Committee on Climate Change

Tuesday 17th September, 2019

Net Zero: The UK's contribution to ending warming

Richard Millar, Committee on Climate Change

The Climate Change Act (2008)

The Climate Change Act 2008

1	A goal	**2050 Emissions Target**
2	A pathway	**Carbon Budgets**
3	A toolkit	Requirement that Government brings forward **policies**
4	A monitoring framework	**Committee on Climate Change** to monitor progress and suggest changes

Committee on Climate Change

2 committee chairs (mitigation & adaptation)

↓

14 independent committee members

↓

~25 analysts (5 adaptation, 20 mitigation), 8 corporate staff

The CCC has a brief to hold the Government to account on both mitigating greenhouse gas emissions and adapting to climate change

Committee on Climate Change

Independent advisor

Committee on Climate Change

UK legislatures

UK Parliament

The Scottish Parliament
Pàrlamaid na h-Alba

Cynulliad Cenedlaethol Cymru
National Assembly for Wales

Mitigation lead

Department for Business, Energy & Industrial Strategy

Adaptation lead

Department for Environment Food & Rural Affairs

Other Government departments and devolved administrations

GOV.UK

The Scottish Government
Riaghaltas na h-Alba

Llywodraeth Cymru
Welsh Government

The Committee draws on a wide range of evidence in developing its advice

Source: CCC Net Zero (2019)

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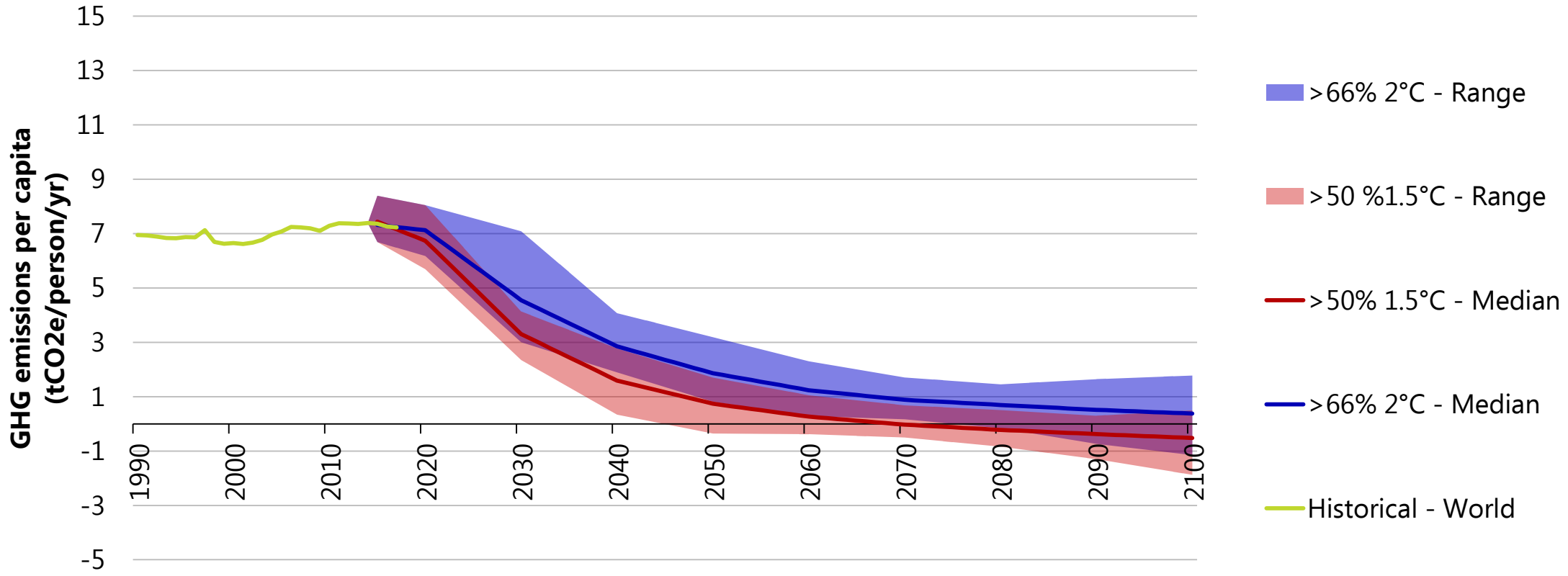
Science and international context
Supporting increased global ambition

Evolution of global per capita emissions over time



Source: Huppmann, D. et al. (2018) A new scenario resource for integrated 1.5°C research.

Science and international context
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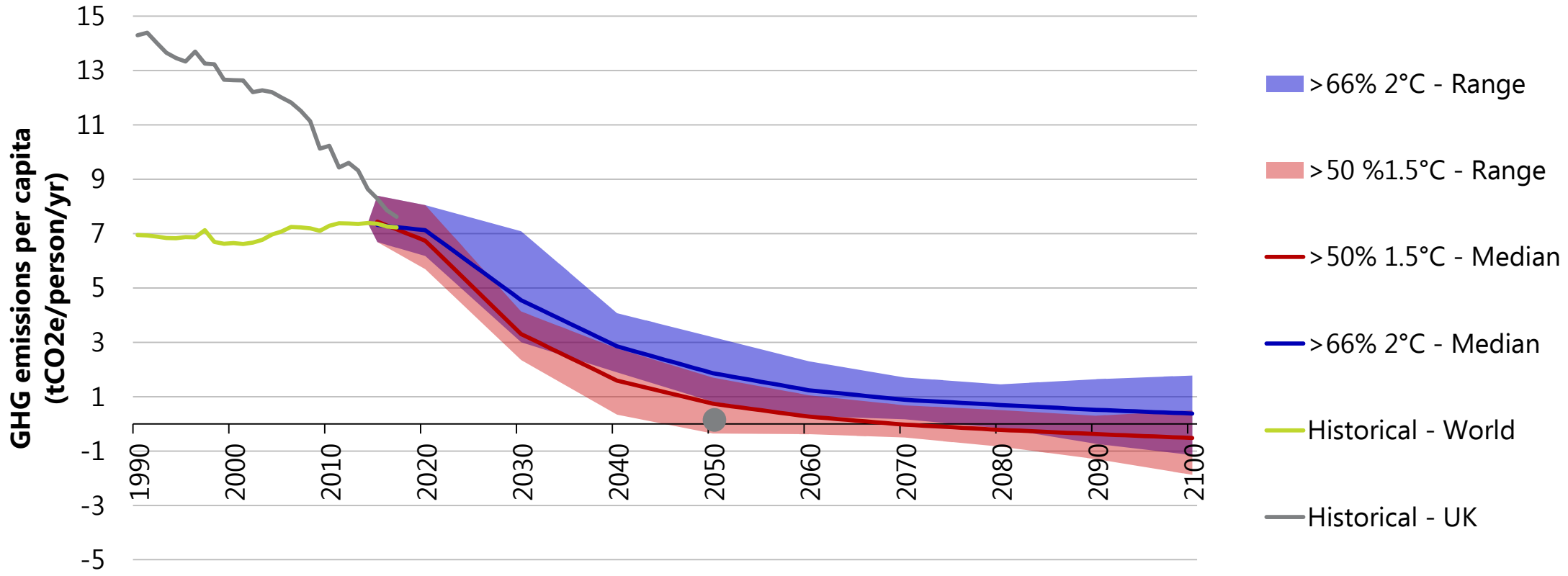
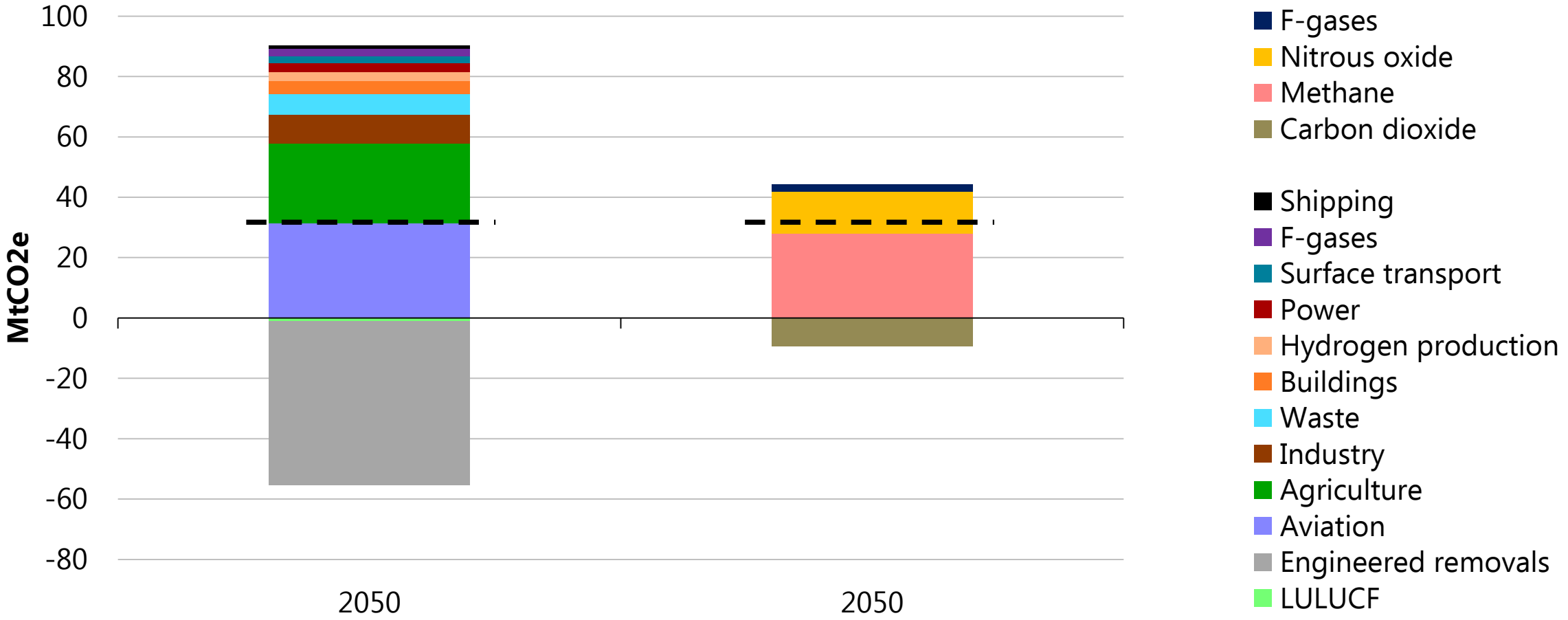


Source: Huppmann, D. et al. (2018) A new scenario resource for integrated 1.5°C research.

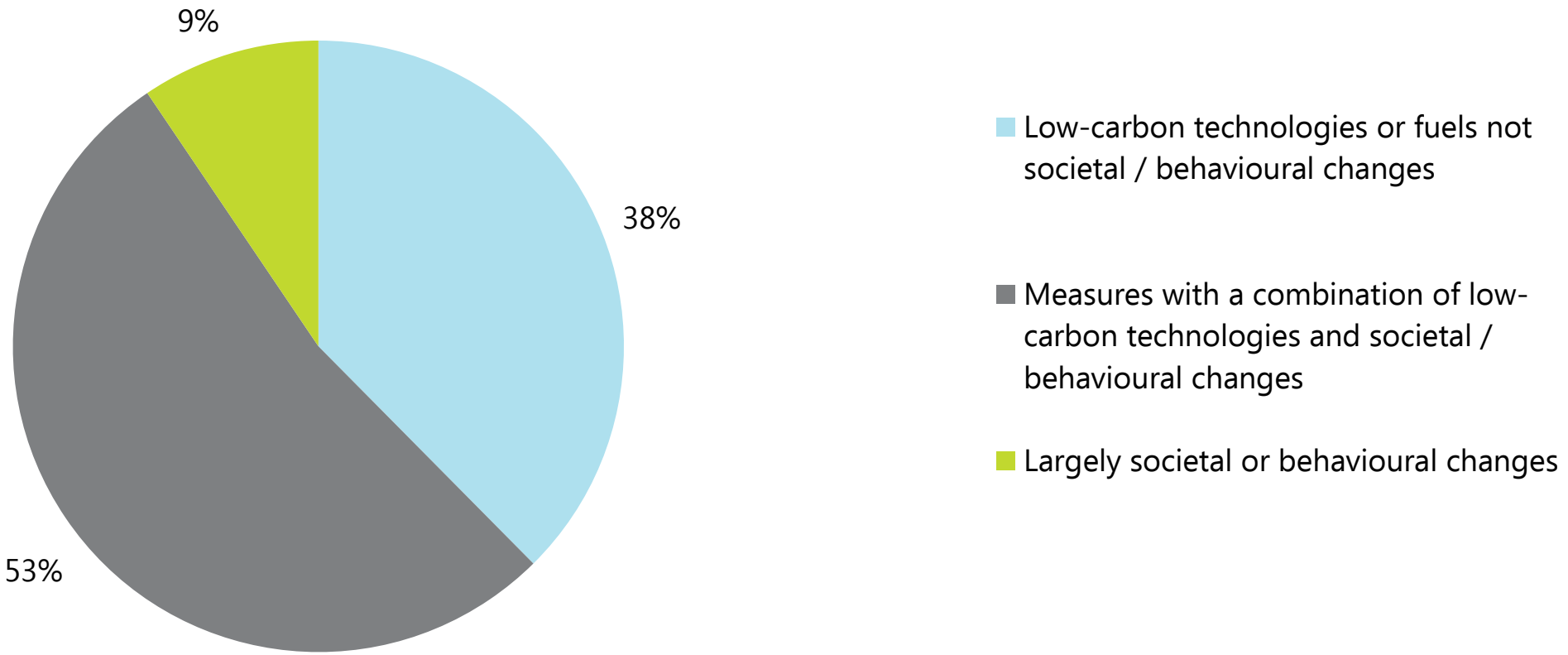
Reaching net-zero emissions in the UK
Scenarios to reduce UK emissions to net-zero

Remaining emissions in the Further Ambition scenario by sector (left) and gas (right)



Source: CCC analysis

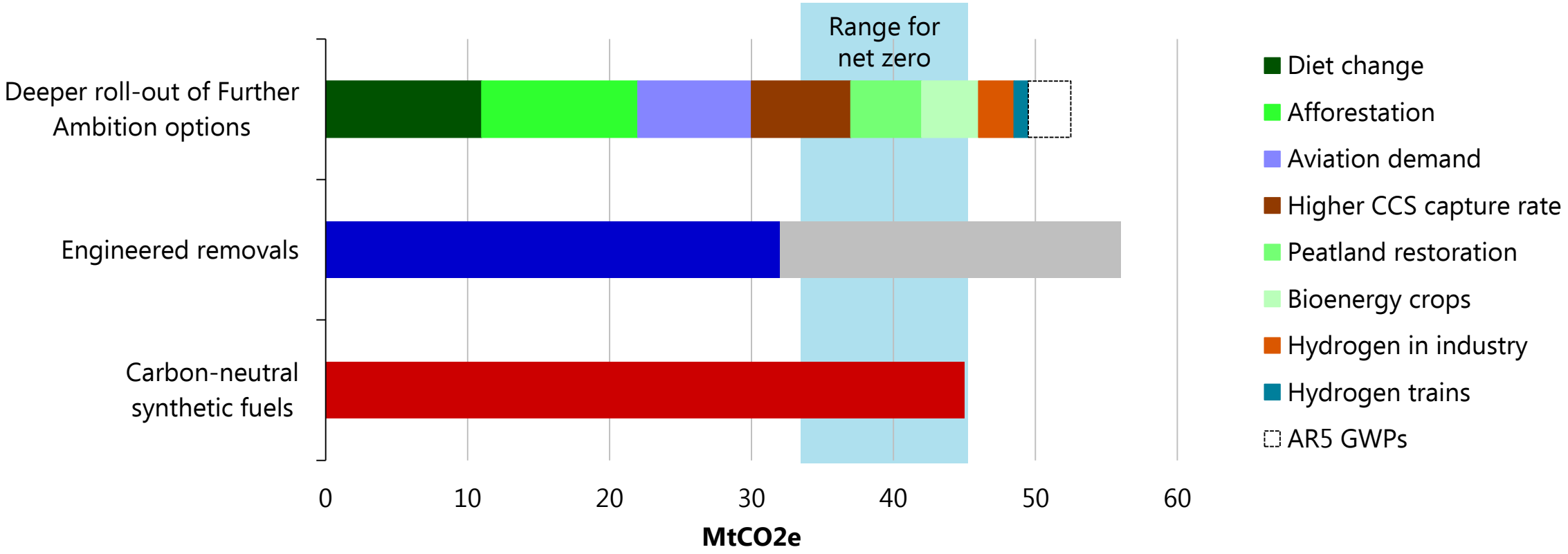
Role of societal and behavioural changes in the Further Ambition scenario



Source: CCC analysis

Reaching net-zero emissions in the UK
Scenarios to reduce UK emissions to net-zero

Additional abatement potential from Speculative options in 2050



Source: CCC analysis

Reaching net-zero emissions in the UK
Scenarios to reduce UK emissions to net-zero

Scenarios for the UK, Scotland, Wales, and Northern Ireland (2050)

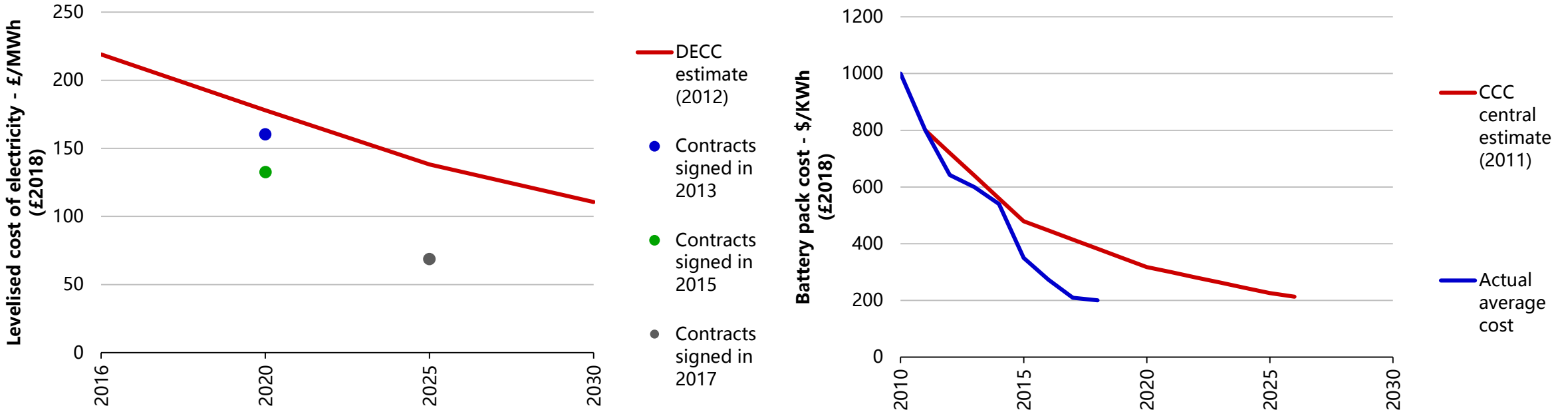
Scenario in 2050		UK	Scotland	Wales	Northern Ireland
Further Ambition	Emissions in 2050 ($MtCO_2e$)	33 to 45	-8 to -4	2 to 3	5 to 6
	Reduction on 1990 levels	95% – 96%	104% – 110%	95% – 97%	78% – 80%
Ability of Speculative options to go beyond the Further Ambition scenario		●	●	●	●
Earliest credible year for net-zero GHG emissions		**2050**	**2045**	**Post-2050**	**Post-2050**

Source: CCC analysis

Reaching net-zero emissions in the UK
Costs are far lower than we imagined

The importance of innovation

Costs of example low-carbon technologies compared to past projections
Offshore wind (left) Battery packs for electric vehicles (right)



Source: Offshore wind costs, CCC analysis based on DECC (2012) Electricity generation costs and LCCC (2019) CfD register. Battery forecasts, CCC (2015) Sectoral scenarios for the 5th Carbon Budget, outturn costs from BNEF (2018) Electric cars to reach price parity by 2022

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Reaching net-zero emissions in the UK
No extra cost than already expected

More effort

2050 target (v 1990)	Estimated cost
2003: -60% CO_2	0.5-2.0% of GDP
2008: -80% GHG	1-2% of GDP
Now: -100% GHG	1-2% of GDP

Same cost

Co-benefits

Clean Growth

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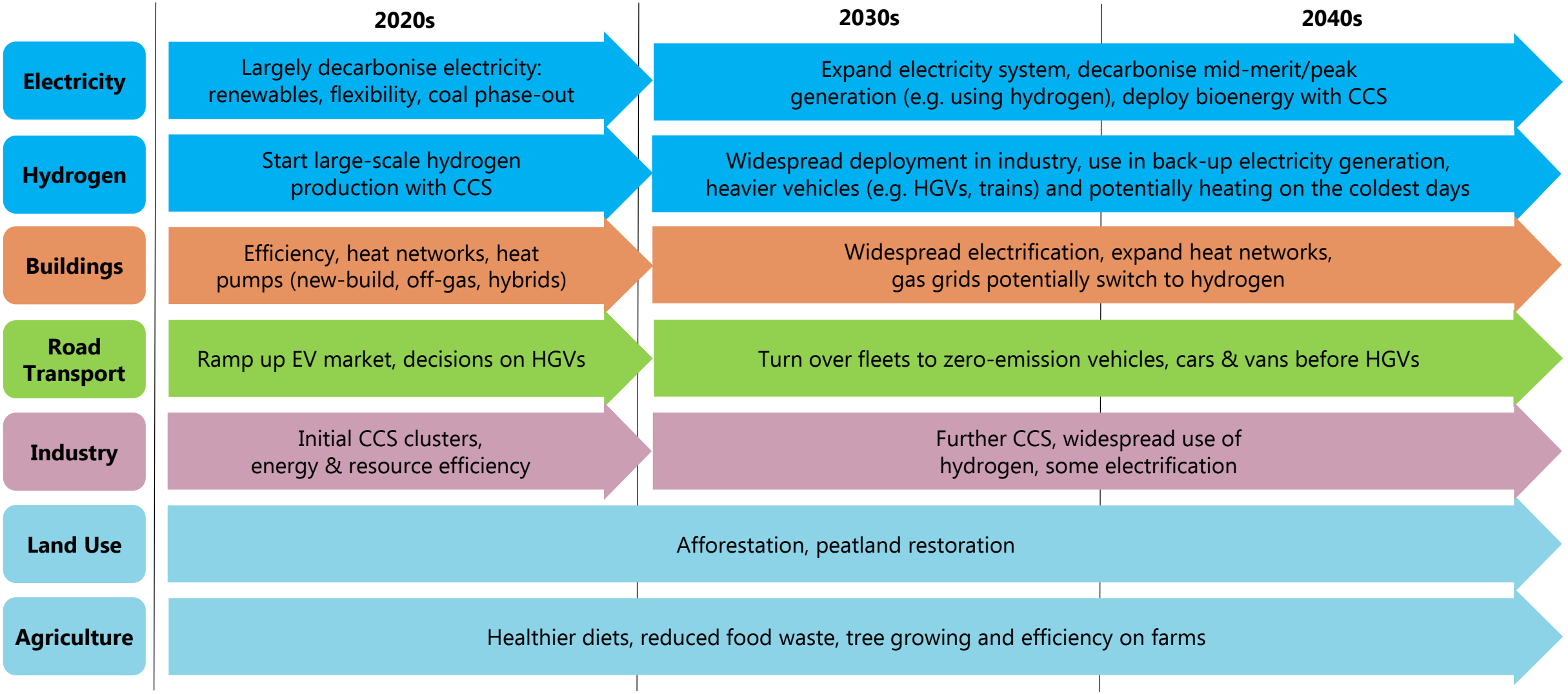
Reaching net-zero emissions in the UK
How UK net-zero scenarios can be delivered



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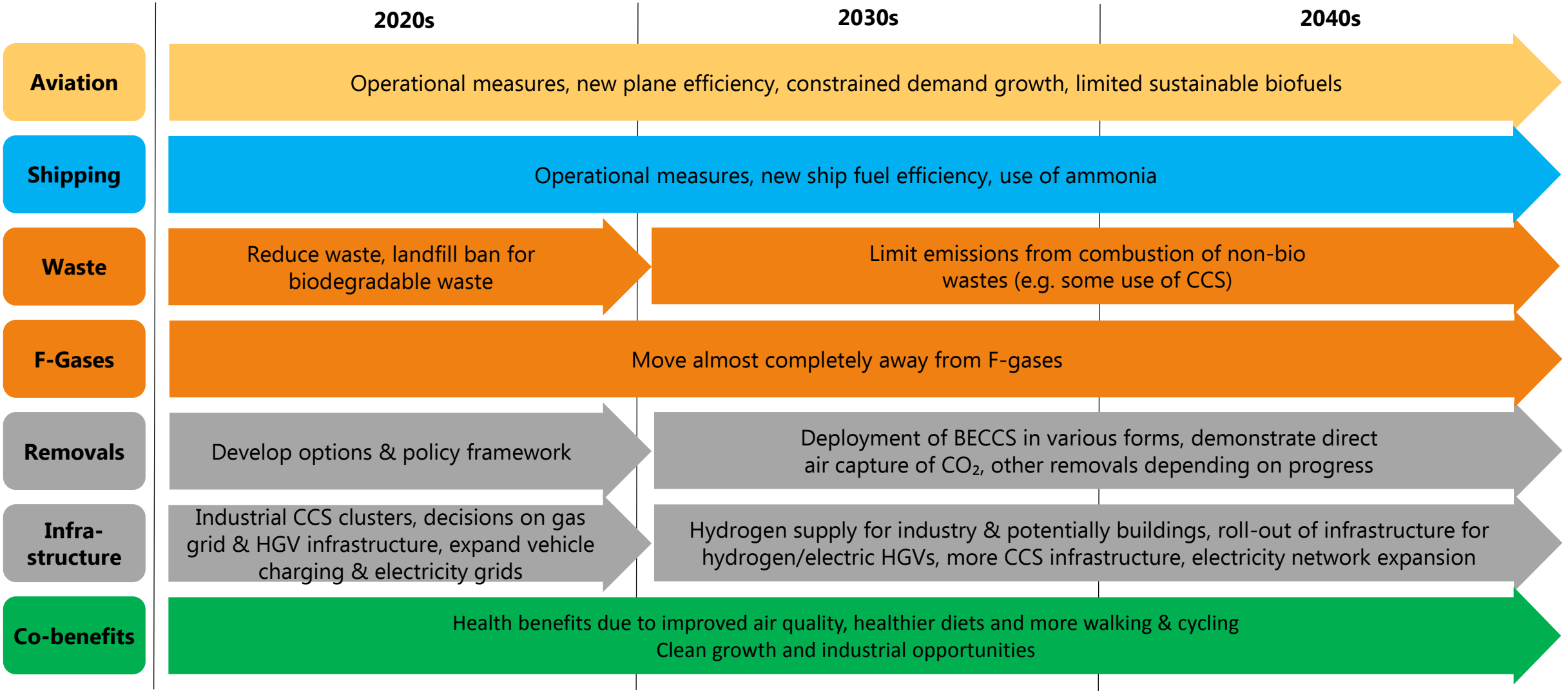
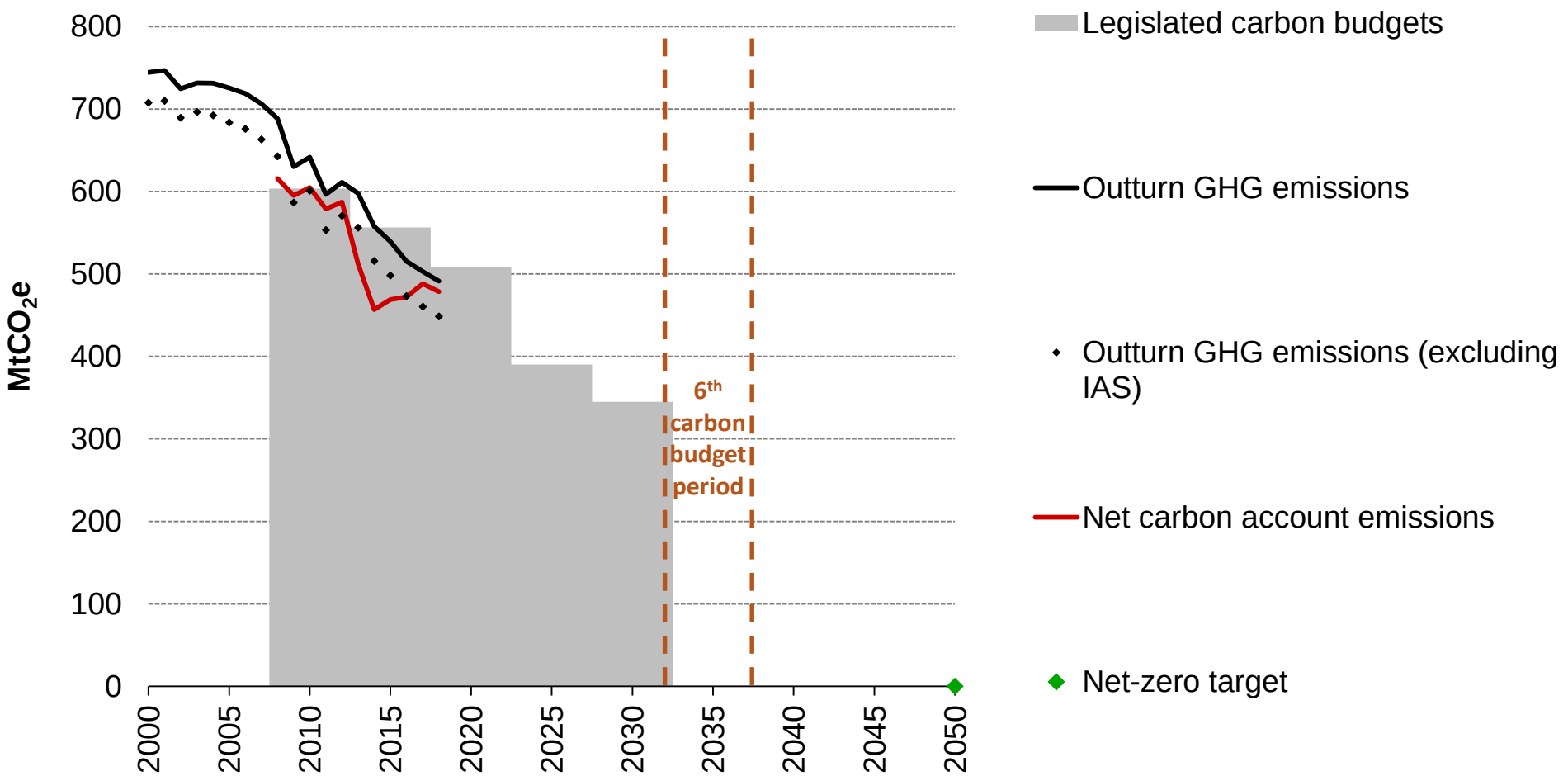
Reaching net-zero emissions in the UK
How UK net-zero scenarios can be delivered



Next steps: CCC advice on the level of emissions for 2032-2037 due by the end of 2020



Source: CCC (2019) Progress Report to Parliament

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Summary recommendations to UK Government

- **Now is the right time to set a UK net zero target**. It is technically possible, based on current consumer behaviours and known technologies, with prudent assumptions over cost reduction.
- **The UK should set a target to reach net-zero greenhouse gas emissions by 2050**. The target should cover **all sectors of the economy, including international aviation and shipping**.
- The aim should be to meet the target **through UK domestic effort**, without relying on international carbon units (or 'credits').
- **The target is an appropriate contribution to the Paris Agreement**. The UK can benefit from the international influence of setting a bolder target, using it as an opportunity for further positive international collaboration.
- **Overall costs are manageable, but must be fairly distributed.** Rapid cost reductions during mass deployment for key technologies mean that net zero can be met an annual resource cost of up to 1-2% of GDP to 2050, the same cost as the previous expectation for an 80% reduction from 1990.