

# The role of Hydrogen in pursuit of Net Zero



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CEO of Protium & Chair of UKHFCA  
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# Protium and the UKHFCA



- UK focused green hydrogen and fuel cell developer building large scale hydrogen infrastructure projects.
- We work with manufacturing and industrial clients to facilitate decarbonisation and help meet government net zero targets, focusing on 'hard-to-abate' sectors;
- “Our goal is to make the UK the best place for hydrogen and fuel cells across all applications and opportunities
- The UK Hydrogen and Fuel Cell Association is the leading cross UK trade body for hydrogen and fuel cell industry. The group was formed in 2010 and represents over 40 members, including Anglo American, Rolls Royce, ITM Power, UCL, Protium, BP and more.



# Our Members



# Why Hydrogen?

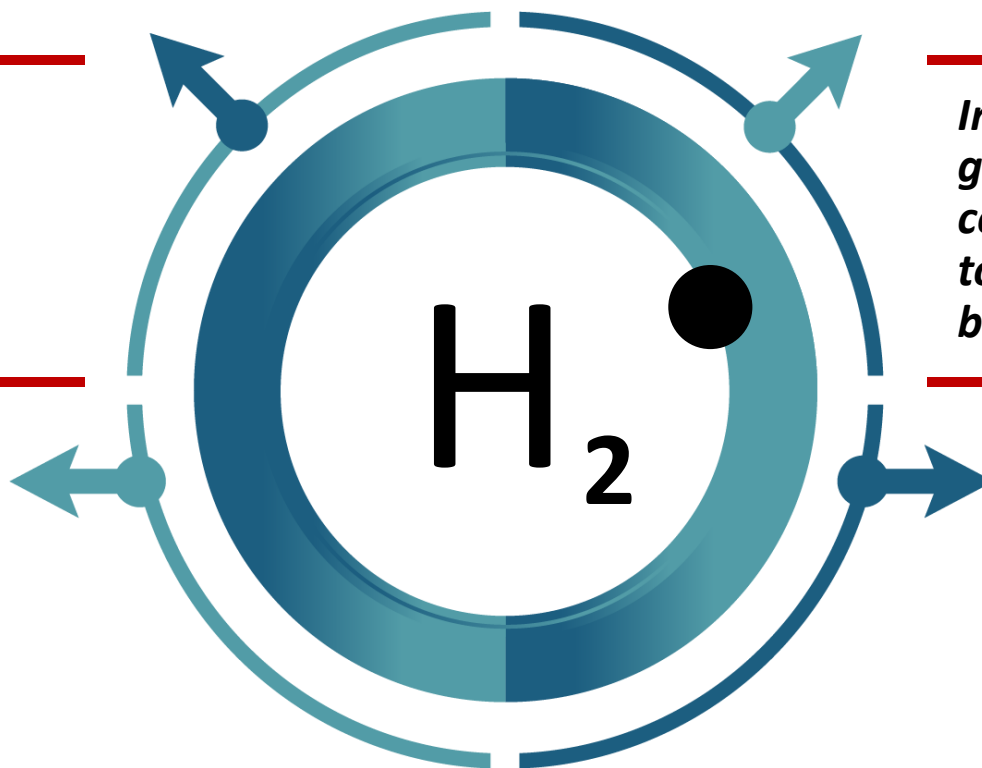


1

*Few alternatives exist for zero carbon heating in industrial applications.*

2

*There are 23mn gas metered homes in the UK that will require a transition to clean gas or electric heating by 2050.*



3

*Integrating renewables into grids will require complimentary technologies to address the limitations of batteries.*

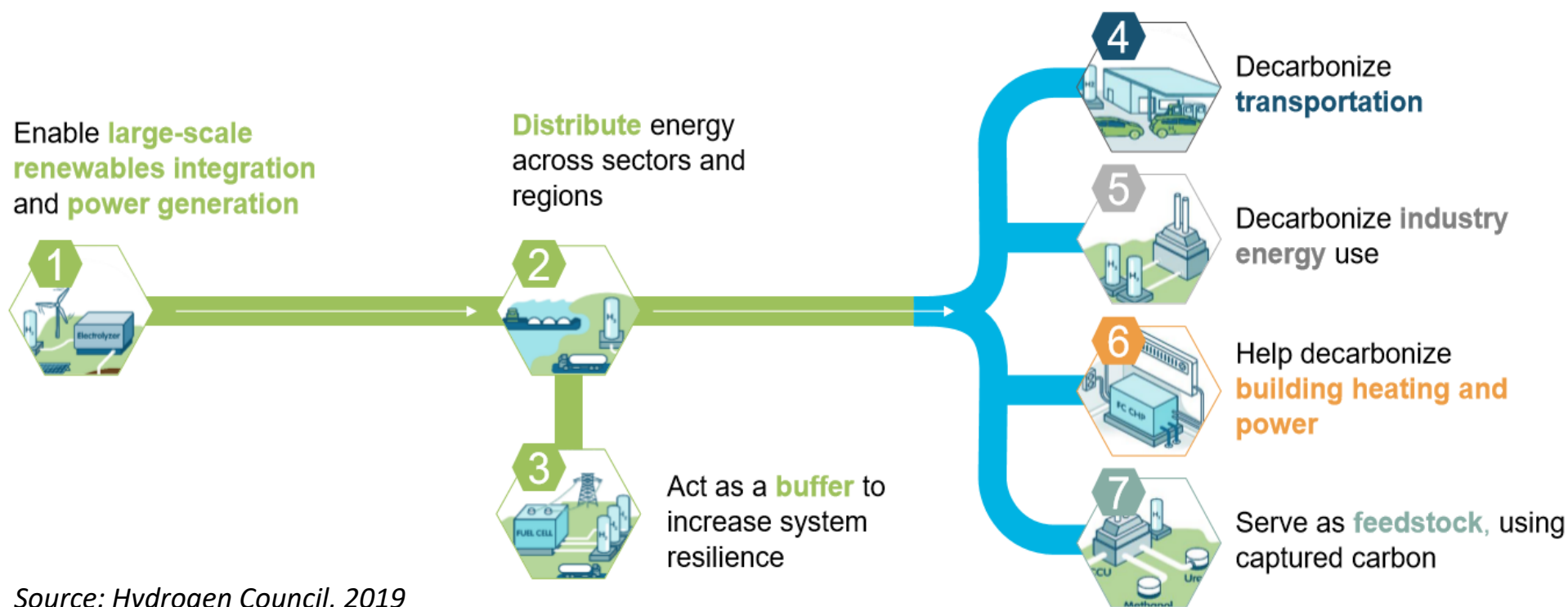
4

*Hydrogen can store excess wind and solar energy across hourly, daily, monthly and seasonal time frames.*

# Opportunities for hydrogen



Enable the renewable energy system —————> Decarbonize end uses



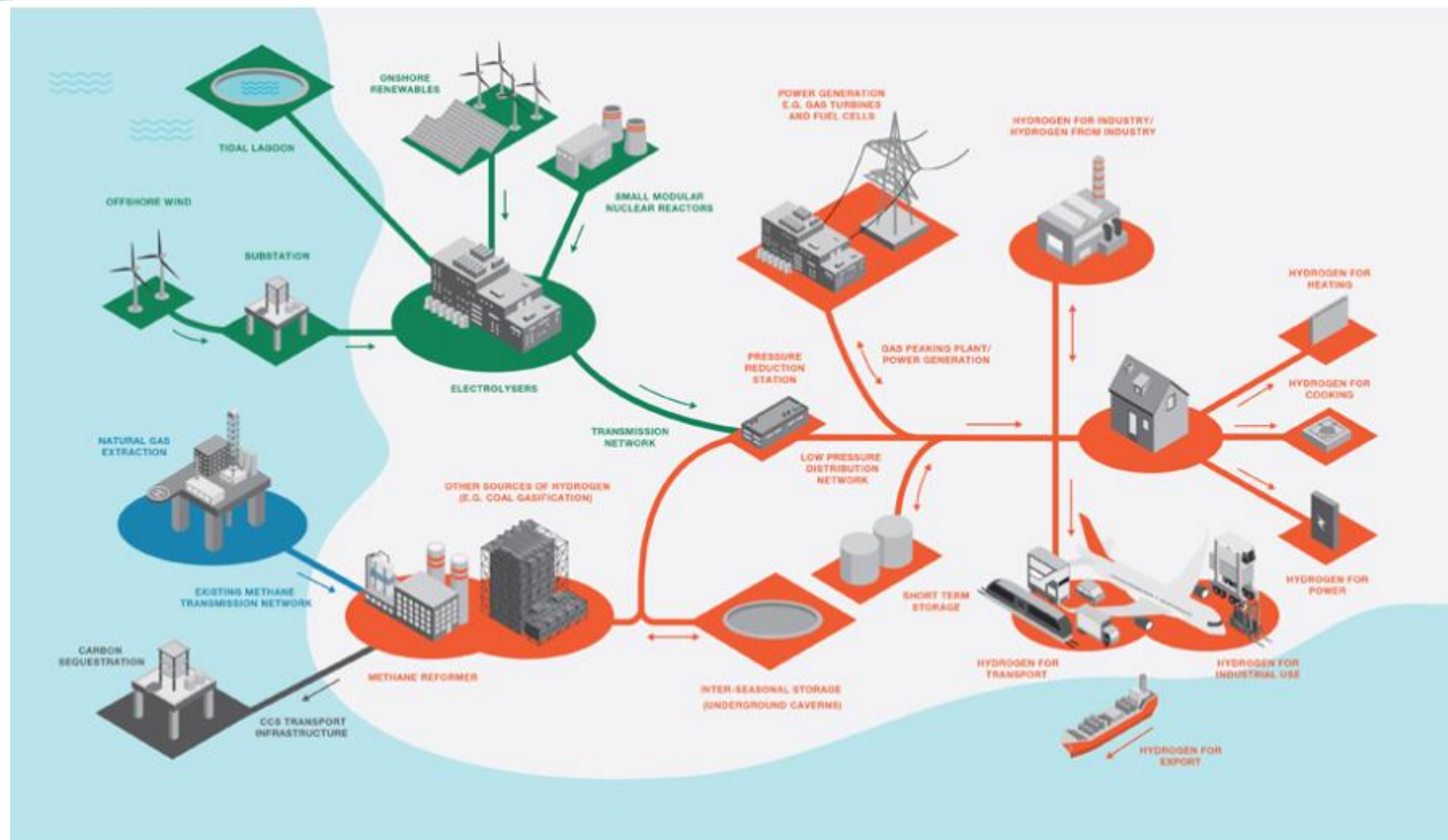
Source: Hydrogen Council, 2019

Hydrogen can replace fossil fuels and facilitate the decarbonisation of ‘harder to abate sectors’.

# UK Hydrogen Vision



*Hydrogen will eventually form the backbone of the UK's energy infrastructure working alongside other renewable energy sources to decarbonise the UK by 2050*



Source: Arup, 2019



# What are Policy makers saying...



**Boris Johnson**

On Hydrogen fuelled buses,  
'These buses are a marvel of Hydrogen technology,' 2010



**Grant Shapps,  
Secretary of State for Transport**

'Hydrogen fuel would be key to the UK's efforts to meet its decarbonisation targets, hydrogen must be developed for lines' 2019  
'there is an "easy win" if we can get our entire transport sector switched to alternative fuels like hydrogen' 2019



**Kwasi Kwarteng,  
Secretary of State for BEIS**

'....we are making it on an industrial scale and trying to make hydrogen power the economy of the future, it is very exciting.' 2020



**Ben Houchen,  
Mayor of Teeside,**

'Hydrogen is vital to our green economy plans and it doesn't stop at cars – we are currently progressing a pilot of the UK's first hydrogen train in the area.'



**Nicola Sturgeon,  
First Minister of Scotland**

'our energy strategy makes it clear that we will probably need to increase our use of both hydrogen and renewably generated electricity.' 2018



**Mark Drakeford,  
Leader Welsh Parliament,**

On Alternative fuel methods like Hydrogen, 'It's through collaborative working like this that we can achieve the rapid and far-reaching transformations we need to bring about a sustainable, low carbon society.' 2019







# Hydrogen mobility applications in the UK







The Future?



Thank you for your time!

Questions?

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