

## PRESS RELEASE

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# Ricardo repowers double decker diesel bus with hydrogen fuel cells ready for zero emission demonstration on Teesside

*Ricardo has developed a hydrogen fuelled, zero tailpipe emission concept bus, in partnership with Stagecoach North East for testing on Teesside*

Ricardo, a global strategic, environmental, and engineering consulting company, in partnership with Stagecoach North East, has repowered a diesel, double decker bus with a hydrogen fuel cell propulsion system. Delivering zero tailpipe emissions, Ricardo is now seeking to secure customers to invest in the production of a fleet of passenger vehicles fit for the future of sustainable shared mobility.

The project, part funded by the Department of Transport, through its Hydrogen Transport Hub Demonstration competition, saw Ricardo, working with Stagecoach North East to retro-fitted hydrogen fuel cell technology into an existing double decker bus. It created a zero emissions demonstrator that is now undergoing a ten-week test and demonstration programme around the Tees Valley and Brighton and Hove. Feedback and data from the trials will support the team to explore future market opportunities and applications with bus operators and other partners across the UK and beyond.

Ricardo is seeking to offer the hydrogen fuel cell re-powered vehicles at around half the price of a new bus, significantly reducing the upfront investment required whilst also avoiding some 45,000kg of carbon dioxide emissions by extending the life of existing buses rather than building from new. The aim is to secure 50% match funding investment plus customer commitment for an initial production of 150 buses that can enter service from late 2024.

Andrew Ennever, Service Leader for hydrogen fuel cells, at Ricardo, said: “The UK bus industry directly supports around 250,000 jobs, as well as thousands of others in bus manufacturing and support services. There are around 38,000 buses in service in the UK, so we’re excited by the opportunities this type of project provides, to work with operators in support of their future environmental strategies. The project has drawn upon the breadth and depth of Ricardo’s capabilities, from complex control systems to thermal systems, mechanical design to vehicle integration. We are now capturing learning from the demonstration trials to enable further refinements to be included within a future production solution and alternative hydrogen fuel cell vehicle applications.”

Steve Walker, Stagecoach North East Managing Director, added: “Having worked closely with Ricardo on the hydrogen project for several months, we’re excited to be able to demonstrate the innovative retrofit hydrogen fuel cell bus on Teesside. This is a further representation of Stagecoach’s commitment to introducing greener bus technologies to help lower vehicle emissions, which remains key to achieving our environmental objectives. Over the past 10 years, Stagecoach has invested more than £1bn in greener buses, and we have taken another step forward with this technological trial in the North East.”

The bus uses a hydrogen fuel cell system that produces zero emissions when using green hydrogen. While battery electric buses offer the right zero emission solution for many bus use cases, their shorter range, longer charge times and dependency on grid infrastructure mean that a mixed fleet of battery electric and hydrogen fuel cell buses will be required to achieve decarbonisation goals.

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### Photo Caption

l-r: Andy Ennever, Service Leader for Hydrogen Fuel Cells, Ricardo, Gary Dean, Driver, Stagecoach North East, Steve Walker, Managing Director, Stagecoach North East, Eric White, Chief Engineer,

Ricardo, Gary Chisholm, Engineering Director, Stagecoach North East and Peter Stubberfield, Senior Project Engineer, Ricardo.

**About Ricardo**

Ricardo plc is a global strategic, environmental, and engineering consulting company, listed on the London Stock Exchange. With over 100 years of engineering excellence and employing close to 3,000 employees in more than 20 countries, we provide exceptional levels of expertise in delivering innovative cross-sector sustainable outcomes to support energy transition and scarce resources, environmental services together with safe and smart mobility. Our global team of consultants, environmental specialists, engineers and scientists support our customers to solve the most complex and dynamic challenges to help achieve a safe and sustainable world. Visit [www.ricardo.com](http://www.ricardo.com)

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