

Sustainable communities

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COURSE: Business in Property

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Interdisciplinary Issues

UBIL4N-10-3

WORD COUNT: 2280

PAGE COUNT: 9

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Introduction

The topic that our interdisciplinary team is working on is sustainable communities. Hugh (2000, p10) argues that sustainable communities are “communities planned, built or modified to promote sustainable living”. He also goes on to say “sustainable living is a lifestyle that attempts to reduce an individual's or societies use of the Earth's natural resources”. The aim of this report is to examine Government's proposal relating to climate change. The proposal is for all new homes to be carbon zero by 2016. I will specifically be looking at arguing whether or not this target is achievable. This area is involved with sustainable communities as it looks at the methods used in designing the built environment to reduce the use of natural resources.

The scope of report will consist of analysing whether the target is realistic. The literature used will be arguments for and against the surrounding issue. This will include an analytical review of the opportunities and constraints that have arisen from the issues. The main body of this report will be a literature review on the subject. Based on academic and professional evidence the report will conclude as to whether the UK government's target is achievable. The analysis will be considering the key issues arising from the literature review. The literature reviewed will be most recent published information as the target is fairly new.

I have chosen this topic as it is topical and it is at the forefront of Government plans to make housing more sustainable, and thus reduce the affect of global warming in the UK. The knowledge I already have on the issue leads me to believe the 'carbon zero' target is a contentious issue as there is debate as to whether it is a realistic target. Initial research shows that there is plenty of recent literature on the subject so it is a suitable focus for my report.

It is relevant to my course as all surveyors need to be aware of sustainability issues in the construction of new buildings and refurbishment of existing. Professionals in the construction industry need to be aware of sustainability issues when they are involved in the design and construction of new dwellings so that the building meets the standards set out in the official regulations.

Critical Analysis

This chart shows the steps that the Government have put in place to make, in their view, the target of all new housing to be zero carbon by 2016 achievable. By introducing the Code for Sustainable Homes the Government believe there is a framework in place for housebuilders to meet the target.

This chart has been set out at the start of the critical analysis to put into context the arguments and key issues that are presented by professionals within the industry.

2007	2008	2010	2013	2016
Code for Sustainable Homes introduced First zero carbon house completed Government announces target of 3 million homes by 2020	Level 3 (25% improvement over target emission rate)	Level 4 (44% improvement over target emission rate)		Level 6 (zero carbon)

(Adapted from Vaughan (2009))

The research by Millard (2008) leads her to believe that the Government should be urged to re-think the carbon zero homes agenda. The article argues that uneconomical schemes to make all new housing developments carbon zero are threatening long-term housing targets. The RICS (2008) states that 240,000 new homes are needed each year to reach the Government target of building three million new homes by 2020 with only 175,700 built in 2007. The report focuses on the argument that the Government will have to come up with better incentives for housebuilders if it wants to prevent plans for zero-carbon homes from falling apart.

Millard backs up this argument using evidence from the House Builders Federation director of external affairs, John Slaughter. He states that companies have withdrawn from a flagship carbon challenge project at Peterborough because the job is too expensive. The project aimed to build 450 homes to code level six - the highest standard of sustainable housing and

one rarely achieved. However, to maintain a degree of parity Millard includes the views of a spokesperson for the Communities and Local Government Department who said more than 100 groups had signed declarations of support in principle to achieve zero -carbon goals. The spokesperson added that the industry is broadly positive about zero -carbon although admits there may be areas of difficulty.

An article by Vaughan (2009) further emphasises the concern that the zero -carbon target is too costly. Vaughan's article focuses on the views of a chief advisor on sustainability of the European Commission. He claims that building zero -carbon houses could cost up to £100,000 extra per unit which would cast into doubt the possibility of delivering the target of 3 million new homes by 2020. The chief advisor backs up these claims by stating, 'By the time you've added up your shopping list of items to build a zero carbon house, referred to as Code Level 6 in the Department of Communities and Local Government's (DCLG) Code for Sustainable Homes, you're looking at anything up to £60,000 to £100,000 extra on top of the regular building costs.' The article substantiates this claim by including the views of several major practices. For example one such practice, Hunter & Partners, at the time of the article were looking at a small, pilot Code Level 6 scheme and it was priced at around £60,000 per unit over standard comparable housing costs. The article also expresses the view that even if costs came down to make building Code Level 6 houses feasible, the building skills involved are 'way beyond' the current level within the construction industry. This is a view that is agreed by Sheppard Robson's head of sustainability, who helped design the first Code Level 6 house. He states that 'there needs to be a complete shift in the construction of houses – a behavioural change. It is meeting the air -tightness parameter that will be the biggest challenge.'

However Napier (2008) disputes a number of views expressed in the articles by Millard and Vaughan. As the English Partnerships chairman, he believes that the housing slump is no excuse for failure to deliver sustainable properties. Napier argues, 'We have experienced housing cycles before and today's problems are neither a reason, nor an excuse to sidestep the drive for quality and a low carbon future'. Napier believes that the housing industry has to meet the challenge of carbon zero by 2016 and must develop its ability to adapt, adopt and integrate environmental standards, if it is to achieve long -term profitability. Napier also dismissed concerns by housebuilders' that the cost of delivering zero -carbon rated homes was too high to enable the target to be viable. He states that, 'I accept there are higher upfront build costs, but the trialling and testing of new technologies will drive these costs down. Costs will also be offset by lower running costs'. To endorse his view Napier highlights Barratt's Hanham Hall scheme. This is one of the government's Carbon Challenge sites.

Napier believes that other firms must also follow suit for the industry to progress on the zero carbon issue.

An article by Vaughan (2009) focuses on the views of the Good Homes Alliance group. These views somewhat contrast with those of Napier (2008). Whilst Napier argues that the 2016 zero carbon goal is achievable the GHA believe it is aspiration rather than a realistic target. To achieve zero carbon homes would have to be built to the Code for Sustainable Homes Code 6. The GHA chairman believes the code had been pushed through far too quickly and warns that if building tightness and ventilation systems are inept there is a risk of building 'sick' houses. He argues that the technology and building knowledge is not in place to build high quality homes to this level. Instead he believes the industry should aim to build Code Level 3++ which provides a more conservative target of a 70% reduction in carbon emissions, as opposed to zero-carbon. A firm of architects who are part of the GHA group backs this view as a spokesperson for the firm also warns that the UK doesn't have the skill base to achieve the code levels required to reach zero carbon status. She said, 'The code prescribes the standards you need to reach whatever level, but it doesn't tell you how to get there in terms of the details of construction'.

Another possible reason for the target being unrealistic is put forward in an article by Stagg (2008) which argues that at the point in time at which the article was written the framework was not in place to meet the 2016 zero carbon target. This is based on the views of the Construction Products Association. This organization warns that UK will fail to meet eight - year target unless it starts building now. The Construction Products Association also warns that unless a firm framework of development is put in place it is unrealistic to achieve zero carbon homes by 2016.

The industry affairs director at the CPA (John Tebbit) states within the article that homes rated as four, five and six in the Code for Sustainable Homes rating must be built in volume now (2007) in order to make zero carbon homes a viable reality. He believes that if there are at least 1,000 homes built every year until 2016 then problems in the build can be ironed out, and products can be developed to make it happen. Tebbit also believes that the UK industry needs to go from its current position, to the passive house standard and the same again by 2016. This is seen as a massive challenge and he believes that there needs to be more understanding of how it can be achieved. In order to make the framework viable, Tebbit believes land for these dwellings must be subsidised by the government and English Partnerships to encourage developers to start building zero carbon homes. In summary this article shows that at the time of publication the framework to achieve zero carbon housing by 2016 was not in place and the only way the target could be

achieved is if more zero carbon developments are built now as this would allow for real data to be generated, in terms of how the homes will perform in real use, which is currently lacking due to the small number of developments.

An article by Rushbridge (2007) focuses on the Passivhaus standard energy efficient construction method, as an answer to reducing carbon emissions rather than zero carbon housing which is seen as being unrealistic. Rushbridge uses the example of Passivhaus homes in Germany. The article demonstrates that these are viable in Germany due to a number of Government incentives such as providing first choice building plots for the buildings with the highest energy standards and providing grants towards building a passivhaus dwelling. In addition some regional councils encourage take-up further by providing extra financial incentives.

The article argues that Germany have progressed rapidly by making it technically and financially feasible to achieve passivhaus buildings whereas regulatory methods in the UK have not worked, and present construction standards are, in general, not in place for the passivhaus standard, never mind the zero-carbon standard. It concludes that although Government leadership is 'more than welcome' the technologies and know-how to achieve zero carbon buildings cost-effectively do not exist. The article sets out a number of steps that could be taken by the Government, including financial and planning incentives, to bring about a rapid progression to the passivhaus standard. The concluding paragraph states that, 'a large number of cost-effective and achievable passivhaus buildings will save far more energy than a tiny number of difficult to achieve zero carbon buildings.'

Conclusion

The main issue that affects if all new homes can be built to be zero carbon by 2016 is the cost to developers to build homes to Code Level 6 of the Code for Sustainable Homes. Due to the current economic downturn the extra cost of manufacturing housing to this standard is seen as unrealistic by many in the industry. This factor coupled with the need to provide 3 million extra homes by 2020 makes many believe that this policy will fail purely based on the extra cost as developers cannot afford to compromise profitability.

Another key issue is that the technology and know-how is not yet in place to enable housebuilders to build high quality zero-carbon homes. The building skills involved are seen as being far beyond the current level within the construction industry. The lack of these skills leads some to believe that if building tightness and ventilation systems are inept there is a

risk of building 'sick' houses. To enable these skills to be acquired there needs to be a complete shift in the construction of houses in the UK.

The framework is not in place to meet the 2016 zero carbon target. The Construction Products Association warns that unless a firm framework of development is put in place it is unrealistic to achieve zero carbon homes by 2016. For the framework to be put in place the government and English Partnerships must do more to encourage developers to start building zero carbon homes.

Based on my research, I believe that it is unlikely that the government target for all new homes to achieve zero carbon status will be met. If the economy was in a period of high growth then the target may well be achievable, although it would be a challenge to educate the industry to build in the correct manner. The main barrier of cost would be removed but the other key issues would still need to be addressed. The target of building 3 million new homes by 2020 further reduces the likelihood of this target being reached in my opinion as housebuilders need to build high quantity, high quality housing, so they are likely to rely on tried and tested construction methods.

It would be more logical to try to achieve all new housing to be to the passivhaus standard as a high number of these houses will cut greenhouse gas emissions far more than a small number of zero carbon developments. If this passivhaus standard is achieved housebuilders can then focus on building zero carbon homes in high numbers.

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