

# Electric Vehicles – The way ahead

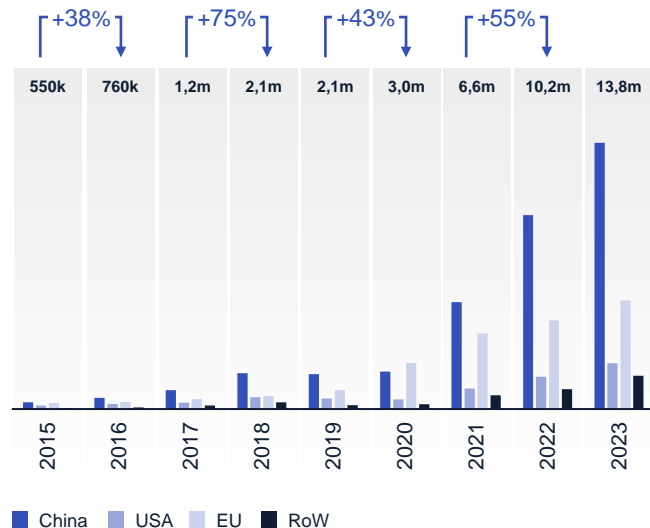
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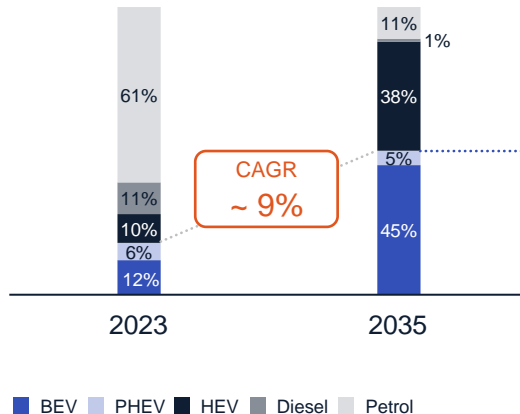
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# Sales of Electric Vehicles expected to rise significantly

## Global EV sales



## Sales mix passenger cars



## Car classification

- **Internal Combustion Engine (ICE)**  
Petrol and diesel vehicles
- **Hybrid Electric Vehicles (HEV)**  
Non plug-in: Combination of conventional ICE system with electric propulsion system

## EVs (up to 50% in 2035)



- **Battery Electric Vehicles (BEV)**  
100% electric powertrain with battery range up to 800 km
- **Plug-in Hybrid Electric Vehicles (PHEV)**  
Combination of electric and ICE powertrain with up to 80 km electric range

Our focus

- Increase is coming as all OEMs adapted their production plants (paved the way for next 10 years)
- Overall market share still relatively low (up to ~ 25–30% of car stock in most advanced countries)
- Norway as role model in Europe given government incentives + ICE sales ban in 2025

# What the mega-trends we see in the market and the implication for primary insurers are

## Current challenges

The Combined Ratio are still worse than traditional business for most Insurers.

However, we expect profitability to continue to improve

- Strategy choice – loss making portfolio used to be considered as an investment on data acquisition. Now almost completed for some of the players.
- Accumulation of data leads to better pricing
- Maturing repairing network - decreasing spare parts cost (especially battery)
- Rate sufficiency improved significantly for commercial vehicles

## Mid-term themes

The EV OEMs are penetrating the insurance value chain

- Direct sales (vs through dealership) gives OEMs much more power on the influence of insurance purchase
- EV OEMs pay more attention to data acquisition and utilisation. OEM's data on driving behaviours are particularly helpful for insurers to improve pricing model and risk selection
- Mega OEMs (E.g., Tesla & BYD) do insurance themselves – Are they enemies?

## Long-term considerations

Catch the opportunities around EVs ecosystem

- Charging piles/stations
- BESS
- Auto-piloting
- Extended warranty (battery, electric motor, control system)
- Cyber for connected cars
- Value-adding service

## Key questions/challenges to be considered by Insurers

- Strategic positioning. frontrunner, close follower, passive reactor
- Data availability – “acquiring by doing” vs external procurement (if possible?)
- Internal resources & expertise to implement solutions

What to do with key industry players, including large OEMs and battery manufacturers?  
Shall we try partnership?

Invest smartly to capture the opportunities along the EV value chain.

# Repair Cost and Challenges: EVs vs. ICE vehicles

**c30% more expensive**  
to repair

**c15% longer**  
repair times

Higher OEM parts  
utilisation - **c90%  
for EV's** vs. c65%  
for ICE vehicles



## Repair Costs of EVs

A shortage of **specialised technicians**  
and **equipment** needed due  
to **complex EV technology**

Single-country-  
dominated spare  
parts supply chain

Average **EV**  
**age c2-3 years** vs.  
**ICE c9 – 12 years**



# Munich Re set of EV solutions focuses on three main pillars



## Your challenges

### Strategy & advisory



- Challenge in starting a new book or turning around a loss-making
- Unknown risks and no data for proper assessment
- Sound domain knowledge needed to ensure appropriate product is offered to customers



## Our answer

- + Global EV experience coupled with a sound local market know-how
- + Definition or adaptation of your strategy and set up of products according to market standards
- + Development and integration of new underwriting rules

### Pricing



- Lack of sufficient exposure to apply traditional techniques (GLM, GAM...)
- New car models/brands regularly released
- Different risk patterns (frequency/severity, type of claims...)
- Increased competitiveness on EV segments

### **Bespoke Munich Re solution** (Electric Vehicle Analytics) to:

- + Better estimate the risk
- + Define your risk appetite
- + Underwrite new risks with more confidence

### Claims



- High repair cost
- Lack of know-how and data
- Substantial differences in repair processes between EV and ICE
- Strong variance of labour time (and cost) for the same repair job within different OEMs

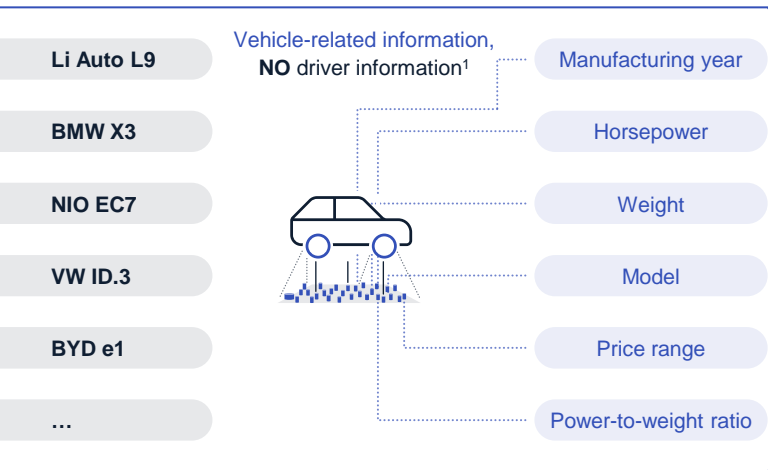
- + Expertise in implementing optimal repair processes and engaging with the relevant partners
- + Unique technical expertise in primary insurance claims to achieve EV claims operational excellence

# New vehicle pricing: You name your vehicles, we name their risk by replicating the model from existing well known ones

## All globally produced vehicle versions

Both NEVs and ICEs

Updated on a monthly basis



New vehicle risk determined based on **similar vehicle characteristics**



+



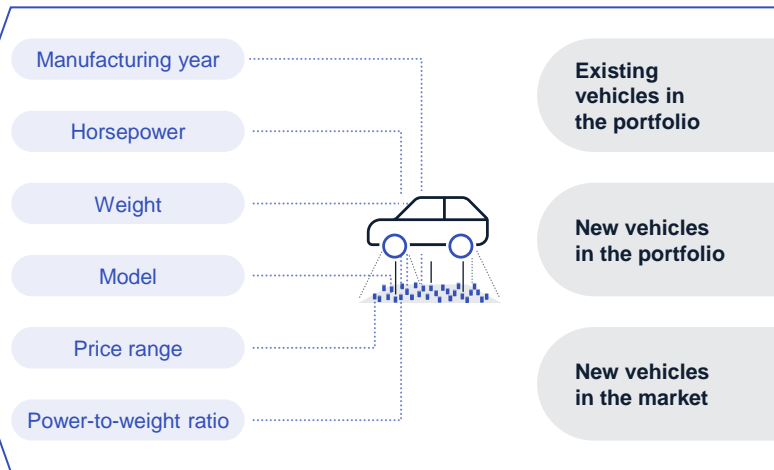
**Assumption:**  
Similar engineering characteristics share similar risk

Munich Re's global claims experience

## Cedant's current or future portfolio

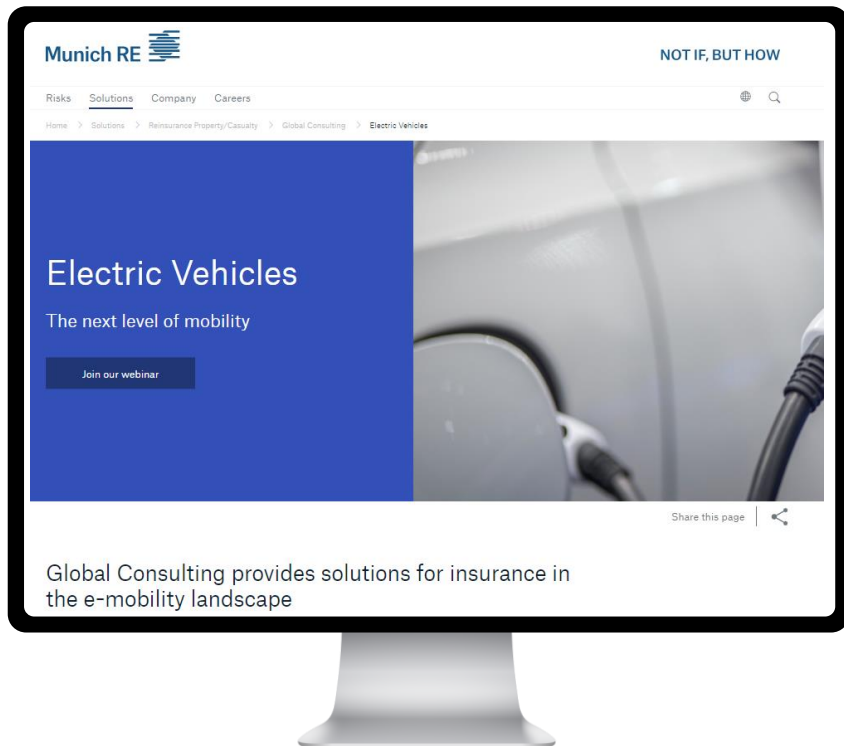
No risk data for new models

No or limited data for existing models



- + We provide risk assessment for any globally produced vehicle in client's **desired level of granularity** (MOD vs. TPL, severity vs. frequency).
- + Our vehicle analysis tool **fills client's data gap for new and existing vehicles** leveraging Munich Re's **global claims experience for many models** and **sophisticated modelling techniques**. Optionally, we can include cedant's market loss experience as well.

# Check our website



Check out our Electric Vehicle website



# Get in contact with us – our experts are happy to help you



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