Standard semitrailer combination



Tipping semitrailer truck



Cooling semitrailer combination



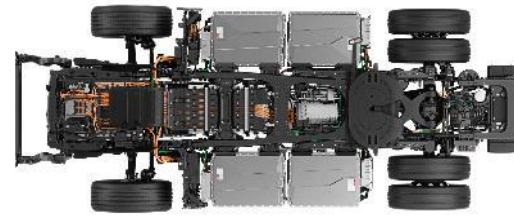
Conventional MAN diesel truck for illustrating applications

# Range

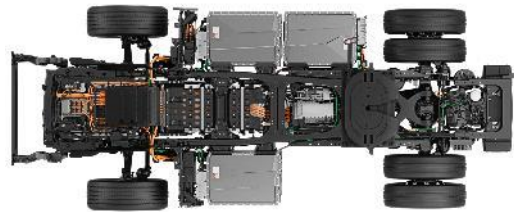
## Long range or high payload?

It will be possible to select different battery configuration options for the deployment-specific optimisation of the new MAN eTruck series.

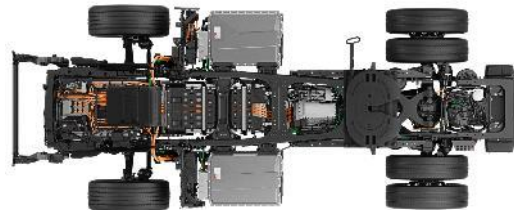
Installation positions of battery packs for semitrailer



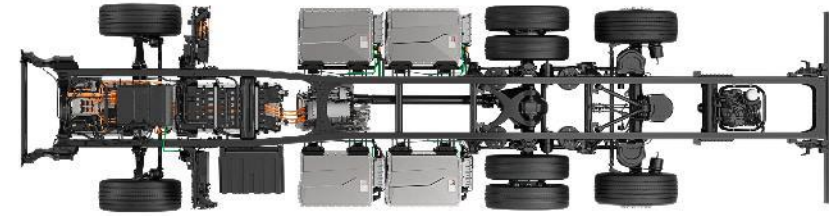
6 battery packs



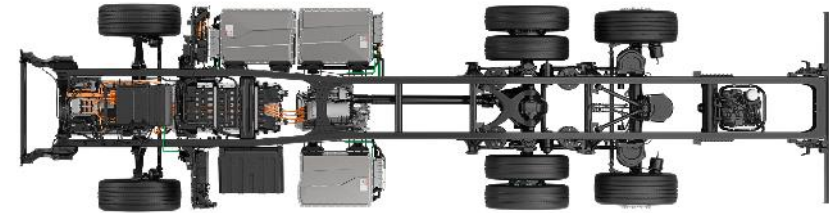
5 battery packs



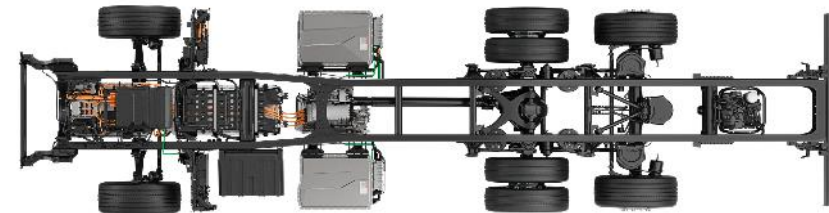
4 battery packs



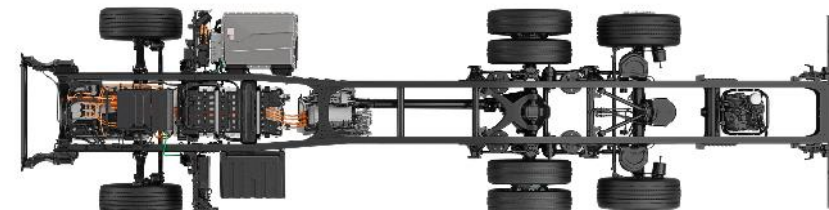
6 battery packs



5 battery packs



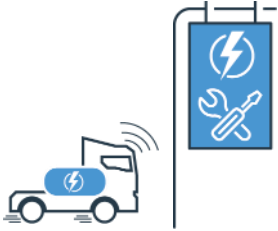
4 battery packs



3 battery packs

Installation positions of chassis battery packs

# e-Mobility readiness of the service network



## Workshop network

MAN's workshop network already has experience with electric vehicles (eTGM, eTGE, Lion's City E) and is continuously expanding its competency in this area. The workshops will be successively equipped with the necessary high-voltage tools and employees will be trained with specific high-voltage training courses.

- Currently: 100 workshops in more than 20 countries are ready for e-mobility.



## E-specific maintenance service and battery service

The maintenance intervals for the new MAN eTruck depend heavily on the deployment profile of your vehicle. They are therefore calculated on a vehicle-by-vehicle basis and determined individually. Continuous analyses of the battery data (battery analysis) help with this.

- MAN ServiceCare combines this data in a maintenance plan which the MAN service outlet proactively discusses with you.



## MAN service products

The classic MAN service products will also be available in an adapted form for the new MAN eTruck in order to offer you maximum planning security.

- MAN service contracts
- MAN extended warranties
- MAN Uptime Guarantee



The transformation of the commercial vehicle industry and the transportation industry is upon us.

MAN has the optimum transport solution for your deployment at the right point in time. Our promise to you!

