

Appendix: Climate Change and Greenhouse Gas Assessment

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A1 Glossary

AQC	Air Quality Consultants
CCC	Committee on Climate Change
CEMP	Construction Environmental Management Plan
CIBSE	Chartered Institution of Building Services Engineers
CLP	Construction Logistics Plan
CO_{2e}	Carbon Dioxide Equivalent
EIA	Environmental Impact Assessment
FTP	Framework Travel Plan
GBC	Gravesham Borough Council
GHG	Greenhouse Gas
GWP	Global Warming Potential
HGV	Heavy Goods Vehicles
IEMA	Institute of Environmental Management and Assessment
LGV	Light Goods Vehicles
NEED	National Energy Efficiency Data-Framework
NTS	National Transport Survey
RICS	Royal Institution of Chartered Surveyors
SAP	Standard Assessment Procedure
SWMP	Site Waste Management Plan

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A2 Policy and Guidance Background

- 1.1 In preparing this GHG assessment, consideration has been given to the requirements of national, regional and local planning policies.

European Guidance

Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment

- 1.2 The European Commission published this Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment¹ document in 2013. The aim of this guidance document is to “help Member States improve the way in which climate change and biodiversity are integrated in Environmental Impact Assessments (EIAs) carried out across the EU”.
- 1.3 The main concerns to consider as part of the EIA are climate change mitigation, climate change adaptation and biodiversity. This GHG assessment focuses on the first point by quantifying greenhouse gases emissions associated with the construction and operation of the Proposed Development, and describing the measures employed to reduce such emissions. The Guidance stresses that it is important to “investigate and use options to eliminate GHG emissions as a precautionary approach in the first place, rather than having to deal with mitigating their effects after they have been released”. The mitigation measures listed in the Guidance include, but are not limited to:
- consideration of technologies, materials and supply modes to reduce direct GHG emissions;
 - planning carbon off-setting measures;
 - building energy efficiency into the design of the project;
 - using recycled/reclaimed low carbon construction materials;
 - making use of renewable energy sources;
 - choosing a site with good public transport links or put in place transport arrangements; and
 - providing low-emission infrastructure for transport (e.g. electric charging bays, cycling facilities).

¹ European Commission (2013) Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment.

National Planning Policy

National Planning Policy Framework

- 1.4 The National Planning Policy Framework (NPPF)² sets out planning policy for England. It states that the purpose of the planning system is to contribute to the achievement of sustainable development, and that the planning system has three overarching objectives, one of which is an environmental objective:
- “to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy”.*
- 1.5 Part 14 of the framework is entitled “Meeting the challenge of climate change, flooding and coastal change” and sets out the strategy for minimising the climate change effects of new development. Paragraph 154 states that
- “New development should be planned for in ways that [...] can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government’s policy for national technical standards.”*
- 1.6 Paragraph 155 states further that “to help increase the use and supply of renewable and low carbon energy and heat, plans should: a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts); b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers”.
- 1.7 Paragraph 157 states that when determining planning applications, the NPPF requests that planning authorities should expect new development to:
- “a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and*

² Ministry of Housing, Communities and Local Government (2021) National Planning Policy Framework, Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.”

Climate Change Act (2008) ³

- 1.8 The overarching Act in relation to climate is the Climate Change Act 2008. The Act introduces a legally binding target to reduce the UK's GHG emissions to at least 80% below 1990 levels by 2050. It also provides for a Committee on Climate Change (CCC) with power to set out carbon budgets binding on the Government for 5-year periods.
- 1.9 In the 2009 budget, the first three carbon budgets were announced which set out a binding 34% CO₂e⁴ reduction by 2020; and the Government has since adopted the fourth and fifth carbon budgets to reduce CO₂e by 50% by 2025 and 57% by 2030.
- 1.10 The CCC also produces annual reports to monitor the progress in meeting these carbon budgets. Consequent upon the enactment of the Climate Change Act, a raft of policy at national and local level has been developed aimed at reducing carbon emissions.

Climate Change Act 2008 (2050 Target Amendment) Order 2019 ⁵

- 1.11 In June 2019, the Government passed an order to amend the 2050 carbon emissions target in the Climate Change Act 2008 from 80% below 1990 levels to zero net carbon (i.e. 100% below 1990 levels). This new target will essentially end the UK's contribution to climate change by 2050.

Energy Act (2013) ⁶

- 1.12 The Energy Act makes a provision for the setting of a decarbonisation target range, duties in relation to it and for the reforming of the electricity market for the purposes of encouraging low carbon electricity generation.

Climate Change and Sustainable Energy Act (2006) ⁷

- 1.13 The Climate Change and Sustainability Act enhances the contribution of the UK to combating climate change and securing a diverse and viable long-term energy supply by boosting the number of heat and electricity microgeneration installations in the United Kingdom.

³ Her Majesty's Stationery Office (2008), 'Climate Change Act 2008'

⁴ Carbon dioxide equivalent (CO₂e) is a term for describing different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, CO₂e signifies the amount of CO₂ which would have the equivalent global warming impact.

⁵ Her Majesty's Stationery Office (2019) The Climate Change Act 2008 (2050 Target Amendment) Order 2019.

⁶ Her Majesty's Stationery Office (2013) Energy Act 2013.

⁷ Her Majesty's Stationery Office (2006) Climate Change and Sustainable Energy Act 2006.

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The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting ⁸

- 1.14 The National Adaptation Programme sets out government's response to the second Climate Change Risk Assessment, showing the actions government is, and will be, taking to address the risks and opportunities posed by a changing climate. It forms part of the five-yearly cycle of requirements laid down in the Climate Change Act 2008 to drive a dynamic and adaptive approach to building our resilience to climate change.

The Clean Growth Strategy ⁹

- 1.15 The Clean Growth Strategy sets out a comprehensive set of policies and proposals that aim to accelerate the pace of “clean growth”, i.e. deliver increased economic growth and decreased emissions. In the context of the UK's legal requirements under the Climate Change Act, the UK's approach to reducing emissions has two guiding objectives:
1. To meet our domestic commitments at the lowest possible net cost to UK taxpayers, consumers and businesses; and
 2. To maximise the social and economic benefits for the UK from this transition.

- 1.16 The Strategy contains policies relating to the delivery of clean, smart and flexible power, including reducing power for homes and businesses and more transparent carbon pricing. It effectively replaces the “The Carbon Plan: delivering our Low Carbon Future” published in 2011.

Approved Documents L1A ¹⁰ and L2A ¹¹

- 1.17 The Ministry of Housing, Communities and Local Government has published a series of 'Approved Documents' which provide guidance on ways to meet building regulations. The latest version of the Approved Documents L1A and L2A on the Conservation of Fuel and Power define the energy efficiency requirements for new buildings (domestic and non-domestic). The baseline Part L compliant CO₂ emissions calculated for the Proposed Development and presented within the Energy Strategy¹² were determined in accordance with the methodology detailed within these Approved Documents.”

⁸ Defra (2018) The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting.

⁹ HM Government (2017) The Clean Growth Strategy.

¹⁰ The Ministry of Housing, Communities and Local Government (2016) Approved Document L1A, Conservation of Fuel and Power in new dwellings, 2013 edition incorporating 2016 amendments – for use in England.

¹¹ The Ministry of Housing, Communities and Local Government (2016) Approved Document L2A, Conservation of Fuel and Power in new buildings other than new dwellings, 2013 edition incorporating 2016 amendments – for use in England.

¹² Twin and Earth (2021) Energy Strategy.

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Regional Policy

Kent Environment Strategy

1.18 The Kent Environment Strategy¹³ states the following:

“Kent is committed to reducing greenhouse gas emissions by 34% by 2020 and 60% by 2030 from a 2005 baseline (our current progress is a 21% reduction since 2005). In the context of planned growth of our population and housing development across Kent, additional low carbon and appropriate renewable energy infrastructure, as well as an increase in uptake of energy efficiency initiatives will be needed to ensure we meet our targets and benefit from the opportunities for innovation in these sectors. Some 80% of the housing stock we will use over the next few decades is already in place and so opportunities to retrofit energy technologies and support a change to low carbon lifestyles will be key to supporting residents in reducing costs and improving energy security”.

1.19 Additionally:

“Ensuring that future decisions on services, development and planning are integrating understanding of environmental change and wider health and economic benefits forms the focus of priority 8: Influence future sustainable growth for the county of Kent and priority 9: Improve the county of Kent’s environmental, social and economic resilience to environmental change.”.

Local Policies

Local Plan

1.20 Policy CS18: Climate Change in the Gravesham Local Plan¹⁴ states the following:

“The Council will seek to reduce the overall carbon footprint of the Borough. In particular, the Council will:

- In the context of national policy on the transition to zero carbon development via amendments to Part L of the Building Regulations, require proposals for development of the Key Sites throughout the Borough and other major development elsewhere in the Gravesend Town Centre Opportunity Area to consider the potential and include proposals for low carbon and renewable energy generation, including combined heat and power. Where choosing not to do so, applicants must submit evidence which demonstrates that compliance is not*

technically or financially feasible or that improved fabric energy efficiency or an allowable solution results in improved carbon saving benefits;

- Support stand-alone decentralised, renewable or low carbon energy development where it is compatible with national policies for protecting the Green Belt and where it accords with policies in this plan, in particular those relating to Development and Design Principles, Transport, Green Infrastructure, and Heritage and the Historic Environment; and*
- Support other proposals which lead to a reduction in carbon footprint including the retrofitting of existing homes and businesses, including local initiatives based on carbon off-setting via allowable solutions.”*

¹³

¹⁴ Gravesham Local Plan Core Strategy (2014), Available: <https://drive.google.com/file/d/1bJTgQLmhbzjqZFibl-5WfB2tbvixXpLk/view>

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A3 Professional Experience

Guido Pellizzaro, BSc (Hons) MIAQM MEnvSc PIEMA

Mr Pellizzaro is an Associate Director with AQC, with more than 15 years' experience in the field of air quality management and assessment. He has managed and delivered GHG assessments for major urban regeneration planning applications and EIA developments throughout the UK.

Jack Buckley, BSc (Hons) MSc AMEnvSc AMIAQM

Mr Buckley is a Consultant with AQC with six years' experience in the field of air quality and climate change. He has experience in producing GHG assessments for EIA schemes, using qualitative calculative methods. Jack completed a BSc (Hons) in Chemistry and an MSc in Environmental Science and Management, which included changes in climatic conditions. He is an Associate Member of both the Institute of Air Quality Management and the Institution of Environmental Sciences.

Dr Helen Pearce BSC (HONS) MSC PHD

Ms Pearce has over 1 years post-graduate and work experience in environmental and earth sciences. She has delivered GHG assessments for mixed-use developments in London. Prior to joining AQC she was based at the University of Birmingham, completing a BSc in Geography, an MSc in Applied Meteorology and Climatology, and a PhD in Environmental Health and Risk Management.