

A close-up photograph of the front left headlight of a white MAN truck. A bright blue light signature is visible along the top edge of the headlight housing. The headlight itself is illuminated, showing a bright white light. The MAN logo is visible on the lower part of the headlight housing.

THE CLEAN REVOLUTION

How eMobility changes urban logistics and public transport

Felix Kybart

MAN Truck & Bus | Oslo | August 2019

THE MAN APPROACH

SIMPLIFYING BUSINESS

- We enable **zero emission** inner-city mobility!
- We **challenge** our own conventional business model!
- We create **new business opportunities** for MAN!
- We build on our **longstanding experience** as a major OEM!

MAN will offer holistic solutions for Alternative Drives

- Vehicles
- Business Models
- Systems
- Consulting services

MAN eMOBILITY PORTFOLIO



	12m	18m
Battery	480 kWh	620 kWh
Range	200km	200 km
E - Motor	220 kW / max. 3300 Nm	



Power: 100 / 50 kW
 Torque: 290 Nm
 V_{max}: 90 km / h
 Range (NEFZ):160 km
 Gradeability: 12% / 22%
 Battery capacity: 36 kWh



	18t (4x2 SZM)	26t (6x2)
Battery	149 kWh	223 kWh
Range	Up to 130 km	Up to 180 km
E - Motor	250 kW / max. 3500 Nm	

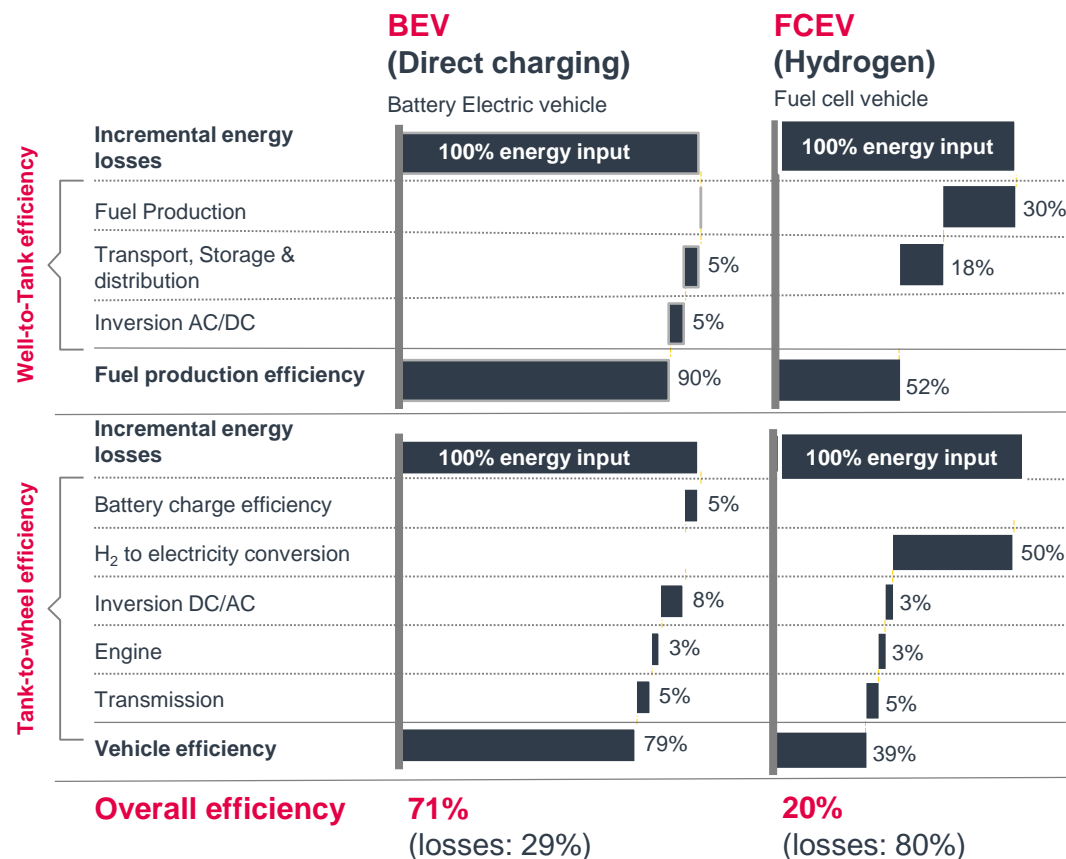


Battery	110 kWh
Range	100 km
E-Motor	290 kW / max 2,100 Nm
Entrance / cabin floor height	350 mm



FCEV REQUIRE 3x MORE ELECTRICITY PER KM THAN BEV

A CHALLENGING TCO CASE



FCEV vs. Diesel:

- With current electricity prices per km, hydrogen from electricity is significantly more expensive than Diesel
- Electricity and Diesel prices move roughly in tandem
- Hydrogen from electricity can only beat Diesel, if fuel cells plus e-powertrain become significantly cheaper than ICE

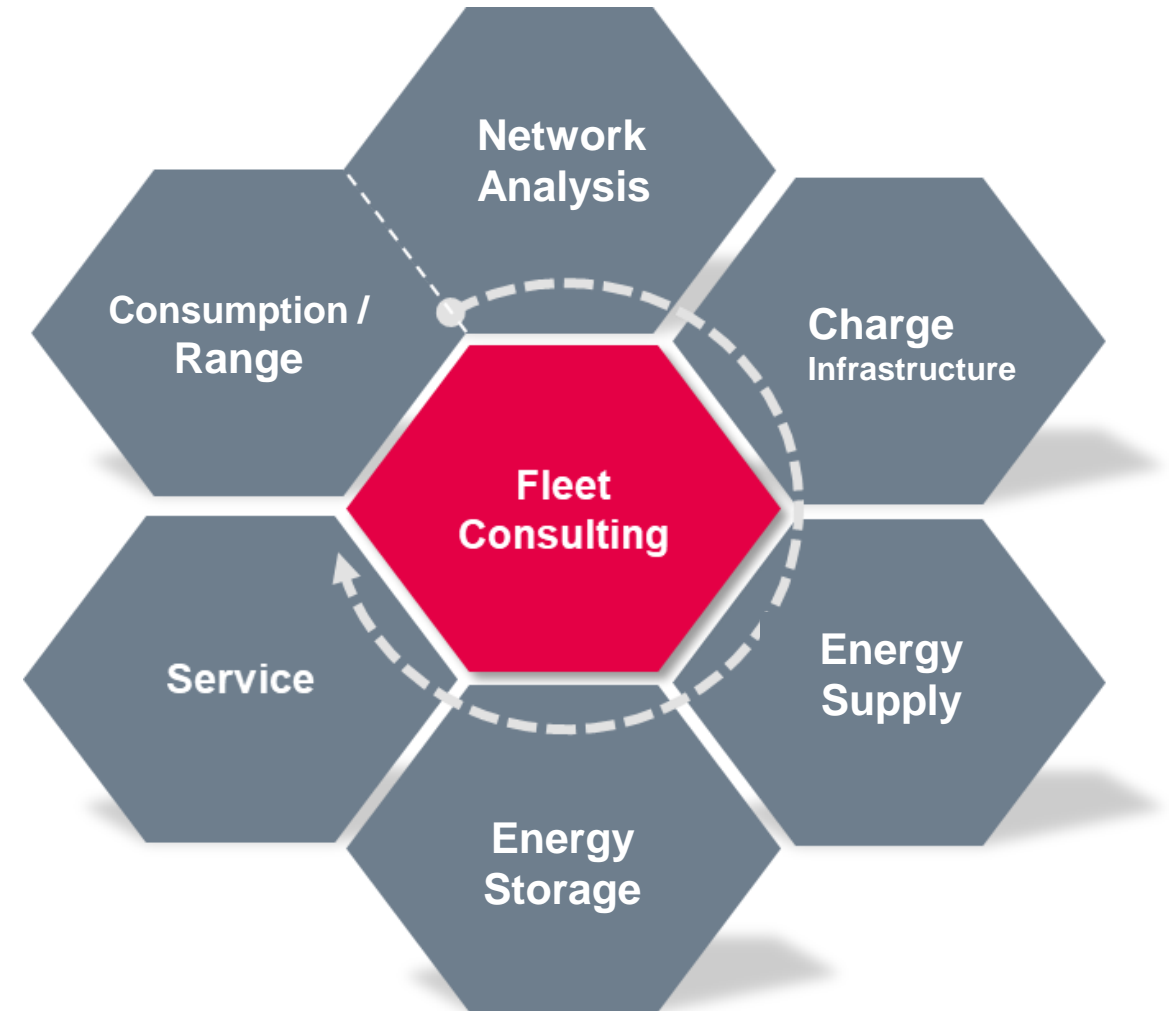
FCEV vs. EV:

- Energy cost for FCEVs is three times as high as for BEVs

MAN TRANSPORT SOLUTIONS

SIMPLIFYING THE BUSINESS OF OUR CUSTOMERS

- Direct support of interested customers to bring alternative powered commercial vehicle fleets onto the road
- Consulting for safe and cost-optimized operation
- Customized
 - analyses
 - concepts
- Multiple projects for bus, truck and van already successfully implemented



Q&A

Felix Kybart

