

# Building a Low-Carbon Economy – The UK's Contribution to Tackling Climate Change

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# Structure of the presentation



- 1. The 2050 target and the first 3 budget**
- 2. Routes to delivering the budgets**
- 3. Next steps**

# 1: 2050 target - required global emissions reduction

## What's changed?

- Advances in science
- Actual emissions higher than forecast

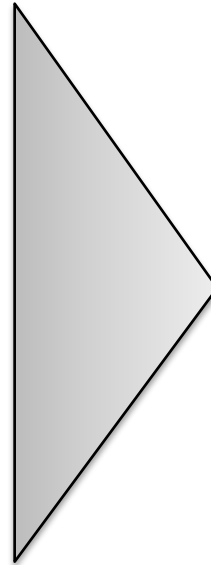
## Assessment of damage

### Decision rule

- keep temperature change close to 2 C
- and probability of 4 C increase at very low level (less than 1%)

## Global trajectories considered

- Early or later peak (2015 vs. 2030)
- 3%/4% annual emissions reduction



## Required global emissions reduction of 50%

- 20-24 GtCO<sub>2</sub>e emissions in 2050
- 8-10 GtCO<sub>2</sub>e in 2100

# 1: Appropriate UK contribution

50% global reduction

## Burden share

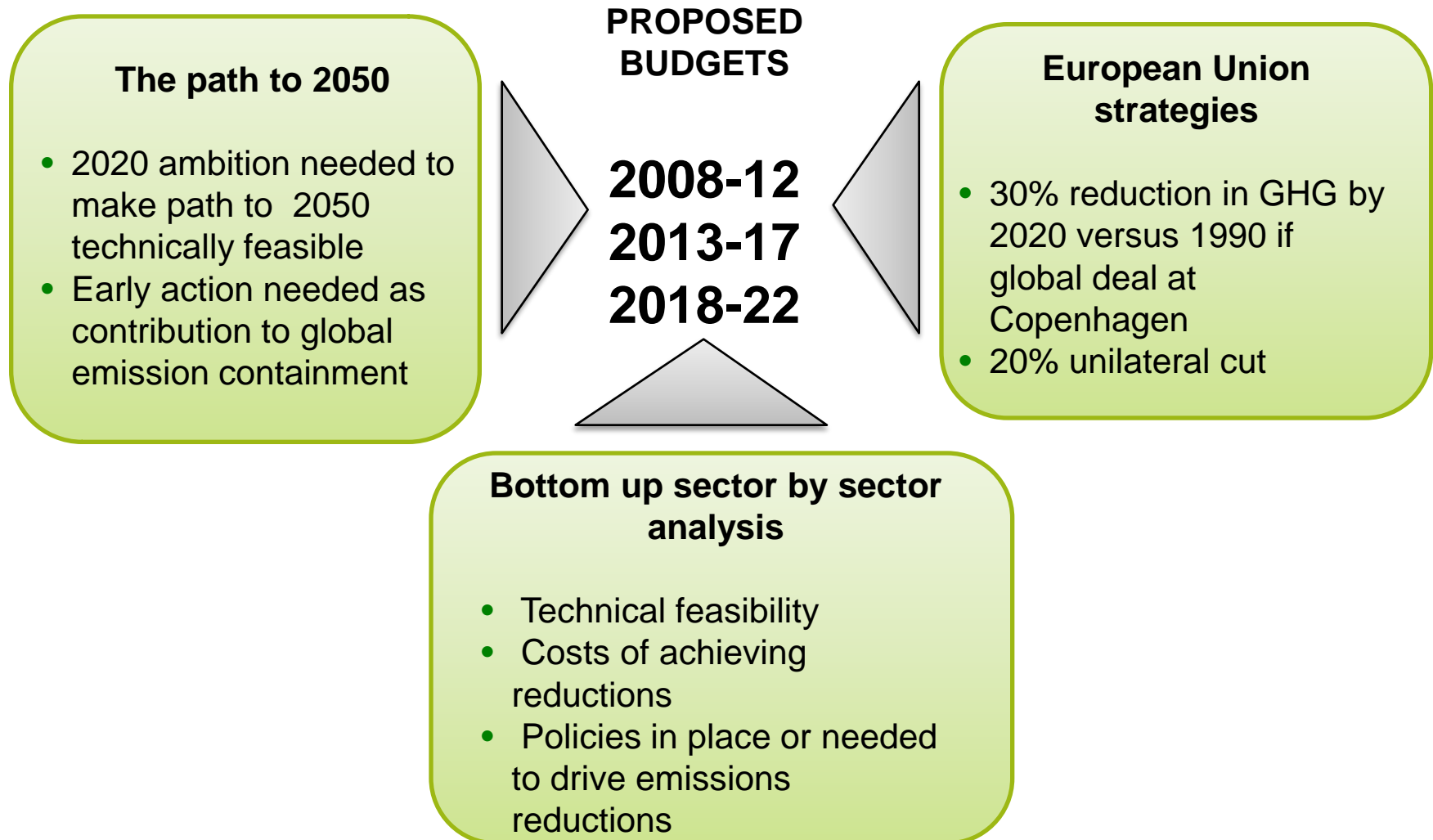
- Alternative methodologies (contract and converge, intensity convergence, triptych etc.)
- Equal per capita emissions:
  - 20-24 GtCO<sub>2</sub>e total at global level in 2050
  - Implies 2.1-2.6 tCO<sub>2</sub>e per capita

All GHGs

2.1-2.6 CO<sub>2</sub>e per capita gives a UK reduction of at least 80% in 2050

Aviation and shipping included

# 1: UK budget levels: factors considered



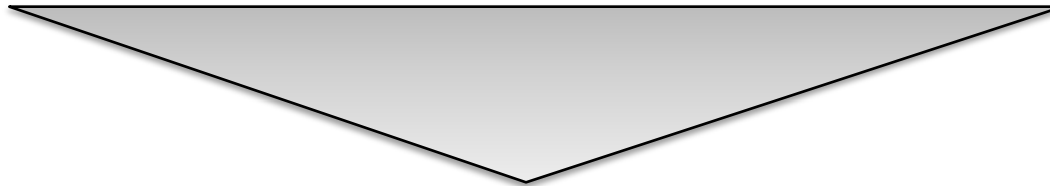
# 1: Budget levels - CCC proposals

## Intended budget

- To apply once a global deal has been agreed

## Interim budget

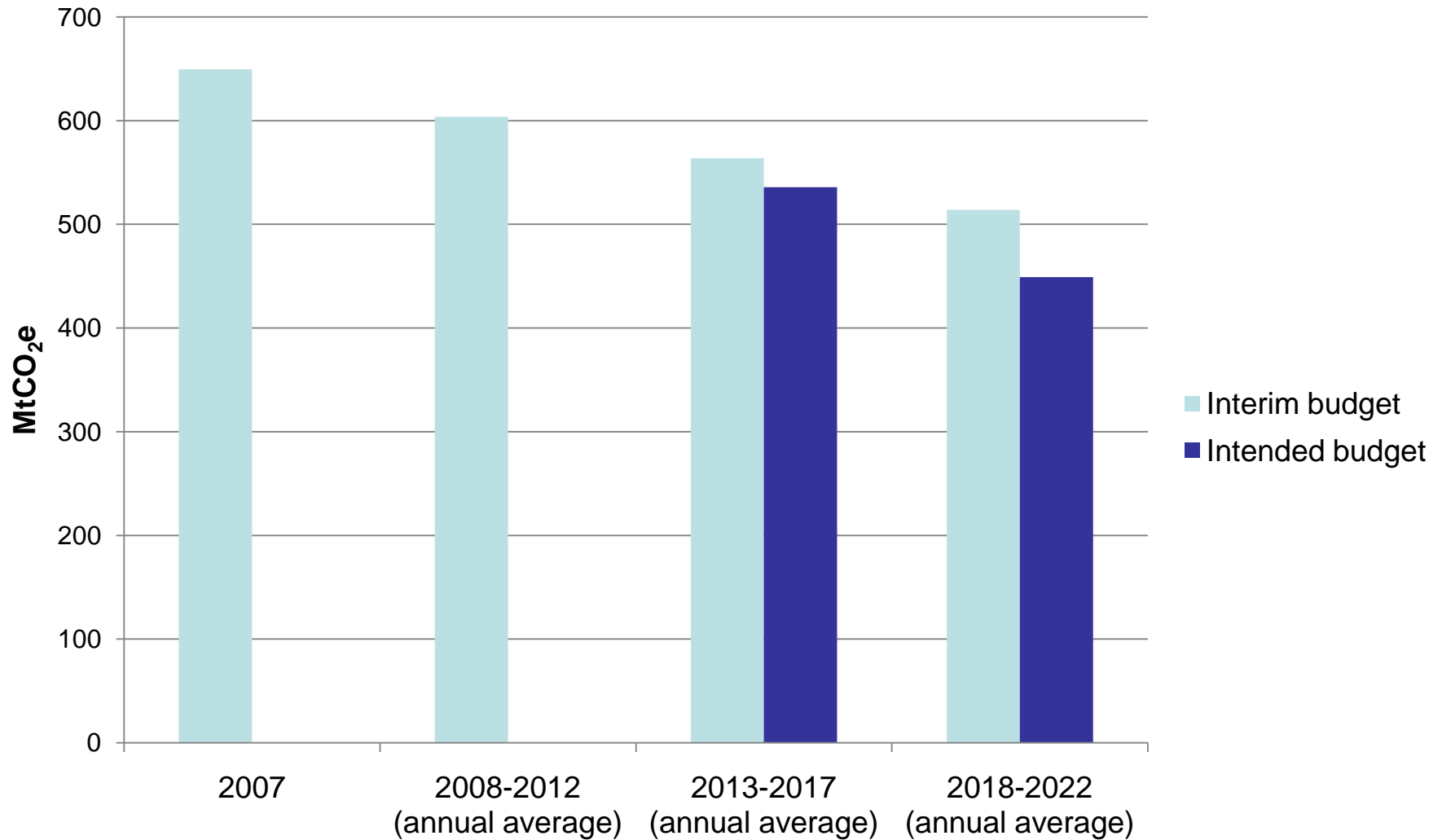
- To apply before there is a global deal
- Should prepare for the Intended budget



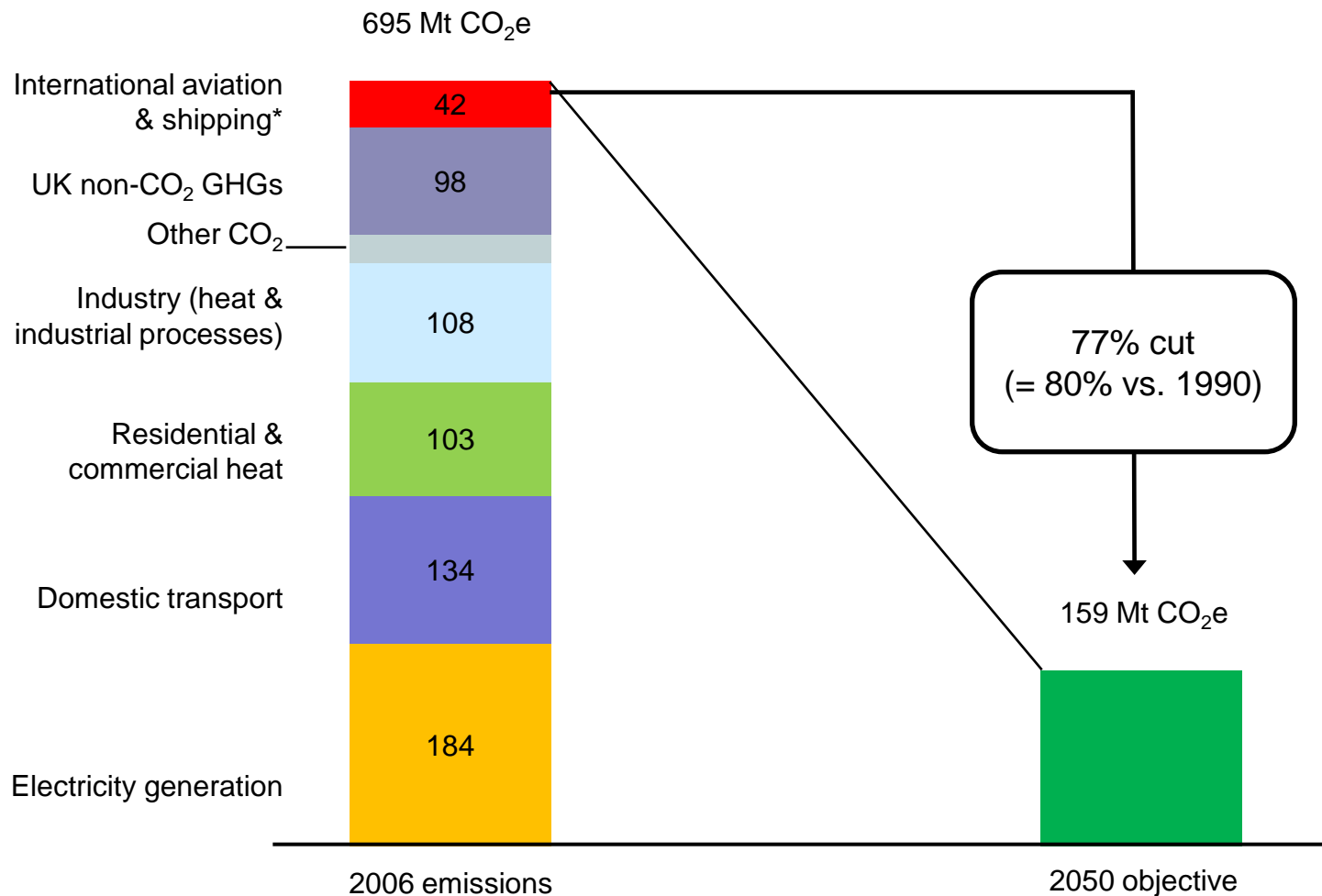
**Intended:** 42% below 1990 in 2020  
(31% % below 2005)

**Interim:** 34% below 1990 in 2020  
(21% below 2005)

# 1: Budget levels - emissions ceilings



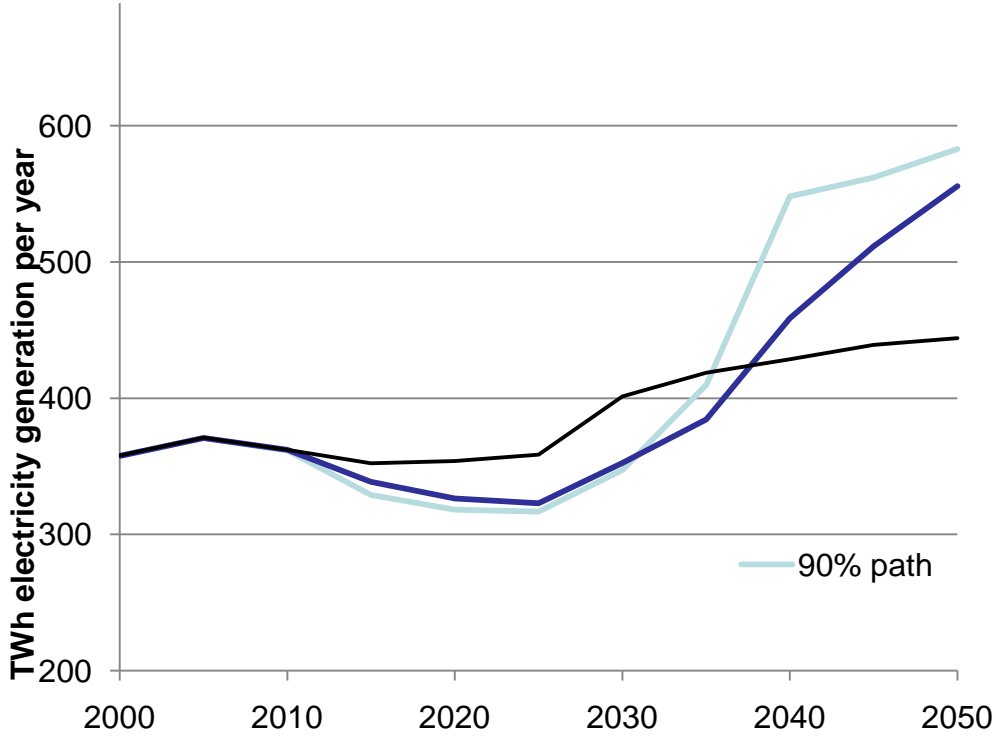
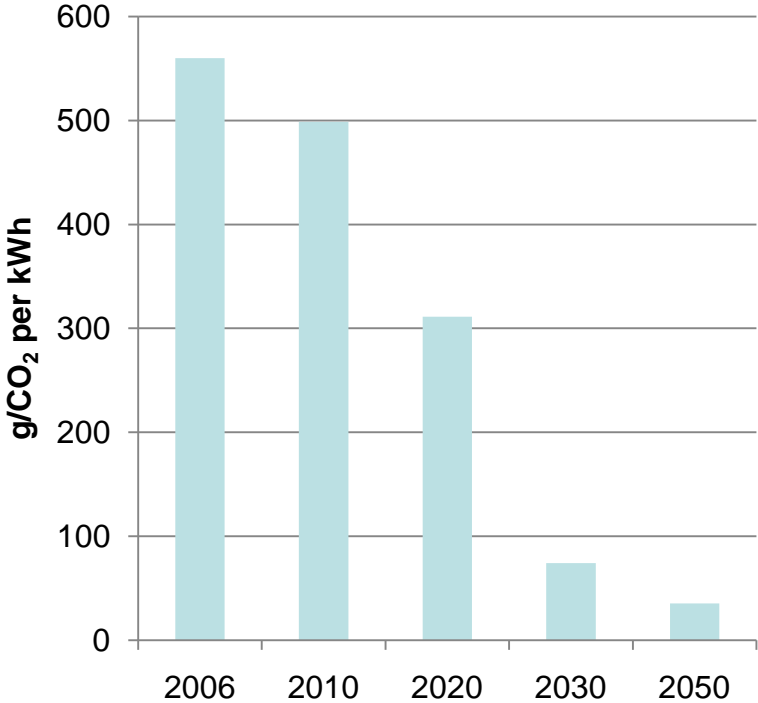
# 2: Delivery - the scale of the UK challenge



\* bunker fuels basis

# 2: Meeting required reductions - power sector

## Emissions intensity to 2050 Power generation to 2050



## 2: Meeting required reductions

### Reducing power sector emissions:

Renewables (Wind, solar, tidal and marine, biomass), nuclear, CCS

Application of  
power to  
transport and  
heat

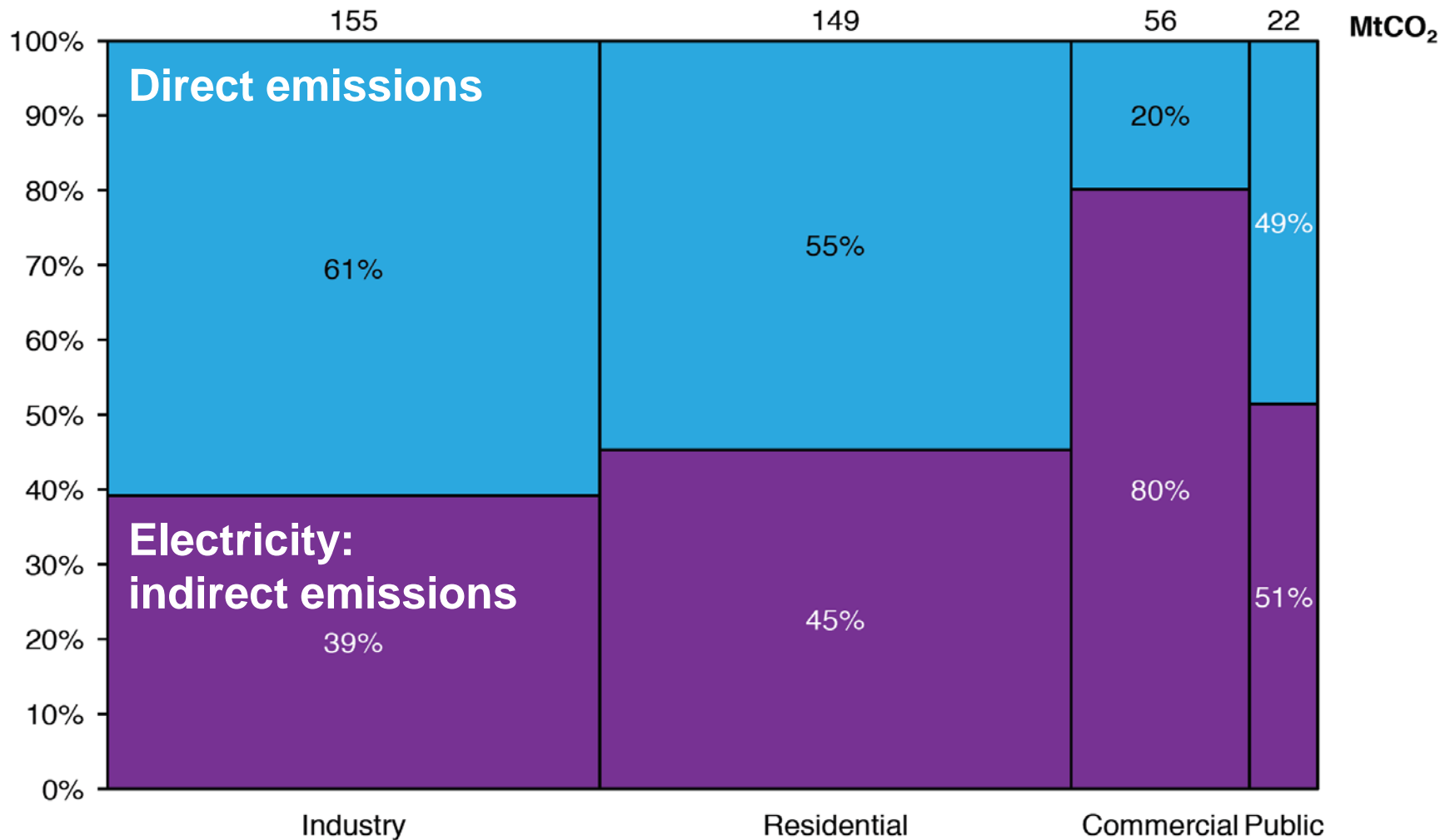
### Reducing transport emissions:

- Fuel efficiency
- Electric/plug-in hybrids
- Sustainable Bio fuels

### Reducing heat emissions:

- Energy efficiency
- Behaviour change
- Electric heat (e.g. heat pumps, storage heating)
- Biomass boilers
- CCS in industry

# 2: Emissions from energy use in buildings and industry



## 2: Feasible emissions reductions - energy use in buildings and industry

### Our approach

- Technical potential
- Cost effective potential
- Realistically achievable potential

### Residential

- Technical potential over 100 MtCO<sub>2</sub>
- Realistic potential
  - Energy efficiency potential 22 MtCO<sub>2</sub>
  - Renewable heat potential 10 MtCO<sub>2</sub>
- Policy
  - Supplier Obligation
  - EPCs
  - Appliance standards
  - Renewable heat

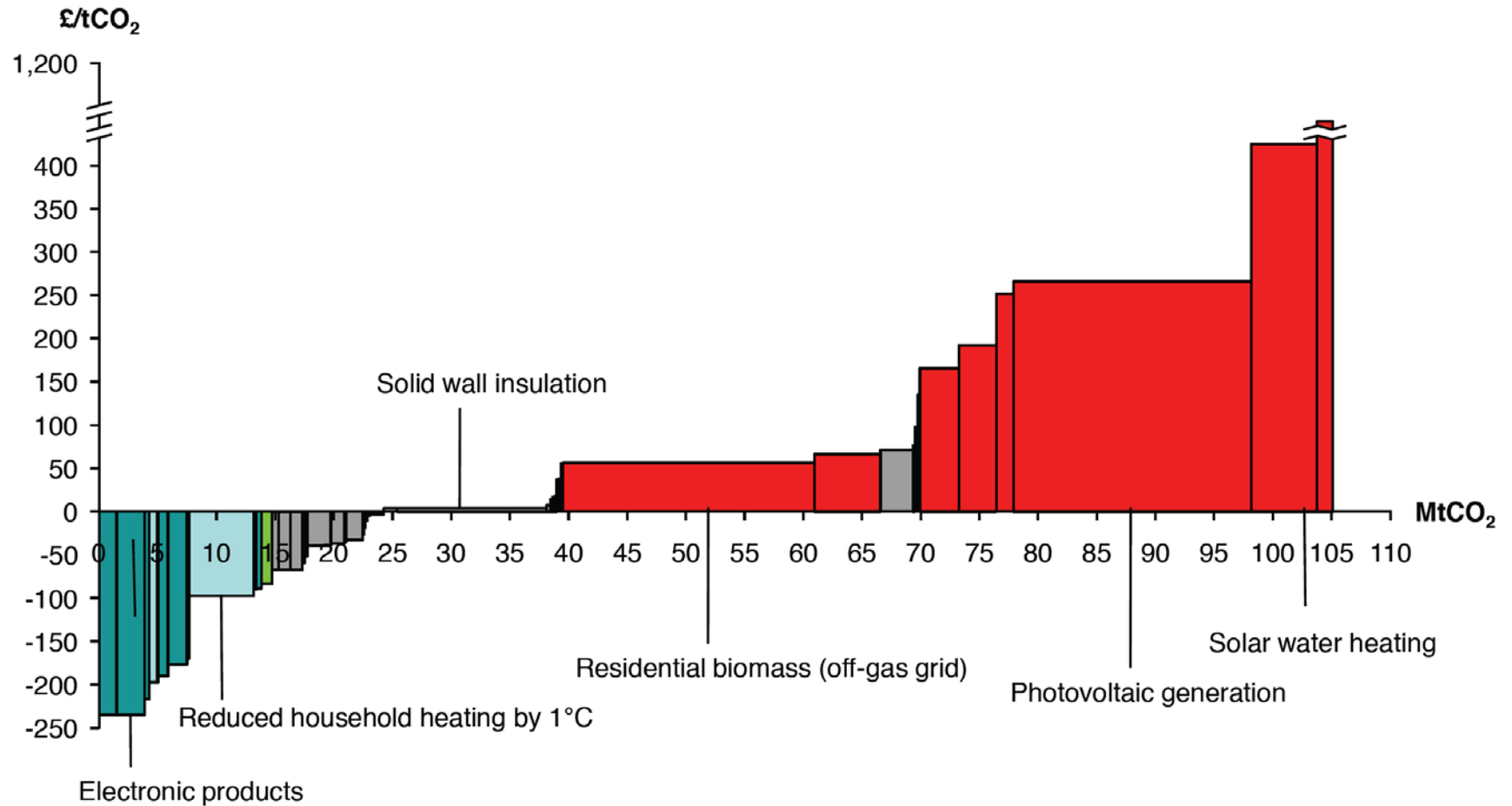
### Commercial

- Technical potential over 30 MtCO<sub>2</sub> in energy efficiency and micro-generation
- Realistic potential 5-11MtCO<sub>2</sub>.
- 50% covered by caps
- Need for wider policy coverage

### Industrial

- Technical potential 7 MtCO<sub>2</sub>
- Realistic potential 4-6 MtCO<sub>2</sub>
- 95% covered by caps

# 2: Residential sector MACC - technical potential in 2020



## 2: Feasible emissions reductions - scenarios

### Criteria:

- Cost per tonne of carbon saved
- Measures required on the path to 80% in 2050
- Practical given constraints on deliverability

Current Ambition



Current detailed policies plus 30% renewable power generation

Extended Ambition



Existing policies plus policy intent

Stretch Ambition



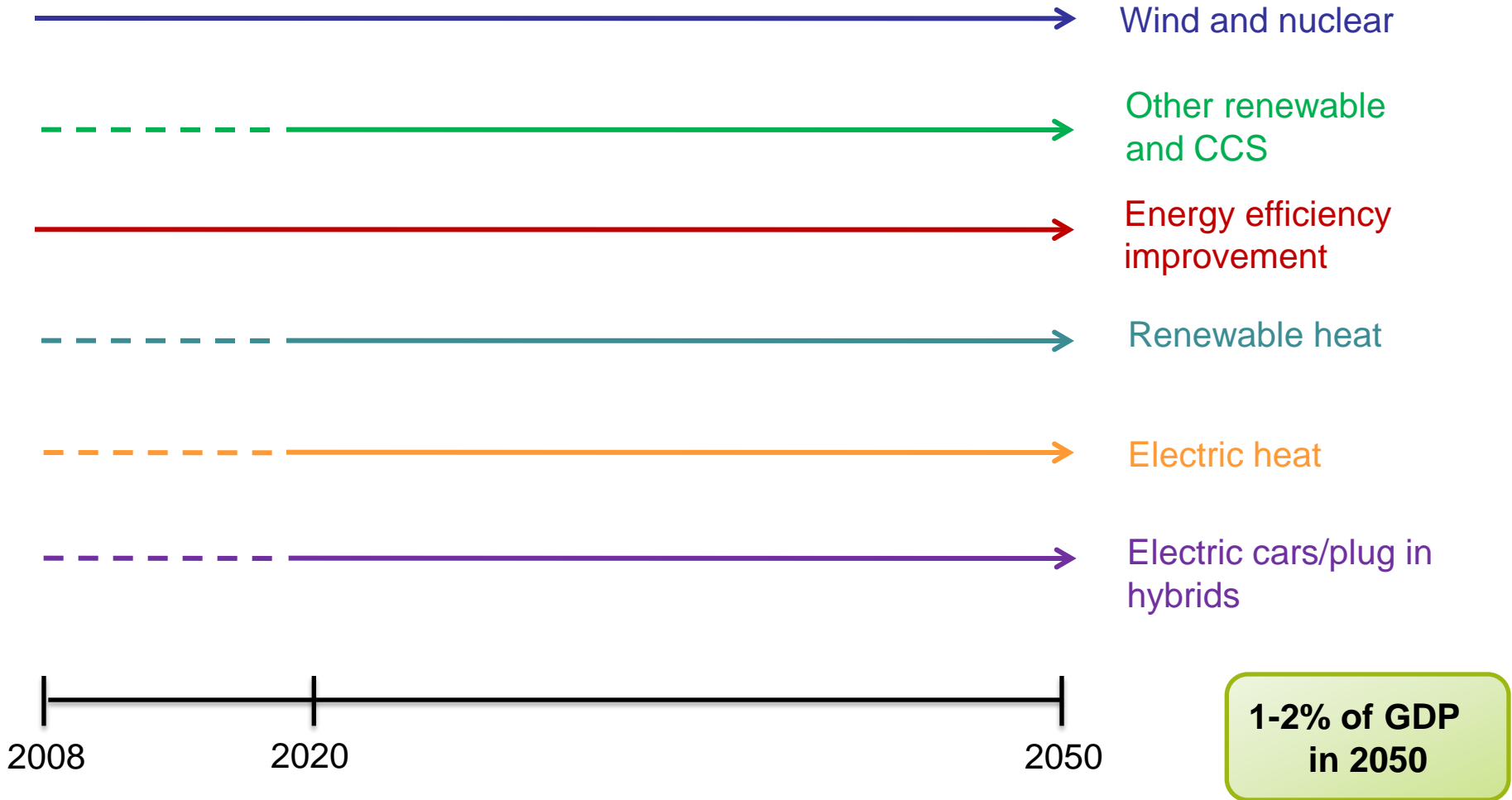
Includes measures where there is no current policy or commitment

- Extended Ambition delivers Interim Budget
- Intended Budget requires either credit purchase or some Stretch Ambition actions

## 2: Emissions reduction from energy use in residential buildings, MtCO<sub>2</sub>

	Technical Potential	Current Ambition	Extended Ambition	Stretch Ambition
Insulation Measures	26	4	5	9
<i>of which solid wall</i>	13	1	1	4
Heating Efficiency	3	0	0	0
Lights and Appliances	8	4	5	5
Lifestyle Measures	6	1	4	4
<b>Total for efficiency measures</b>	<b>43</b>	<b>9</b>	<b>15</b>	<b>18</b>
Zero Carbon Homes	N/A	4	4	4
Renewable Heat and Microgeneration*	62	0	10	10
<b>Total**</b>	<b>105</b>	<b>13</b>	<b>29</b>	<b>32</b>

# Meeting required reductions: UK path to an 80% or more reduction in 2050



### 3: Next steps

- Ⓒ DECC heat and energy saving strategy (consultation Feb 09)
  - Ⓒ by 2020 up to 7 million homes offered 'whole house' packages
  - Ⓒ if this cost £6k per house: £42bn business
- Ⓒ Monitoring progress
  - Ⓒ Inputs, eg policy; planning permission
  - Ⓒ Progress, eg power station new build
  - Ⓒ Impact, eg emissions reduction; petrol and diesel sales
- Ⓒ Impact of the recession
- Ⓒ 2<sup>nd</sup> report at the end of 2009

**Thank you**

**Comments and inputs welcome**

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