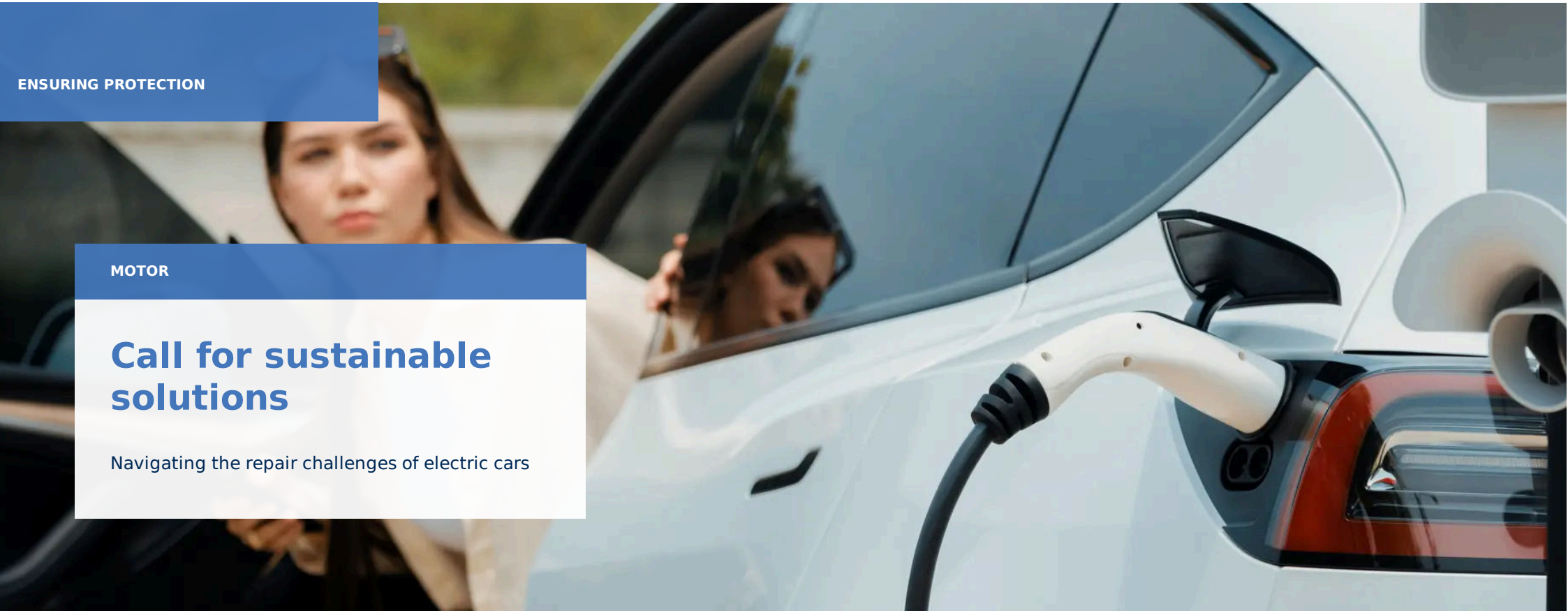

ENSURING PROTECTION

MOTOR

Call for sustainable solutions

Navigating the repair challenges of electric cars

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The insurance industry supports the transition away from internal combustion engines (ICEs). Indeed, given the challenges posed by the accelerating pace of climate change, driving cars that no longer run on fossil fuels is the only right choice for us as a society, maybe even the only possible choice. As insurers, we are taking positive action to shape this change notably by providing loss prevention advice and monitoring the effects of electric cars on motor insurance. To this end, the German Insurance Association (GDV) conducted a study that looked at two questions in particular:

1. Are damages caused by electric cars greater or lower than those caused by vehicles with internal combustion engines (ICEs)?
2. Is it more or less costly to repair electric cars, compared to repairing conventional vehicles?

The results of this study tell a complex story, part of which should make us worried about the future.

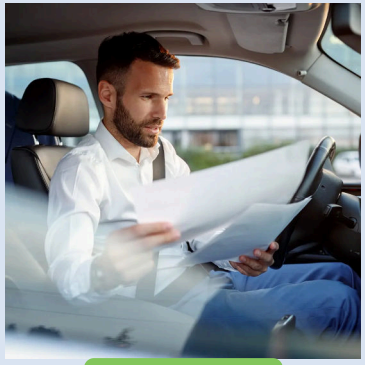
First, some good news: electric cars seem to cause less damage than conventional vehicles. Indeed, the study indicated that in motor liability insurance, electric cars are responsible for 5 to 10 per cent fewer accidents on average than comparable vehicles with internal combustion engines. The superior record of electric cars is even more striking in comprehensive insurance, where damages caused by electric vehicles are up to 20 per cent less frequent than those caused by conventional vehicles.

"Why is that so?" you ask. We are not exactly sure either, but it could be related to the fact that many electric cars today still have a limited range. As a result, drivers may be trying to preserve battery, which they can do by planning ahead or driving slowly. Slower speeds mean less damage, e.g. in the form of broken glass. In addition, many electric car owners charge their batteries at home, in their garage, where their vehicles are safe from hail damage and are less likely to be stolen or broken into.

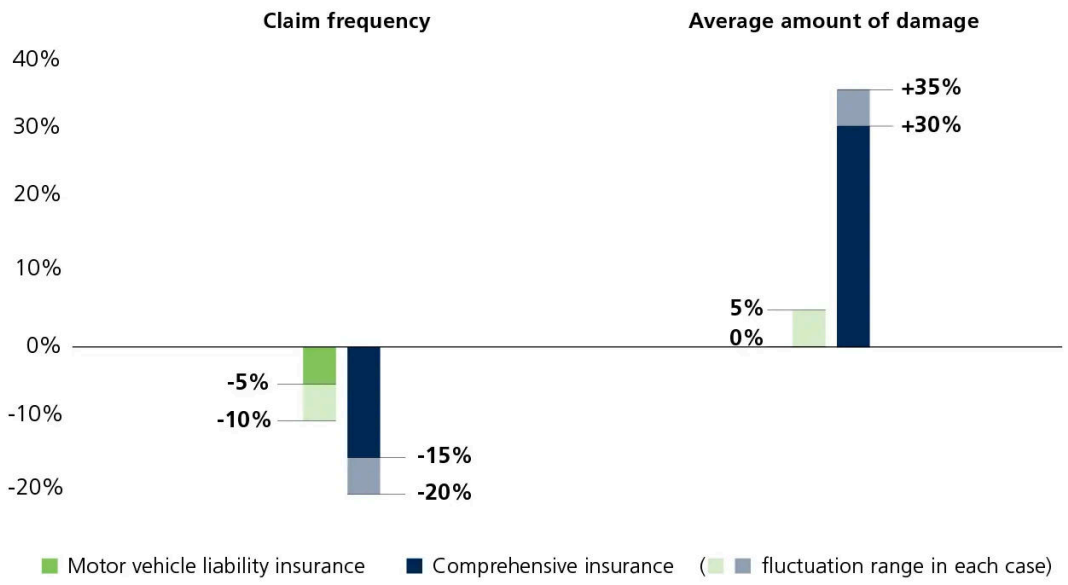
E-cars are a third more expensive to repair than comparable combustion cars

The frequency of damage is just one side of the coin. The second question is: what does it cost to repair the damage? The fact is that, in motor liability insurance, damage caused by electric cars is somewhat more expensive to repair than damage caused by comparable vehicles with internal combustion engines. We may assume that this is related primarily to the weight of the vehicle, as a vehicle with a higher mass (which is usually the case of electric cars, due to the weight of the batteries) will impact the other vehicle with greater energy in the event of an accident. But we should not forget that what we are speaking about here is damage caused to the other vehicle, which is most likely not going to be significantly affected by the vehicle’s propulsion system.

Electric cars can have higher repair costs than comparable combustion engines
Damage balances of electric cars compared to similar or identical cars with combustion engines



The GDV study



Source: GDV, own calculation of 37 model pairs

The numbers tell an even worse story in comprehensive insurance, i.e. when we look at the damage caused to the electric cars themselves. On average, repairs to electric cars cost between 30 and 35 per cent more than repairs to comparable vehicles with internal combustion engines. In other words, the cost of repairing electric cars is much higher and, in many cases, unnecessarily high.

There are four main reasons for the high cost of repairs:

1. Expensive drive batteries

Drive batteries are the most expensive components in electric cars. Replacing them is a technically demanding process. In particular, it is often not possible to repair damage to the battery case or to identify and replace individual defective battery modules. Moreover, some manufacturers will replace or repair drive batteries, not based on the actual condition of the batteries or actual documented damages, but rather on other factors, for example, airbag deployment. As a result, batteries are often replaced too soon. Another consequence of this is that the cost of replacing or repairing batteries may quickly exceed the vehicle's replacement value, often causing the vehicle to be declared a total loss even if the car is still relatively new.

What makes matters worse is that some electric car designs fail to adequately protect the drive batteries: in the undercarriage in particular, batteries can easily be damaged.

2. Fear of fire

When handling damaged electric cars, tow truck drivers, firefighters, repair shops, and even experts are often unsure about whether there is a risk of fire. All too often, this results in electric cars being placed in water tanks after an accident as a precautionary measure. In the worst case, this means that a car has to be written off entirely, even though it may only have suffered minor damage that could have been easily repaired. It also comes with high costs of disposing of the contaminated water. Moreover, repair shops are often unsure about whether a battery inspection and the extent to which placing the car in a water tank are necessary. As an alternative approach, electric cars are therefore often placed in "quarantine" after an accident. However, this quarantine phase is often unnecessarily long and implies high costs.

3. Long downtimes

Electric cars usually stay in repair shops much longer than conventional vehicles. This is due not only to the uncertainty addressed above concerning the risk of fire, and to the associated delays in repairing the vehicle, but also to the fact that it sometimes takes time to obtain replacement batteries. The bottom line is that longer downtimes mean not only a higher bill from the repair shop but also higher costs for rental cars and loss of use.

4. High cost of labour

Most repair shops still lack the know-how they need to work on electric cars, and independent repair shops are often reluctant to take the risk of repairing electric cars. As a result, those specialising in repairing electric cars can charge a high price for their expertise. In addition, the percentage of electric cars that are repaired in authorised repair shops, which tend to be more expensive than independent repair shops, is substantially higher than is the case for vehicles with conventional engines.

“Sustainability in electric cars extends beyond the road; it should encompass every aspect, including repair and maintenance, to truly make a difference for our environment.”

Manufacturers and repair shops need to keep costs in check

What can, should, and must be done to solve these problems? Insurers are doing their part by pointing out the trends relating to electric vehicles early on. Moreover, insurers in Germany incentivise manufacturers to develop models which are as cheap as possible to repair by giving such models a positive label. First and foremost, however, manufacturers and repair shops need to keep the cost of repairing electric cars in check.

Based on the findings of its study, Germany’s motor insurers wish to encourage electric car manufacturers to:

1. design their vehicles in such a way as to ensure that batteries are protected from accident damage as much as possible;
2. provide repair shops and experts with diagnostic data to enable them to accurately ascertain the condition of the battery after an accident;
3. issue repair manuals that provide financially and environmentally sustainable solutions for the repair and replacement of damaged batteries; and
4. develop precise criteria for the handling of electric cars after an accident and provide comprehensive training for repair shops, tow truck operators, and firefighters, so that cars that can still be repaired are not submerged in water tanks.

Repair shops and experts should:

1. keep expensive quarantines as short as possible by inspecting batteries quickly; and
2. prepare for the move away from vehicles with internal combustion engines by training more technicians to repair electric cars.

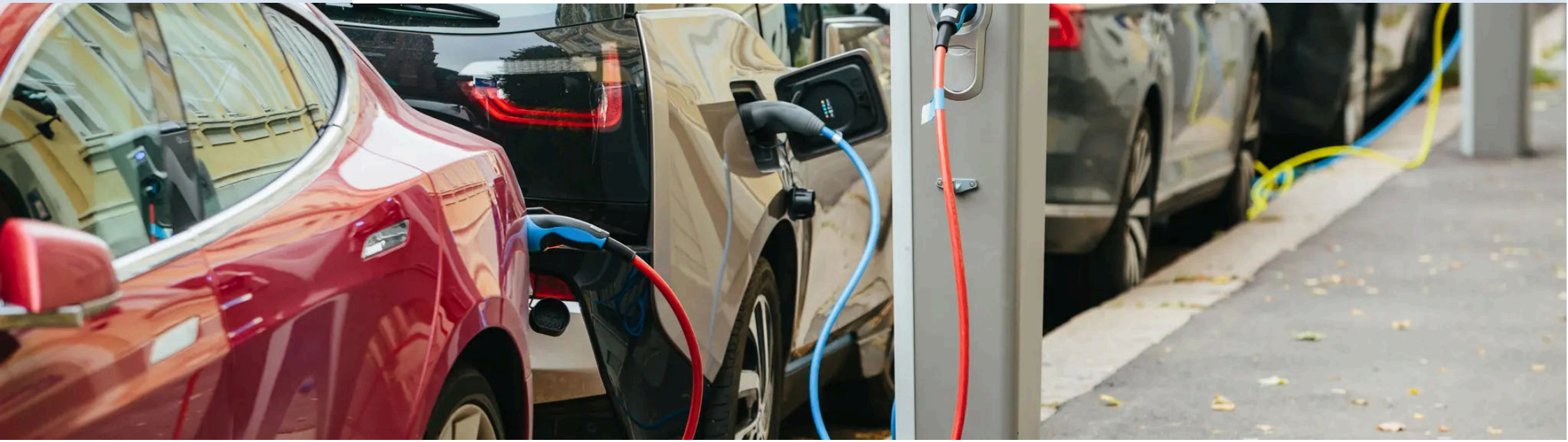
High costs jeopardise social acceptance of the clean energy revolution in transportation

Taking these steps will allow us to curb the mounting costs. This is not only desirable, but also necessary, not only from a cost perspective, but also to address other challenges associated with electric cars:

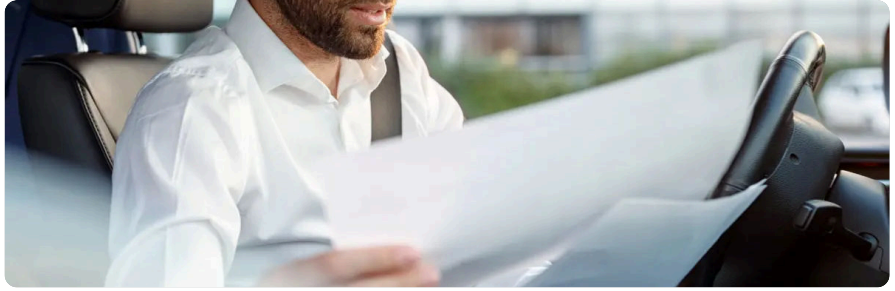
First, these measures are a condition for the social acceptance of electric vehicles. Here, it is important to keep in mind that drive batteries are the most expensive components of electric cars, and it is because of them that electric cars currently cost more than conventional vehicles. If consumers also have to reckon with the fact that each bill from the repair shop will be around one-third higher with electric cars and that their insurance premiums may eventually go up as well, these considerations may pose an obstacle to acquiring an electric car.

Second, how electric vehicle batteries are handled today is problematic not only financially, but also for environmental reasons. Many valuable raw materials are used to make electric car batteries: lithium, cobalt and rare earth elements like neodymium are non-renewable, costly, and their extraction causes damage to the environment. As a result, we have every reason to be as frugal as possible with these resources.

There are many reasons why it is unacceptable to treat electric cars and batteries like something which can simply be thrown away after an accident, as is currently often the case. As a society, we cannot afford to be this frivolous, if we are serious about applying the term “clean” or “green” to the ongoing energy revolution in transportation.



The GDV study

The GDV study compared 37 pairs of electric cars and cars with internal combustion engines that were as similar to each other as possible. In some cases,

the models were of the same design, for example the electric Smart with the Smart or the electric Golf VII with the Golf VII. It was more challenging for other models. In such cases, the GDV experts found suitable peer vehicles. The experts then evaluated how the frequency and amount of claims in both motor vehicle liability and comprehensive insurance developed over three years