

13th October 2021

Climate risk and adaptation: Achieving Net Zero

Chaired by: **Baroness Brown**, Adaptation Committee

Panellists:

- **Emma Pinchbeck**, Energy UK
- **Professor Chris Evans**, UK Centre for Ecology and Hydrology
- **Richard Millar**, Climate Change Committee Secretariat
- **Mike Thompson**, Climate Change Committee Secretariat

Climate risk and adaptation: Achieving Net Zero

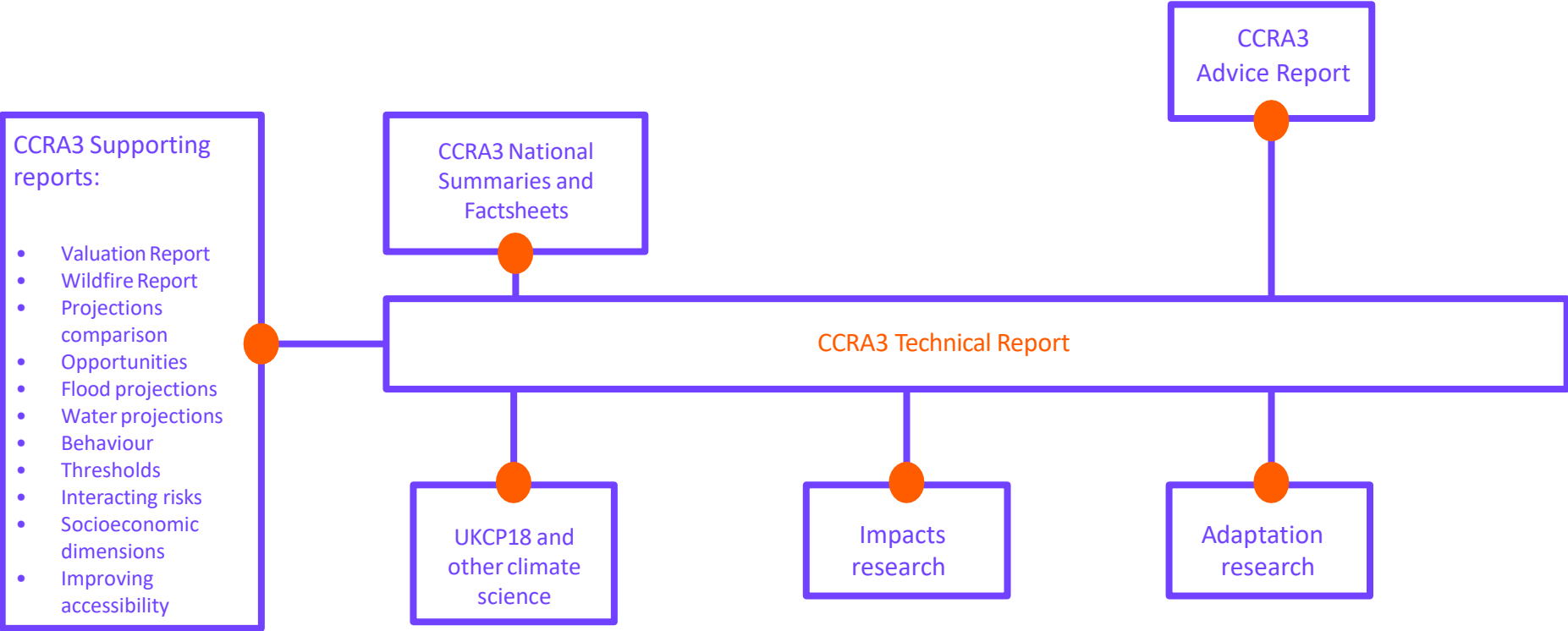
CCC's Independent Assessment

Richard Millar

Climate Change Committee Secretariat

Independent Assessment of UK Climate Risk

A comprehensive assessment of climate risks and opportunities



Independent Assessment of UK Climate Risk

61 risks and opportunities identified – 54 with high urgency scores

N1 Risks to terrestrial species and habitats	N2 Risks to terrestrial species and habitats from pests, pathogens and INNS	N4 Risk to soils from changing conditions, including seasonal aridity and wetness	N5 Risks to natural carbon stores and sequestration from changing conditions	N6 Risks to and opportunities for agricultural and forestry productivity	N7 Risks to agriculture from pests, pathogens and INNS	N8 Risks to forestry from pests, pathogens and INNS	N11 Risks to freshwater species and habitats
N12 Risks to freshwater species and habitats from pests, pathogens and INNS	N14 Risks to marine species, habitats and fisheries	N16 Risks to marine species and habitats from pests, pathogens and INNS	N17 Risks and opportunities to coastal species and habitats	I1 Risks to infrastructure networks from cascading failures	I2 Risks to infrastructure services from river and surface water flooding	I5 Risks to transport networks from slope and embankment failure	I8 Risks to public water supplies from reduced water availability
I12 Risks to transport from high and low temperatures, high winds, lightning	H1 Risks to health and wellbeing from high temperatures	H3 Risks to people, communities and buildings from flooding	H4 Risks to people, communities and buildings from sea level rise	H6 Risks and opportunities from summer and winter household energy demand	H8 Risks to health from vector-borne diseases	H11 Risks to cultural heritage	H12 Risks to health and social care delivery
H13 Risks to education and prison services	B1 Risks to business sites from flooding	B2 Risks to business locations and infrastructure from coastal change	B6 Risks to business from disruption to supply chains and distribution networks	ID1 Risks to UK food availability, safety, and quality from climate change overseas	ID5 Risks to international law and governance from climate change overseas that will impact the UK	ID4 Risks to the UK from international violent conflict resulting from climate change	ID9 Risk to UK public health from climate change overseas
ID7 Risks from climate change on international trade routes	ID10 Risk multiplication from the interactions and cascades of named risks across systems and geographies	N3 Opportunities from new species colonisations in terrestrial habitats	N9 Opportunities for agricultural and forestry productivity from new species	N10 Risks to aquifers and agricultural land from sea level rise, saltwater intrusion	N15 Opportunities for marine species, habitats and fisheries	N18 Risks and opportunities from climate change to landscape character	I3 Risks to infrastructure services from coastal flooding and erosion
I4 Risks to bridges and pipelines from flooding and erosion	I6 Risks to hydroelectric generation from low or high river flows	I7 Risks to subterranean and surface infrastructure from subsidence	I9 Risks to energy generation from reduced water availability	I10 Risks to energy from high and low temperatures, high winds, lightning	I13 Risks to digital from high and low temperatures, high winds, lightning	H2 Opportunities for health and wellbeing from higher temperatures	H5 Risks to building fabric
H7 Risks to health and wellbeing from changes in air quality	H9 Risks to food safety and food security	H10 Risks to health from poor water quality and household water supply interruptions	B3 Risks to businesses from water scarcity	B5 Risks to business from reduced employee productivity – infrastructure disruption and higher temperatures	B7 Opportunities for business - changing demand for goods and services	N13 Opportunities to marine species, habitats and fisheries	I11 Risks to offshore infrastructure from storms and high waves
B4 Risks to finance, investment, insurance, access to capital	ID8 Risk to the UK finance sector from climate change overseas	ID2 Opportunities for UK food availability and exports	ID3 Risks to the UK from climate-related international human mobility	ID6 Opportunities (including Arctic ice melt) for international trade routes			

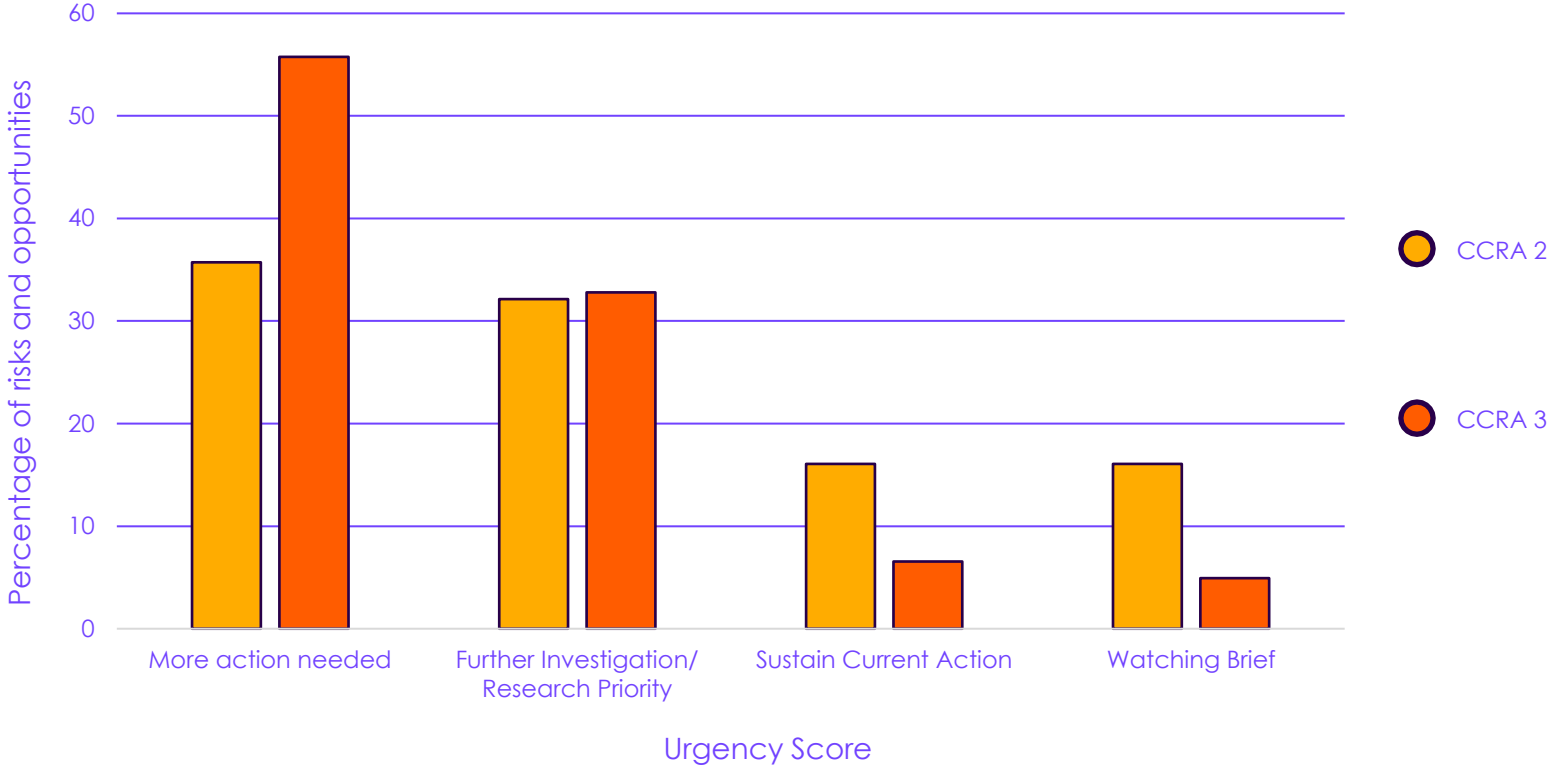
More Action Needed

Further Investigation

Sustain Current Action, Watching Brief

Independent Assessment of UK Climate Risk

The level of urgency of adaptation has increased over the last five years



Source
CCC Analysis

Independent Assessment of UK Climate Risk

Highest priorities for further adaptation in the next two years

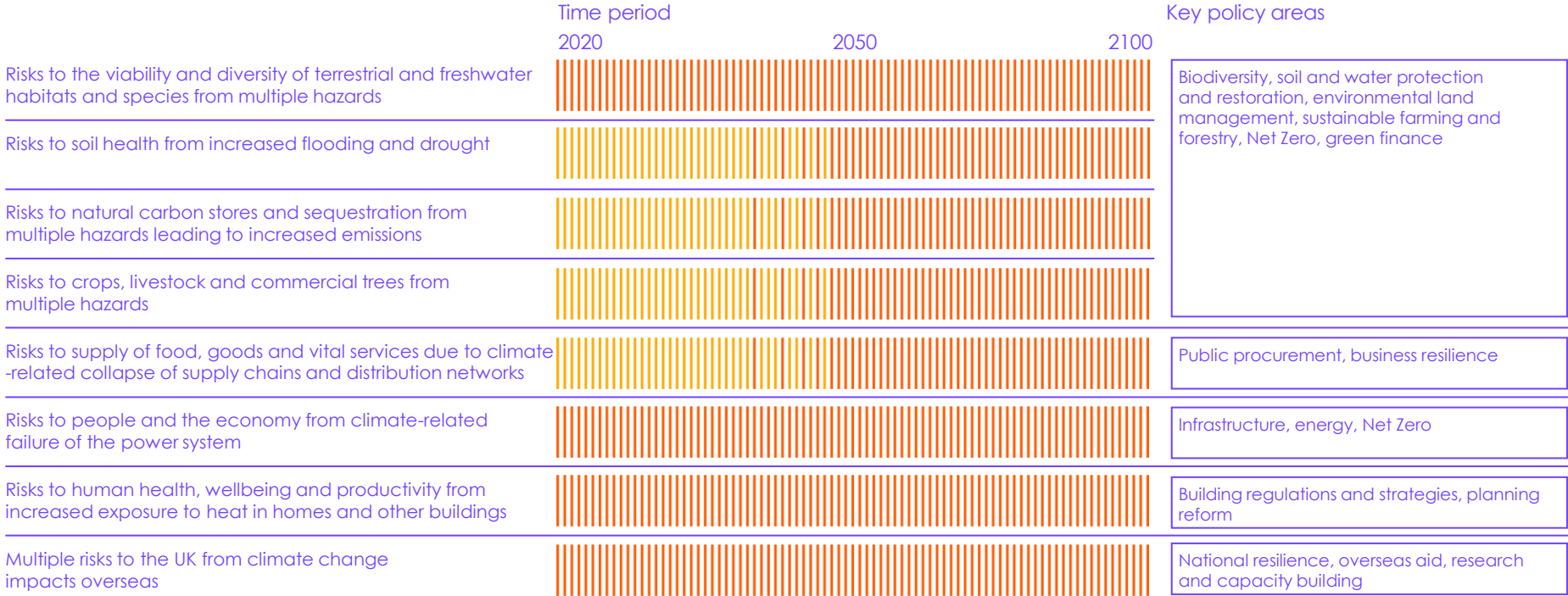
Magnitude of risk



High

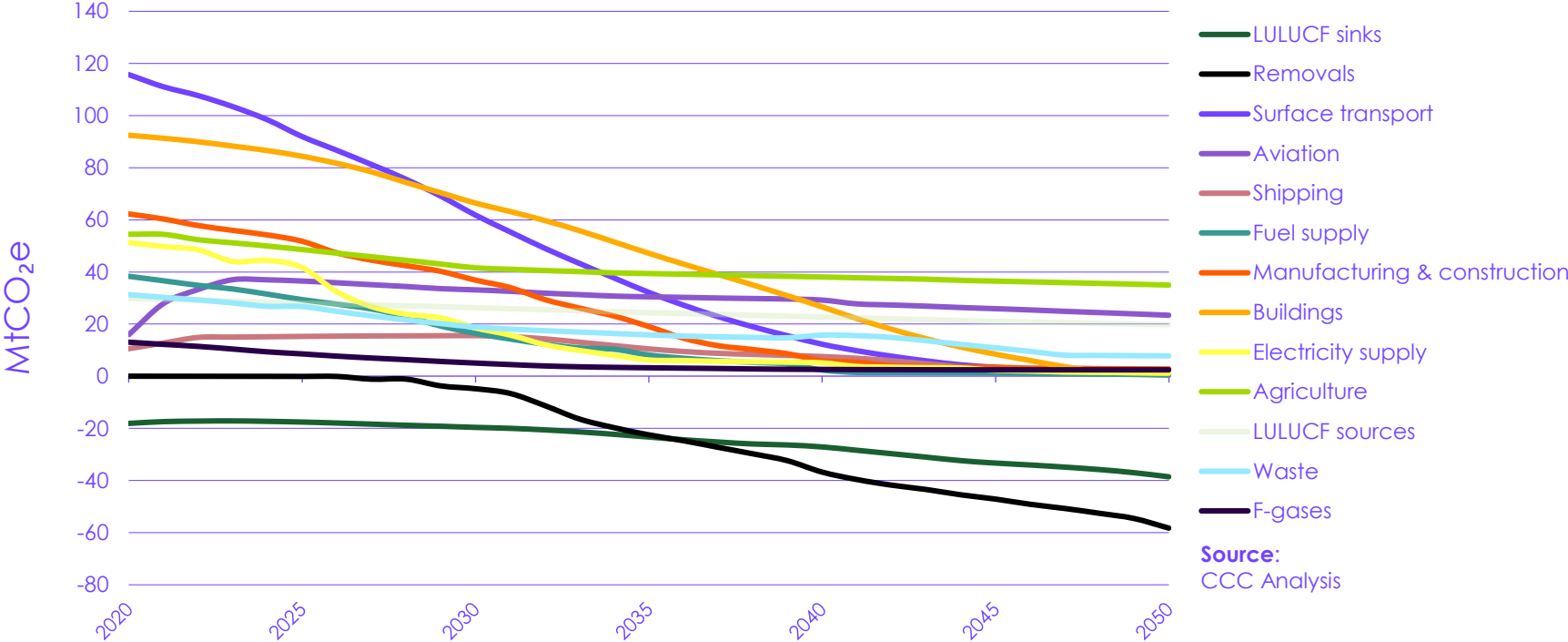


Medium



Delivering Net Zero

Sectoral contribution to meeting Net Zero UK



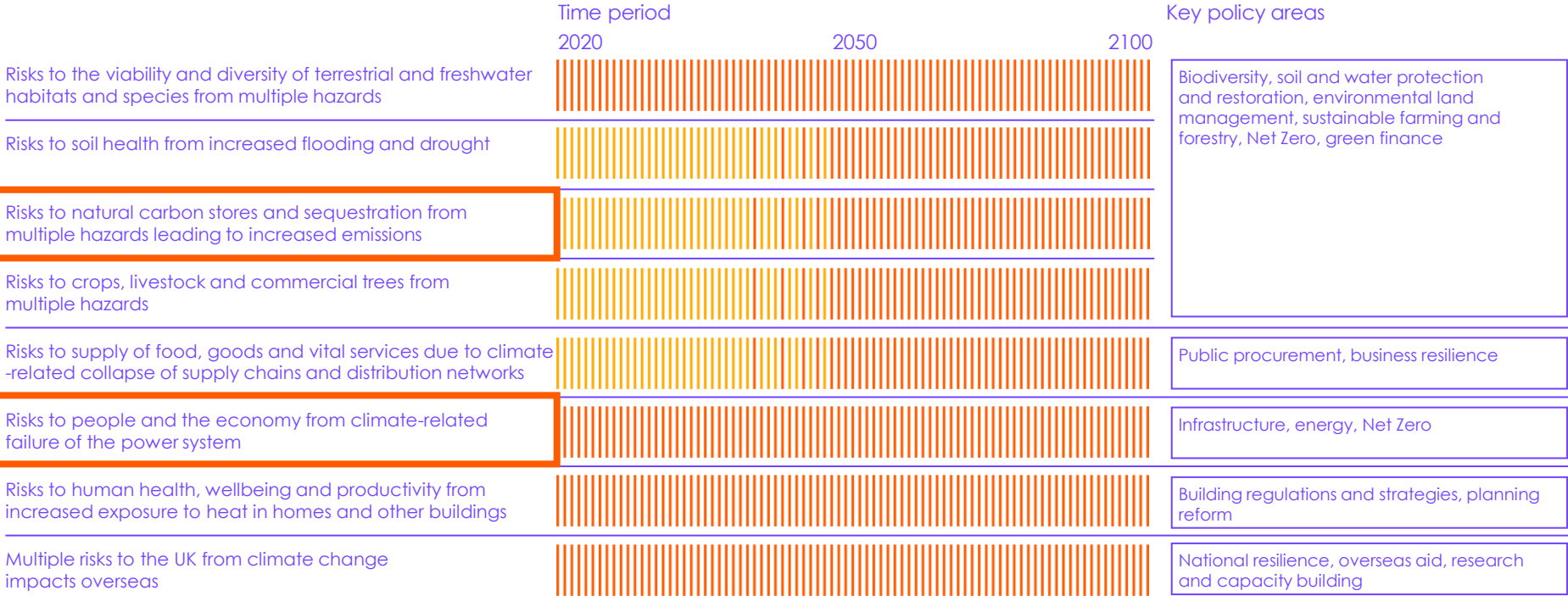
Source:
CCC Analysis

Independent Assessment of UK Climate Risk

Highest priorities for further adaptation in the next two years

Magnitude of risk

 High  Medium



Climate risks to delivering Net Zero

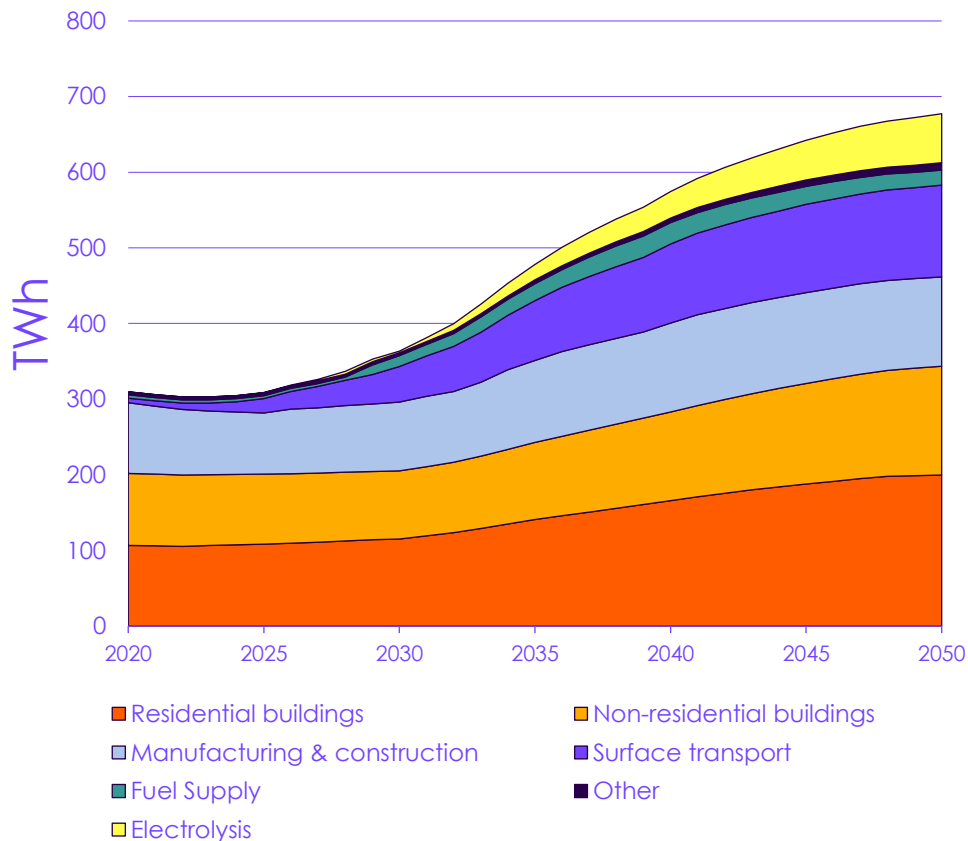
The power system and cascading risks

Decarbonisation is fundamentally changing the role of electricity in our economy:

- Electricity will provide energy for transport, heating, lighting, cooking, and critical services such as communication, water and industrial output
- Electricity demand is expected to more than double by 2050 to meet Net Zero

It will be critical to maintain this system's function despite a changing UK climate:

- Generation will be dominated by more weather dependent sources (e.g. offshore wind) & electricity infrastructure is impacted by many major climate risks
- Failures of electricity infrastructure can have cascading effects



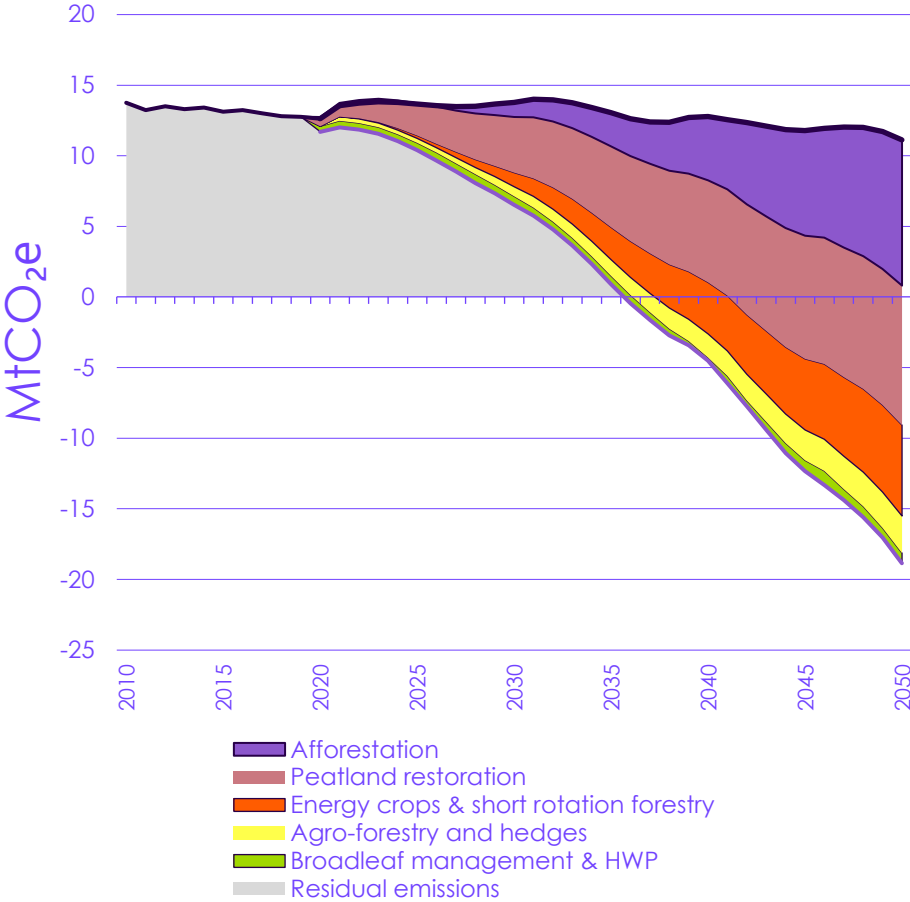
Climate risks to delivering Net Zero

Soils, carbon stores and crops

- Net Zero needs negative emissions from nature:
~20 Mt of net removals by 2050

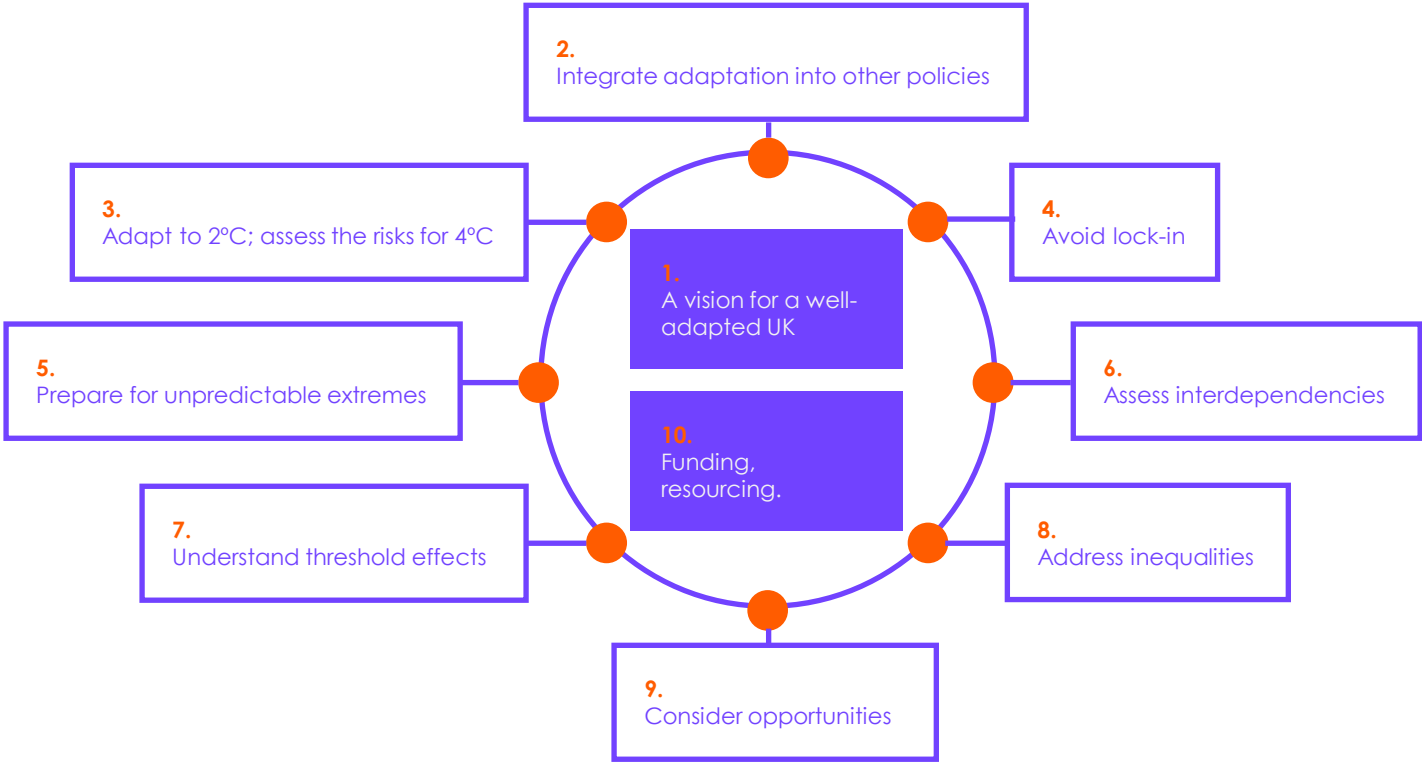
Achieving this will require the changing climate to be taken account of:

- Soils are increasingly impacted by climate including flooding and drought
- Degraded peat is emitting increasing amounts of CO₂
- Wetlands are being lost to coastal flooding and impacted by drought
- Trees are suffering from drought, heat, fire, wind, new pests and diseases



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Principles for effective adaptation



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