

UK decarbonisation – The next phase

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Overview

- A new context
- Implications for carbon policy
 - Moving beyond the power sector
 - A new approach to carbon pricing
 - From carbon constraints to low-carbon opportunities

Carbon policy in the 2020s: a new context

- Maturing technologies
 - Onshore wind, offshore wind, solar, batteries and ULEVs, but stagnation on eg CCS
- Tighter carbon constraint
 - Carbon budgets 3, 4 and 5 are much more demanding
- Brexit
 - Need to replace EU-based regulation (e.g. EU ETS)
- Paris Agreement
 - Boost to low-carbon economy, less concern about competitiveness effects
 - but also higher global ambition (net zero before 2100)

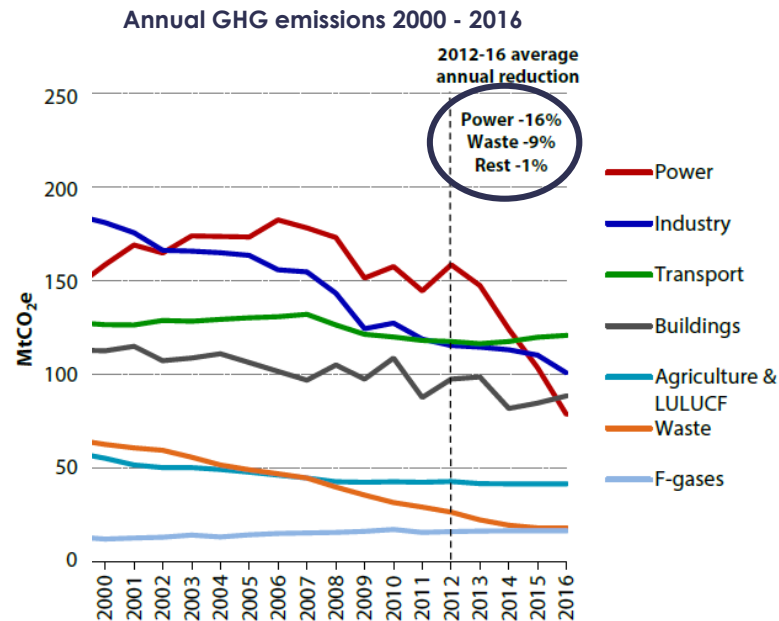
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Going beyond power sector decarbonisation

Carbon budgets 3, 4 and 5 (2018- 32) require emission cuts in all sectors

- Emission reduction in most sectors other than electric power has stalled
- Lack of progress has different causes
 - Consumer acceptability (heat pumps)
 - Demand growth offsetting efficiency gains (surface transport)
 - Policy incoherence (energy efficiency)
 - Slow progress on technology promotion (industry / CCS)



Source: *Progress Report 2017*, Committee on Climate Change

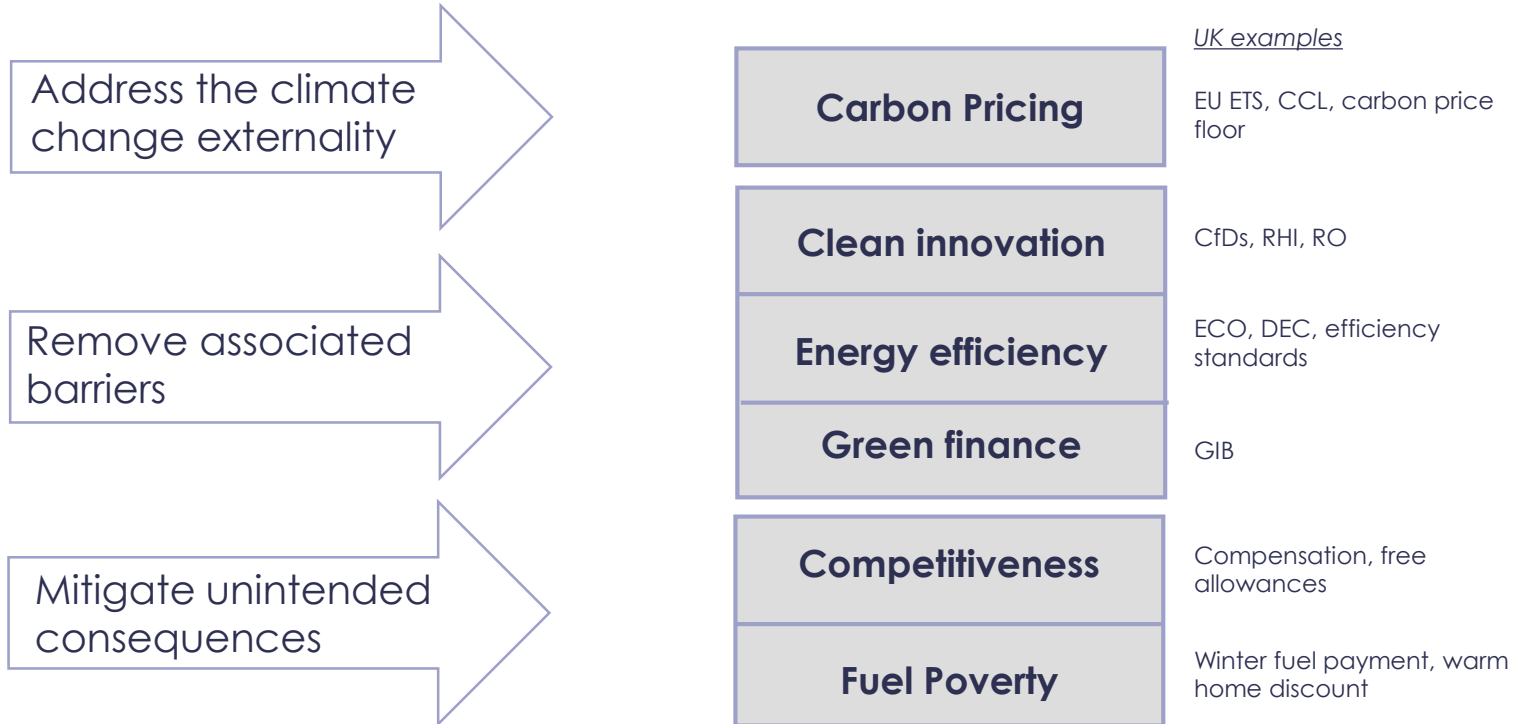
How to close the policy gap

Current policies will only deliver half the required emission cuts (CCC)

- See power sector decarbonisation through
 - Commission 80-100 TWh of additional clean energy beyond current plans
- Implement new commitment to ban petrol / diesel cars by 2040
 - Accelerate uptake of electric cars through tax incentives, national charging infrastructure
- Fresh approach to building emissions
 - Coherent policies on heat pumps and energy efficiency; reintroduction of zero-carbon homes; pilots on hydrogen networks
- Credible strategy on CCS aiming to operate at scale in 2030s
 - Required mostly for industry, not power sector, but both areas needed to achieve scale
- Prepare for net zero before 2100 (Paris commitment)

Need for stronger policies across the board

Suite of interventions to address different market failures

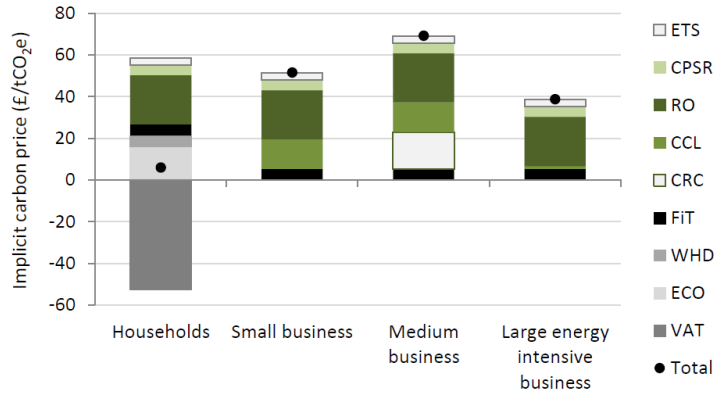


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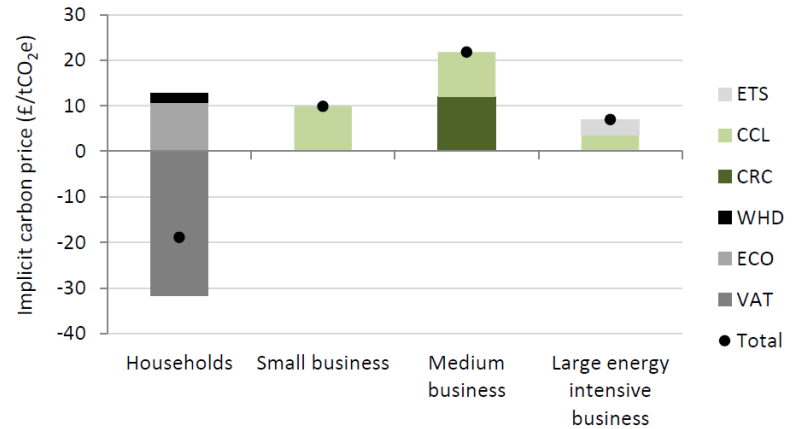
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Carbon pricing in the UK is complex and uneven

More focus on carbon pricing as other market imperfections are overcome



Implicit carbon price on electricity



Implicit carbon price on natural gas

A new approach: the soft Brexit option

Carbon pricing via emissions trading (and EU ETS membership)

- A UK-only emissions trading scheme has disadvantages
 - Small size offers fewer trading opportunities
 - A potentially less liquid market
- EU ETS is the best system for a UK scheme to link up with
- Remaining in / linking with the EU ETS is therefore the best trading option

Carbon dating: Which emissions trading scheme should the UK link up with?

Criteria for success	EU ETS	California	China
Bigger markets offer more benefit	☺☺☺	☺☺	☺☺☺
Less correlated markets offer more benefits	☺(☺?)	☺☺	☺☺☺
Creating new links is a costly process	☺☺☺	—	—

Scores derived from: Taschini and Doda, Journal of the Association of Environmental and Resource Economists, 2017.

A new approach: the hard Brexit option

Replace EU ETS with an economy-wide carbon tax

- Many experts prefer carbon taxes over emissions trading
 - Relatively easy to administer using existing fiscal processes
 - More suitable for smaller emitters without trading skills
 - Different characteristics during business cycle fluctuations
- Can build on (and “clean up”) existing pricing schemes
 - E.g. turn Climate Change Levy into a true carbon tax or extend the carbon price floor to all sectors
- To be politically acceptable tax design may have to deviate from “first best”
 - Phasing tax in gradually (risk: tax may get stuck at the wrong level)
 - Ensure revenue neutrality or earmark proceeds (risk this is not good fiscal practice)

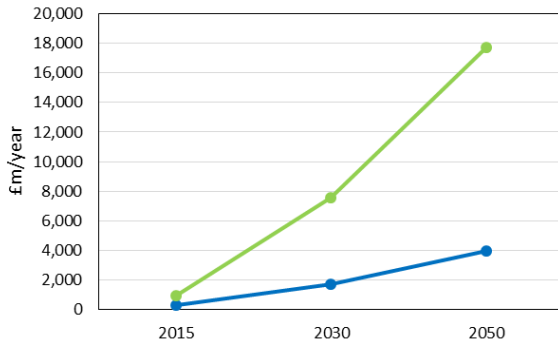
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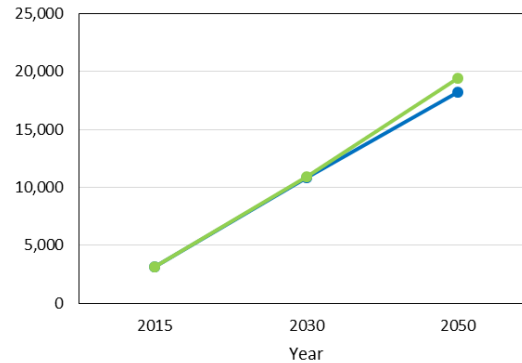
From carbon constraints to low-carbon growth

Industrial strategy must recognise the low-carbon growth opportunities opened up by the Paris Agreement

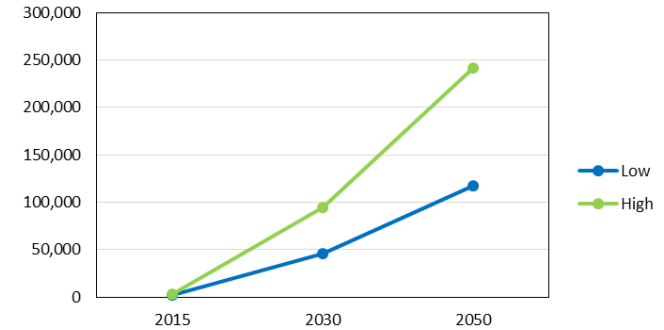
UK share in the global market for low-carbon goods and services



Low emission vehicles



Low-carbon electricity

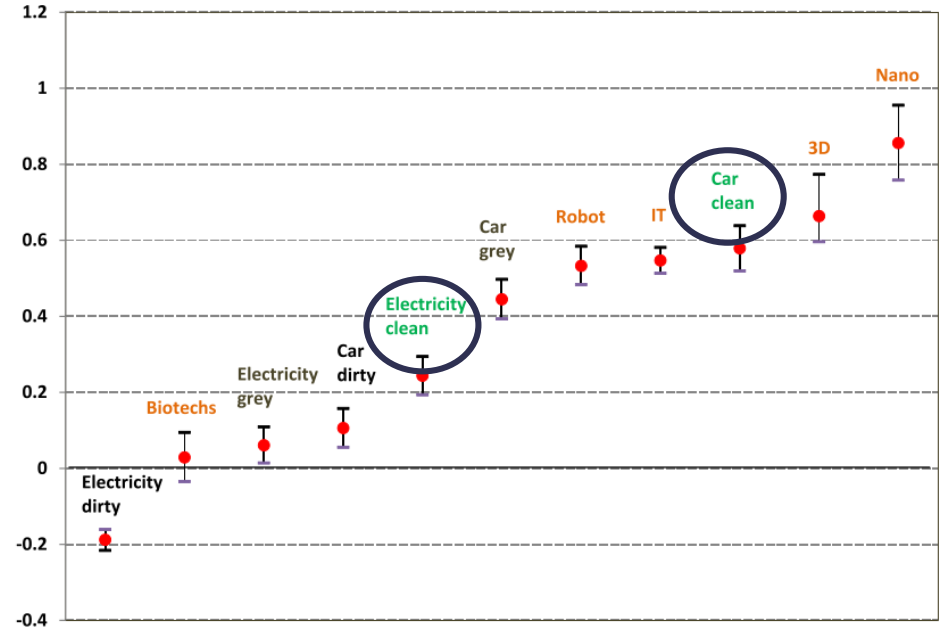


low-carbon financial services

The growth benefit of low-carbon innovation

- Low-carbon innovation provides higher societal benefits (spillovers) than high-carbon innovation in the same sectors
- Low-carbon innovation has spillover potentials that are similar to other high yield sectors

Patent citations relative to average (ave = 0)

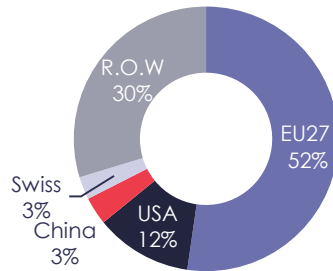


Export of climate goods is consistent with Brexit trade policy

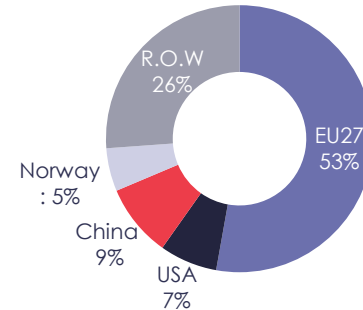
But large dependence on EU imports (eg for delivery of carbon budgets)

All goods

UK Exports

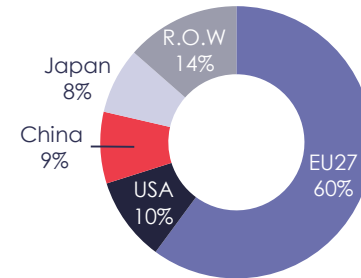
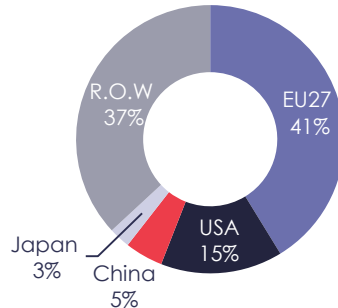


UK Imports



Climate goods

(renewable energy, electric vehicles, energy storage, energy efficiency)



Conclusions: carbon policy in the 2020s

- A wholly different context...
 - Maturing technologies, Paris, Brexit
- ... has implications for carbon policy
 - Moving beyond the power sector to transport, industry heat
 - Carbon pricing post-Brexit: a role for carbon taxes?
 - Stronger focus on low-carbon opportunities (e.g. low-carbon trade)

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