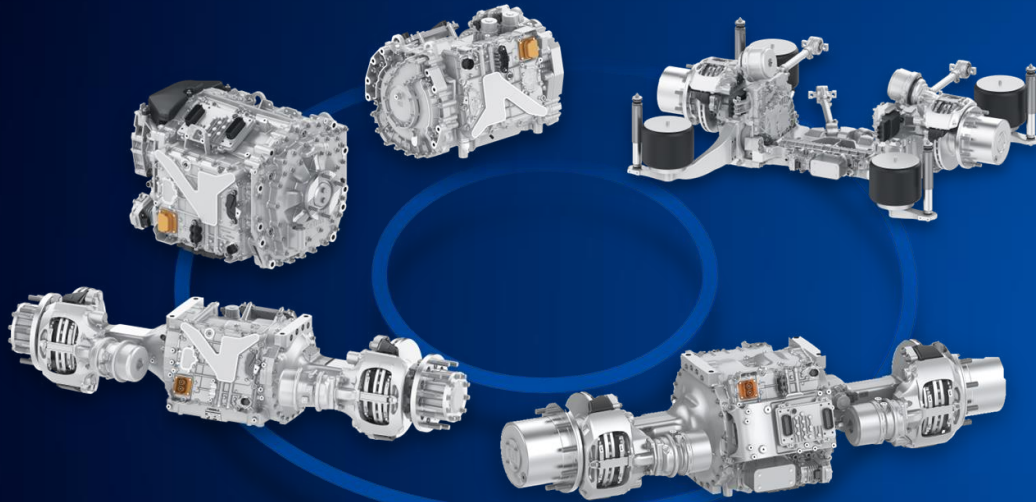


Flexibility as Secret to Success The New eMobility Solutions

René Schneider | Segment Lead CV Platform eMobility | CVS | ZF Friedrichshafen AG



Path to CV Electrification is Paved – Electrification on Truck in Addition to City Bus is Gaining Speed

Speed of transformation will depend on several influencing factors:

Social requirements

Battery technology

Fuel Cell Maturity

Oil prices

Total cost of ownership

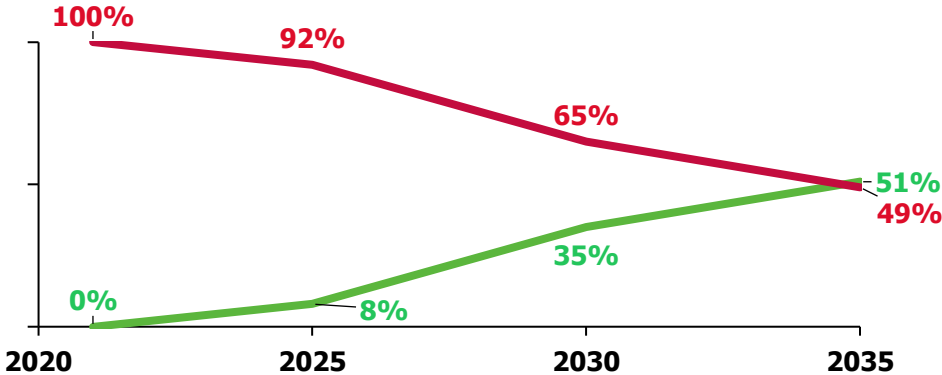
Range

Charging infrastructure

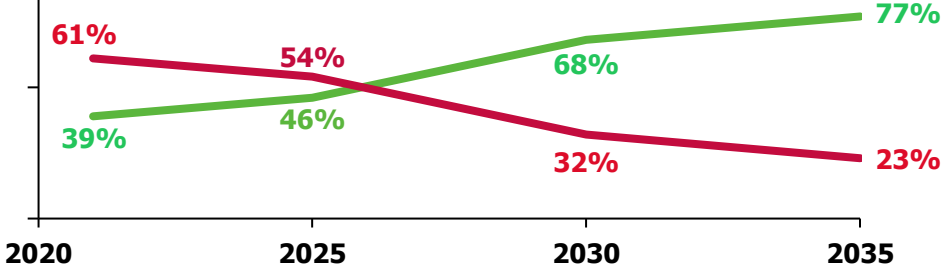
Legislative pressure



Possible Scenario **Truck** > 6 t: (major regions*)



Possible Scenario **Bus** > 6 t: (major regions*)



— Electric (BEV; FCEV) — ICE-based (ICE, xHEV, H2-ICE, eFuels) * EU, NA, China

New Modular ZF eDrive Platform for CVs

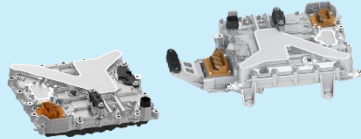
Technical Concept Based on full ZF Inhouse Components



Scaling Potential from Component to Systems



eMotor



Inverter

Integrated SiC
Frame mounted SiC



Transmission



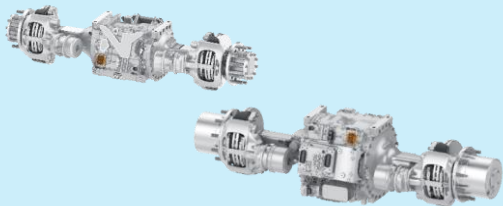
eActuation



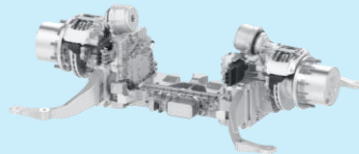
ECU / SW



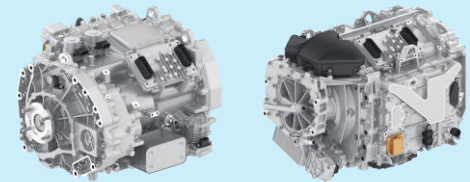
AxTrax 2 / AxTrax 2 dual



AxTrax 2 LF



CeTrax 2 / CeTrax 2 dual



New Modular ZF eDrive Platform for CVs

Technical Concept Based on full ZF Inhouse Components

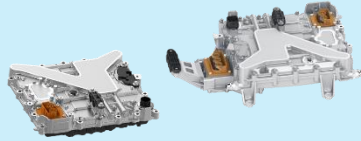


Scaling Potential from Component to Systems



eMotor

Hairpin
PSM
Oil cooled



Inverter

Integrated or
frame mounted
SiC-Technology
800 V



Transmission

Multi speed
Powershift
Lower axle ratio



eActuation

integrated



ECU / SW

One fits all
Cyber security
from beginning



Efficient

PSM
Oil cooled
SiC
800 V
Multi speed

Compact

Hairpin
Integrated

Comfort

Multi speed
Power shift
800 V

Robust

Oil cooled
Interface
One SW fits all

ZF Next Generation Electric Drivelines Summary



Fully integrated approach for optimal power and performance density and minimal space claim

Modular design for full scalability:
Truck & Bus / Coach, from LD/MD to HD, central drive and eAxles

Seamlessly integrated multi-speed transmissions with powershifting functionality in dual motor design

Tailer-made and state-of-the-art components for optimal system integration and superior efficiency

Thank you very much
Q & A

