

A brief overview of hydrogen for heating

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Who we are

Since 2001 we have been accelerating new technologies, markets and business models

We are impartial, rigorous and innovative

We know what works, and what doesn't

The Carbon Trust is a not for profit group with the mission to accelerate the move to a low carbon economy

We research and certify the environmental benefits of technologies, services, claims and products

We help develop and deploy low carbon technologies and solutions, from energy efficiency to sustainable products

What we do



Policy advice



Assurance and certification



Corporate advisory



Programme design and management

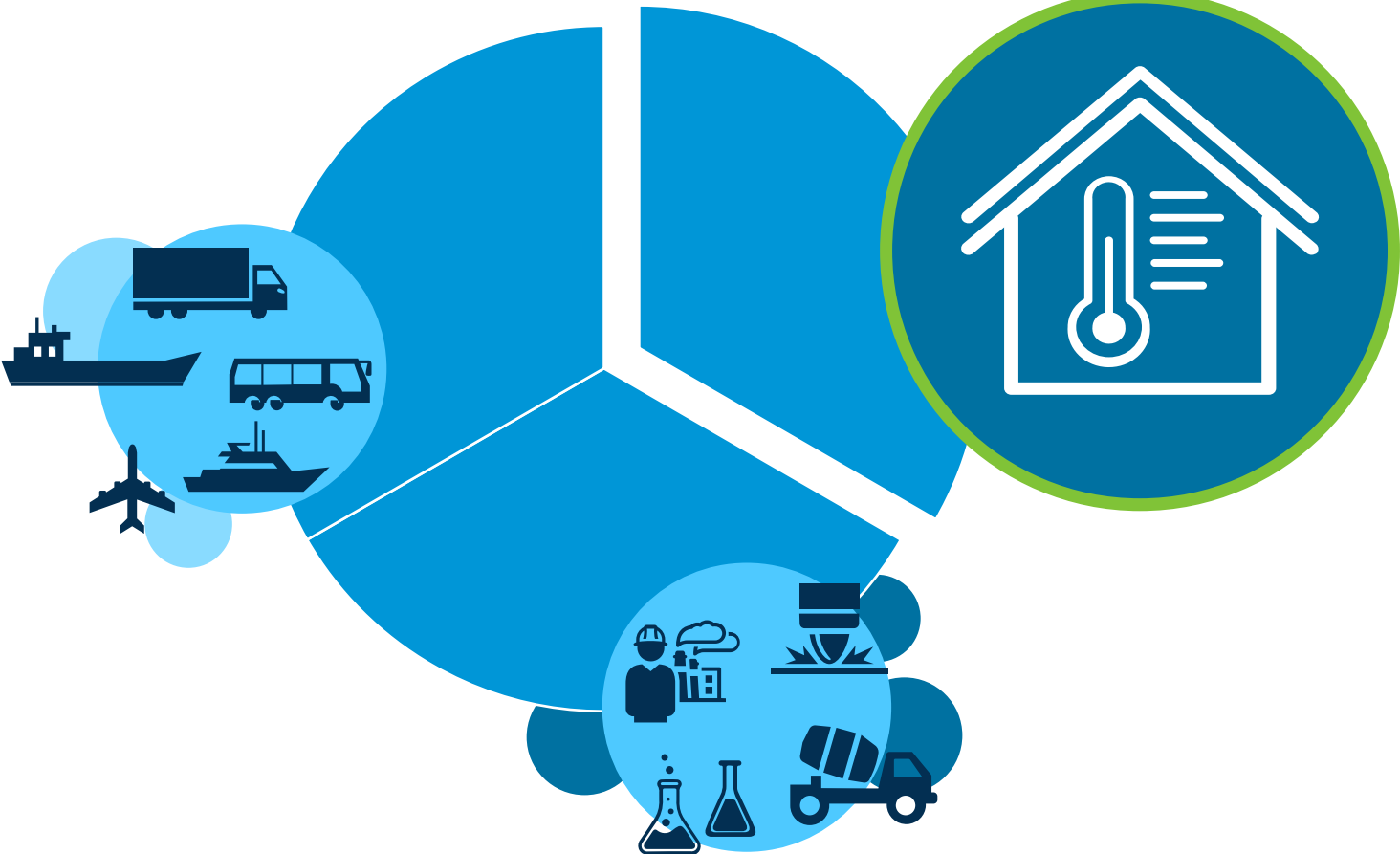


Technology Innovation

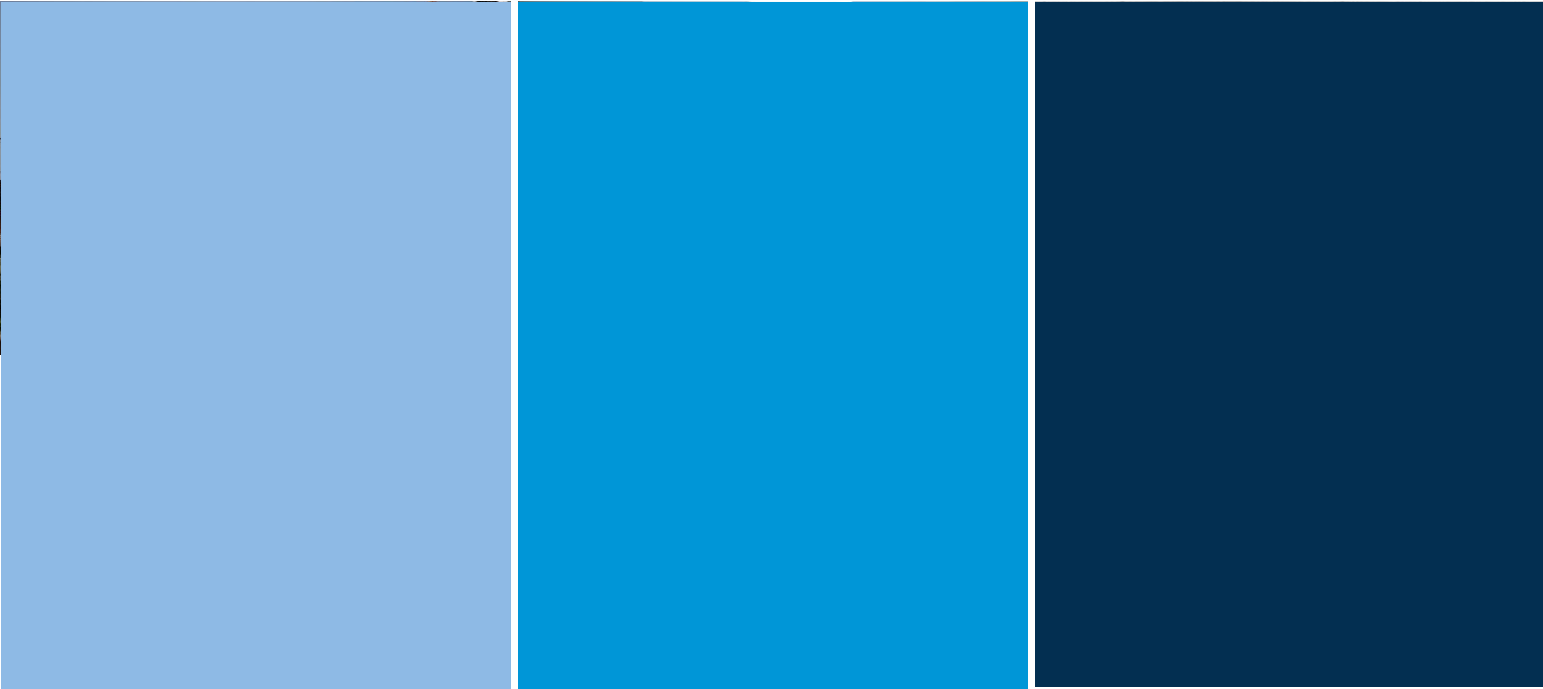


Green finance

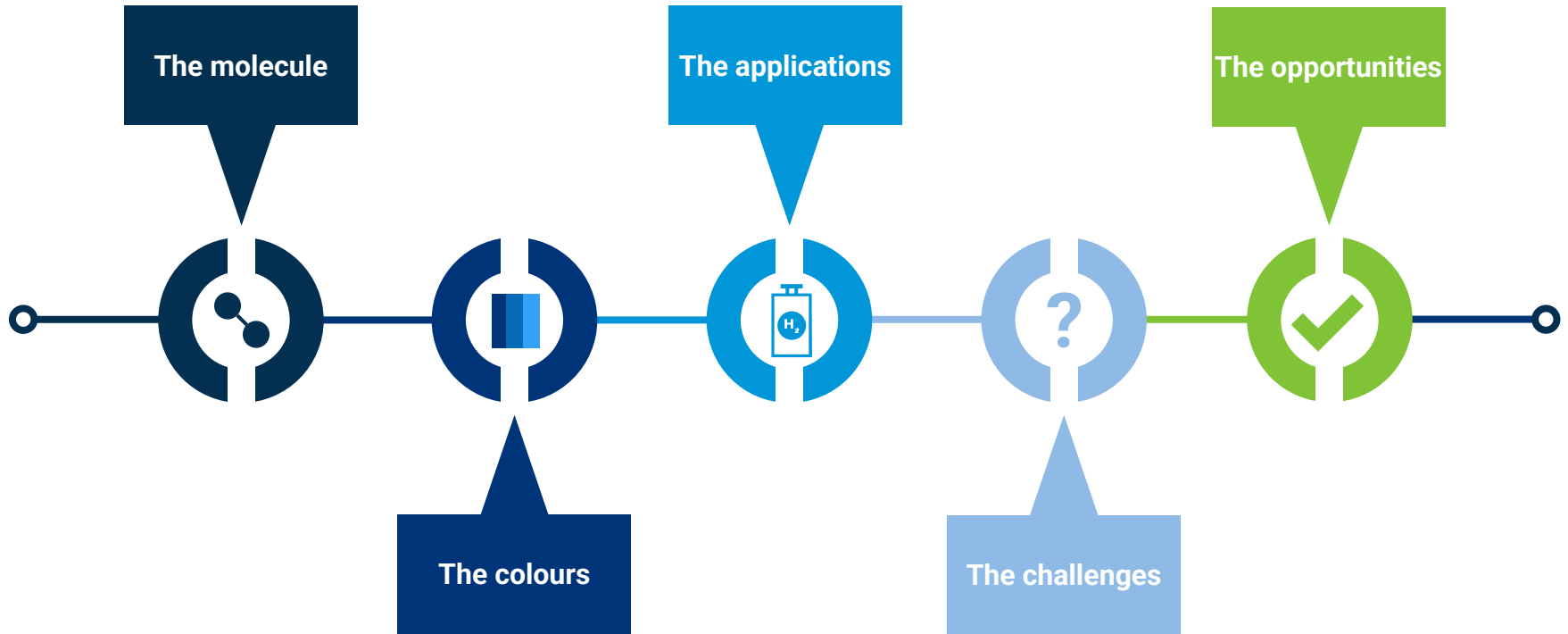
Where do the challenges for decarbonisation lie?



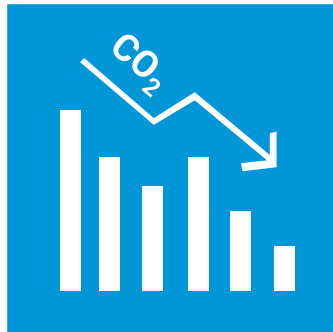
What are the challenges for heat pumps?



Brief introduction to hydrogen



Overview of national ambition and plans



CCC's report "Net Zero – The UK's contribution to stopping global warming", May 2019

- Led to the 2050 Net Zero legislation in June 2019

Prime Minister's 10 Point Plan, November 2020

- Hydrogen for heating milestones announced

CCC's Sixth Carbon Budget, December 2020

- Quantified the role of hydrogen in the net zero energy system

BEIS' Energy White Paper, December 2020

- Further hydrogen heating trials and commitments announced

Where we are, where we're going

H21 Leeds City Gate
HyDeploy
Hy4Heat

Current
activity



Future
ambition

H₂ Village
H₂ Town
"SuperPlaces"

Flexibility in Great Britain report



The project set out to understand the role and value of flexibility in meeting net zero targets.

This builds on our 2016 analysis on electricity flexibility for BEIS.

We have updated and expanded the analysis to cover heat, transport, hydrogen and power in a net zero energy system.

The report is the output of 18 months of rigorous independent analysis.

Given the transition to the net zero energy system requires significant collaboration we convened a cross-sector consortium.

To support decision making we engaged closely with BEIS, Ofgem, CCC, NIC, National Grid ESO and Innovate UK.

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LOW CARBON CONTRACTS COMPANY
POWERING NET ZERO

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Exploring multiple scenarios informed understanding of the value of flexibility

Three heating pathways were modelled....



Hybrid



Electric



Hydrogen

...with low and high deployment of flexibility



Interconnectors



Battery storage



Pumped hydro



Thermal storage



Demand side response

Sensitivity analysis explored impact of wider system changes..



Impact of hydrogen production route and coupling



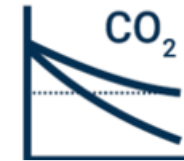
Impact of negative emissions tech availability



Impact of flex tech unavailability



Local vs National Optimisation



Zero vs net negative 2050 carbon targets



Thank you

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