OpenVoiceNews U.K.

Transparent. Unbiased. Yours.

UK Hydrogen Cars: Promise and Challenges Ahead

August 9, 2025

— Categories: General News

Download IPFS

Hydrogen-powered vehicles offer some appealing advantages, including rapid refuelling times, long driving ranges, and near-zero emissions. While electric vehicles (EVs) dominate the current market, hydrogen cars could play a role in the UK's future transport landscape. However, significant hurdles remain before hydrogen fuel cell vehicles (FCEVs) become a common sight on British roads.

Globally, the number of hydrogen fuel cell vehicles is still very limited compared to battery electric vehicles. Most FCEVs operate in specific regions, with California in the United States hosting nearly all of the approximately 20,000 hydrogen cars currently on the roads. Major manufacturers such as Toyota, Hyundai, and Honda produce hydrogen models, but sales remain low. For example, in the United States, fewer than 100 hydrogen vehicles were sold in the second quarter of 2024.

In Europe, hydrogen buses are being trialled with mixed results, while countries like India and Saudi Arabia are beginning to incorporate hydrogen-powered vehicles into public transport systems. The technology has also attracted interest for military applications, where clean and efficient energy sources are vital.

The UK government has announced plans to support hydrogen production and usage as part of its broader net-zero ambitions. Initiatives include funding for green hydrogen projects and exploring hydrogen fuel cell technology for heavy goods vehicles and public transport. Despite these plans, hydrogen cars for private ownership remain scarce in the UK, largely due to cost and infrastructure challenges.

While battery electric vehicles benefit from an expanding network of public charging points, hydrogen refuelling stations are far fewer. The UK currently has only a handful of hydrogen refuelling sites, mainly concentrated in urban centres such as London and the Midlands. This limited infrastructure restricts the practical use of hydrogen cars for most drivers.

Toyota's Mirai was the first commercially available hydrogen car, launched in 2015. The Mirai offers a driving range comparable to petrol vehicles and can be refuelled in just a few minutes. Its fuel cell system produces electricity by combining hydrogen and oxygen, emitting only water vapour as a by-product. The latest Mirai model boasts advanced safety features, premium audio systems, and smartphone integration.

Hyundai's Nexo, introduced in 2019, is a hydrogen-powered crossover with similar capabilities. It offers a slightly lower driving range but includes modern infotainment technology and driver assistance systems. Hyundai plans to update the Nexo with improved performance and technology shortly.

Honda recently unveiled the CR-V e: FCEV, targeting the growing demand for hydrogen vehicles. This model further expands the limited options for hydrogen drivers, though availability remains restricted to select markets.

The high price of hydrogen vehicles is a major obstacle to wider adoption. Starting prices for models like the Toyota Mirai exceed £40,000, making them less accessible than many battery electric or petrol alternatives. Additionally, hydrogen production itself faces hurdles. While green hydrogen, produced via renewable energy, offers a clean fuel source, it remains expensive and limited in supply.

Infrastructure development is equally crucial. Expanding the network of refuelling stations across the UK will require substantial investment and coordination between the government, industry, and energy providers. Until this occurs, most drivers will hesitate to purchase hydrogen cars due to range anxiety and convenience concerns.

Despite these challenges, hydrogen technology has not been dismissed by experts or policymakers. Hydrogen's rapid refuelling time and suitability for heavier vehicles, such as buses and lorries, mean it could complement electric vehicles rather than replace them entirely. Research is ongoing to lower production costs and improve fuel cell efficiency.

The UK government's commitment to carbon reduction may see hydrogen playing an increasing role in transport, particularly in sectors where battery electric vehicles are less practical. Hydrogen buses have already been trialled in some British cities, and further deployments are planned.

Hydrogen fuel cell vehicles offer clear benefits but currently face significant barriers to widespread adoption in the UK. High costs, limited refuelling infrastructure, and scarce vehicle options restrict their appeal compared to battery electric vehicles. Nevertheless, government support and technological advances could help hydrogen carve out a niche in the UK's low-carbon transport future, especially for larger vehicles and public transport.

For private drivers, the prospect of widespread hydrogen vehicle use remains some years away. In the meantime, electric vehicles continue to lead the charge towards cleaner motoring.