

FASTWAY

Operated by **METROBUS**

Part of **GoAhead**



Thursday 29th June 2023

Contents

- 4 Our commitment to zero emissions
- 6 Why hydrogen?
- 8 Fastway route
- 10 Liquid refuelling station
- 12 Our partners
- 14 The future



Ed Wills

Managing Director
Brighton & Hove and Metrobus

I am delighted to introduce 20 new hydrogen buses to our Metrobus fleet and a liquid hydrogen refuelling station, which, once fully commissioned will be the largest in Europe.

This launch marks a historic moment for our business and demonstrates our commitment to reducing emissions in the local community where the only thing that comes out of the bus tailpipe is water. We are not stopping there either!

A further 34 buses will join our fleet over the next 18 months. Working in partnership with Surrey County Council means we will have one of the largest zero emissions hydrogen bus fleets in Europe.



Our commitment to Zero Emissions

As part of our commitment to reducing emissions, twenty new hydrogen fuelled buses will operate on Fastway routes 10 & 20. They deliver against science-based targets set by Metrobus and its parent company, the Go-Ahead Group, of becoming a net zero business by 2045 and decarbonising our bus fleet by 2035.

Go-Ahead runs buses and trains in seven countries and as a responsible business, we must play our part in responding to climate change by reducing our emissions. Buses are part of the solution to climate change – the more journeys made by bus the greater our contribution to reducing emissions.

For that reason, it is vital that we introduce hydrogen buses to our network and work together to introduce the much-needed changes that will in turn benefit the communities we serve.

Today marks an important step on that journey and with the introduction of an additional 34 hydrogen buses, procured by Surrey County Council, Metrobus will become one of the biggest hydrogen fleets in Europe. The Go-Ahead Group is already the largest operator of zero-emission buses in Britain.



The first hydrogen vehicles in our global fleet



Christian Schreyer
Group Chief Executive
The Go-Ahead Group

As Metrobus's parent company, the Go-Ahead Group is proud of this fleet of cutting edge hydrogen powered buses. They're the first hydrogen vehicles in our global fleet and they demonstrate our commitment to investment in a net zero future for transport.

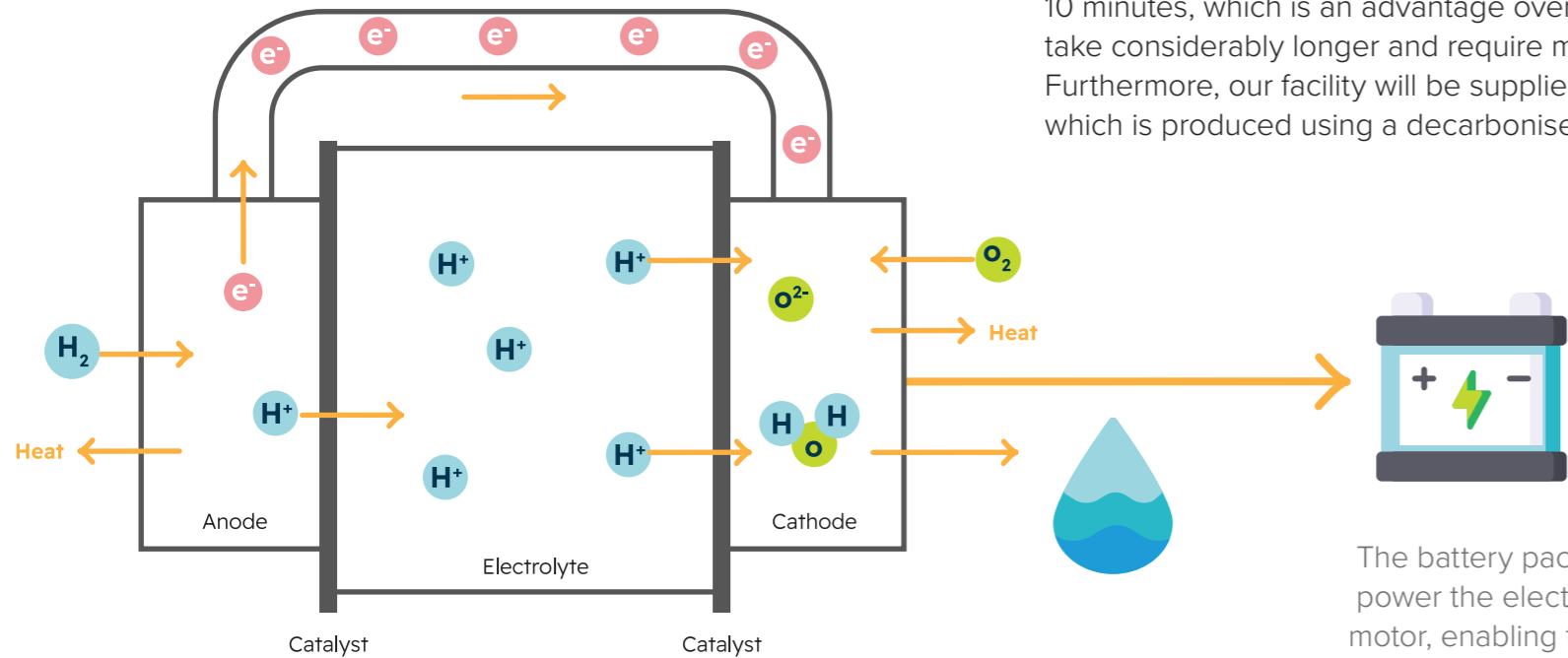
Go-Ahead is already the largest operator of electric buses in Britain. We believe hydrogen is a further piece in the jigsaw of decarbonising public transport, and will be particularly effective for bus routes that are longer and more energy intensive.

GoAhead

Why hydrogen?

Hydrogen is one of the most environmentally friendly ways to operate a bus service because all that comes out of the tailpipe is water. With zero CO2 emissions at the tailpipe, these buses help to tackle climate change and improve air quality.

Hydrogen buses can be refuelled relatively quickly in less than 10 minutes, which is an advantage over electric vehicles that take considerably longer and require much greater infrastructure. Furthermore, our facility will be supplied with green hydrogen, which is produced using a decarbonised energy source.



The fuel cell generates a chemical reaction that splits the hydrogen separating the proton and electron.

The electron stores energy in the battery and when it returns to the cathode it meets filtered air and the proton and this produces H2O as the bi product and emits as a water vapour.

The battery packs power the electric motor, enabling the bus to travel.

Wrightbus, the manufacturer of these buses, is the developer of the world's first hydrogen double-deck bus.

The company is a pioneer in clean transport, which is vital to the UK's net zero ambitions. These buses also have regenerative braking, meaning that kinetic energy created is stored and fed back into the battery. Thanks to the self-charging battery and the buses' long range they only need to refuel once a day making them even more efficient on a busy 24-7 route.

These buses also offer passengers a smoother and quieter ride with the electric drive providing fewer vibrations.



Crawley Bus Station



Gatwick South Terminal

Taking this journey by bus would **save 1,066g of CO₂ compared to driving.**

That's the same as charging your mobile 4,516 times!

Jean-Marc Gales

Chief Executive at Wrightbus

Wrightbus is leading the way in technological advances in hydrogen fuel cell buses, and has developed world-leading efficient electric power trains, used for hydrogen and battery electric powered buses.

Our workforce is at the forefront of zero-emissions transport and we are delighted to be supporting Metrobus to meet its zero-emission ambitions.



Hydrogen IN ~ Water OUT

Fastway route



The buses provide accessible features including next stop audio visual announcements, two wheelchair bays also with next stop visual announcements, dementia friendly flooring, white (easier to read) destination screens and on board hearing loops designed for hydrogen buses. The loop layout produces a strong signal with minimal interference to give passengers with hearing loss an inclusive journey.

Lengthy routes, heavy passenger loads and hilly terrain means hydrogen is the most effective option for bus travel here.

Stewart Wingate

Chief Executive, London Gatwick

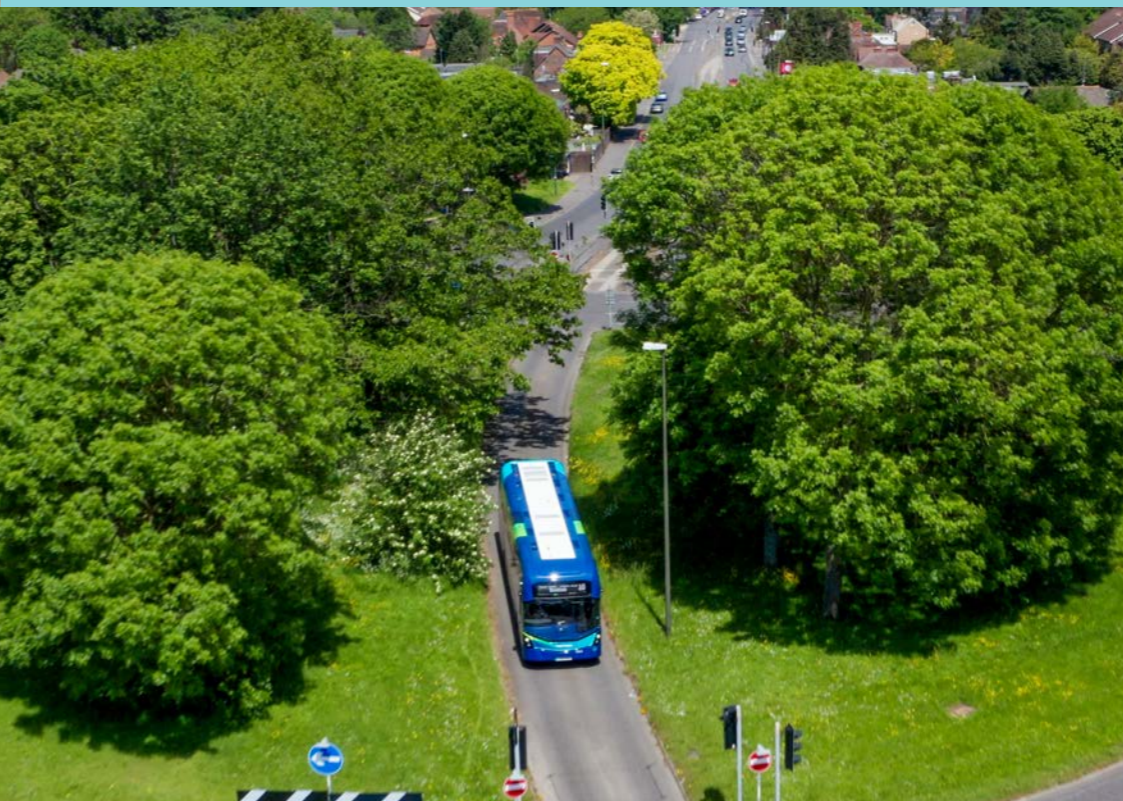
Sustainability is key to everything we do and we're proud to have contributed financially to these 20 zero emission Hydrogen buses. The route this new fleet serves is vital for passengers and airport staff travelling to and from work, including late at night and early morning.

We want half of our passengers and staff to get to the airport using sustainable transport, so we're investing in our public transport facilities with a zero emission bus fleet, a redeveloped, fully accessible bus interchange and a fully upgraded train station. We also hope to see further advances in the use of hydrogen at the airport in the years ahead.



Hydrogen buses are a great choice for Fastway because this is the hardest working route on our network with each bus travelling up to 370 miles a day.

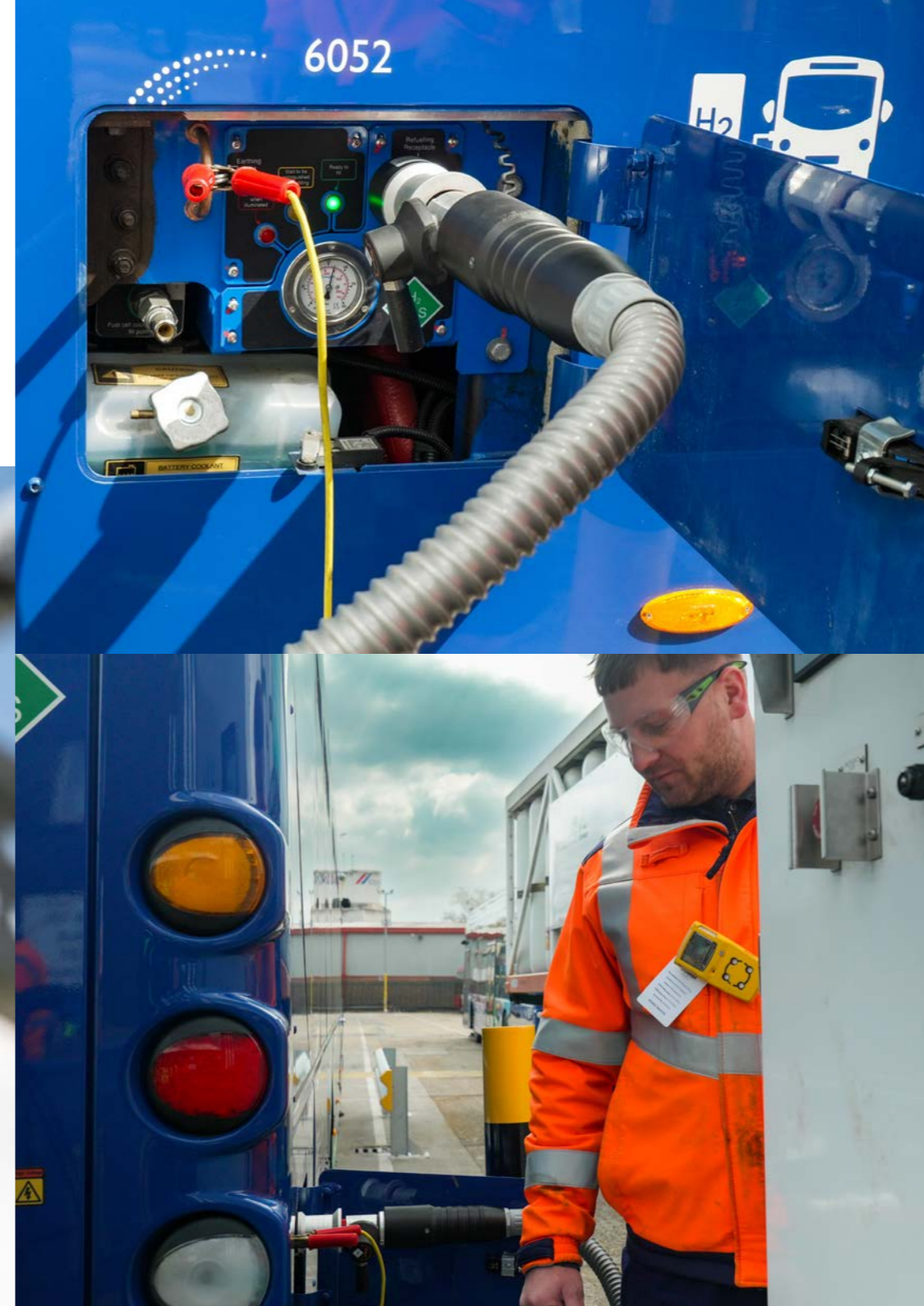
Fastway links the busy town of Crawley to Horley connecting with Manor Royal Business District, Gatwick Airport and Gatwick train station with direct services to London and other parts of the UK. The service operates 24 hours a day, 365 days a year taking people to work and school, to visit friends and family, for leisure and even international holidays.



Liquid hydrogen refuelling station; the biggest in Europe!



Today, the majority of hydrogen refuelling stations are supplied by gaseous hydrogen. For larger fleets, and for those with the ambitions to grow, liquid hydrogen refuelling stations offer the best and most scalable solution. This is due to the large fuelling capacity and smaller footprint regardless of fleet size. There are additional sustainability benefits such as fewer deliveries to site. Liquid hydrogen refuelling stations have lower on site energy demand over electric vehicle charging and other types of hydrogen refuelling infrastructure i.e. gaseous or onsite production.



Once fully operational, the liquid hydrogen refuelling station in Crawley will be the largest of its kind in Europe, capable of dispensing 250kg of hydrogen per hour, equivalent to refuelling up to ten buses back-to-back. When it's running at full capacity, this station will allow us to transition our entire Crawley bus fleet to hydrogen FCEV.

Air Products, the world's largest hydrogen supplier, has hands-on operating experience with over 250 hydrogen refuelling stations in 20 countries. Its technologies are used in over 1.5 million refuelling operations annually. Safety is Air Products' number one priority. The company has earned more safety-related awards than any other industrial gas company and has taken a leadership role in supporting the hydrogen fuel community in the safe use of hydrogen.

Manish Patel

Mobility Director
Air Products Hydrogen UK

Air Products has been operating in the UK for over 60 years.

We are proud to be part of this exciting project and to partner with the Go-Ahead Group on key routes in the area including servicing Gatwick airport.



Our funding partners

This project would not have been possible without our partners who have helped to fund the project.

Metrobus and its parent company, Go-Ahead, committed to owning and operating these buses, and to development of Europe's first liquid hydrogen refuelling station, as part of its goal of becoming a net zero organisation by 2045.

Funding for this project came from the UK Government, the Clean Hydrogen Partnership (through the JIVE 2 project) and Gatwick Airport. The JIVE 2 project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking (now Clean Hydrogen Partnership) under grant agreement No 779563. This Joint Undertaking receives support from the European Union's Horizon 2020 Research and Innovation programme, Hydrogen Europe and

Hydrogen Europe Research. The overall objective of the JIVE 2 project is to promote the commercialisation of fuel cell buses through the deployment of vehicles and infrastructure on a large scale across five countries in Europe.

Gatwick Airport contributed financial support to these sustainable Hydrogen buses, as the Fastway route is vital for many airport staff travelling to and from work sustainably. These routes include those accessing Gatwick train station, where the airport invested £4 million improving the bus and train station interchange, with new lifts and wheelchair accessible routes. Gatwick will become a net zero airport by 2030 - 10 years ahead of its previous commitment.



The future



Matthew Furniss
Surrey County Council

We have an exciting opportunity to work with our bus operators, bus users, other partners and the Government to improve public transport and get more people using buses in Surrey. Buses provide residents with access to a wide range of key services, including employment, education, healthcare and essential shopping. We have put buses at the heart of our new Surrey Transport Plan, the delivery of which is key to our Greener Futures Programme as we work to make buses a realistic and attractive alternative to the private car.

I am therefore thrilled that Surrey County Council and Metrobus continue to work together to deliver on our ambitions to achieve net zero by 2050. Our joint hydrogen fuel cell bus project includes a Surrey County Council investment of £16.4m for the purchase of 34 hydrogen fuel cell buses, out of a project total of 54 hydrogen fuel cell buses. Our investment is also supported by further funding for more bus priority measures to make sure the bus turns up on time, plus more real time passenger information to help residents make better travel choices. A partnership approach has always been at the heart of what we do, so I am delighted that the collective investment will help create more carbon neutral transport options and assist in achieving climate change targets by providing residents with greener and more sustainable travel choice.

34 new buses in partnership with Surrey County Council

The future ambition for hydrogen at Metrobus does not stop here. We are looking forward to receiving a further 34 hydrogen buses that will join the Metrobus fleet in the next 18 months making it one of the biggest hydrogen fleets in Europe.

These buses will serve Redhill, Reigate, Epsom, Banstead, Tadworth and Sutton as well as adding even more hydrogen buses to the Horley, Crawley, Gatwick and Manor Royal areas.

This is thanks to the foresight and commitment to sustainable transport by our partners Surrey County Council.



Richard Holden
Buses Minister

Communities and commuters across the country know how important buses are – and these UK-made hydrogen buses could revolutionise transport for millions, bringing quieter and smoother journeys.

It is great to see these 20 new hydrogen buses on our roads, one of the largest fleets in the UK, backed by over £4.3m of funding from our Ultra-Low Emission Bus scheme. With nearly already 3,400 Zero Emission Buses funded across the UK since February 2020, this latest fleet puts us well on the way to meeting our target of 4,000 ZEBs.

By investing in hydrogen and other renewable technology we are helping reach our net zero goals to create a greener and cleaner future, while creating skilled jobs and boosting the economy.



metrobus.co.uk/hydrogen

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