

Planners' reference guide no. 3: Energy statement and carbon calculation pack

As part of the CLASP technical support training programme, a set of exercises has been devised to help planners understand and work through the data required to assess an energy or carbon statement, particularly one specifying a target for renewable energy.

The exercises are available separately on the CLASP website, and each has a blank Questions sheet, together with a set of Answers and Notes, which planners can use as either reference guides or teaching materials:

Carbon Calculation Exercise – demonstrates the difference between a target to reduce carbon emissions and one to generate renewable energy.

Energy Statement Exercise Part 1 – looks at the data a developer would need to provide to meet a specific planning requirement.

Energy Statement Exercise Part 2 – works through a poorly-written Energy Statement to assess how much of the data provided is useful for assessing whether it meets the requirement.

Energy Statement Exercise Part 3 – works through the carbon savings of a number of different renewable energy technologies to assess whether they meet the planning requirement, and looks into the factors that might influence a developer's choice.

The materials listed above are available on the following webpage:

<http://www.claspinfo.org/resources/understanding-energy-statements-and-carbon-calculations>

Carbon conversion factors

A critical component of any assessment of carbon savings is the factors used to convert energy produced or saved. These factors tend to change over time. In particular the conversion factor for grid electricity depends on the mix of fuels used for generation, the efficiency of the generation plant and the efficiency of the distribution network. As more renewable electricity is included in the national mix, this conversion factor will decrease. There is also a different conversion factor for electricity used (grid electricity) and that produced from local renewable sources (displaced electricity), as the latter reduces an element of the distribution losses. Conversion factors for other fuels (e.g. gas, fuel oil, wood) will also change slightly as a result of changes to the average calorific values and supply efficiencies.

The 2006 and 2010 Building regulations Part L conversion factors are:

Fuel	2006 kgCO ₂ /kWh	2010 kgCO ₂ /kWh	Change
Mains Gas	0.194	0.198	+2%
Heating Oil	0.265	0.274	+3%
Wood Pellets	0.025	0.028	+12%
Grid Electricity	0.422	0.517	+23%
Displaced Electricity	0.568	0.529	-7%

There are also different sets of national conversion factors from different sources, which are used for other purposes e.g. the Carbon Reduction Commitment.

Energy benchmarks

The table below shows typical energy consumption of a range of building types. These represent the average of buildings constructed over a number of years so are not the same as those built to the current Building Regulations.

Building Type	Gas (kWh/m ² /year)	Electricity (kWh/m ² /year)
Townhouse	200	60
Office	120	95
Hotel	330	105
Swimming pool centre	1,130	245
Long term residential	420	65
Large supermarket	105	400

Further information

Part L Conversion Factors -

http://www.2010ncm.bre.co.uk/filelibrary/NCM_Modelling_Guide_2010_edition.pdf

Defra CO2 Conversion Factors (2008) -

<http://archive.defra.gov.uk/environment/business/reporting/conversion-factors.htm>

CRC CO2 Conversion Factors

<https://www.gov.uk/crc-energy-efficiency-scheme>

Carbon Trust Energy Benchmarking Guides for various sectors including online tools -

www.carbontrust.co.uk/cut-carbon-reduce-costs/calculate/energy-metering-monitoring/pages/industry-benchmarks.aspx

CIBSE publication: Energy Benchmarks (to purchase) -

www.cibse.org/index.cfm?go=publications.view&item=404

This reference guide forms part of the CLASP technical support and training programme for North West local planning authorities, delivered by Envirolink, Quantum Strategy & Technology and AECOM (2011).