

# A Value Chain Approach to Hydrogen

Innovate UK KTN Hydrogen Supply Chain Showcase



# Ecosystem Model



# HYDRAS



PE investor in hydrogen ecosystem



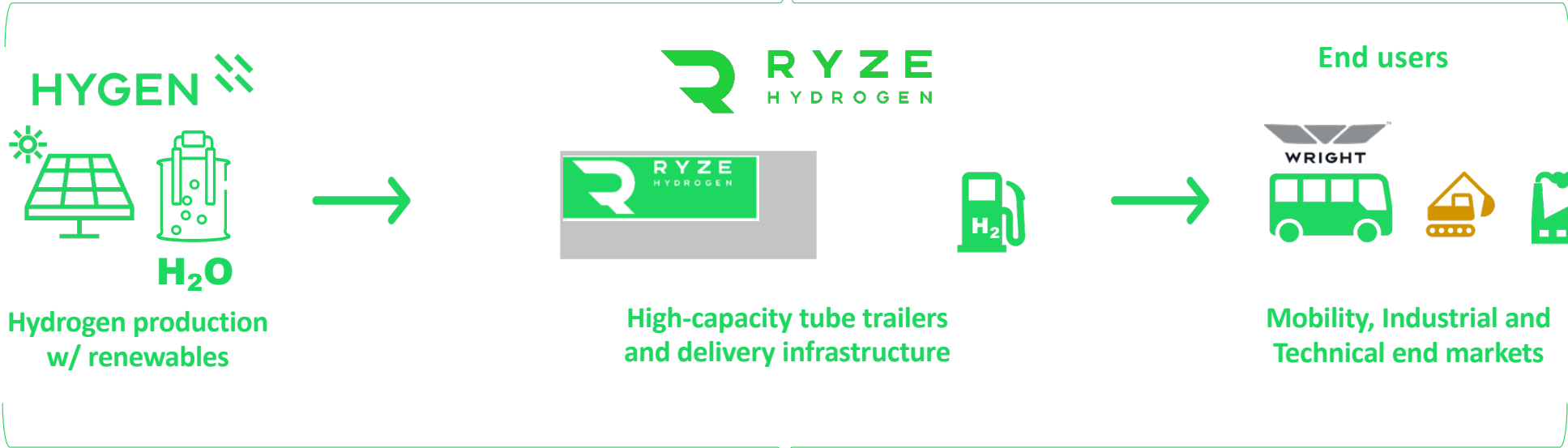
# Ecosystem Model



# HYDRAS



PE investor in hydrogen ecosystem



Service, maintenance and parts for whole value chain

# Introduction to Ryze Hydrogen



**Mission:** kick-start and develop the UK hydrogen economy, supporting mobility and industrial markets.

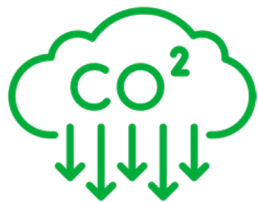


Current fleet: > **6 tonnes of hydrogen**

Expanding to: > **15 tonnes by Q4 23**



>**350 safe and successful hydrogen deliveries to date**



~**1,700 tonnes CO<sub>2</sub>e saved** so far by replacing diesel for hydrogen



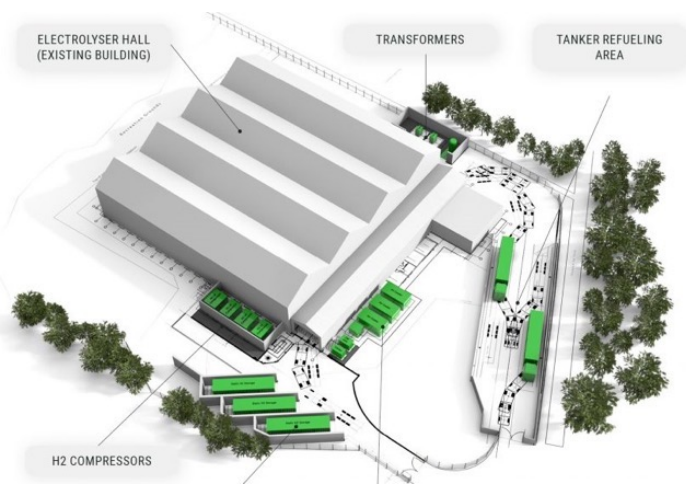
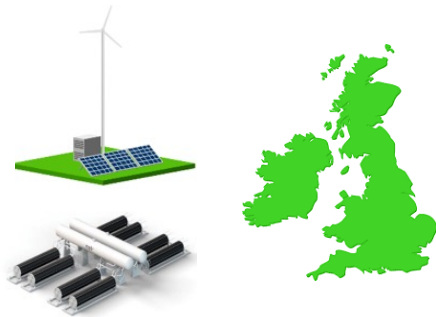
**Fuel ~30-40% of UK H<sub>2</sub> HD vehicles**

Also provide hydrogen solutions to other innovative customers for H<sub>2</sub> product testing

# Introduction to Ryze Hydrogen



## Sourcing & Production



## Distribution & Dispensing



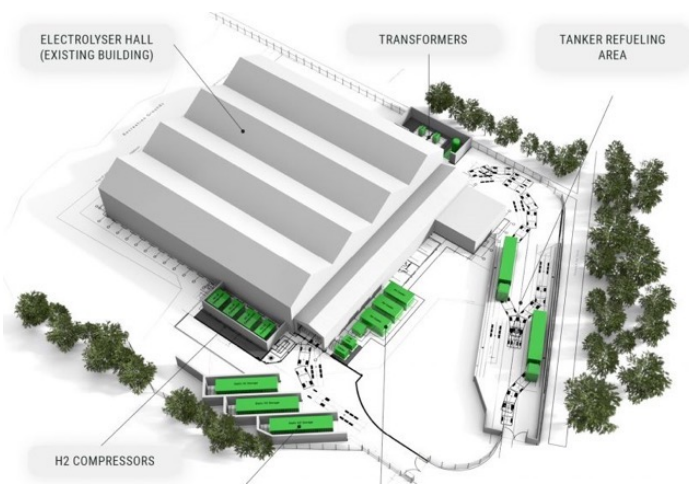
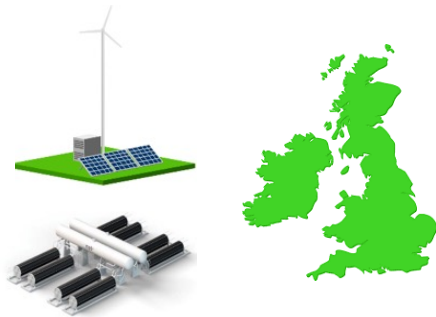
## Mobility

- Buses
- HGVs
- LDVs
- Passenger fleets
- Aviation
- Rail

# Introduction to Ryze Hydrogen



## Sourcing & Production



## Distribution & Dispensing



## Industry

- Glass
- Ceramics
- Breweries
- Distilleries
- Chemicals
- Existing industrials

# Green hydrogen production



- Ryze is developing its own production sites via sister company Hygen Energy.
- Hygen are creating a green hydrogen production network from renewable energy assets.
- Ryze also purchases hydrogen from other third-party supply partners with low carbon sources.
- Ryze and Hygen offer innovative solutions for distributed on-site production.

## Distribution

- Ryze distributes hydrogen via high-capacity composite tube trailers.
- We optimise truck movements and distance travelled to reduce emissions.
- We are working with our logistics partners to switch to hydrogen trucks as soon as available.
- Our planned hydrogen production network and on-site production options allow us to provide a range of locations for supply.









## Case Study: TfL

- Ryze and Nel have successfully worked together to deliver refuelling to TfL buses at their Perivale depot in West London.
- The station supports an initial fleet of 20 buses with capacity to expand to ~60 buses.
- Ryze delivers the hydrogen in 350 bar compressed hydrogen tube trailers







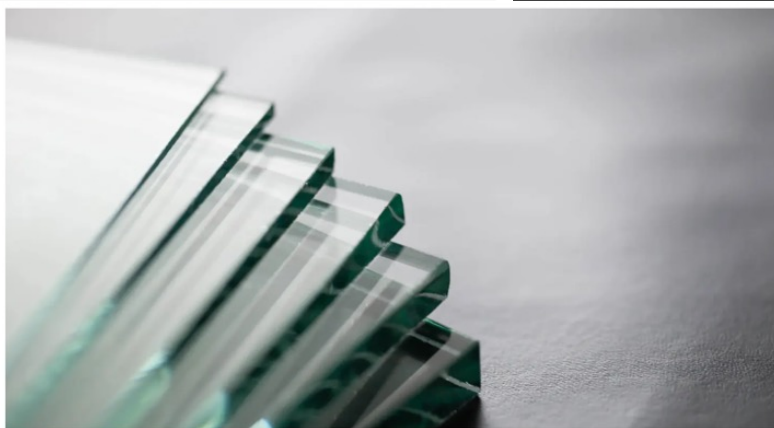
# Collaboration: Glass Futures



05/06/23

Ryze Hydrogen partners with Glass Futures to help decarbonise glass industry

- Ryze have joined Glass Futures membership and signed an MoU to support hydrogen developments.
- Glass manufacturing can utilize hydrogen as a technical gas and fuel.
- Glass Futures is the global Centre of Excellence for glass in R&D, innovation and training. Together we will test and validate hydrogen solutions.



Ryze Hydrogen joins Glass Futures to help decarbonise glass production

# Why Ryze Hydrogen



- **Total hydrogen solutions** to support vehicles/plant and decentralised industrial users
- Market disruption with more **accessible business models**
- Collaborative **engagement and support**
- Provide **independent and technology agnostic** tailored solutions
- Unlike existing players, we are **customer-centric, innovative and agile**

# Contact



Jake Harding  
Business Development Executive

[jake.harding@ryzehydrogen.com](mailto:jake.harding@ryzehydrogen.com)

+44 (0) 7939 804832



Alex Webster  
Head of Business Development - Industrial

[alex.webster@ryzehydrogen.com](mailto:alex.webster@ryzehydrogen.com)

+44 (0) 7398 857618