

ICE submission to the Environmental Audit Committee inquiry into heat resilience and sustainable cooling

August 2023

Introduction

Established in 1818 and with over 95,000 members worldwide, the Institution of Civil Engineers exists to deliver insights on infrastructure for societal benefit, using the professional engineering knowledge of our global membership.

This response has been informed by the ICE's policy position statement on how the UK's infrastructure can be made more climate resilient and response to the National Infrastructure Commission Resilience Study Scoping Report.

For more information, please contact:

Laura Cunliffe-Hall, Policy Manager, ICE
policy@ice.org.uk

To what extent do the Government's Climate Change Risk Assessment and National Adaptation Programme (as well as other related strategies such as the Net Zero Strategy and Heat and Buildings Strategy) identify and address the risks from extreme heat?

National policy and guidance, including the Government's Climate Change Risk Assessment and National Adaptation Programme, alongside related strategies, provide significantly less guidance for issues such as heat adaptation compared to flood risk. It is essential to identify further associated risks from extreme heat. Areas of risk that need to be examined include extreme heat in summer months and how the design and implementation of green infrastructure can address resultant impacts.

By analysing these risks and how they can be mitigated, measures can be put in place to meet the needs of future communities and protect the UK's critical national infrastructure. National Policy Statements should accurately reflect the challenges and prospective mitigations resulting from climate change for specific scenarios, including extreme heat, and set out requirements for necessary action. This would also support meeting the Sustainable Development Goals (SDGs) regarding resilience.¹

Alongside updated National Policy Statements, it is imperative first to understand how to better maintain the condition of existing assets to improve their future resilience to conditions such as extreme heat. There must be sufficient capacity to meet these demands during system-stress events. Further quantitative assessment can help us better understand the risks of extreme heat. Defra's consultation on the Fourth Round of the Climate Adaptation Reporting Power is focused on the proposals in the ARP4 (Adaptation Reporting Power) Strategy, due to reach Parliament following the National Adaptation Programme (NAP3) and the updated Green Finance Strategy, explores whether the ARP4 process should become mandatory.

¹ UK Government (2021) [Implementing the Sustainable Development Goals](#)

The ICE has recommended for ARP reporting be made mandatory for infrastructure operators and owners in its 2023 paper on climate resilience and adaptation.² The ARP needs to become mandatory to ensure organisations take the appropriate necessary action to improve future resilience against the impacts of climate change, such as extreme heat. However, more guidance will be needed on measuring and quantifying resilience for infrastructure owners and operators who will need to report on their assets. To ensure that this information regarding asset status is collated, shared, and fairly made available to interested parties, Defra, under the remit of the ARP, should have the authority to oversee standards of protection for key infrastructure that would be relevant at a systems level and to address concerns around data-sharing by providing equal access. This would ensure that owners and operators have the information they need on the level of resilience of infrastructure their assets depend on to support investment decisions and minimise future overheating.

A systems-thinking approach to protecting infrastructure and public users from extreme heat impacts is required. It must be demonstrated across key government strategy documents as infrastructure operates as a 'system of systems'. Infrastructure owners and operators must better understand the other networks and systems they are dependent on and interdependent with. Increasingly a failure in one sector will impact another. The National Infrastructure Commission (NIC) has previously recommended that individual operators develop long-term resilience strategies which take these interdependencies into account.³

Clear and consistent standards, alongside regular stress tests, will no doubt support this; however, the importance of resilience must be more deeply embedded in strategies and also processes used by decision-makers – such as the planning system.

Does the current planning framework do enough to encourage heat resilience measures such as cooling shelters, water bodies, green infrastructure and shading to be integrated into urban planning? Where such measures are incorporated, how accessible and successful are they?

Currently, it is not clear how the planning and regulatory framework which sets out the parameters for funding infrastructure investments values resilience in relation to heat.

The Local Plan process works to track and analyse feedback from local people in developing a holistic overview of their area's future. It provides a framework for housing needs and other economic, social, and environmental priorities. Adaptation and resilience must be critical considerations for councils and communities shaping future Local Plans. In particular, climate policies relating to furthering resilience and adaptation must be embedded within policy narratives of Local Plans. This can be mandated by placing a statutory responsibility on local authorities to consider climate adaptation in the development and growth of their communities and local areas within their Local Plans.

Future planning reforms should require all planning bodies to ensure that all new and existing infrastructure developments are climate-adaptive. Some local authorities, such as Bristol City Council, have already started considering heat resilience and adaptation in their local planning. The Council has developed a Keep Bristol Cool mapping tool, including a Heat Vulnerability Index, for council officers and other policymakers and practitioners in the area, such as urban designers, landscape architects, or emergency planners, to explore how current heat vulnerability varies across different neighbourhoods and how climate change may increase temperatures in the future.⁴

The tool gives insights into how urban heat risks vary across the city and within communities. It successfully identifies the areas where high temperatures and heatwaves could have the most significant impact on people's health and well-being.

² ICE (2023) [ICE policy position statement: how can the UK's infrastructure system be made more climate resilient?](#)

³ NIC (2020) [Anticipate, React, Recover: Resilient Infrastructure Systems](#)

⁴ Bristol City Council (2023) [Keep Bristol Cool](#)

Significant changes to the National Planning Policy Framework (NPPF) are also needed, including providing planning authorities with the power to prioritise the Climate Change Act in planning policy over developer viability and removing competition between climate mitigation and adaptation criteria and other planning contributions. A legal duty that ties planning to net zero goals and climate adaptation should be considered to ensure that energy infrastructure is fit for both climate mitigation and adaptation purposes.

Local planning authorities should set out clear expectations for the information they require from applicants on heat impacts and ensure that this information is accessible to all. No new development that exacerbates existing climate risks, including overheating should be permitted. Local governments must be able to assume accountability for the resilience of the infrastructure within the communities they serve. This would be achieved by providing local governments with a statutory responsibility to consider climate adaptation, specifically heat-related, in the development and growth of their communities and local areas through Local Plans.

How effectively is the Government working across departments and with local authorities to ensure a coordinated approach is taken to heat resilience?

Heat-related death could cost the economy £323 million a year by 2050, with some estimates as high as £9.9 billion.⁵ A more coordinated approach across government departments, working in partnership with local authorities, is required to combat extreme heat.

There is a lack of data on interdependencies, both locally and nationally, that could be used to develop more realistic models for cascades of failure across systems. The data on climate risks to specific infrastructure and their level of resilience to these is currently very limited. However, the international Task Force on Climate Related Financial Disclosures (TCFD) standard for reporting is due to become mandatory in the UK. This should increase information on risks to specific assets in the private sector, at least from the perspectives of auditors and regulators.

Currently, the TCFD is focused on risk rather than adaptation. For over a decade, there have been calls for improved data, including interdependencies and increased funding for climate-adaptive or resilient infrastructure. Even if mandatory Adaptation Reporting Powers and TCFD reporting are in place, problems will likely continue to impact the gathering and analysis of private sector data for the foreseeable future. The ICE has previously identified that the lack of a systems-thinking approach within the built environment sector to resilience is an issue that must be addressed.⁶ Individual infrastructure assets do not exist in isolation and, to a higher or lesser degree, should be considered interdependent. An improved understanding of these interdependencies would also ensure a more coordinated approach to heat resilience.

Local government has a key role to play in supporting climate-adaptive infrastructure and encouraging heat resilience measures. It is important that long-term strategic and local development plans focus on adaptation measures and that local government leadership makes this an organisational priority.⁷

The NIC has called for regulators to engage more with devolved administrations, Metro Mayors, local government, utility companies, consumer groups, elected representatives, and members of the public – and take their views into account in strategic decision-making, including investment.⁸ Communities must be placed at the heart of the decisions that shape the future of their local areas and protect them from the impacts of future heatwaves.

⁵ Climate Change Committee (2019) [Heat and Preventable Deaths in the Health and Social Care System](#)

⁶ ICE (2020) [ICE Response to the National Infrastructure Commission Resilience Study Scoping Report](#)

⁷ Town and Country Planning Association & Royal Town Planning Institute (2023) [The Climate Crisis: A Guide for Local Authorities on Planning for Climate Change](#)

⁸ National Infrastructure Commission (2019) [Strategic Investment and Public Confidence](#)

Does the UK need a dedicated Heat Resilience Strategy? What lessons can be learned from other nations when it comes to national strategies for heat resilience?

While extreme heat is still a relatively new challenge for the UK, it will continue to have significant impacts on the operation and utilisation of UK infrastructure systems. The UK is also not currently prepared for the intensity and frequency of more regular heatwaves in the future.

The international standard ISO 14090 'Adaptation to climate change – Principles, requirements and guidelines' provides a high-level framework that addresses key considerations, including adaptation plans and integration into existing policies and strategies, and can therefore set out best practice when it comes to developing strategies relating to heat resilience.⁹ ISO 14090 was the first international standard to specifically relate to climate change adaptation, and its application is intended to be alongside other organizational priorities.¹⁰ It states that its "approach is relevant to all sizes and types of organizations where their activities, products, and services might be threatened by, or in some cases able to take advantage of, climate change." The application of ISO 14090 can influence future national strategies for heat resilience and ensure consistency when it comes to implementation.

The UK would benefit from developing a dedicated Heat Resilience Strategy to protect from the severity of future heatwaves. In 2003, the government introduced a Heatwave Plan for England following extreme temperatures,¹¹ which resulted in more than 2,000 domestic deaths and killed more than 70,000 across Europe. However, this plan failed to prevent the deaths of members of the public and did also not account for impacts on private homes and wider infrastructure systems. While the third National Adaptation Programme (NAP3) recently announced that government will establish a new, cross-departmental Climate Resilience Board to oversee cross-cutting climate adaptation issues (this responsibility that currently sits with the Department for the Environment, Food, and Rural Affairs (Defra)), a designated strategy focused on heat specifically is still required. Responsibility for climate resilience and adaptation needs to extend across the whole government, and NAP3 failed to provide sufficient detail relating to adapting infrastructure and buildings to extreme heat.

Government must provide a firm commitment to make reporting on climate risks, impacts, and adaptation plans mandatory for infrastructure owners and operators (it is currently under review whether to do so by 2024-25.) Providing certainty about future requirements now would encourage more organisations to start reporting ahead of time. This should be mandated within a Heat Resilience Strategy to ensure that UK infrastructure is adequately prepared for climate change.¹²

⁹ ISO (2019), ISO 14090:2019, [Adaptation to Climate Change – Principles, requirements and guidelines, International Organization for Standardization.](#)

¹⁰ IMechE (2023) [Adapting Industry to Withstand Rising Temperatures and Future Heatwaves](#)

¹¹ NHS (2003) [Heatwave Plan for England](#)

¹² ICE (2023) [5 things the UK's new climate adaptation plan means for infrastructure resilience](#)