

Climate Change and Minerals Planning

- Overview

Summary

- Declaration of 'climate emergencies' by local authorities has raised the profile of climate change in local authority decision making, including planning;
- Increasingly, proposals (planning applications) for minerals development are likely to be required to demonstrate how climate change mitigation and adaptation has been taken into account, to accord with national and local planning policy. This may include:
 - Assessing and forecasting greenhouse gas emissions and measures to reduce/minimise these associated with site development (extraction and processing), and with transport of materials;
 - Consideration of downstream/'Scope 3' emissions and their significance in Environmental Assessments, including scoping, where there is a causative link that is capable of assessment between the project and the use of the materials;
 - Ensuring sites and facilities are resilient to impacts of climate change (especially intense rainfall and flooding and periods of drought), and do not increase vulnerability of risk elsewhere;
 - Providing for carbon sequestration and climate resilience, such as through habitat creation and water storage, through site management and progressive restoration.
- The extraction, processing and transportation of minerals in the UK, using fossil fuels, directly and indirectly results in emissions of greenhouse gases;
- The scale of emissions from mineral extraction is relatively small compared to the total emissions in the UK;
- The overwhelming majority of minerals, in terms of tonnages, produced and consumed in the UK, are indigenous, and so there is little 'carbon leakage' or export of emissions associated with our consumption;
- National planning policy requires consideration of climate change – mitigation (reducing greenhouse gas emissions) and adaptation (responding to risks and impacts, and improving resilience) – in development plans and decisions;
- The Environment Agency has a role to understand how climate change affects the environment and what it could mean for its' customers. Bespoke Environmental Permits (EPs) require a 'adapting to climate change: risk assessment for your environmental permit'.

Introduction and context

Climate change refers to a large-scale, long-term shift in the planet's weather patterns and average temperatures¹. The climate change is changing, accelerated by emissions of greenhouse gases.

¹ Met Office. 2020. *What is climate change?* <https://www.metoffice.gov.uk/weather/climate-change/what-is-climate-change> [25 March 2020].



The Met Office UK Climate Projections (UKCP)² set out scenarios of climate change under 2 and 4 degree global temperature rises, and its impacts in the UK down to relatively local (2.2km) scale, which may be summarised as:

- **Warmer** temperatures, across all parts of the UK in summer and winter, by the end of the 21st Century;
- **Extreme events will increase:**
 - **hot summers** may be more common, warmer by 3.7-6.8 degrees by 2070s, with increased frequency of hot spells (over 30 degrees for 2 or more consecutive days);
 - Rainfall will vary, but despite overall **drier summers, intensity of heavy summer rainfall** will increase;
 - Increases in **extreme coastal water levels** due to sea level rise and storm surges.

This paper summarises the context and policy that requires adaptation to and mitigation of climate change, primarily through the planning and implementation of minerals developments, particularly extraction of primary materials. This is in expectation of increasing requirements for evidence of adaptation and mitigation in the planning process – both identification and promotion of sites through development plans, and in applications for the development of new reserves.

While providing a climate change assessment represents another technical report that may be required as part of a planning application, it will also help identify measures that can save the business money (through reducing energy consumption) and reducing risk to disruption (through improving resilience and reducing vulnerability to climate change and severe weather events).

Policy and Legislation

International

The 2015 Paris Agreement³ in which, for the first time, countries representing over 90% of global economic activity agreed stretching national emission reduction targets in a global effort to tackle climate change. The central aim of the Paris Agreement is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C.

The Agreement aims to strengthen the global response to the threat of climate change by '*increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development.*'

The Glasgow Climate Pact adopted at COP26 in 2021 included a package of agreements including to build resilience to climate change, curb greenhouse gas emissions and provide the necessary finance for this. Collectively parties agreed to work to reduce the gap between existing emission reduction plans and that required to limit global temperature rise to 1.5 degrees.

The 2030 Agenda for Sustainable Development⁴, adopted by all United Nations Members States in 2015, provides a shared blueprint with 17 Sustainable Development Goals (SDGs) including SDG 13 Climate action: take urgent action to combat climate change and its impacts.

2 <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index>

3 <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

4 United Nations, 2020. *Sustainable Development Goals: Sustainable Development Knowledge Platform*. [online] <https://sustainabledevelopment.un.org/?menu=1300>



National

The Climate Change Act (2008), as amended, requires the net UK carbon account for 2050 to be 100% lower than the 1990 baseline, making the UK a 'net zero' emitter of greenhouse gases. It also requires government to set 5-yearly budgets for carbon emissions, advised by the Committee on Climate Change (CCC). The CCC has recently published the 7th Carbon Budget⁵ (2038-2042) identifying measures required to reduce emissions in line with this, including for the industrial and 'buildings' sectors. The 6th budget was passed into law by the government in June 2021⁶.

Section 19(1A) of the Planning & Compulsory Purchase Act 2004 requires local planning authorities to include in their local plans 'policies designed to secure that the development and use of land ...contribute to the mitigation of, and adaptation to, climate change'.

The 25 year Plan for the Environment (England) includes the goal of mitigating and adapting to climate change including through making sure that all policies, programmes and investment decisions take into account the possible extent of climate change and implementing a National Adaptation Programme. The Environmental Improvement Plan 2025⁷, mandated under the Environment Act 2021, further outlines a roadmap for climate mitigation and resilience.

Thus, the response to climate change needs to include:

- **Mitigation** – reducing emissions of greenhouse gas emissions contributing to achieving net zero emissions to contribute to limiting global warming and associated climate change. The routes for achieving 'net zero' emissions will be by reducing emissions, and removing greenhouse gases from the atmosphere.
- **Adaptation** – to the potential effects of climate change including reducing vulnerability and increasing resilience (as evidence indicates that change is inevitable even if dramatic reductions in carbon emissions are achieved).

Separate MPA briefings for each of these measures accompany this 'overview' paper.

The National Planning Policy Framework (NPPF) for England reflects this and defines sustainable development as including mitigating and adapting to climate change, including moving to a low carbon economy (paragraph 17). However, paragraph 18 makes it clear that the sustainable development objectives in the preceding paragraph, 'are not criteria against which every decision can or should be judged'.

Chapter 5 of the NPPF provides more detail on what is expected of the planning system to support the transition to net zero by 2050, including:

- Plans taking a proactive approach to mitigating and adapting to climate change including overheating, wildfires, drought, flood risk, coastal change, water supply, biodiversity and landscapes (Policy CC1);
- Development proposals should take opportunities to limit the need to travel, draw low carbon energy from decentralised networks, take advantage of suppliers of excess heat and energy, contribute to creation or restoration of habitats which can act as carbon stores, while avoiding harm to habitats (Policy CC2);
- Development should take account of the impacts of climate change to minimise vulnerability to these

5 <https://www.theccc.org.uk/publication/the-seventh-carbon-budget/>

6 <https://www.legislation.gov.uk/ukxi/2021/750/introduction/made>

7 <https://www.gov.uk/government/publications/environmental-improvement-plan-2025/environmental-improvement-plan-eip-2025>



including locating where flood risk is minimised, incorporate sustainable drainage, be designed to minimise overheating and improve resilience of existing buildings and spaces (Policy CC3).

Further general guidance, primarily for planning authorities, is provided in Planning Practice Guidance for England⁸.

The Scottish Government's Climate Change Plan 2026-2040⁹ sets out the policies and proposals to enable its carbon budgets to be met, identifying required contributions by buildings, transport and industry, reflecting the requirements of the Climate Change (Scotland) Act 2009. The National Planning Framework¹⁰ includes policies requiring plans and development to minimise greenhouse gas emissions and adapt to current and future risks from climate change.

Planning Policy Wales¹¹ Key Planning Principles include making the best use of resources including making development resilient to climate change, decarbonising society and developing a circular economy.

Local

Local Authority Development Plans must be consistent with national policy, and so up-to-date plans should include policies requiring energy efficiency and resilience to climate change, particularly flood risk. In addition, policies for the use of 'sustainable' transport modes are generally encouraged.

Minerals local plans also require such measures, with spatial strategies and identification of areas of search/preferred areas and specific sites reflecting a range of factors, including accessibility of resources. Minerals can only be worked where they are found and as such spatial considerations are constrained by the location of the minerals and proximity to the market.

Over half of UK local authorities have declared a 'climate emergency'¹² that commit the authorities to a range of actions to reduce emissions and achieve 'net zero' by 2050, or sooner and measures to adapt and improve resilience. This includes measures the authority can take itself, but also extends to its policies including planning and so it is likely that the profile of climate change and expectations of development will increase. Recent decisions, including at appeal, indicate that climate change is being given increased weight, although proposals for mineral extraction do not necessarily have a material impact on achievement of climate emergency declaration objectives¹³.

UK contribution & trends – Greenhouse Gas Emissions

The UK accounts for less than 1% of global greenhouse gas emissions. Emissions of greenhouse gases from within the UK, primarily from fossil fuel energy consumption, have fallen since 1990 by around 54% and at 2025 were 367 million tonnes of CO₂ equivalent (CO₂e)¹⁴. Transport is the largest single source of CO₂ emissions accounting for 31% with Electricity generation contributing 10%, Buildings and product uses 22% (mostly from heating), and Land Use, land use change and forestry contributing 0.1%.

Emissions associated with Production v Consumption

8 <https://www.gov.uk/guidance/climate-change>

9 <https://www.gov.scot/publications/scotlands-climate-change-plan-2026-2040-annexes/>

10 <https://www.gov.scot/publications/national-planning-framework-4/>

11 <https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf>

12 <https://www.climateemergency.uk/blog/list-of-councils/>

13 For example see Appeal APP/T1600/W/23/3324695

14 <https://www.gov.uk/government/statistics/provisional-uk-greenhouse-gas-emissions-statistics-2025/2025-uk-greenhouse-gas-emissions-provisional-figures-statistical-release#provisional-greenhouse-gas-emissions-by-sector>



While emissions within UK have fallen by over a half since 1990, this only reflects emissions recorded within the UK (territorial) and not those associated with production of goods consumed in the UK but manufactured overseas. Our true 'carbon footprint' encompasses the total greenhouse gas emissions released from the production and consumption of all goods and services we use.

WWF¹⁵ estimates, based on 2016 data, that this has only fallen by around 15% over the same period (due to increasing consumption of products manufactured overseas) and that emissions embodied in imports may have totalled around 364mt in 2016 (with total UK consumption emissions and 'footprint' at 800mtCO₂e). Defra estimates the UK's carbon footprint as 977mtCO₂e¹⁶

Between 1990 and 2016, 'cement, lime, plaster and concrete' production-based emissions fell by around 7mt while 'construction' emissions rose by around 4mt. 'Construction' represents 8.6% of UK carbon footprint.

Contribution to emissions by mineral extraction and supply

The WWF report identifies that 'Other mining and quarrying products' [non-energy and metals] represent 0.1% of consumption contribution (non-UK emissions) but this has increased by 733% since 1990, while production emissions at 0.2% is only 46% of emissions in 1990. 'Cement, lime, plaster, concrete, cement' represents 1.7% of production emissions, at 58% of 1990 levels.

Territorial CO₂e emissions of the mining and quarrying industry have oscillated peaking at roughly 29mt in 1998 and then falling to around 18mt in 2014 and rising gently to around 19.5mt in 2019^{17,18}, around 5.5% terrestrial CO₂e emissions. For GHGs in total, territorial emissions are around 21.6mt CO₂e in 2019, around 5% of total territorial GHG emissions. The inclusion of 'mining' in the definition will include activities/materials in which MPA members are not engaged. For the 'other mining and quarrying products' category which excludes metal and hydrocarbons, territorial CO₂e emissions in 2019 were 777,000t, representing 0.2% of the UK total, and 787,100t CO₂e of overall GHGs, representing 0.17% of UK total.

CO₂ emissions per tonne of hard rock and sand and gravel have showed falls over the last 5 years standing at 3.3 kg/tonne and 2.3 kg/tonne respectively, largely due to the increasing amount of low carbon energy in the mix¹⁹. Applying this carbon intensity to the sales of crushed rock and sand & gravel aggregates²⁰ results in total emissions of c.370,000 tonnes CO₂ in 2020 which differs to the official government statistics cited above.

The MPA estimates²¹ that its members' production activities are responsible for around 2% of UK GHG emissions, with cement and concrete representing around three quarters of that. UK Concrete and the Cement Industry has published a 'Roadmap to Beyond Net Zero'²² that sets out measures necessary to achieve carbon reduction and net zero, and then move beyond.

The largest material flow, in terms of extraction of primary materials and their transportation, is construction aggregates (251mt of sales in 2018, of a total 400mt of all non-energy minerals). Proposals for aggregate extraction sites and developments will be the most numerous type of activity that will be affected by

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- 15 WWF (2020) Carbon Footprint: Exploring the UK's contribution to climate change
 - 16 <https://www.gov.uk/government/statistics/uks-carbon-footprint/carbon-footprint-for-the-uk-and-england-to-2022>
 - 17 <https://www.statista.com/statistics/486099/co2-emission-of-mining-and-quarrying-uk/>
 - 18 <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2019>
SIC Final Greenhouse Gas Emissions Tables 2019 (Tables 8.1 and 8.2)
 - 19 https://mineralproducts.org/MPA/media/root/Publications/2021/MPA_SD_Report_2020.pdf
 - 20 https://mineralproducts.org/MPA/media/root/Publications/2021/MPA_AMPS_2021.pdf
 - 21 MPA Briefing August 2021. *In Focus: Climate Change Progress, COP and UK Policy Plans*
 - 22 https://thisisukconcrete.co.uk/TIC/media/root/Perspectives/MPA-UKC-Roadmap-to-Beyond-Net-Zero_October-2020.pdf



planning policy requiring their climate change impacts and adaptation to be taken into account.

While it is important for all sectors to seek to reduce greenhouse emissions wherever possible, this should be considered in the context of the overall contribution to greenhouse gas emissions and their mitigation (at UK and global scales) that may be made by the minerals sector.

Relevance to Minerals - Policy requirements

Sustainability Appraisals (SA) and Integrated Sustainability Appraisals (ISA) undertaken in the preparation of policy and development plans, including minerals plans usually include assessment against objectives relating to climate change, mitigation and adaptation. This may necessitate provision of evidence on the potential impacts of different options in terms of strategy (spatial, level of provision, proposed supply mix) in promoting sites for allocation.

Mineral Planning Authorities are already seeking or requiring 'climate change assessments' to accompany planning applications for proposed mineral developments, through development plan policies reflecting their wider climate change strategies or action plans relating to their declaration of 'climate emergency'.

Environmental Impact Assessments (EIA) must consider the impact of a project on climate (GHG emissions) and the vulnerability to climate change. As applications for mineral extraction will be 'EIA development', the requirement for climate change assessment should not necessarily be new, although as practice develops and the weight given to climate change in decisions increases, these are likely to involve additional evidence to be collated and reported and more likelihood of being scoped-in. Recent caselaw²³ confirms the need to consider greenhouse gas emissions and the potential downstream (Scope 3) emissions if there is a clear causative link between the mineral and greenhouse gas emissions from its end use, the effects are capable of assessment, and the effects are likely to be significant. Where a clear causative link is not demonstrated, assessment is not possible, and effects are unlikely to be significant, this should be justified at the Scoping stage.

The Environment Agency requires a climate change risk assessment to be undertaken for any new bespoke waste and installation environmental permit application that is expected to be in operation for more than 5 years. Conditions may be applied to a permit to manage climate change risks or the application may be rejected if climate change risks are still at an unmanageable level after applying mitigation methods.

The Environment Agency is responsible for managing water resources and it is anticipated that water availability will become further restricted due to environmental pressures, increased demand and climate change. Most extractive sites will require a water resources licence to abstract or transfer water so it should be confirmed via the Environment Agency's Abstraction Licensing Strategies that water is available.

Thus, there are already requirements and expectations on how mineral operators should be considering their impacts and responses. This is only likely to grow, particularly in the light of local authorities declaring 'climate emergencies' and commitments made at COP26.

Impacts on and contributions to climate change will primarily be in terms of consumption of energy and emissions of greenhouse gases, which will be dependent on the type and amount of energy used but also on other activities and influence, including land use.

Responses to climate change will include measures to mitigate (reduce impacts) through overall and type of energy consumption, and adaptation to the predicted effects of climate change, primarily through reducing vulnerability and increasing resilience of business activities.

23 <https://www.supremecourt.uk/cases/uksc-2022-0064>



Mitigation and adaptation need to be undertaken in parallel – as an amount of global warming and associated climate change is ‘baked in’ (and may accelerate) and require adaptation no matter how far or quickly emissions are reduced globally.

Responses will be at corporate level, addressing all aspects of business and considering companies’ own operations as well as in their products and supply chains. However, the accompanying papers on mitigation and adaptation are concerned primarily with likely requirements of the planning system that will need to be addressed when preparing, submitting and implementing planning permission.

The Mineral Products Association is the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and industrial sand industries.

For further MPA information visit
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