

# *Expert Views*

## **Electric Vehicles**

Opportunities and challenges  
for (re)insurers

**SCOR**

The Art & Science of Risk

**June 2024**



## Introduction

Electric Vehicles (or EVs) are an undeniable reality: they have become a frequent sight in cities across the world, feature heavily in advertising and popular culture, and have gained a foothold among consumers in several markets. More than half of car owners interviewed for a recent study say they would like to purchase an EV as their next car<sup>1</sup>.

By 2030, EVs are expected to make up to 44% of car sales worldwide<sup>2</sup>, with some estimates projecting sales as high as 60% for the same time period<sup>3</sup>. In some regions, measures such as a ban on sales of new Internal Combustion Engine (or ICE) vehicles are being rolled-out or discussed<sup>4</sup>, with implementation timelines set for the next decade. In others, programs to encourage EVs are already in place. However, EV adoption is not uniform across the world, and some clear pioneer markets have emerged, as we will discover.

In this paper we explore the implications for (re)insurers as EVs become the new standard for mobility. What are the main considerations when it comes to insuring EVs compared to ICE vehicles? What do insurers need to consider when adapting their offer to consumer demand? What are the knowledge gaps that need to be closed? What opportunities exist for motor insurers in this landscape and how can they better prepare to seize them?

## Electric vehicle market snapshot

Private passenger car is the most prevalent use of EVs, and what this paper focuses on, but electrification is spreading rapidly to all segments of transport: two- and three-wheelers, buses, micro-mobility, and freight transport. This rapid growth is in large part due to the beneficial impact that a switch to electric vehicles will have on climate change.

On average, hybrid electric vehicles consume around one-third less fuel than conventional gasoline internal combustion engine vehicles, offering a cost-effective way to considerably improve the fuel economy of conventional vehicles. Battery electric vehicles achieve efficiencies two to four times greater than internal combustion engine vehicles, with zero tailpipe CO<sub>2</sub> or pollutant emissions. In 2019, only small shares of the light-duty vehicle market had been claimed by hybrid (3%), plug-in hybrid (1%) and battery electric vehicles (1%), so they had little impact on overall emissions performance. But this is likely to change over the current decade<sup>5</sup>.

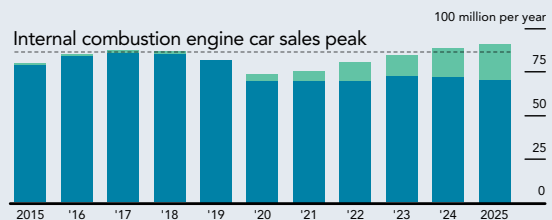
Sales of ICE vehicles appear to have reached their peak and are expected to steadily decline: sales in 2026 are expected in to be 39% lower than their 2017 peak, with the combustion vehicle fleet reaching its peak in 2025<sup>6</sup>.

Figure 1: Electric Vehicle - Sales outlook to 2025

### Peak ICE is behind us

Global passenger vehicle sales by powertrain

■ Internal combustion ■ Electric



Note: Electric vehicles include plug-in hybrid vehicles

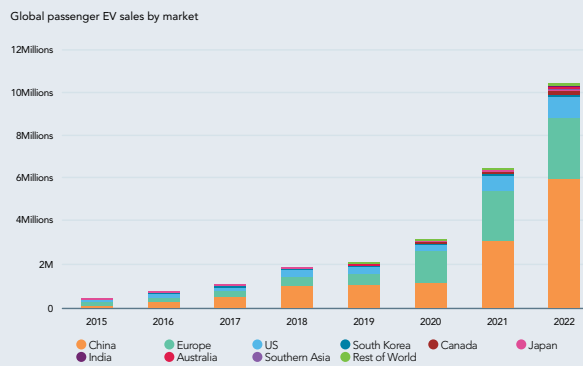
Source: BloombergNEF Long-Term electric Vehicle Outlook 2022



The EV share of overall new car sales has risen from 5% in 2020 to 14% in 2022<sup>7</sup>. EVs are due to reach 44% of global passenger vehicle sales by 2030 and 75% by 2040 according to some estimations<sup>8</sup>, with sales growth in the late 2030s slowing down slightly in the main EV markets like Europe, China, and the US as they begin to saturate. The speed of uptake and support in secondary and tertiary markets will determine the depth of EV reach, but it is clear that a large part of motor insurers' portfolios worldwide will have to include them.

better batteries (closing the gap of initial upfront investment when compared to ICE), which are less reliant on rare materials (reducing some of the supply chain bottleneck issues seen in recent years) and with longer ranges that allow drivers to go further before needing to recharge<sup>9</sup>. The balance between technological advancement, cost and customer confidence should not be understated as a driver of market growth, although the fast-evolving technology could also be a concern for some consumers who see EVs depreciating faster than ICE vehicles, and are waiting for technology to stabilize before investing in an EV.

**Figure 2: Electric Vehicle - Sales by country 2015-2022**



Source: BloombergNEF

Let's analyse some of the factors that influence EV adoption across markets. Firstly, electrifying road transport can help to reduce greenhouse gas emissions and dependence on fossil fuels. So, it's no surprise that public policy support has been plentiful in countries where one or both of these are strategic goals. Public policy support can take the form of infrastructure investments, subsidies to consumers and manufacturers, and regulation to promote EV and/or discourage ICE. When it is present, adoption grows, as can be seen in the two case studies presented here.

Secondly, evolving technology has reduced some of the obstacles of the past. For example, it has led to the development of cheaper and

Consumer support and comfort is one key area where insurers can make a difference. Adding services to policies, such as apps that help policyholders to keep track of their driving style and maximize the charge range of their vehicle, or that simply provide tips on how to safely drive an electric car, can motivate the switch from ICE to EV. Further support, such as help installing a home charger, roadside assistance to quickly recharge in case of need, and other options that will be explored later in a dedicated section, can make all the difference to a driver's confidence.

Nonetheless, mass adoption of EVs will still require other factors such as the deployment of local charging infrastructure, accessible, reliable energy grids, and global prices that are equivalent, or at least closer, to comparable ICE models.



## Case study: Norway

- The Norwegian Parliament passed an initiative in 2017 stating that all new cars sold by 2025 should be zero-emission (electric or hydrogen). In the first nine months of 2023, 90.4% of new cars sold in Norway were electric or hybrid.
- The speed of the transition is closely related to policy instruments and a wide range of incentives (free or reduced tolls, free or reduced ferry tickets, no purchase or import tax, free city parking, the right to use bus and taxi lanes on certain roads).
- A network of fast charging stations has been established on all main roads in Norway. For people living in apartment buildings, a "charging right" ensures that residents have access to EV charging infrastructure, even if their landlords are not supportive.

## Case study: China

- The average retail price of an electric car in China is less than half the price seen in both Europe and the USA. The cheapest electric vehicle costs 8% less than the cheapest ICE equivalent (in Europe it would be 92% more expensive and, in the USA, 146%).
- The electric car industry has become increasingly important in supporting the economy with green jobs and technological innovation.
- China's emerging OEMs have acquired learnings and insights from legacy carmakers, and this knowledge accompanied by the strong commitment from the central government has supported China's ability to develop quality, affordable EVs including batteries.

## Considerations when insuring EVs vs ICE vehicles: how different are they really?

As we can gather from the previous section, the level of urgency for insurers to understand and incorporate EVs in their portfolio varies greatly, depending on where they are based and on the fleet that both exists and is predicted to exist in each market. Preparation is key for (re)insurers everywhere, because sooner or later EVs will become significant in most motor portfolios.

In general terms, the coverage that an ICE vehicle requires and the coverage that an EV requires do not differ by much. There is one key addition to consider: extra coverage to protect charging cables, charging stations and batteries. Standard





products like Motor Third Party Liability, Motor Own Damage and Motor Extended Warranty are applicable to both types of vehicles with minor considerations.

EVs offer good connectivity, as they are continuously creating datapoints that insurers can access and use to design specific products. New generation telematics and EVs go hand in hand and can be an opportunity for insurers to seize. Some of the concerns customers have when considering making the switch to an EV can be eased by a well-designed insurance customer journey, supported by telematics, dedicated add-on services, and education, as we will explore in the next section.

One common worry insurers share with regard to the ICE vs EV question is around the claims process, particularly the repair piece of the puzzle.



Figure 3: Comparison available products ICE / EVs: a view across what SCOR can support today

	 Internal Combustion Private	 Internal Combustion Commercial	 Electric Private	 Electric Commercial
MTPL*1	Cover as per Law			
MOD*2	Covers the damage to own vehicle / Kasko	With aggregate deductibles	MOD + extra cover for cables, charging station	With aggregate deductibles
MEW*3	Covers the electric, mechanic breakdown		Same cover but less mechanical components present	
Battery performance	Covers battery failure for a time horizon to be defined by policy, subject to internal discussion and external advice on State of Health			
Services	Extra services unrelated to insurance to enrich the policy		Plus, EV specific services on client need basis (emergency charge, access to charging networks, deals on home charger, EV driving advice)	
Fleet Management*4			Operations to control the fleet at distance	I.E: Efficiency, maintenance, drivers

\*1 Motor 3rd Party Liability    \*3 Motor Extended Warrant    ■ Product development needed  
 \*2 Motor Own Damage        \*4 Managed by external provider

Source: Internal SCOR analysis

A recent study<sup>10</sup> conducted in the United Kingdom has in fact identified issues (EV damage can be ~25.5% more expensive than its ICE equivalent and can take ~14% longer to repair according to this sample), but has also introduced the idea that this gap could be bridged by training and upskilling repair shop workers, which would increase repair capacity. A lack of understanding surrounding EVs means that vehicles involved in accidents are often considered irreparable, resulting in premature write-offs. For example, due to lack of data around battery damage, there is often no way for mechanics to assess or repair slightly damaged batteries, leading insurers to write off vehicles that are almost new. To properly cover the risk, insurers will need to collect and analyse data surrounding battery age, health, and condition in order to prevent major losses due to high severity claims<sup>11</sup>.

For example, recent research<sup>12</sup> suggests that batteries have a longer lifespan than initially predicted. The study took real-world telematics data from 15,000 EVs of various makes and models, taking daily readings of the charging activity, battery percentage, and estimated range. Out of the sample, only 5% had to be replaced. It was found that most drivers were not replacing batteries even after their warranties had expired, approximately a decade after purchase, and that a battery replacement could coincide with a natural time to consider buying a new vehicle. More research will be needed to determine if insurability can be extended.

Another frequently mentioned concern among motor insurers is higher fire risk for EVs. However, there is no evidence that fire risk is higher for EVs than ICE vehicles. Fires, when they do occur,



do not appear to cause significant damage to surrounding cars and property, though they do require a unique approach to prevent reignition<sup>13</sup>. A report by the Swedish Civil Contingencies Agency established that ICE vehicles were 20 times more likely to catch fire than EVs in Sweden. Sweden recorded 106 fires in various electrified modes of transport in 2022. More than half were in e-scooters (38) and e-bikes (20). Out of Sweden's 611,000 electric vehicles, 23 fires (0.004%) were reported, whereas the fleet of 4.4 million petrol and diesel vehicles recorded 3,400 fires (0.08%)<sup>14</sup>.

A question mark for the future is related to the residual value of cars and the growth of a second-hand EV market. Insurers are reluctant to provide residual value insurance, performance guarantees and some extended warranty products, due to uncertainties around new technology and volatility in the market price of second-hand EVs, even though consumer demand is growing for these types of products<sup>15</sup>.

Collaboration between insurers, car manufacturers, battery manufacturers, repair shops and supply chain providers will be necessary for safe and efficient vehicle repairs, valuation, and extended lifecycles.

## Insurance can help ease drivers' transition from ICE to EV

As mentioned before, insurers can play a significant role in policyholders' transition to EV driving. In this section, we will explore some areas of concern for drivers and highlight opportunities for insurers to promote engagement, minimise uneasiness, and potentially reduce preventable claims. Making the switch from ICE to EV can be nerve-racking at first. Even for automatic car drivers the feeling can be distinctly different, just like the reaction times of the engine. Oftentimes, accidents happen in the first year while drivers get used to their new car.



## FOCUS ON BATTERIES

- Batteries within EVs are expected to be functional for 100,000 to 200,000 miles, with most manufacturers providing a warranty for 8 years or 100,000 miles.
- Manufacturer guarantee does not cover damage from collisions or wear and tear.
- Batteries are the most expensive part of the car. The insurance challenge is to cover the rest of the risk while keeping the battery, instead of writing off the whole vehicle.
- Driving range has increased with battery technology advances, and most models are reaching at least 250 miles (almost 500 miles at the top of the range).
- Further research is needed to allow batteries to be repaired, salvaged, or recycled. Upskilling of repair specialists is also needed as EVs become more popular.
- Sodium-ion batteries (SIBs) offer several advantages over their lithium counterparts. Sodium is more abundant than lithium, making it easier and cheaper to obtain. Additionally, SIBs do not require cobalt, copper, or nickel, which contributes to their sustainability. However, SIBs still face challenges related to energy density (i.e. shorter autonomy). As technology evolves, sodium-ion batteries may become a viable alternative for the mass production of electric vehicles.



One of the main concerns that potential EV drivers have expressed is so-called “range anxiety”: the fear that the car will run out of battery before reaching the next charging station. Research<sup>16</sup> has found that a large number of distress calls are actually made for cars that are low in battery, rather than out of battery. In a country like Norway, where EV adoption is widespread, calls for completely dead batteries make up just 1% of all EV breakdown calls. In the United Kingdom, due to its growing network of charging stations, this percentage has fallen from 8% in 2019 to 2.1% in 2023. These calls are preventable with some planning on the driver’s part. Nonetheless, the anxiety among consumers persists.

Insurers can help ease this specific worry by adding to their policies a set of services designed to support drivers. Firstly, through a dedicated training offer, coaching and in-app tips, they can make sure that drivers have all the information they need to better gauge when, where, and how to charge their batteries. A set of clearly advertised roadside assistance options within the policy, including quick recharge in case of need, can help to reduce range anxiety and make drivers more comfortable with longer distances. Another service that may be appreciated by anxious drivers is eco-driving, which can help policyholders to extend the range of their EV by adopting energy-preserving driving habits and following personalised advice delivered via connected insurance initiatives.

One piece of the puzzle that can be a concern for first-time EV drivers is the initial set-up, particularly the installation of the home charger: an unfamiliar feature for ICE drivers. Support can be provided at this stage by insurers as part of a full EV service package, with access to advice, experts to install the charger, and coverage for the station and charging cables. Some home insurance policies would cover damage to the charger resulting from damage to the building (fire, flood) but would not be responsible for breakdown or accidental damage.

This coverage can be offered as an add-on to the EV policy, along with coverage for the charging cables (which can be a target for theft in some cities<sup>17</sup>).

## Conclusion

(Re)insurers need to be ready to adapt to a world where most cars are electric: EVs are here to stay. As consumer confidence grows, so will the market penetration of EVs, supported by friendly regulation, collective emission reduction efforts and local infrastructure development. EVs are currently the most promising technology to replace ICE vehicles, however charging infrastructure still needs to expand substantially to meet the projected growth in demand.

Insurers have an opportunity to enrich their motor offer, address customers’ concerns and create loyalty and engagement.

Nevertheless, knowledge gaps still persist, and closing them will require cross-industry collaboration. More research is needed in a number of areas: to smooth out claims, avoid writing cars off completely, preserve battery life, encourage a flourishing second-hand market, and reduce waste.

## References

- 1 EY Mobility Consumer Index 2022 study, May 2022.
- 2 Electric Vehicle Outlook 2023 – BloombergNEF.
- 3 Global EV Outlook 2023, International Energy Agency, April 2023.
- 4 UK: “the government-mandated steps towards 100% electric cars remained unchanged – 22% of all new sales must be electric next year, 25% in 2025, 80% by 2030 and 100% by 2035.” Quote from Forbes article <https://www.forbes.com/sites/neilwinton/2023/10/22/europes-ice-ban-is-years-away-but-the-pain-starts-in-2024/?sh=20992e76409e>. Published 22/10/2023. Retrieved 04/12/2023.  
EU: ‘The 2035 ban on the sale of internal-combustion vehicles in Europe is still in effect, despite an exception made for e-fuels, a move pushed by Germany.’ Quote from Autoweek Article <https://www.autoweek.com/news/a45697251/europe-2035-ice-ban-holding/>. Published 31/10/2023. Retrieved 04/12/2023.
- 5 Executive Summary- Global Fuel Economy Initiative – Analysis IEA
- 6 Electric Vehicle Outlook 2023 – BloombergNEF.
- 7 Global EV Outlook 2023, International Energy Agency, April 2023.
- 8 Electric Vehicle Outlook 2023 – BloombergNEF.
- 9 Are UK Insurers ready for the Electric Vehicle takeover?, summary of LinkedIn article by Ben Wallner, Data Scientist at Pebbles Financial Solutions, published 03/10/2023, retrieved 05/12/2023. <https://www.linkedin.com/pulse/uk-insurers-ready-electric-vehicle-takeover-part-1-ben-wallner/>
- 10 Impact of BEV Adoption on repair and insurance sector – UK Market. Thatcham research, June 2023.
- 11 Are UK Insurers ready for the Electric Vehicle takeover? Summary of LinkedIn article by Ben Wallner, Data Scientist at Pebbles Financial Solutions, published 03/10/2023, retrieved 05/12/2023 <https://www.linkedin.com/pulse/uk-insurers-ready-electric-vehicle-takeover-part-1-ben-wallner/>
- 12 How Long Do EV Batteries Last? New Research Suggests It's Way Longer Than You Might Think. PCmag article by Emily Dreibelbis, published 27/10/2023, retrieved 30/11/2023.
- 13 Are electric cars a major fire risk? Insurance Business Magazine, published 14/09/2023, retrieved 07/12/2023.
- 14 Electric vehicle insurance premium increases 'based on bad data', Fleet News, published 08/11/2023, retrieved 01/12/2023
- 15 AON Practitioner Insights 2023.
- 16 Changing anxiety doesn't match reality – article in Fleet News 7 June 2023 highlighting UK research by the AA.
- 17 Thieves now targeting one pricey electric car part, NBC Los Angeles, published 13/07/2023, retrieved 14/12/2023. <https://www.nbclosangeles.com/investigations/thieves-now-targeting-one-pricey-electric-car-part/3187391/>  
Electric car owners warned of thieves stealing charging cables worth £700, Express, published 18/04/2023, retrieved 14/12/2023. <https://www.express.co.uk/life-style/cars/1758387/electric-car-charging-cables-theft-warning>



This article was written by:



**Graham JOHNSTON**  
Product and Innovation Manager  
gjohnston@scor.com

**Contributor:**

Romain BOURGEOIS  
Head of P&C Data Analytics Solutions  
rbourgeois@scor.com

**Please feel free to visit us at [scor.com](https://www.scor.com)**

SCOR SE  
5 avenue Kléber - 75795 PARIS Cedex 16  
France

Certified with **wiztrust**

All content published by the SCOR group since January 1, 2023, is certified with Wiztrust.  
You can check the authenticity of this content at [wiztrust.com](https://www.wiztrust.com).

**SCOR**  
The Art & Science of Risk

**June 2024**

No part of this publication may be reproduced in any form without the prior permission of the publisher. SCOR has made all reasonable efforts to ensure that information provided through its publications is accurate at the time of inclusion and accepts no liability for inaccuracies or omissions. Photo credit: © Adobe Stock