



# National Energy Services

## **“Zero Carbon Homes Regulations” Consultation** **Response from National Energy Services**

### **Introduction to National Energy Services**

National Energy Services (NES) owns and operates both the NHER scheme and SAVA.

The NHER is the UK’s first and largest energy rating scheme, established in 1990. It provides software, training, accreditation, research and consultancy for organisations and individuals involved with improving the energy efficiency of homes. The NHER’s members are consultants, surveyors, energy companies, local authorities, social landlords and builders. The NHER rating scale ranges from 0 to 20+, with 20 being zero running costs, including lights and appliances and standing charges.

SAVA provides software, training and accreditation for Home Inspectors and all aspects of Home Condition Reports. It is the largest independent training provider for Home Inspectors. SAVA was the first certification scheme for Home Inspectors.

### **Introduction**

We welcome these Regulations, as a way of encouraging the house building industry to strive towards zero carbon now, ahead of the 2016 commitment. They also provide an opportunity to test the proposed assessment method (calculations and training and accreditation of assessors) before the requirement is made compulsory.

However, the target must be achievable and the Regulations must stand up to scrutiny. In our response we have highlighted the issues we believe require development and/or clarification before the final version is agreed and published.

### **Accredited assessors**

The Regulations are still being developed with regards to this topic and the outcome of discussions with CLG will be included. We understand the current wording to mean that “zero carbon assessors” will (in England and Wales) be required to belong to an Accreditation Scheme also used for “On Construction Domestic Energy Assessors” (OCDEAs).

We are aware that the standards for the OCDEAs accreditation scheme are yet to be published, despite the need for assessors to be fully accredited by 1<sup>st</sup> January 2008. We agree that the OCDEA Accreditation Scheme will be the most appropriate one to build on

for the incorporation of “zero carbon assessors”, incorporating the additional NOS unit recently developed by CLG, as an optional extra specifically for “zero carbon assessors”.

The two routes to membership of an accreditation scheme are:

- a) through a qualification based on NOS (National Occupational Standards); or
- b) through APEL (Accreditation of Prior Experiential Learning)

To enable sufficient OCDEAs to begin producing newbuild EPCs without unnecessary delays, we have requested that the APEL route be the single route to membership. The Competent Persons’ scheme Faero Ltd (<http://www.faero.co.uk/>) provides a model for such a scheme. We assume that it is already the intention to use an APEL route for “zero carbon assessors”, where the time frame is much shorter.

If “zero carbon assessors” and OCDEAs are to share an accreditation scheme and be ready for members to begin work on 1<sup>st</sup> October 2007, the Accreditation Scheme standards must urgently be finalised and published.

### **DER/SAP Worksheets**

The Regulations are currently not entirely clear regarding the use of SAP worksheets, as there is not a single worksheet implied, but two. These are:

- a) full SAP worksheet; and
- b) DER (Dwelling carbon dioxide Emission Rate) worksheet

The DER assumes a fixed amount of lighting, the minimum required by building regulations. The full SAP worksheet takes account of further energy efficient lighting measures which may be included by the developer. For these SDLT Regulations we believe it would be appropriate to specify the DER.

SAP 2005 will be updated a number of times within the lifetime of this legislation, due to run until 2012. This must be accounted for in the final Regulations; they should be flexible enough to allow alternative calculation methodologies if these have been demonstrated to be more appropriate or accurate for zero carbon dwellings (e.g. BREDEM 12 or Passive House Planning Package).

### **Appliances’ consumption**

The calculation method for the energy consumption of appliances specified in the draft SDLT Regulations differ from that in the Code for Sustainable Homes (CSH) documents. A single method must be adopted in both, to allow the industry to develop with a minimum of duplication. As the CSH method has been in the public domain for some time, it may be appropriate to adopt this method here. We have calculated using figures of an example dwelling that the carbon emissions from appliances are higher using the

CSH method (1,221.65 kg CO<sub>2</sub>/yr) than they would be using the method proposed in these Regulations (1,021.14 kg CO<sub>2</sub>/yr, i.e. 84% of the CSH figure).

Appliances are not currently taken into account in SAP, hence the need to include figures in these Regulations. The “Appliance Quota” is provided in the form of a table. It would be far preferable to calculate the figures from an equation, to avoid jumps when moving from one floor area group to another.

### **Microgeneration definitions**

In the draft Regulations, “microgeneration” is included in two definitions;

- a) “microgeneration equipment”; and
- b) “microgeneration equipment serving the dwelling”.

The latter (b) includes equipment designed or installed to serve more than one dwelling, i.e. excludes equipment that provides power to that dwelling alone. Later in the document, a requirement is made that all power for appliances should come from (b).

We are unsure if this was the intention, or if power from a renewable energy source should be allowed for this purpose, whether it comes from a system specific to that property or providing power to a number of local dwellings – i.e. (a). We would advocate (a), as this would provide developers with the flexibility to design renewable systems to make best use of the available site, orientation, etc.

### **Grid and gas connection**

Connection to the mains power is essential to ensure supply at times when local renewable energy systems are not generating power. Carbon emissions associated with imported electricity can be calculated and compensated for by export to the grid at other times.

To minimise carbon emissions which need to be displaced, connection to both electricity and gas should be allowed under these Regulations. Connection to the grid is essential so that a constant supply can be guaranteed at times when local renewable systems are not generating power. Connection to the gas network would allow a small amount of energy to be imported for heating or cooking, with a lower carbon factor than electricity from the grid.

Community systems allow renewable energy technologies to be placed in the best location on the site, thus giving a much higher efficiency than a collection of smaller systems. One technology or a mixture could be included, and power could be drawn into a zero carbon home at a varying rate. Work is required to develop the calculations for this – it is important not to disadvantage more complex community systems compared to a simpler system.

One of the most effective technologies for new developments is community combined heat and power (CHP). These are usually dual fuel, using mains gas and biomass simultaneously or interchangeably, depending on availability and price. To allow such systems to be set up, connection to the gas mains is essential. Reassurance about ongoing maintenance and performance could be provided through a requirement for all applicants for “zero carbon” classification to belong to the UK’s CHP Quality Assurance Programme (CHPQA).

Micro-CHP systems, serving only one dwelling, may be appropriate to incorporate in a low carbon dwelling and these too require a gas connection.

Calculations for the carbon displacement value of exported electricity are included in SAP 2005 and can be developed as necessary to increase the scope of what is currently included (for instance, calculations for wind power will be included from December 2007). Electricity exports should be allowed to offset imports of both electricity and gas.

To maintain consistency with the Carbon Reduction Commitment, UK ETS and CCAs, green tariff electricity must not be treated any differently to standard tariffs – i.e. at any one time there will be a single carbon factor for electricity imported from the grid.

In conclusion, we recommend that connection to the gas network as well as the grid are essential to allow zero carbon homes to be designed at reasonable cost. The model zero carbon home may well use both mains electricity and gas, so these must be included under the Regulations.

### **Heat Loss Parameter**

We fully support the prioritisation of fabric measures over microgeneration, as reducing the HLP is the most cost effective way to reduce the energy demand of a building. These Regulations should encourage innovation and help to speed progress in this area; but the target must be realistic in order to engage the property building industry.

The figure of 0.8 is very low and may currently be achievable in only a minority of sites in the UK. Only a very small number of professionals are able to achieve a HLP of 0.8, in limited circumstances. We are concerned that developers working with brownfield or small infill sites will be much less able to meet this as an absolute requirement, without the opportunity to trade off losses with savings in other areas. This is because there is less opportunity for highly insulated walls which are thicker and hence take up more of the available footprint.

We have used figures for a house constructed with the best possible intentions for zero carbon design to assess the Regulations in a real life situation. This is a 2 bed house in North London built in 2005 (but still far exceeds current building regulations). The electricity produced from the installed photovoltaic panels (PV) is around 150% of the appliances requirement and the DER is -4.84, yet the house would not be classed as zero carbon due to the HLP.

As a further example, a pioneering, high performance earth-sheltered dwelling also has an HLP of 1.07, despite U-values consistently around one third of current Building Regulations.

These dwellings were designed by zero carbon experts – the fact that these examples do not meet all the requirements suggests that the HLP must be increased initially, to allow the wider industry to have a realistic target to strive towards.

We would suggest a phased approach in the HLP reduction, to have the maximum effect on market transformation. The Code for Sustainable Homes gives credits for HLP <1.3 and <1.1, before requiring 0.8 as an absolute minimum for a Code Level 6.

### **Further Comments**

In paragraph 10 of the draft Regulations, HMRC retains powers to refuse relief of stamp duty land tax where they have ‘reasonable grounds’ to doubt the accuracy of the certificate. This vague uncertainty about the acceptability of the certificate will affect developers, assessors and consumers by drastically reducing the value of the certification process. Relief from SDLT for zero carbon homes must be supported by a water tight assessment process, in which Government puts trust without this caveat.

When developing the Regulations, care must be taken that the instalment requirements for renewable energy equipment are not too onerous and that sufficient installers will be approved. If the application process is prohibitively long or complicated, potential applicants will be deterred rather than encouraged. We would encourage looser requirements initially, if necessary to ensure that sufficient approved installers are available for this scheme. You may already be considering the Low Carbon Buildings Programme (previously Clear Skies), to provide a bank of pre-approved installers.