Climate Change Committee
Net Zero, how do we get there?

Bianca Letti, Climate Change Committee
Net Zero, how do we get there?

• The UK’s contribution to stopping global warming - Net Zero by 2050

• What changes will we see on the transition to Net Zero?

• Costs and other implications
The UK’s contribution to stopping global warming
Climate change

Global temperature projections for current global ambition for 2030 emissions reductions

Source:
UK Met Office; CCC analysis
What do we do about this?

Global emissions (all GHGs) pathways consistent with the Paris Agreement

What can we do about this?

-20
-10
0
10
20
30
40
50
60
70

GtCO₂e/yr

>50% 1.5°C - Range
>66% 2°C - Range
>50% 1.5°C - Median
>66% 2°C - Median
Historical

Source:
What do we do about this?
Global emissions (all GHGs) pathways consistent with the Paris Agreement

Source:
Our recommended path
The recommended sixth carbon budget and 2030 NDC

Notes:
Emissions shown including emissions from international aviation and shipping (IAS) and on an AR6 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:
Emissions abatement on the balanced path

Meeting Net Zero requires actions across four key areas

1. Demand reduction and efficiency
   - Reduced demand for carbon-intensive activities
   - Greater 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. Expansion of low-carbon energy
   - Low-carbon hydrogen and electricity production

4. Offsetting emissions
   - Natural carbon storage and greenhouse gas removals

Delivering Net Zero UK
What changes will we see on the transition to Net Zero?
What changes will we see on the Balanced Pathway 2019

MtCO$_2$e

Key developments
- Meat consumption per person (% reduction)
- Insulation fitted (millions)
- EV share of new sales (%)
- Low-carbon share of boiler replacements
- CCS (MtCO$_2$e)
- Electricity (TWh)
- Hydrogen (TWh)
- Afforestation (kha pa)
- Perennial energy crops (kha pa)
- Peatland restored (%)
What changes will we see on the Balanced Pathway 2025

Key developments

- Meat consumption per person (% reduction) 0%
- Insulation fitted (millions) 0
- EV share of new sales (%) 13%
- Low-carbon share of boiler replacements 11%
- CCS (MtCO₂e) 0
- Electricity (TWh) 205
- Hydrogen (TWh) 0
- Afforestation (kha pa) 19
- Perennial energy crops (kha pa) 0
- Peatland restored (%) 25%
What changes will we see on the Balanced Pathway 2030
What changes will we see on the Balanced Pathway 2035

Key developments:
- Meat consumption per person (% reduction): 20%
- Insulation fitted (millions): 11
- EV share of new sales (%): 97%
- Low-carbon share of boiler replacements: 81%
- CCS (MtCO₂e): 22
- Electricity (TWh): 367
- Hydrogen (TWh): 30
- Afforestation (kha pa): 30
- Perennial energy crops (kha pa): 17
- Pestland restored (%): 47%
What changes will we see on the Balanced Pathway 2050

**Key developments**

- Meat consumption per person (% reduction): 24%
- Insulation fitted (millions): 14
- EV share of new sales (%): 100%
- Low-carbon share of boiler replacements: 100%
- CCS (MtCO₂e): 59
- Electricity (TWh): 485
- Hydrogen (TWh): 106
- Afforestation (kha pa): 50
- Perennial energy crops (kha pa): 19
- Peatland restored (%): 58%

A fair and ambitious contribution to the Paris Agreement
Costs and other implications
Resource costs

Change in resource costs over time as a percentage of GDP

Source: CCC analysis.
Investing for Net Zero

Major investment programme, delivering offsetting operating cost savings

Notes:
Costs of electricity are included in the energy supply sector, whereas costs of other low-carbon fuels such as hydrogen and bioenergy are included in the sectors that use these fuels.

M&C is manufacturing and construction. "Other" category includes aviation, shipping, land-use, land-use change and forestry, agriculture, removals, waste and F-gases. CAPEX refers to additional annual capital investment. OPEX refers to savings due to operational cost reductions.

Source:
CCC analysis.
Sharing the costs and benefits
Key challenge in decarbonising homes

Investment costs for decarbonising existing homes

Vulnerable customers
- Investment of ~£2 billion/year can be covered by existing schemes if extended
- Bills expected to fall as a result

Other households
- £3 billion/year funding gap by 2030

Fairness in other spending areas
- Consumer goods
- Energy networks
- Electric cars
Benefits of the Net Zero transition

• Climate

• Economic

• Environment and biodiversity

• Health and well-being
  o Air quality
  o Walking and cycling
  o Healthier diets
  o More liveable homes
  o Mental health improvements
www.theccc.org.uk

@theCCCuk