Energy and Climate Statement

Site Address:

Name of applicant/agent:

Development proposals for 11 or more dwellings and non-residential development with a floor space of 1000 sq.m or more will be required to submit an Energy and Climate Statement

This template provides guidance to developers on the expected content and structure of energy and climate statements.

In drafting energy and climate statements developers should be mindful of the guidance provided in the SPD, and of the need for them to demonstrate compliance with Policy SC1 K of Plan:MK.

Suggestions for how developers might address our requirements, and of content to be included under each heading, are provided in italics throughout the template

Contents

Summary

To include:

- *A brief description of the development*
- *CO_2 emissions of Part L compliant development (before SC1 K.1 and SC1 K.2 have been applied) – 'Part L Baseline'*
- *Details of energy demand improvements over and above Part L requirements, if applicable*
- *CO_2 emissions after SC1 K.1 has been applied, absolute and as a percentage – 'Efficient Baseline'*
- *Details of On-Site renewables / Community Energy schemes and their energy generation contribution*
- *CO_2 emissions after SC1 K.2 has been applied to the Efficiency Baseline, absolute and as a percentage – 'Renewable Baseline'*
- *Adopted quality regime*

Energy performance

This table should be completed for the scheme using the 'total' lines from the calculations completed throughout the document. Please note that at a scheme level the unit of measurement should be tonnes of CO_2 rather than Kg.

Part L Baseline emissions rate: (t CO2 per sq.m. pa)	
Efficient Baseline Target: Min 19% of Part L Baseline (t CO2 per sq.m. pa)	
BER/TER after demand reduction (t CO2 per sq.m. pa)	
Actual % improvement on Part L Baseline achieved	
Renewable Baseline Target: 20% of Actual Efficient Baseline (t CO2 per sq.m. pa)	
Carbon Emissions Mitigated (t CO2 per sq.m. pa)	
Residual carbon emissions (t CO2pa)	
Carbon offset contribution	

Developers should also provide an 'unlocked' excel file(s) setting out their calculations

Energy Usage

In this section developers are expected to set out how they have met the requirements of SC1 K.1. The approach to demonstrating compliance is set out below.

Calculation methodologies

Set out calculation methodology(/ies), and relevant regulations complied with, e.g. SAP/SBEM, including version used.

Efficient baseline calculation

In this section developers will calculate the emissions requirement that their development must achieve to meet SC1 K.1.

	A	B	C (A – B)
Building	**Part L Baseline Emissions (kg CO2 per sq.m. pa)**	**19% of Part L Baseline (kg CO2 per sq.m. pa)**	**Efficient Baseline emissions target: (kg CO2 per sq.m. pa)**
e.g. Residential Unit Type 1			
e.g. Residential Unit Type 2			
e.g. Retail Unit 1			
Total			

Application of the energy hierarchy

The purpose of this section is for developers to set out how they have applied the energy hierarchy as required by policy SC1 H. Under each heading developers should set out the measures they are proposing and the target performance they are seeking (e.g. u-values, lm/w, efficiency). Where developers have chosen not to use an approach, they must set out a justification for their decision, including issues of technical feasibility, carbon savings available, and cost.

Fabric first

Glazing specification

Air tightness

Insulation

Building services efficiency

Lighting and appliances

Passive design

Solar gain

Thermal properties of building materials

Ventilation and heating

Landscaping measures

Cooling

Heating Efficiency

Insulation

BER/DER after 19% demand reduction and actual % improvement

Developers must calculate the actual BER/DER for the development having applied the demand reduction measures in line with the Energy Hierarchy as above

	A	D	E (D – A /100)
Building	**Part L Baseline emissions rate: (kg CO2 per sq.m. pa)**	**BER / DER after demand reduction (kg CO2 per sq.m. pa)**	**Actual % improvement on Part L baseline achieved**
e.g. Residential Unit Type 1			
e.g. Residential Type Unit 2			
e.g. Retail Unit 1			
Total			

Energy usage appendices

List of appendices which must include all relevant calculation documents (e.g. SAP outputs) for the calculations included in this chapter

Energy Supply

In this section developers are expected to demonstrate how they have met the requirements of SC1 K.2.

Calculation methodologies

To set out calculation methodology(ies) used throughout this section

Carbon emissions reduction target calculation – Renewable Baseline

In this section developers will calculate the baseline maximum emissions rate requirement that their development must meet.

	D	G (20% of D)
Building	**BER / DER after demand reduction (kg CO2 per sq.m. pa)**	**Renewable Baseline Target: A further 20% reduction (kg CO2 per sq.m. pa)**
Residential Unit 1		
Residential Unit 2		
Retail Unit 1		
Total		

Low carbon energy

Developers should provide a summary table for the on-site renewables or low carbon community energy scheme to be used. This should include the carbon mitigated by each approach.

	H		I	J ((H x I) / floor area)
Technology / Scheme	**Energy generated (kWh pa)**	**Alternate energy source**	**Alternate energy source carbon factor (t CO2 per kWh)**	**Carbon emissions mitigated (t CO2 per sq.m. pa)**
e.g Solar PV		*Grid electricity / gas heating / etc*		
e.g Heat Pump				
Total				

Summary table

Note that at scheme level tonnes rather than kilograms of carbon are used

BER / DER after demand reduction (t CO2 per sq.m. pa)	
Renewable Baseline Target: A further 20% reduction (t CO2 per sq.m. pa)	
Carbon emissions mitigated (t CO2 per sq.m. pa)	
% Carbon emissions mitigated (J/(D/1000))	

In the following section developers should set out in greater detail an explanation of the approach taken to introduce low carbon or renewable energy technologies and/or to connect to an existing network. Where developers have chosen not to use a specific technology , they must set out a justification for their decision, including issues of technical feasibility, carbon savings available, and cost. Equally all new developments in close proximity to a community network will be expected to connect unless it can be demonstrated that a more suitable alternative can be provided or that there are load or cost feasibility issues.

On-site low carbon and renewable energy technologies

Biomass heating systems, including wood burning stoves

Solar thermal

Solar photovoltaics

Wind turbines

Combined heat and power (CHP)

Heat pumps

Large scale low carbon and renewable energy community energy schemes

For schemes over 100 homes and non-residential developments of over 1,000 sq.m. developers are expected to consider the integration of community energy networks or to connect to an existing network.

Community-owned renewable solar PV or wind installations

Community heat generation and heat networks

Community energy demand management

Energy supply appendices

Developers should set out a list of appendices which must include all relevant plans / drawings / schematics / specifications of energy supply as well as calculations used in this section

Carbon Offset Fund

In this section developers will set out their proposed contribution to the Carbon Offset Fund and supporting calculations.

Residual emissions

Developers should calculate the residual emissions for their development after they have applied the energy reductions from SC1 K.1 and low carbon/renewable energy supply measures from SC1 K.2.

Applicable COF rate: *£200 per tonne CO2 pa, with BCIS indexation to be determined by developers and MKC during legal agreement drafting,*

D / 1000	J	K (D – J)	L (K*building area)	M (L*COF rate)
Efficient Baseline (t CO2 per sq.m. pa)	**Carbon emissions mitigated (t CO2 per sq.m. pa)**	**Residual carbon emissions (t CO2 per sq.m. pa)**	**Residual carbon emissions (t CO2pa)**	**Carbon offset contribution**

Indoor Air Quality and Overheating Risk Performance

In this section developers of residential property are required to calculate the indoor air quality and the overheating risk performance in line with the requirements of SC1 K.4.

Indoor air quality

With regard to Indoor Air Quality, applicants should apply principles of CIBSE KS17: 'Indoor Air Quality & Ventilation' to achieve optimum air quality in the new dwellings. Refer to section 7.4.2 of the SPD for guidance on calculating indoor air quality. Appropriate metrics are VOC ppm or PM10, PM2.5 ppm, % occupied hours in comfort range.

Overheating risk policy

With regard to Overheating Risk Performance, developers must provide the required SAP 2012 Appendix P calculations and demonstrate. that Criterion 3 of Approved Document , L1A 'Conservation of fuel and power in new dwellings' is met.

Developers must also carry out an analysis as set out in CIBSE TM59 'Design methodology for the assessment of overheating risk in homes' and include the output here .

The appropriate metrics are the percentage of hours that cannot exceed the target temperature, based on the running mean (which applies to all occupied spaces) and the number of hours exceeding 26°C in bedrooms at night.

Quality Regime

In this section developers are expected to demonstrate how they have met the requirements of SC1 K.5, by setting out the Quality Regime that their development will comply with. The quality regime to be used may be mandated by the council, or it may be for the developer to determine the most appropriate regime.

Adopted quality regime

The quality regime to be used to ensure the post occupancy performance of the development should be specified.

If the developer is seeking to use a different quality regime to those signposted by the Council, the developer must set out:

- *The reason the quality regime is appropriate (and if applicable why the Councils chosen monitoring regime is not appropriate)*
- *Confirmation that the quality/monitoring regime addresses energy, carbon emissions, air quality, overheating risk*
- *The modelling approach*
- *The steps taken to assure quality of construction*

Performance gap metrics

The performance gap metrics for the key parameters should be set out in a table. As a minimum, developers are expected to provide a metric for a central' scenario and the 'lowest acceptable performance' scenario. The production of multiple scenarios appropriate to the development is encouraged.

Metering and monitoring strategy

Developers should set out the proposed approach to measuring in-use (post-occupancy) building performance, so that this can be compared with design stage values. This should clearly set out the technology to be used, approach to measurement, frequency of data collection, and feedback to occupants, and must meet the requirements of the Quality/Monitoring Regime.

The Metering and Monitoring Strategy should address energy use and carbon emissions as well as indoor air quality and overheating risk.

Modelling

Developers should set out the modelling parameters, scenarios and outputs.

The Quality Regime must be able to model performance under all key parameters under different scenarios. It is possible that Dynamic Simulation Modelling could become a requirement if no other acceptable ways for determining predicted performance (acceptable meaning that it must implement the National Calculation

Methodology and be approved by MHCLG) or if compliance tools such as SAP do not give out the necessary detail on the required parameters (energy, carbon, air quality and overheating risk).

Independent evaluation

A key element of the Quality Regime is that it must be independently verified. Developers must set out the independent audit approach to the quality regime activities (including the design modelling). Developers must seek this report to be certified by an independent body.

An example output report for the chosen quality regime should be provided as an appendix.

Monitoring Regime

In this section developers must explain how they will continue to report on energy use, carbon emissions, indoor air quality and overheating risk. They should also clarify who will independently verify the data outputs of the monitoring regime. E.g. the accredited assessor chosen to review the data and compile the reports.

Developers should use the same report format/data gathering techniques for all five annual monitoring reports but are also encouraged to check what other tools are available in order to monitor the performance gap at the time.

An example output report for the chosen monitoring regime should be provided as an appendix.

The developer should set out how reports will be provided to the Council on an annual basis.