



Global Warming of 1.5°C:

- what it means for business & society

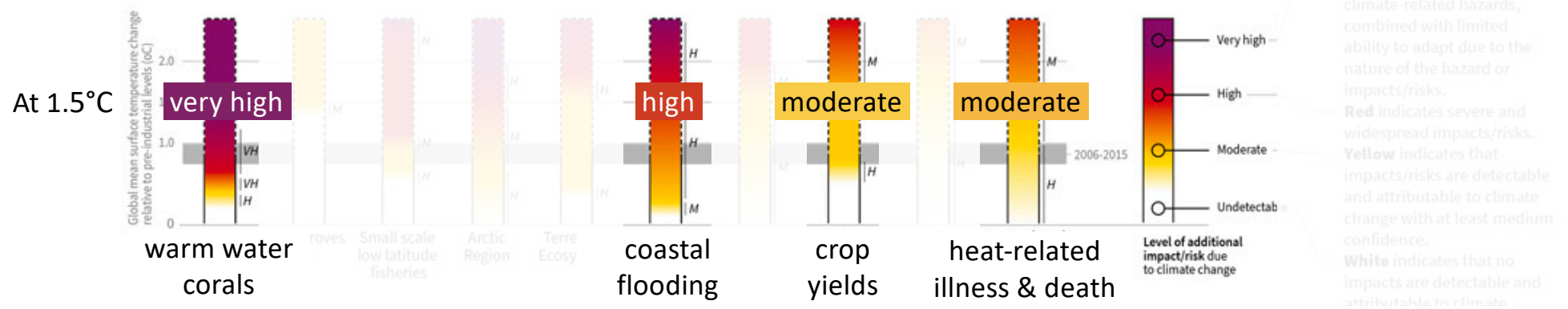
@emilyshuckburgh



1. Risks increases substantially from today to 1.5°C & beyond:

- more extreme heat, heavy rainfall/flooding & drought in some places
- 2-3 times more plants & animals suffer severe habitat loss at 2°C vs 1.5°C
- increased risk to health, livelihoods, food security, water supply & economic growth
- sea level will continue to rise beyond 2100 even if temperature kept below 1.5°C

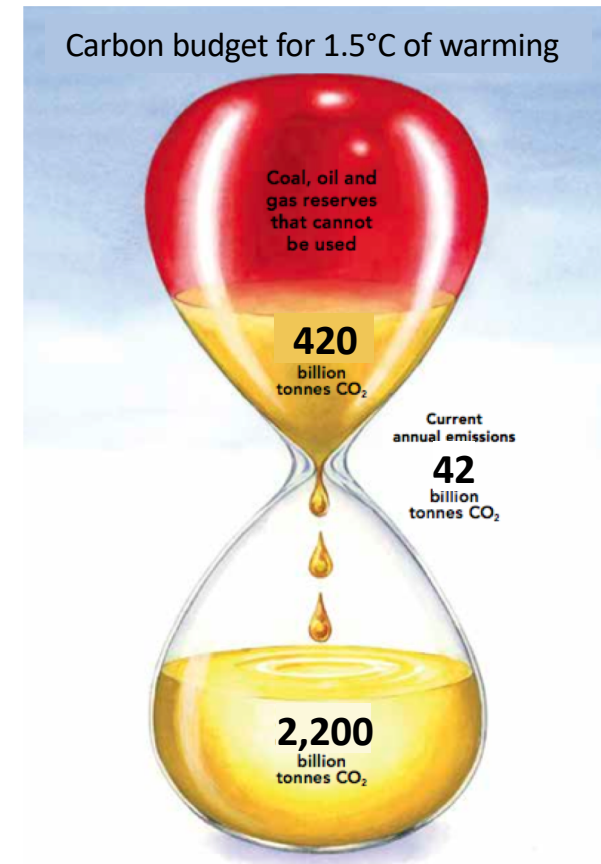
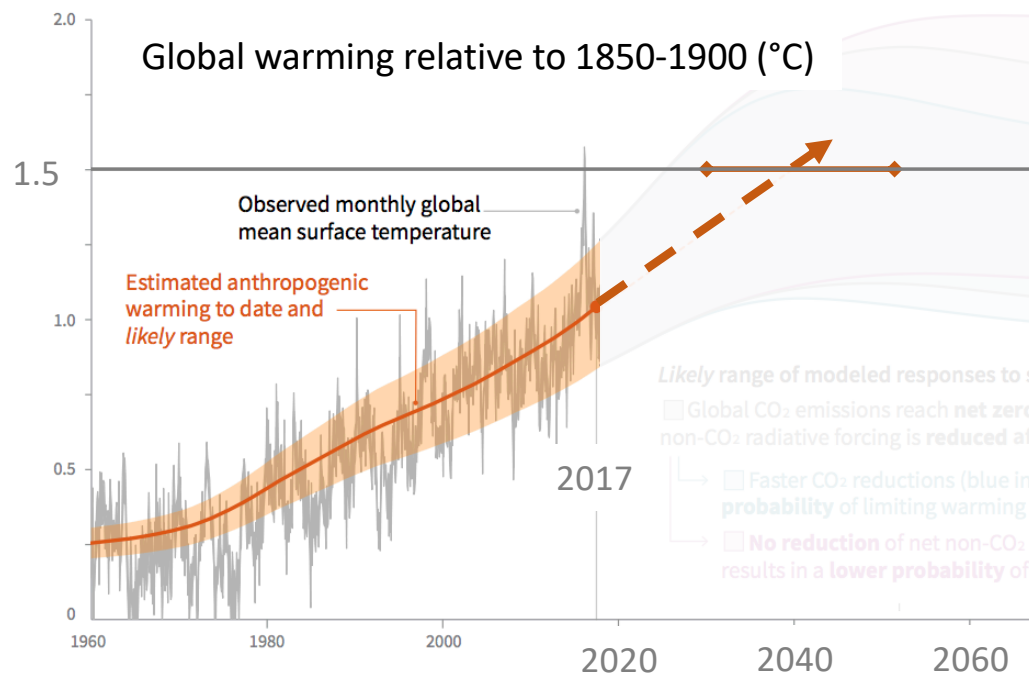
Impacts and risks for selected natural, managed and human systems





2. Time is running out for 1.5°C:

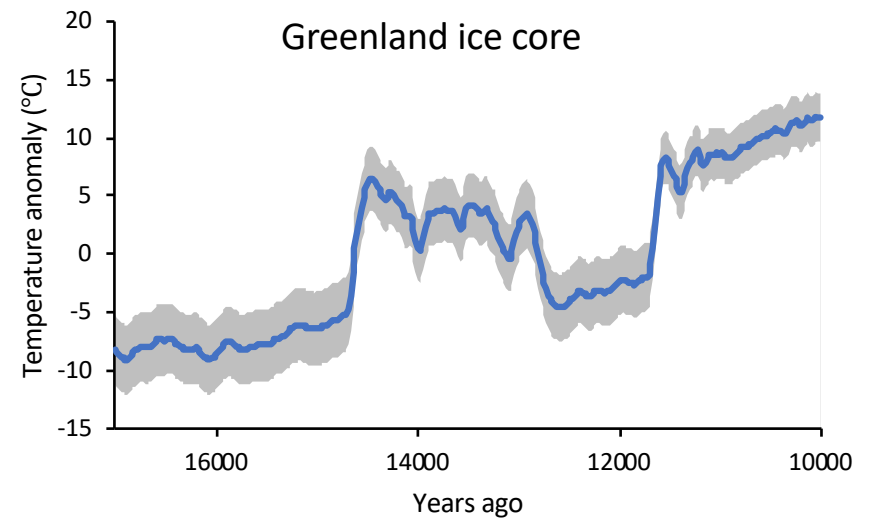
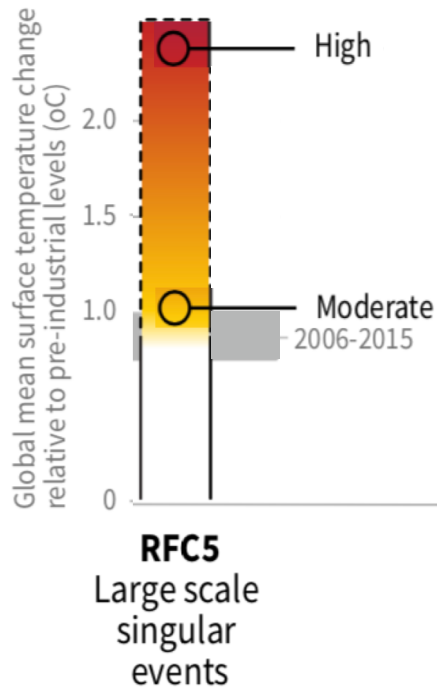
- global warming is on-course to reach 1.5°C sometime between 2030 & 2050
- carbon budget for 1.5°C exhausted in around 10 years at current rate of emissions
- current Paris pledges give 3°C





3. Warming increases risk of a catastrophic shock:

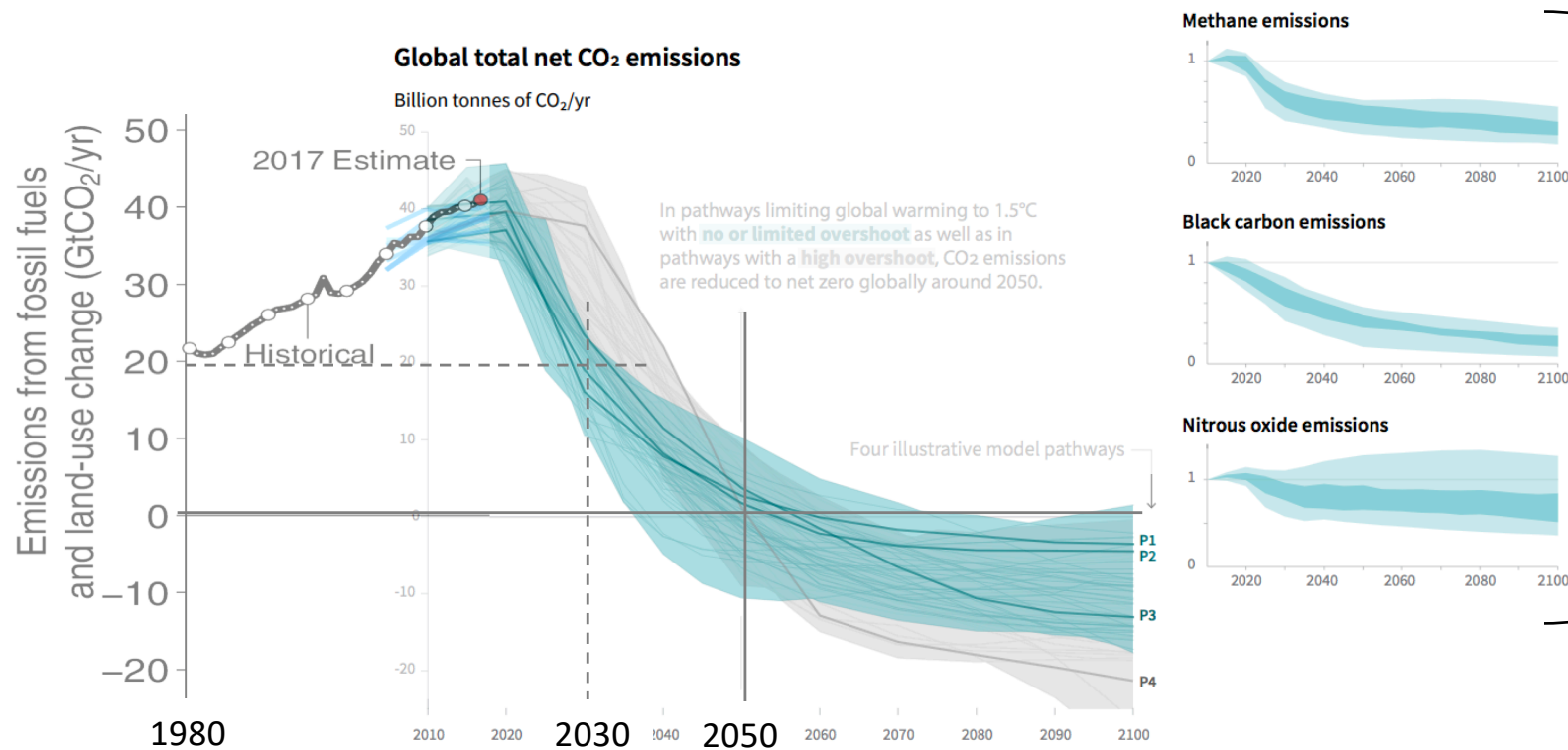
- moderate to high risk between 1°C and 2.5°C for “large-scale singular events”
- loss of ice sheets in Greenland & Antarctica, which would eventually result in many metres of sea level rise, could be triggered at around 1.5°C to 2°C





4. Net-zero by 2050 for 1.5°C:

- need -50% emissions by 2030 (to 1980 levels) then net-zero by 2050
- and deep reductions in non-CO₂ emissions (e.g. methane & nitrous oxide)
- long-term, need sustained net-negative CO₂ and/or more reductions in non-CO₂ to minimise sea level rise



improved
air quality



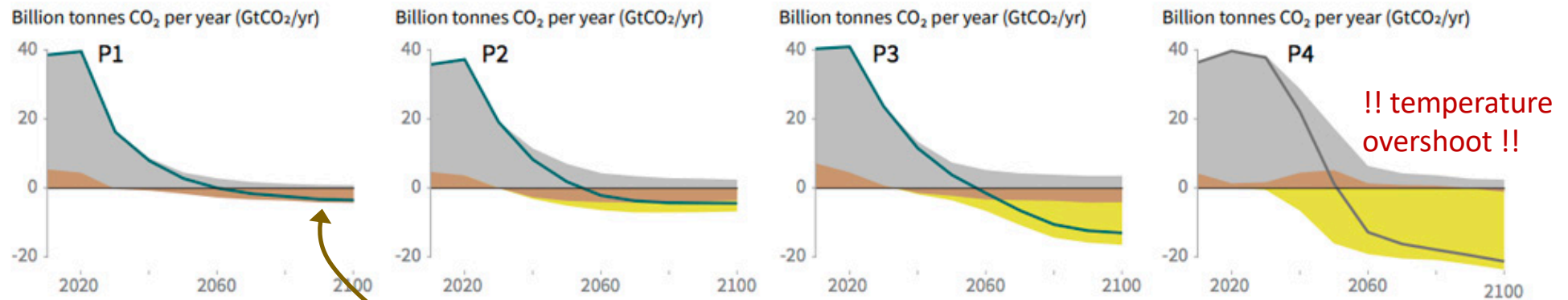


5. Clean-up for 1.5°C requires decarbonization & removal of CO₂

- electricity decarbonised by 2050 (renewables 70–85%; CCS for gas to be 8%; coal 0%)
- industrial emissions reduced 75-90% by 2050
- “Some fossil investments made over the next few years – or those made in the last few – will likely need to be retired prior to fully recovering their capital investment or before the end of their operational lifetime.”
- also need to remove CO₂ at scale

Breakdown of contributions to global net CO₂ emissions in four illustrative model pathways

● Fossil fuel and industry ● AFOLU ● BECCS



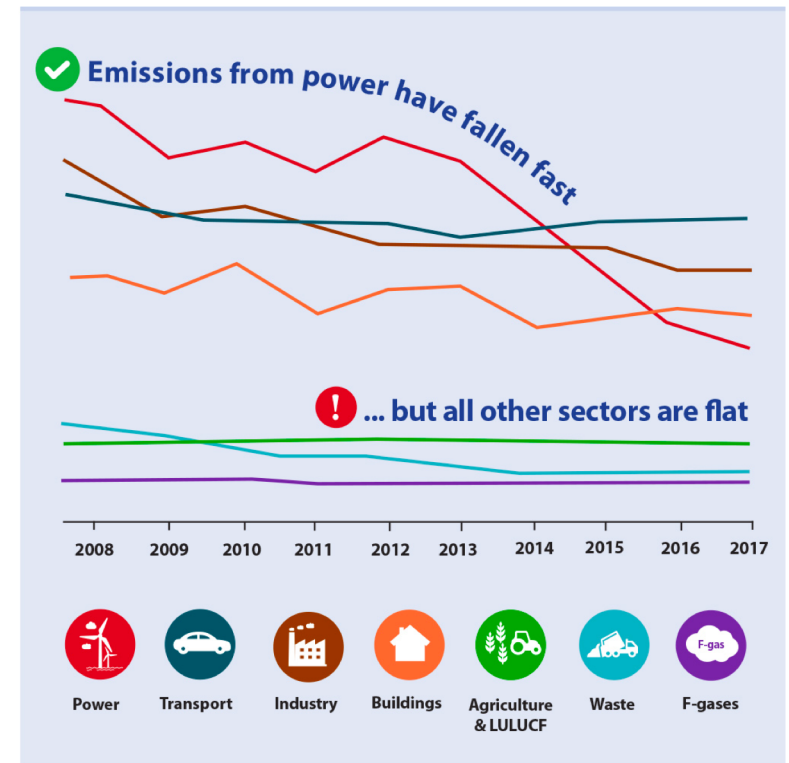
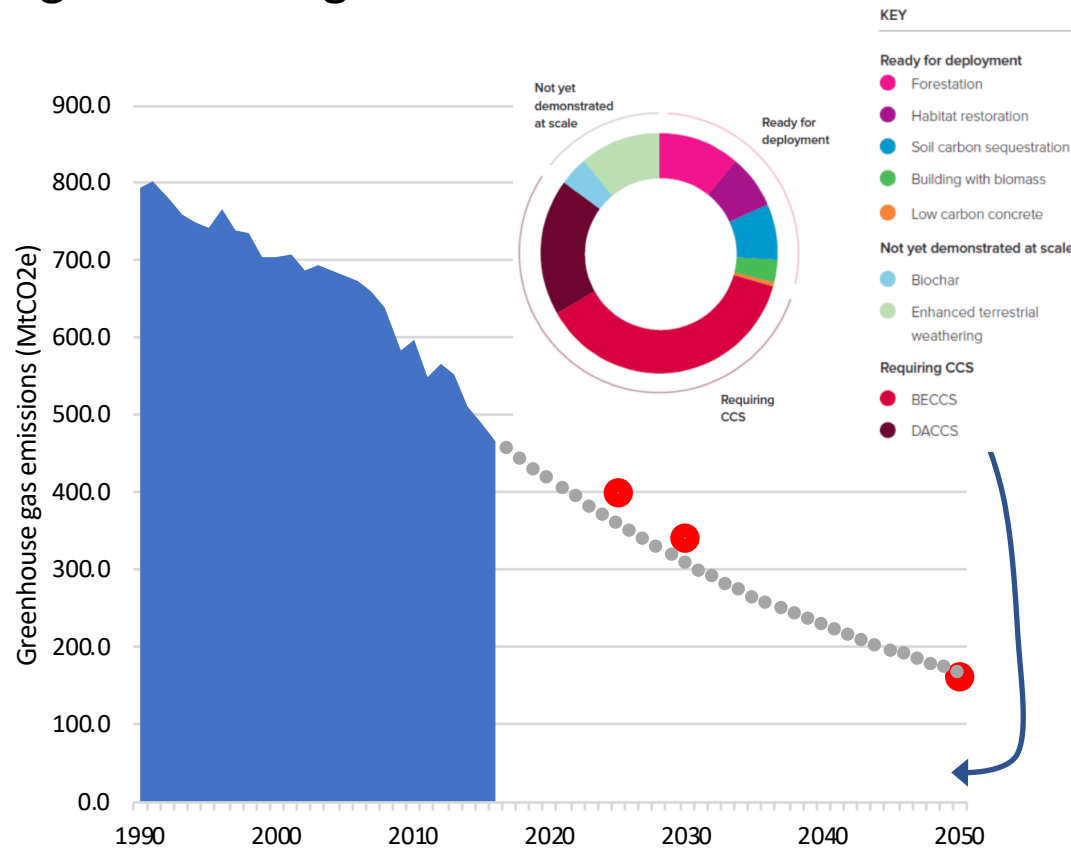
Rapid fossil fuel reduction
+ afforestation

5m km² = ten times size of Spain turned to forest
& similar reduction in pasture

Still growth in air travel &
meat, but lots of BECCS

!! temperature
overshoot !!

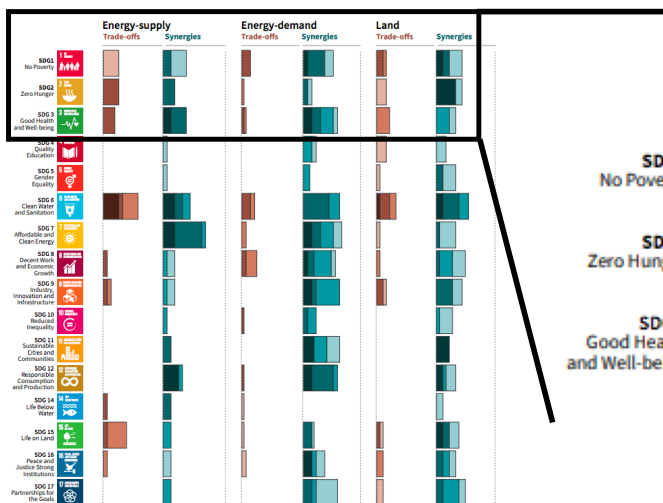
UK greenhouse gas emission reductions



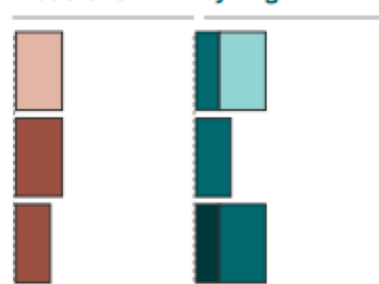


6. Limiting warming could help deliver many SDGs

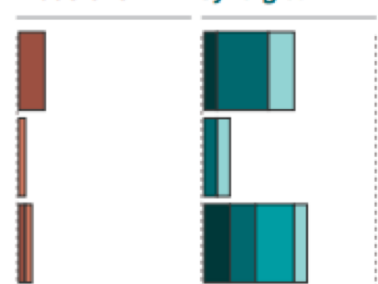
- many synergies with SDGs 3 (health), 7 (clean energy), 11 (cities & communities), 12 (responsible consumption & production), 14 (oceans); esp. reducing energy demand
- more trade-offs with SDGs 1 (poverty), 2 (hunger), 6 (water), and 7 (energy access); trade-off from energy supply (e.g. bioenergy) & land (e.g. afforestation)
- number of people both exposed to climate-related risks & susceptible to poverty reduced by up to several hundred million by 2050 if 1.5°C vs 2°C



Energy-supply



Energy-demand



Land





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