CONSULTATION ON BUILDING A GREENER FUTURE: TOWARDS ZERO CARBON DEVELOPMENTS

FULCRUM CONSULTING COMMENTS

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We deliver fully integrated design of building services and infrastructure. We also advise on building design and built fabric solutions which ensure minimum environmental impact.

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The founding members believe that it is imperative that documents such as this be developed using the wealth of world class expertise in the UK construction industry and properly implemented to ensure they achieve the desired effect.

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In order to respond to this consultation we held an in-house discussion regarding the consultation document, and the views expressed within this response are those that emerged from that discussion.

We have arranged our comments against the consultation questions raised in the consultation document.

Q1 Are we right about the need for new housing to lead the way in delivering low-carbon and zero-carbon housing, and is it achievable in the timescale we have set out?

We would agree that new housing needs to lead the way, but are of the opinion that Government needs to quickly follow with proposals aimed at tackling the carbon emissions from existing homes, and non-residential developments.

New dwellings only make up around 1% of the housing stock each year, and in fact around 75% of the current housing stock will still be around in 2050 (SDC figure). In many respects dealing effectively with reducing the energy use and related carbon emissions from existing homes will make far more of an impact on the UK's total carbon emissions than the proposals for new dwellings contained within the consultation document.

Improvement of existing homes could be facilitated in some way by the drive for lower carbon new homes by the use of an 'offset fund' into which developers could invest as a way of offsetting a proportion of the carbon emissions of new homes, with the money being used to improve the existing stock. Refer to our answer to Q10 for further thoughts on this.

Refer to answer to Q8 for our comments on the timescale of the proposals.

Q2 Have we got the assessment of costs and benefits right?

No comment.

Q3 Have we got the balance right between the contribution of the planning system and that of building regulations? Are there other policy instruments we should consider? Are there ways in which we can design our policy instruments to achieve the same goals more cost effectively?

We think it right that Building Regulations are used as the tool to deliver zero carbon buildings. Having one carbon standard defined for developments across England and Wales makes it much easier for developers to understand the requirements and how they impact on the design of the homes they are building.

The planning system has a significant role to play in achieving sustainable developments, e.g in terms of location, transport, ecology, social aspects, etc. and may even have a role in defining the appropriateness of specific renewable energy technologies in a particular area, but we believe that carbon emissions from the use of energy in buildings is right to be regulated by the Building Regulations.

The industry needs additional funding for the development and commercialisation of products and services that will facilitate the building of zero carbon developments in the timescale set out. These proposals will give the market indication, but the time lag needs to be shortened.

Testing regimes for renewable technologies need to be brought in to give a level playing

field for the comparison of different products. European standards have been set for defining the output of solar thermal panels, but, for example, manufacturer's claims of the performance of micro wind turbines are not consistent in terms of the speed they are rated at, and quoted yearly outputs often prove unrealistic compared to actual figures from installed units. Designers need reliable, relevant data which reflect the way in which the technology can be used.

We also believe that the government should set up a demonstration programme, with more diverse aims than the Carbon Challenge. For example to demonstrate the ability to achieve a zero carbon dwelling on a restricted urban infill site, a single dwelling in a rural area, etc. Demonstration of specific renewable technologies would also be welcomed. All these demonstration projects must be monitored and the results fed back to the industry.

Also refer to answer to Q6.

Q4 Are there significant solutions to climate change that our policy framework does not encourage and are there other things we should be doing to address this?

We should be mindful that sustainable development is not just about climate change. Some reference should be made to the Triple Bottom Line, or similar, holistic framework including the social and economic elements of sustainable development, rather than just the environmental implications. This would help to focus the reader's attention appropriately.

Q5 Are we right in our assessment of what we should seek to achieve through the planning system and through Building Regulations? Are there other policy instruments we should consider?

Refer to answers to Q3.

Q6 Are there areas of duplicative – or even conflicting – regulations in the framework that we have described? Do these threaten to get in the way of meeting the goals we have set?

Current planning guidance including the draft Supplement to PPS1, calls for local authorities to include planning policies which require developments to incorporate an element of onsite renewable energy generation. Up to now, this has been the main driver used to try to stimulate the UK's fledgling renewables market. This renewables requirement has in many cases been implemented as a 10% reduction in total building related CO_2 emissions by the use of onsite renewable energy technologies, over and above any measures required to gain building regulations compliance. For developments of new homes this will be meaningless in 2016 when it is proposed that building regulations will require all new homes to be zero carbon. It is worth noting that some Local Authorities require 10% of energy demand to be met by onsite renewable energy technologies rather than CO_2 emissions reduction. Clearly CO_2 emissions are what should be being addressed, and this should be made clear in the document (i.e. the table under paragraph 2.27 should not refer to energy).

Effectively the proposals contained within the consultation document will become the new driver for the inclusion of renewable energy technologies in residential projects. Until similar legislation is published for non-residential developments, planning policy will still need to drive carbon reductions for these developments. However there is clearly duplication here which could lead to a significant amount of confusion.

Q7 Do you agree that all new homes should receive a rating against the standards set out in the Code for Sustainable Homes should be mandatory from April 2008?

Yes. This will help drive consumer awareness and encourage developers to build more sustainable homes in advance of legislative requirements.

Q8 Do you believe that our timetable for delivering zero carbon development through more stringent Building Regulations is sensible and achievable, to stringent, or not stringent enough?

We agree that a challenging timetable needs to be set. In effect the achievement of zero carbon housing by 2016 will depend in a large part on how these carbon savings can be made. If the definition of zero carbon is restricted to only include onsite renewable energy generation then the proposals will be completely unachievable for the vast majority of new developments. Only a handful of sites will be suitable for onsite generation of the scale required to heat and power a home, even with the use of stringent energy efficiency measures and an increase in the efficiency of renewable energy generating technologies.

With the goal for all new homes to be zero carbon by 2016 we would suggest that the first revision of the building regulations in 2010 should be for a 44% reduction in carbon emissions (Code level 4). This is because a 25% reduction is perfectly achievable by the use of energy efficiency alone, for example by following the PassivHaus principles in terms of building design. Therefore in order to maintain flexibility in the market (i.e. by not stipulating that a certain proportion of the percentage reduction should be from renewable technologies) and also send a strong signal to renewable energy technology companies that their products will be in high demand over the coming years, we believe that legislation for low carbon homes should be more challenging in the short term.

The current proposals for increasing to Code level 3 in 2010, Code level 4 in 2013 and Code level 6 in 2016 are decidedly back-loaded, with the greatest challenge being achieving zero total carbon from a base of only a 44% reduction in building regulations regulated emissions three years earlier. Non regulated emissions in a well insulated home account for over 50% of the total carbon emissions[1]. This is another reason why we believe that the first update in 2010 should be to Code level 4, followed by Code level 5 in 2013, and Code level 6 in 2016. This should help drive innovation throughout the transition to zero carbon homes and help make the challenges posed by building these homes easier to overcome. Also, given that many of these homes should be expected to be around in 50-100years time, insisting on a bigger reduction, earlier, means that a larger proportion of our future housing stock will be more efficient.

For zero carbon homes by 2016 to be achievable, there will need to be a sharp drop in the capital cost of renewable technologies and the efficiency of these technologies needs to increase. Designers need reliable data on the actual expected output of the various renewable energy technologies, tailored to the characteristics of individual development sites. The general skills shortage, both within the construction industry and within Local Authority planning departments, needs to be addressed urgently. Planning officers and building regulation control officers need training in order to be able to assess low carbon

[1] Final Technical Report Supporing and Delivering Zero Carbon Development in the South West, prepared by Faber Maunsell & Peter Capener for South West Regional Assembley, SWERDA and GOSW, January 2007, available from http://www.southwest-ra.gov.uk/media/SWRA/RSS%20Documents/Technical%20Documents/Technical%20Work/final_technical_report_v23.PDF; and from our own experience

developments, and the regulations must be enforced. We are not aware of there ever being enforcement of non-compliance with Part L of the building regulations. This clearly needs to change if zero carbon developments are to be delivered. We are aware that many Local Authorities are struggling to get to gips with the 2006 changes to building regulations, almost a year after their introduction. This needs to be solved urgently.

As per our answer to Q3 above, we believe that the government should lead the way by commissioning research into what can be achieved, in order to demonstrate viability to the construction industry. This should at least in part take the form of well monitored demonstration developments.

The proposals for developments by RSL's or others with Housing Corporation funding, and homes developed by English Partnerships to achieve Code level 3 from April 2007 will help drive the market. However, there is no indication whether these types of development will be expected to stay three years ahead of the rest of the industry, achieving Code level 6 by 2013. We believe that there is a strong case for requiring this.

There is also the issue of the practicalities of demonstrating compliance of low and zero carbon standards. The current SAP (Standard Assessment Procedure) will need to be developed considerably if the industry is to innovate in the ways required. Restrictions on, for example, the cap on the percentage of low energy lighting which is taken account of in the Dwelling Emission Rate (DER) calculation needs to be removed, as too does the requirement for 10% secondary heating to be included in the calculation if no secondary heating is to be provided in the dwelling. New dwellings will need to be very thermally efficient, so the likelihood of the need for secondary heating is minimal.

SAP will also need to be able to effectively deal with dwellings connected to district heat networks (the methodology at the moment is extremely crude and does not allow for many of the current proposals with respect to district heat networks that we are making to be taken into account in any meaningful way), and all types of renewable energy will need to be able to be modelled within the software. The Appendix Q procedures will also need to be reviewed.

The industry also needs official calculation procedures for how to take account of other factors such as the use of A+ rated appliances, reduction in hot water demand by the use of low flow showers and taps, etc, and trends in energy use from all other electrical uses in the home needs to be monitored and taken into account. However, there is a need to balance the flexibility and accuracy of these calculation methodologies in order for them to remain practical.

We had a discussion regarding the carbon burden of grid electricity, and recent research has shown that the CO_2 emissions factor quoted for grid electricity should be recalculated to reflect more accurately the true situation. We are aware that the figure quoted at the moment is an underestimate of the realities of the situation, but that in the future the carbon burden will reduce. It would be very useful for a framework to be set out now for the estimated carbon burden of the grid over the period covered by the consultation proposals.

The table in paragraph 2.27 refers to an energy/carbon improvement. We believe that this should refer to carbon only, not energy. A zero energy house is an impossibility.

Another point is that the proposals may drive negative land values. The effect of this may need to be analysed.

Q9 Do you think our assessment of the costs of achieving these targets is realistic? Can you offer additional supporting evidence on costs?

No comment.

Q10 We believe that a zero carbon target is the most robust framework for reducing the carbon footprint of new development. Do you agree that our definition of zero carbon in paragraph 2.33 is the right approach? Where there are circumstances in which the additionality of offsetting measures outside the development can be demonstrated and are more cost-effective (e.g. on small infill developments), is there a case for carbon neutrality (i.e taking account of offsetting measures)?

We agree that the energy types included in the definition of zero carbon in paragraph 2.33 are the right ones to include. The definition is not explicit in how zero carbon can be achieved, i.e. if the renewable energy required would have to be produced onsite or if it could be liked from offsite generation, or even offset via a contribution to an 'offset fund' of some description. We strongly believe that achieving zero carbon homes will only be possible for the vast majority of developments if mechanisms are developed to allow offsite renewable developments and potentially offset funds to form part of the route to zero carbon homes. After all, the overarching driver for these proposals is to reduce the UK's contribution to global carbon emissions.

There are many arguments to support the claim that the most sustainable form of development is that which facilitates dense urban living. In urban areas roofspace per person is very low and it will generally be impossible to fit enough onsite renewable energy generation equipment on such developments. It would not be beneficial if the consultation proposals inadvertently forced an increase in the development of housing in remote areas where land on which to include onsite renewable energy generation is available.

Arguments could be made for splitting the carbon emissions target by end use, whereby, for example, zero carbon heating and hot water could be specified via onsite renewables, with flexibility allowed in dealing with the electrical demand.

We believe that allowing developments to contractually link to an offsite renewable energy source will be key to achieving zero carbon homes in the timescale set out. There are additionality issues that will need to be researched and dealt with, but this could potentially be done by requiring ROC (Renewable Obligation Certificate) retirement from the energy purchased.

We are aware that some policy makers are sceptical about the ability of ROC retirement to provide additionality, with the major barrier being perceived as the planning system (i.e. the belief is that large scale renewable energy generators are struggling to get planning permission). However, there is a large megawattage of wind farm developments which have gained planning permission but are not being built. We are also in the process of submitting proposals for two 50MW biomass power stations for planning permission and do not envisage any trouble gaining permission. Therefore we would argue that the planning system is not the barrier it is perceive to be. The reality is that wind farms are not being built because the price of turbines has increased due to increases in the price of steel, and demands for turbines from large countries such as China and the USA. The problem is therefore a manufacturing issue which could be at least partially solved by government addressing the lack of UK production capacity in this area.

We believe that ROC retirement will increase the amount of large scale electricity

generating renewables by direct investment from developers wishing to contractually deliver zero carbon electricity to a new development, and by greater investment brought about by an increase in the price of ROCs as they become scarcer due to ROC retirement.

We also believe that there is a strong case for allowing carbon offsetting via a well administered offset fund aimed at lowering the carbon emissions of our existing housing stock. As mentioned previously the existing stock is an area where action and government leadership is urgently required, and this could be a way in which to facilitate a step change in the emissions from our built environment. We are aware that there are many practical issues that will need to be tackled in setting up such a fund, but would encourage these to be addressed at the earliest opportunity. A starting point for this could be reviewing the lessons learnt from existing schemes such as the Warm Fund.

The way the built environment influences behaviour has an effect on the carbon emissions from many other areas, for example transport, food, and other lifestyle issues. The carbon emissions released during the manufacture of construction products and the erection of buildings is another area which may require coordinated action. However, these areas are not appropriate to be considered within this particular consultation document, but we feel that it is important that the bigger picture should not be lost.

Q11 Does the framework that we describe give adequate room to authorities and developers to make best use of the opportunities available at different spatial levels, for example district heating and district cooling?

Potentially, the framework does do this. It may be the case that a new development can 'plug in' to an existing district heating network and the definition of where the low/zero carbon energy can be sourced from (e.g. onsite/local/offsite) needs to be flexible enough to allow this.

Q12 Do you agree that, for the reasons set out, there should be a national strategy for regulating the emissions from buildings supported by local promotion of renewable and low carbon energy supply?

We believe that there should definitely be a national strategy for regulating the emissions from buildings. Achieving the sort of strategy set out in this consultation document (i.e. zero carbon homes by 2016) will necessarily lead to more renewable energy installations. Therefore it is important that local planning authorities look favourably upon planning applications containing proposals for low and zero carbon energy supply, to support developers in achieving the goals stated within this consultation document.

As the lifetime of building services is much shorter than the lifetime of a property it is very important that energy efficiency should be the first step taken to reduce carbon emissions.

Q13 Are we right to assume that our twin goals – of delivering the new homes that are needed and reducing emissions from the housing stock – will be achieved more effectively by relying on national standards (i.e. Building Regulations and the Code) than through encouraging earlier action by individual local authorities?

Yes, we believe that relying on national standards is the right way to tackle this issue. However, in order to achieve the challenging timetable set out, it will be necessary to build demonstration projects in advance of the standards to prove that the standards are achievable and aid innovation within the building industry. This is an area where earlier action by individual local authorities may be key.

Q14 Given that the proposed PPS on climate change will apply in England but not in Wales, are there specific implications in Wales for the future direction of Building Regulations implied by this consultation?

No comment.