A Value Chain Approach to Hydrogen

Innovate UK KTN Hydrogen Supply Chain Showcase
Ecosystem Model

HYGEN
Hydrogen production w/ renewables

HYDRA
Hydrogen supply, distribution and delivery infrastructure

RYZE
End users
Mobility, Industrial and Technical end markets

PE investor in hydrogen ecosystem
Ecosystem Model

HYGEN

Hydrogen production w/ renewables

High-capacity tube trailers and delivery infrastructure

AllServiceOne

Service, maintenance and parts for whole value chain

HYDRAB

RYZE HYDROGEN

End users

HYCAP

PE investor in hydrogen ecosystem

Mobility, Industrial and Technical end markets
**Introduction to Ryze Hydrogen**

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


~1,700 tonnes CO₂e saved so far by replacing diesel for hydrogen

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

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

>350 safe and successful hydrogen deliveries to date

**Fuel ~30-40% of UK H₂ HD vehicles**

Also provide hydrogen solutions to other innovative customers for H₂ product testing

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Introduction to Ryze Hydrogen

**Sourcing & Production**
- Electrolyser Hall (Existing Building)
- Transformers
- Tanker Refueling Area

**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
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

- 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.
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**
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