Dieter Helm is the author of
Burn Out: The endgame for fossil fuels

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LECTURE SEVEN

DECARBONISATION

PRESENTED BY

PROFESSOR DIETER HELM CBE

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AGENDA

- Global initiatives – Kyoto, Paris
- The EU Climate Change Packages
- The UK Climate Change and Carbon Budgets
- Multiple interventions
- The impact of renewables on the energy markets
- Technology

GLOBAL INITIATIVES

- The rational for a global initiative
- The key countries – China, India, Africa
- Kyoto, Paris and the endless CoPs

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THE PARIS AGREEMENT

The Ambition

- A global, legally binding, 1degree, comprehensive

The Outcome

- US outside, Canada failing, Chinese poverty, coal globally, not legally binding, does not add up to 2 degrees

THE EU CLIMATE CHANGE PACKAGES

Round One

- 20-20-2020
- 20% renewables outside EUETS – coal increase
- 20% energy efficiency – no clear baseline
- 2020 target 20%

Round Two

- 27-27-40-2030
- 27% renewables – EU target not national
- 27% energy efficiency – same border problem
- 40% target by 2030

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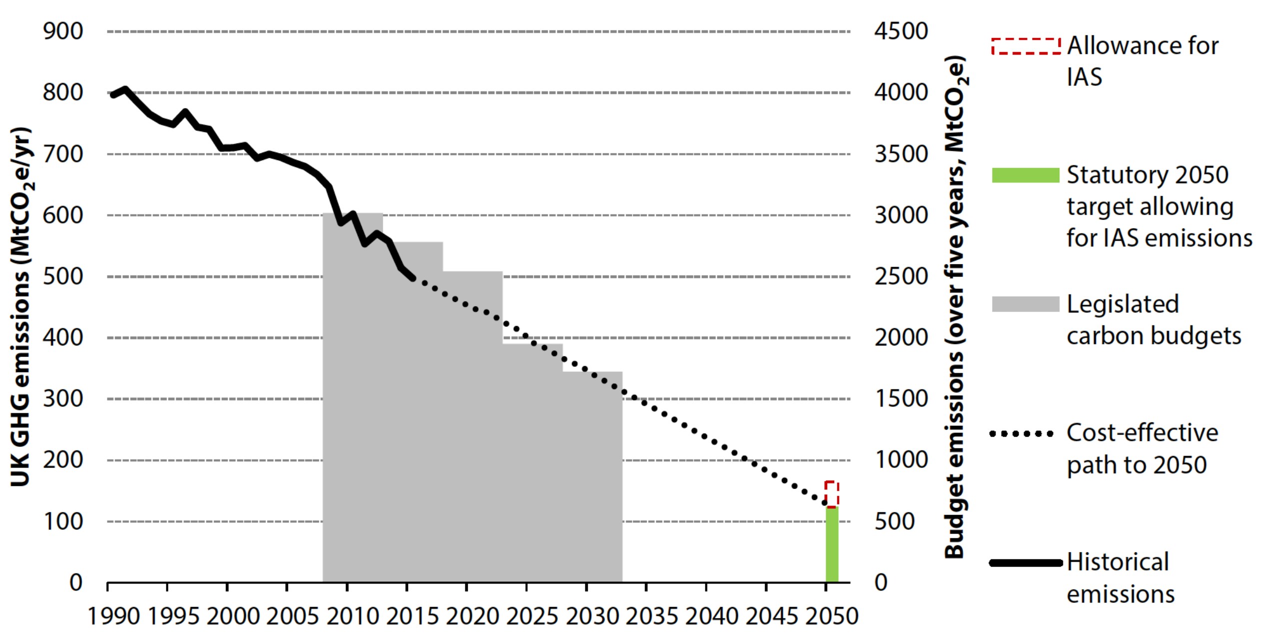
UK CLIMATE CHANGE ACT

- The 2050 target – 80% greenhouse gas decrease
- Carbon budgets – 5 year rolling, at least 12 years in advance
- Linear pathway to 2050
- Overbidding emphasis on energy and especially electricity

CARBON BUDGETS

Figure 1.1. UK carbon budgets and the cost-effective path to the 2050 target



Source: CCC calculations.
Notes: Historical emissions are on a 'gross' basis (i.e. actual emissions). Carbon budgets are on the current budget accounting basis, excluding international aviation and shipping (IAS), but allowing for IAS in the 2050 target.

Source: Figure 1.1 from Committee on Climate Change (2016), 'UK Climate Action Following the Paris Agreement', p. 17. Available at https://www.theccc.org.uk/wp-content/uploads/2016/10/UK-climate-action-following-the-Paris-Agreement-Committee-on-Climate-Change-October-2016.pdf.

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BEYOND 2032

- CCS must be deployed and deployable by then?
- 13 GWs new nuclear?
- Agriculture?

MULTIPLE INTERVENTIONS

- The all possible measures approach
- Prices and quantities and regulations
- Renewables, ROCs, FiTs, CJDs, tax concessions, exemptions from network charges, rates etc. etc.
- Energy efficiency measures, Green Deal, Planning and bidding, regulation, subsidies….
- Coal : Regulation and 2025 target
- Nuclear : Special CJDs and government supports and waste arrangements

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IMPACTS OF RENEWABLES ON ENERGY MARKETS

- Zero marginal cost and the cannibalisation of wholesale markets
- Damage to economics of new fossil fuels
- Necessity of capacity markets
- Intermittency and the system
- Equivalent firm power auctions and national and regional system operators

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TECHNOLOGY

- Existing technologies don't add up to technological progress essential
- Future options – solar most promising
- Digitalisation to electricity

SOLAR

ELECTRICITY

CARBON

NUCLEAR

WIND

TRANSPORT

SUMMARY

- Global initiatives
- Insufficient and have failed so far
- Pathway to 500ppm and beyond likely
- EU packages less effective than the spin
- Current policies are a muddle – need new technologies
- Carbon prices

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