Local Climate & Sustainable Energy Solutions & 100 % Renewables in the United Kingdom
Zero Carbon Britain
UN Climate Dialogue 2020 Side Event
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UNFCCC: https://unfccc.int/cd2020/specialevents
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 Solution 1 - evidence-based net zero visions un-leash new thinking
IF WE CAN'T IMAGINE A POSITIVE FUTURE, WE WON'T CREATE IT.
Power-down & Power-up

Through integrating a smart approach we can Power-down demand & Power-up a 100% clean energy supply for buildings, transport, energy & land-use, backed by natural carbon capture – so the UK’s greenhouse gas emissions can be reduced to net zero.
Power down – smart use of 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.
We can keep the lights on!

The ZCB Energy Model uses ten years of real-world hourly data from 2002 – 2011

87,648 hours
Management of supply & demand in a 100% renewable energy system is possible with existing technology

• 74% of the time, supply *exceeds* demand.
• 26% of the time, supply does not fully meet demand.
• Short-term storage & load shifting reduces this to 11%.
• Carbon-neutral synthetic gas power stations cover this.

But this requires re-thinking land-use…
A healthier diet can reduce emissions & capture carbon with natural systems!

Figure 3.28: The area of cropland and grassland used for agriculture today (DEFRA, 2012) and in our scenario.
Figure 3.1: UK Greenhouse gas emissions in 2017, including international aviation and shipping, and the enhanced effect of emissions from aviation (BEIS, 2019).
... to this - Net zero is achievable!

Figure 3.35: Carbon captured and greenhouse gas emissions for the UK in our scenario relative to 2017, including international aviation and shipping and the enhanced effect of emissions from aviation. Total emissions sum to net zero.
‘Wicked solution 2’ 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)

Price of a Solar Panel per Watt vs. Global Installations

Source: U.S. Department of Energy
© 2015 The Pew Charitable Trusts

Source: Earth Policy Institute/Bloomberg
‘Wicked solution 3’
New leadership is feeding back!
UN CD2020 Side Event: November 26, 2020 - INFORSE: Local Climate & Sustainable Energy Solutions in East Africa Catalogue, South Asia Eco-Village Development ToT, 100% Renewables
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‘Wicked solution 4’
Real-life innovative projects are ready to go
‘Wicked solution 5’ – Multi-solving

Multi-solving – maximising the benefits beyond carbon
• Zero Carbon Britain reports
• Hub and Innovation Lab
• Postgraduate degrees
• Short courses
• Free information service

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