

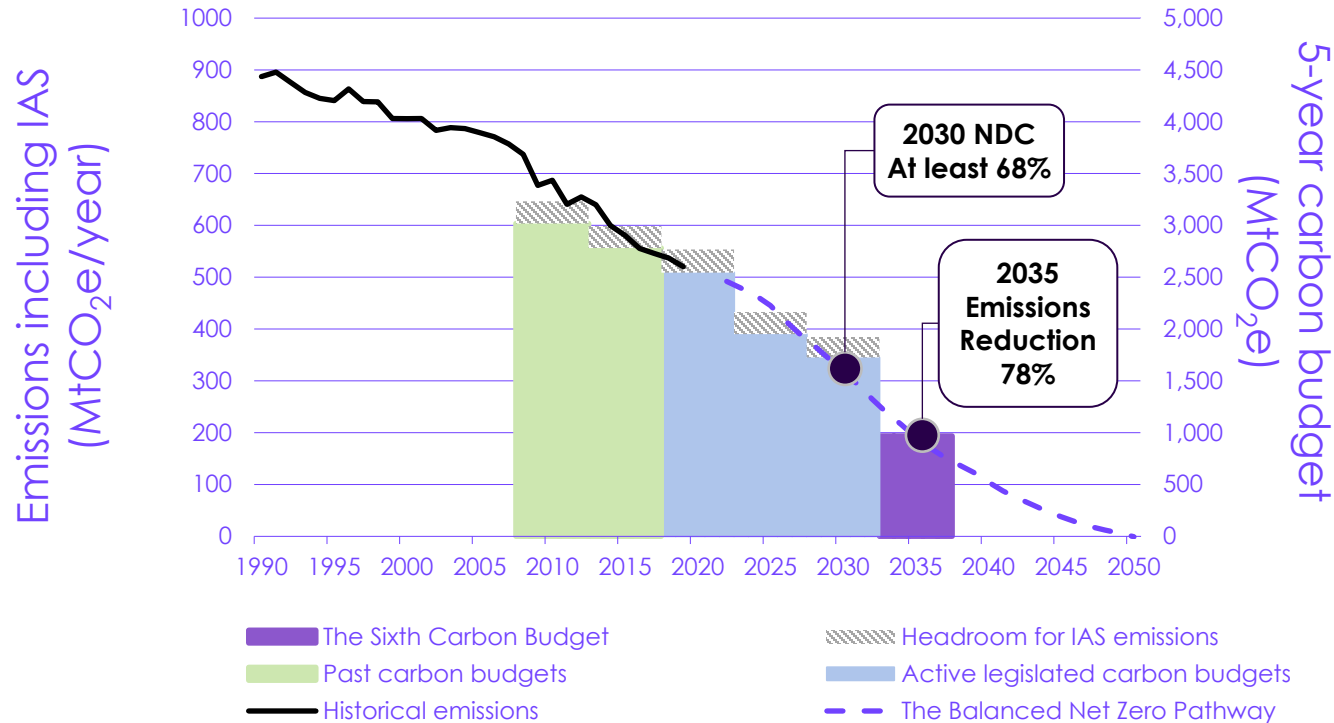
22nd June 2021

Greenhouse gas removals, Net Zero and the Sixth Carbon Budget

Dr. David Joffe

Our recommended path

The sixth carbon budget and 2030 NDC

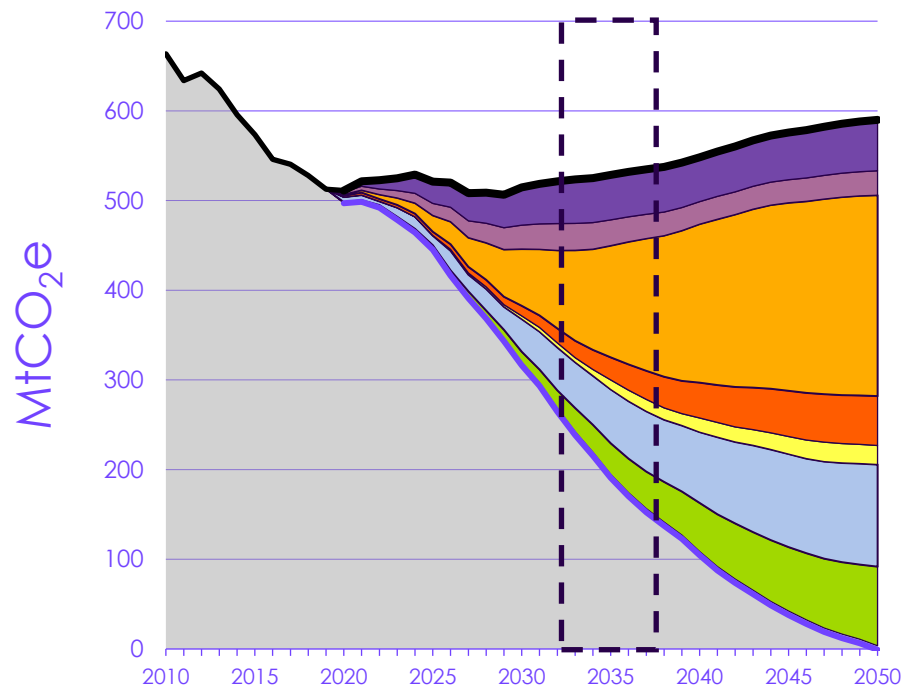


Notes:
Emissions shown including emissions from international aviation and shipping (IAS) and on an AR5 basis, including peatlands. Adjustments for IAS emissions to carbon budgets 1-3 based on historical IAS emissions data; adjustments to carbon budgets 4 and 5 based on IAS emissions under the Balanced Net Zero Pathway.

Source:
BEIS (2020) Provisional UK greenhouse gas emissions national statistics 2019; CCC analysis.

Emissions abatement

Meeting the Sixth Carbon Budget requires actions across four key areas

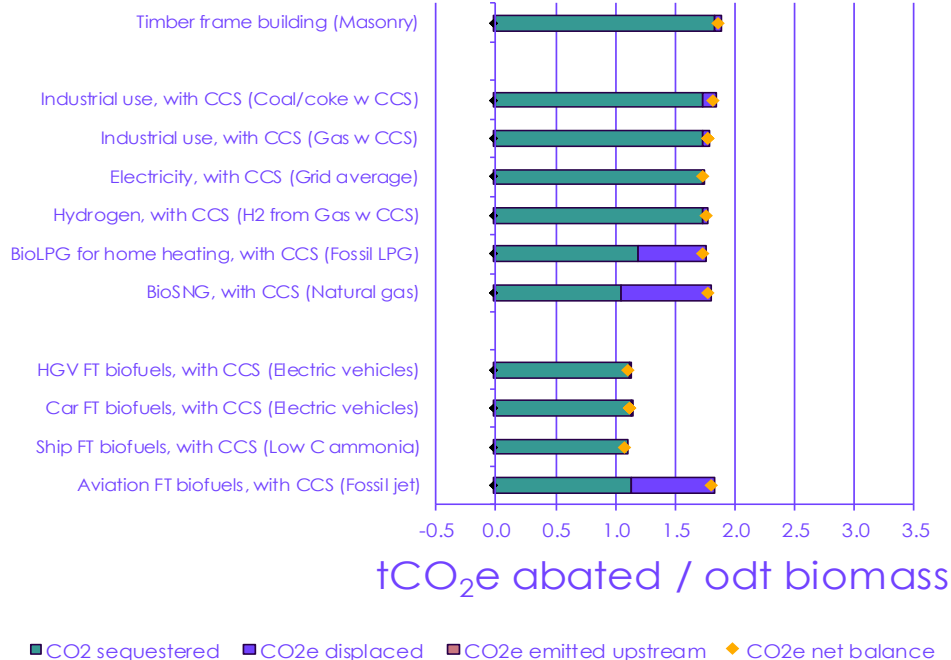
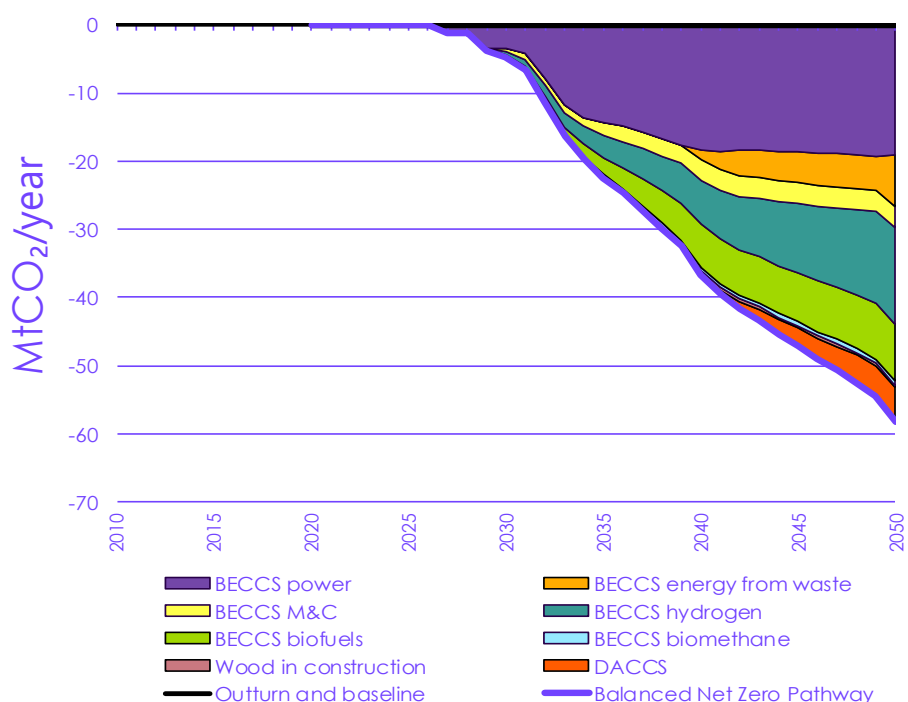


1. Reducing demand and improving efficiency
 - Reduced demand for carbon-intensive activities
 - Improved efficiency in use of energy and resources
2. Take-up of low carbon solutions
 - Electrification
 - Hydrogen and other low-carbon technologies
 - CO₂ capture from fossil fuels and industry
3. Decarbonisation of existing energy supply
 - Low-carbon hydrogen and electricity production
4. Offsetting emissions
 - Natural carbon storage and greenhouse gas removals

Source: BEIS (2020) Provisional UK greenhouse gas emissions national statistics 2019; CCC analysis

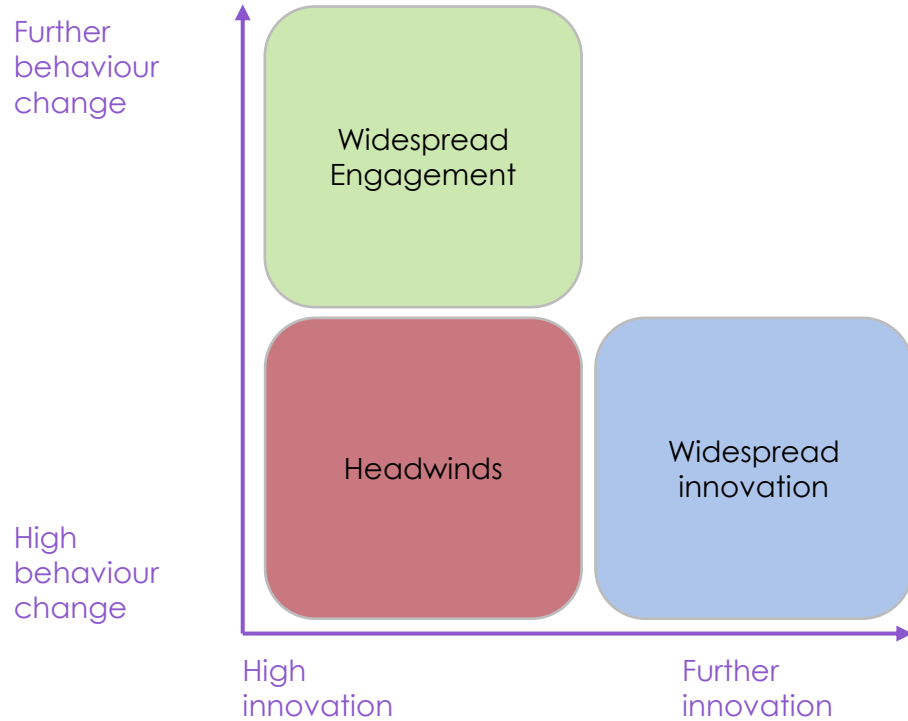
BECCS has many potential flavours

Many uses of BECCS give similar overall impacts on emissions



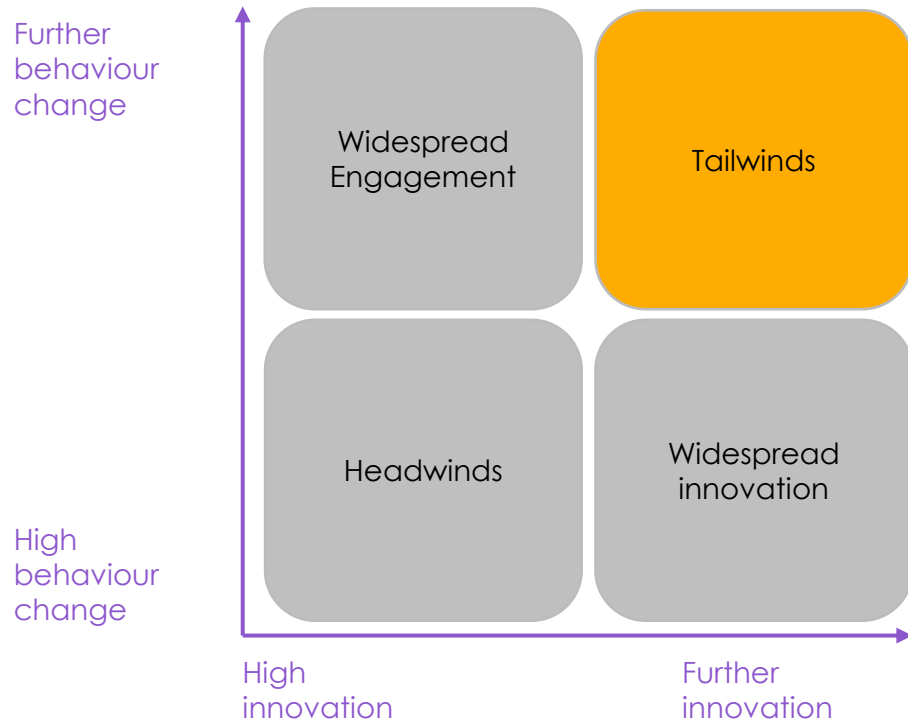
Our approach

Three exploratory scenarios to reach Net Zero by 2050



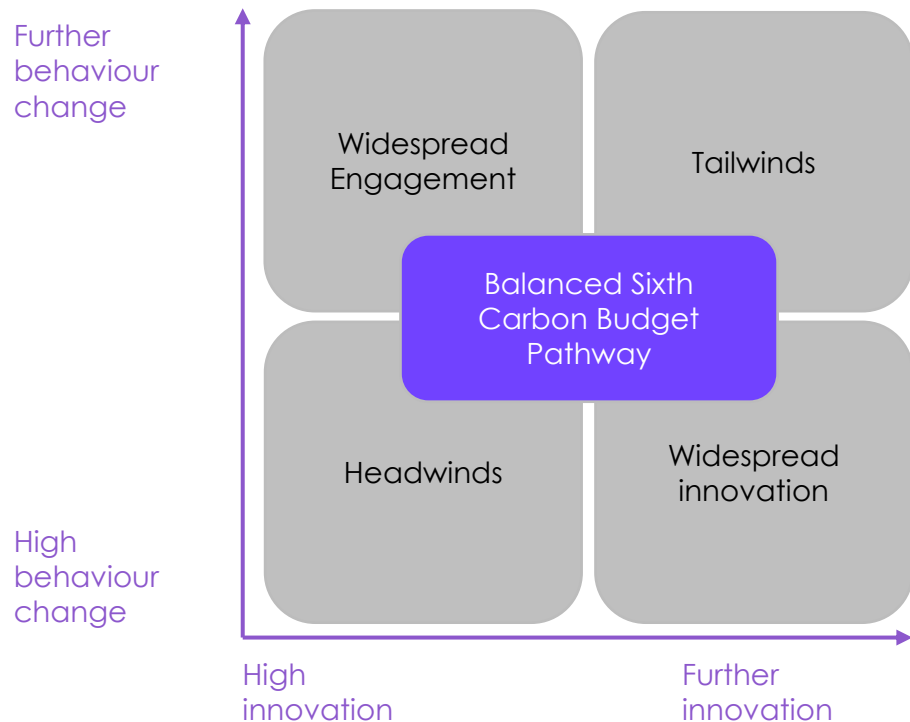
Our approach

One highly optimistic scenario with success on infrastructure, innovation, societal and behavioural change



Our approach

A balanced pathway, consistent with the Paris Agreement

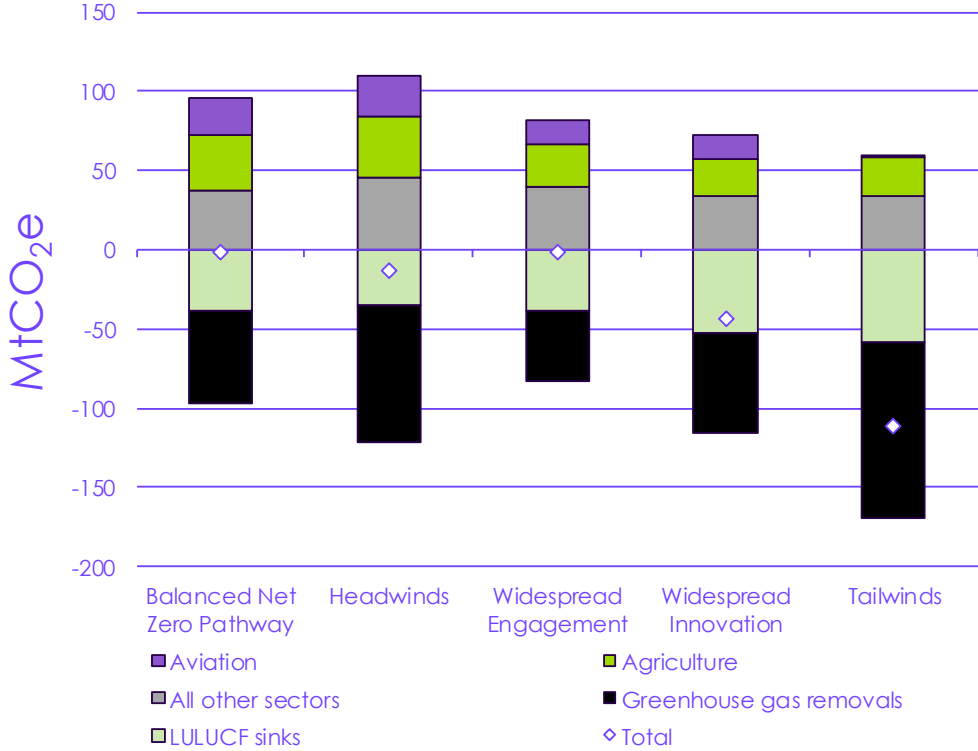


Climate science and international circumstances

- Need deep reductions globally to 2030 to keep 1.5°C in play
- Paris demands 'highest possible ambition'
- UK leadership matters as President of COP26
- Equity arguments reinforce need for strong UK action

Scenarios for net emissions in 2050

Required removals are most sensitive to action across aviation, agriculture and land use



Assumes we can get to ~zero across a range of other areas:

- Surface transport
- Power generation
- Buildings
- Shipping
- Most parts of manufacturing

Engineered removals will have significant challenges too:

- Energy consumption of DAC, on top of stretching overall requirements for clean energy
- Availability of sustainable biomass
- Potential over-reliance on removals, due to shortfalls on the above

Contact us

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