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Net Zero - The UK's Sixth Carbon Budget Local Delivery

APSE Climate Change and Renewables Network

Louise Marix Evans

Purpose of this presentation is to explain:

- The UK's national climate targets
- Current work on the sixth carbon budget
- Implications for local-level action
- What role local authorities see for themselves in a meaningful sixth carbon budget
- What information would be most useful



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 & suggest changes

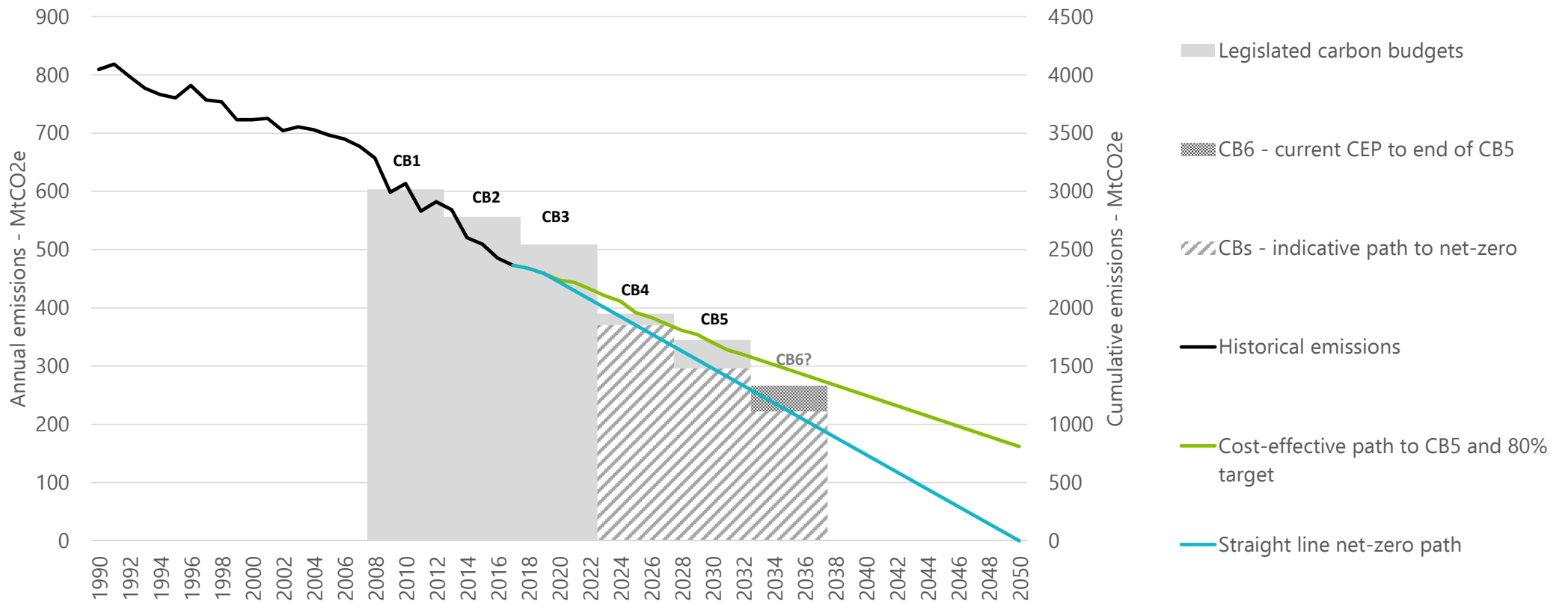
- **The UK should legislate as soon as possible to reach net-zero greenhouse gas emissions by 2050.** The target can be legislated as a 100% reduction in greenhouse gases (GHGs) from 1990 using the existing Climate Change Act procedures.
- The target should cover **all sectors of the economy, including international aviation and shipping.**
- The aim should be to meet the target **through UK domestic effort**, without relying on international carbon units (or 'credits').
- **Now is the right time to set a net zero target.** It is technically possible, based on current consumer behaviours and known technologies, with prudent assumptions over cost reduction.
- **An earlier date should not be set at this stage.** Some sectors could reach net zero earlier, but for most sectors 2050 appears to be the earliest credible date, to give time to develop speculative options as alternatives for any shortfalls. Avoiding the need for early capital scrappage or punitive policies.
- **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.
- **Wales should set a target for a 95% reduction in emissions by 2050 relative to 1990.** Wales has less opportunity for CO₂ storage and relatively high agricultural emissions that are hard to reduce. On current understanding it could not credibly reach net-zero GHGs by 2050.
- **Scotland should aim for net-zero greenhouse gas emissions by 2045.** Scotland has proportionately greater potential for emissions removal than the UK overall and can credibly adopt a more ambitious target. Interim targets should be set for Scottish emissions reductions (relative to 1990) of 70% by 2030 and 90% by 2040.

The Government legislated the net zero target in June 2019

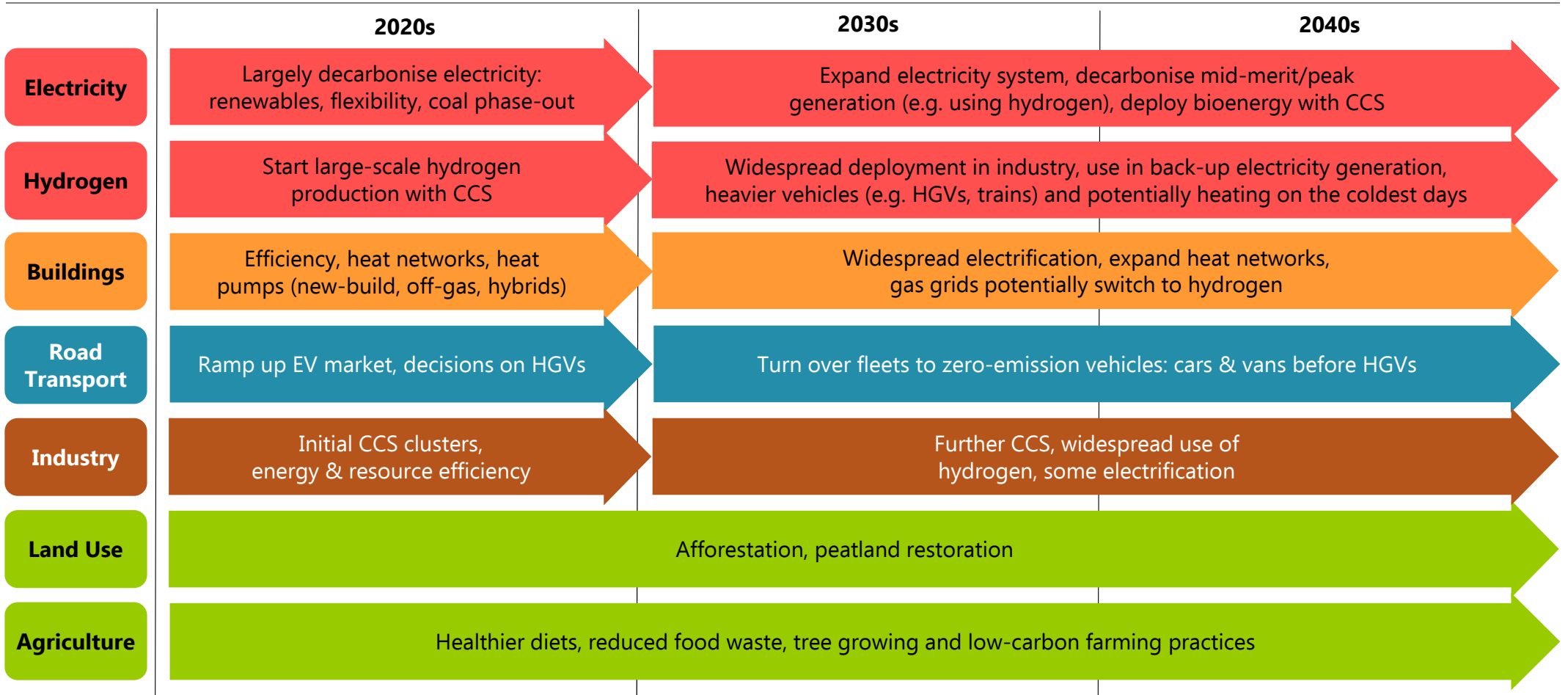
- **Net zero target is only credible if policy to reduce emissions ramps up significantly**
 - The target can only be delivered with a strengthening of policy to deliver emissions reductions across all levels and departments of government. This will require strong leadership at the heart of Government. Delivery must progress with far greater urgency.
 - Policies must be designed with businesses and consumers in mind. They must be stable, long-term and investable. The public must be engaged, and other key barriers such as low availability of necessary skills must be addressed.
 - Report emphasises previous CCC recommendations for: Heating buildings; CCS; Electric vehicles; Agriculture; Waste; Low Carbon Power.
 - With new recommendations for stronger approaches to: Industry; land use; HGVs; aviation and shipping; and GHG removals.
- **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.
- **HM Treasury should undertake a review of how the transition will be funded and where the costs will fall.** It should develop a strategy to ensure this is, and is perceived to be, fair. A broader strategy will also be needed to ensure a **‘just transition’** across society, with vulnerable workers and consumers protected.

Legislated carbon budgets towards the 80% target

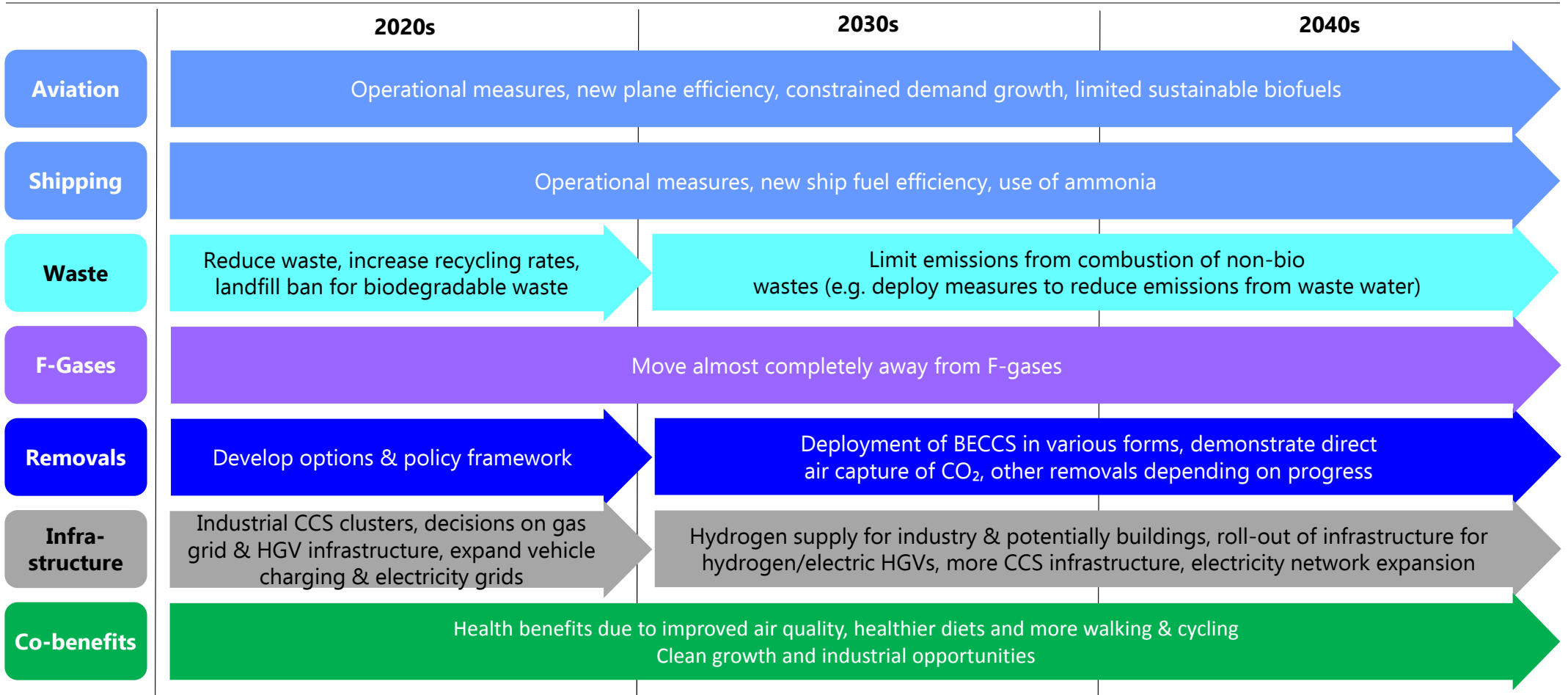
Carbon budgets and indicative emissions trajectory



How UK net-zero scenarios can be delivered

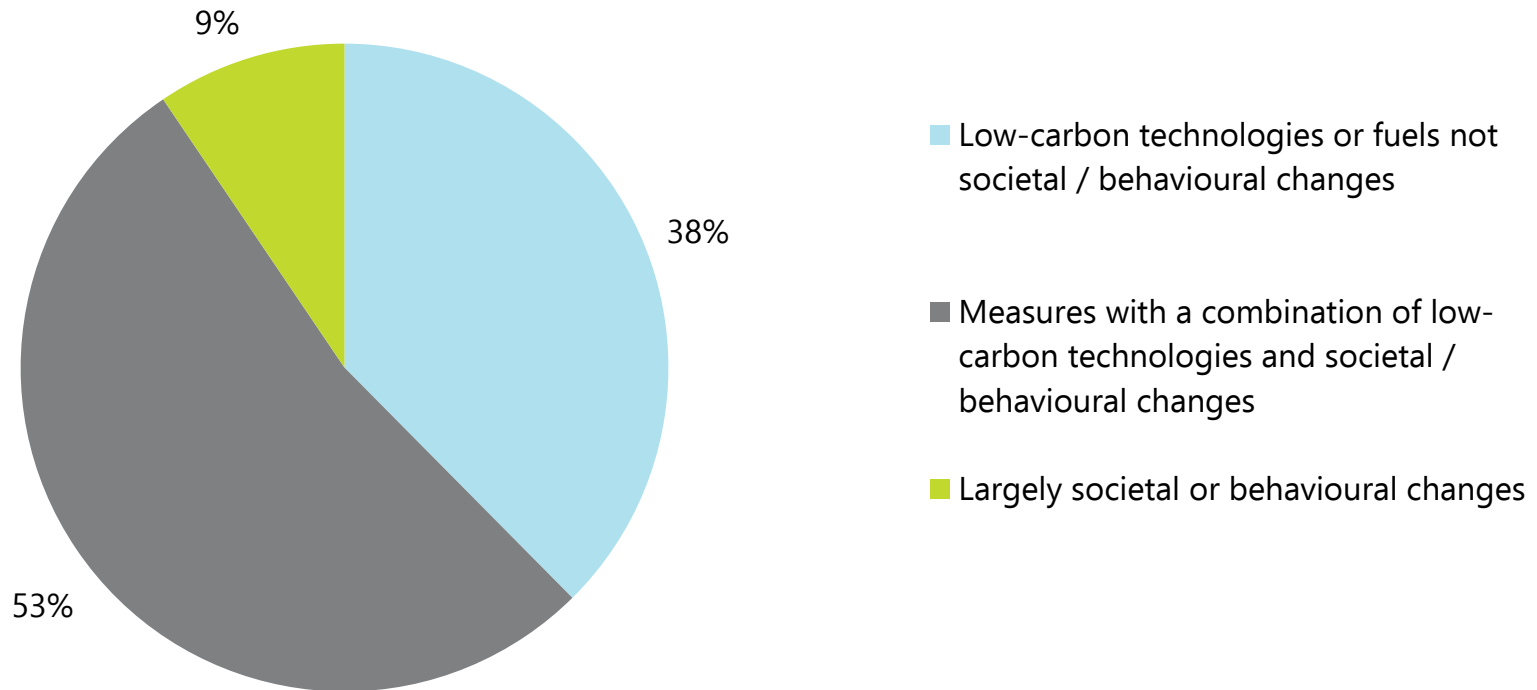


How UK net-zero scenarios can be delivered



60% of the emissions reduction in our scenarios involve some societal or behavioural changes

Proportion of emissions reduction from technologies and societal / behavioural changes



Areas where local-level policy has a key role to play

	Ambition	Delivered through
Transport	<ul style="list-style-type: none"> All car/van sales electric by 2035 at latest 	<ul style="list-style-type: none"> Charging infrastructure (for new developments & where no off-street parking) Switch to ultra-low emission buses/taxis through licensing or clean air zones
Buildings	<ul style="list-style-type: none"> All buildings zero-carbon by 2050 	<ul style="list-style-type: none"> Ultra energy efficient buildings Switch away from gas boilers to low-carbon heating (e.g. heat pumps, low-carbon heat networks, hydrogen) – no gas boilers in new homes from 2025
Waste	<ul style="list-style-type: none"> No bio-degradable waste to landfill by 2025 70% recycling rate by 2030 at latest 	<ul style="list-style-type: none"> Mandatory separation of waste by 2023

Our approach will use scenarios to:

Explore a wider range of ways of reaching Net Zero, with 3x accompanying narratives

Identify actions over the next 10-15 years required to be on track to a range of ways to achieve Net Zero

Understand what we'd have to believe in order for an **earlier Net Zero date** to be feasible
(**'Max'** 6th Carbon Budget pathway)

Develop a 'Central' 6th carbon budget pathway

Three main scenarios where **one driver of change dominates**

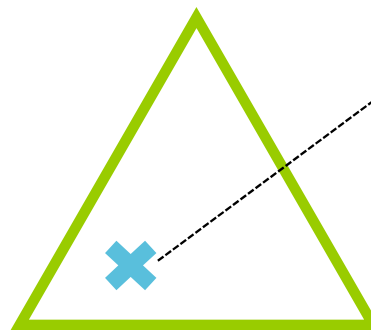
Engaged people change their behaviour and consumption patterns quickly and extensively (e.g. diet shift, changes in home insulation and heating, less flying)

Driver: engaged people

Net Zero Further Ambition scenario

Driver: government intervention/infrastructure

Lesser progress on innovation & lower public engagement requires more government regulation, GHG removals & big infrastructure solutions (e.g. CCS networks)



Driver: innovation

Further strong progress in core techs (e.g. offshore wind, electric vehicles) as well as rapid cost reductions for immature techs (e.g. DACCS)

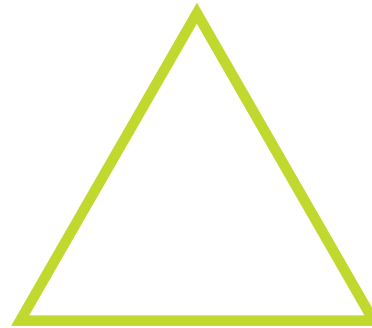
Sectoral narrative examples – Buildings

- People are more willing to put up with the disruption of retrofitting their homes and adopt new heating technologies, resulting in rapid roll-out of building energy efficiency retrofits and heat pumps

Driver: engaged people

Driver: government intervention/infrastructure

- Less willingness from people to change their behaviour and slower progress on innovation means government regulation is needed to push through solutions
- Results in reliance on engineered removals and the need for a widespread CCS and hydrogen networks – hydrogen boilers end up as the dominant heating solution, based on gas reforming with CCS



Driver: innovation

- More optimistic cost assumptions on heating and efficiency packages
- Electricity costs come down due to cheap renewables and hydrogen is produced through electrolysis in the UK and imported (e.g. as ammonia) – hybrid heat pumps end up as the dominant heating solution

- We will produce an accompanying report on **local delivery** for:
- Local authorities & city-regions/regions & policy makers & support organisations
- It will aid strategy, policy and decision-making at the local level
- Will aid the delivery of the sixth carbon budget
- Provide timelines, policy dates, decision-trees, carbon ready-reckoner
- Explain the national level assumptions and recommendations for the local level
- Make recommendations to help government support local action

- What role do local authorities see for yourselves in delivering Net Zero?
- What are the main opportunities and levers?
- What are the main barriers in planning for and in delivering deep emissions reductions?

- What are your priorities for action?
- To what extent does decarbonisation integrate with your service delivery areas?

- What information do you need from the CCC's sixth carbon budget? (see questionnaire; please hand this in to Louise)



www.theccc.org.uk



@theCCCuk

louise@lmarixevans.co.uk

