Green Industrial Futures Centre for Doctoral Training

IDRIC

Conference 2025

Green Industrial Futures: Strategies and Solutions

Keynote: Emily Nurse

Head of Net Zero at Climate Change Committee

12 June 2025

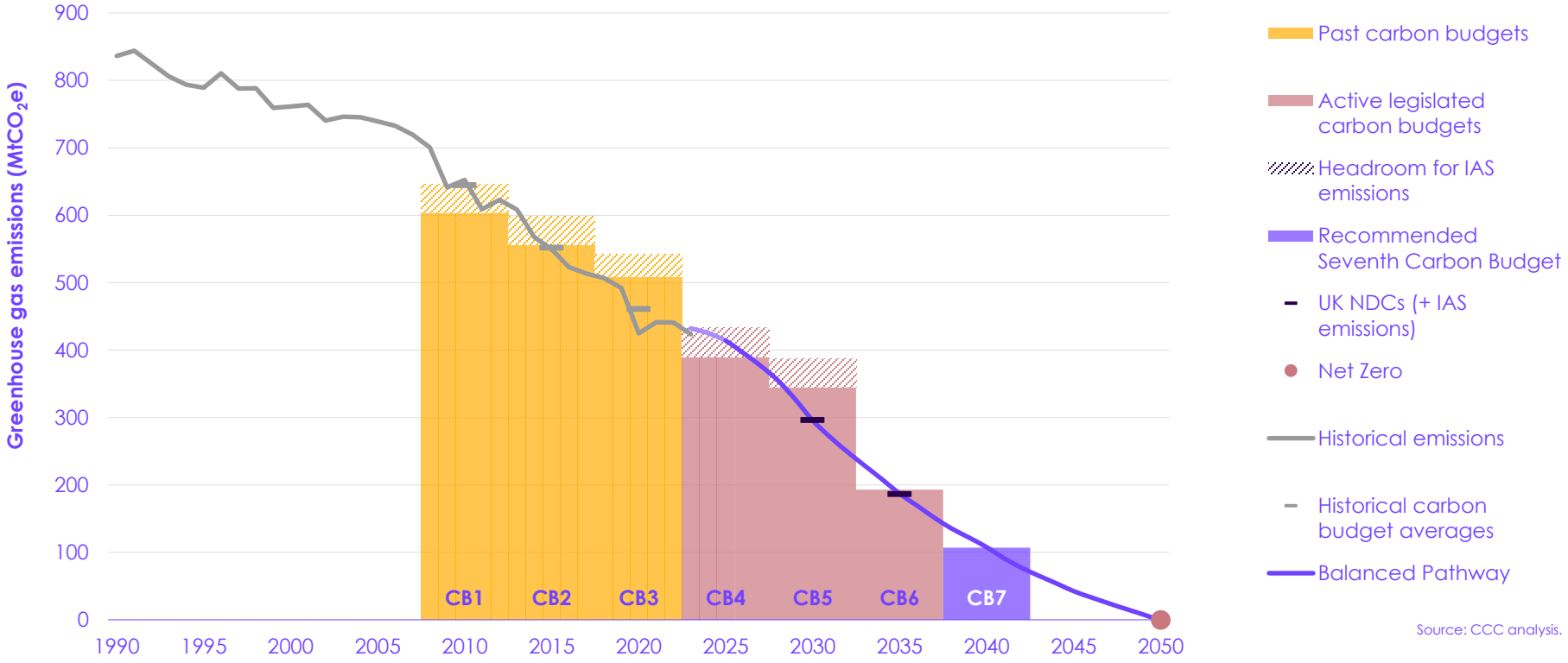
The Climate Change Committee's advice on the UK's Seventh Carbon Budget

Dr Emily Nurse, Head of Net Zero, CCC

Industrial Decarbonisation Research and Innovation Centre: Fourth annual conference

The recommended Seventh Carbon Budget

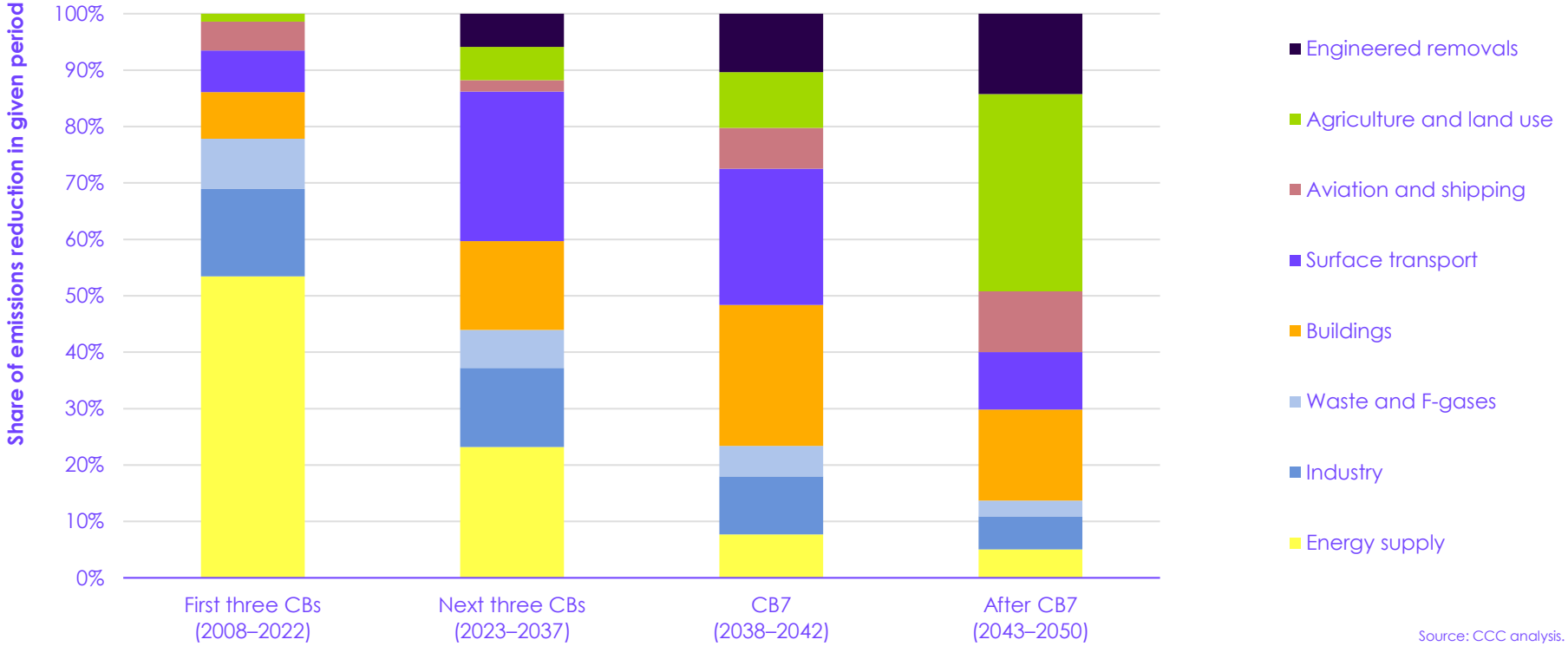
Our Balanced Pathway achieves all existing carbon budgets, the UK's NDCs, and Net Zero



Source: CCC analysis.

Distribution of emissions reductions during carbon budget periods

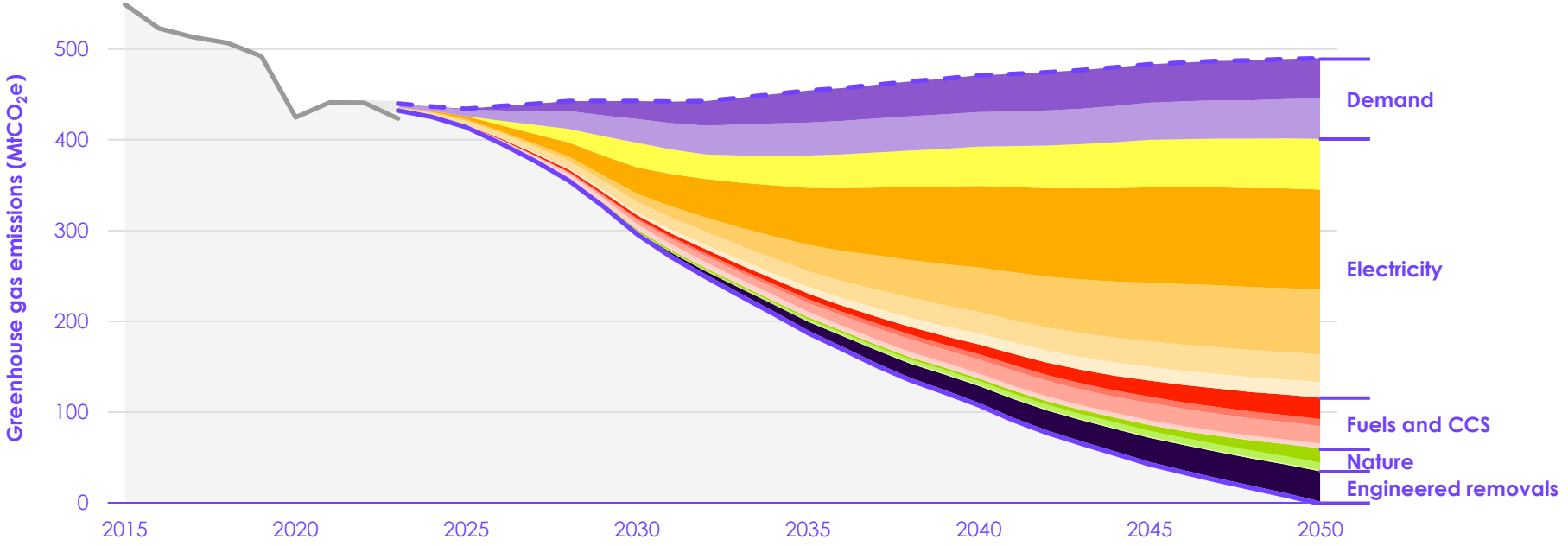
Achieving carbon budgets will require emissions reductions across a wider range of sectors



Source: CCC analysis.

Where the emissions reductions are within the Balanced Pathway

60% from electrifying key technologies and decarbonising and expanding electricity supply



Demand:
- Low-carbon choices
- Efficiency

Electricity:
- Low-carbon supply
- Electric vehicles
- Heat pumps
- Industrial
- Other

Low-carbon fuels and CCS:
- SAF and shipping fuels
- Hydrogen
- CCS
- Other

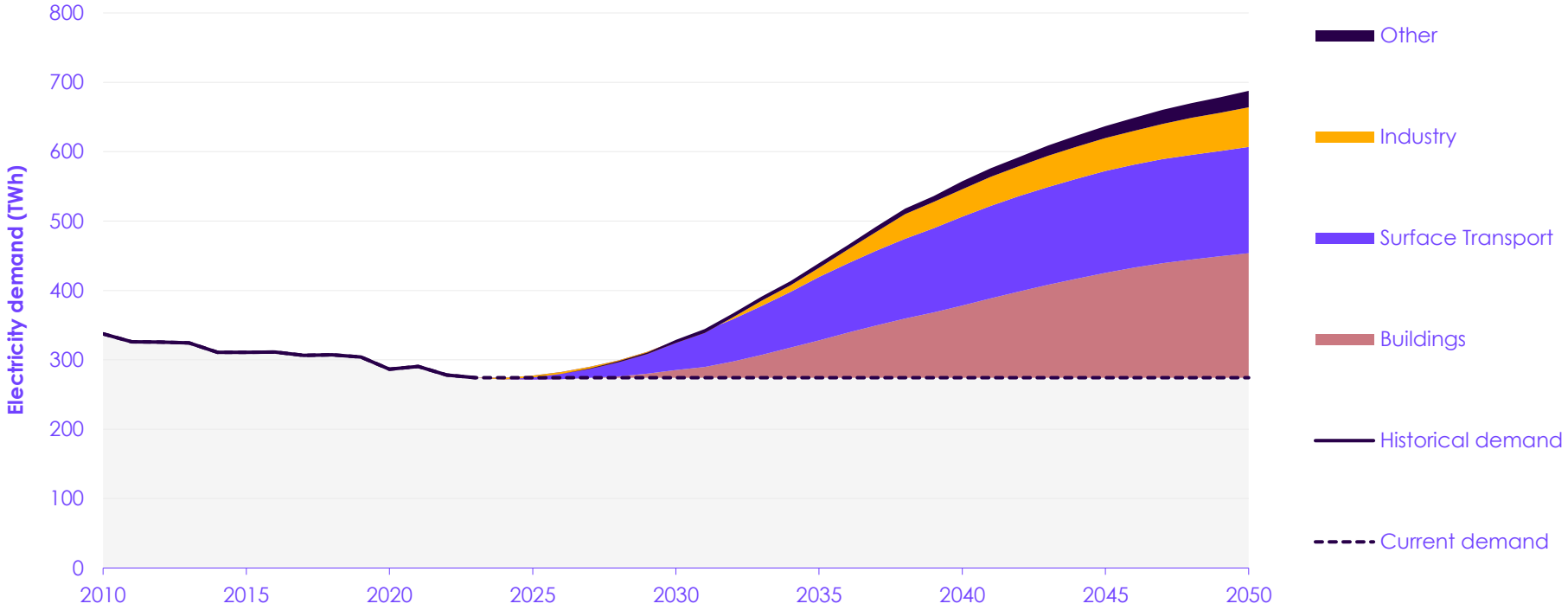
Nature:
- Tree planting
- Peatland restoration
- Other

Engineered removals:
- Engineered removals

Source: CCC analysis.

Electricity demand in the Balanced Pathway

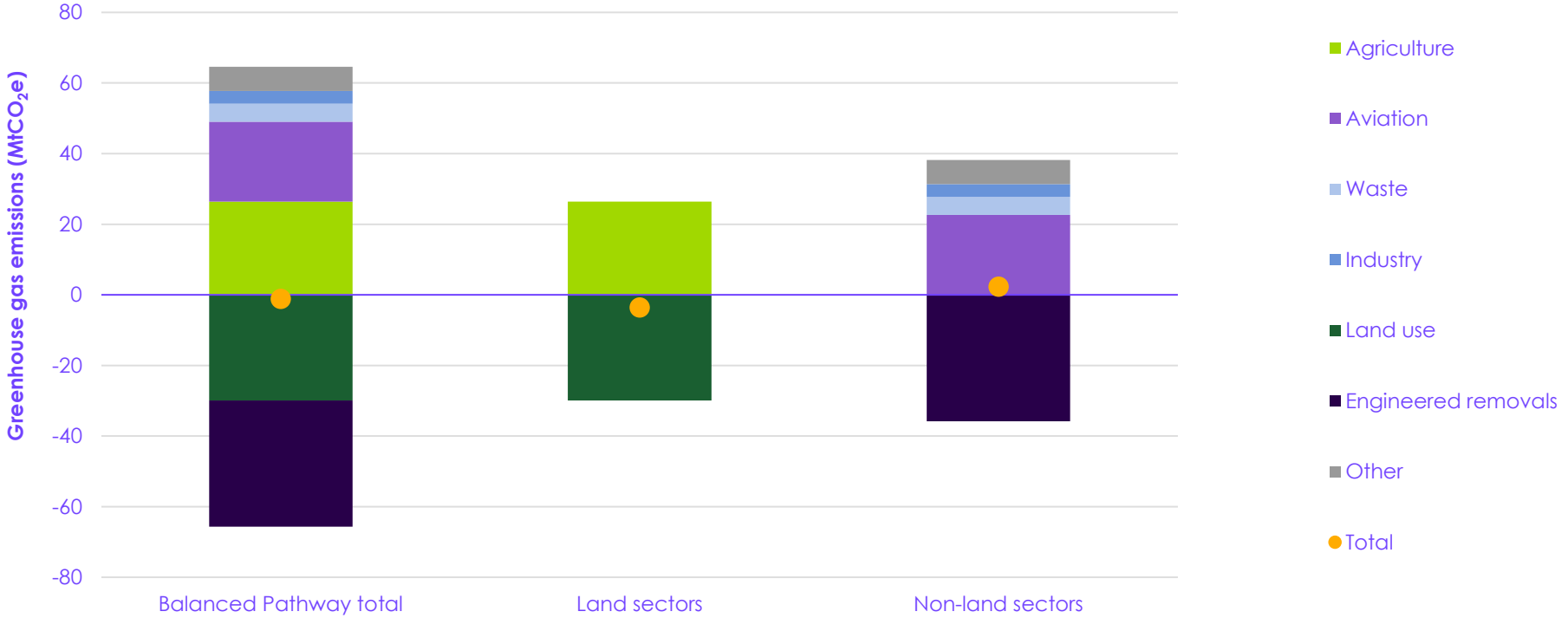
Demand more than doubles by 2050



Source: CCC analysis.

Sources of emissions and negative emissions in 2050

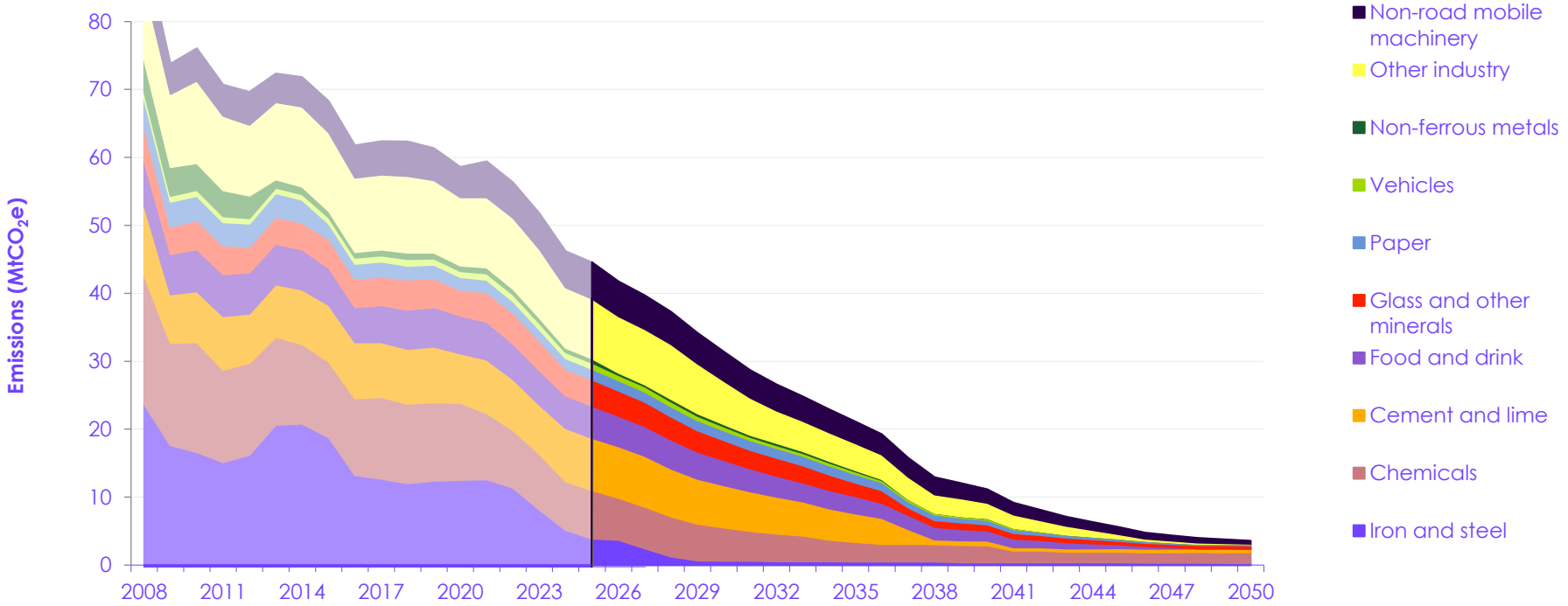
We balance agriculture with land sequestration, and other fossil use with engineered removals



Source: CCC analysis.

Industry emissions by subsector – historical (2008–2023) and Balanced Pathway (2025–2050)

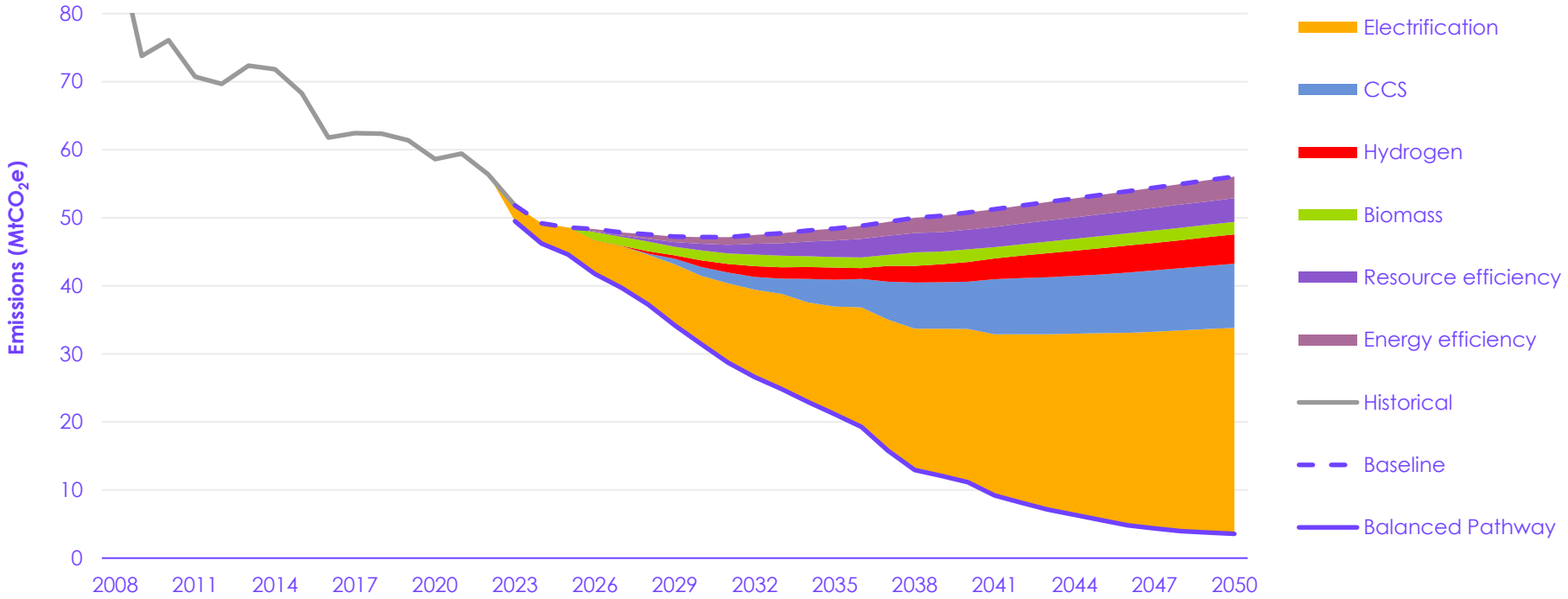
Across all sub-sectors, significant progress is made in reducing emissions through the 2030s



Source: CCC analysis.

Sources of abatement in the Balanced Pathway for industry

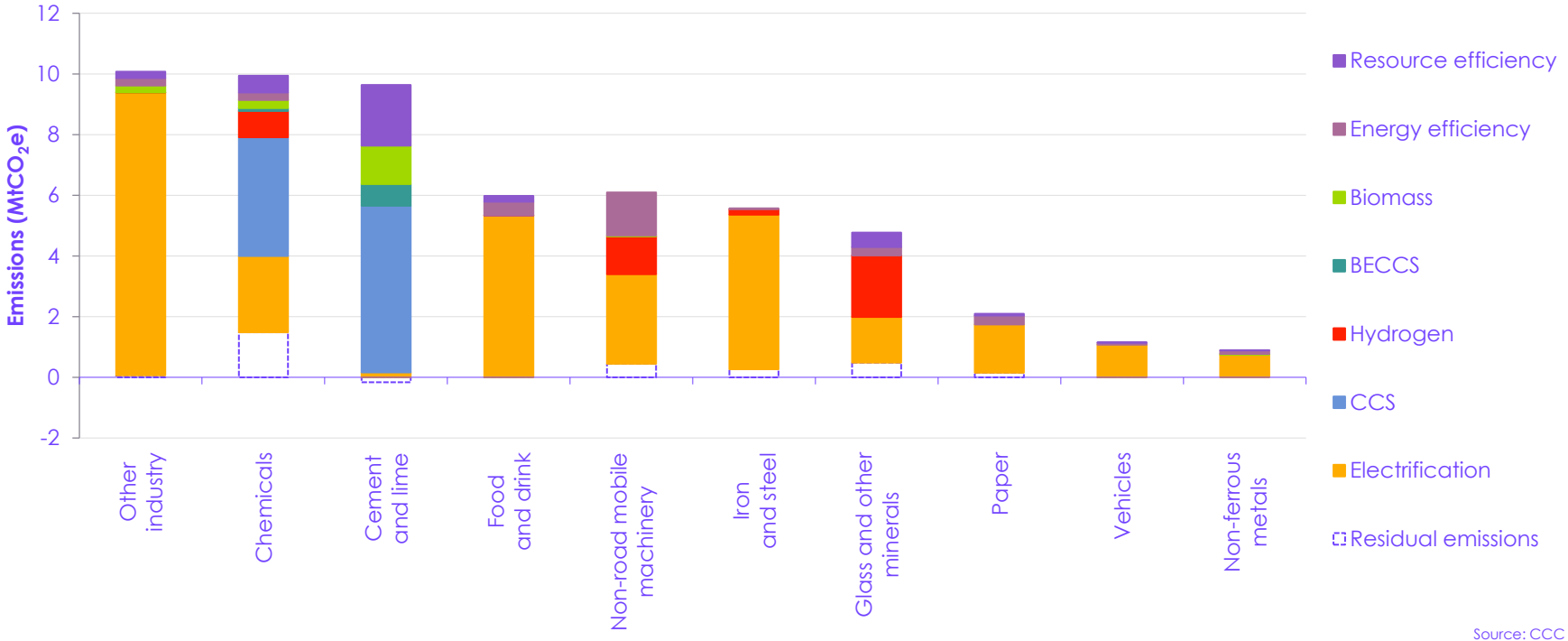
Electrification is now the predominant route to decarbonising most industrial emissions



Source: CCC analysis.

Abatement and residual emissions from industrial subsectors in 2050

CCS and hydrogen important for higher temperatures and process emissions



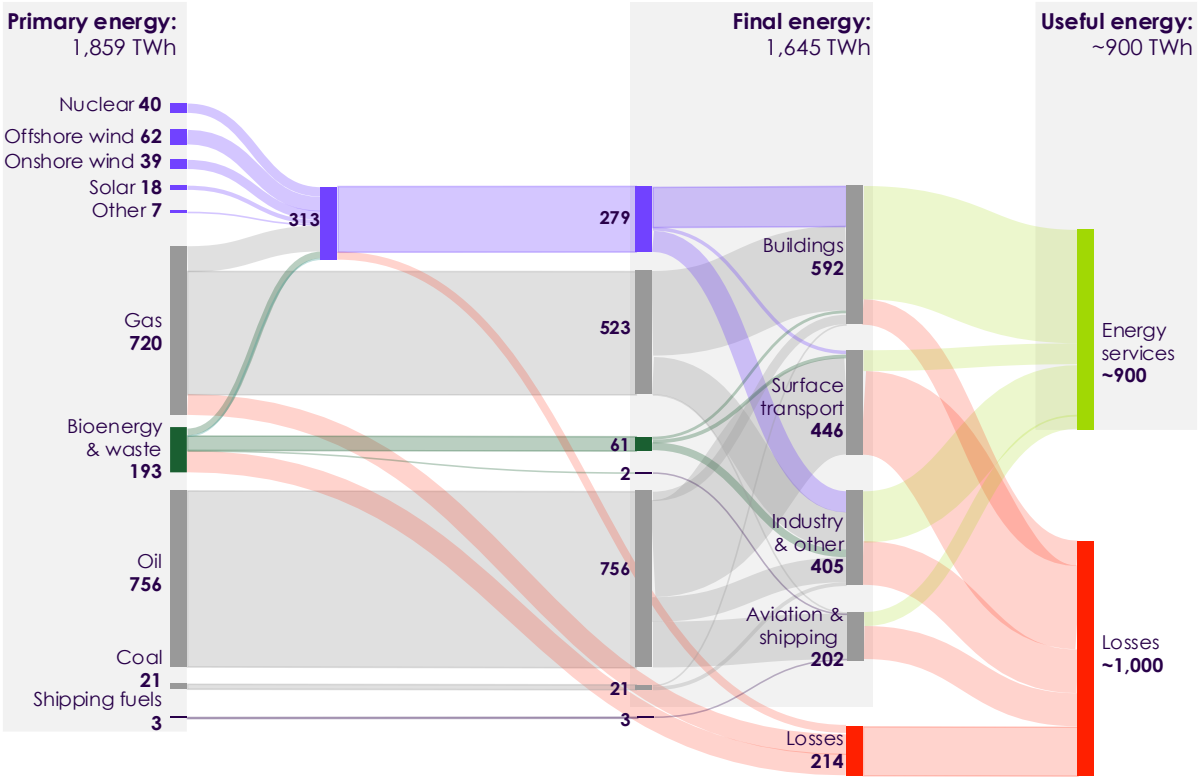
Source: CCC analysis.

Key recommendations
Priority actions for the industry sector

- **Make electricity cheaper relative to gas**. Our pathway is unlikely to be delivered unless this is addressed.
- **Speed up the grid connection process** which currently acts as a barrier to industrial electrification.
- **Introduce business models to** accelerate early-stage deployment of electrical heating equipment.
- **Maintain support for CCS and hydrogen**. There is an important, targeted role for these technologies.
- **Set standards for the whole life carbon impact of products**. This could help drive resource efficiency.
- **Drive decarbonisation of non-road mobile machinery** with new regulations, and subsidies if necessary.

The energy system

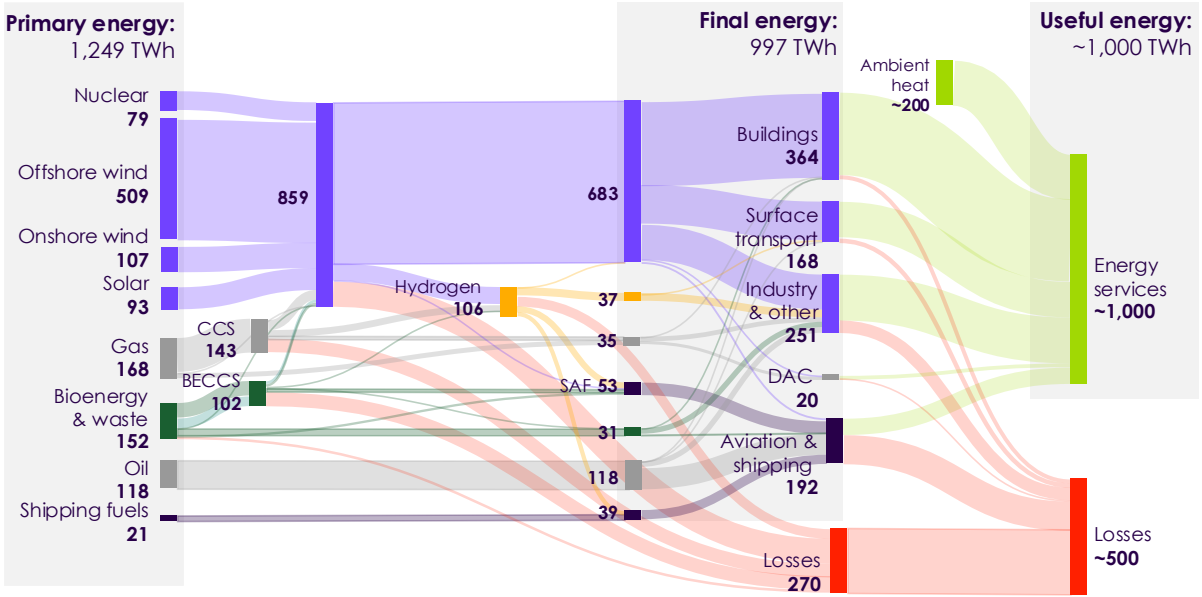
The 2025 system is dominated by oil and gas



Source: CCC analysis.

The energy system

By 2050, electricity is the main energy carrier and energy losses are halved. Electricity demand grows but total energy demand falls



Source: CCC analysis.

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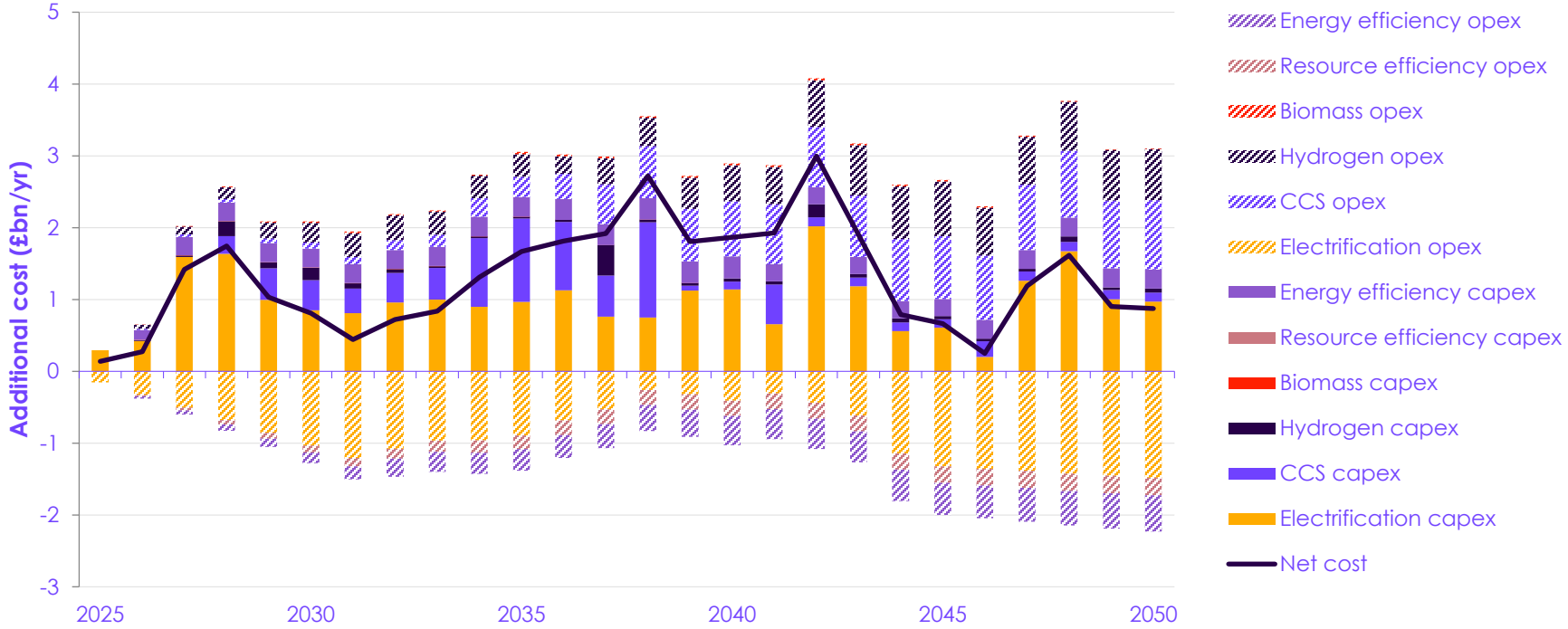
Costs and savings in the Balanced Pathway for industry, compared to the baseline

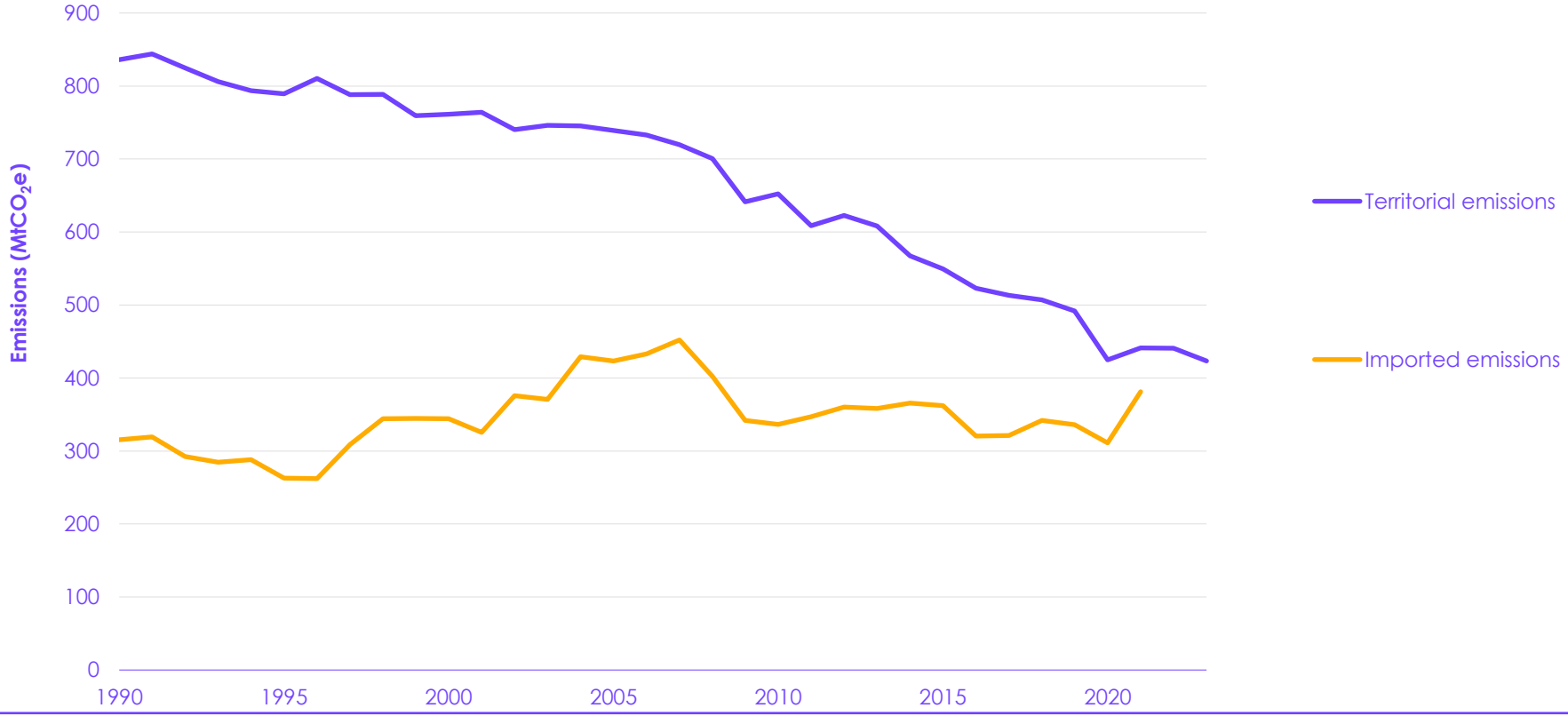
Electrification can deliver savings but requires policy to reduce industrial electricity prices



Source: CCC analysis.

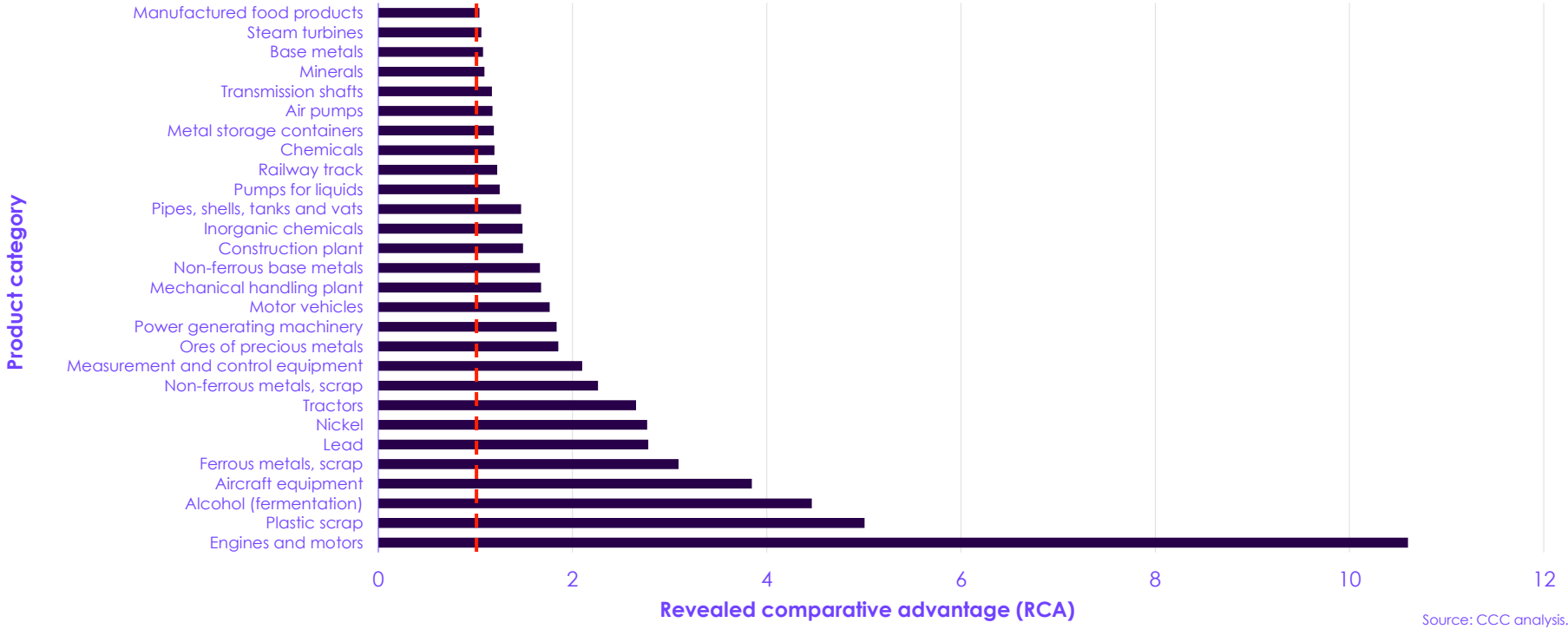
Emissions from imports and territorial emissions

Emissions from imports constitute a significant part of the UK's contribution to climate change



Opportunities for UK businesses from the transition to Net Zero

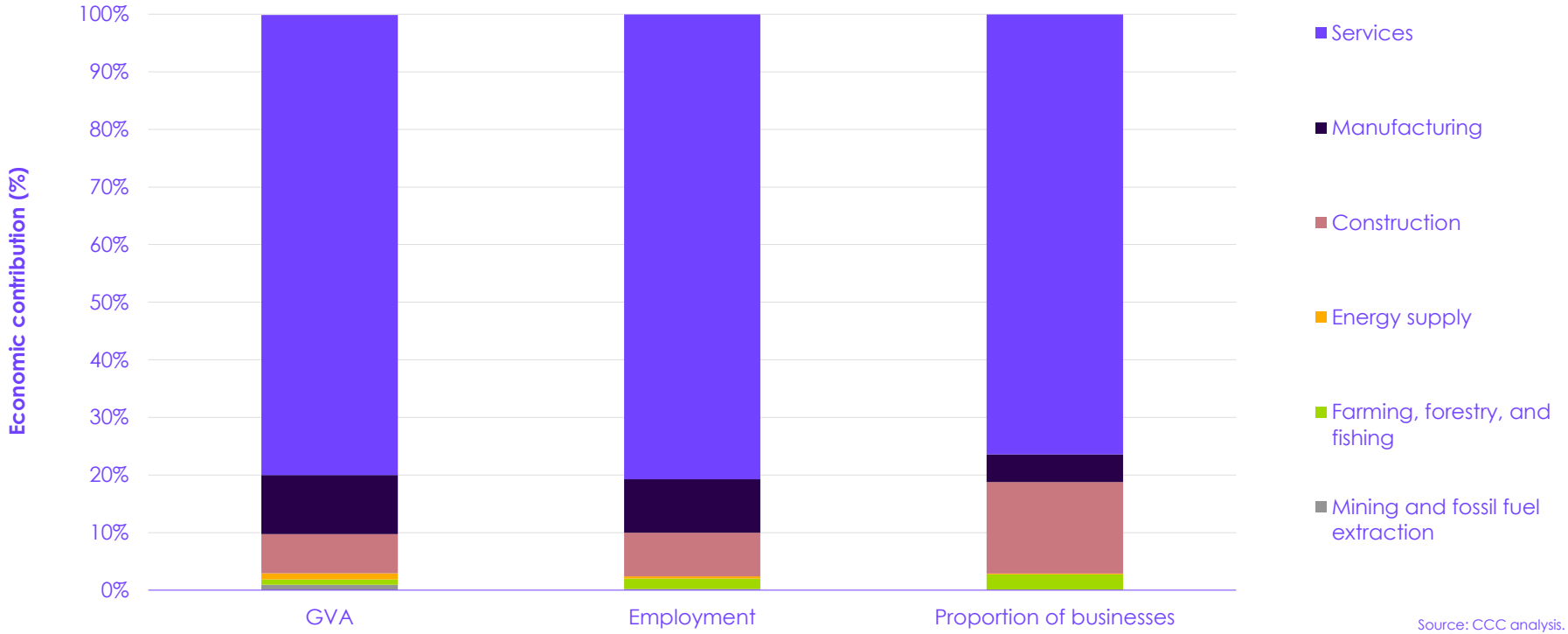
The UK is specialised in providing a range of goods and services which are important for Net Zero



Source: CCC analysis.

Most of the economy will not be significantly impacted in the transition

Emissions-intensive traded sectors are more exposed



Source: CCC analysis.