Generational 2025 Battery Performance Index

Industry Benchmark Report

GENERATIONAL+

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> “Potential buyers of used electric cars and vans understandably place a huge emphasis on battery health. They need to trust that this fundamental and expensive vehicle component will meet their needs without any unpleasant surprises. Transparency will prove crucial in building future consumer confidence and dispelling the many misconceptions that have gained currency around EV batteries.”

Philip Nothard
Chair, Vehicle Remarketing Association

Executive summary

Generational is a UK-based innovator in electric vehicle battery testing solutions. Its mission is to support a healthy used EV market by creating transparency into battery condition – helping businesses trade more effectively and helping buyers choose a used EV with confidence.

The following report is the largest analysis of EV battery condition undertaken in the UK to-date. Drawing on that expansive dataset, the following are the key takeaways that Generational has observed:

1 Battery degradation is not the systemic risk it was once assumed to be. Real-world data shows that most EV batteries comfortably exceed warranty thresholds, even at higher ages and mileages.

2 Uncertainty, not underlying longevity, is now the primary constraint on used EV values. Where battery condition is opaque, worst-case assumptions dominate sales performance.

3 Age and mileage alone are no longer sufficient valuation proxies. Battery condition is emerging as the defining determinant of long-term vehicle value, performance and risk.

4 Transparent battery data enables better decisions across the value chain. From underwriting and warranty design to fleet management and remarketing, verified battery condition supports more accurate outcomes.

5 Battery testing is becoming essential market infrastructure. Like mileage verification or service history, battery condition transparency is fast becoming an expected part of the buying process rather than an optional reassurance.

Introduction

The industry context: unlocking sustainable used EV market growth

The used electric vehicle market is entering a critical phase. As volumes increase and EVs continue their shift into the mainstream, transparency into battery condition is emerging as one of the biggest enablers to sustainable growth. Unlike internal combustion vehicles, where age and mileage provide reliable indicators of value, an electric vehicle's long-term performance, residual value and risk profile are fundamentally shaped by the condition of the battery.

As more EVs return from leases, fleets and part-exchanges, variables in battery degradation, driven by usage and charging behaviour, are becoming impossible to assess through traditional appraisal methods alone. Clear visibility provides the objective insights and confidence needed for retailers to accurately determine valuation risk; leasing companies and financiers to reliably forecast residual values; and customers to gain foresight into longevity and future costs.

Battery testing is therefore becoming important infrastructure for the used EV market, laying a stable foundation for informed decisions to ensure that market growth is both rapid and sustainable.

The insight: capitalising on a positive outlook for EV battery health

At this critical juncture for the sector, Generational has conducted the UK's largest battery health study, analysing over 8,000 electric passenger vehicles and Light Commercial Vehicles (LCVs) across all major manufacturers, age groups and mileage ranges, all tested in 2025.

The results confirm that overall battery performance significantly exceeds stakeholder and consumer expectations, though individual results vary based on how vehicles have been used.

This report will be published annually as a recurring reference for industry participants - reflecting the currents that are shaping this rapidly evolving market, and providing essential insights for stakeholders looking for the tools needed to gain a competitive edge in 2026.

Why does State of Health matter?

> *The battery health of used EVs remains a key concern for most EV buyers, and with battery health normally much better than they are expecting, providing a battery health certificate for the cars they are looking at is the very best way to allay their concerns. Battery testing is very important in building broader consumer confidence in EVs, as well as being a critical element in successful EV retailing."*

drive green

Richard Norris
Managing Director, Drive Green

State of Health (SoH) is the metric used to describe the condition of a battery relative to its original capacity when new.

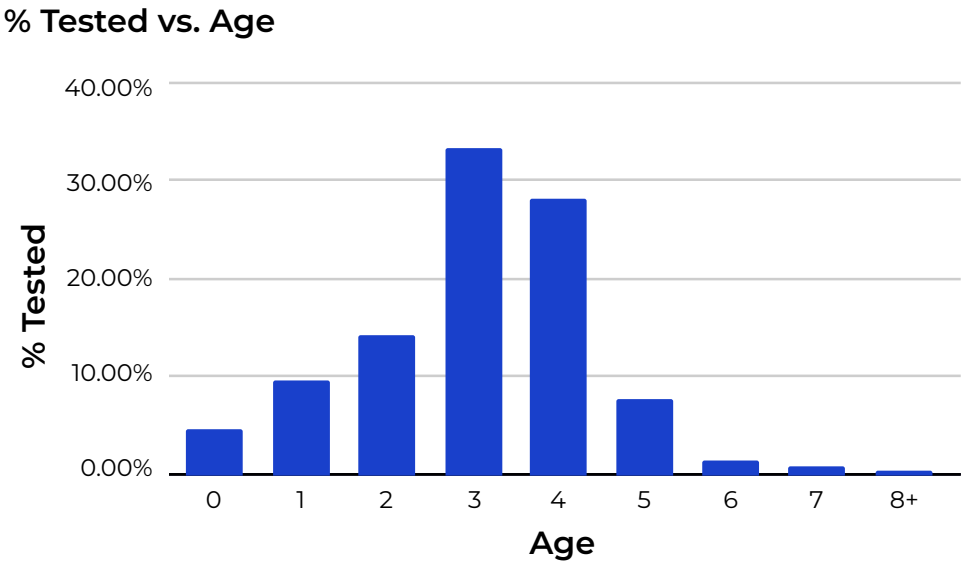
SoH = (Current usable capacity ÷ Original capacity) × 100

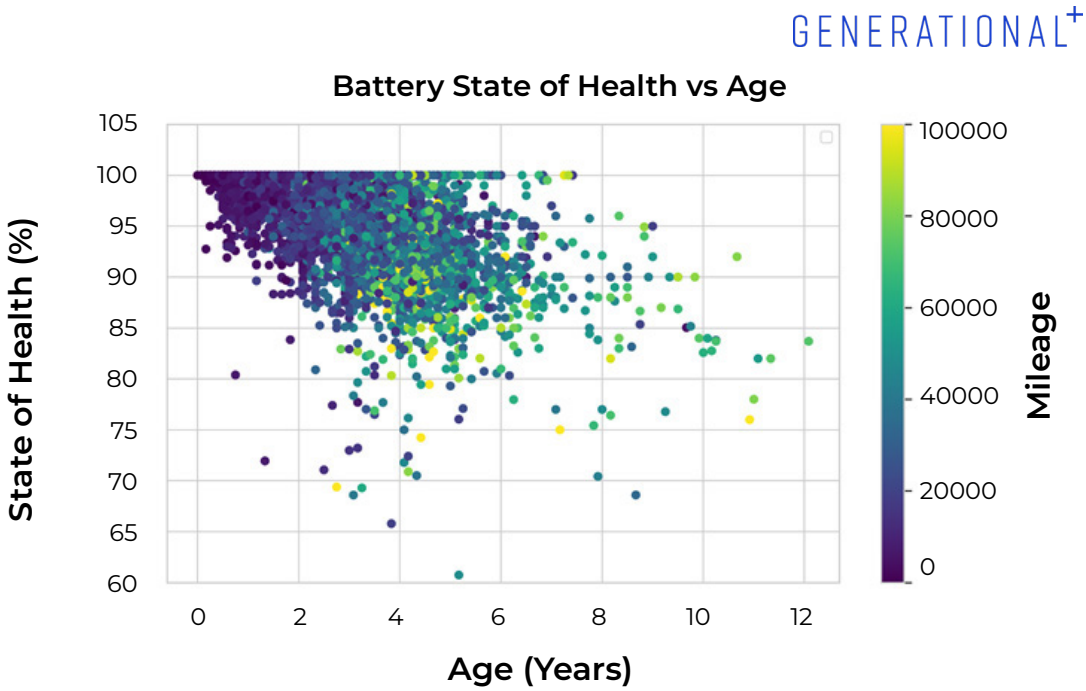
SoH matters because it indicates the battery's condition and remaining lifespan, and directly impacts the vehicle's driving range. SoH currently plays an important role for consumer trust, warranties, residual values and sales. Batteries below 70% SoH are unfit for retail but suitable for 'second-life' applications.

The Generational study

Generational examined over 8,000 of its customers' battery health assessments conducted in 2025.

- **Vehicle age range:** 0-12 years (2013-2025 model years)
- **Mileage range:** 0-160,000+ miles
- **Manufacturer diversity:** 36 different vehicle-makes included
- **Vehicle types:** Battery Electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs)
- **Vehicle segments:** Passenger cars and LCVs





Key findings

Across all vehicles included in the 2025 data, average battery health sits at a robust 95.15%. Even vehicles between 8 and 9 years old retain a healthy 85% median capacity, comfortably above the 70% mark where most OEM warranties are triggered.

High-mileage vehicles – those with 100,000+ miles on the clock – frequently return a result of between 88% and 95% battery health, highlighting that mileage alone is not a reliable predictor of battery condition. However, notably, individual results vary across make and model, which is precisely why testing remains essential for accurate assessment.

So what does this mean?

1

For consumers:

In most cases, the battery is likely to exceed the lifespan of the vehicle. As batteries represent a significant cost and degradation rates are dependent on usage, maintaining the vehicle's battery is advised.

2

For the industry:

New-car incentives introduce market distortions. A failure to adequately support confidence in the used-vehicle market leads to reduced residual values, thereby increasing finance costs and slowing adoption rates for new vehicles.

The 2025 State of Health Index – What is a 'good' battery?

This State of Health benchmarking data is designed to show what level of battery degradation can be considered typical, above and below average, in UK passenger cars and LCVs in 2026.

Percentiles show how a battery compares to others of the same age. The 50th percentile is the middle point, where half of cars perform better and half perform worse. The 75th percentile represents better-than-average battery health, while the 25th percentile represents the lower-performing quarter of cars.

Age group (years)	25th percentile	50th percentile	75th percentile
0-1	97.91	100.00	100.00
1-2	97.23	99.26	100.00
2-3	95.00	96.94	99.89
3-4	92.98	95.17	98.19
4-5	91.64	93.53	96.49
5-6	89.01	92.26	96.00
6-7	88.13	90.75	93.50
7-8	87.96	90.00	93.85
8-12	82.00	85.04	90.00

Whilst data on older vehicles is currently more limited, we clearly see that the variance between the 25th and 75th percentiles widens over time, reflecting the greater impact of diverse and established usage patterns.

Indeed, while we hope to provide useful reference points with the median battery health, it is the increasing variance of each age cohort that defines real-world battery risk, as wider dispersion indicates a growing share of materially underperforming vehicles.

For example, in 4–5-year-old vehicles the median battery health remains strong at 93.53%, yet the lowest-performing 1% fall to 80.76%, representing a significant deviation from the norm. This widening spread, as illustrated in the graph, is an important indicator of risk for decision-makers. While average outcomes are favourable, edge cases underline the importance of market-wide transparency into battery condition, as repairs to batteries are very costly when they are required.

How important is mileage versus age?

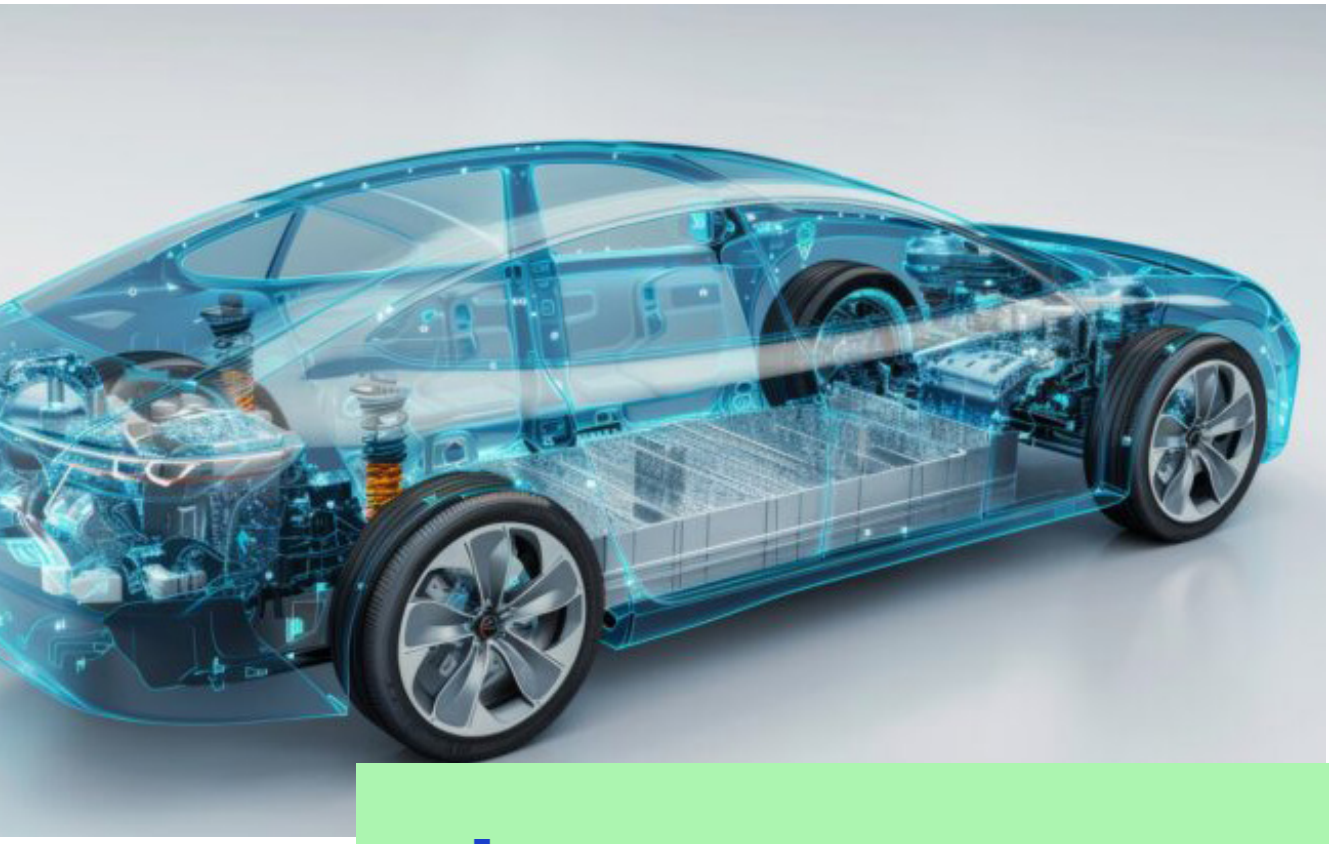
We find that the battery health of younger, high-mileage vehicles typically outperforms older, low-mileage vehicles. The reduced number of moving parts in an EV compared to an ICE car makes mileage a less reliable indicator of value.

This shift has significant ramifications for the trade, industry, appraisers, valuation methodologies, and consumers.

A three-year-old ex-fleet vehicle with 90,000 miles on the odometer, if well-maintained and driven in less intensive, sympathetic usage patterns, could represent a superior purchase to a six-year-old vehicle with only 30,000 miles recorded.

Are OEM warranties enough?

Manufacturers typically warrant batteries to a minimum of 70% SoH for 8 years or 100,000 miles, whichever criterion is met first. Our 2025 data indicates that the vast majority of vehicles will comfortably outperform this, although a very small proportion does fall outside of warranty parameters and will likely result in claims.



Importantly, OEM warranties typically mandate a full vehicle service history. For those vehicles lacking a full service history, the market requires more robust extended or supplementary warranty products to instill greater consumer confidence.

Conclusion: battery transparency underpinning market trust

The findings of our 2025 Battery Performance Index clearly demonstrate that EV batteries are performing materially better, and degrading more slowly, than many market participants and consumers have been led to believe. Across age, mileage and segment, average State of Health remains high, warranties are rarely tested and well-used vehicles frequently outperform expectations.

At the same time, the data highlights a structural transformation now underway in the used EV market. While average battery performance remains strong, the variance between vehicles increases materially with age, and it's this widening dispersion that defines real-world risk. In the absence of verified battery condition, uncertainty is priced conservatively, suppressing residual values, increasing financing costs and slowing adoption across both new and used markets.

What does this mean for the industry?

These dynamics are already reshaping decision-making across the EV ecosystem. The implications are clearest when viewed through the lens of the key stakeholders responsible for pricing, risk and market confidence.

1 — **For manufacturers, the data tells a remarkably positive story: standard battery warranties, typically covering eight years or 100,000 miles down to 70% State of Health, could potentially even be more generous for the vast majority of vehicles. Warranty claims for degradation remain very rare.**

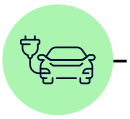
This presents an opportunity for OEMs to communicate battery durability more confidently across marketing, dealer education and consumer-facing materials. By proactively sharing battery performance data and normalising real-world performance expectations, manufacturers can help counter lingering misconceptions around battery longevity, strengthen brand trust and support stronger residual values across both new and used markets.

2 — **For insurers and warranty providers, extensive battery data allows for more precise risk modelling. Where uncertainty once forced conservative pricing and coverage limitations, actuarial**

teams can now build sophisticated models based on real-world degradation patterns. This opens the door to innovative products; guarantees that protect resale value; and extended warranties and pricing structures that reflect actual condition, rather than crude age-and-mileage proxies.

The next step is to integrate battery testing directly into underwriting, claims assessment and product design. Providers that align pricing and coverage with verified battery condition can unlock competitive differentiation, expand addressable markets and offer policies that are both more attractive to customers and more accurately priced for risk.

3 — For fleet operators, the business case for electric vehicles strengthens considerably with transparent battery data. In many cases, high-mileage EVs have retained very strong battery health when operated under proper charging protocols and usage patterns.



Fleet managers should use battery health insights to optimise charging behaviour, inform vehicle duty-cycle strategies and confidently extend holding periods where appropriate. At remarketing stage, verified battery condition can materially improve buyer confidence, pricing outcomes and disposal efficiency, directly improving total cost of ownership calculations.

4 — For policymakers, battery health transparency offers a useful tool to dismantle one of the key barriers to EV adoption

By encouraging and standardising battery condition disclosures within the used vehicle market, policymakers can help build consumer trust, support residual values, and reduce perceived financial risk for households and businesses. Battery transparency should be recognised as enabling infrastructure by complementing incentives, charging investment and regulation to ensure that EV adoption remains both accessible and economically sustainable.

What difference will this make to the bottom line?

Across all stakeholders, transparency reduces uncertainty, and reduced uncertainty unlocks value. Verified battery condition supports more accurate valuations, stronger residual values, more efficient warranty design and lower financing costs. It allows risk to be priced precisely rather than defensively, ensuring that the strong average performance observed in this study is reflected in real-world economics.

In the absence of transparency, the market risks remaining anchored to outdated assumptions – penalising the majority of well-performing vehicles because a minority cannot be confidently identified.

Creating a common standard to drive growth

Battery condition transparency must move from a competitive differentiator to a shared standard in this period of encouraging growth in the electric vehicle parc. Trusted and repeatable battery testing provides essential confidence, lower risk premiums and sustainable growth.

The next phase of market maturity depends on industry-wide adoption, embedding battery condition visibility into valuation, warranty, policy and purchasing decisions.

Transparency is therefore critical infrastructure for a resilient, trusted and investable electric vehicle market moving forward.

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