

# Fourth Carbon Budget Review

## Attlee Suite, Portcullis House

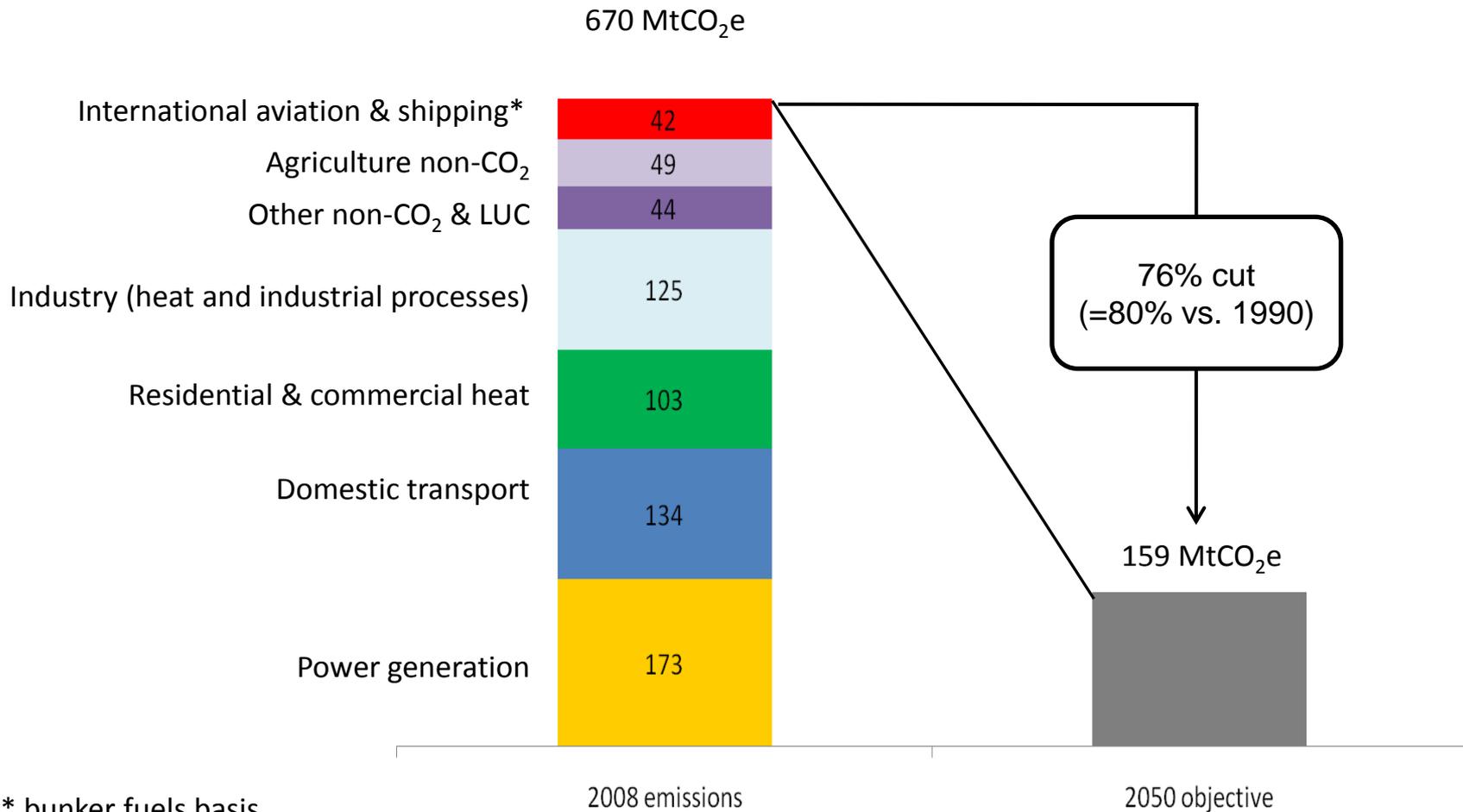
11<sup>th</sup> December 2013



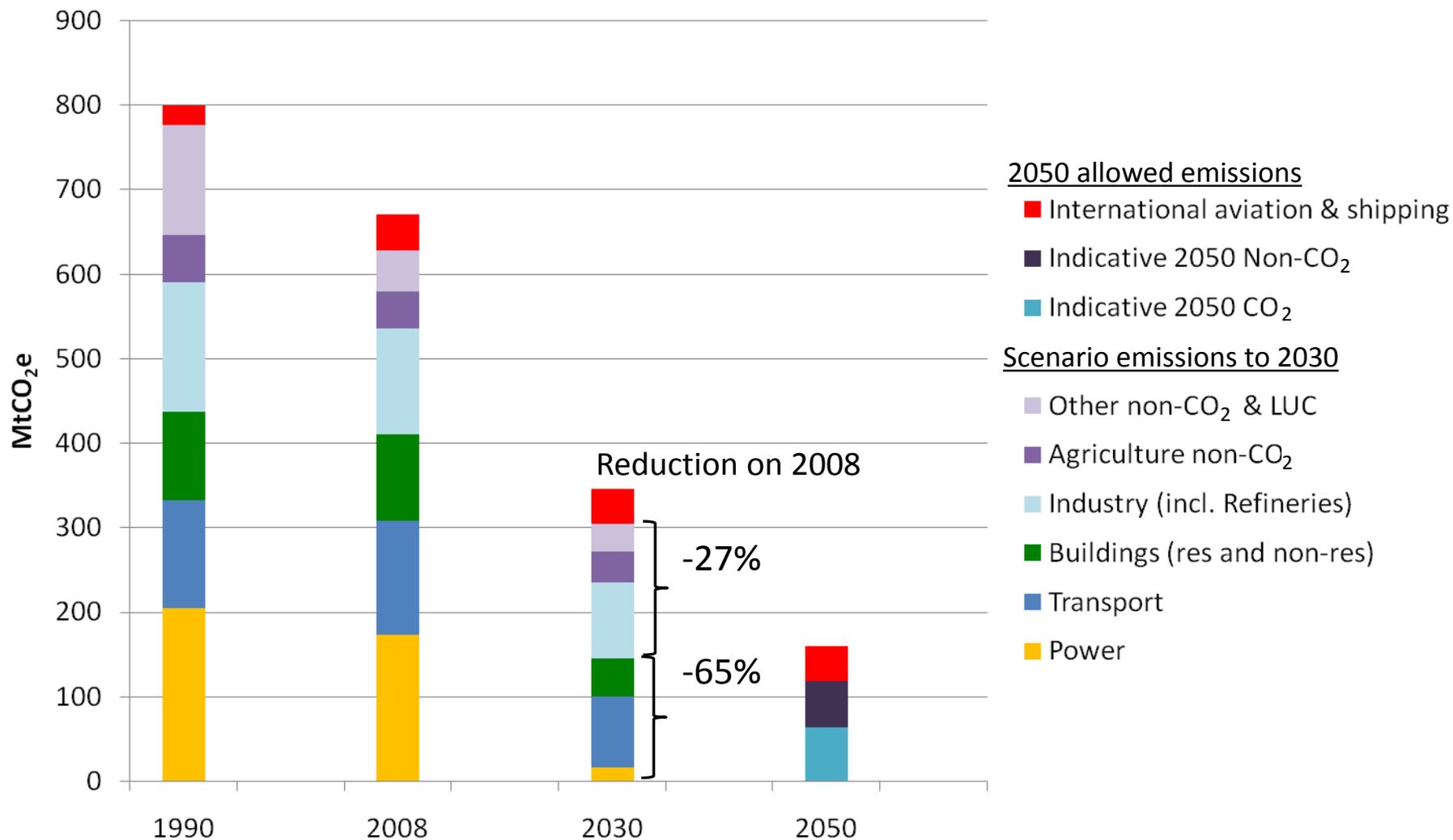
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- The UK's **2050 target** of an 80% emissions reduction remains appropriate.
- The **cost-effective path** to meeting the 2050 goes beyond the level of ambition in the fourth carbon budget; delaying action implies significant additional costs.
- It is **premature to tighten the budget** now – but a future tightening may be appropriate (e.g. following agreement on an ambitious EU 2030 target).
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- Budget should be kept at current level – **early decision by the Government** would improve the conditions for investment.

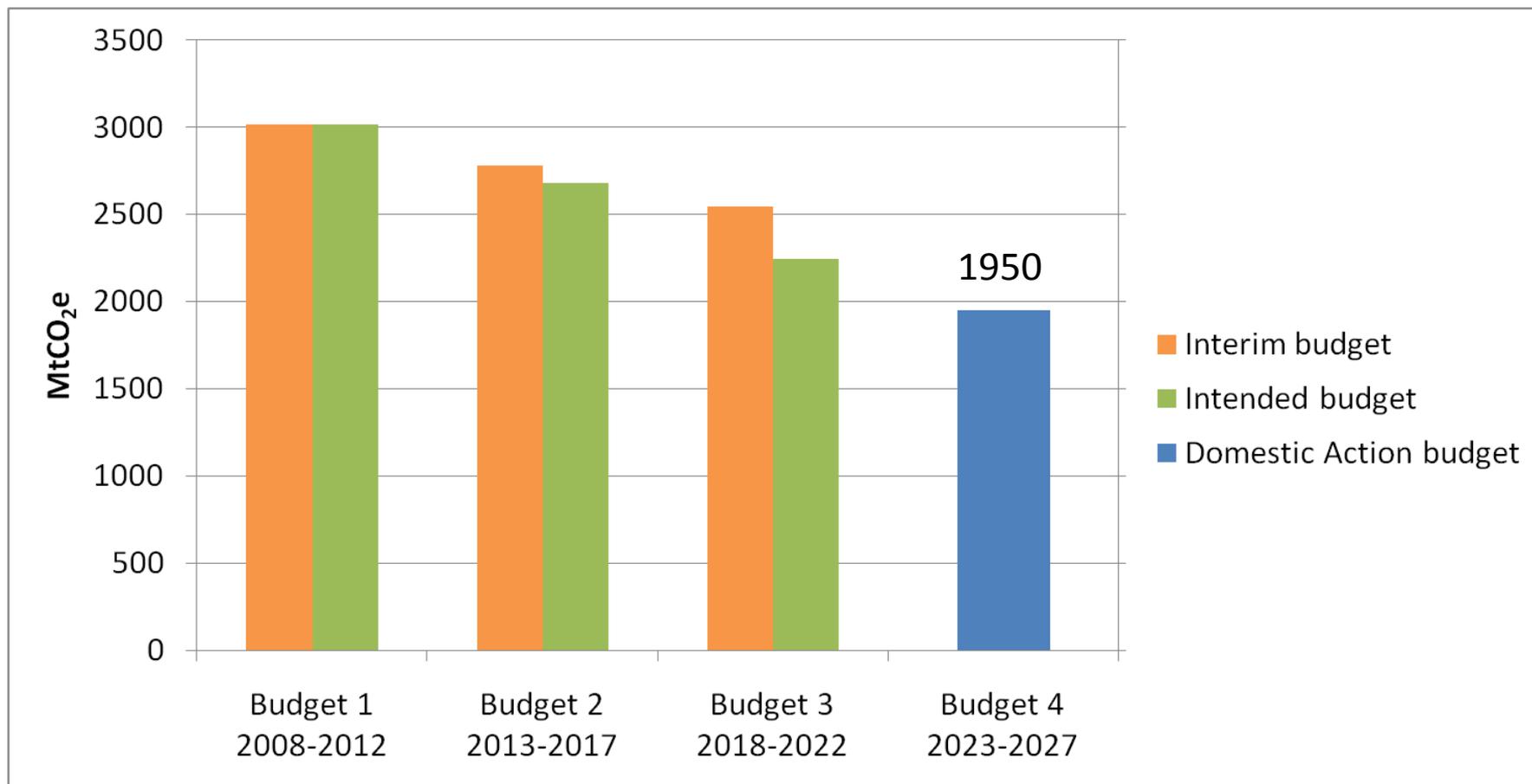
# The UK's 2050 target – requires very deep cuts in emissions across the economy



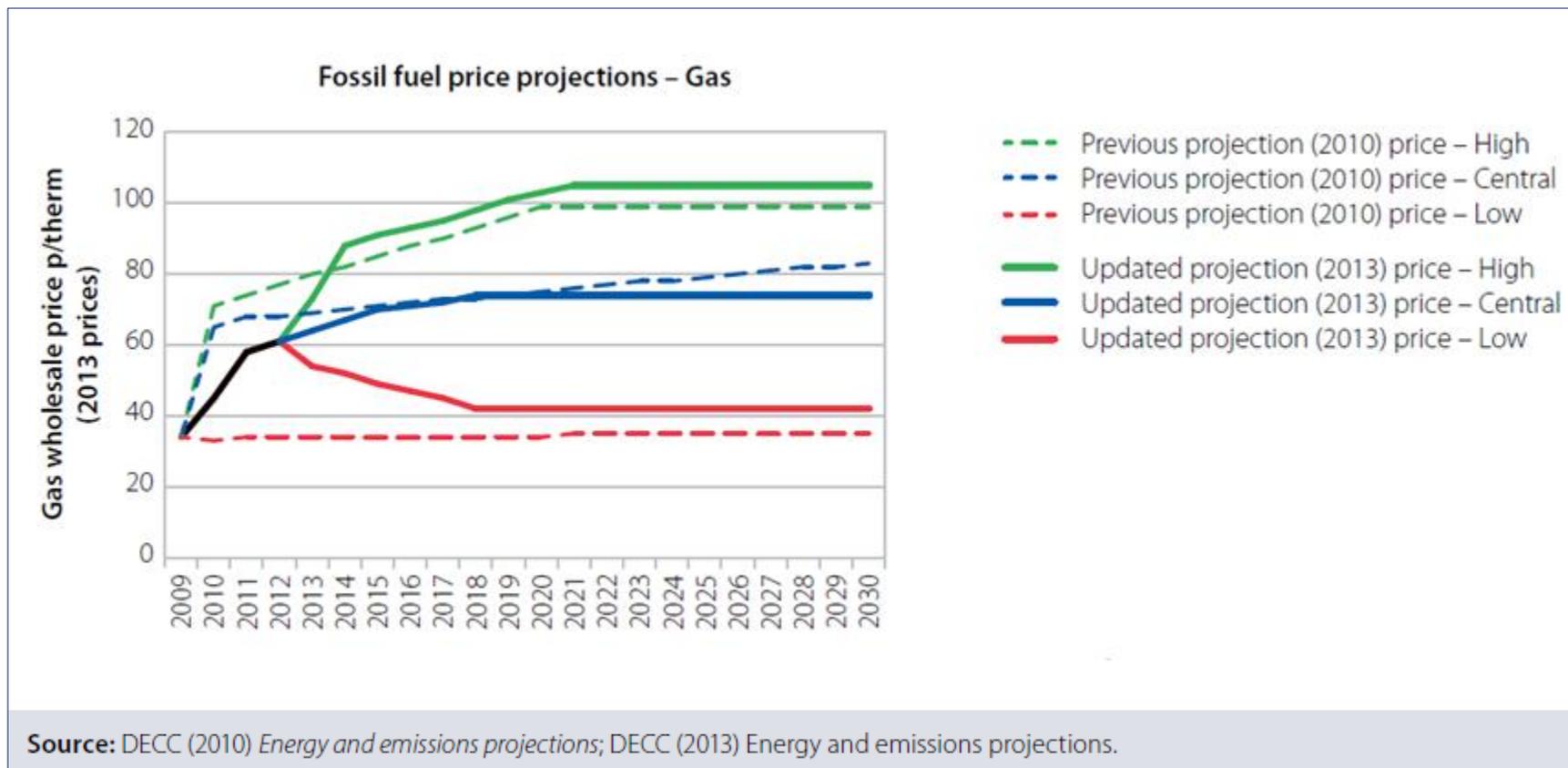
# In 2010 we developed a feasible and cost-effective planning scenario for 2030 that is compatible with the 2050 target



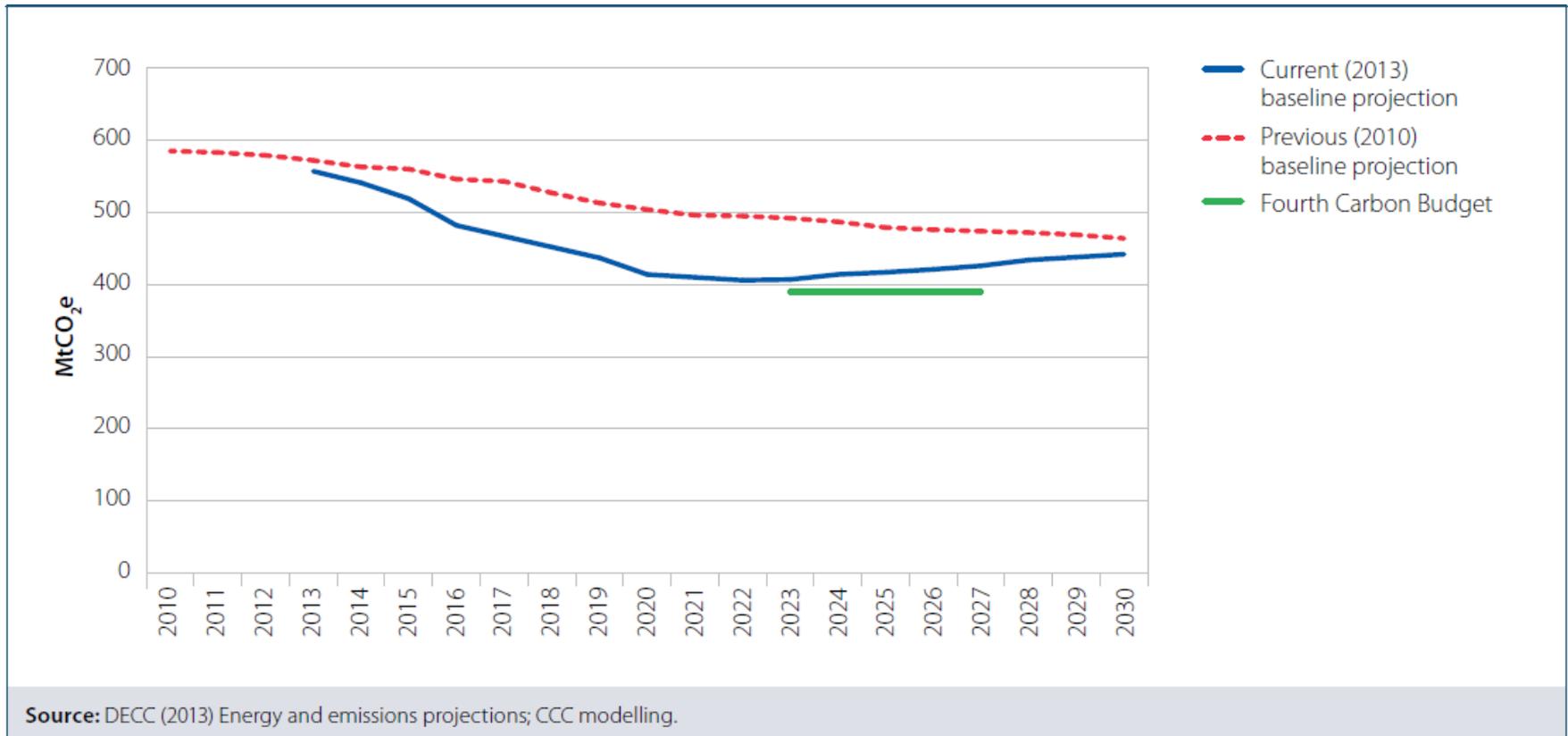
# Interim, Intended and Domestic Action budgets



# Central case gas price projections remain broadly at current level – even allowing for shale gas impacts



# Baseline emissions projections have fallen due to new modelling approaches and assumptions on key drivers



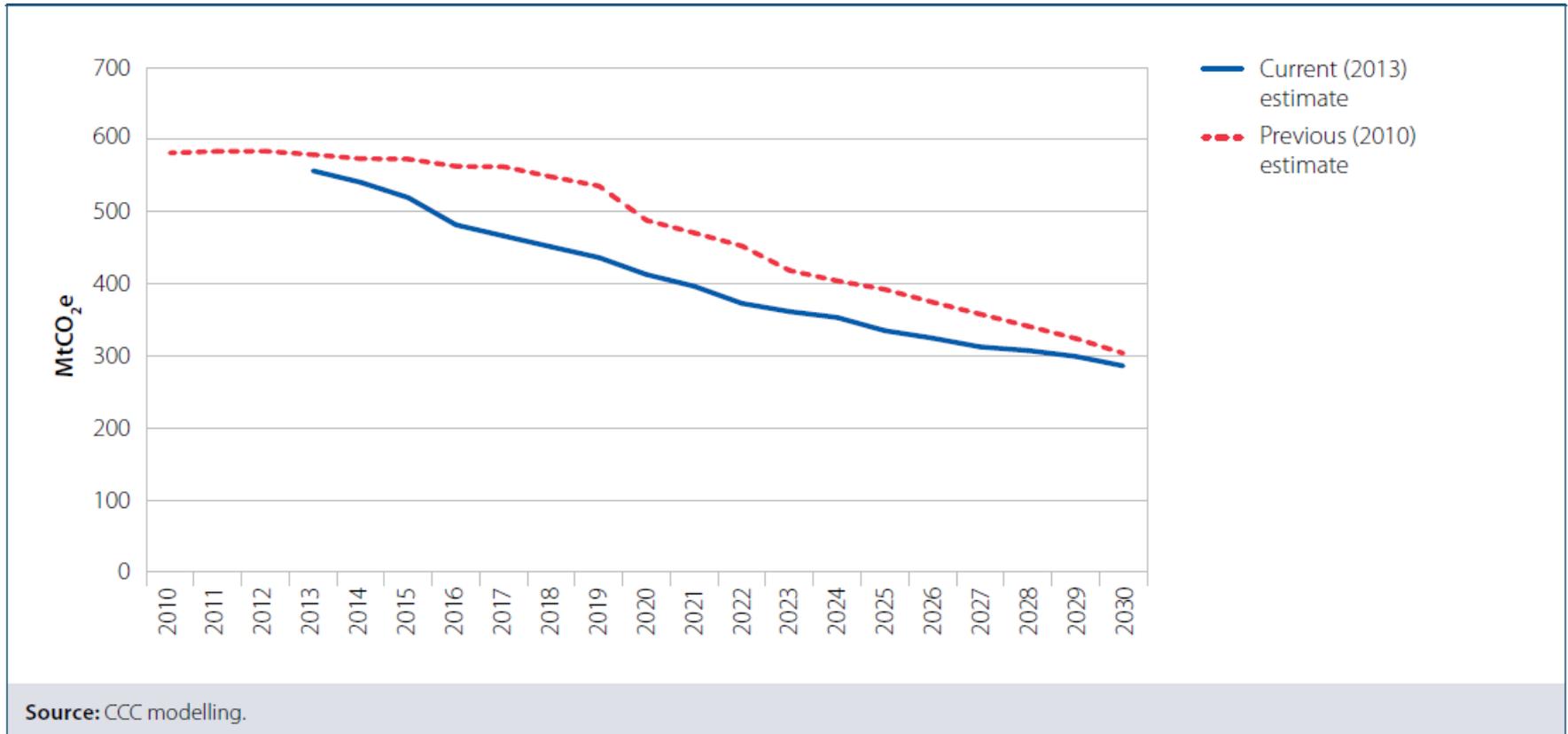
## Updated assessment of abatement potential – some assumptions reinforced, some more prudent



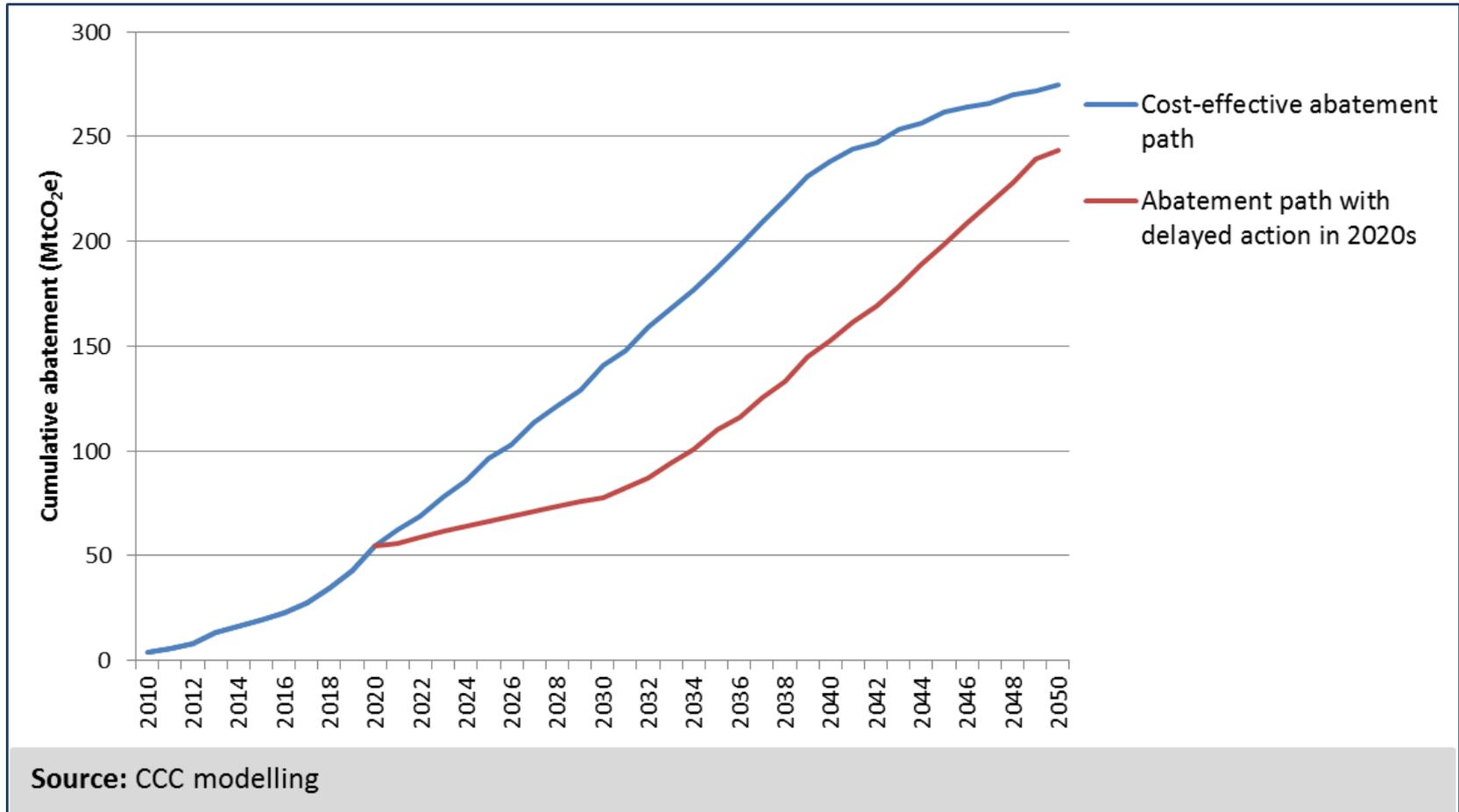
- **Power:** latest costs and potential still suggest 50 gCO<sub>2</sub> feasible and desirable (see May EMR report); aligned to draft Delivery Plan scenarios
- **Buildings:** more prudent assumptions on effectiveness of wall insulation; evidence on other efficiency supports previous assessment (overall)
- **Heat:** revised uptake down from 7 million heat pumps in homes to 4 million by 2030; impact partly offset by higher uptake of district heating
- **Transport:** Now better allow for S/M/L mileage, 'real world' efficiency in g/km; consumer choice modelling reinforces that can reach 60% EV (sales) penetration by 2030; now assume lower EV sales in 2020, higher PHEV share, with lower range
- **Industry:** slightly reduced abatement from energy efficiency improvements

+ **Sensitivities:** 100g in power; no SWI; 2.5m heat pumps; 30% EVs

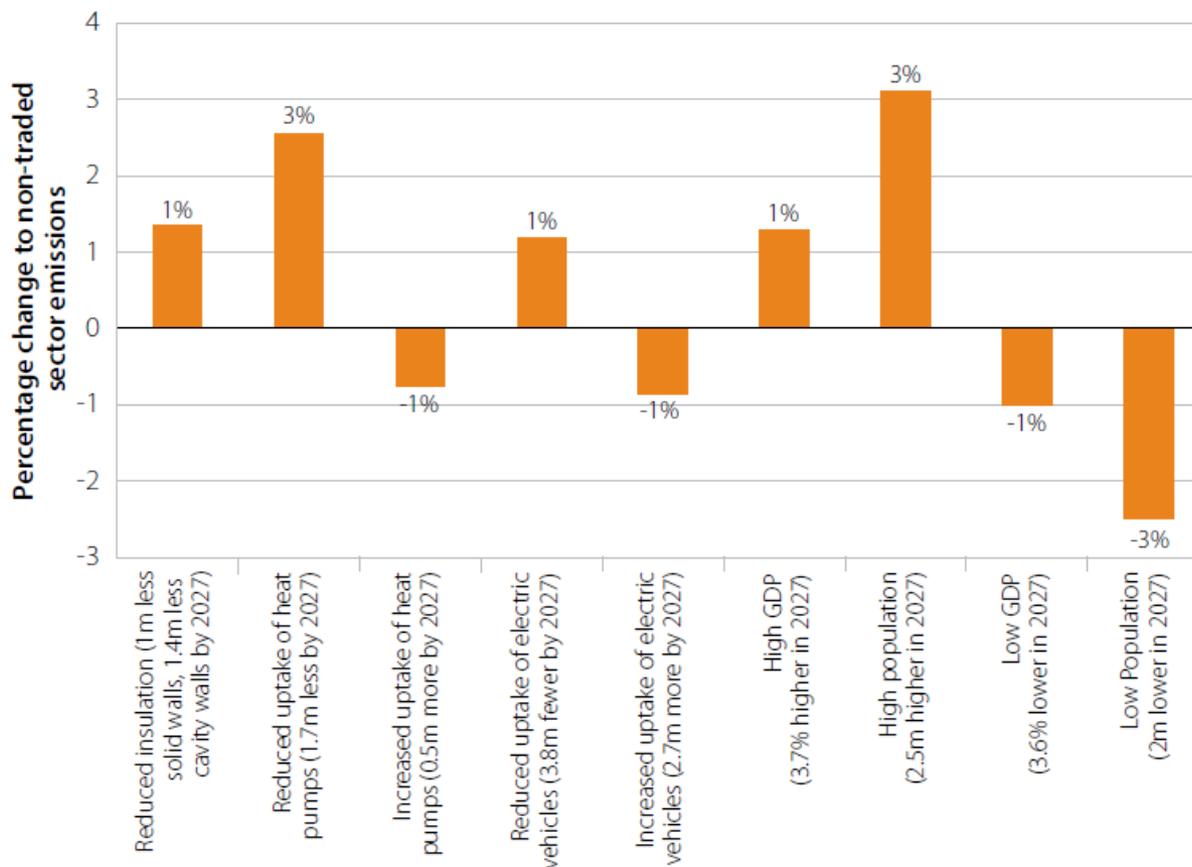
# Updated assessment suggests cost effective path embodies lower emissions



# Significant cost savings from early action compared to delay scenario – low regrets strategy with significant upside



# Cost-effective path for the non-traded sector close to the level in the budget – provides useful contingency

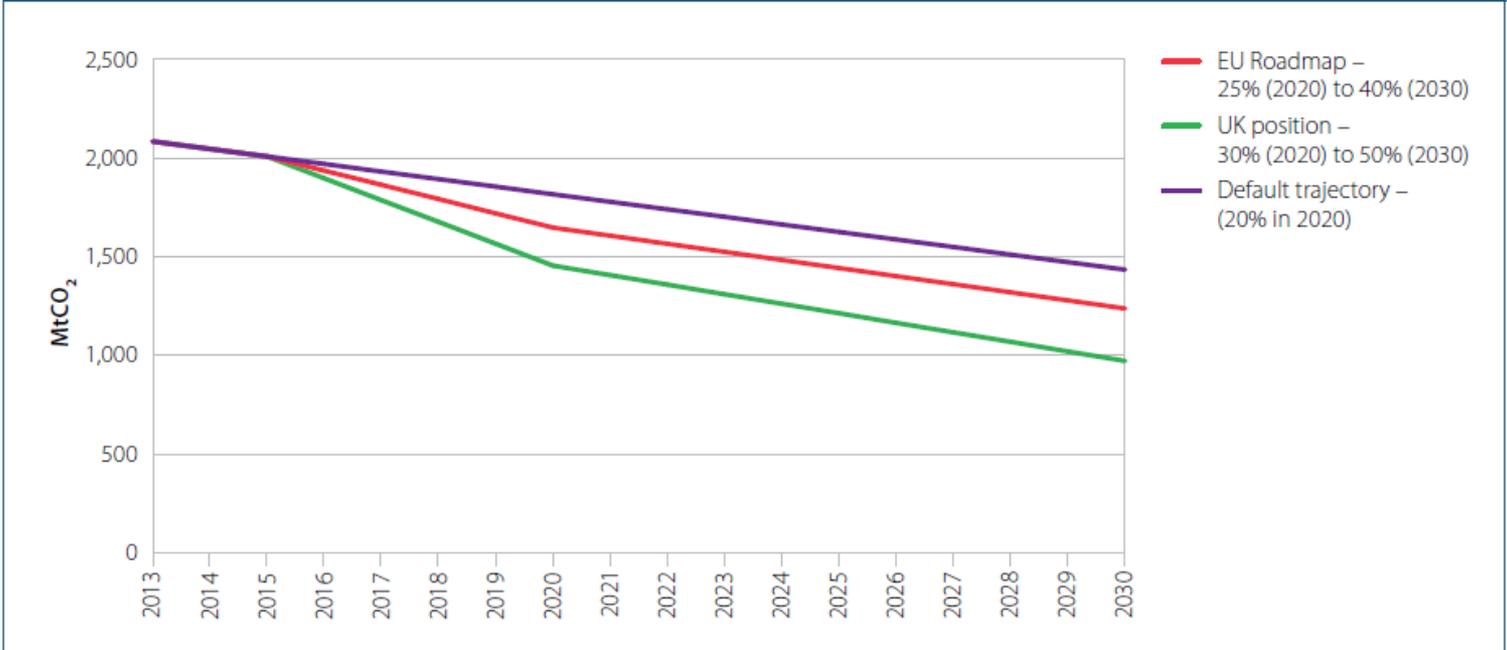


Source: CCC modelling, DECC (2013) Energy and emissions projections, ONS (2011) 2010-based population projections.

# Range for future EU ETS cap defined by default trajectory & UK position



Figure 3.2: Range for EU ETS caps to 2030



Source: CCC analysis based on published EC information.  
Notes: Assumes any adjustment to 2020 target applies from 2015. Default trajectory falls at 38.3 MtCO<sub>2</sub> per year.

# Legislated fourth budget is at low end of ambition of possible EU outcomes



**Table 3.1: UK emissions in the fourth carbon budget period (2023-27) under different EU paths for the 2020s (MtCO<sub>2</sub>e)**

Scenario	Projected UK share of the EU ETS cap	Implied fourth carbon budget (covering both traded and non-traded sectors) <sup>1</sup>
No agreement – default EU ETS trajectory	740	2,000
Legislated fourth carbon budget <sup>2</sup>	<b>690</b>	<b>1,950</b>
Lowest ambition in EU Green paper – 20% (2020) to 40% (2030)	690	1,950
EU Roadmap – 25% (2020) to 40% (2030)	650	1,910
UK Government objective – 30% (2020) to 50% (2030)	550	1,810

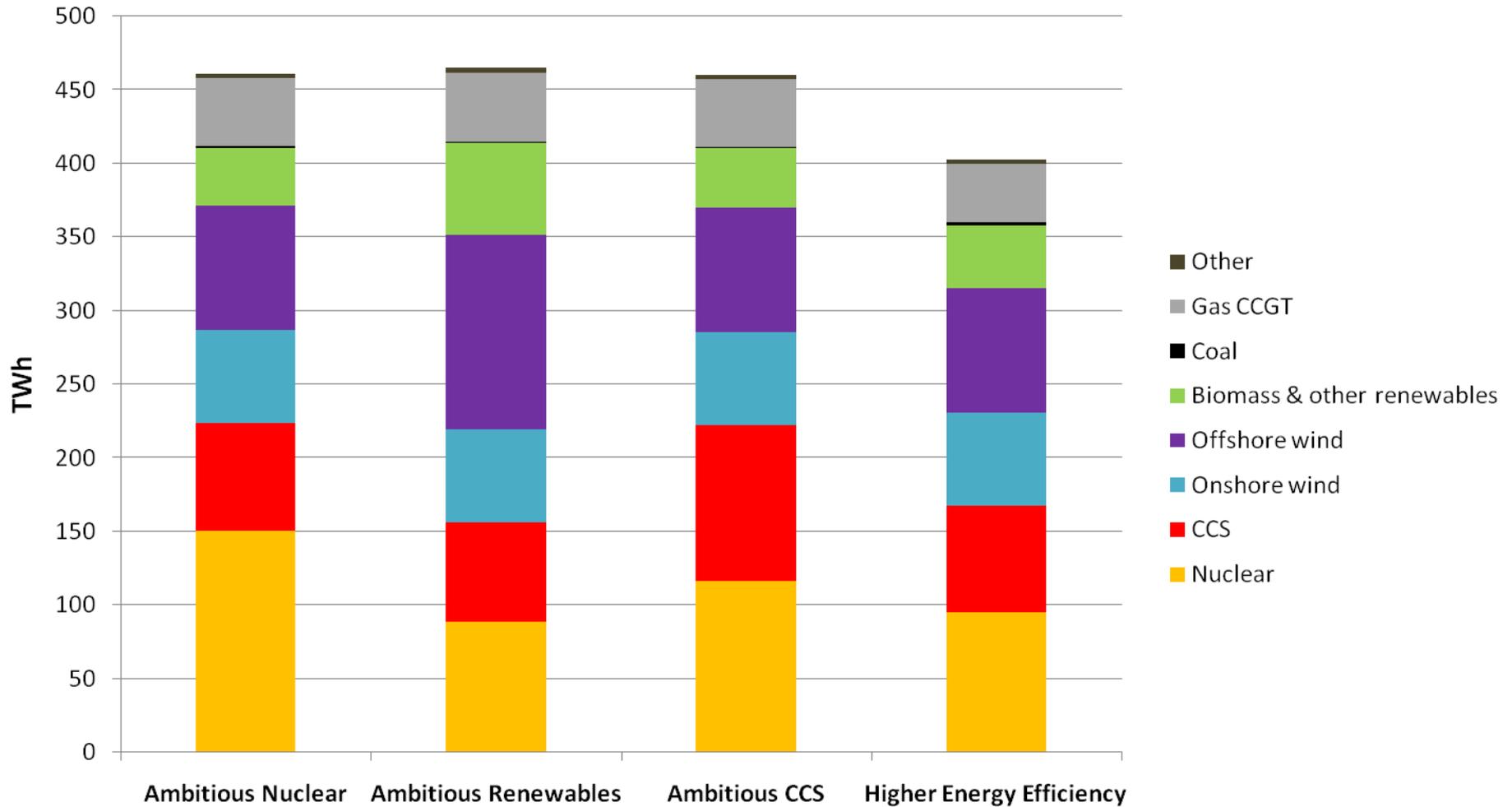
**Notes:**

Estimates rounded to nearest 10 MtCO<sub>2</sub>e. All scenarios assume 2013 EU ETS cap of 2,084 MtCO<sub>2</sub>e and total UK share of 9.1%.

1. Assumes non-traded sector emissions of 1,260 MtCO<sub>2</sub>e over the fourth carbon budget period, as in our original advice.

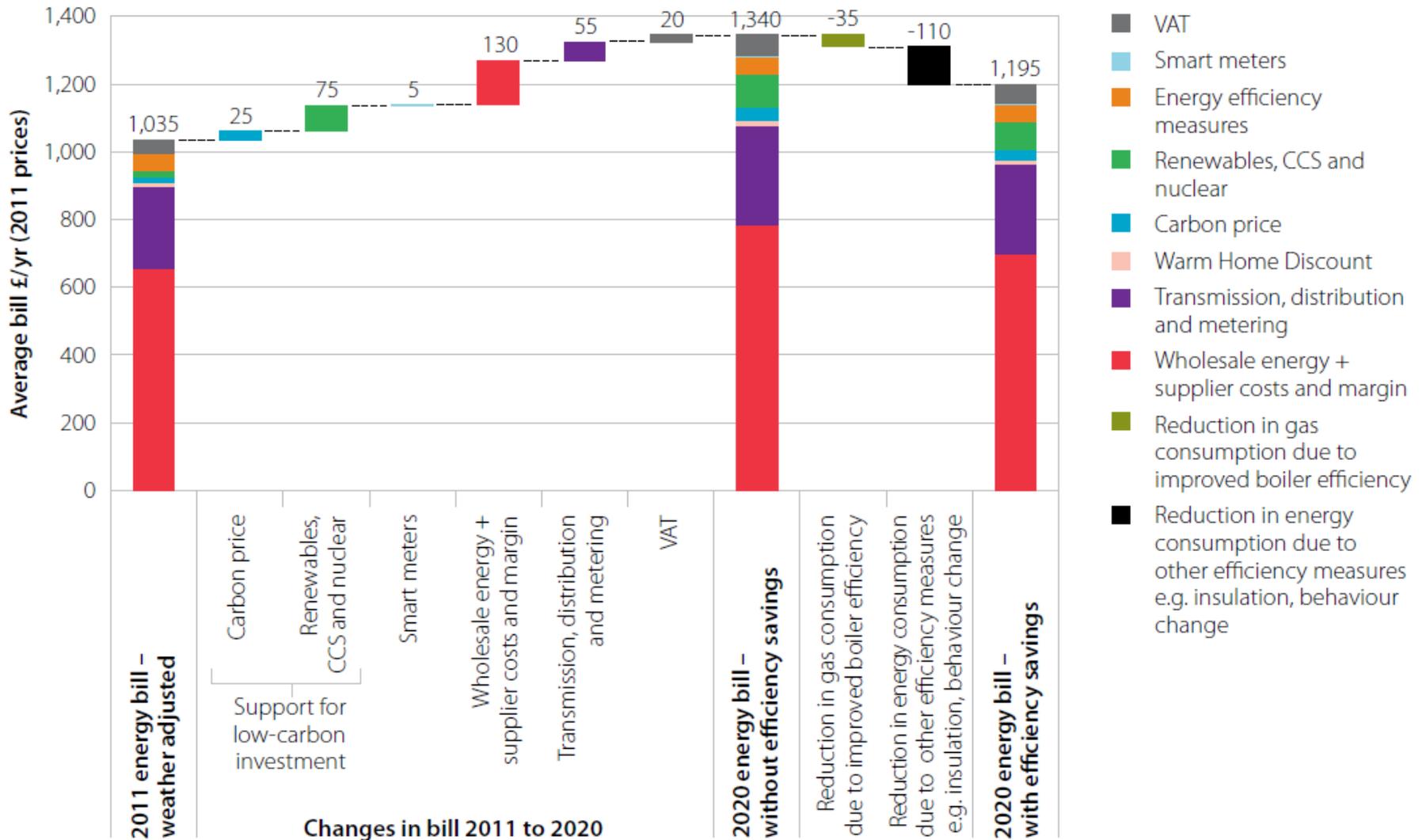
2. Our original advice on the level of the fourth carbon budget reflected the UK cost-effective emissions pathway, and did not make any specific assumptions on the EU ETS cap. For comparison the table reports emissions in sectors covered by the EU ETS: 690 MtCO<sub>2</sub>e.

# Debates about 2030 power sector decarbonisation target to be resolved in 2016

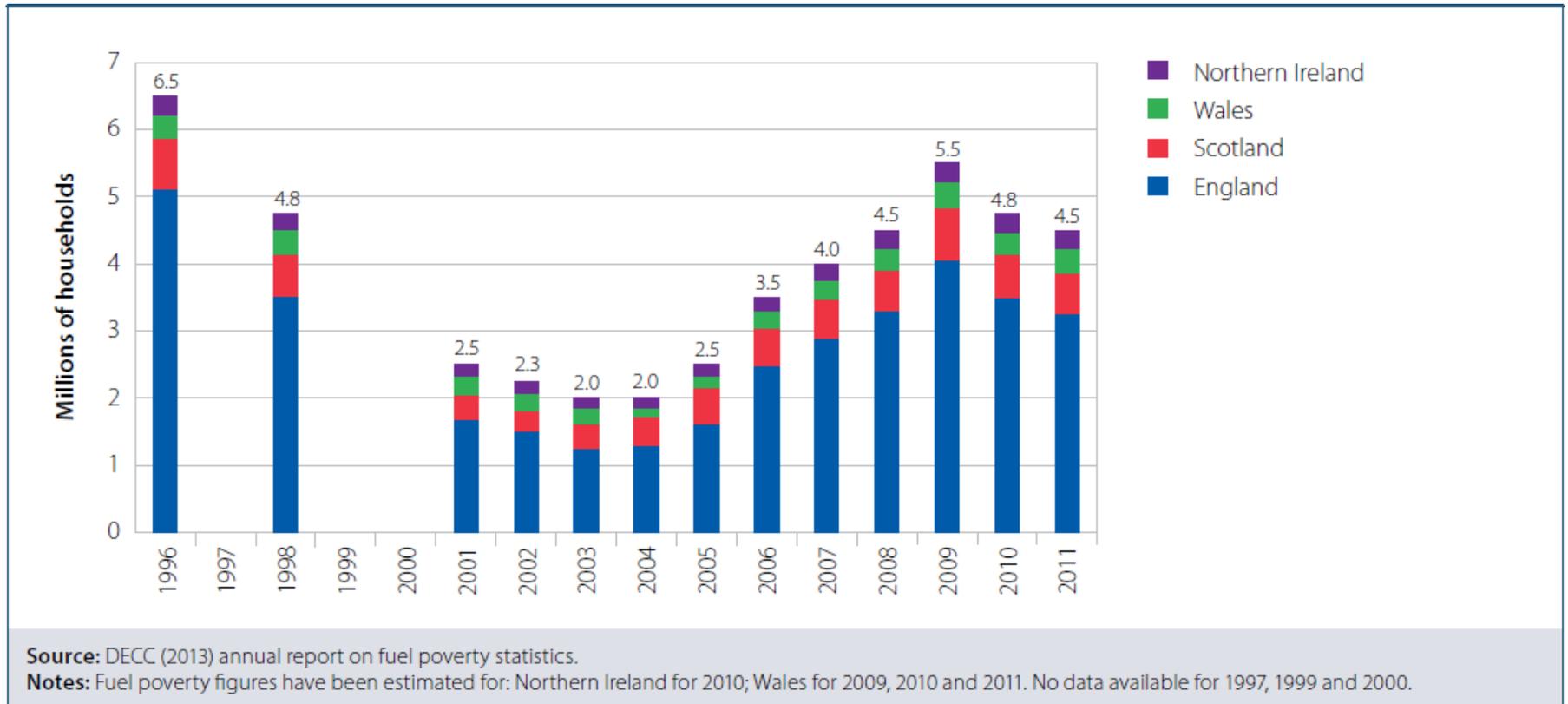


Source: Redpoint (2013); CCC (2013)

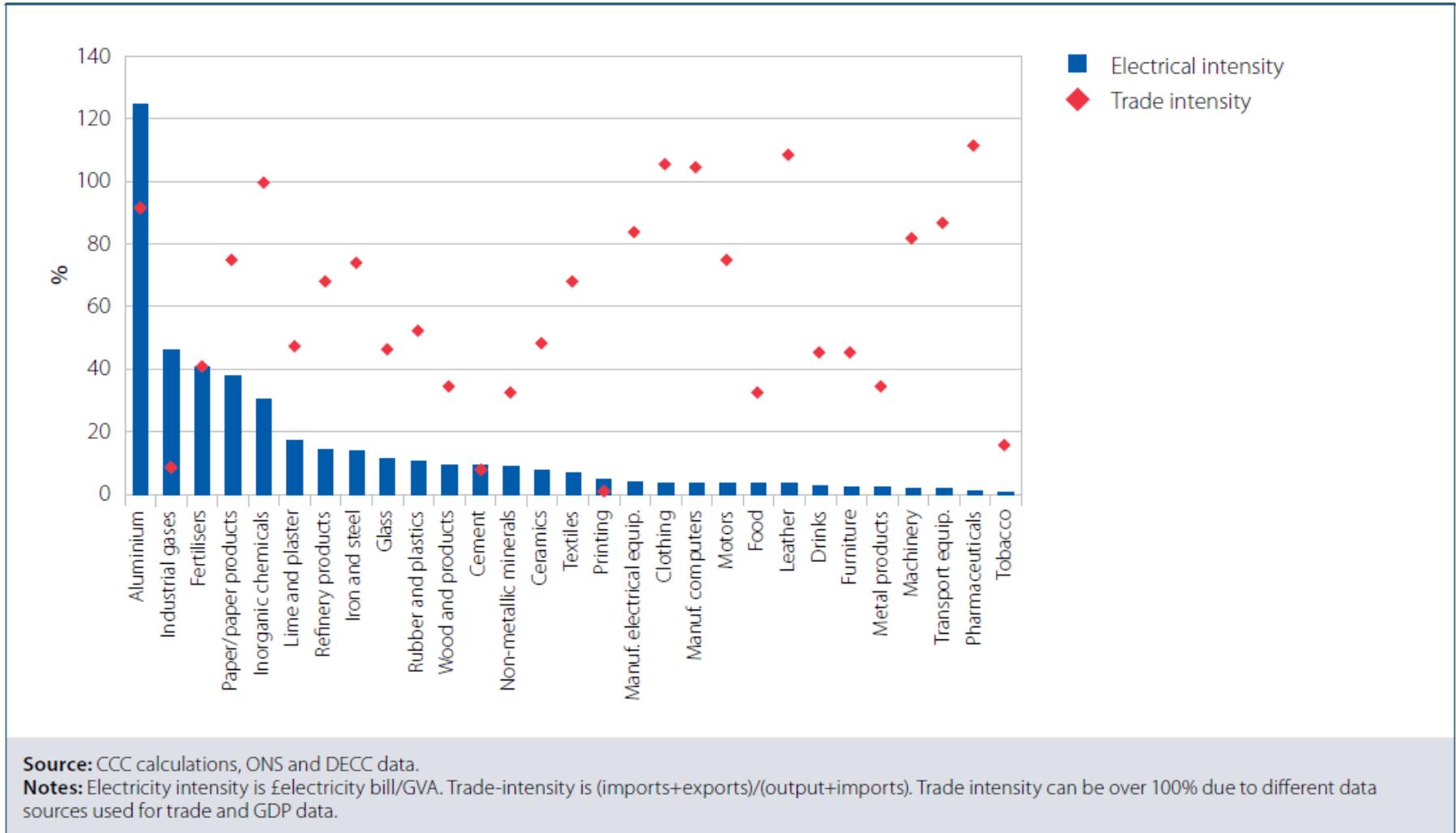
# Affordability impacts of portfolio approach: adds £100 to 2020 – further £20 in 2030



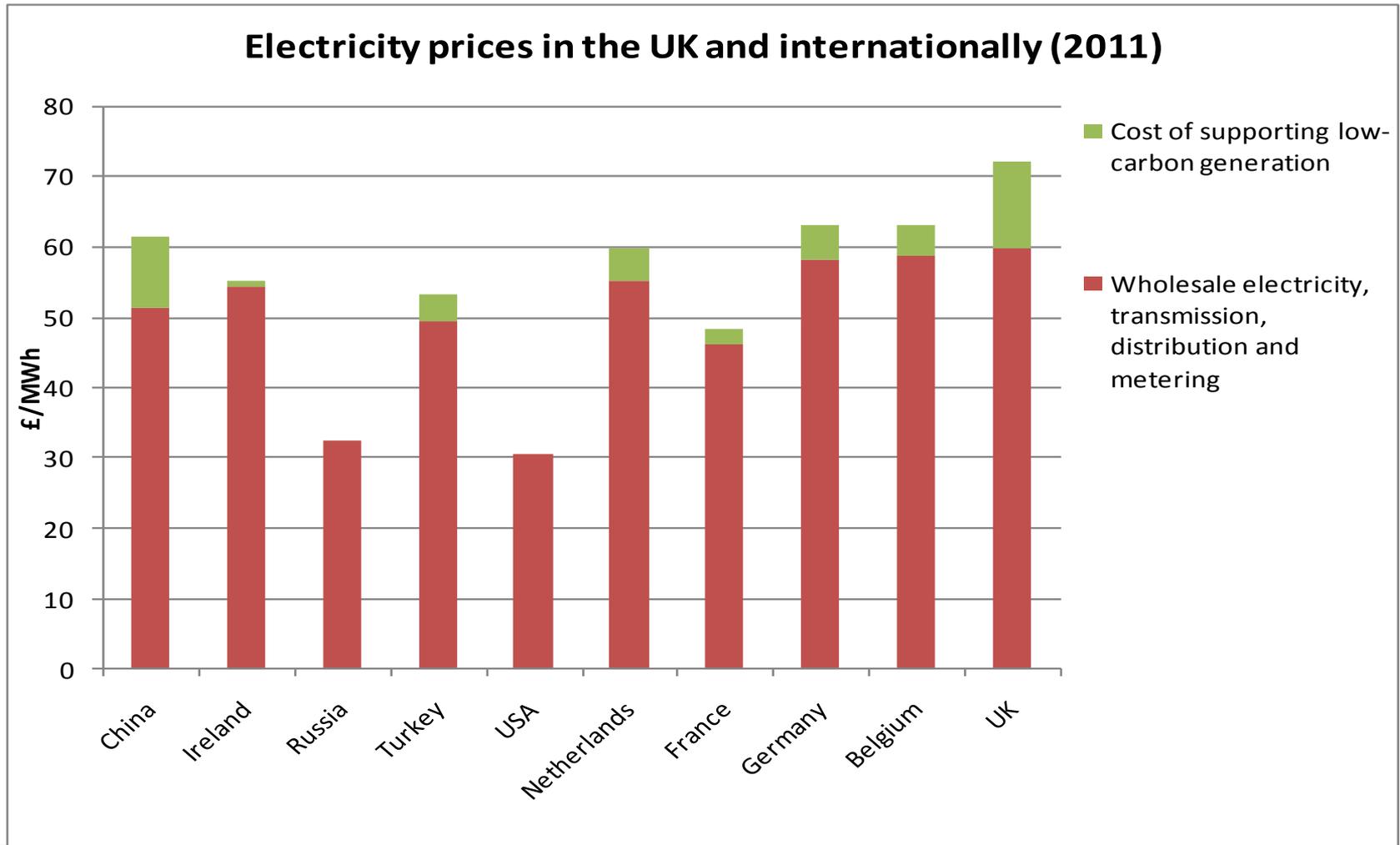
# Fuel poverty remains a problem in the UK – but not due to low-carbon policies



# At risk electricity / trade-intensive industries include aluminium, pulp ad paper, chemicals, iron sand steel

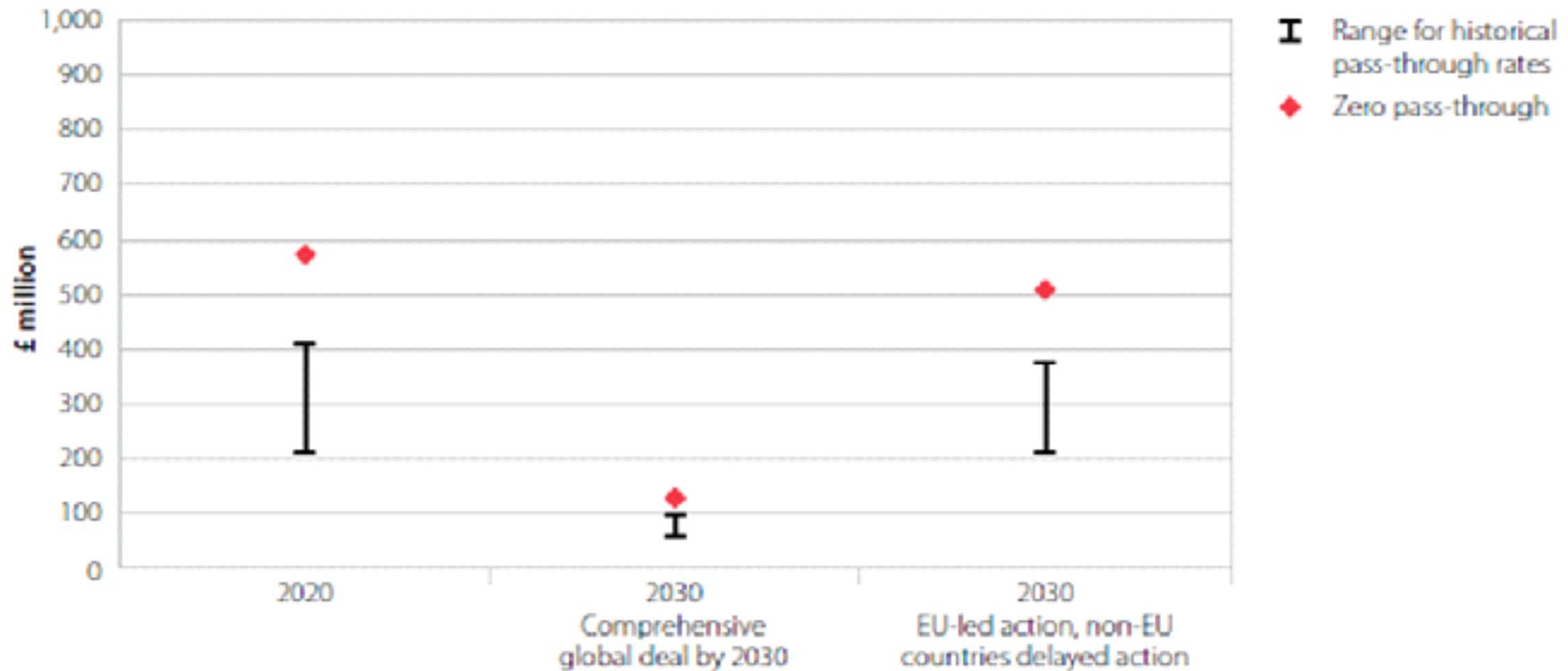


# Industry electricity prices already relatively high in the UK

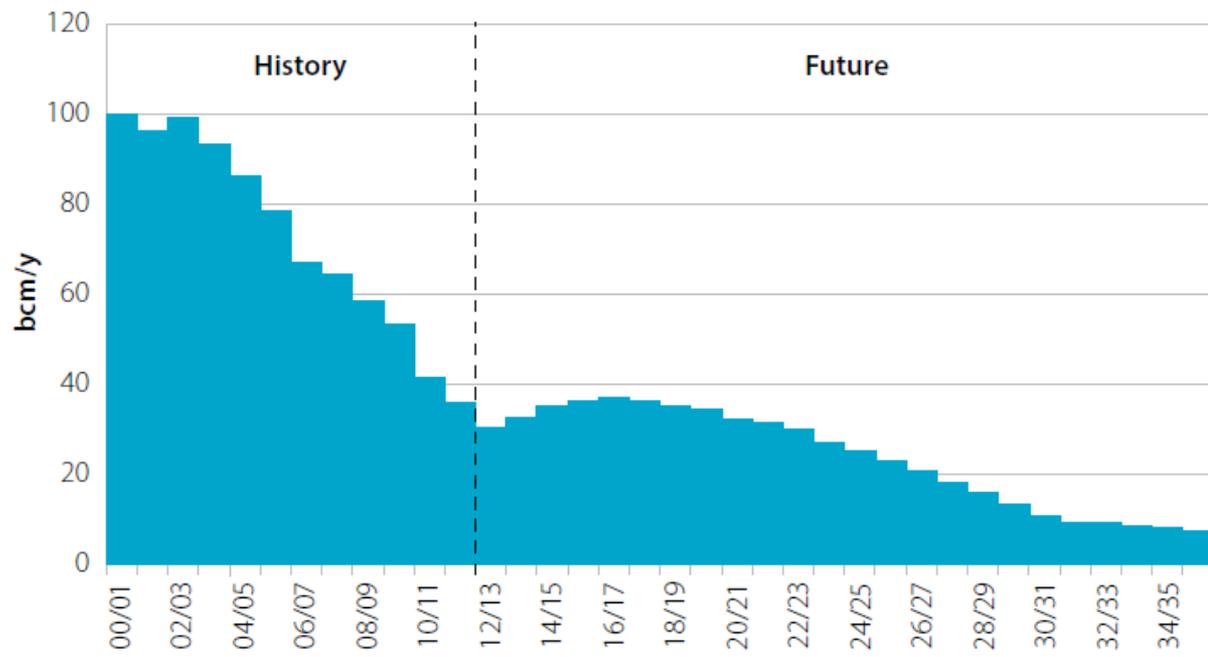


# Impacts are manageable – and managed under current policies, though case for extending out in time

## Profit reductions due to low-carbon policy

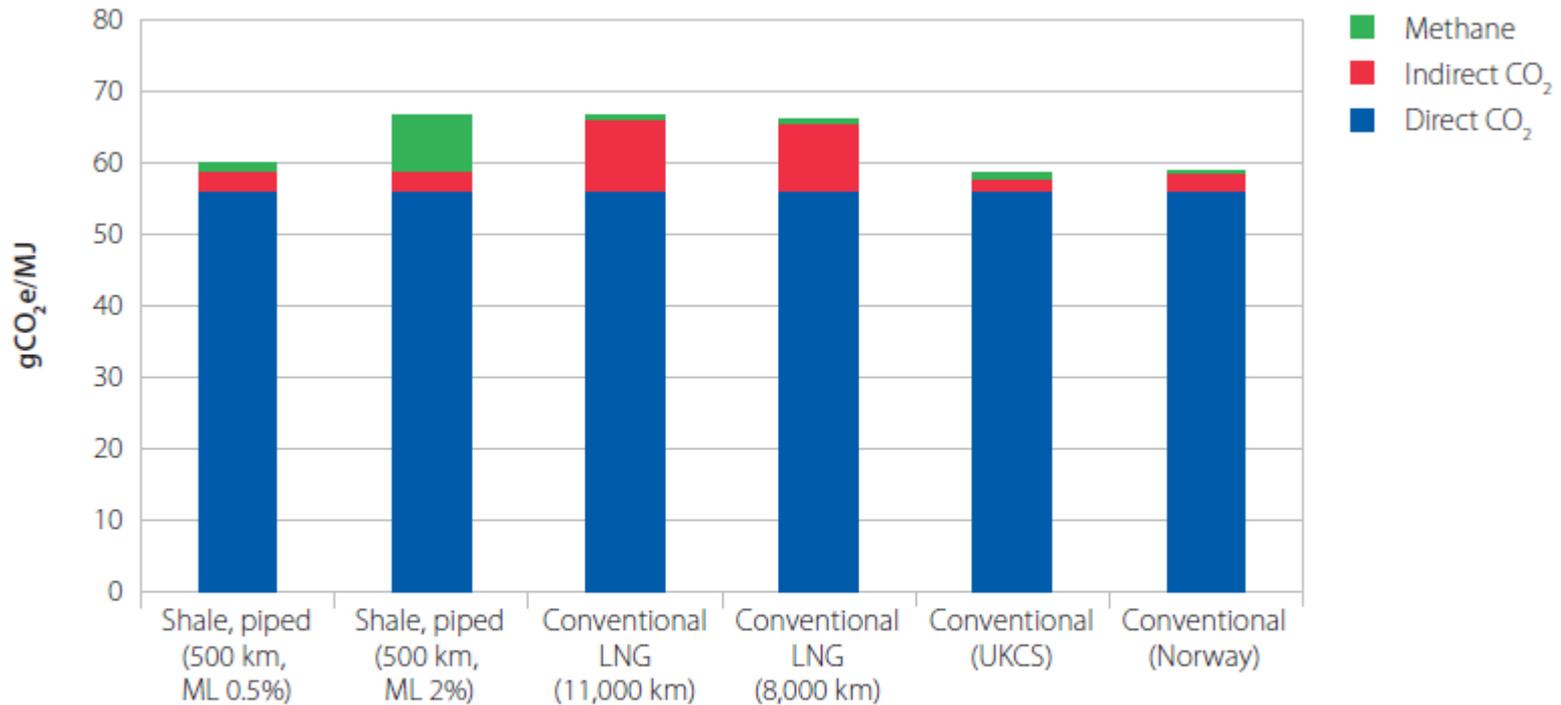


# North Sea gas resources decline set to continue – shale gas could alleviate need to import gas for heat



Source: National Grid (2013), Future Energy Scenarios.

# Shale gas carbon footprint can be comparable with natural gas, less than LNG



**Source:** CCC analysis based on estimates developed by Ricardo-AEA.

**Notes:** Emissions per unit energy of gas delivered. Includes transmission but excludes UK distribution. ML = methane leakage from well completion.

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