

FutureGrid

Programme



national
gas

Phase 1 Results & Lookahead to Phase 2



EIS 30 October 2024

Tom Neal – FutureGrid Programme Manager

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Programme



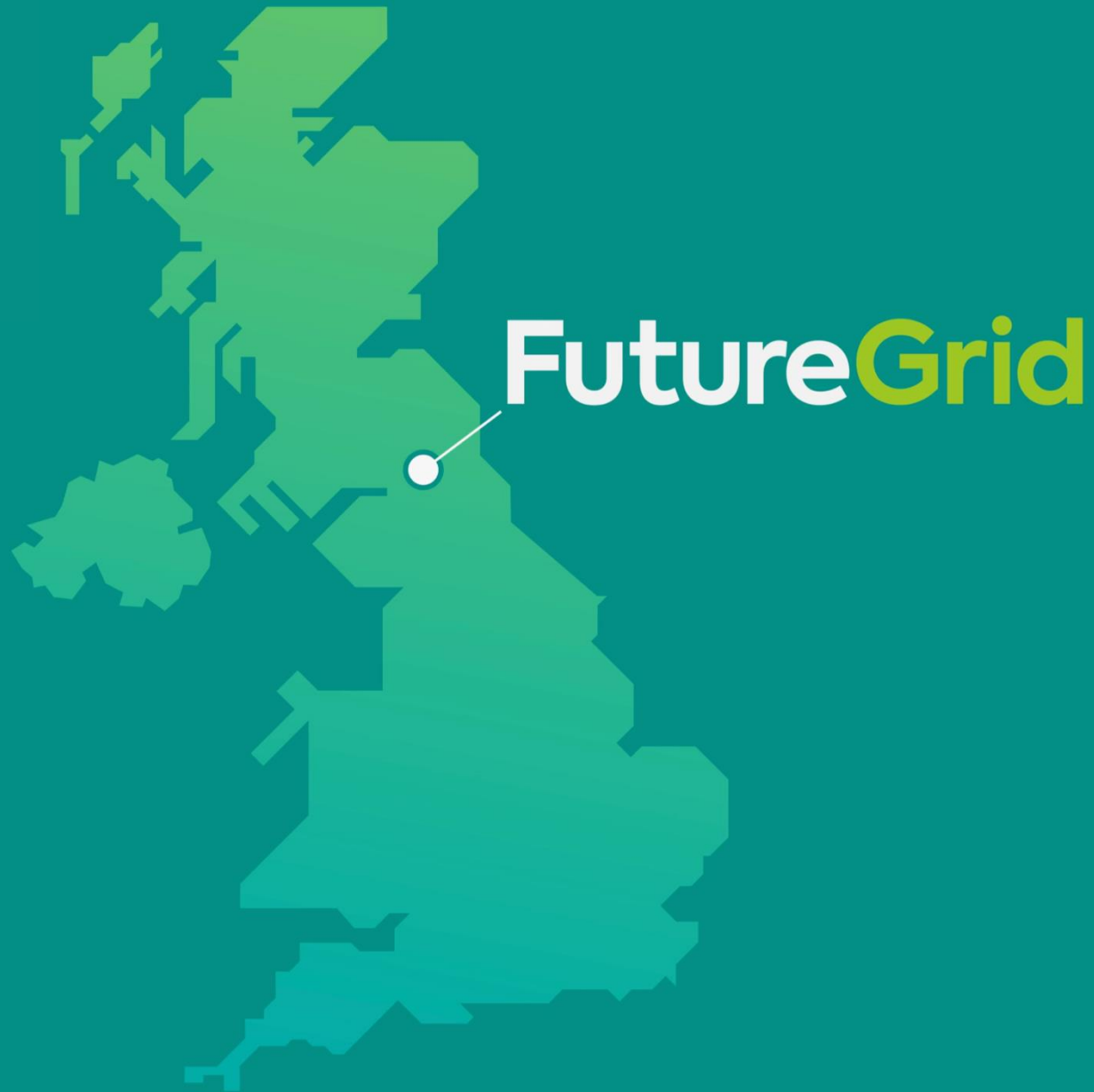
Tom Neal
FutureGrid Programme
Manager

To achieve Net Zero targets by 2050 we must find ways to decarbonise our high-pressure gas transmission network.



Net Zero by 2050

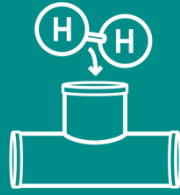
A high-pressure hydrogen test facility using decommissioned transmission assets, to demonstrate the National Transmission System (NTS) can transport hydrogen safely and reliably.



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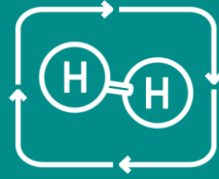
Phase 1 Facility

A high-pressure hydrogen test facility using decommissioned transmission assets, to demonstrate the National Transmission System (NTS) can transport hydrogen safely and reliably.



Standalone hydrogen Tests

Standalone hydrogen test modules are operating alongside the main test facility, to provide key data required to feed into the main facility.



Offline hydrogen test facility

A representative range of NTS assets of different types, sizes, and material grades have been supplied from decommissioned assets to build the test facility.

Four key hydrogen concentrations are being tested:

2%
hydrogen gas

5%
hydrogen gas

20%
hydrogen gas

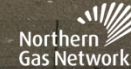
100%
hydrogen gas



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FutureGrid Phase 1 – Key Messages

1

Phase 1 was a success

All key outputs from Phase 1 have been successfully delivered with very positive outcomes for all levels of hydrogen tested.

2

Delivered on budget

The project experienced COVID impacts and some unavoidable programme delays, but was still delivered on budget.

3

2% + 5% H₂ has little impact

Blending 2% and 5% hydrogen sees little to no impact on NTS assets and therefore is not expected to require any significant modifications

4

20% H₂ needs some updates

Blending 20% hydrogen broadly had no impact, but some assets needed reconfigurations to be able to function with the 20% hydrogen blend.

5

100% H₂ is possible

100% hydrogen was proven possible on the network, with more significant calibrations of the assets and replacement of some metering.

6

Accelerating innovation

The facility has enabled several key innovation projects to run in parallel, reducing time and cost. There are a number of future projects planned.

7

Consumer value realised

Between several NIAs delivered at a lower cost on the facility and £5m saved by being able to utilise it for Phase 2 Deblending, value is already being realised.

8

DNV's site is key to net zero

DNV is playing a pivotal role in helping to drive net zero goals, with the Spadeadam facility providing unmatched capabilities on a global scale.

HyNTS
FutureGrid
Compression

Refuelling
Station

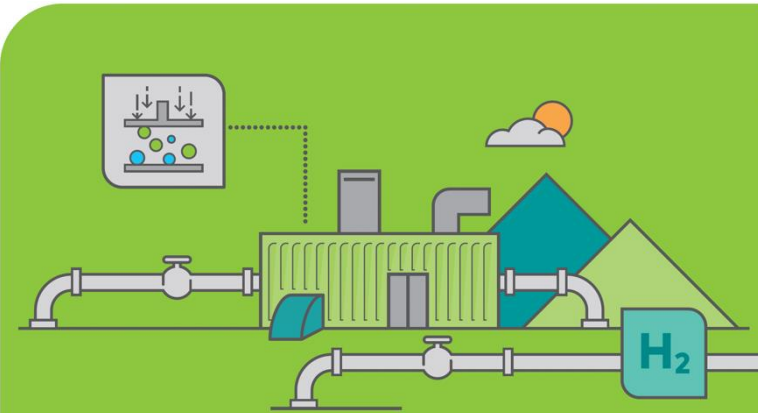
HyNTS
FutureGrid
Deblending

HyNTS
FutureGrid
Phase 1 Facility

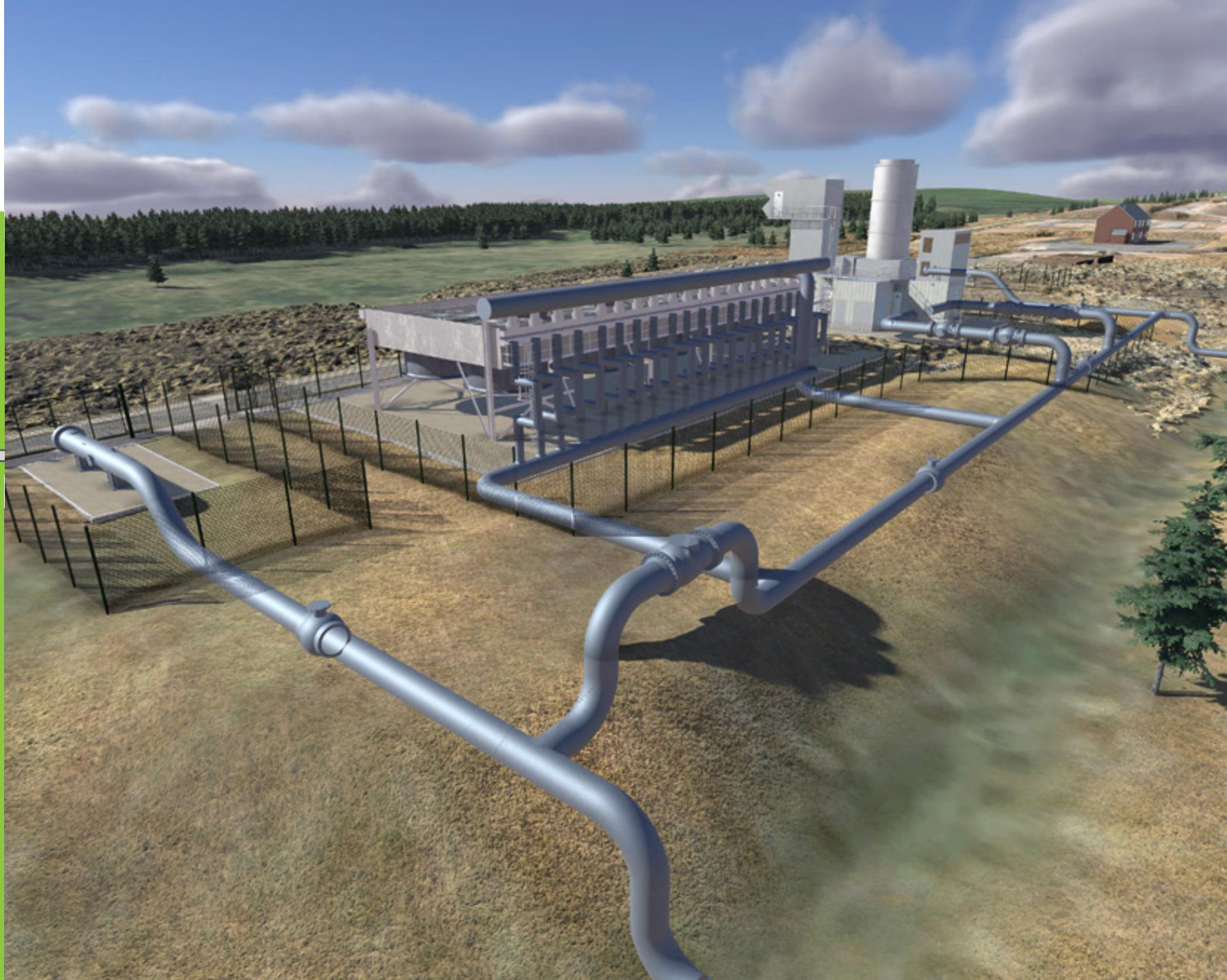


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Compression

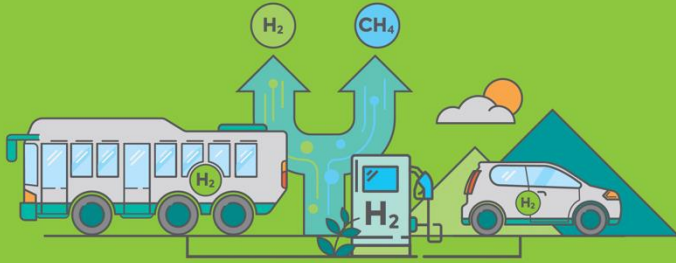


FutureGrid Compression is a SIF Beta Project that investigates the key challenges associated with compression of hydrogen using existing NTS assets. This project will demonstrate the hydrogen blend the existing compression fleet can operate at with minimal modification. In addition, it will identify the level of modification that needs to be made to an existing compressor system for it to operate with 100% hydrogen.

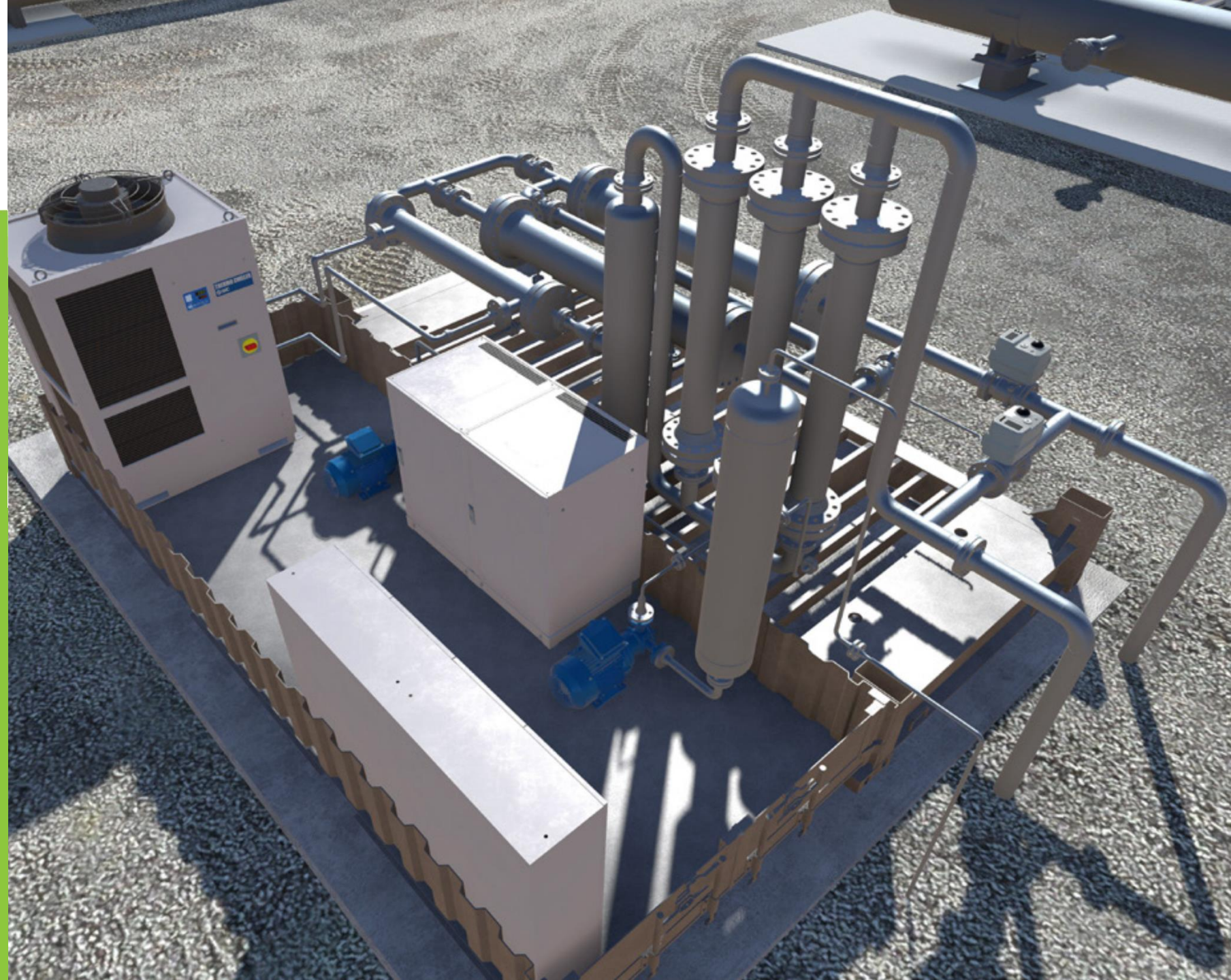


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Deblending



FutureGrid Deblending for Transport Applications is a SIF Beta Project which will develop an offline test facility to demonstrate the separation, purification, and compression of hydrogen to support transport applications. The project will also work with the transport industry to demonstrate the potential for refuelling a wider range of vehicles and identify the potential routes to deployment of this technology to support the decarbonisation of transport in the UK.



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Phase 1 Facility

Closure Report

July 2024

Download your copy of the
closure report today!



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achieve Net Zero by 2050.
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