Committee on Climate Change

Cambridge 10th October 2019

The UK's Commitment to Net Zero

The UK's contribution to stopping global warming

Julia, Baroness Brown of Cambridge DBE FREng FRS Vice Chair of the Committee on Climate Change

CCC recommendations to Government 2nd May 2019

- **The UK should legislate as soon as possible for net-zero greenhouse gas emissions by 2050**. We are now committed to a 100% reduction in greenhouse gases (GHGs) from 1990 in the Climate Change Act
- The target should cover **all sectors of the economy**
- The aim should be to meet the target **through UK domestic effort**, without relying on international carbon credits
- Now is the right time to set a net zero target. It is **technically possible, based on current consumer behaviours and known technologies**
- **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
- **The target is an appropriate contribution to the Paris Agreement**. The UK can benefit from the international influence of setting this bold target, using it as an opportunity for further positive international collaboration.

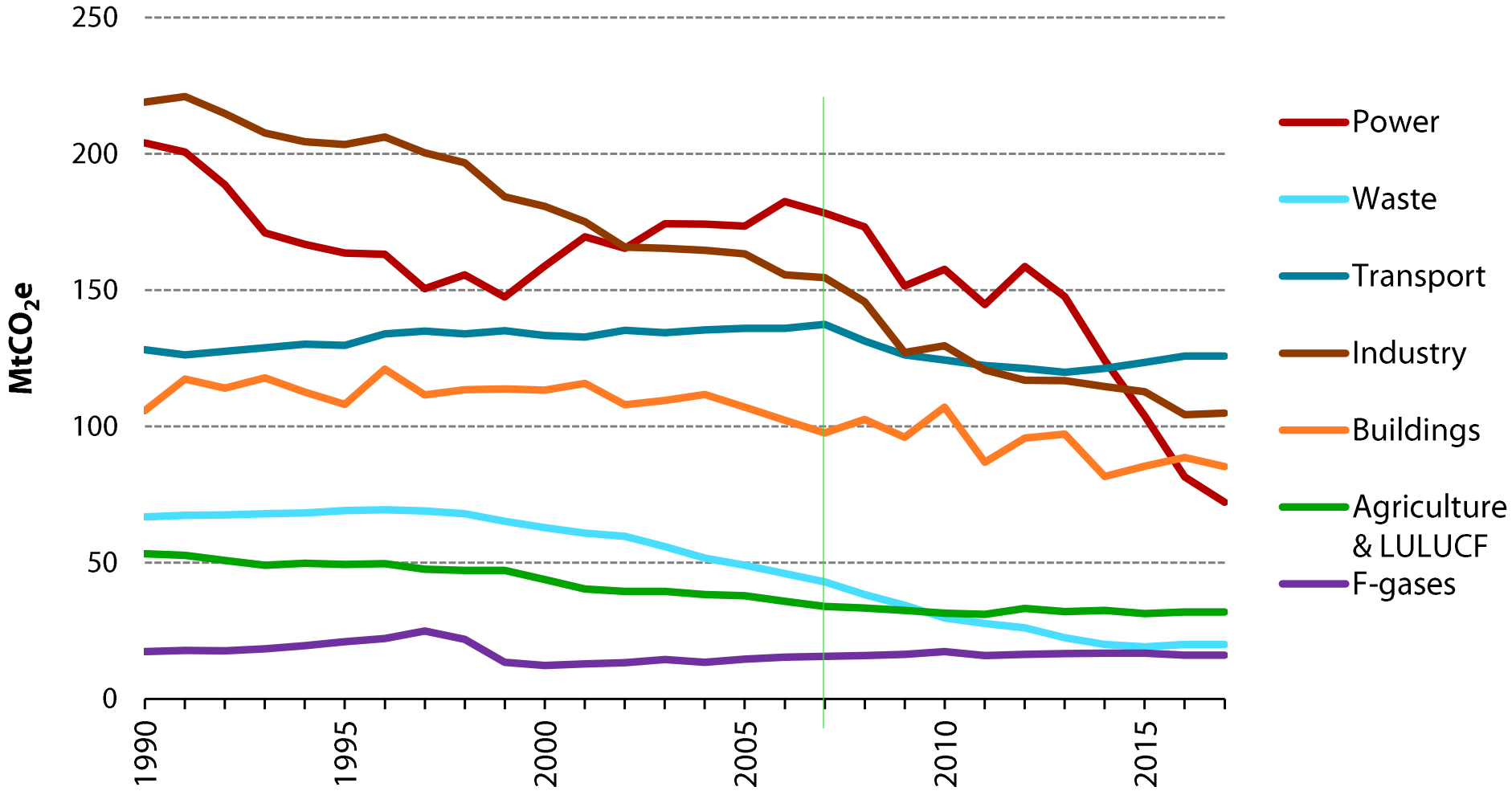
Committee on Climate Change

Summary recommendations

- **Net zero target is only credible if policy to reduce emissions ramps up significantly**
  - Strengthening of policy to deliver reductions across all departments of government is essential. 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 skills must be addressed.
  - Key CCC recommendations for: Heating buildings; CCS; Electric vehicles; Agriculture; Waste; Low Carbon Power.
  - New recommendations for stronger approaches to: Industry; land use; HGVs; aviation and shipping; 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 review of how the transition will be funded and where the costs will fall**. It must be, and and be perceived to be, fair a '**just transition**' – across society, with vulnerable workers and consumers protected.

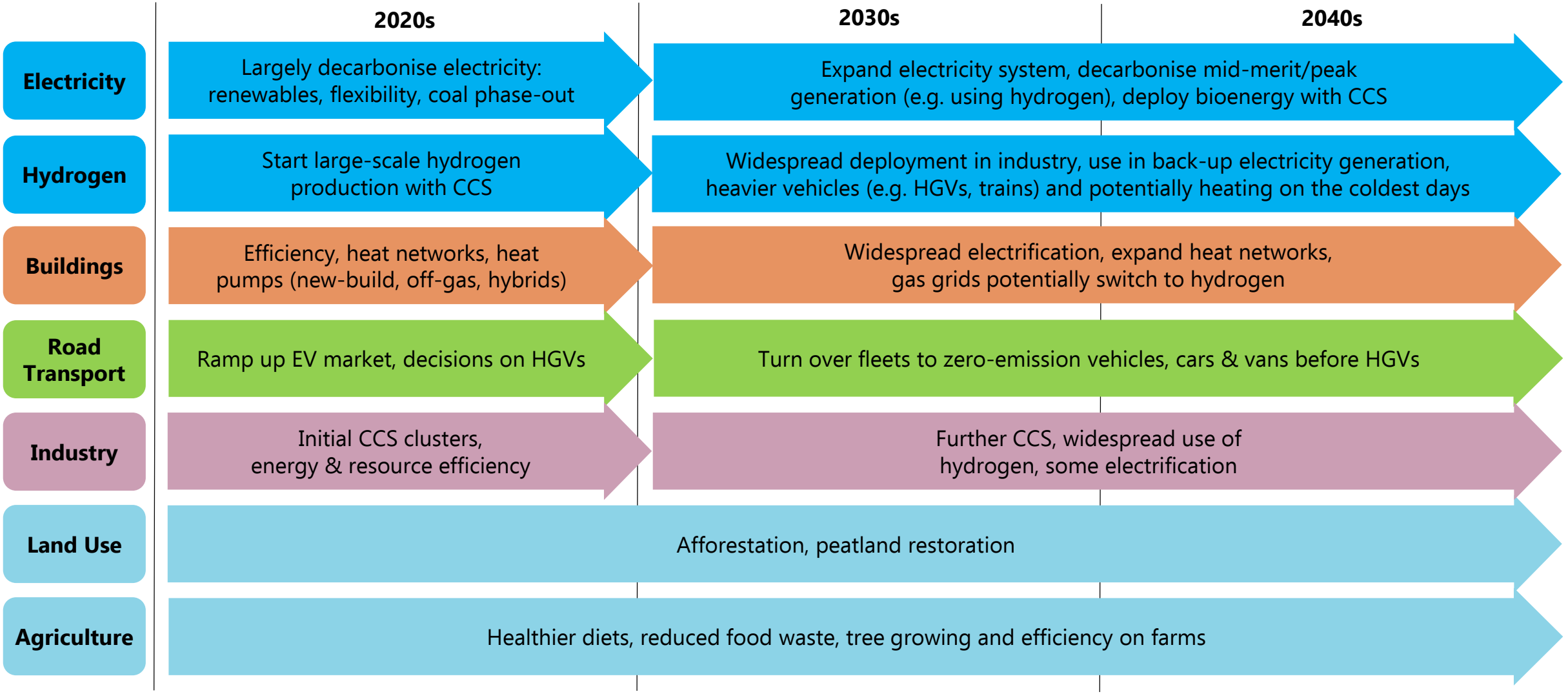
Committee on Climate Change

Decarbonisation progress by sector



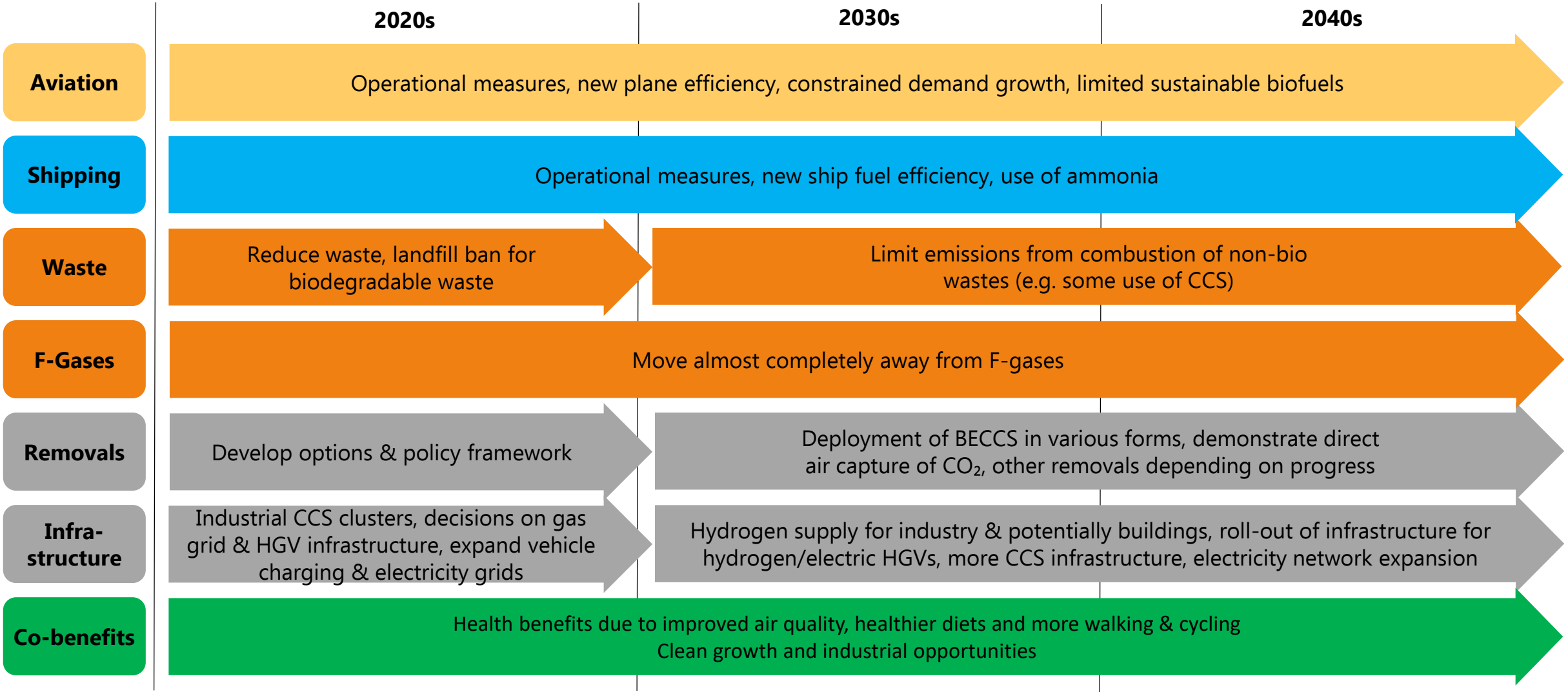
Committee on Climate Change

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



Committee on Climate Change

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

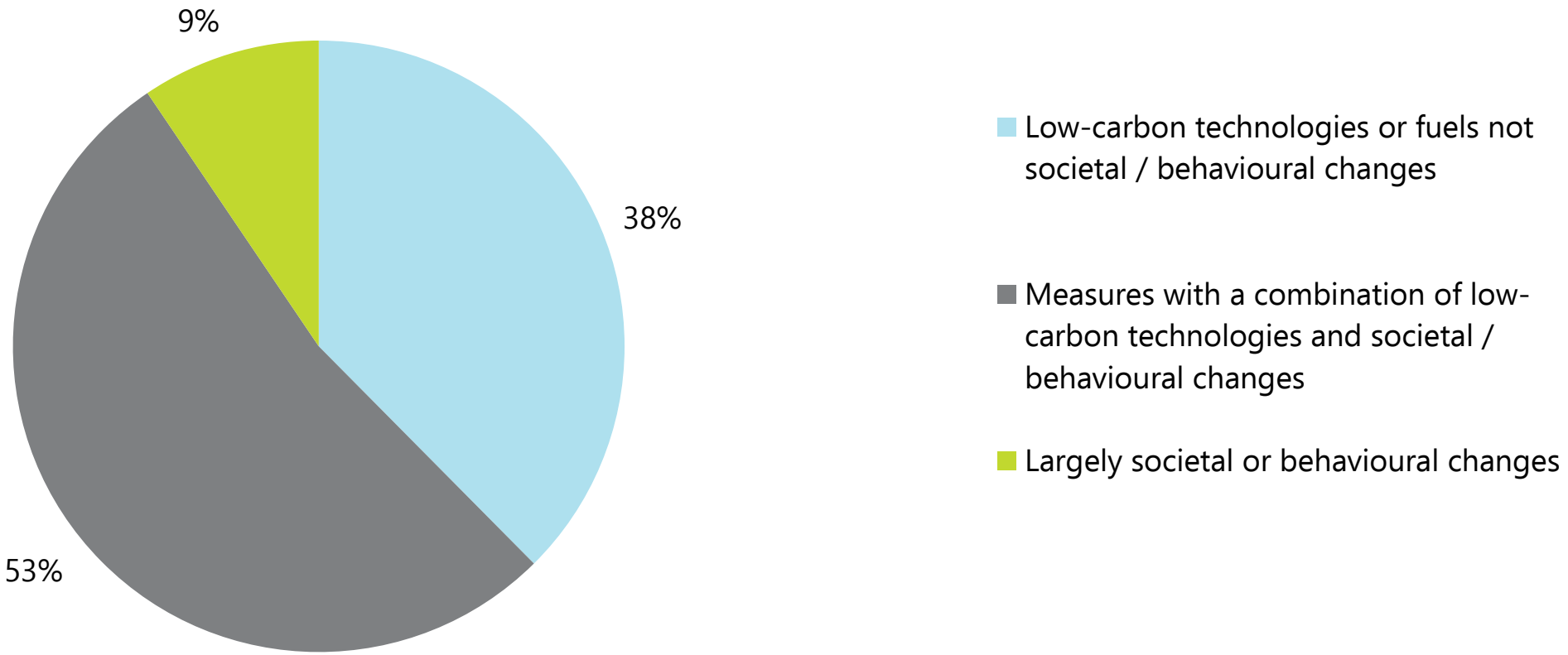


Committee on Climate Change

Costs

- **1 – 2% of GDP for net zero**
- **Same as for 80% in 2008**
- **Same as for 60% in 2003** (Energy White Paper 0.5 – 2 % GDP)
- Almost half the cost – 0.8% - is in decarbonising buildings, in particular decarbonising heat
- A business opportunity
  - 29 million UK homes
  - £5k per home
  - 1 million a year converted to 2050
  - £5bn a year…

Reaching net-zero: role of societal and behavioural changes



Source: CCC analysis

Committee on Climate Change

Delivering zero carbon homes

- Insulation and energy efficiency
- Heat pumps, hybrid heat pumps, hydrogen hybrid heat pumps
- Heat networks
- Major demonstrations
- Skills

- Green loans
- New homes standards – all off the gas grid from 2025
- Support for housing associations
- Standards for rental
- Reductions in stamp duty for zero carbon homes
- …

Committee on Climate Change

Adaptation is essential too

- **Rising temperatures**: indoor temperature and air quality
  - Linking of building regulations for heating to those for ventilation
  - Green space and shading
- **Increasing likelihood of drought**: water conservation
  - Water efficiency labelling for appliances and plumbing
- **River and coastal flooding and intense rainfall**: flood resilience
  - Property level measures
  - Green sustainable urban drainage systems
  - Trees and green space
  - Porous paving

Committee on Climate Change

What does a low-carbon, sustainable home look like?

Current technology, and measures aimed at preparing for the impacts of climate change, can help new and existing homes to become low-carbon and ultra-efficient as well as adapted to flooding, heat and water scarcity.

Existing homes

Improving existing homes can help existing house-holders meet the challenges of climate change

1. **Insulation** in lofts and walls (cavity and solid)
2. **Double or triple glazing with shading** (e.g. tinted window film, blinds, curtains and trees outside)
3. **Low-carbon heating** with heat pumps or connections to district heat networks
4. **Draught proofing** of floors, windows and doors
5. **Highly energy-efficient appliances** (e.g. A^{++} and A^{+++} rating)
6. **Highly water-efficient devices** with low-flow showers and taps, insulated tanks and hot water thermostats
7. **Green space (e.g. gardens and trees)** to help reduce the risks and impacts of flooding and overheating
8. **Flood resilience and resistance** with removable air brick covers, relocated appliances (e.g. installing washing machines upstairs), treated wooden floors

24% REDUCTION NEEDED IN DIRECT CO_2 FROM HOMES BY 2030, FROM 1990 LEVELS

15% REDUCTION REQUIRED IN ENERGY USED FOR HEATING EXISTING BUILDINGS BY 2030 THROUGH EFFICIENCY IMPROVEMENTS[1]

New build homes

New build homes can and should meet even more ambitious standards in some areas

- **A** **High levels of airtightness**
- **B** **More fresh air** with mechanical ventilation and heat recovery, and passive cooling measures such as openable windows
- **C** **Triple glazed windows and external shading** especially on south and west faces
- **D** **Low-carbon heating** and no new homes on the gas grid by 2025 at the latest
- **E** **Water management and cooling** more ambitious water efficiency standards, green roofs and reflective walls
- **F** **Flood resilience and resistance** e.g. raised electricals, concrete floors and greening your garden
- **G** **Construction and site planning** timber frames, sustainable transport options (such as cycling)

What householders can do today

There are number of practical, easy and cheap steps that householders can take now to adapt their homes, and reduce their bills and carbon emissions:

1 Improve home energy, heating and water usage and efficiency

- Install low-energy lighting, hot water tank insulation, low-flow shower heads and draught-proofing
- Turn off the lights/other electricals when not being used
- Turn taps off when brushing teeth, have shorter showers, check pipes for leaks and water gardens only as needed
- Install water and smart energy meters to manage water and energy use and help identify water leaks

2 Is the heating system working correctly?

- Check your boiler annually and ensure your heating system is operating at no more than 55°C
- Install heating controls like timers and room thermostats
- Turn your thermostat temperature down to 19°C

3 Reduce the risk of overheating in summer

- Opt for thick curtains or blinds (close them during the day), plant trees to provide shade and open windows at night
- Use fans for bedrooms and living spaces (as long as temperatures are below 36°C)

4 Flooding

- If you're in a flood risk area sign up to flood warnings and devise your own household plan to prepare for possible floods

Our recommendations to Government

The Government needs to take action in five areas NOW to improve the UK's housing stock and help achieve long-term emissions reduction targets. This includes:

1. Enforcing standards, ensuring compliance with those standards and closing the 'performance gap'
2. Delivering a step-change in construction skills
3. Retrofitting existing homes so they are low-carbon, energy efficient and resilient to a changing climate
4. Ensuring new homes are low-carbon, ultra energy efficient and climate resilient, with sustainable transport options
5. Addressing urgent funding needs

Notes

[1] A 15% reduction relative to 2015

Read our new report! Find it online here:

www.theccc.org.uk/publications