Committee on Climate Change

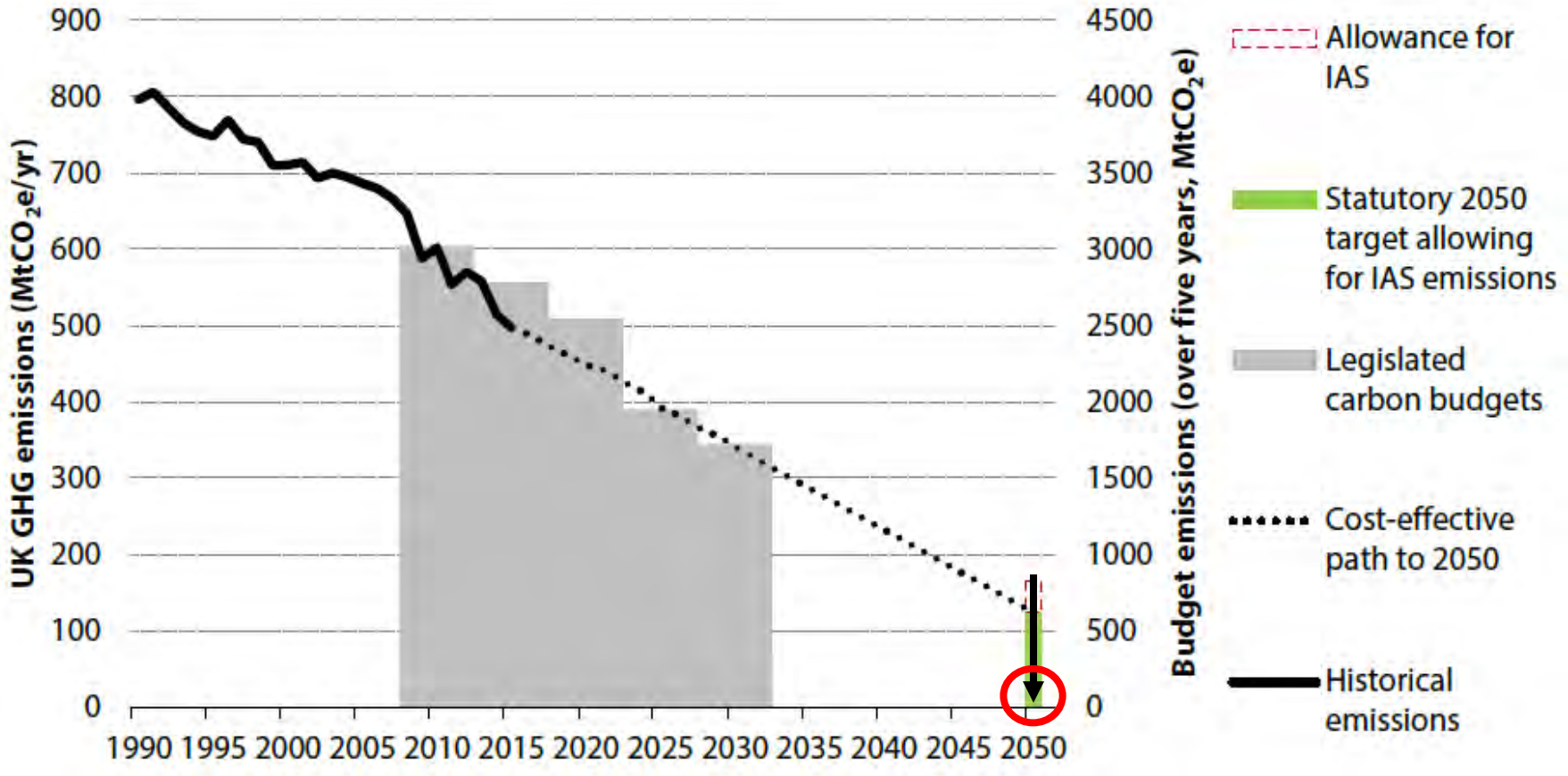
13th December 2019

Carbon pricing and net-zero

Mike Hemsley

UK has 5 legislated carbon budgets that are stepping stones to the 2050 80% target

Carbon budgets and the cost-effective path to the 2050 target



IAS = International aviation and shipping (not included in carbon budget accounting). Source: CCC (2015) *The Fifth Carbon Budget.*

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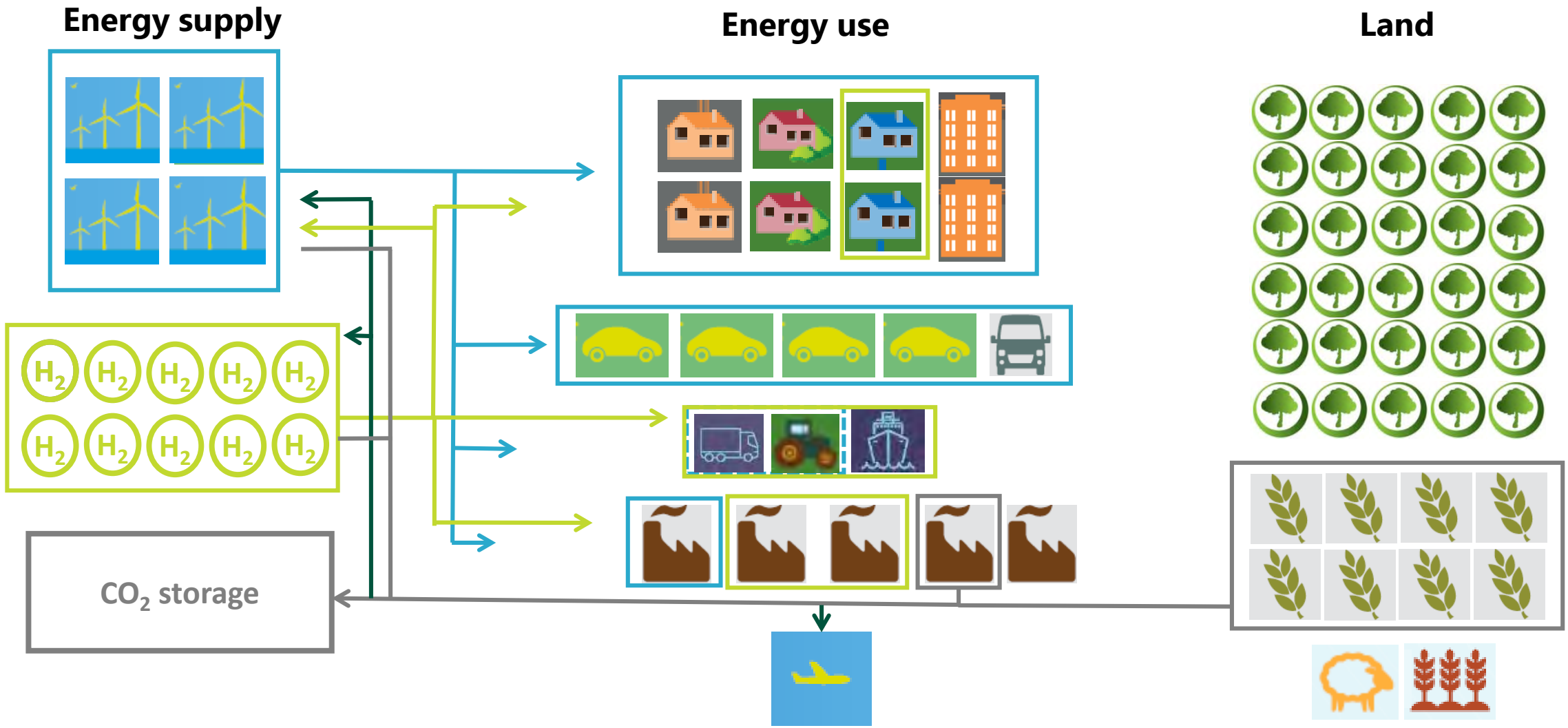
Reaching net-zero emissions in the UK
How UK net-zero scenarios can be delivered



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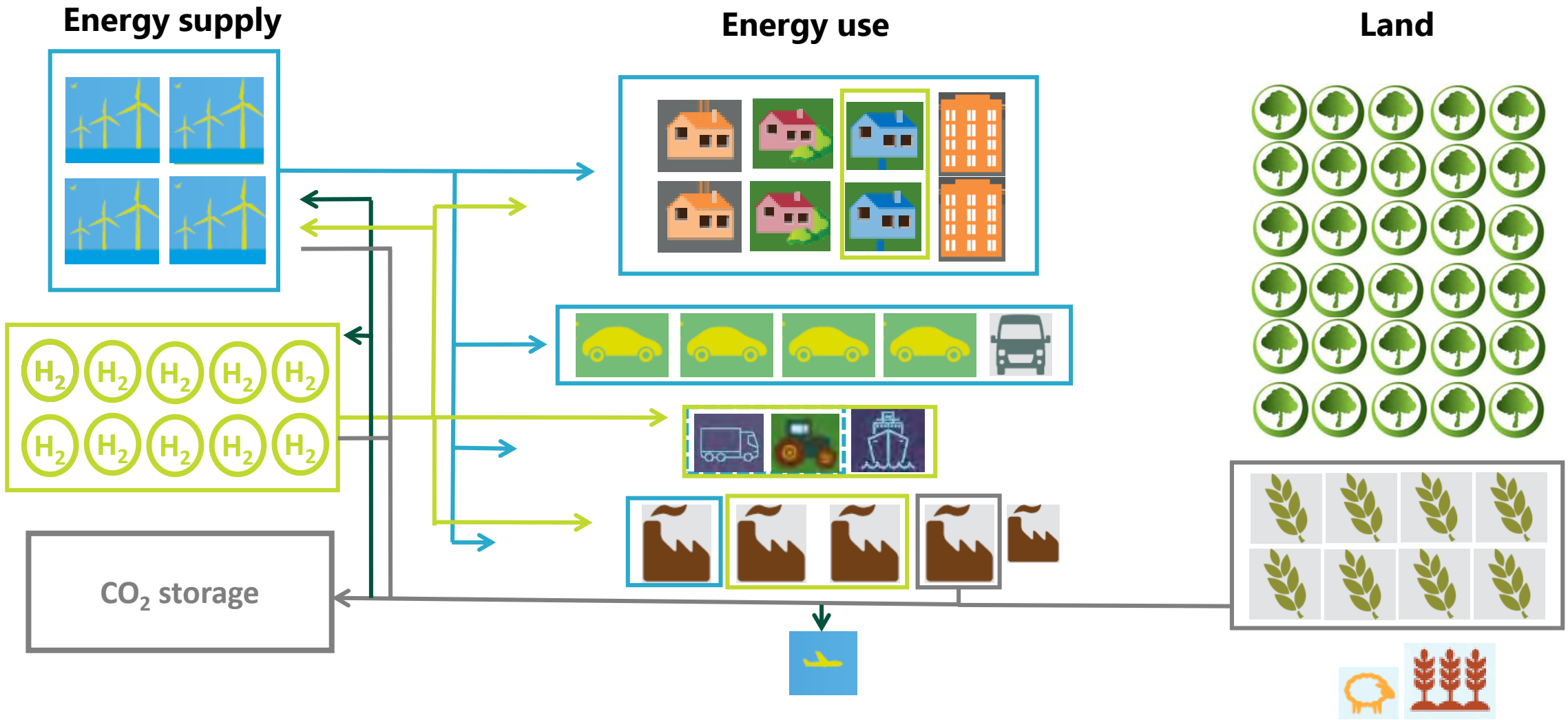
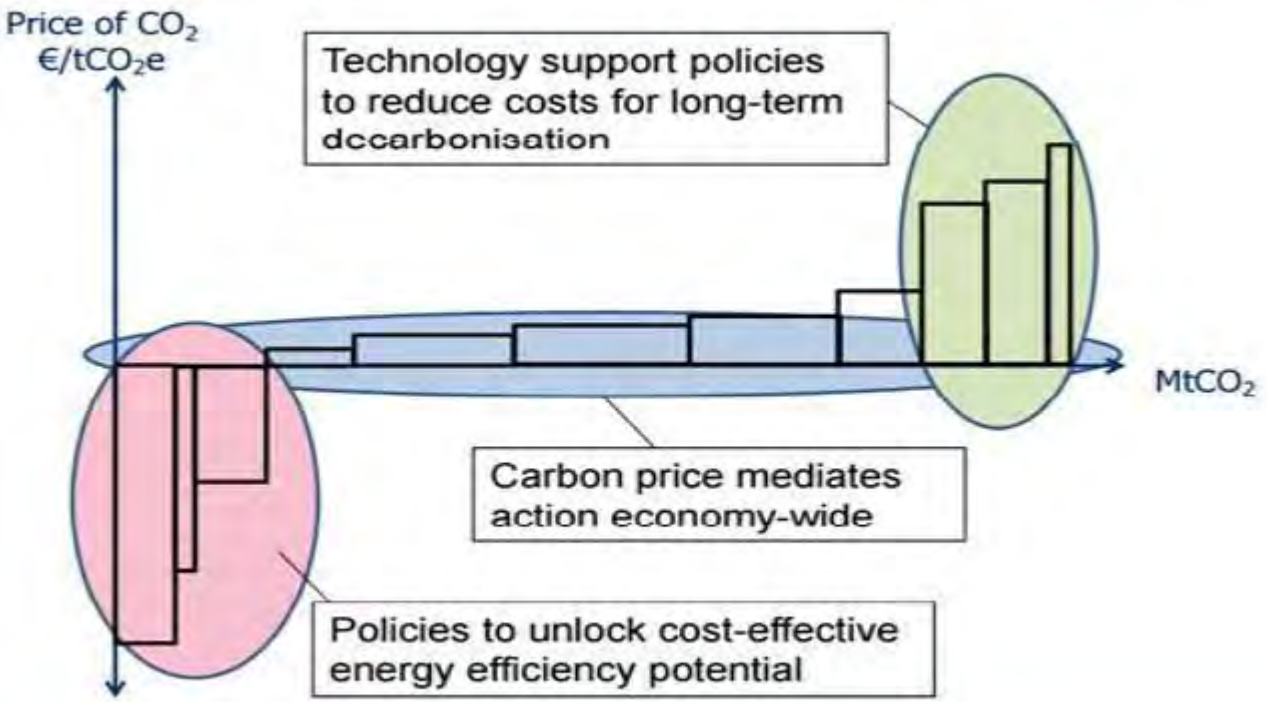


Carbon pricing: the theory

- Carbon pricing will reduce emissions at lowest cost across the economy.
- But:
  - Can't address non-price barriers (e.g. energy efficiency)
  - Needs to be implemented alongside innovation support (e.g. offshore wind).

Figure 1 Carbon pricing instruments are suitable for incentivising cost-efficient emission reductions



Source: Hood (2011)

Source: Vivid Economics (2019) *The Future of Carbon Pricing in the UK*

Carbon pricing: the experience

- Over time, carbon prices have increased across most jurisdictions.
- Though scheme prices have been volatile and/or low in early years.
- Price stability mechanisms can help.

Figure 4 Allowance prices have increased across most jurisdictions in recent years

Note: Currency conversions to EURs using ICAP (2018a) exchange rates. Regional Greenhouse Gas Initiative (RGGI) includes the US states Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont;

Source: Vivid Economics based on ICAP

Source: Vivid Economics (2019) *The Future of Carbon Pricing in the UK*

Carbon pricing: the experience

In California's emissions trading system, price floors have offered a minimum level of price stability.

Figure 9 The auction reserve price effectively supported California allowance prices

Source: Vivid Economics

Source: Vivid Economics (2019) *The Future of Carbon Pricing in the UK*

What does this mean for the UK?

Principles of effective carbon pricing

- Strong and rising carbon price
- …past experience suggests a cap-and-trade scheme require a stabilisation mechanism to ensure such a price profile.
- The desired outcome of any system should be to incentivise genuine reductions in emissions, without leading to carbon leakage.
- Used as part of suite of policy instruments

Sector		Current Carbon Policy	Gaps
Power Generation		EU Emissions Trading System Carbon Price Support Low Carbon Subsidies (e.g. CfD, FITs, ROCs)	-
Transport	Road	Fuel Duty Vehicle Excise Duty	Carbon component of fuel duty is not explicitly set.
	Air	EU Emissions Trading System Air Passenger Duty	No VAT on fuel or tickets.
	Rail	Fuel Duty	Carbon component of fuel duty is not explicitly set (for non-electrified rail).
Industry		EU Emissions Trading System Climate Change Levy Climate Change Agreements Low Carbon Policy Costs (Electricity)	Currently receives significant compensation.
Buildings	Business & Public	Climate Change Levy Climate Change Agreements Low Carbon Policy Costs (Electricity)	Climate Change Levy rates for gas are currently low.
	Residential	Low Carbon Policy Costs (Electricity) Low Carbon Subsidies (e.g. RHI)	No existing carbon price for gas and a reduced VAT rate for both gas and electricity.
AFOLU		-	No existing carbon price and fuel duty is very low on red diesel.
Waste		Landfill Tax	-

ESC (2019) *Rethinking decarbonisation incentives.*

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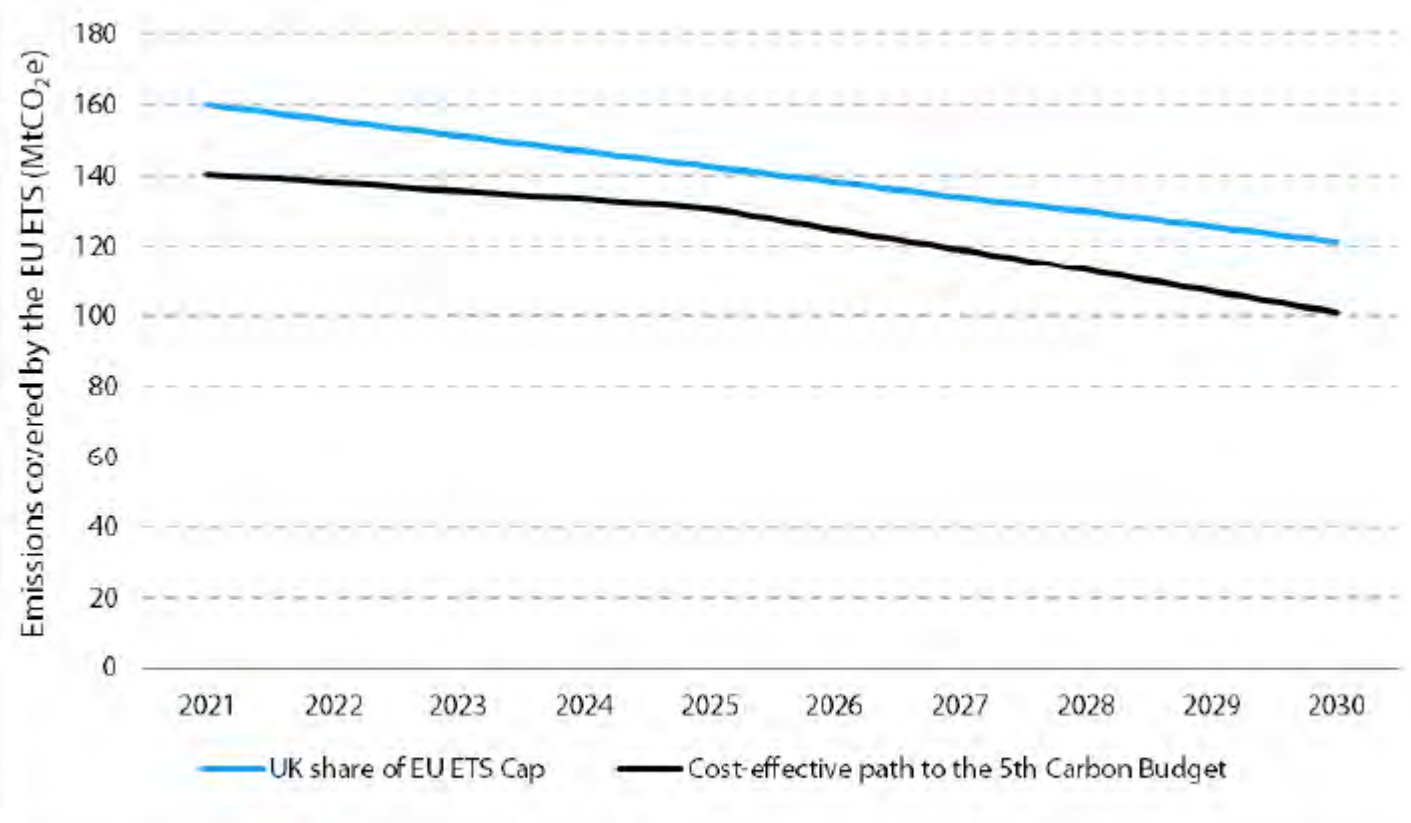
Three scenarios for carbon pricing if UK leaves the EU ETS

Scenario	Advantages	Disadvantages
Linked UK ETS	• Status quo • Addresses competitiveness issues • Liquid market	• Limited UK input • Greater need for supplementary policies • Not currently aligned to net-zero
Standalone UK ETS	• Policy autonomy: possibility of increasing scope of coverage, aligning to net-zero (and potentially carbon budgets) • Certainty of quantity of emissions abatement	• Risk of low liquidity • Need to set up new arrangements (price visibility, competitiveness)
Carbon tax	• Potential for greater price certainty • Administrative simplicity • Possibility of increasing scope of coverage, aligning to net-zero	• Risk of tax changing at each fiscal event • Uncertain quantity of abatement

Committee expressed a preference for a Linked UK ETS

Options for setting the UK's cap in an emissions trading system

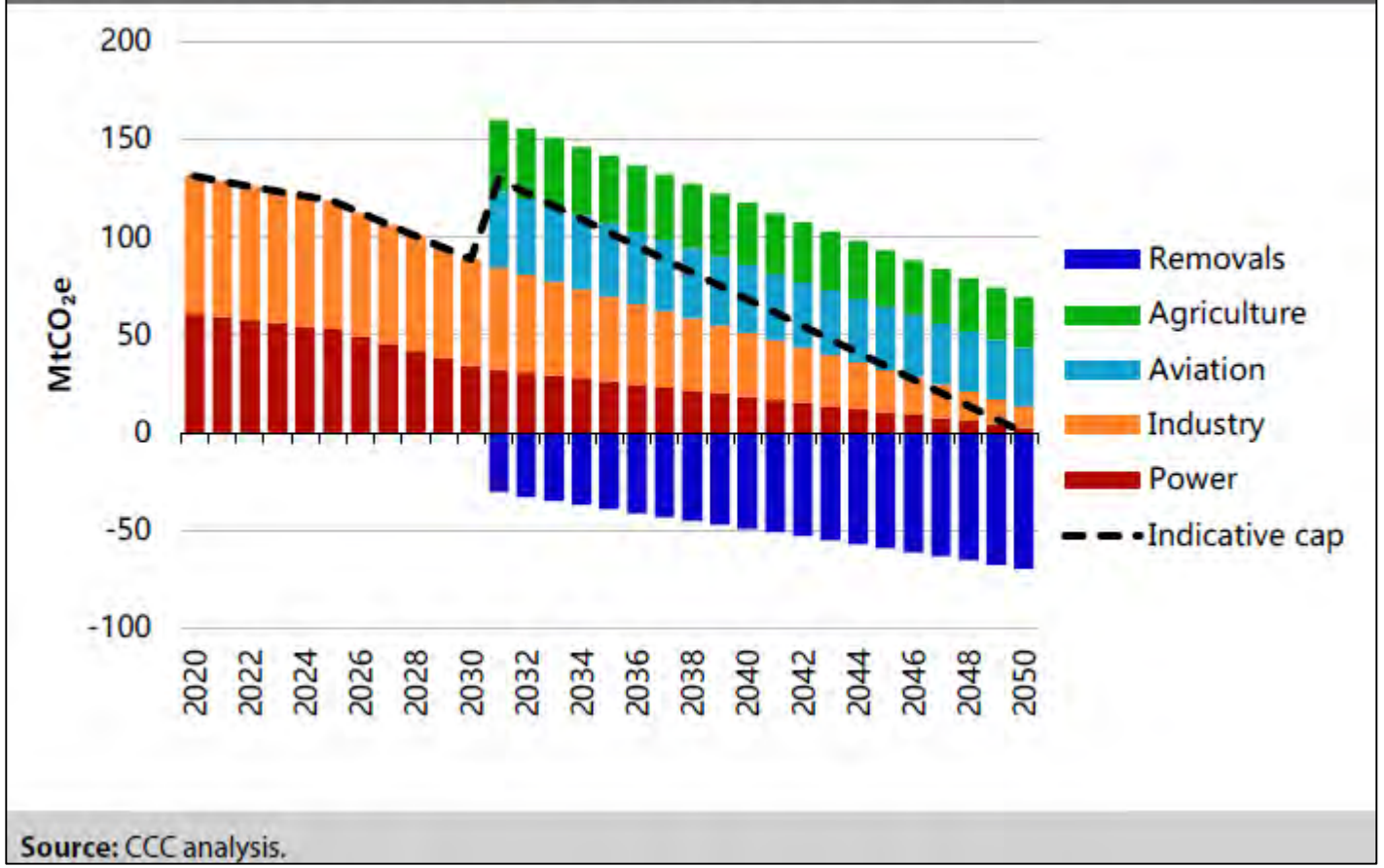
Figure 2. The UK's share of the EU ETS cap



Source: CCC analysis based on CCC (2015) *The Fifth Carbon Budget*, and BEIS (2019) *BEIS Carbon Pricing Model*.

Illustration of a potential cap and trade system for net-zero

Figure B.1. Indicative allowance and cap trajectory for a UK ETS including GGRs



Source: CCC analysis.