




Climate Change Adaptation

Policy Position Statement



This Policy Position Statement (PPS) sets out the position of the Chartered Institution of Water and Environmental Management (CIWEM) on climate change adaptation. It presents priorities for adaptation and considers the framework needed to deliver meaningful progress in light of recent evidence and assessments.

CIWEM is the leading independent Chartered professional body for water and environmental professionals, promoting excellence within the sector.

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Note: CIWEM Policy Position Statements (PPS) represent the Institution’s views on issues at a point in time. It is accepted that situations change as research provides new evidence. It should be understood, therefore, that CIWEM PPSs are under constant review and that previously held views may alter and lead to revised PPSs. PPSs are produced as a consensus report and do not represent the view of individual members of CIWEM.

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CIWEM considers

1. We need to adapt and decarbonise at a much faster rate.

Greenhouse gas emissions to date mean that effective climate change adaptation strategies are vital alongside efforts at mitigation. Climate change is happening now and its impacts being felt increasingly severely. Following COP26 the world is on course for average heating of around 2.4°C. Whilst this is less than the 3-4°C when the UK began its pre-COP diplomacy, it is still way above what we need to achieve and emphasises the pressing urgency of both more ambitious decarbonisation and concerted adaptation.

We are locked into a certain amount of change, regardless of the success in achieving net zero or even net negative emissions. Recent evidence¹ and events such as the North American heat dome illustrate that adapting to this change is essential to the functioning of social, economic, and environmental systems even in the present, and that the pace of delivery is way behind where it needs to be. The Climate Change Risk Assessment² emphasises early adaptation to climate risks is highly cost-beneficial because small changes in average temperature can drive large shifts in extreme events. But the latest IPCC report³ warns adaptation will only have value with sufficient decarbonisation, with a rapidly closing window to achieve that.

2. The Climate Change Act is not being used to drive effective adaptation.

The framework put in place by the Climate Change Act 2008 to monitor and report on adaptation in the UK is world leading and robust. However, this framework is not being deployed effectively or the powers established by the Act utilised when they are sorely needed.

The Adaptation Reporting Power (ARP) submissions do not align with the timetable for preparation of the Climate Change Risk Assessment (CCRA), and therefore the submissions do not inform the CCRA as they should. The ARP submissions should finish in the year before evidence gathering for the CCRA begins. The National Adaptation Programme should then be the final strategic government response of the cycle.

3. Government must consider mandating certain sectors of the economy to report on their adaptation planning, reflecting the urgent risks identified in the recent Independent Assessment of UK Climate Risk.

Engagement with reporting during the second round was still too low given the gap between risk and adaptation policy and action. The voluntary approach appears not to be driving all the necessary sectors to assess and report their understanding and preparedness. The level of response to the third reporting round will be instructive on how engaged wider society is with adaptation and Government must act decisively should engagement still be lower than the optimum.

¹ Climate Change Committee. [Independent assessment of UK climate risk](#). June 2021

² HM Government. [UK Climate Change Risk Assessment 2022](#). January 2022

³ IPCC. [Climate Change 2022: Impacts, Adaptation and Vulnerability](#). February 2022

4. The UK Government's National Adaptation Programme (NAP) must become more focused on prioritising action and driving rapid progress in specific high risk areas.

It must identify where little action is being taken and recommend SMART actions (policy, regulatory or operational) to address the priority gaps. Hitherto, it has not been produced in this way, has been ineffective and a significant contributor to the large gap between climate change risk and meaningful adaptation. The next NAP must properly zero in on the priority areas for change across society and economy and ensure that the appropriate parts of Government are fully aware and engaged with what must be done to deliver a step-change in progress.

5. Government policies must embrace and enable change so that we can adapt effectively.

Too often policy maintains a slightly adjusted version of the status quo when more fundamental change is required. It's important that policies accept that significant change is going to happen to a wide range of natural systems and plan to be positively adaptable to both opportunities as well as risks. Adaptive planning is critical to enabling this. It is increasingly being utilised in relation to activities such as flood risk management, but should be employed far more widely across the economy.

6. Reporting under the Taskforce on Climate-related Financial Disclosures (TCFD) should consider and reflect adaptation and resilience

Publicly listed companies and suppliers of essential services reporting under TCFD should assess their risks from climate change and report on their plans and action to adapt and manage them as part of business continuity planning, in line with the government's roadmap on implementing the recommendations of the TCFD. Small and medium sized businesses must be supported with freely available advice to enable them to plan for their exposure to current extreme weather.

7. The Government should work with the insurance industry to ensure that market-based incentives exist to build climate resilience and actively drive betterment when insurance claims are settled, as well as with other finance institutions such as banks, mortgage providers and brokers.

8. Climate impact research should consider the specific needs of, and engage with, those delivering adaptation as well as improving the scientific projections of climate change.

Context

Climate change mitigation seeks to limit the extent of climate change, primarily by reducing global greenhouse gas emissions. Climate change adaptation aims to reduce vulnerability to the impacts of climate change that are already happening and those which are likely to occur in future at a local scale. The Intergovernmental Panel on Climate Change (IPCC) defines adaptation as:

*“adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderate harm or exploit beneficial opportunities”.*⁴

Adaptation is essential to the functioning of social, economic, and environmental systems. We are locked into a certain amount of climate change, regardless of global decarbonisation efforts and we are already experiencing observed changes in our climate, which are only predicted to increase over the coming years and decades.

Planned adaptation is cheaper, more effective and stimulates enterprise for adaptation goods and services. This requires an awareness of future change and a planning and regulatory environment that promotes adaptation. In developing countries adaptation and development should be tackled at the same time, ensuring that future resilience is built into development and growth plans.

Meeting the Paris Agreement target of limiting global temperature change to “well below 2 degrees, preferably 1.5 degrees (above pre-industrial levels)”⁵ – commitment to the level of which was not agreed at COP26 in November 2021 – means we will still need to adapt to significant changes to our climate. Achieving our net zero target by 2050 will not mean avoiding the impacts of climate change and the need to adapt to these. We must integrate adaptation and net zero pathways and we should be planning to adapt to a world that is 3°C or even 4°C warmer until such time as Nationally Determined Contributions and evidence of translation of commitments into policy indicate that that this likelihood is remote.

A well-adapting UK would be one where buildings, places, people, and infrastructure are resilient to extreme weather and prepared for future changes.

Communities would be able to cope with the impacts of climate change and extreme weather, and the natural environment would be able to accommodate change. This will be achieved through actions which maintain the overall stock of natural capital, and functionality of natural systems in the face of undoubted change and uncertainty due to climate change.

CIWEM considers that a significant barrier to effective adaptation is lack of engagement of the public and decision-makers, resulting in limited awareness of the risks facing infrastructure, businesses, and communities, the extent of the changes we face, and the relevance of their actions to the extent of climate change and the need to adapt.

⁴ Intergovernmental Panel on Climate Change [Glossary](#)

⁵ UNFCCC. [The Paris Agreement](#). 2015.

The coronavirus pandemic has demonstrated, though, that we can adapt very quickly to threats once there is an understanding of the risks faced and what a response should look like.

Although the onus for adaptation is more heavily borne by organisations, such as infrastructure operators and service providers, than the public, better communication of these risks, coupled with accessible advice on appropriate actions, would drive public engagement in adaptation.

It is often only once the impacts of climate change are being felt – usually in the form of extreme weather – that the public become engaged and understand the need for investment. Whilst the UK is showing leadership on decarbonisation, it is not matching that leadership on adaptation, where it is urgently needed.

Global risks from a changing climate

Climate projections under a range of scenarios from the IPCC help identify areas where immediate adaptation is needed and where the pathways for longer-term action are⁶.

The consequences of climate change around the world include impacts on weather and the increased likelihood of more frequent extreme events such as hurricanes, wildfires, and landslides, as well as slower processes like desertification, erosion, and ocean acidification. These will impact on human populations through the immediate danger of extreme events and the risks from increased water scarcity and food insecurity.

Adaptation is one of the major responses for addressing climate change under the United Nations Framework Convention on Climate Change (UNFCCC). All parties are to implement and regularly update national and, where appropriate, regional programmes to facilitate adequate adaptation to climate change. Established in 2010 under the Cancun Agreements, 194 countries set up the Adaptation Committee to promote enhanced global action on adaptation.

⁶ Intergovernmental Panel on Climate Change. [Fifth Assessment Report](#). 2014.

Climate adaptation in the UK

Flood risk

The CCC lists flooding as one of the greatest climate risks for the UK, both now and in the future, and the CCRA Evidence Report shows that not enough is being done to prepare for the impacts.

Over 5.2 million homes and businesses in England are currently at risk from flooding, according to the Environment Agency⁷, and for every household directly affected during a large flood, about 16 people suffer knock-on effects from losses of utility services. Three successive storms in February 2020 resulted in thousands of households being flooded, as well as widespread travel disruption and large swathes of agricultural land being inundated. A new Flood and Coastal Erosion Risk Management (FCERM) Strategy for England⁸ was published subsequently alongside a new FCERM policy statement⁹ by Government.

Coastal communities and infrastructure are already at risk from flooding and coastal erosion, and this is set to worsen. Rising sea levels caused by a warming climate will increase rates of coastal erosion and make coastal floods more frequent. The CCC warn that England will have to adapt to at least 1m of sea level rise by 2100¹⁰.



Water supply

Changing rainfall patterns and increased evapotranspiration, coupled with population growth, are projected to lead to water demand exceeding the available supply across large areas of England and some other parts of the UK by the 2050s in some scenarios¹¹.

The economic impact of potential restrictions on water use for customers can be estimated. For example, Severn Trent Water calculated that the economic impact on Birmingham of no piped water would be £35m per day. This analysis was used as part of the business planning cycle in the company's submission to Ofwat for 2015-2020. Defra has estimated that the reduction in turnover as a result of the 2012 drought was around £70 million in England¹².



Temperature extremes

The number of heat-related deaths is projected to increase, from 2,000 per year currently to 7,000 per year by the 2050s¹³, as hot, dry summers like the one we experienced in 2018 in the UK are set to become the norm by 2050, according to Met Office projections.

Action is needed to begin to adapt the built environment, so that homes and other buildings can be comfortable and safe in higher temperatures, and not enough progress is happening in this area.

Returning lost green space would assist in reducing the urban heat island effect, alongside many other beneficial outcomes. There may also be a counter to this from the reduction in cold winter deaths.

¹¹ CCC. [Climate Change Risk Assessment Evidence Report](#). 2017.

¹² Defra. [The Impact of drought in England](#). 2013.

¹³ Environmental Audit Committee. [Heatwaves: Adapting to climate change](#). 2018.

Habitats and species

Adapting habitats and biodiversity for climate change is another vital issue. Climate change will outpace many species' ability to adapt, leading to problems such as habitat fragmentation.

Adopting an ecological network approach will help assist migration. The ecological network approach helps to link, not just protected sites, but also the wider countryside, much of which is predominantly agricultural in the UK. This helps to reduce the ecological isolation of small, fragmented populations, which may be particularly vulnerable to extreme climatic events such as droughts or flooding¹⁴.

Such networks may be the only way for species with limited mobility to reach potential new locations, although there could be risks from invasive species, pests, and diseases. Nature Recovery Networks and the development of Local Nature Recovery Strategies¹⁵ will be an important driver of this kind of adaptation.

Agriculture

Some of the most productive agricultural land in England is at risk of becoming unprofitable within a generation due to soil erosion and the loss of organic carbon¹⁶. CIWEM supports the CCC recommendation of publishing an action plan to reverse the on-going loss of lowland peat soils to be developed in partnership with the farming sector.

Following Britain's exit from the European Union, agricultural policy is being developed and delivered through the Environmental Land Management Scheme, which recognises a range of public benefits which agricultural subsidy should pay for. Amongst these is climate change mitigation and adaptation.

The ELM scheme will be delivered through three tiered approaches reflecting increasing levels of environmental or other public good delivery. The Climate Change Committee has advised government that adaptation should underpin every such outcome because they are all, themselves, at risk from climate change¹⁷. The ELM tiers are being tested at the moment and it remains to be seen how effectively adaptation measures.

Legislation and regulation

Increasingly, the need to mitigate and adapt to the impacts of climate change is recognised in important relevant legislation and regulations, such as the National Planning Policy Framework¹⁸. However, the most powerful provisions on climate adaptation are set out and originate from the Climate Change Act¹⁹.

¹⁴ Natural England. Climate Change Adaptation Manual. 2015.

¹⁵ Natural England. [Shaping the future of Nature Recovery: Developing Local Nature Recovery Strategies](#). August 2021

¹⁶ CIWEM. [Protecting and enhancing soils: Policy position statement](#). 2019.

¹⁷ CCC. [Letter: Environmental Land Management \(ELM\) Scheme](#). 2020.

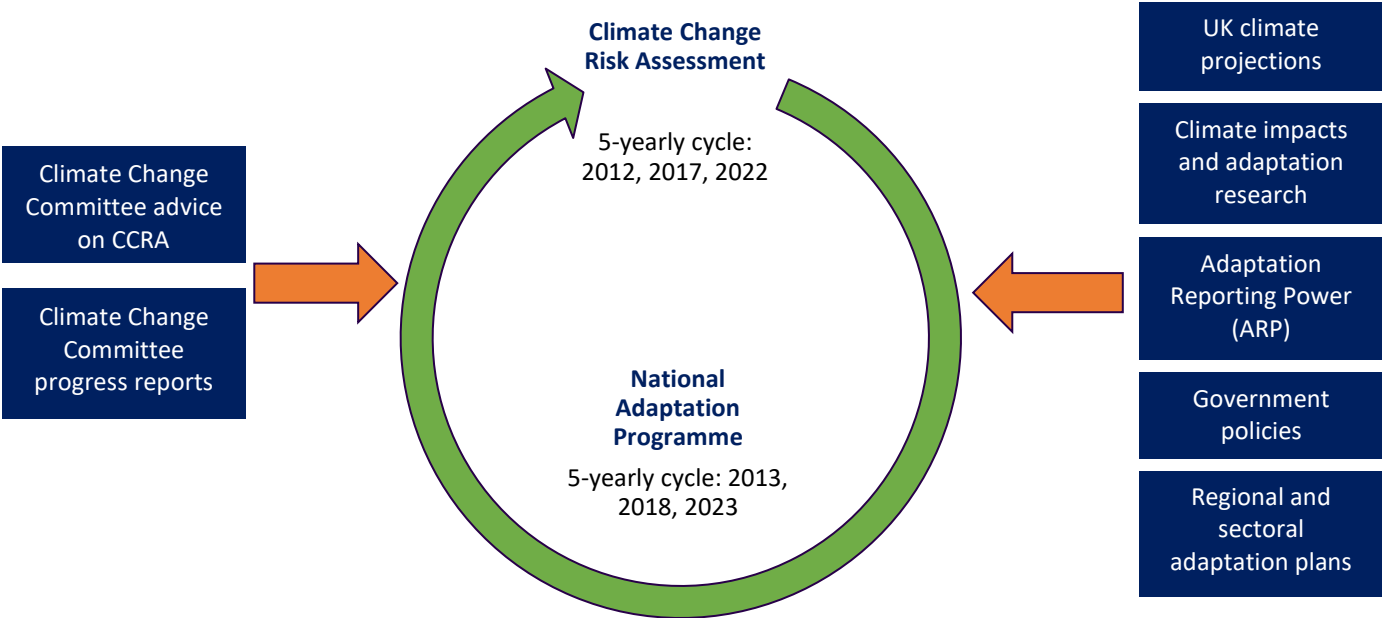
¹⁸ MHCLG. [National Planning Policy Framework](#). 2021.

¹⁹ HM Government. [Climate Change Act](#). 2008.

The Act is most widely associated with the establishment of legally binding carbon budgets to help drive down the UK’s carbon emissions. However, the Act also sets the requirements for adaptation through the Climate Change Risk Assessment (CCRA), the National Adaptation Programme (NAP) and the Adaptation Reporting Power (ARP). It established the independent Climate Change Committee (CCC) and the Adaptation Sub-Committee (ASC) to provide advice to the UK Government and Devolved Administrations on adaptation priorities.

The Climate Change (Scotland) Act 2009 provides for the Scottish Climate Change Adaptation Programme (SCCAP). The Welsh Assembly Government has a Climate Change Strategy²⁰ and publishes an Adaptation Framework, as well as an Adaptation Delivery Plan, setting out how the framework will be delivered. Under the provisions of the UK Climate Change Act, Northern Ireland Departments must lay the Northern Ireland Climate Change Adaptation Programme (NICCAP) before the Northern Ireland Assembly.

Adaptation governance in the Climate Change Act



Adapted from Climate Change Committee infographic

Climate Change Risk Assessment (CCRA)

To better understand the risks of climate change, the Government, led by Defra, publishes the UK Climate Change Risk Assessment (CCRA) every five years, starting in 2012. Supported by an Evidence Report produced by the Climate Change Committee (CCC), the CCRA is a requirement of the Climate Change Act which stipulates that the Government must assess the risks for the United Kingdom from the current and predicted impacts of climate change.

Adaptation reporting power (ARP)

The Act established the adaptation reporting power to report on the likely impact of climate change on the UK. It places a duty on the Secretary of State to require authorities with a

²⁰ Welsh Government. [Climate Change Strategy for Wales](#). 2011.

public role and/or statutory undertakers to prepare reports on the impacts of climate change on their organisation and their proposals for adaptation. This operates on a five-yearly cycle, with the Government setting the framework for the next cycle of ARP reporting alongside the publication of each NAP report.

The adaptation reporting power as set out in the Climate Change Act is not delivering the same outcomes in preparing for climate change as the provisions in the Act for decarbonisation.

Climate change impacts are increasing, however the approach required under the Act by government to driving forward adaptation “has not delivered the necessary improved resilience to the changing climate as was intended under the UK Climate Change Act.”²¹

Analysis of previous rounds of ARP submissions show that certain sectors have good adaptation plans with a summary of the risks faced, such as water and infrastructure, but no sector is showing good progress in reducing those risks²². Most reports described the nature of risks well but did not build a picture of climate risks or opportunities at national, regional or sector level. Much more can and must be done to identify and prioritise the key actions in ARP submissions.

Since the first round of reporting in 2012, there has been no net growth in reporting, and some 23% of organisations which reported in the first round did not go on to report in the second cycle²³. Defra has been engaging actively across sectors during the third reporting round to try to increase engagement. There have been some obvious gaps in organisations that do not report, such as Local Authorities, who are responsible for managing the risk from local flooding – one of the biggest risks faced by the UK – and telecommunications.

Should there not be a significant increase in reporting by organisations hitherto not well-engaged, we consider that ARP submissions should be made mandatory for all public bodies. This would demonstrate the UK’s global leadership in this sphere, as well as ensuring systemic climate change risk management. A better understanding of the risks faced would also enable better solutions. The ARP process should be at the heart of a better adaptation cycle in the UK, mimicking the good progress with emissions reductions.

The framework put in place by the Climate Change Act to monitor and report on adaptation in the UK is world-leading, however it will only be a success if the component parts work coherently together. The ARP submission cycle is not aligned with the CCRA cycle as submissions are made after the evidence presented by the CCC to government to inform the risk assessment, which is a huge missed opportunity. The submissions are a key source of evidence for the CCRA Evidence Report, as well as the CCC progress reports to Parliament. Setting the deadline for ARP submissions for two years ahead of the CCRA being presented to Parliament would lead to better scrutiny of submissions, and a better understanding of risk.

²¹ Committee on Climate Change. [Progress in Adapting to Climate Change: 2021 Report to Parliament](#). 2021.

²² Committee on Climate Change. [Adaptation Reporting Power: second round review](#). 2017.

²³ Committee on Climate Change. [Adaptation Reporting Power: second round review](#). 2017.

National Adaptation Programme (NAP)

The NAP is required to put in place objectives, proposals, and policies to address the risks and opportunities highlighted by the CCRA, which was most recently updated in 2017 and is next due to be published in 2023. The NAP is intended to set out what government, businesses and society are doing to adapt to the changing climate.

The ASC is tasked under the Act to assess every two years the progress being made by the NAP, and they have consistently criticised the Government for not acting on adaptation enough or using the NAP to drive forward strategic adaptation priorities in a planned and coordinated way.

The most recent progress report in 2019 stated that the NAP has failed to deliver the necessary improvement in resilience intended under the Climate Change Act²⁴. It notes that rather than driving even modest improvement, *“the gap between future levels of risk and planned adaptation has widened in the last 5 years”* illustrating the urgent need to radically improve the priority and strategic planning of adaptation activity.

A highly co-ordinated and strategically focused NAP is therefore vital, as planned adaptation is cheaper and more effective than reactive, unplanned action. CIWEM considers that this will be much more effective if actions are identified as of immediate importance or more strategic for the long-term (but which may need preparatory work, such as additional research for example).

Crucially, the NAP should not plan adaptation measures to maintain the status quo but must recognise that change is inevitable over coming decades given the nature of climate risks. It should therefore seek to adapt to potentially rapidly changing natural systems. Recently there has been growing emphasis on adaptive planning approaches, to navigate uncertainty associated with climate change emissions trajectories but enable planning and action to progress. This has mainly been seen in relation to flood risk management but is increasingly recognised in other contexts, which is welcome. It is important that the NAP seeks to address the detailed advice contained in the CCC’s CCRA Evidence Reports in a planned and targeted way.

Such an approach should ensure that the NAP is considerably more than a lengthy compendium of existing, planned or aspired to future activities, as it has been to date. It should be designed as a continual improvement programme, which analyses gaps in the existing programme to identify areas for improvement. It should set out policies and take a systems approach that makes a meaningful difference to the effectiveness of delivery.



²⁴ Climate Change Committee. [Progress in preparing for climate change, 2021 report to Parliament](#). 2021.

Interdependencies across sectors are one of the priority areas for developing methods for assessing and addressing interacting risks. The National Infrastructure Commission report on resilient infrastructure systems explores this in depth²⁵. A consideration of risks through the value chain is also vital, exploring how organisations are exposed to risk through the supply chain, and what measures can be taken to increase resilience.

Importantly, the NAP should be effective across government, driving and tracking actions in various appropriate departments. It should also have clearer mechanisms to track progress. It should set clear priorities for adaptation, include measurable objectives that can be monitored and evaluated, and focus on the core set of policies and actions that will deliver the most benefit over its timeframe. Fundamentally, the NAP must be a forward- looking driver of additional action rather than a statement of what is already planned or in train.



²⁵ National Infrastructure Commission. [Anticipate, React, Recover: Resilient infrastructure systems](#). 2020.

Key issues about adaptation

Investment decision-making

The Government must establish quickly and clearly how the priorities set out by the Climate Change Committee in its 2021 assessment of climate risk²⁶ will be delivered locally, whilst establishing appropriate policies centrally. Low-cost and low-risk adaptation measures should be sought first, and should recognise that many options may deliver multiple benefits, beyond climate change adaptation.

The Environment Agency's Long Term Investment Scenarios are a good example of calculating the economics of risk reduction. The LTIS show that an average investment of £1bn a year in FCERM is needed for the next 50 years²⁷. This approach should be taken forward by the Government for other types of infrastructure resilience where there are gaps in knowledge.

CIWEM considers that all future planning policy decisions should be assessed to ensure that they have considered future climate resilience, taking account of inevitable climate change and cognisant of scenarios up to 4°C of change (despite commitments made at COP26 pointing towards 2.4°C of heating these are new commitments that have not been translated into policies and action and thus have to be regarded with caution). For example, any new development should not add to the risk of flooding or urban heat island effect without adaptation measures in place.

Government should work with the insurance industry to ensure that incentives exist to build climate resilience, including the potential for householders to achieve lower premiums where at risk from climate change impacts such as flooding. Recent changes to the flood reinsurance scheme Flood Re to support this direction of travel through supporting betterment and reduced premiums where resilience measures are in place are welcome.

Business continuity planning

Businesses will have a vital role in delivering adaptation in the UK but will require strong leadership from the government and a strategic framework to work within. Regardless of the progress made in the UK, businesses import risks through their supply chains, and own risks affecting their overseas assets, particularly when they involve countries that are more vulnerable and less well-placed to adapt.

All publicly listed companies should assess their risks from climate change and report on the steps taken to reduce those risks as a part of business continuity planning. Blacksun's latest corporate reporting trends research on the FTSE 100 (The Ecosystem of Authenticity) found that 61 per cent of companies make no mention of TCFD and only 16 per cent mention climate change in the Chair/CEO statements^{28 29}. Small and medium sized businesses, with less resources are also unlikely to have a plan and should consider their exposure to current

²⁶ Climate Change Committee. [Independent assessment of UK climate risk](#). 2021

²⁷ Environment Agency. [Long term investment scenarios](#). 2019.

²⁸ Blacksun. [The Ecosystem of Authenticity](#). 2019.

²⁹ Financial Reporting Council. [Climate-related corporate reporting Where to next?](#) 2019.

extreme weather. This will help them improve their day-to-day operations and understand their potential exposure to climate change risks.

Climate data needs for adaptation

Many companies undertake adaptation investment on the basis of narrative and an understanding of a broad trajectory without the need for complex climate modelling. It is important that research councils and governments are fully aware of what the research needs are from a practitioner perspective.

In many cases there is enough data on the potential impacts of climate change in the UK to warrant development of low regret³⁰ adaptation strategies. The UK Climate Projections (UKCP) is the main source of information on past trends and future projections, most recently updated in 2018 (UKCP18). Future climate impact research should consider the specific needs of those delivering adaptation *as well as* improving the scientific projections of climate change, to make this information as widely applicable and understandable as possible.

UKCP18 only took this so far, at best, and therefore there is scope for further work to translate the new projections into clear and straightforward advice for a wide range of different practitioners, endorsed by Government. UKCP18 is world-leading climate science, but its value has not yet been fully realised as the data has not been clearly visualised or communicated in a form that resonates with non-specialists and decision makers.

In order for organisations to understand the consequences and probability of future climate change impacts, there is a need for improved climate and environmental data alongside improved guidelines for better adaptation planning.

³⁰ Low-regret actions are relatively low cost and provide relatively large benefits under predicted future climates. For example, reducing leakage from water utility infrastructure can both improve water efficiency and help address drought risk.