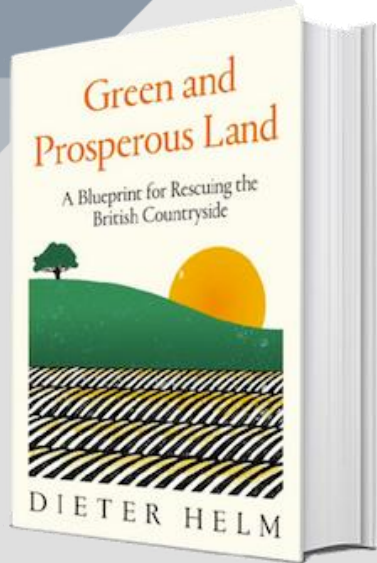


ISEE, Bath University  
21st November 2019

# NET ZERO WHAT IT REALLY MEANS



DIETER HELM  
PROFESSOR OF ECONOMIC POLICY,  
UNIVERSITY OF OXFORD

# AGENDA

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- **WHY NET ZERO BY 2050 IS LESS THAN IT SEEMS?**
- **WHY CARBON CONSUMPTION MATTERS?**
- **WHY NO PROGRESS SO FAR?**
- **WHAT IS TO BE DONE?**
- **HOW TO HAVE SUSTAINABLE ECONOMIC GROWTH?**

# WHY NET ZERO BY 2050 IS LESS THAN IT SEEMS

- **Quote from the CCC:**

“By reducing emissions produced in the UK to zero, we also end our contribution to rising global temperatures”.

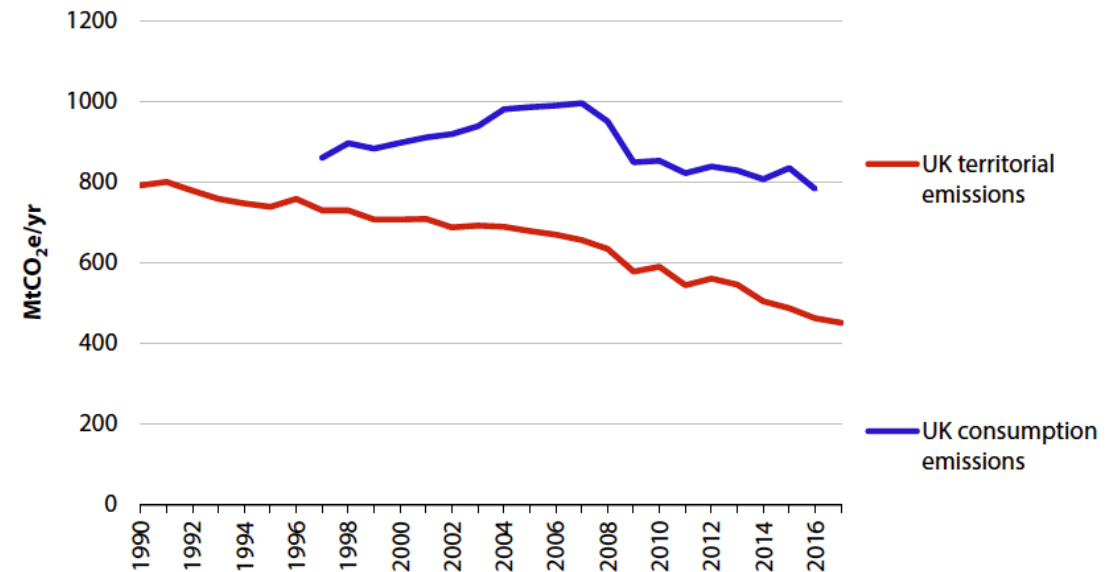
- Territorial emissions and de-industrialisation
- Carbon in a global context
- Carbon consumption vs. carbon production
- Even the CCC admits this
- But this doesn't capture everything...

Soil loss

Peat

Natural sequestration

Figure B3.3. Historical consumption emissions in the UK



**Source:** CCC analysis; Defra (2019) *UK's carbon footprint*; BEIS (2019) *Final UK greenhouse gas emissions national statistics: 1990-2017*.

**Notes:** UK territorial emissions are expressed using IPCC 5th Assessment report GWP<sub>100</sub> values (without carbon cycle feedbacks) with F-gas emission excluded. This is to allow a like-for-like comparison to the UK consumption emissions statistics. International aviation and shipping is not included in UK territorial emissions totals.

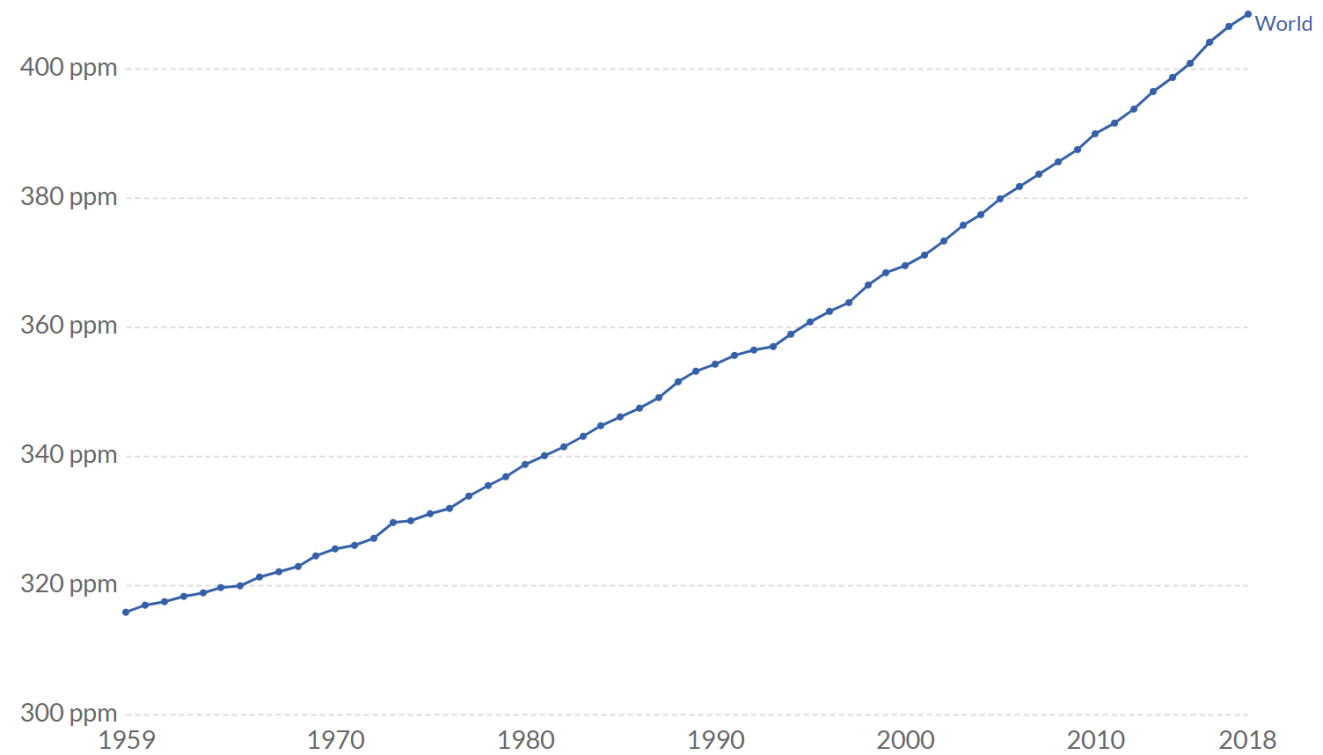
# WHY CARBON CONSUMPTION MATTERS?

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- Consumption is about us
- The carbon diary & what it reveals
- Sustainable consumption is net of environmental impacts and includes requirement that savings = investment
- Intergenerational risk = aggregate natural capital, non declining

NO  
PROGRESS  
SO FAR

### Global CO<sub>2</sub> atmospheric concentration: global annual mean concentration of CO<sub>2</sub> (ppm)



Source: NOAA/ESRL (2018). <https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions>

# KYOTO & PARIS: NOT WORKING

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- The free rider problem
- China & India & Africa x4 by 2040
- World population up 3 billion by 2100
- US on the outside (it always has been under Clinton, Bush, Obama, Trump)
- China First & coal
- India First & coal

# WHAT IS TO BE DONE?

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- 3 principles

Polluter Pays

Public money for public goods

Net environmental gain

# POLLUTER PAYS

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- Uniform carbon price
- Carbon border price
- Set level = carbon budget
- Rebate for imports with exporter carbon price
- Include natural and industrial CCS
- Creates incentives to global carbon price



# PUBLIC GOODS

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- Green infrastructure
- Smart roads
- Smart railways
- Smart decentralised electricity networks
- All require fibre
- R&D!!!!

# NET ENVIRONMENT GAIN

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- **Natural sequestration**

Trees

Peat

Soils

- **CCC**

Pipelines

North Sea empty oil and gas fields

- **Trading platforms** for multiple natural capital asset flows

# HOW TO HAVE SUSTAINABLE ECONOMIC GROWTH?

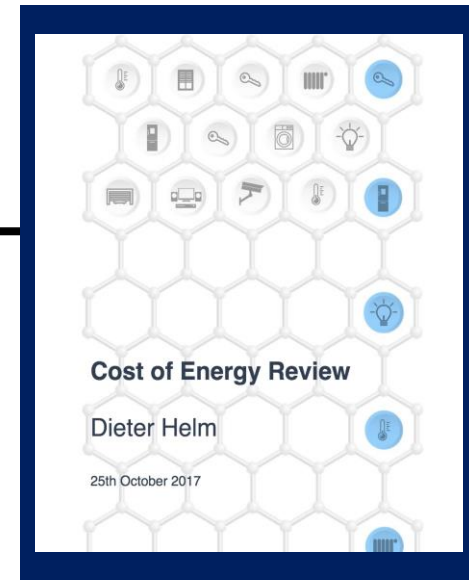
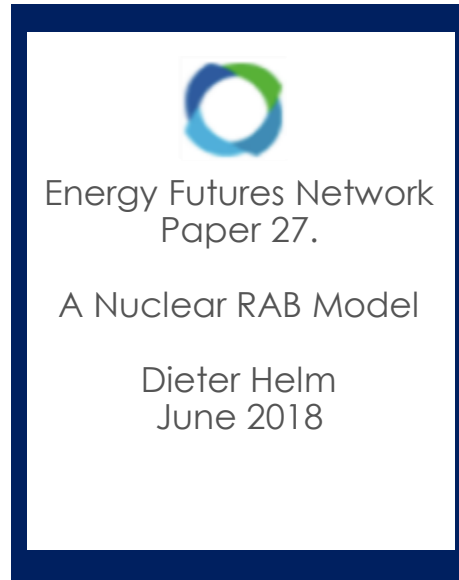
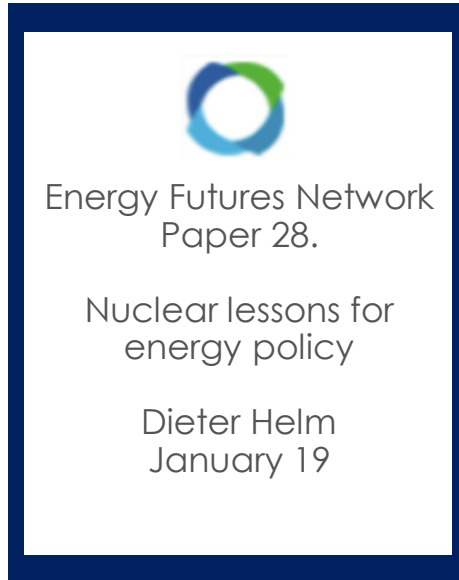
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- **Efficient economy**
  - Internalise externalities
  - Provide public goods
- **Efficient sustainable consumption**
  - $S=I$
  - Capital maintenance
  - Debt neutral
- **Asset balance sheet**
  - Aggregate model
  - Capital maintenance rule

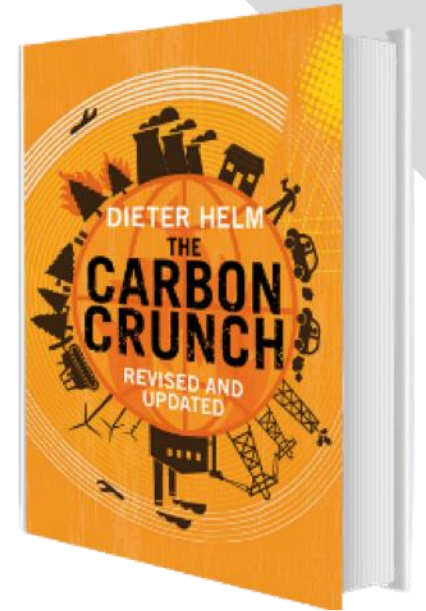
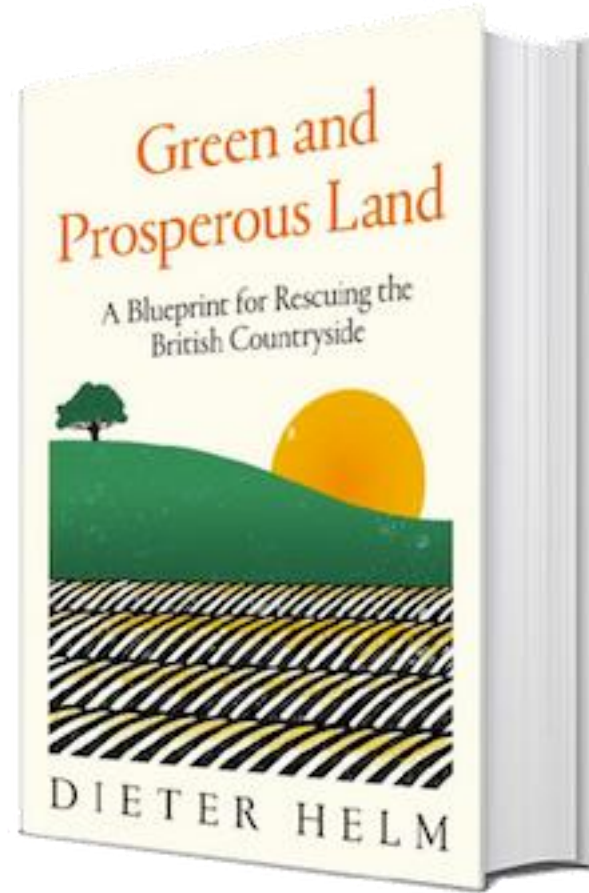
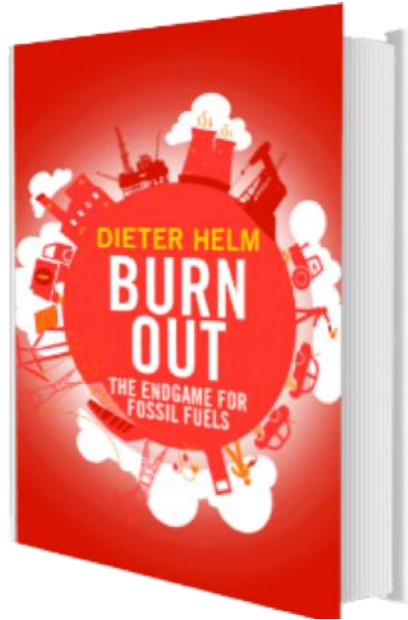
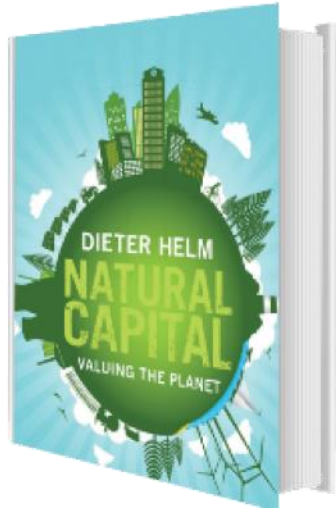
# CONCLUSIONS

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- 30 wasted years – current strategies are not working
- Paris won't solve the problem
- Carbon consumption is the core issue
- Polluters should pay
- Governments should make sure public goods are provided
- Net gain should be compulsory.
- **A GREEN AND PROSPEROUS LAND**



- Peak oil demand and oil prices – a critique, Paper 25. Jan 18
- Why intervention on electricity prices is needed and how to do it without undermining competition, Paper 24, April 17
- Not so smart – what has gone wrong with the smart meter programme and how to fix it
- Are the electricity price increases justified? Paper 22, Feb 16
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- Energy Policy and the Coalition, Paper 10, March 15
- What should oil companies do about climate change? Paper 9, Feb 15
- Competition in the British electricity sector: a set of practical measures, Paper 8, Feb 15



## BOOKS

[WWW.DIETERHELM.CO.UK](http://WWW.DIETERHELM.CO.UK)