

# Your Business, Our Solutions.

Future Trends & Technologies –  
Solutions for upcoming Challenges.



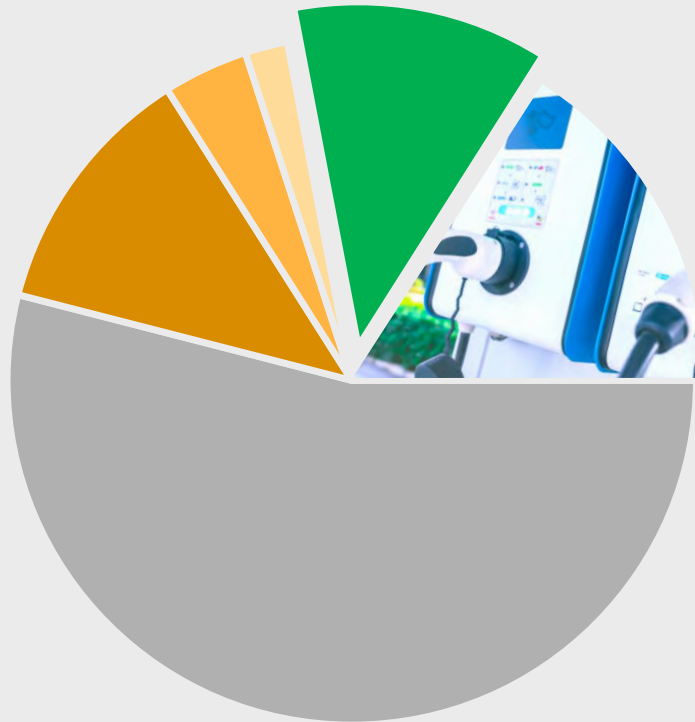
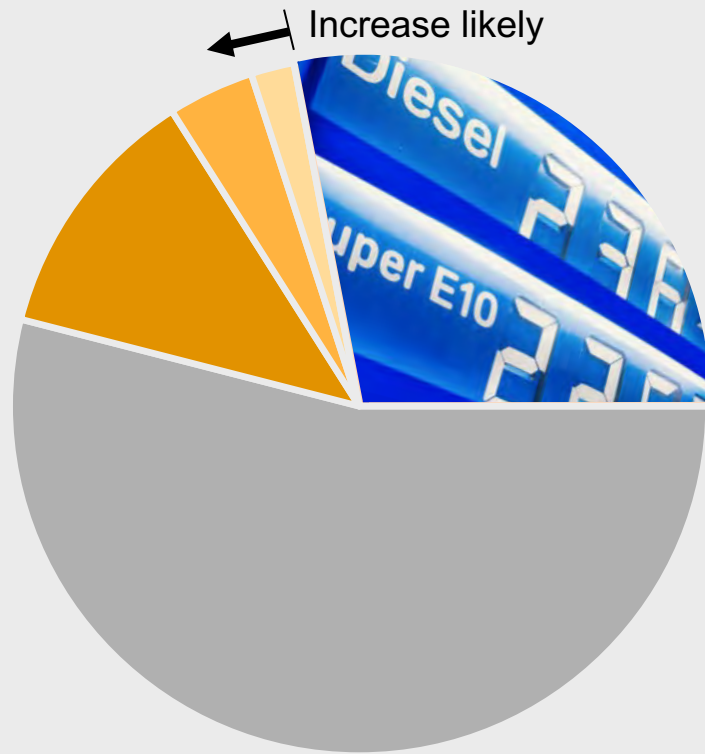
# Solutions for Future Trends





# CURRENT SITUATION

# Rising fuel costs and their influence on TCO



Driver + admin + others

Vehicle

Repair & Maintenance

Financing & Insurance

Fuel or electricity

Battery

Fuel costs will further be boosted by CO<sub>2</sub> taxation, **Investment in e-trucks (batteries) increasingly pays off**

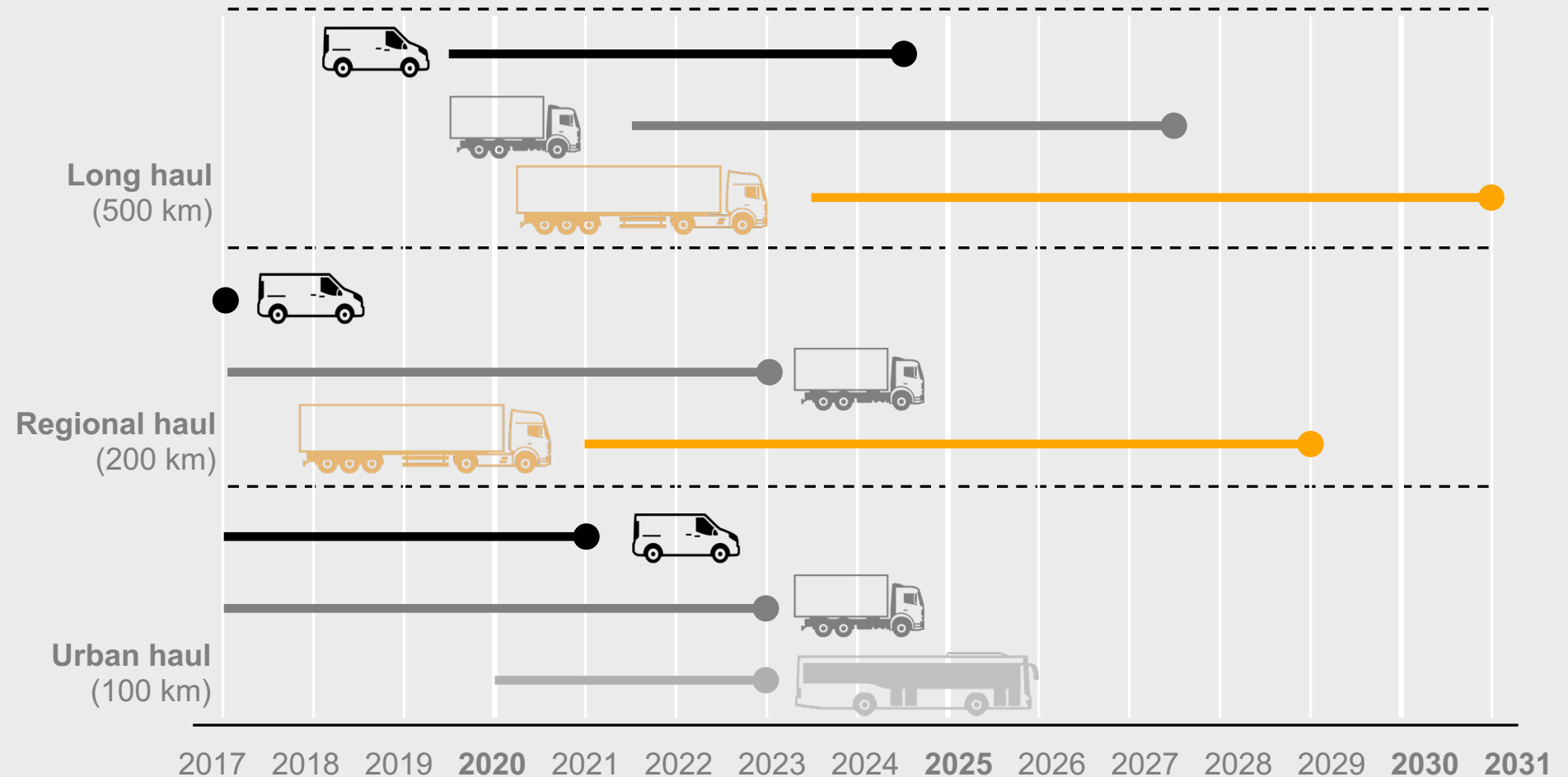
Adapted from Volvo Trucks Capital Market Days, 2020

# Impact of policy measures on TCO

TCO parity between diesel and electric trucks expected within this decade

## Cost parity timeline

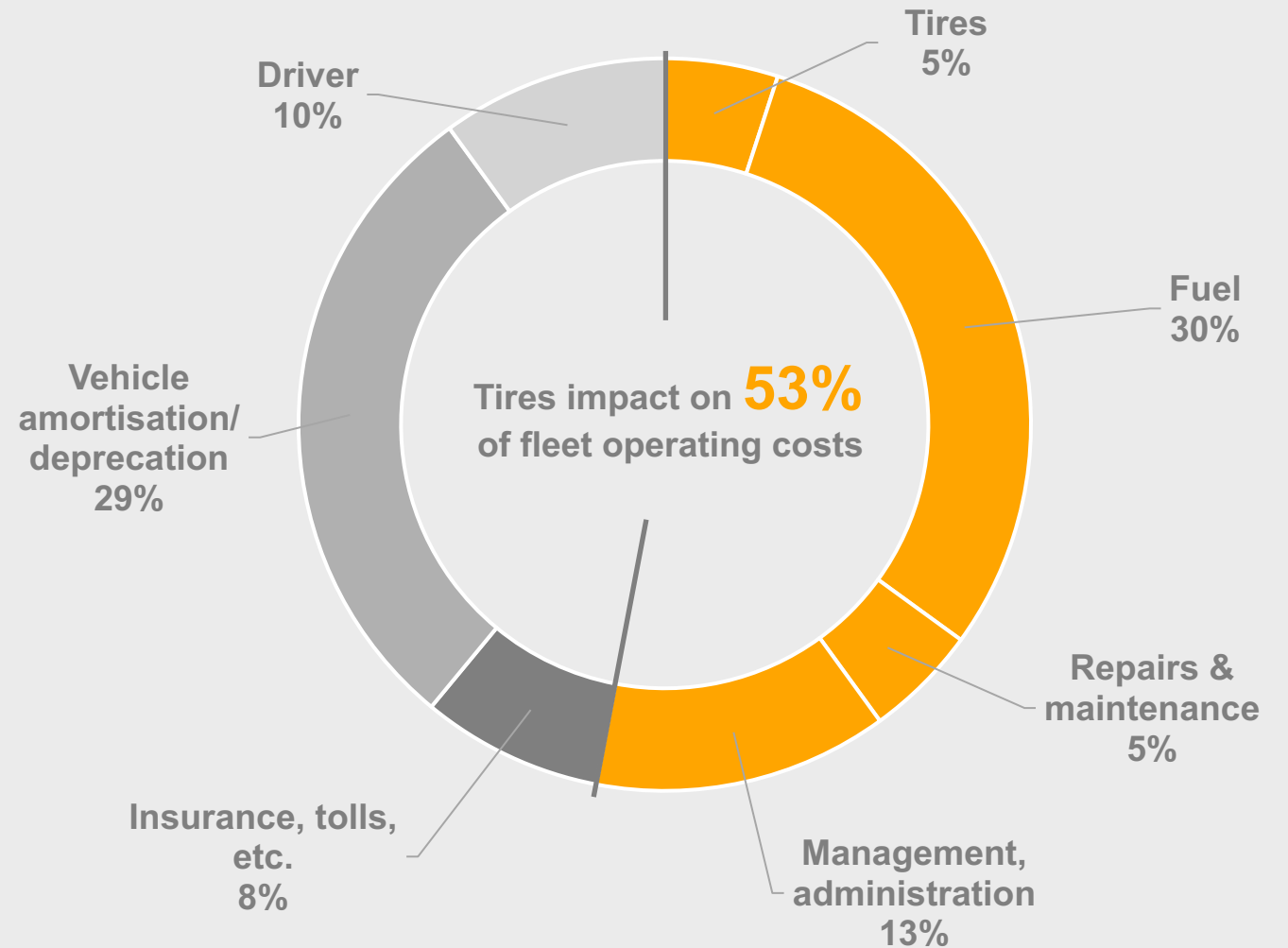
of electric vehicles with diesel in Europe.



# Influence of tires with respect to TCO

Tires account for 5% but influence 53% of a fleet's operating costs.

The **Lowest overall driving costs (LODC)** are made up of all costs influenced by tires.





# EMOBILITY AND TIRE PERFORMANCE

# What are critical conditions for tires of eVehicles?



**Direct transmission**



**Higher torque at target speed**

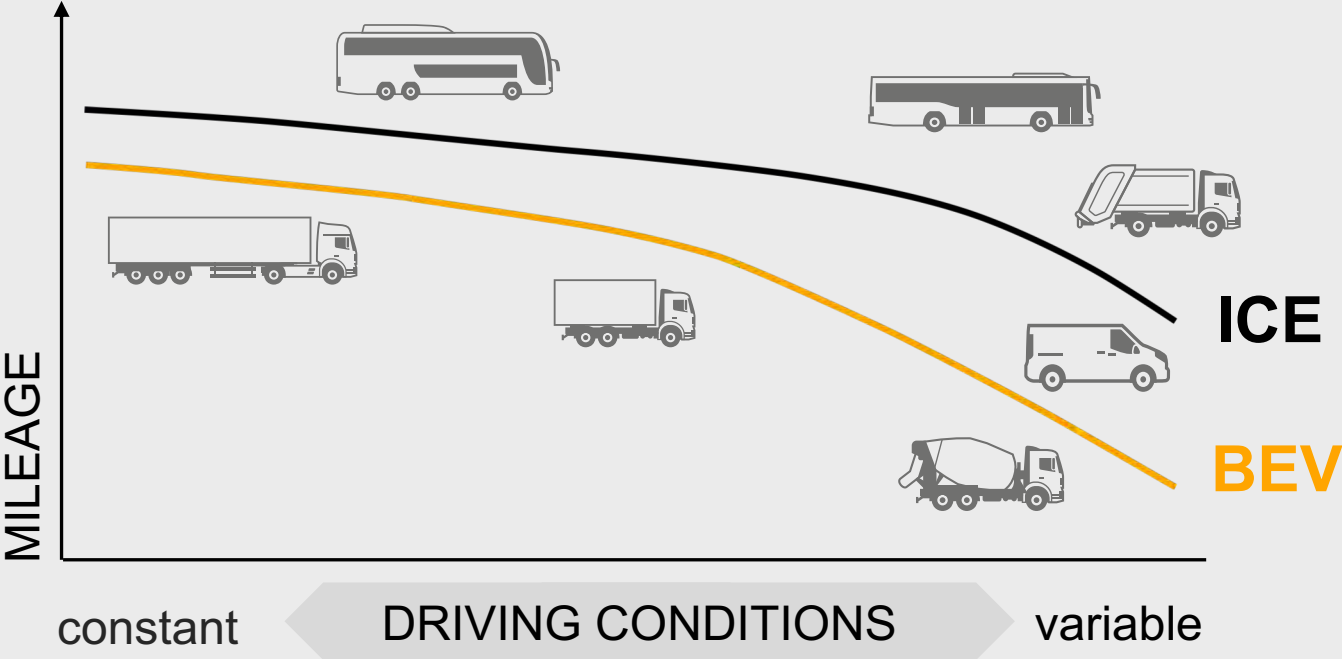


**One pedal driving (recuperation)**

**3 Characteristics** of Battery Electric Vehicles add strongest friction to tires and thus **force higher wear – and lower mileage.**



# Difference of tire performance ICE/BEV

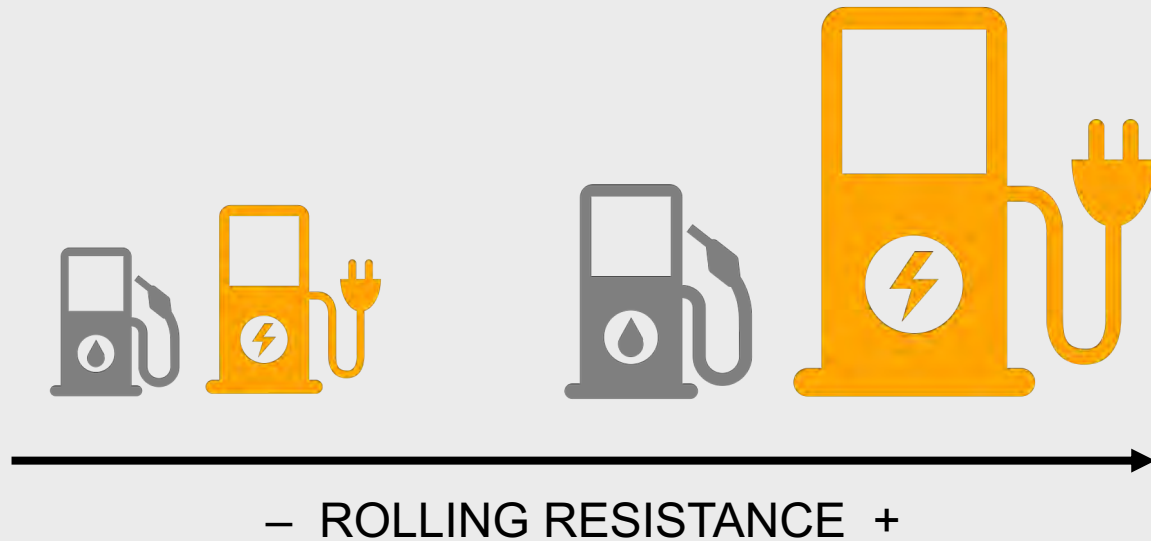


The special demands of BEVs leads to significant reduced mileage.

To compensate this, the new Hybrid HS/HD5 provides 20% more mileage.

\* BEV: battery electric vehicle  
ICE: internal combustion engines

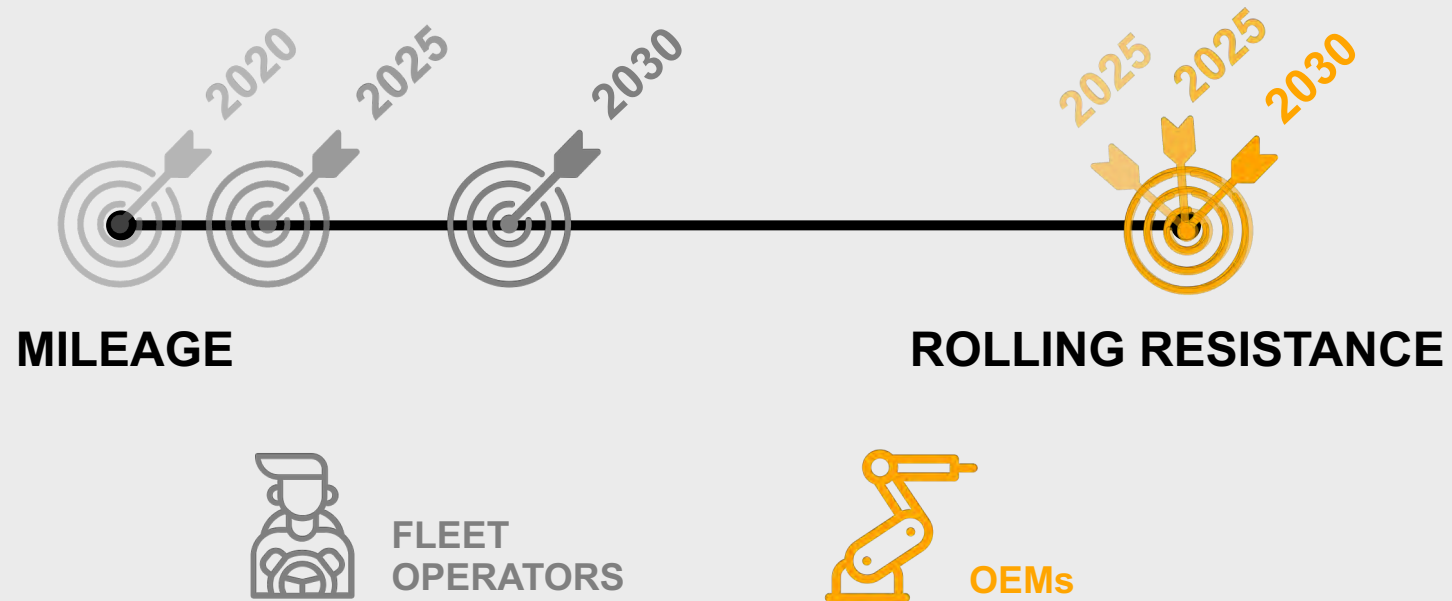
# Energy consumption comparison on electric trucks



Rolling resistance **contributes significantly stronger on energy consumption** and therefore vehicle range.

# Focus of tire characteristics for BEVs

Rolling Resistance overcomes Mileage – even for Fleet Operators



"Default" means an Event of Default (Events of Default) which is determined by the issuer of notice, the making of any determination as to whether or not a combination of any of the foregoing) is an Event of Default.

"ESG Criteria" means Environmental, Social, and Governance standards for a Company's operations for measuring results of business behaviour.

**"EU Taxonomy"** means the Taxonomy Regulation published in the Official Journal of the European Union to meet the EU's climate and energy targets for the European Green Deal.

"Event of Default" means any event or occurrence which constitutes an Event of Default (Events of Default).

# SUSTAINABILITY THROUGH EMISSION SAVINGS

# EU Taxonomy

Financial Benefits for going green



For OEM and fleet operators of zero emission vehicles a bonus in taxation can be achieved **by focusing on Rolling Resistance and Noise optimized tires.**

# Tire Requirements for OEM and Fleet Operators

Hybrid Trucks until 2025



## Rolling Resistance

Two highest populated classes



## Noise

Highest populated class

# Sustainability@Tires

Covers all phases of the value chain

**SUSTAINABLE  
MATERIALS AND  
RESPONSIBLE SOURCES**

**END OF LIFE  
RETREADING AND  
RECYCLING**



**GREEN OPERATIONS**

**LOW/ZERO  
EMISSION USE  
PHASE**

# Conclusion on tire requirements for BEVs

Performance and legislation focus



For OEMs the **main focus remains on rolling resistance**, maybe enhanced by best noise.



For fleet operators a **combination of very good mileage and optimized rolling resistance** is advisable. Best noise label needs to be considered.



# Outlook

Strong market competition and pressure on low prices for goods delivery

Massive driver shortage in Europa and US

Labor costs with high effect on TCO

Technological progress



Autonomous Trucking  
- Level 4(+) - anticipated to be optional **available in series from 2028 on**