Policy Title:

LP23 - Climate Change Adaptation and Resilience

Existing Policies Which adopted Core Strategy or Policies Sites and Places (PSP) policy would eventually be replaced?	**New Policy**
Non-Strategic / Strategic	**Non-Strategic**

Purpose

The risks from a changing climate are wide and include flooding, coastal change, extreme temperatures and the growth in pests and diseases new to the UK. However, there can be wider social, environmental and economic benefits from tackling climate change, for example, by providing adaptation measures such as trees that provide shading and also benefit nature.

To ensure development is suitable for its lifetime use, appropriate adaptation and resilience measures should be incorporated in all development.

Policy wording

1. **The climate we experience at present is not the climate we will experience in the future. All development will need to demonstrate that its vulnerability to climate change has been taken into consideration through the provision of a climate change adaptation and resilience assessment.**

Assessment of climate risk

2. **Adaptation and resilience assessments should include an assessment of the proposal's context using the latest evidence base and climate change projections available for the lifetime of the development taking into consideration the probability and consequences of the risks and the changing level of risk over time. This assessment should:**
    a. **Identify climate change hazards; associated risks; and where present, opportunities; including but not limited to more extreme temperature, drought, rising sea levels and flooding for:**
        i. **The development and associated infrastructure.**
        ii. **Current and future occupants if known, (as specific additional considerations or measures may be appropriate to different groups).**
        iii. **Development's surroundings.**
    b. **Identify the vulnerability of the development's present and future occupants if known, and inhabitants of the proposal's surroundings.**
    c. **Identify local needs and opportunities relating to climate change impacts.**
    d. **Identify whether the development is in a location that could exacerbate climate change risks in the surrounding area.**

Informed design

3. **The assessment will feed into the design of the development, and should be used to inform as appropriate:**
    a. **Layout, form, massing and orientation of the development.**
    b. **External hard and soft landscape design.**
    c. **Building design and building integrated measures.**
    d. **Use of green and blue (and brown) infrastructure.**
4. **The strategy should demonstrate how an adaptation pathway approach has been taken to ensure the development has been designed to:**
    a. **Be resilient to climate change impacts for the lifetime of the development.**
    b. **Be adapted to risks and to take advantage of opportunities.**
    c. **Provide for the comfort, health and wellbeing of current and future occupants.**

d. Not make the surrounding area less resilient to climate change impacts, and where appropriate is designed to support identified local needs and opportunities associated with climate change.

General principles

5. The adaptation and resilience assessment should include:

a. Technical modelling and assessment of the risk of overheating in current and future climate change scenarios and demonstrate how this modelling has informed the design so that the overheating risk is minimised, and any residual risk is overcome ensuring that cooling needs are met sustainably.

b. Demonstration of how water supplies will be conserved.

c. Demonstration of how multifunctional blue and green infrastructure has been used to provide both climate adaptation (e.g. shade to indoor and outdoor spaces, reduction of surface water run-off rates, reduction of the urban heat island effect) and biodiversity benefits.

d. Demonstration of how comfort will be maintained in outdoor spaces.

e. Description of how the development is resilient to flooding and use multi-functional SuDS.

f. A description of how the development responds to other significant climate risks identified.

g. Demonstration of how the responses to climate change avoid or minimise increases to energy use and CO2 emissions.

Supporting text

1. The climate we experience at present is not the climate we will experience in the future. To ensure development needs is suitable for its lifetime use, appropriate adaptation and resilience measures should be incorporated in all development.
2. In general, the climate change impacts that are expected in the UK are:
    a. Warmer, wetter winters.
    b. Hotter, drier summers.
    c. Rising sea levels.
    d. More extreme weather events.
3. These impacts give rise to a number of hazards including, but not limited to extreme high temperatures, drought and water stress, flood events, subsidence and soil erosion; and a number of associated risks including impacts to human health, damage and degradation to the built and natural environment, increased building energy and maintenance costs or interruption to utility services.
4. The magnitude of these impacts hazards and associated risks will depend on how successful attempts to reduce greenhouse gas emissions are and how complex planetary systems respond to the changing climate.

Adaptation and resilience assessment

5. All development should undertake an adaptation and resilience assessment that is proportionate to the scale of development. Householder applications should review the current householder checklist and include this alongside their application with any adaptation and resilience measures shown on the plans (for example alterations to glazing size). For all other development the adaptation and resilience assessment should form part of the overall Energy and sustainability statement submitted with the planning application as set out in policy LPS10 - Climate change, Sustainable Design and Construction in development proposals.

Assessment of climate hazards and climate risks

6. The assessment should identify climate change related hazards and risks affecting the development over its lifetime (100 years for residential development, 60 years for non-residential). The strategy should show that the development has been designed to be resilient to the identified risks and where available, take advantage of any opportunities.
7. The assessment should take into consideration the vulnerability of the development's present and future occupants (where known), and inhabitants of the proposal's surroundings, and local needs and opportunities relating to climate change impacts. It should consider whether the development could exacerbate climate change risks in the surrounding area (such as from additional surface water run increasing flooding). Both site and building-level adaptation measures should be set out in the adaptation and resilience assessment and included on the application drawings.
8. Climate change hazards are climate-related physical events or trends, for example extreme high temperatures or extreme precipitation. Climate change risk is the potential for adverse consequences of a climate-related hazard, for example on human health,

ecosystems, or impacts on the function of the built asset or impacts on the occupants. Climate change opportunities refer to the potential for a beneficial consequence, as a result of a changing climate. Further guidance on the identification of relevant hazards, risks and opportunities will be provided in supporting guidance.

9. In assessing climate hazards, risks and opportunities over the lifetime of a development, the adaptation and resilience assessment should take account of the latest evidence base. For example, at time of writing, this includes tools such as the Good Homes Alliance Early-Stage Overheating Risk Tool checklist and evidence of risk and hazards within the UK CP18 - Climate Projections. Further information will be provided in the supporting guidance.

10. The UK Climate Change Committee has warned that expected changes to the UK climate by 2050 are largely locked in, regardless of any current pathways in place to reduce global emissions. Development proposals should reflect this level of certainty in their design and ensure development is resilient to these predicted climate conditions. Beyond this, there is a range of potential future climates that could occur, and the strategy should take an adaptation pathway approach. An adaptation pathway approach involves planning for this uncertainty, identifying thresholds and trigger points at which certain actions need to be taken. This allows for adaptation to be targeted to climate outcomes as they occur, ensuring the best allocation of resources and eventual outcomes (for example building a plant room sized to allow for future cooling needs as part of planned maintenance).

<u>Vulnerability, climate hazards and climate risks</u>

11. Certain groups are more vulnerable to the impacts of climate change including infants, elderly people, people with chronic physical and mental health conditions and people with extra care needs. These groups are particularly vulnerable to the risk of overheating and other heat-related illnesses. Where the occupants of a proposed development are more vulnerable to the impacts of climate change, the proposals should make it clear how this has been taken into account.

12. The adaptation and resilience assessment should include a checklist of site features affecting vulnerability to climate risks, including but not limited to overheating and more extreme temperatures, droughts and flooding. Reflecting this, it should demonstrate how the development will provide for the comfort, health and wellbeing of current and future occupiers and the surrounding environment over the lifetime of the development.

13. For all development except householder applications the risk of overheating within the building should be assessed using the following methodologies or future replacement standards:

    a. CIBSE TM52 for non-residential buildings.

    b. CIBSE TM59 for residential buildings.

14. The important component of the above methodology is that is undertakes an assessment of the development against future weather files, currently 2050 and 2080, as well as current weather files. This is key to understanding the lifetime climate risks of the development in relation to overheating. Where the analysis identifies 'fails' the Energy and sustainability statement should set out what mitigation measures or changes need to be made to the design to achieve a pass. Should fails be identified when applying 2080 weather files the Energy and sustainability statement will need to demonstrate that suitable provision has been made within the design to enable appropriate mitigation measures to be added in the future as part of normal maintenance and refurbishment programmes. Further detail can be found in the supporting guidance.

15. Policy for new development seeks to reduce any potential overheating and the need to cool a building through active cooling measures (currently set out in LP24 Energy Management in New Development policy). Air conditioning systems are a resource intensive form of active cooling, increasing CO^2 emissions and emitting waste heat into the surrounding area, and should therefore be avoided wherever possible. By incorporating sustainable cooling into the design process, buildings will be better equipped to manage their cooling needs and to adapt to the changing climate they will experience over their lifetime, whilst not relying on other more carbon and energy intensive means.

16. The adaptation and resilience assessment should incorporate the response to flood risk and water management required by the local plan, with specific reference to the impact of climate change over the lifetime of the development.

17. Certain adaptation measures, particularly well-designed sustainable drainage systems, urban greening and other forms of green/blue infrastructure, can contribute to the resilience of the surrounding area. The benefits of such adaptations will be taken into consideration when assessing the adaptation strategy.

Building with Nature: Green and Blue Infrastructure

18. Green and blue infrastructure can provide direct adaptation benefits, such as shading, but also has benefits beyond helping places adapt to a changing climate. It can also protect and enhance biodiversity, improve visual amenity, provide green and active travel routes, improve mental and physical health and wellbeing of individuals and local communities, provide space for food growing and improve water quality. When designing green and blue infrastructure for climate adaptation, the provision for a wide range of multifunctional benefits will be encouraged in accordance with local plan policies. Adaptation measures such as trees can for example provide shading and also benefit nature.

Flood risk and drainage

19. A summary of the approach to flood risk and drainage should be included in the adaptation and resilience assessment, with the full details included in a separate Flood Risk Assessment as set out in the relevant policy.

Additions	
Key evidence	
Other relevant policies to cross-reference?	LPS10 - Climate change, Sustainable Design and Construction LP24 - Energy Management in New Development