QUICK CHECK IN – WHAT COMES TO MIND?

1. https://www.mentimeter.com/app/presentation/n/al52mkcndywodp9kovgp5or56eyfzwbm/edit?question=z6camftbhgsi

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PUTTING PEOPLE INTO SUSTAINABILITY

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How important is Data or “Gut Feel”

The world spent US$3,660 billion on climate change projects over the eight-year period 2011–2018. A total of 55% of this sum was spent on solar and wind energy, while only 5% was spent on adapting to the impacts of extreme weather events.

Despite this wind and solar energy **produced only 3% of world energy consumption in the year 2018.**

Dear Climate Gremlin: We are still here

More focus on energy efficiency, passive building design etc. might have been a more effective way of reducing energy demand and carbon emissions?

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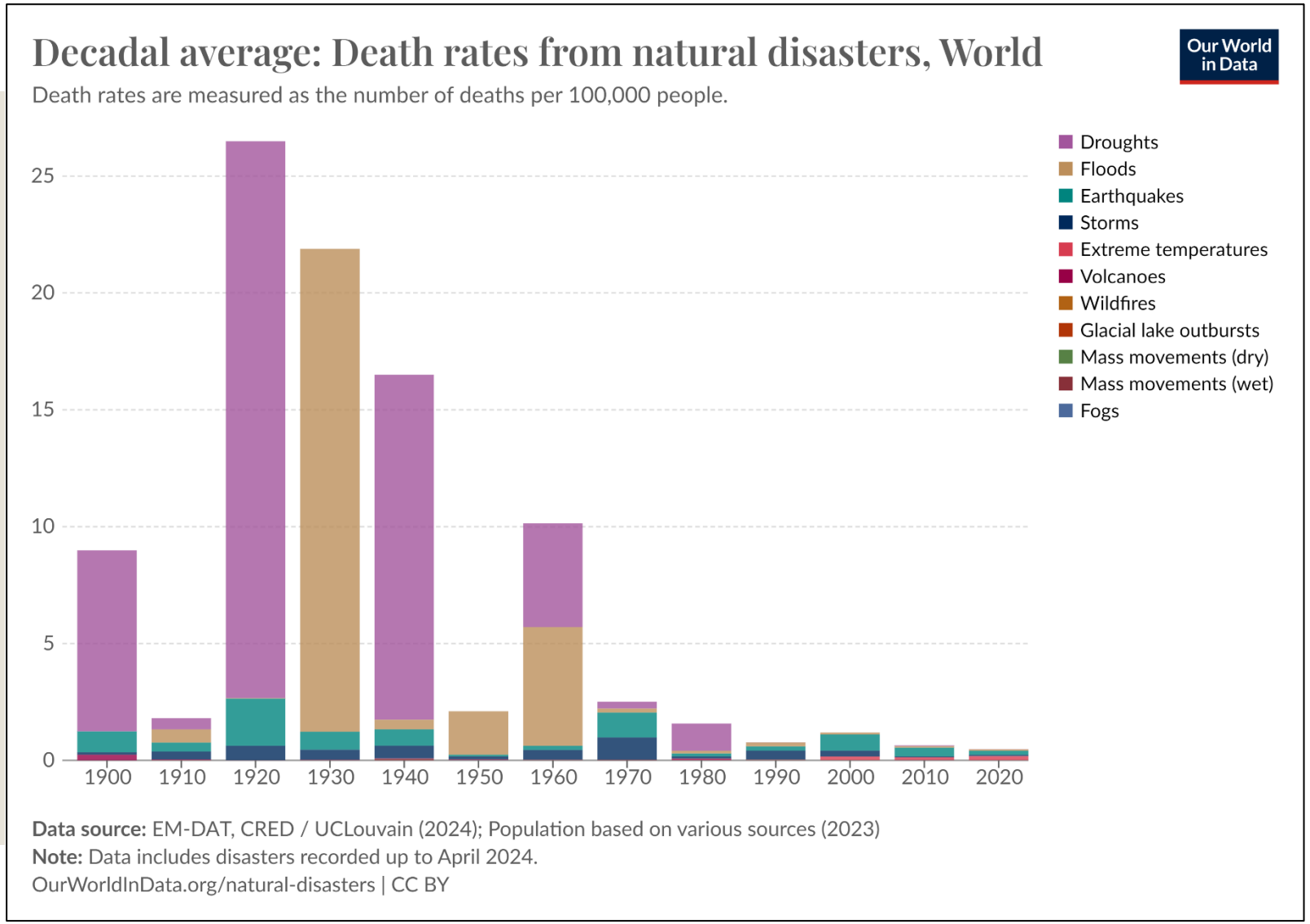
Media would make us think environmental disasters are getting worse?

- This recent weather event in Ireland was **not** a storm **but** a gale, defined **as a strong wind**
- The **U.S. National Weather Service** specifies a gale as sustained surface wind speeds between 34 and 47 knots (63.0 and 87.0 km/h; 17.5 and 24.2 m/s; 39.1 and 54.1 mph).
- The **wind speeds did not reach gale force at any point,** highlighting the media's tendency towards fear-mongering, which is unproductive and unhelpful



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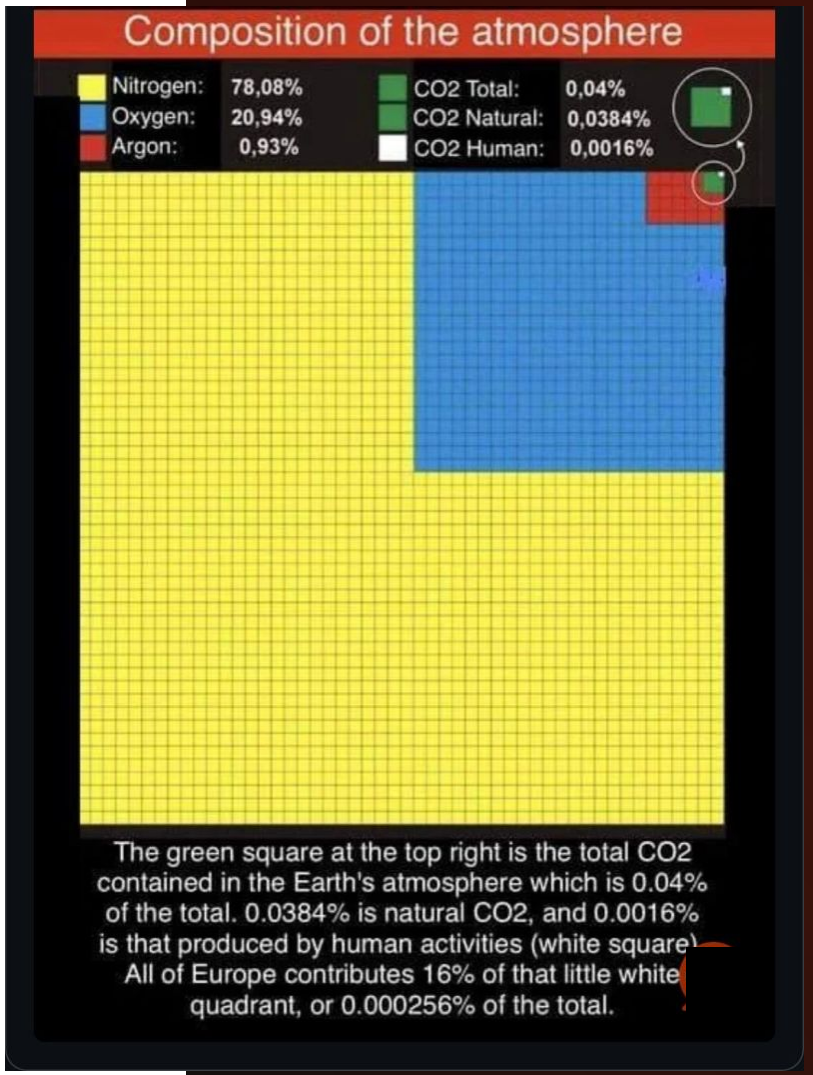
Risks of Net Zero

By contrast, there are risks of Net Zero policies

- Climatic changes that are driven by forces other than CO2 overshadow anthropogenic impacts . e.g. 2023 undersea volcanic activity
- The enormous cost. In 2020, the UK National Grid ESO estimated the cost of the energy transition to be around £3 trillion. Today this would be significantly higher as the cost of renewables has increased hugely
- Putting this in context, U.K. GDP was £2.3trillion in 2023, so the cost will be at least 1.3 times GDP.
- For further context, the budget for NHS England was £155bn in 2022-23, so the cost of Net Zero will be around 19 times the NHS budget.
- We need to look at the opportunity costs – what could we do alternatively with this (tax-payer) money? (e.g. tackle water/ocean pollution, invest in education, etc)

Japan's Mt. Aso - that used to be a pristine wilderness area. Now, it is covered up with more than 200,000 "environmentally friendly" solar panels, which have destroyed the plant and animal habitats that formerly existed there and detsroyed an amenity area

This **massive solar array** occupying **hundreds of acres** of former wilderness will **generate less electricity** in a **24-hour period than a modest, 100 MW natural gas** power plant that would occupy **maybe 6 acres** of land!



THE SOCIAL IMPACT NEEDS TO BE CONSIDERED

- A team of researchers from ICS, Trinity College Dublin, and the universities of Leeds and York have reviewed the policy changes and instruments – subsidies, taxation etc – used to try and reduce GHG emissions
- And they concluded that these Net Zero measures:
  - will push down living standards for the majority of people
  - the added cost and difficulty of car travel will reduce people's leisure opportunities and create social divisions
- London Ultra Low Emission Zone (ULEZ) compliant cars or the daily £12.50 charge must be paid or around £3750/year.
  - Who gets hit the hardest?

Reventon roadster V12
CO2 emssion: **486g/km**
PM10/PM2.5 allowed: **UNLIMITED!**

Citroen C3
CO2 emssion: **99g/km**
PM10/PM2.5 allowed: **0.0045 g/km**

Range Rover V8 5.0 Supercharged
CO2 emssion: **348g/km**
PM10/PM2.5 allowed: **UNLIMITED!**

VW Polo
CO2 emssion: **102g/km**
PM10/PM2.5 allowed: **0.0045 g/km**

✓ ULEZ COMPLIANT

✗ NOT ULEZ COMPLIANT

German wind power in the first 9 months of the year 2024.

- The installed capacity is **70 gigawatts**.
- Wind power delivered everything between **almost nothing and 50 gigawatts.**
- We cannot run an **industrial nation** only with pressure differences in the atmosphere.
- Businesses are **closing or leaving**

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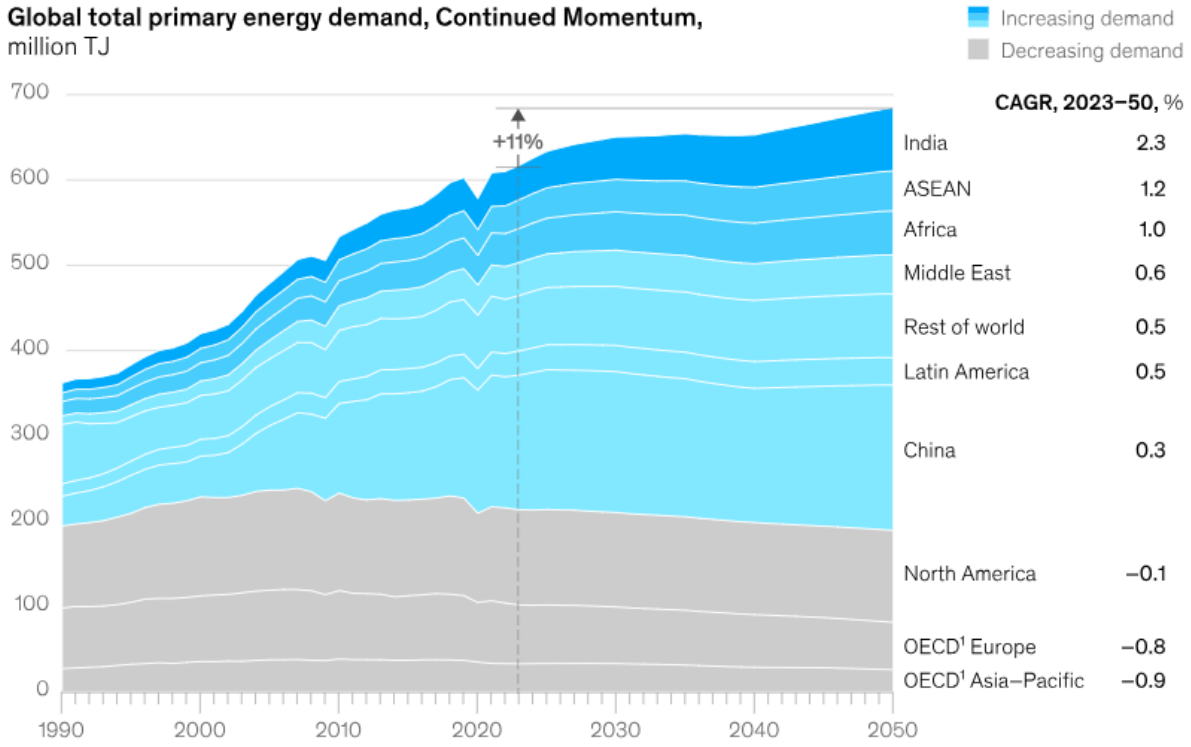
DEMAND FOR ENERGY IS INCREASING

- Global energy demand is projected to grow between 11 percent (in the Continued Momentum scenario) and 18 percent (in the Slow Evolution scenario) by 2050
- Do we stop economies growing and harm the livelihoods of millions?
- Do we allow the economies to grow but primarily through carbon-based fuels?

The increase in global energy demand is primarily driven by growth in emerging economies.



[1]The Organization for Economic Cooperation and Development.

McKinsey & Company

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TAKING POSITIVE SUSTAINABILITY ACTION

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Historical Successes
- People, Planet and Profit








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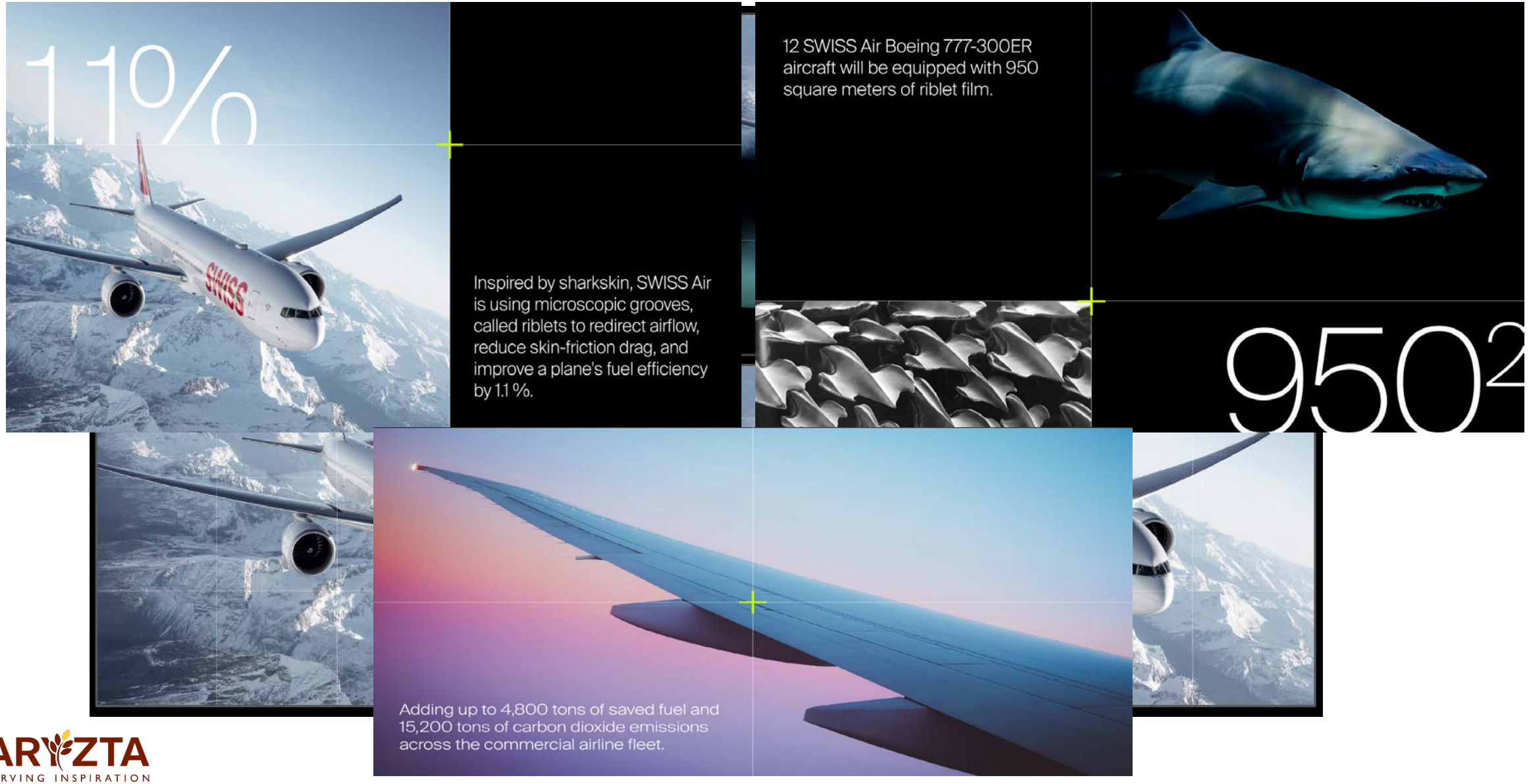
Looking outside-in for inspiration ? Natures inspiration



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Back to Nature – Regenerative Agriculture

Have we reached a crisis on soil health?

- **The declining health of soil could be the one of the biggest threat to our food supply**
- In 2014, the FAO (the Food and Agriculture Organisation) claimed the world only had **60 years of farming left** if current levels of soil degradation continue.
- It said a third of the world's soil had already been degraded due to chemical usage, intensive farming, deforestation
- **Regenerative farming** aims to **restore soil to its naturally robust, carbon-rich state** by avoiding ploughing, using cover crops to avoid bare soil and by naturally grazing animals.
- These practices ensure the **ground holds more carbon than it releases**, leading to a net reduction of carbon dioxide in the atmosphere.
- **ARYZTA`s Sustainability Strategy** has a strong focus on supporting regenerative framing

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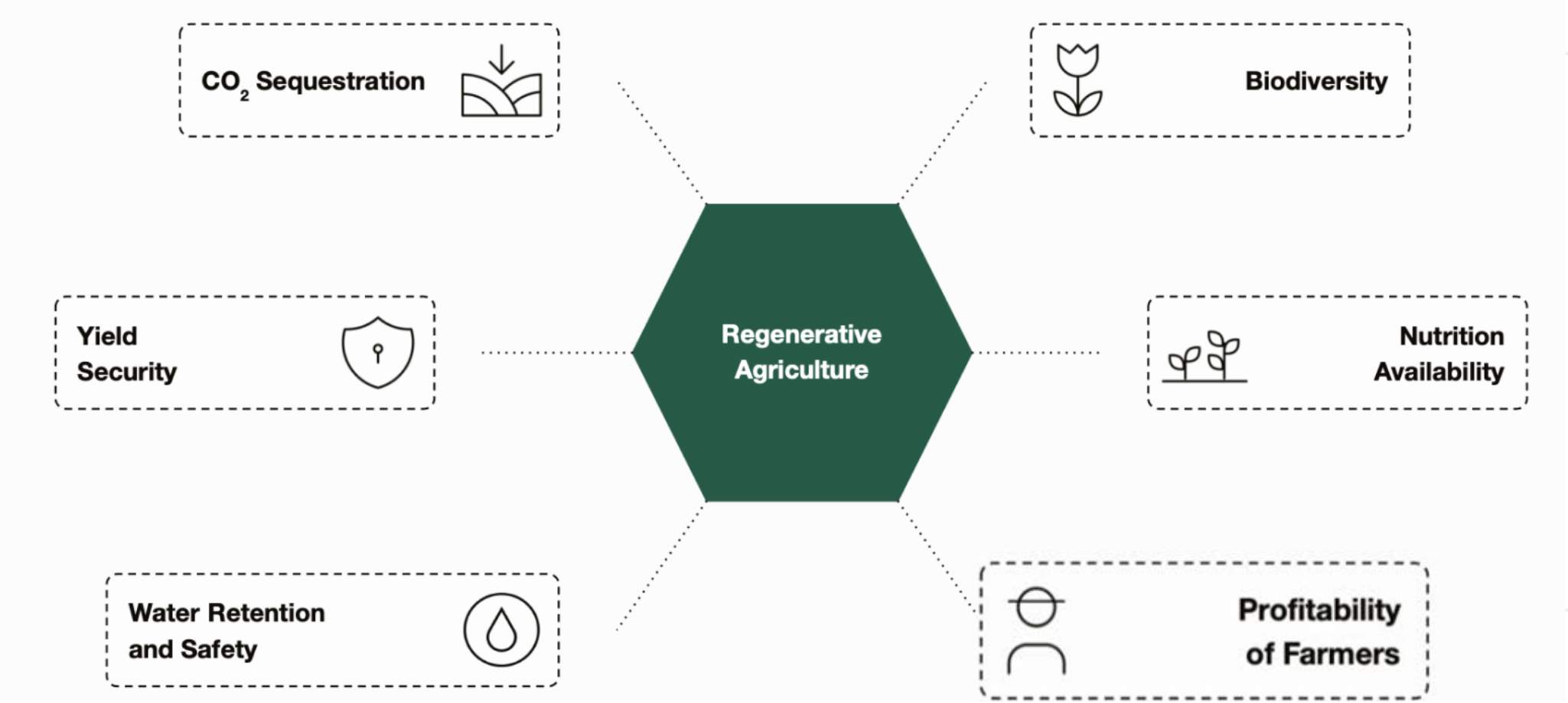
Source: *The Food and Agriculture Organisation*

Read on mintel.com

HOW REGENERATIVE FRAMING IS A HOLISTIC APPROACH TO SUSTAINABILITY



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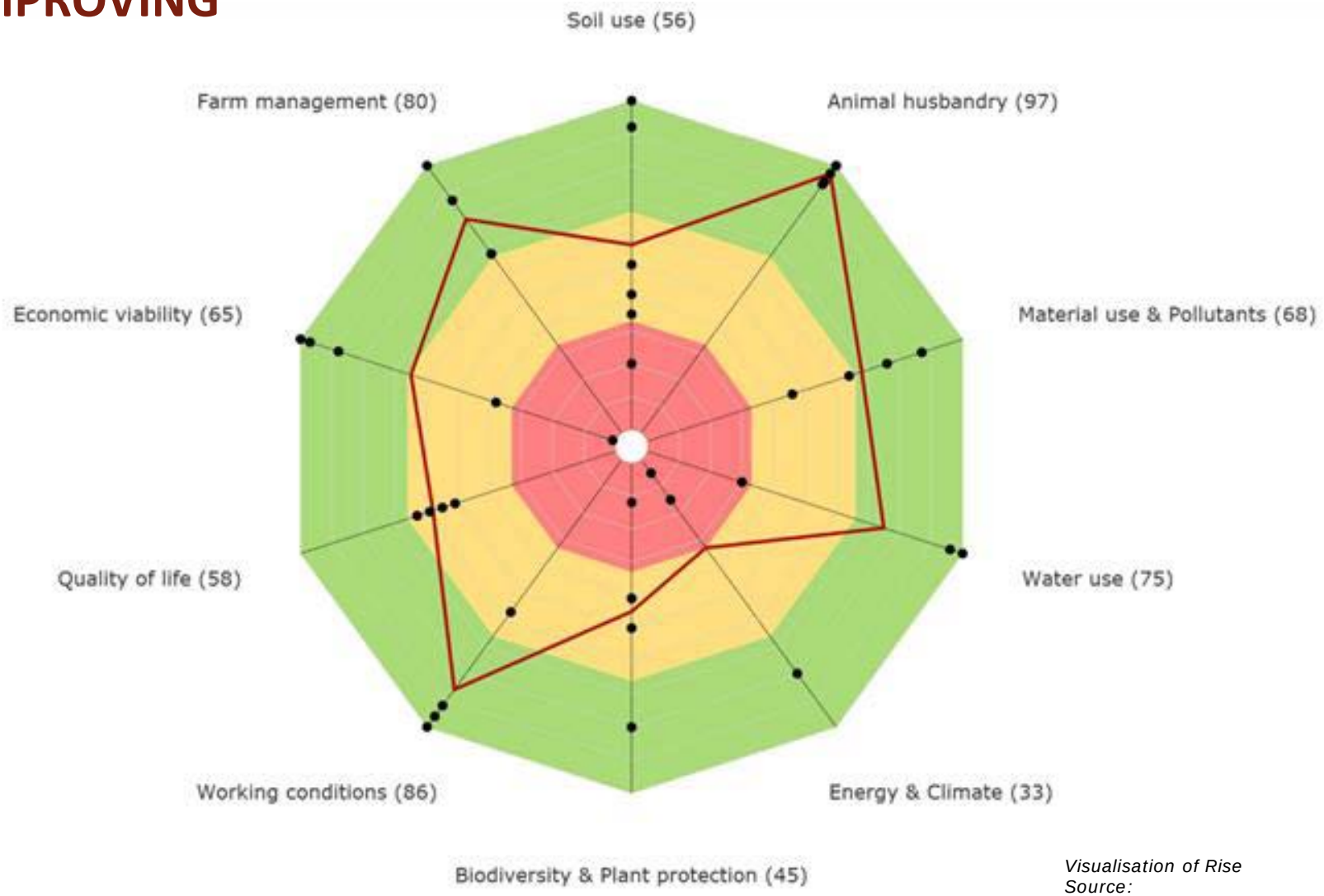
KLIM

RESTORE SOIL HEALTH

- Regenerative Agriculture helps restore soil quality, sequests carbon, increases microorganisms, and makes it more resilient to weather impacts
- Makes the farmers more profitable in the long run
- Creates more resilient supply chains

MEASURING AND IMPROVING



Visualisation of Rise
Source:
https://www.bfh.ch/dam/jcr:0540a777-ab97-4555-b7ca-bb71904ae97c/what-is-rise.pdf.

TRANSITIONING FROM CONVENTIONAL TO REGENERATIVE /ORGANIC FARMING

1. The **timeframe** to move from conventional to Regenerative Agriculture (RegenAg) is usually 3-5 years
2. **Farmers need support** as initially yields can reduce (support can include procurement commitment for x years)
3. Generally, farmers convert their land in phases rather than in one go
4. After conversion to RegenAg/Organic takes place, farmers are seeing **higher yields and lower input costs**
5. **Improved biodiversity**, **water quality** and **soil condition** markedly improved
6. Longer term we expect this to be sustained as well **as resilience to climatic changes**

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Focus changing to doing the right thing?

Nestlé Moves Away from Carbon Offsets to Focus on Emissions Reductions Acros
Brands - ESG Today

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INCREMENTAL AND BREAKTHROUGH TECHNOLOGY

Electrifying crisp production: PepsiCo overcomes green energy storage issue with thermal battery tech

By **Flora Southey**
23-May-2023 - Last updated on 23-May-2023 at 14:17 GMT

Replacing natural gas with sustainability electricity for the production of crisps will lead to a reduction of around 50% CO2, with the aim of achieving a 98% reduction. GettyImages/supersizer

In collaboration with energy company Eneco, and leveraging technology from German start-up Kraftblock, PepsiCo is electrifying the production of Lay's and Cheetos crisps at its Broek of Langedijk site in the Netherlands.

/www.foodnavigator.com

Storing excess green energy with thermal batteries

Kraftblock's technology works thanks to an 'innovative' material capable of storing temperatures up to 1,300˚C. Once heat is transferred from the heat transfer medium - in PepsiCo's case, from hot air heated by wind energy – to the storage system, it can be used for a period of up t two weeks. At the Broek op Langedijk site, the stored energy is being used to heat thermal oil, which in turn, heats cooking oil to fry PepsiCo crisps.

During the night and in off-peak periods, PepsiCo is now able to source cheaper renewable electricity from North Sea windfarms and convert it to hot air. This heats up Kraftblock's iron 'nuggets' to 800˚C in 'super' insulated storage units. In parallel, PepsiCo uses direct electrification to power two of its electric thermal oil boilers.

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Design for Sustainability — Df(S)

Jabil Inc

84% GHG reduction over the lifecycle of the product vs. single-use autoinjectors

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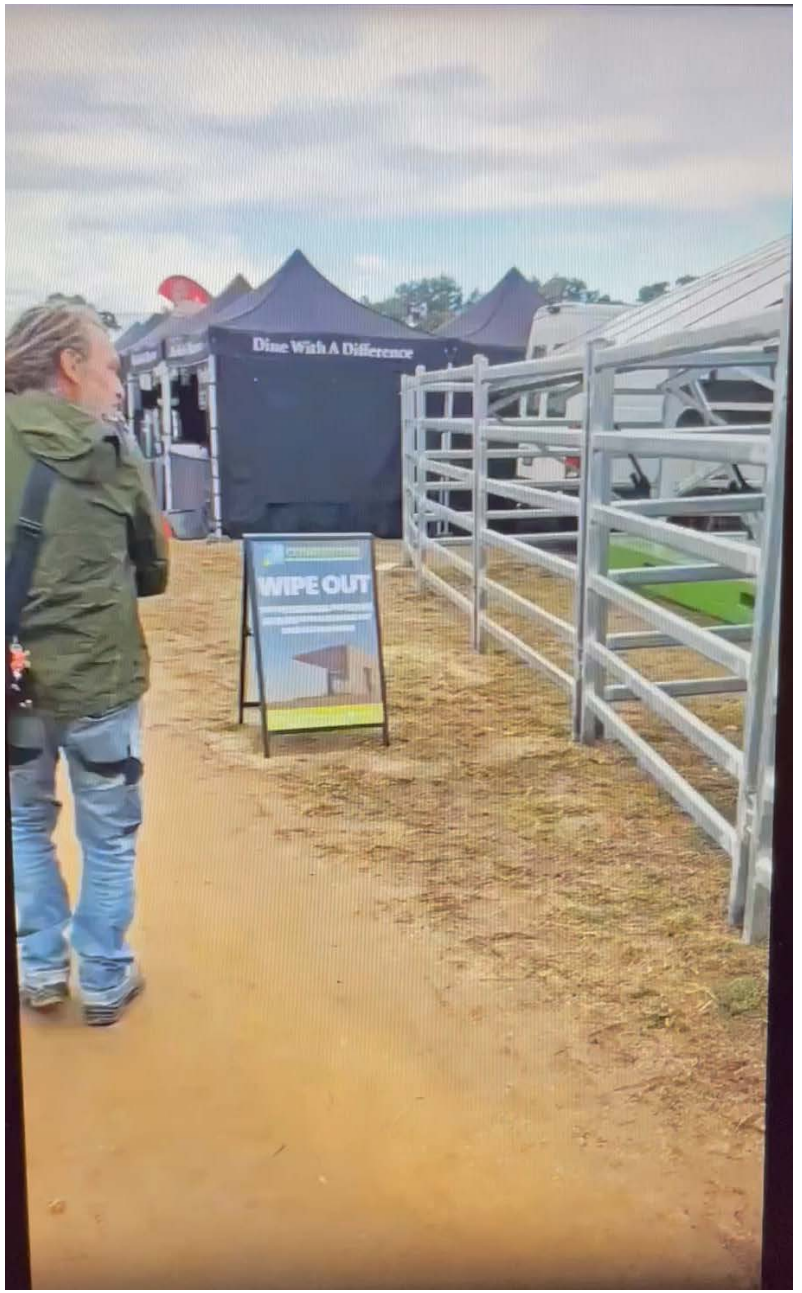
Taking a Holistic View

- Green energy at any expense – apply holistic LCA thinking and avoid dogma?
- A series of studies from Europe, the US and China show that carbon taxes tend to lay the greatest burden on the poorest households and rural dwellers
- Innovation, circular economy, marginal gains - all can significantly reduce energy requirements and carbon emissions
- By putting people at the centre of the sustainability equation, we can arrive at better long-term actions and create more effective impacts.

And to finish with a bit of fun



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Thank you

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