



gravitrlicity

Underground Energy Storage

Developing a flexible, innovative
underground hydrogen storage solution

Charlie Blair
Managing Director

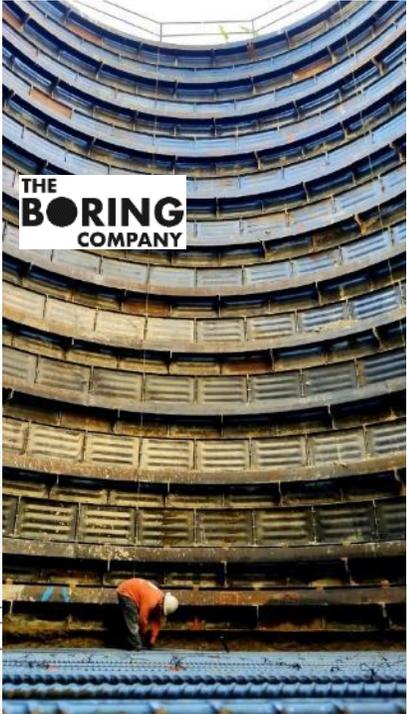
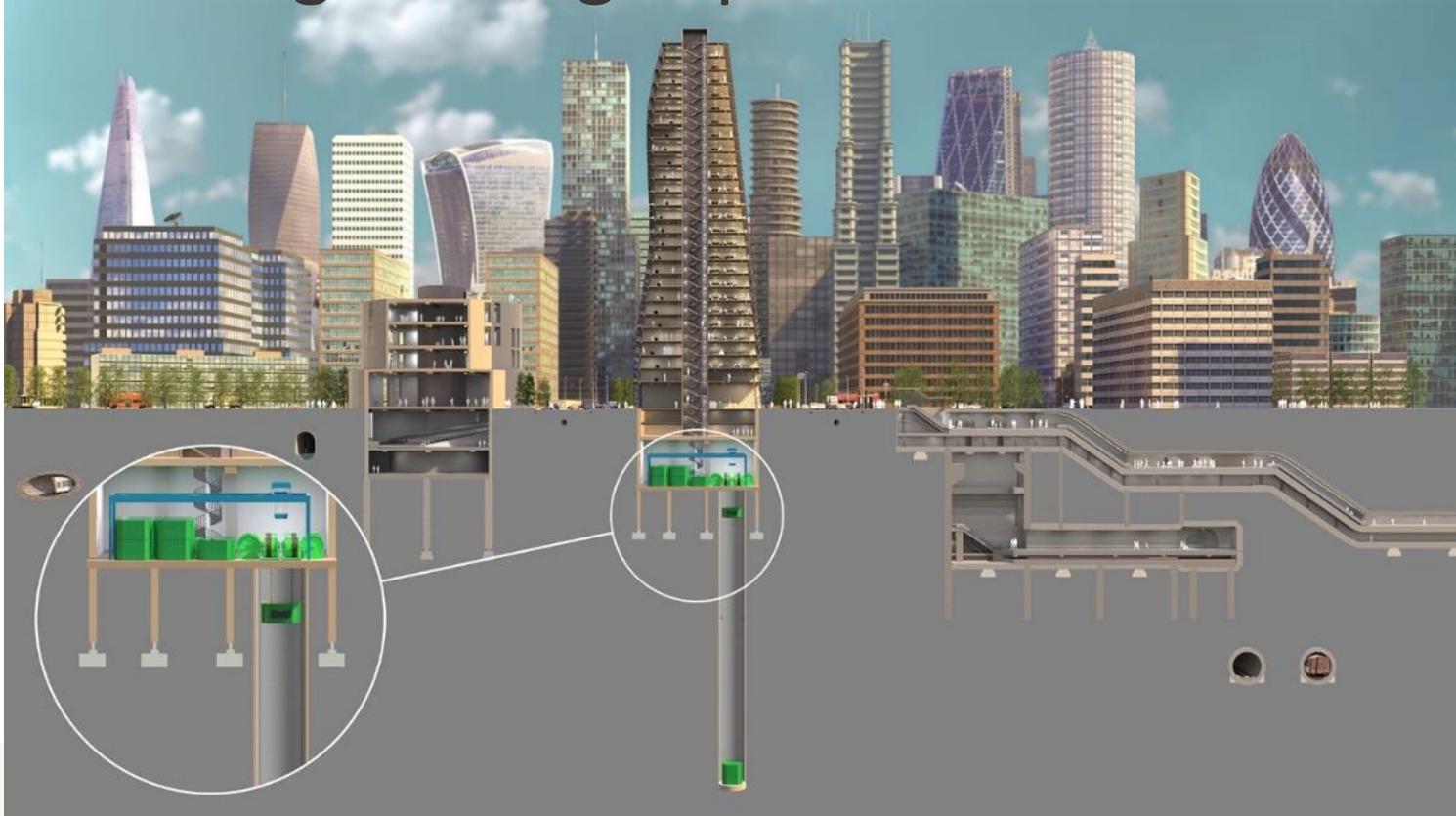
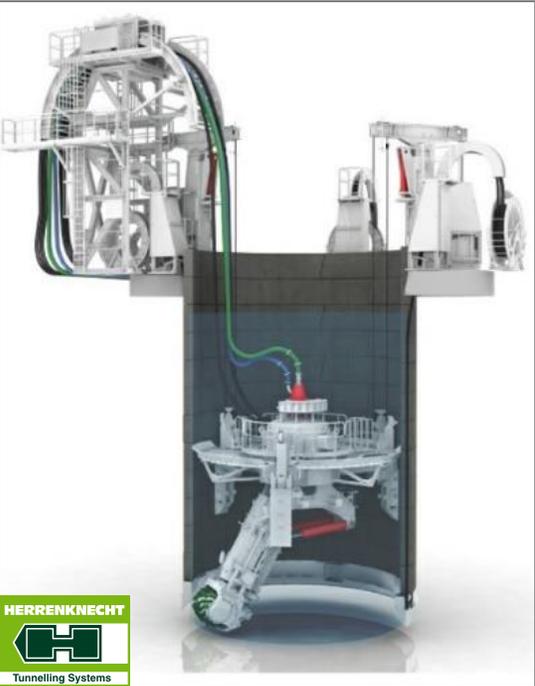
May 2023. All Energy, Glasgow

Mission

A wide-angle photograph of a wind farm. Five large, three-bladed wind turbines are spaced out across a series of rolling green hills. The sky is filled with large, white, fluffy clouds. In the background, there are more hills and a range of mountains under a bright sky. The overall scene is bright and natural.

Gravitricity exists to accelerate the global transition to 100% renewable energy

Underground System Engineering Experts



THE BORING COMPANY

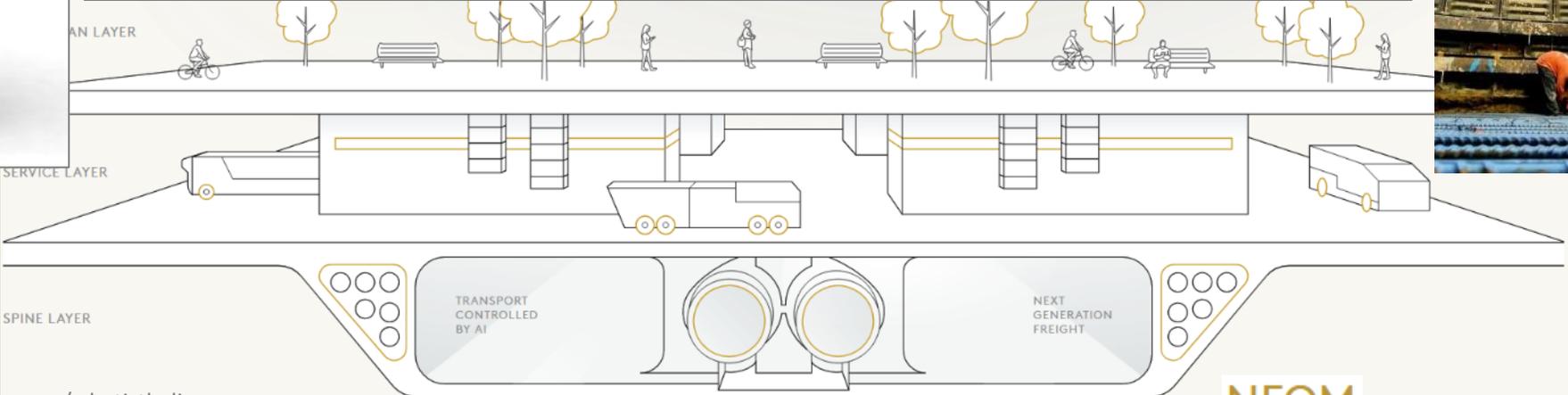


Image: www.neom.com/whatistheline

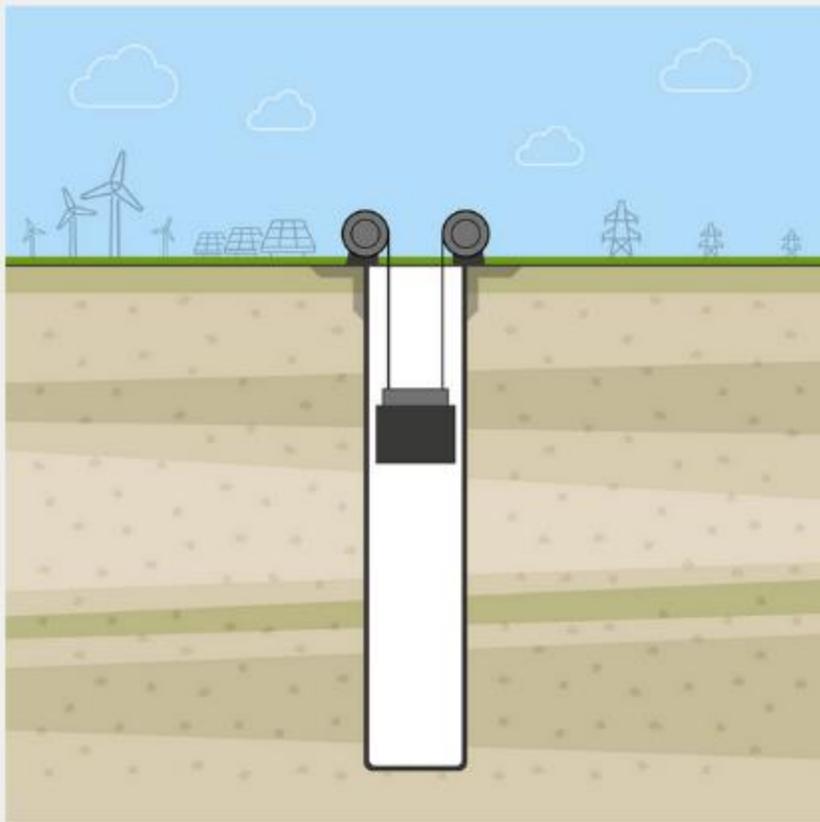
NEOM

ULTRA-HIGH-SPEED TRANSIT

Two Pioneering underground energy storage technologies

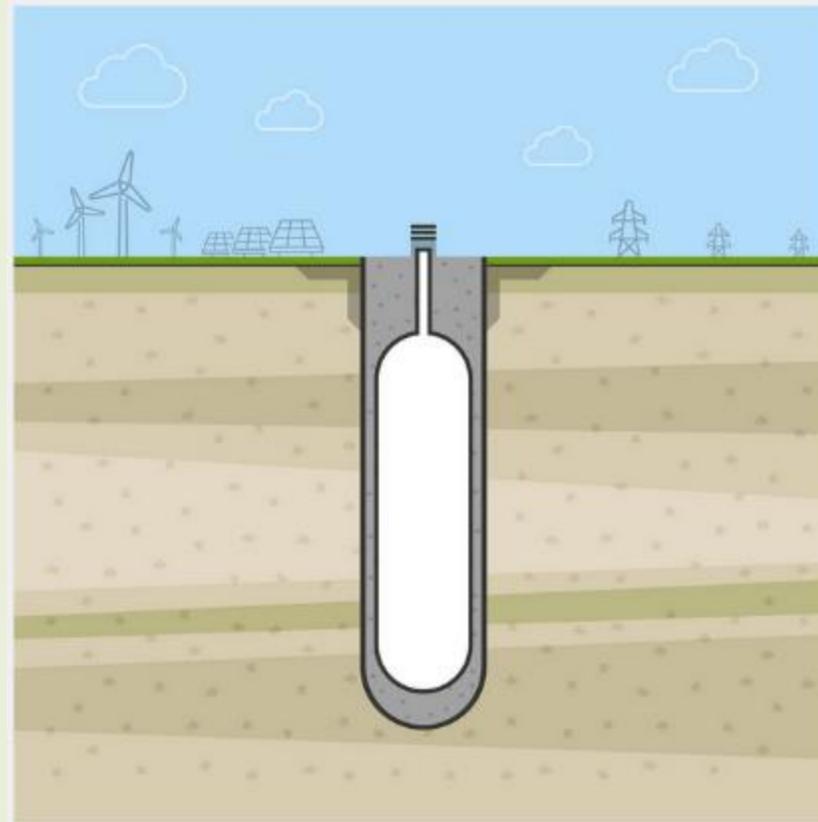
Gravity Power Storage

Gravitational Energy Storage (GraviStore)



Hydrogen Storage

H₂ FlexiStore



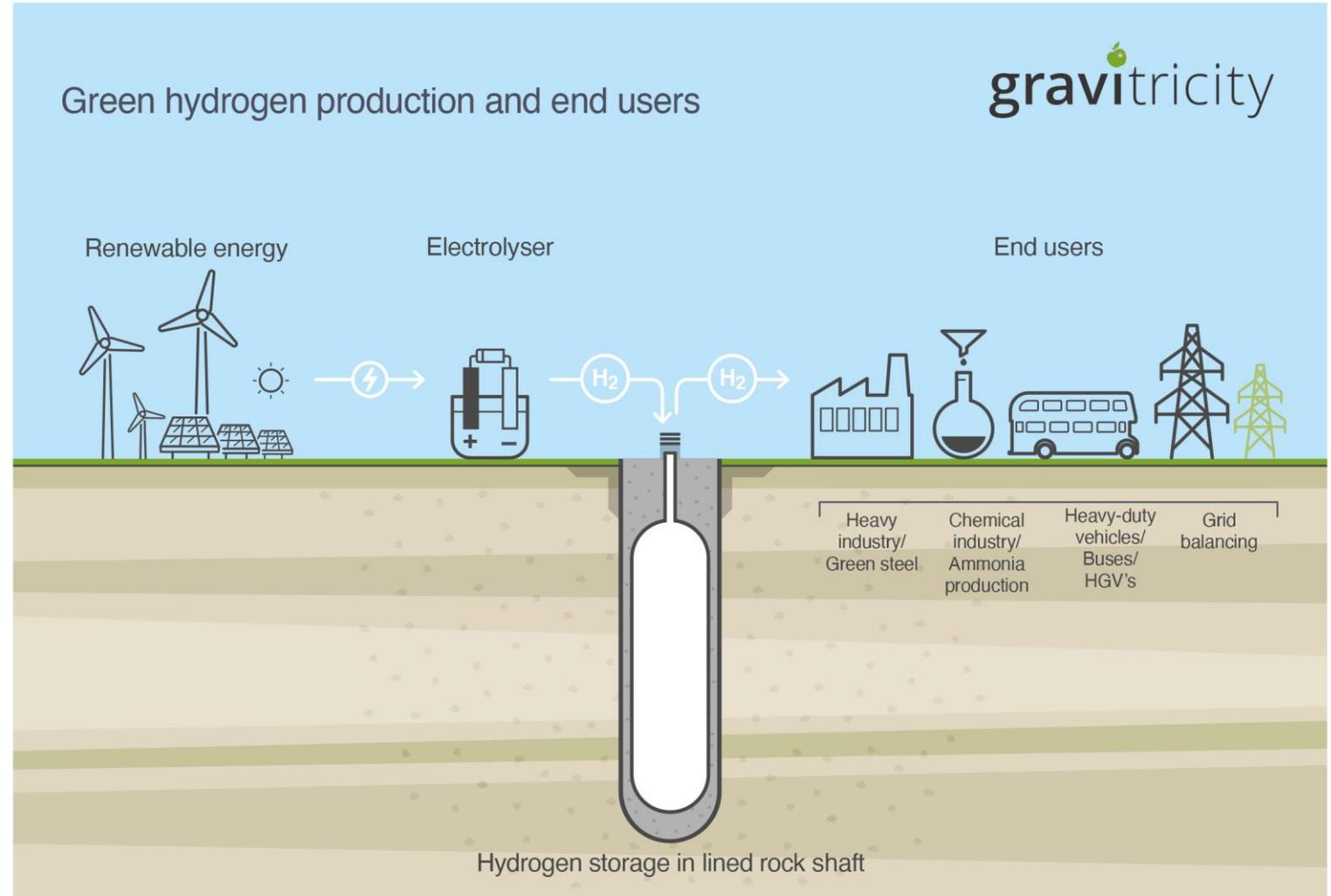
Both of these technologies use the characteristics of the underground space to store energy.

GraviStore uses the geology of the earth to hold thousands of tonnes of weight to store electricity.

H₂ FlexiStore uses the geology of the earth to contain pressurised fuel gas, allowing safe storage underground. The system will provide large-scale storage and use very little land.

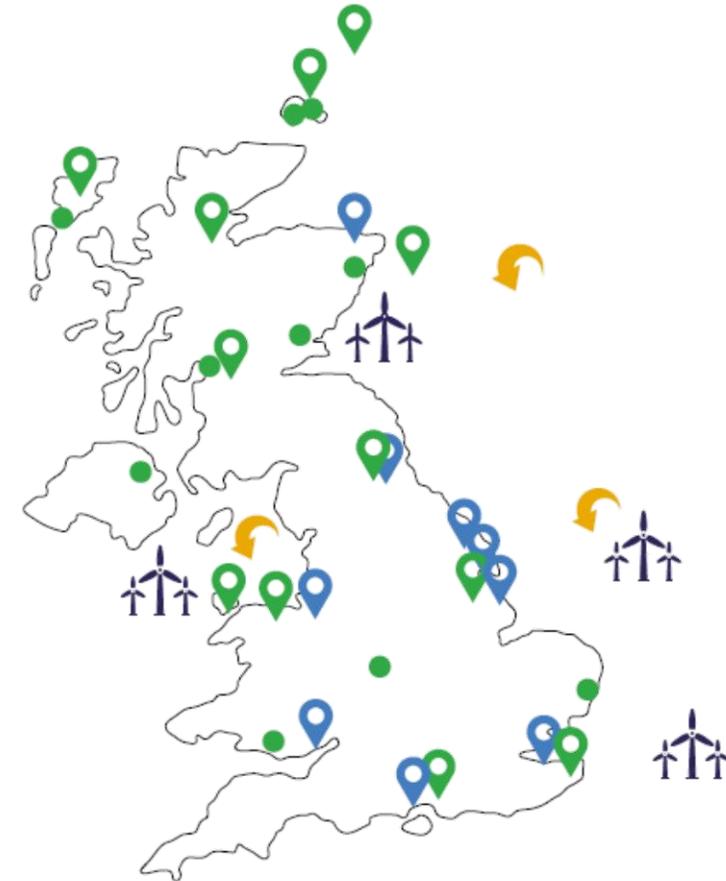
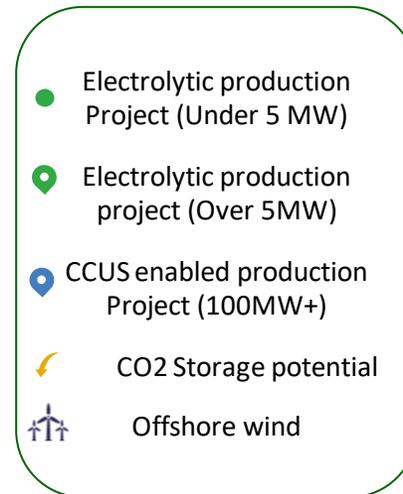
Buffer storage of green hydrogen

- **GWh**s of buffer storage for green hydrogen
- Design prioritizes **safe storage** of gaseous Hydrogen
- By using geology to contain pressure, significantly **less steel** is required
- As a result, project costs are projected to be **significantly lower** than pressurised containers at surface
- **Geographically flexible**
- Development time in **months not decades**



Buffer storage – the missing element to many green Hydrogen projects

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Gravitricity's Goldilocks Solution

Hydrogen storage

1 LINED ROCK SHAFT
 6,000m³ at 220 bar and 20°C
 Storage capacity in tonnes equivalent to...

gravitricity

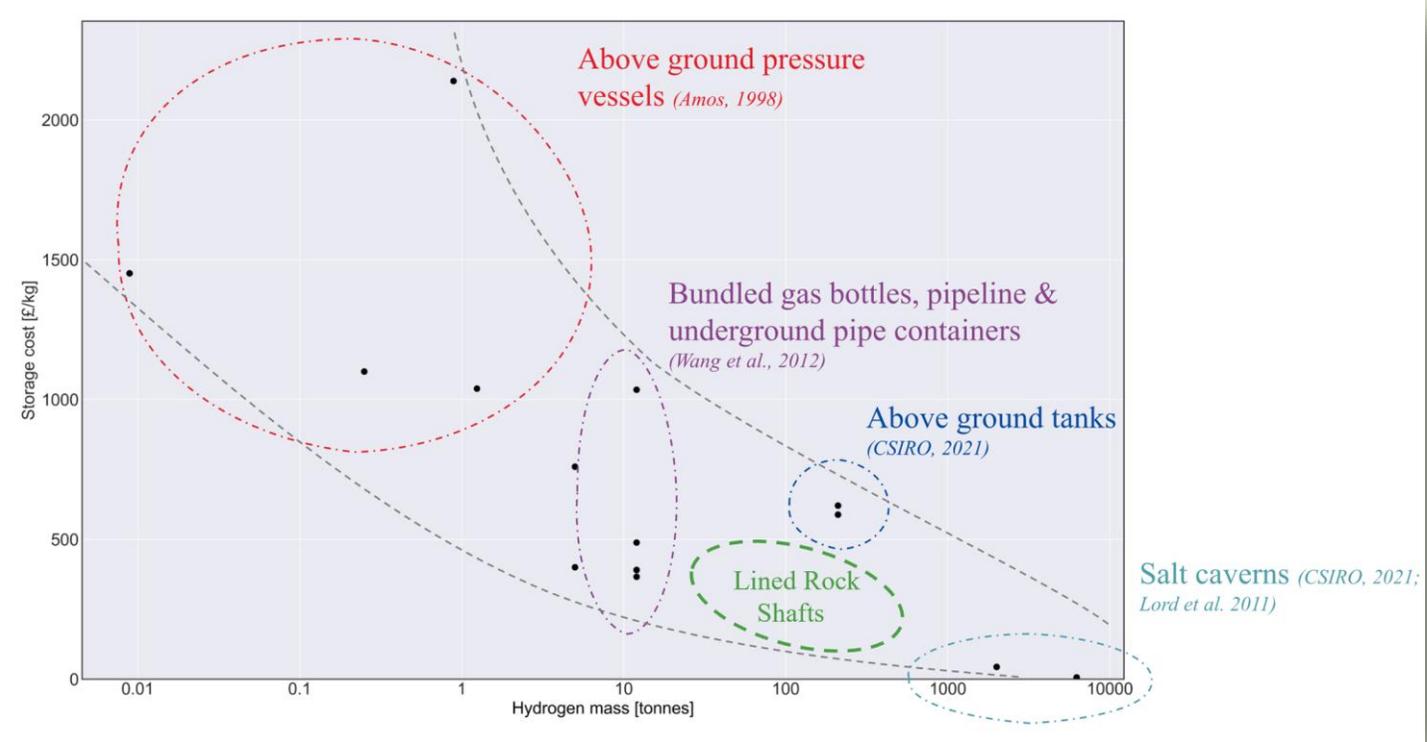
50,000 gas bottles at 300 bar and 20°C requiring 4,000m³

or

14 kilometres of underground pipeline at 45 bar and 20°C requiring 20,000m³

or

1/3 salt cavern at 45 bar and 20°C requiring 70,000m³



Team and Partners



Peter Fraenkel



Martin Wright



Charlie Blair



Juliet Davenport

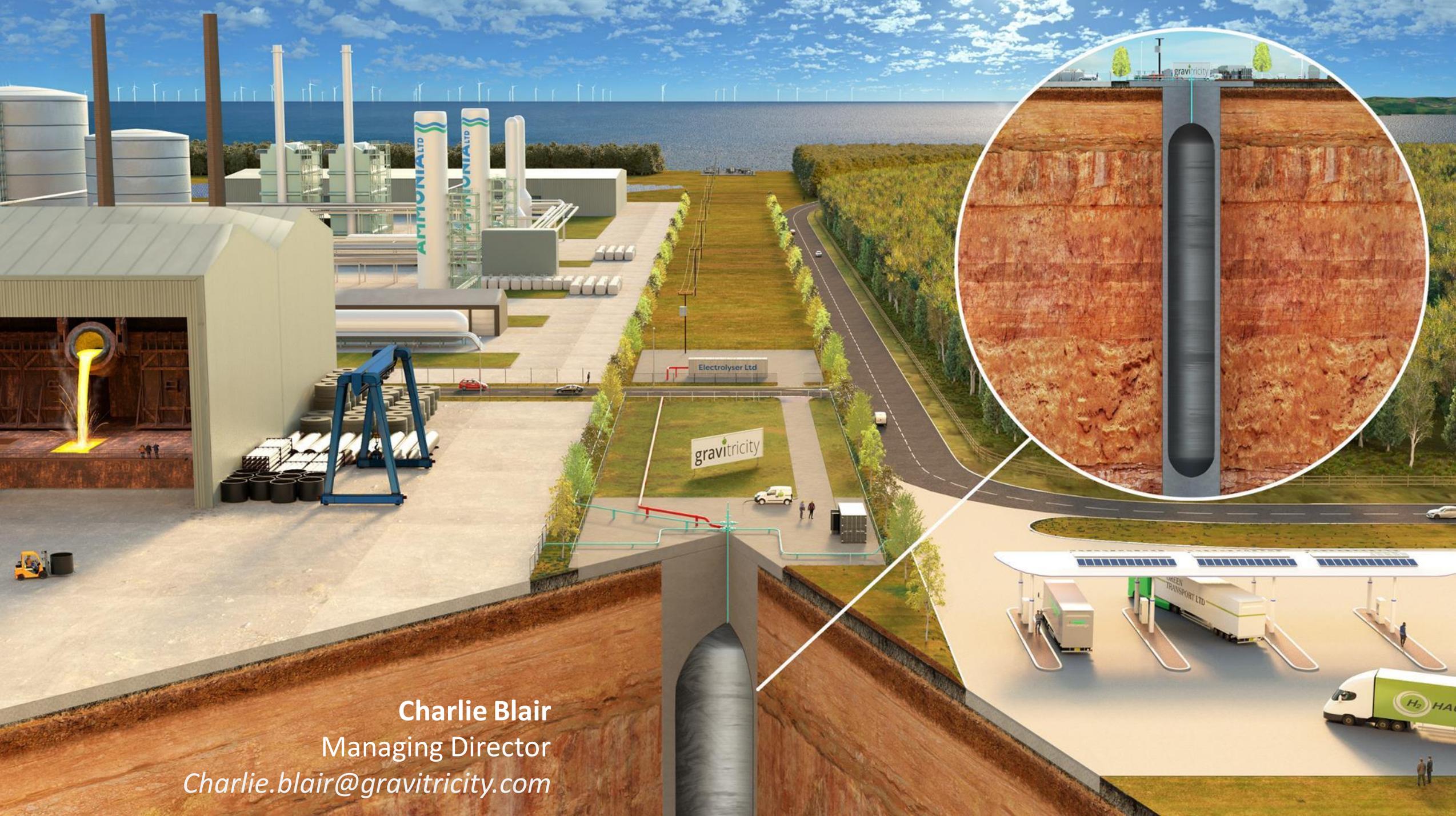


Robin Lane



Simon Wright





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