# Hybrid vehicles under scrutiny as real-world emissions reveal limited environmental benefits



Two decades after the electric vehicle (EV) revolution was first envisioned, the automotive industry stands at a complex crossroads where environmental aspirations, commercial interests, and political influences collide. Plug-in hybrid electric vehicles (PHEVs), once hailed as a bridge between conventional petrol cars and fully electric transportation, are under renewed scrutiny for falling short of their environmental promises.

Recent real-world emissions testing by the European nonprofit Transport and Environment has revealed that PHEVs reduce carbon dioxide emissions by a mere 19% compared to traditional petrol and diesel cars—a stark contrast to the 75% reduction claimed in laboratory tests. This discrepancy highlights a significant gap between regulatory targets and on-the-road realities, calling into question the sustainability credentials of these vehicles. Such findings amplify concerns that governments, including the UK, risk endorsing technologies that do not deliver their touted climate benefits, especially as weakening EV targets effectively prolong support for hybrids that emit considerably more CO2 than previously acknowledged.

Despite environmental shortcomings, hybrids continue to be a lucrative product for carmakers. Automakers benefit financially from marketing hybrids, which amount to petrol cars retrofitted with batteries, commanding higher prices without the full engineering shift to electric propulsion. This profitability, coupled with substantial lobbying power, has helped dilute stringent emissions standards in Europe. Indeed, some major European manufacturers avoided over €5 billion in fines due to emissions compliance being assessed without real-world data.

Meanwhile, the broader automotive market is facing disruption from new entrants, notably China’s BYD, now the leading EV brand in the UK, even without subsidies that exclude Chinese-made vehicles on environmental grounds. BYD’s competitive pricing—offering electric models under £20,000—poses a direct challenge to established players like Tesla, whose brand loyalty has been affected by Elon Musk’s controversial political views. However, the landscape may soon shift again as traditional manufacturers pursue breakthroughs in battery technology.

Toyota, historically cautious in its EV ambitions, has pledged to commercialise solid-state batteries by 2027. These batteries promise safer power packs, faster charging, and longer driving ranges, potentially enabling journeys such as London to Milan on a single charge—a leap beyond the current limitations of lithium-ion batteries. Collaboration with Japan’s Idemitsu Kosan to build a lithium sulphide plant underpins this effort, aiming to supply enough material to support tens of thousands of vehicles by the late 2020s. However, production is expected initially to be limited to high-end, low-volume models, with broader rollout in the following decades.

While such technological innovation could redefine electric mobility, it also illustrates the dynamic and competitive nature of the EV market. Toyota’s advancement could leapfrog current leaders like BYD, raising questions about who stands to benefit from these shifts and at what societal and environmental cost. The ongoing capitalist drive rewards profitability and market power often more than sustainability or equity.

Ultimately, the debate must extend beyond the merits of electric versus hybrid vehicles to address the foundational role of cars in society. Solely relying on EVs risks perpetuating urban congestion, road fatalities, and an unsustainable dependence on critical minerals. A meaningful transition toward a lower-carbon future demands not only cleaner vehicles but fewer cars overall, accompanied by a reimagining of urban spaces prioritising mass transit and equitable resource sharing. Without this comprehensive approach, automotive innovation alone will not be enough to meet the pressing challenges of climate change and social justice.

### 📌 Reference Map:

* Paragraph 1 – [[1]](https://www.theguardian.com/commentisfree/2025/oct/19/the-guardian-view-on-hybrid-cars-profitable-for-carmakers-but-not-very-green), [[2]](https://www.transportenvironment.org/discover/plug-hybrids-are-not-green), [[6]](https://www.theguardian.com/commentisfree/2025/oct/19/the-guardian-view-on-hybrid-cars-profitable-for-carmakers-but-not-very-green)
* Paragraph 2 – [[1]](https://www.theguardian.com/commentisfree/2025/oct/19/the-guardian-view-on-hybrid-cars-profitable-for-carmakers-but-not-very-green), [[2]](https://www.transportenvironment.org/discover/plug-hybrids-are-not-green), [[6]](https://www.theguardian.com/commentisfree/2025/oct/19/the-guardian-view-on-hybrid-cars-profitable-for-carmakers-but-not-very-green)
* Paragraph 3 – [[1]](https://www.theguardian.com/commentisfree/2025/oct/19/the-guardian-view-on-hybrid-cars-profitable-for-carmakers-but-not-very-green), [[6]](https://www.theguardian.com/commentisfree/2025/oct/19/the-guardian-view-on-hybrid-cars-profitable-for-carmakers-but-not-very-green)
* Paragraph 4 – [[1]](https://www.theguardian.com/commentisfree/2025/oct/19/the-guardian-view-on-hybrid-cars-profitable-for-carmakers-but-not-very-green), [[7]](https://www.carscoops.com/2023/11/toyotas-solid-state-batteries-will-be-limited-to-tens-of-thousands-of-cars-in-2030-and-beyond/), [[4]](https://www.reuters.com/business/energy/japans-idemitsu-build-lithium-sulphide-plant-help-support-toyotas-ev-plans-2025-02-27/), [[3]](https://www.reuters.com/business/autos-transportation/toyota-sumitomo-metal-make-advances-cathode-materials-solid-state-batteries-2025-10-08/), [[5]](https://spectrum.ieee.org/toyota-solid-state-battery)
* Paragraph 5 – [[1]](https://www.theguardian.com/commentisfree/2025/oct/19/the-guardian-view-on-hybrid-cars-profitable-for-carmakers-but-not-very-green)
* Paragraph 6 – [[1]](https://www.theguardian.com/commentisfree/2025/oct/19/the-guardian-view-on-hybrid-cars-profitable-for-carmakers-but-not-very-green)

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## Bibliography

1. <https://www.theguardian.com/commentisfree/2025/oct/19/the-guardian-view-on-hybrid-cars-profitable-for-carmakers-but-not-very-green> - Please view link - unable to able to access data
2. <https://www.transportenvironment.org/discover/plug-hybrids-are-not-green> - Transport & Environment, a European non-profit, conducted real-world tests revealing that plug-in hybrid electric vehicles (PHEVs) emit only 19% less carbon dioxide than petrol and diesel cars, significantly lower than the 75% reduction claimed in laboratory conditions. This finding challenges the environmental benefits of PHEVs and underscores the need for more stringent emissions standards and accurate vehicle testing to ensure genuine progress in reducing transportation-related emissions.
3. <https://www.reuters.com/business/autos-transportation/toyota-sumitomo-metal-make-advances-cathode-materials-solid-state-batteries-2025-10-08/> - Toyota and Sumitomo Metal Mining have announced progress in developing advanced cathode materials for all-solid-state batteries intended for electric vehicles. These batteries promise enhanced safety, longer lifespan, and faster charging compared to traditional lithium-ion batteries. The collaboration aims to address challenges such as material scarcity and high production costs, with plans to mass-produce these batteries by 2027 or 2028, marking a significant advancement in EV battery technology.
4. <https://www.reuters.com/business/energy/japans-idemitsu-build-lithium-sulphide-plant-help-support-toyotas-ev-plans-2025-02-27/> - Idemitsu Kosan, Japan's second-largest oil refiner, plans to construct a large-scale lithium sulphide plant at its Chiba refinery to support Toyota's next-generation electric vehicle goals. This strategic move aims to assist in the development and commercialisation of all-solid-state batteries, which are integral for making EVs safer, more affordable, and with longer driving ranges. The plant, targeted for completion by June 2027, will have an annual production capacity sufficient for 50,000-60,000 EVs.
5. <https://spectrum.ieee.org/toyota-solid-state-battery> - Toyota is advancing solid-state battery technology, targeting a 1,000 km (621 miles) driving range and 80% DC fast-charging in 10 minutes or less by 2027–2028. These batteries aim to offer enhanced safety, longer lifespan, and faster charging compared to current lithium-ion batteries. The development of solid-state batteries represents a significant leap in EV technology, potentially addressing current limitations in range and charging times.
6. <https://www.theguardian.com/commentisfree/2025/oct/19/the-guardian-view-on-hybrid-cars-profitable-for-carmakers-but-not-very-green> - The Guardian's editorial critiques the environmental claims of plug-in hybrid electric vehicles (PHEVs), highlighting that real-world tests show PHEVs emit only 19% less carbon dioxide than petrol and diesel cars, far below the 75% reduction claimed in lab tests. The article also discusses the profitability of hybrid vehicles for carmakers and the potential policy implications of promoting hybrids over fully electric vehicles.
7. <https://www.carscoops.com/2023/11/toyotas-solid-state-batteries-will-be-limited-to-tens-of-thousands-of-cars-in-2030-and-beyond/> - Toyota's collaboration with Idemitsu Kosan on solid-state batteries aims for commercialization by 2027–2028, with initial mass production limited to several tens of thousands of vehicles by 2030. This limited initial production suggests that solid-state batteries will first be used in high-end, low-volume models, with broader adoption expected in the following decades as production scales up.