

INFORSE - Europe Seminar, August, 2021 - Denmark

Transition to Sustainable Energy with Energy Sufficiency, Energy Efficiency, Renewable Energy:

Zero Carbon Britain to county and local plans, including what citizens and local grassroots groups can do?



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**BRITAIN**  
RISING TO THE CLIMATE EMERGENCY

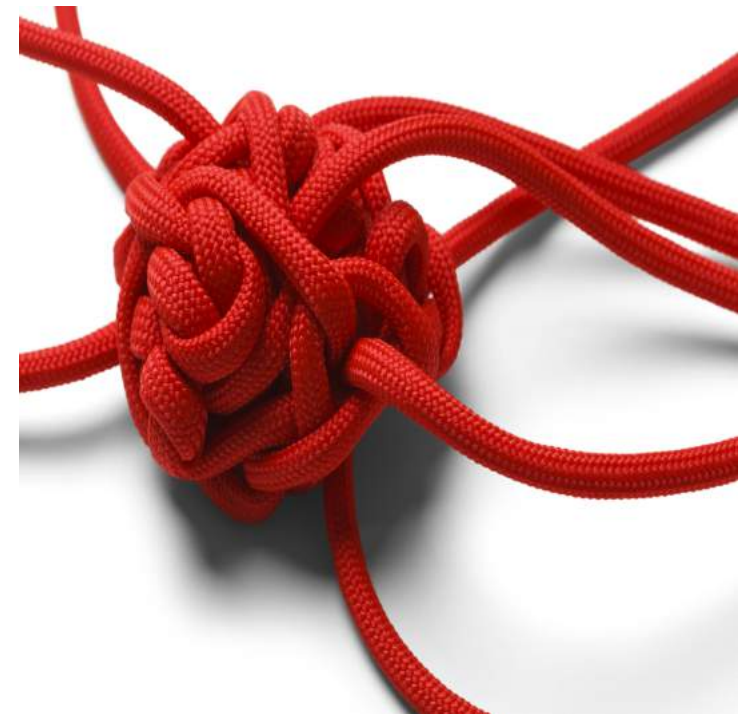
# INFORSE – How do we make it happen? by Paul Allen, CAT, UK.

Proceedings: [https://www.inforse.org/europe/seminar\\_2021\\_INFORSE-Europe\\_DK.htm](https://www.inforse.org/europe/seminar_2021_INFORSE-Europe_DK.htm)



# Climate breakdown is a wicked problem

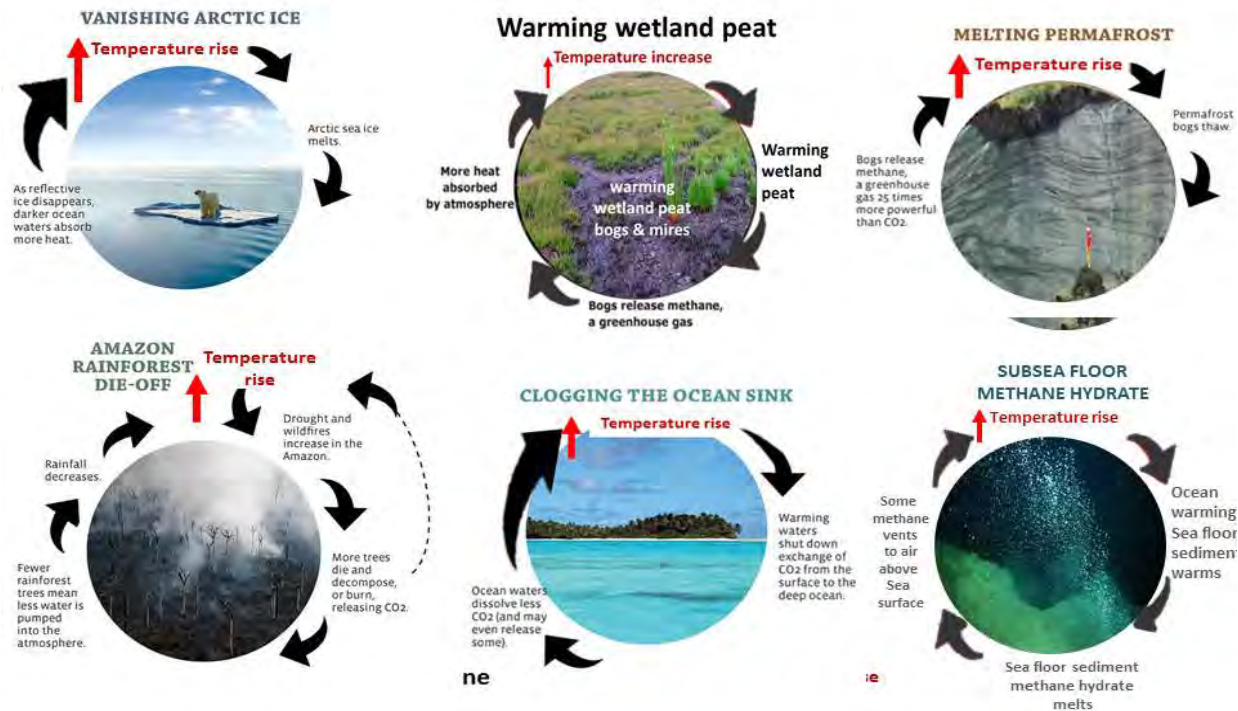
Back in 1973, design theorists Horst Rittel and Melvin Webber developed the term for problems with many feedbacks deeply ingrained in a system no single solution






# Wicked problems need to be recognised

## Some large +ve amplifying feedbacks





# Wicked problems need to be recognised

A graphic for the Sixth Assessment Report. It features a background of a colorful, abstract map with blue, purple, and red tones. The text 'Sixth Assessment Report' is overlaid in white. A white horizontal line is positioned below the word 'Report'.

## Sixth Assessment Report

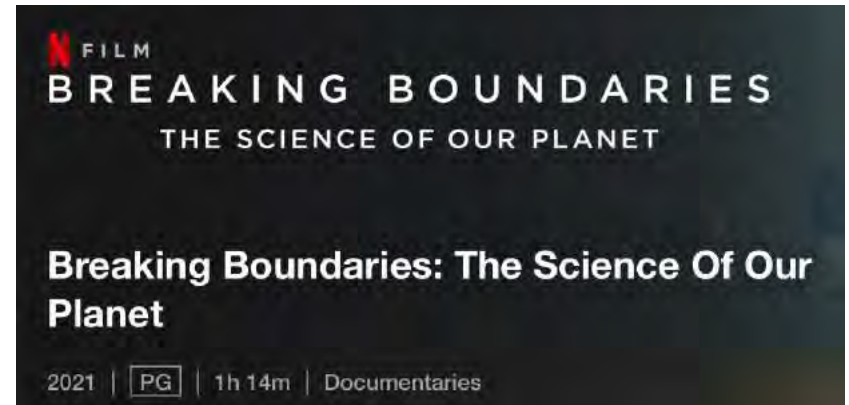
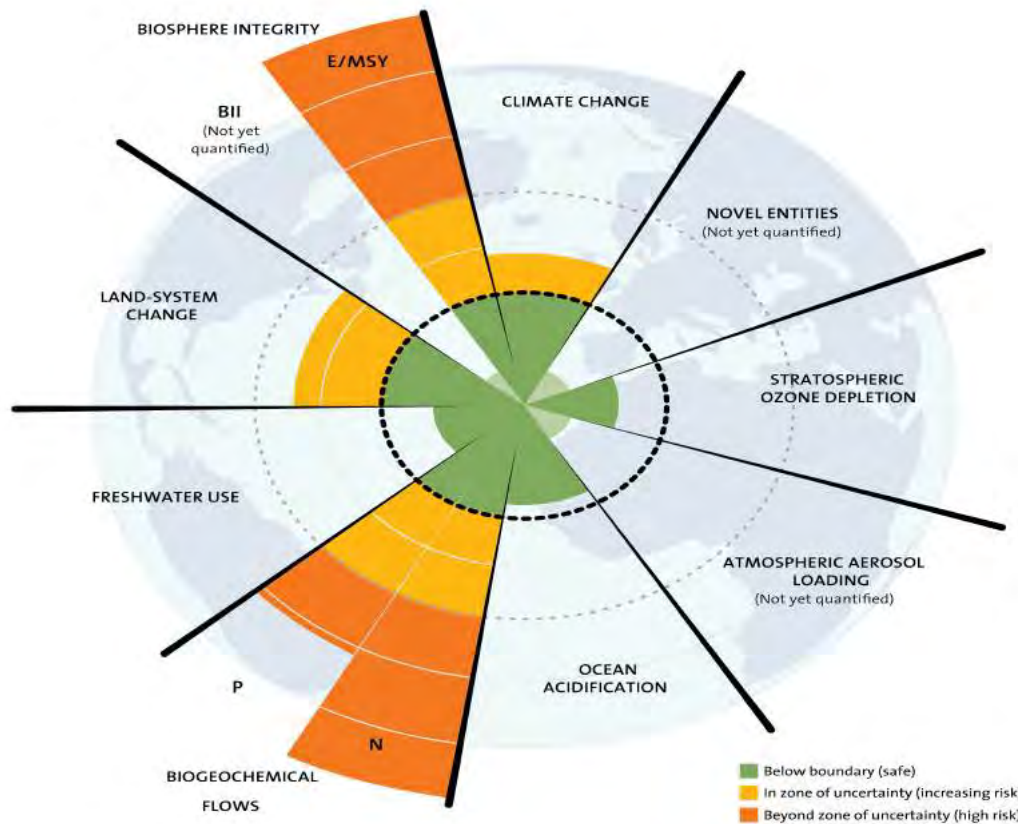
The Working Group I contribution to the Sixth  
Assessment Report is now out

The logo for the Intergovernmental Panel on Climate Change (IPCC), consisting of the lowercase letters 'ipcc' in a blue, sans-serif font.

ipcc



# Wicked problems need to be recognised



J. Lokrantz/Azote based on Steffen et al. 2015.

[#ZeroCarbonBritain](https://twitter.com/ZeroCarbonBritain)



# Wicked problems need to be recognised

Our external infrastructure and living systems are locked into high carbon ways of doing things; exerting a powerful influence, on our lives.





# Wicked problems need to be recognised

Also culturally we have become locked into high carbon mind sets; associated with success and status, exerting a powerful influence on us.





## **So what are wicked solutions?**

- Feedback on themselves, scaling up, getting cheaper
- Engrain themselves deeper into many levels of both our physical & cultural landscapes – gaining support
- There is no single wicked solution – more appearing!!





# Wicked Solution 1 - an evidence-based net zero vision un-leashes new thinking



2007



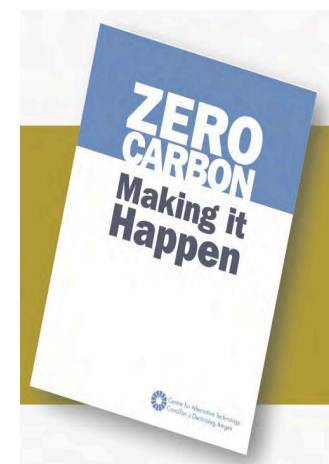
2010



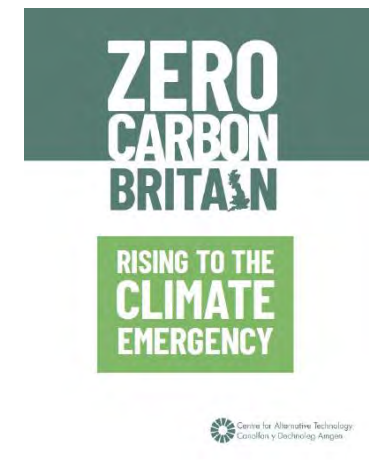
2013



2014



2017



2019

## What we offer:

- We offer ZCB as one possible end-point scenario to open new conversations and catalyse new research.
- But it is not a road map of how to get there, that will depend on political and societal values, actions and policies.
- However, this is a vital area of further research requiring voices from all sectors.



# Power-down & Power-up

Through integrating a smart approach to Power-down demand & Power-up 100% with a clean energy supply for

**buildings, transport, energy & land-use;**

backed by natural carbon capture - the UK's greenhouse gas emissions can be reduced to net zero.



# Power down – how we use energy:

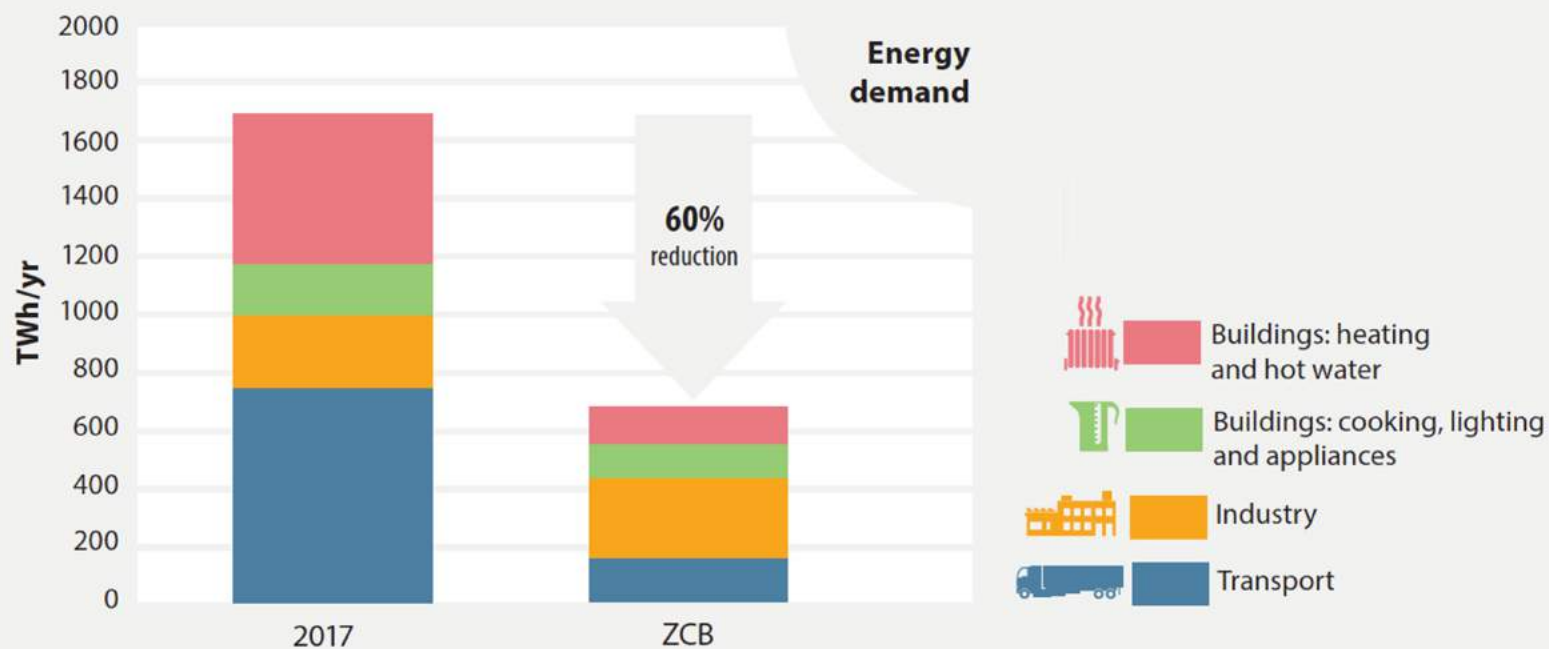


Figure 3.4: Total annual energy demand by sector in the UK in 2017 (BEIS, 2018) and in our scenario.

# Power up – a new fuel mix:

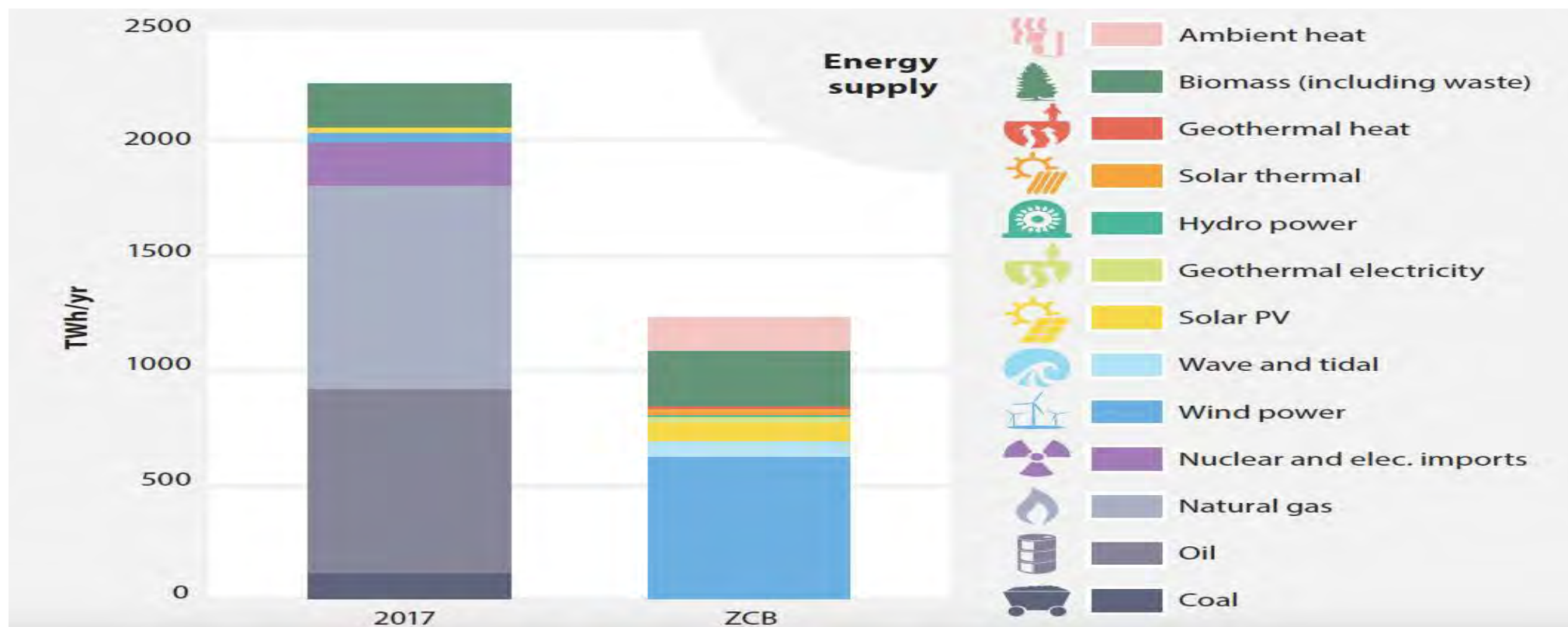


Figure 3.15: Energy supply in 2017 (BEIS, 2018a) and in our scenario



**Switching to a healthier diet  
can free up lots of land!**



Can we  
improve our  
diet *and*  
reduce  
GHG  
emissions?

## Average diet today

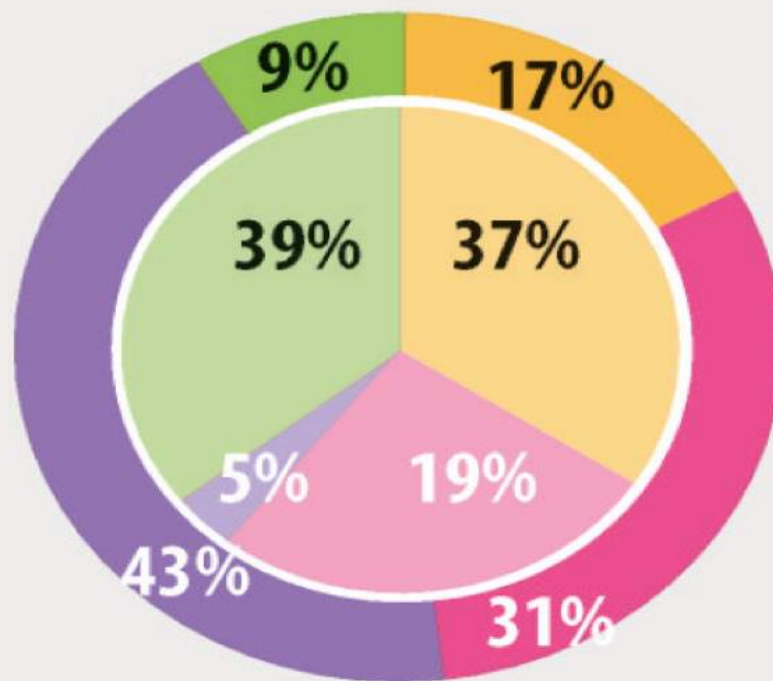


Fig 3.29: Government recommendations for a healthy balanced diet. Both today's average diet and the average diet in our scenario are shown (outside circle) relative to the Eatwell guide recommendations (central circle).



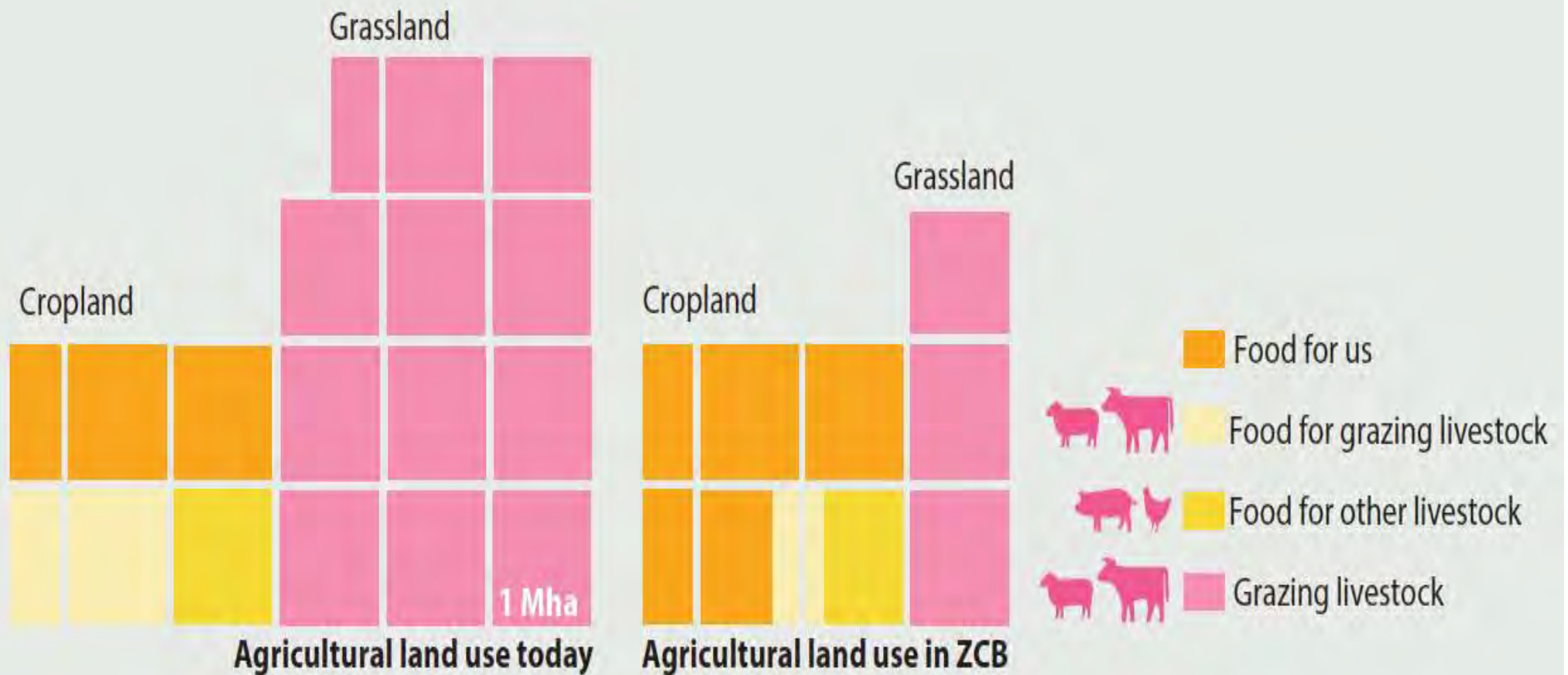


Figure 3.28: The area of cropland and grassland used for agriculture today (DEFRA, 2012) and in our scenario.





# Growing energy and making synthetic fuel

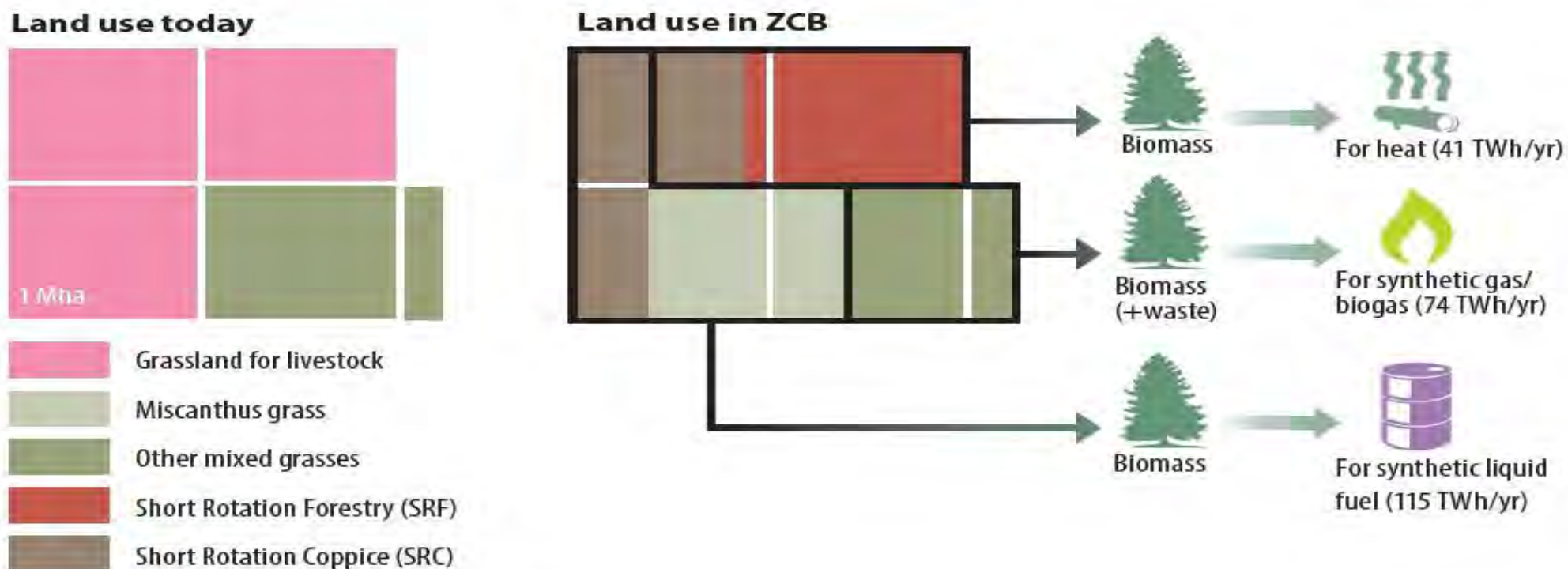


Figure 3.30: Area of land used today (DEFRA, 2012) that is used for energy crops in our scenario, the types of crop grown, and the amount and use of the biomass produced.



# Capturing carbon - ecologically

- Double forest area.
- Increase use of wood products.
- Restore 50% of peatlands.

Balance GHG emissions of

~ 47 MtCO<sub>2</sub>e/year

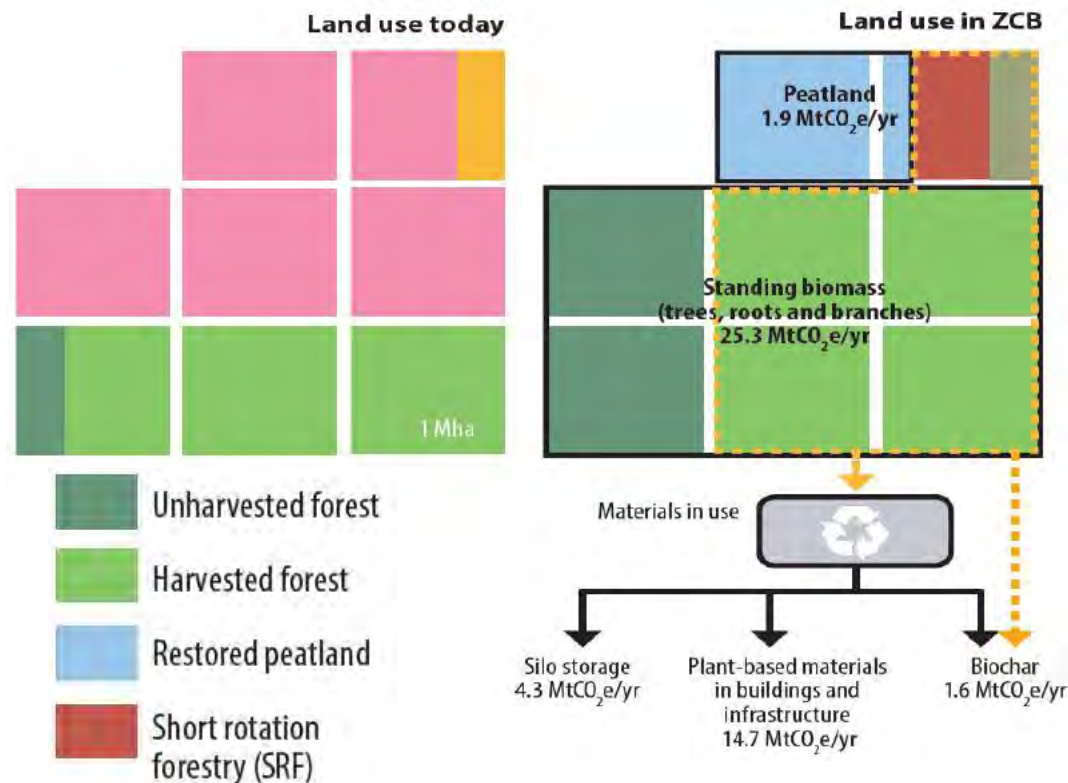


Figure 3.34: Area of land used for capturing carbon in our scenario, the methods, and how much carbon is captured as a result.



# So we can go from this...



Figure 3.1: UK Greenhouse gas emissions in 2017, including international aviation and shipping, and the enhanced effect of emissions from aviation (BEIS, 2019).





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## ZERO CARBON SHROPSHIRE

Shropshire Climate Action Partnership is being established to coordinate a collaborative Shropshire-wide community response to the climate and ecological crisis and oversee the creation of a Zero Carbon Shropshire Plan (ZCSP) that provides an adequate response to the emergency.



## ZERO CARBON DORSET (ZCD)

Reducing emissions to net zero by 2030

The Zero Carbon Cumbria Partnership is working towards the shared aim of making Cumbria the first carbon-neutral county in the UK, by 2037.

#ZeroCarbonBritain



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# 'Wicked solution 2' Technology costs are falling faster than experts predicted



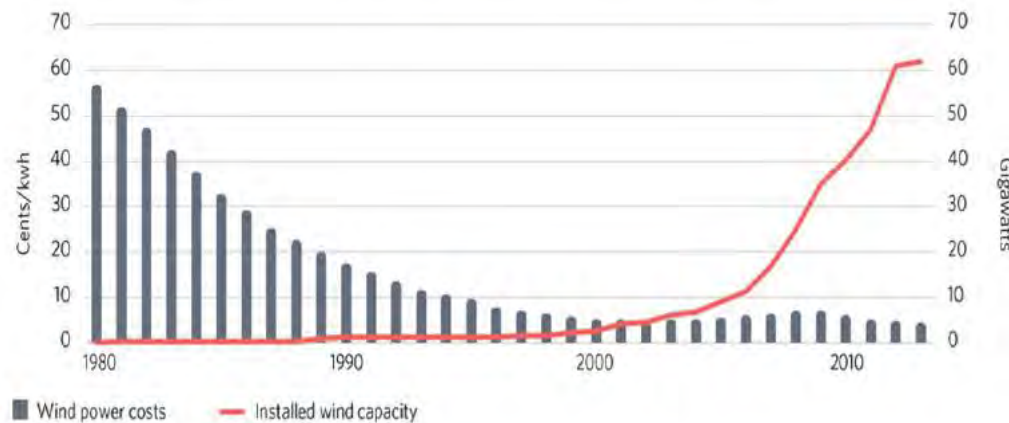


# ‘Wicked solution 2’ Technology costs are falling faster than experts predicted

Figure 1

Wind Capacity Increased as Prices Fell

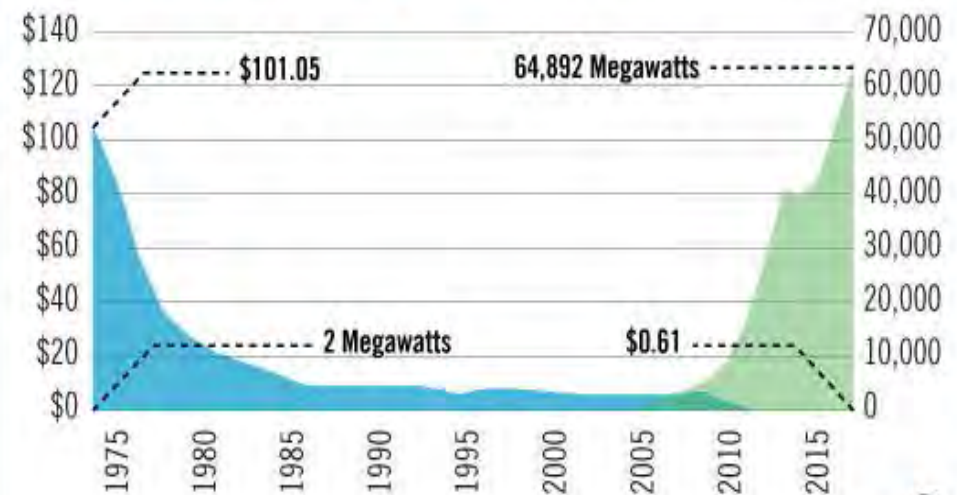
Land-based wind installations (in gigawatts) and cost (in cents per kilowatt-hour)



Source: U.S. Department of Energy

© 2015 The Pew Charitable Trusts

Price of a Solar Panel per Watt vs. Global Installations



Source: Earth Policy Institute/Bloomberg





**Wind power**

# Offshore wind energy investment quadruples despite Covid-19 slump

**Investors give greenlight to \$35bn worth of projects worldwide in first half of 2020**

**Jillian Ambrose**

Mon 13 Jul 2020  
17.35 BST



▲ The new windfarms include a \$3.9bn array off the Netherlands and a \$3.8bn project in the Firth of Forth, Scotland. Photograph: Peter Byrne/PA





# ‘Wicked solution 3’ New leadership is feeding back!





# Declare a Climate Emergency

Go Zero Carbon by 2030

Local Councils Zero Carbon Britain Climate Change Resources Solutions Policy

**DECLARE A CLIMATE EMERGENCY**

Local councils can play a key role in leading the climate emergency response. Write to your Councillor & sign a petition.

**UK GOVERNMENT & PARLIAMENT**

Click to sign the Petition: Declare a Climate Emergency, end fossil fuel use and build community resilience

**RENEWABLE ENERGY**

Switch to renewables and take your money out of fossil fuels

## Local Council News



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## UK Government & Parliament

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## Local Council News



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**Local Council News**      <https://climateemergency.org.uk>



But how does a council, a church, a business or a household kick-start climate action in its delivery?



## THE 4 DIRECTIONS

Organisations can make change happen simultaneously in four key directions

### UPWARDS

For actions and resources needed to enable change on things beyond their own control, an organisation, group or NGO can lobby upwards within their own organisation / networks or to their local council, Devolved Government or UK Government.

### INWARDS

From the CEO onwards, groups can get trained about the climate emergency, its causes, the necessary solutions and the roles they can play in driving a broader response.

### DOWNWARDS

An organisation, group or NGO can declare a climate emergency and then act on things within their own control, e.g. shift to a green tariff energy, install solar, insulate buildings, ethical banking and pensions, switch transport, food, land-use etc.

### SIDEWAYS

Leading by example encourages others to act. Groups can share their emergency declaration, plans, actions and asks - by acting together in regions or themed alliances we have much stronger influence.

### SIDEWAYS

Sharing real-life projects between regions can demonstrate that change is achievable, and helps scale-up plans, avoid mistakes and maximise co-benefits, such as jobs, cost savings, health benefits or community cohesion.

Developing your local climate emergency action plan

4.5



## **Downwards:**

Councils can act in what they have direct control:

- Their buildings
- Transport systems they use
- Supply chains and waste minimisation
- Pension funds - Net Zero aligned schemes.





## Sideways:

More than seventy Cumbrian organisations are working as a 'partnership'

The purpose of the group is to plan and oversee a radical program of action that will enable Cumbria to become a carbon neutral county.

Over 70 members include the county's local authorities, businesses, local sustainability groups, schools, the NFU, NHS, police, Cumbria Local Enterprise Partnership, national parks, Natural England, the Environment Agency, Electricity North West and United Utilities and many more....





# Upwards:



UK Infrastructure Bank delivers Net Zero local investment as a priority



Reduce costs to create a seamless electric vehicle charging network across the UK



Long term plan to support local authorities to decarbonize homes and buildings



Establish strategic energy bodies with the mandate to reach Net Zero



Target to reverse nature decline in the Environment Bill

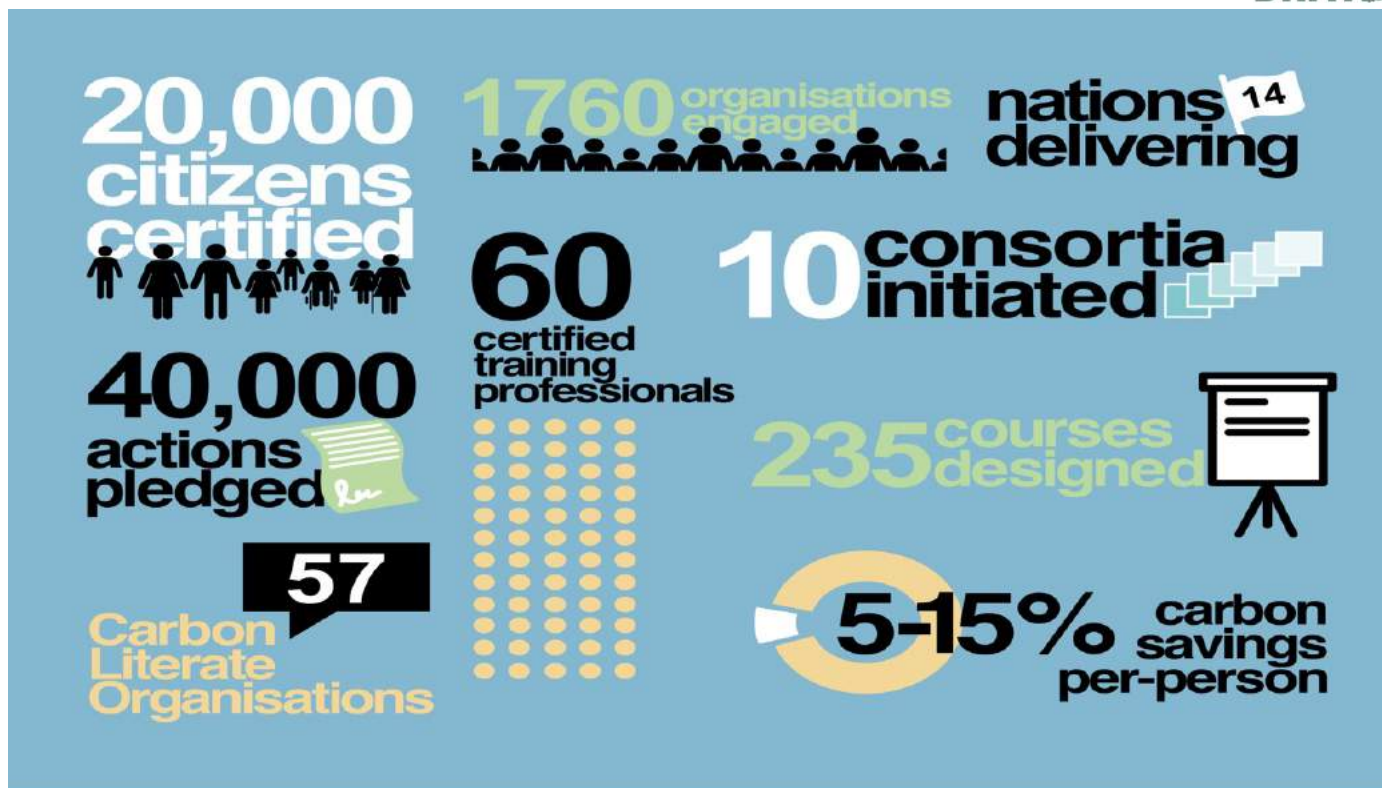


A Net Zero Local Powers Bill





## Inwards:



CAT is now offering this training based on its almost 50 years experience



# ‘Wicked solution 4’ Real-life innovative projects are growing...





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# ‘Wicked solution 5’ – Multi-solving

**Multi-solving – maximising the benefits beyond carbon**





## Making the case: co-benefits as a motivator for climate action

Cities that cited co-benefits reported more than twice

**2.5x**

as many mitigation actions as cities that did not report co-benefits

Three quarters (76%) of cities that reported taking climate action cited co-benefits of the actions they were implementing

**24%**

of cities did not report co-benefits associated with their climate actions





## Cardiff's Air Quality At a glance

### Cardiff's air pollution compared to other UK areas



143

### Number of deaths

According to Public Health England, an estimated 143 people die each year due to long-term exposure to air pollution in Cardiff. Poor air quality has been linked to conditions such as asthma and respiratory diseases.

### Number of hours spent in traffic per year

In a recent report by one of the world's leading traffic agencies, the impact of congestion on Cardiff businesses was found to be worse than any other city in the UK. Drivers in Cardiff spend an average of 32 hours each year stuck in traffic jams during peak periods.

32



Sources: Public Health England, Cardiff Council Air Quality Report 2016



## MULTISOLVING AT THE INTERSECTION OF HEALTH AND CLIMATE

LESSONS FROM SUCCESS STORIES



Dr. Elizabeth Sawin  
Stephanie McCauley  
Shanna Edberg  
Dr. Grace Mwaura  
Maria José Gutiérrez







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## Green stimulus plan could create 1.2m UK jobs in two years, research finds

**Every job lost to Covid pandemic could be replaced in upcoming recovery years, Green New Deal UK finds**



#ZeroCarbonBritain

# UNLOCKING THE JOB POTENTIAL OF ZERO CARBON

THE **UNITED KINGDOM**

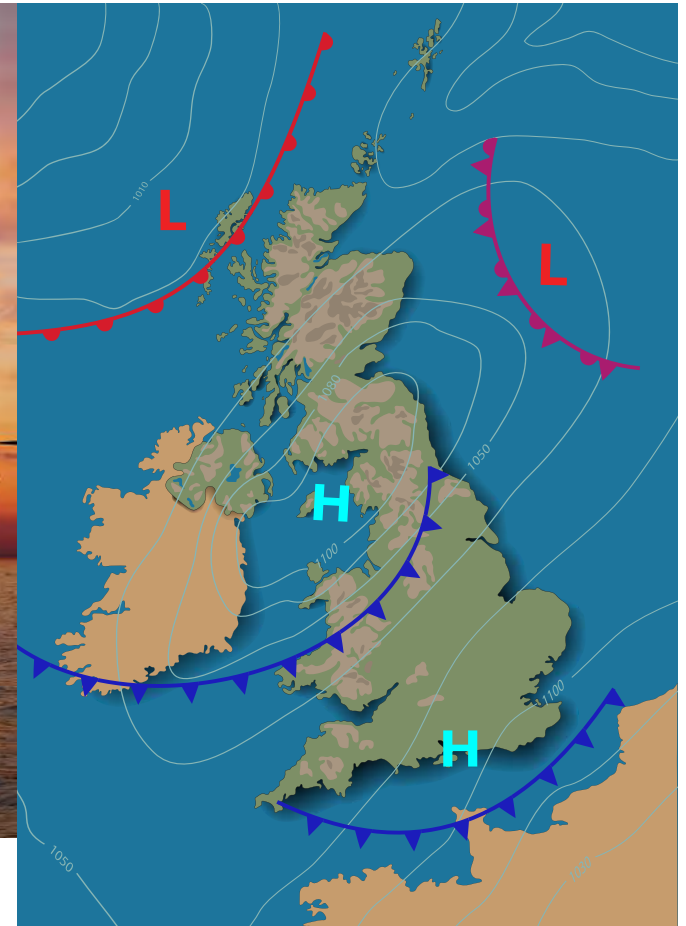
▶ 980,000 transition jobs

▶ 710,000 long term jobs



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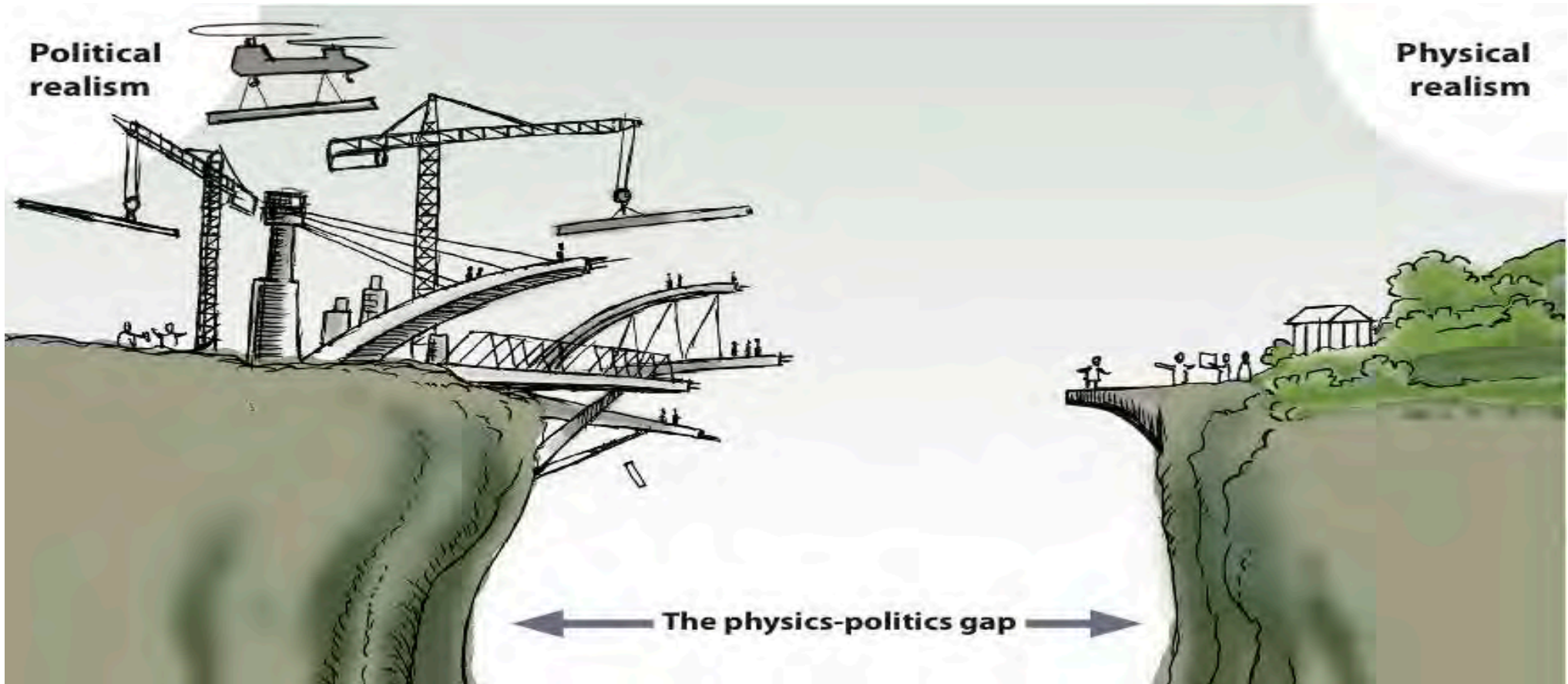








# ‘Wicked solution 6’ – Culture shift



## Speed at which world's glaciers are melting has doubled in 20 years

Glacier melt contributing more to sea-level rise than loss of Greenland and Antarctic ice sheets, say experts



## Almost 30 million will need aid in Sahel this year as crisis worsens, UN warns

Armed conflicts, the climate crisis and Covid-19 are contributing to chronic risk of food insecurity in the region, says Unocha report



10 November 2020

## University of Sheffield pledges carbon neutral campus by 2030



- The University of Sheffield pledges to be carbon neutral on campus by 2030 and across all its activities by 2038, as part of its sustainability strategy
- Vice-Chancellor calls for the institution to become "one of the most sustainable research-intensive universities in the country"
- Following student demand, sustainability strategy pledges to embed Education for Sustainable Development into all taught courses
- University plans to use leading research capability to tackle climate change and other sustainability challenges locally, regionally and nationally



## Delivering a 'Net Zero' National Health Service

### Water industry unveils multi-billion pound 2030 net zero vision



Sewage and waste water treatment produces methane which can be harnessed to heat homes | Credit: Thames Water

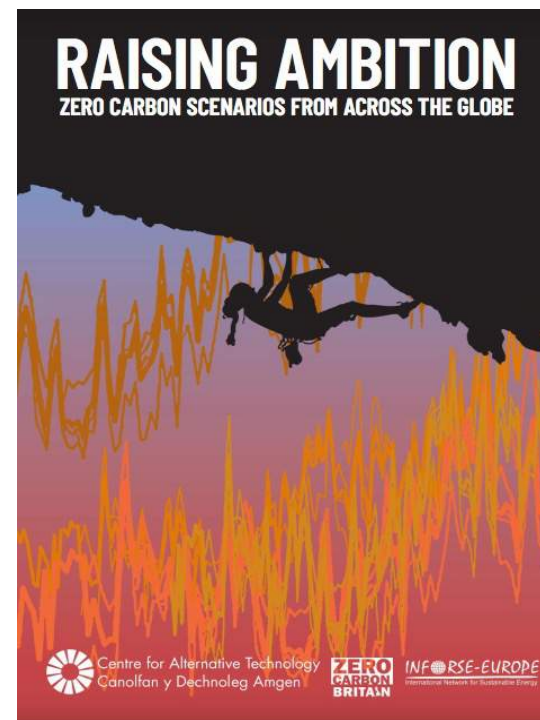
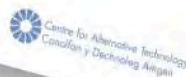
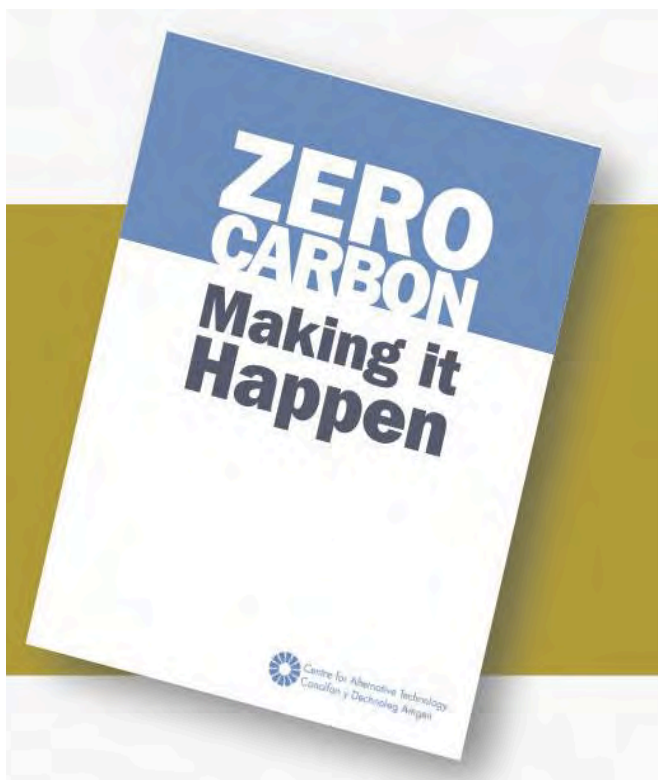
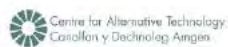








# Free to download





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## ZERO CARBON BRITAIN

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Freely available online inspiration, tools, reports, guidance, training, webinars and more, to support your action on net zero.

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# INNOVATION LAB

## ZERO CARBON BRITAIN

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Bringing multi-stakeholder groups together to explore and experiment with new ways of doing things to make net zero happen.

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# Zero Carbon Britain: Live online

JUNE 23, 2021 - JUNE 24, 2021

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