

# Meeting the latent demand for low carbon housing? Constraints on consumer choice of housing in the UK

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## Abstract

Since privatisation and liberalisation of the UK energy industry, domestic consumer choice has diversified. Green electricity consumer products are now offered by several energy utilities. This paper examines the extent to which low carbon housing has developed in the UK as a new product in a similar way to green electricity. Low carbon housing is defined as housing that results in a significant reduction of greenhouse gas emissions (principally carbon dioxide) over the course of its lifetime.

The production of housing and energy in the UK is now mainly carried out by commercial organisations. If there was significant consumer demand for green products, one would anticipate that these organisations would respond. This paper will show, however, that in contrast to the availability of green electricity in the energy sector, latent consumer demand for low carbon housing is not being met. It is argued that producers have developed green products, or not, according to the extent to which they challenge their existing mode of operation.

Evidence will be presented from a study of the organisations involved in low carbon housing in one region of the UK, the East Midlands, as well as from national surveys. Commercial housing producers have not initiated low carbon housing in the East Midlands to date, but rather have responded on an ad hoc basis to public sector sustainability

criteria. One exception is discussed: a commercial house builder who builds only low carbon housing.

## Introduction

This paper critically compares the development of two green consumer products in the UK: green electricity and low carbon housing. The reasons why green electricity is currently more readily available than low carbon housing are explored. It is argued that the utilities have been active in developing green electricity, despite consumer demand being relatively low. In contrast, in the housing sector it is shown that there is high potential consumer demand, yet most house builders have yet to respond. The notion of 'free' markets operating in these sectors is challenged, through revealing the extent to which commercial producers structure consumer choice, and in turn how commercial producers' choices are also constrained. The potential for government to alter these choices so positive environmental outcomes are more likely will be assessed.

Some key definitions are firstly outlined in order to clarify the parameters of the analysis and discussion, and to highlight why it might be interesting to compare these two green consumer products. This introductory section is followed by consideration of the evidence for latent demand for low carbon housing in the UK. The type and origin of low carbon housing in one English region, the East Midlands, is then examined. The relatively large amount of green consumer choice in the electricity sector is outlined, as a contrast to the housing sector. A comparison between the two sectors is made, focusing on the ways in which the choices of producers are structured. The extent to which green consumer

products alter the framing of these choices is assessed, in order to gain a better understanding of the emergence, or not, of such products. The paper concludes with recommendations about how commercial opportunities for low carbon housing could be encouraged.

### SOME KEY DEFINITIONS

Low carbon housing is defined as any residential built form that enables reductions of greenhouse gas emissions over the course of its life time of sixty percent or more compared with average UK household emissions. The threshold of sixty percent is used because it is the estimated percentage reduction in emissions required in order to avoid a doubling of atmospheric carbon dioxide concentrations from pre-industrial levels (RCEP 2000; IPCC 2001). A low carbon house typically incorporates one or more of the following features: passive low energy design, a thermally efficient built form, use of renewable energy technologies, and incorporation of low embodied energy materials.

Such housing may also include other environmental or social sustainability elements, such as public transport schemes, but for purpose of this paper these will not be of concern. The analysis will be restricted to what the house builders produce, i.e. the durable built fabric of the home. For this reason, the discussion is limited to new housing, rather than refurbishment of existing housing. Furthermore, the operations of speculative commercial house builders will be focused on because they produce roughly three quarters of new housing in the UK (Barlow 2000).

Green electricity refers to all types of renewable energy electricity products currently on offer in the UK electricity market. Green electricity products involve either purchase of renewable electricity (energy based), or a donation of money to a fund used to build more renewable energy generation capacity (fund based) (Friends of the Earth 2002).

The term 'latent' demand is taken to mean both concealed and dormant demand. Concealed demand is an active, conscious demand for low carbon housing, which remains unsatisfied, as there is very little of the product currently available on the market. Dormant demand refers to a situation in which consumers would desire low carbon homes if they had actually experienced the comfort (financial and personal) of living in such a house: it is subconscious demand. It is argued that both these definitions reflect the current situation in the UK with respect to the housing market.

### WHY COMPARE LOW CARBON HOUSING AND GREEN ELECTRICITY?

It is useful to compare low carbon housing and green electricity for the following reasons. Firstly, the two products have the potential to play a key role in reducing green house gas emissions in the UK, as they both significantly influence domestic sector emissions, which comprise 22% of the UK's total emissions (DETR 2000; DTI 2001).

Secondly, the privatisation and liberalisation of both the energy and housing sectors has taken place within the last two decades (Roberts, Elliot et al. 1991; Whitehead 1993; Guy, Graham et al. 1996; Malpass and Murie 1999; Graham and Marvin 2001; Pichler-Milanovich 2001). Although the nature of privatisation and liberalisation has differed be-

tween these two sectors, an issue beyond the scope of this particular paper, it is the case that commercial organisations have taken over many public sector roles, and that the management of both these sectors can now broadly be described as market based regulation. Previous restrictions on households to purchase housing and energy from the state have been lifted: most new housing in the UK is now purchased from a range of private developers (Barlow 2000). Similarly, households can now choose from around twenty licensed energy companies to supply them with electricity (OFGEM 2002). A comparison of green electricity and low carbon housing will therefore review the extent to which consumer choice really has diversified in these two sectors, in particular towards environmentally beneficial, or 'green', products.

During the late 1980s and early 1990s the green consumer movement grew rapidly in developed countries (Smith 1998; Harrison 1999) The purchasing power of individual consumers was lauded as a new 'win-win' solution to environmental problems. Some corporations were quick to respond to consumer pressure, and many new green products became available (Elkington and Hailes 1988). To date, however, green consumer goods have been largely restricted to particular types of product, mainly non durable small household items such as cleaning products, and organic foods. It will be assessed to what extent the green consumer movement has diversified through an expansion to a wider range of products, namely utility services and housing.

One might expect green consumers to be interested in purchasing both green electricity and low carbon housing. It will be shown, however, that the energy and housing sectors provide an interesting contrast in terms of the availability of green products. A number of green electricity products have been developed by energy utilities since liberalisation (ENDS 2002). In the UK housing sector, however, green or low carbon housing is still a rarity, despite the large amount of publicity about certain high profile developments (see for example BedZed 2001; Coward 2001).

### Latent demand for low carbon housing?

This section will examine the evidence for concealed and dormant demand for low carbon housing. It is accepted that some of the points raised below are speculative, as to date little detailed research has been conducted on consumer housing preferences. However, overall it is believed there is a case worth making, mainly because of the combination of different emerging trends.

#### CONCEALED DEMAND

Evidence for the existence of housing consumers actively seeking low carbon housing includes: the results of a recent survey showing 70% of respondents would be prepared to pay more for an energy efficient home; anecdotal evidence about the rapid sale of sustainable housing; and the growth of the self build sector during the last decade. These three points are discussed in further detail below.

A survey commissioned by the property agents Strutt and Parker and the World Wildlife Fund (WWF) revealed that 70% of respondents would be prepared to pay more for an energy efficient home (The Gallup Organisation 2000; Jones 2002). There is also anecdotal evidence of high consumer

demand for the limited sustainable housing for private sale that is available in the UK (TCPA 2002). Of course, it is difficult to say that people are paying for the energy features - the 'low carbon' aspects - of the housing as other sustainability features of the house or development may be equally or more appealing. However, the combination of the Gallup survey results and the limited evidence of actual consumer behaviour suggests that at least some of the willingness to pay for green housing schemes is due to the improved energy and/or low carbon performance of the dwellings.

A third source of more indirect evidence for concealed demand is the growth in self build housing in the UK over the last decade (Clapham, Kintrea et al. 1993; Duncan and Rowe 1993; Barlow, Jackson et al. 2001). The self build sector now builds 20 000 new houses per year, close to the output of the Housing Association sector at 25 000 houses per year (Barlow 2000). A high proportion of this housing is 'low carbon' (Olivier 2001). Again, little research has been conducted to clarify the reasons behind a growth in self build (Barlow, Jackson et al. 2001). However, the growing volume does suggest some dissatisfaction with the quality of new housing currently provided by the house building industry (Barlow 2000).

#### DORMANT DEMAND

It is generally accepted that householders require an energy service, i.e. a warm home, rather than any particular mode of providing that service (Boardman 1994). It is suggested that demand for low carbon housing would increase rapidly if more people had actually *experienced* personal comfort and financial benefits of living in a low carbon house. The level of experience is low in the UK because the quality of the housing stock is poor relative to other developed countries (Olivier 2001).

A recent survey commissioned by the Housing Forum of 10 000 customers of new homes revealed that for the majority of new buyers who were aware of the energy efficiency features of their new home, it was an important factor in their decision to purchase it (MORI 2001). Thus for three out of five of this 'energy aware' group, which comprised 48% of the total interview population, energy efficiency was an important purchasing factor. Conversely, for the 'energy unaware', energy efficiency was not an influencing factor in their house purchase. In other words, the survey revealed a relationship between the level of consumer knowledge about energy efficiency and purchasing patterns. This hints at a significant level of dormant demand, in that it suggests that the 50% of currently 'energy unaware' consumers would demand more energy efficient housing if they had greater experience of it, or improved knowledge.

This national evidence for a latent demand for low carbon housing is examined in more detail in the section below through a discussion of low carbon housing activity in one region of the UK, the East Midlands, since the late 1980s.

#### Case Study – Low carbon housing in the East Midlands

The East Midlands region is one of the most innovative regions in the UK with regard to low carbon housing (Shack-

ley, Fleming et al. 2002). Despite this, low carbon housing formed just 0.08% of total new housing in the region in the period 1991-2000 (DETR 2001; BSHF 2002).

This section will firstly discuss who has initiated the production of low carbon housing in the East Midlands. It will be shown that to date speculative commercial house builders have not been key players: their involvement has been limited to responding to demands from other organisations on a one-off basis. One exception is discussed: a commercial house builder in the East Midlands who is building only low carbon housing.

#### AVAILABILITY OF LOW CARBON HOUSING IN THE EAST MIDLANDS

Table 1 gives details of the type and quantity of low carbon housing in the East Midlands.

Some of the key points to draw from this table are as follows:

1. Local authorities, self builders (individuals and communities) and the social housing sector are the most important low carbon housing initiators in the region.
2. Speculative commercial house builders have been involved in low carbon housing, but not as initiators.
3. There have been two main routes for producing low carbon housing:
  - 'Intervention': by organisations involved in the production process
  - 'Bypass': by self build groups or individuals, who effectively circumvent the typical UK producer dominated mode of housing production.
4. There has been a recent growth in the scale of (proposed) developments: two new large developments, with around 3 000 houses, are currently being planned by local authorities. The local authorities are currently seeking the involvement of large commercial house builders.

#### A LOW CARBON COMMERCIAL HOUSE BUILDER: GUSTO CONSTRUCTION

The only commercial house builder producing low carbon housing in the region, and doing so exclusively, is a small to medium sized company based in the village of Collingham, near Newark. To date the company has built one low carbon housing development in Collingham called Millennium Green, comprising 24 detached houses. It is planning two more developments in the region, in Collingham and Lincoln. The Millennium Green development has won the company many awards, including the Parcellforce Worldwide Small Business award 2000 and Home Energy Rater of the Year 1999 (BSHF 2002). The company is unique in the UK in building traditionally styled commercial housing with a range of sustainability features (BSHF 2002; Jones 2002).

The energy efficiency standards for the Millennium Green development are roughly three times above current UK Building Regulations (Pearson 2000). All houses have solar thermal panels on the roof, a heat recovery ventilation system, and passive solar design. A guarantee is provided by Gusto that energy bills will be below £275 per year: so far most bills have been around £200, about 70% below average

**Table 1 – Low Carbon housing developments in the East Midlands (source - (BSHF 2002)).**

Name of development	Location	Type of Initiator	Number of houses	Date completed	Low Carbon features
The Eco-House	Leicester	Local authority	1	1989	low carbon features various, including pv, mechanical heat recovery, well insulated
Albert Hall Memorial Housing	Coalville, Leics.	Social housing	7	1990	well insulated, passive solar design, mechanical heat recovery
Ashtree Cottage	Westbury, Northants.	Individual self build	1	1993	well insulated, passive solar design, solar hot water
The Autonomous House	Southwell, Notts.	Individual self build	1	1994	super insulated, pv, energy self sufficient
Underhill Houses	Derby	Local authority	2	1997?	low carbon features well insulated, solar hot water, mechanical heat recovery
Hockerton Housing Project	Hockerton, Notts.	Community self build	5	1998	earth sheltered, super insulated, passive solar design, wind turbine, solar hot water, pv, heat recovery
Concept Cottages	Donnington, Lincs.	Local authority	2	1998?	well insulated, timber frame, mechanical heat recovery
Sinfin	Sinfin, Derby & Mapperly, Notts.	Social housing	5	1998?	well insulated, use of existing terrace brickwork to increase thermal mass, mechanical heat recovery
Fosse Estate	Newark, Notts.	Social housing	33	1999	low carbon features well insulated, passive solar design, timber frame
Millennium Green	Collingham, Notts.	Commercial	24	2001	solar hot water, passive solar design, well insulated
The David Wilson Millennium Eco House	Nottingham	University/commercial	1	2001?	low carbon features pv, passive solar design, heat pump, wind turbine
Beaconsfield Street	Nottingham	Social housing	7	2000	well insulated, timber frame
Green Lane	Clifton, Notts.	Social housing	44	2002	pv
Plain Tree Court	Nottingham	Social housing	10	2002	timber frame, geothermal, heat pump, well insulated, covered walkways
Garendon Road Eco Life	Loughborough	Social housing	17	c.2003	low carbon features not yet finalised. Likely to include passive solar design, timber frame
TEK Haus	Notts.	Architect/engineering company & social housing	2	c.2004	well insulated, lightweight modular construction, mechanical heat recovery, solar hot water
Sherwood Energy Village	Ollerton, Notts.	Community self build/commercial	c.125	c.2007	not yet finalised. Is likely to include on-site renewable energy generation, plus well insulated housing.
Ashton Green	Leicester	Local Authority	3 500	2010-2015 (phase 1 by 2004)	As above
Wellingborough East	Wellingborough, Northants.	Local Authority	3 000?	2010-2015	As above

(Green Futures 2000). Two households on the development purchase Green Electricity, as does as the on site Gusto office (Wright 2002 pers. comm.). The development performs well on a range of UK rating criteria, with the following estimated ratings: a Standard Assessment Procedure (SAP) rating of 100-120, a National Home Energy Rating (NHER) of 10, and an EcoHomes excellent rating (Pearson 2000; BSHF 2002). The houses cost about 10% extra to build - approximately 10 500 Euro (£7 000) (Green Futures 2000). No grants were used to fund the extra costs, and it is estimated that they were recouped through higher sale prices (Wright 2002 pers.comm.).

Demand for the houses has been strong (Green Futures 2000; Dansie 2002; Jones 2002). The chief executive, Stephen Wright, estimates roughly half of current occupants bought houses at Millennium Green because they liked the location, whilst the other half were motivated primarily by the sustainability features (Wright 2002 pers. comm.), including the energy features mentioned above, plus other features such as rainwater tanks and provision of green space (BSHF 2002).

The director of Gusto Construction, Stephen Wright, was motivated to build green housing for both business and personal reasons (Wright 2002 pers. comm.). Visits to self build home shows made him realise the high degree of consumer

interest in green housing, and encouraged him to restructure his business accordingly (Jackson 2002). He states:

“There is a desire out there for something better. People who want efficient, low maintenance homes are left with no choice but to build their own, which is a complex business.” (Wright, S. quoted in Jackson 2002).

Thus Wright believes the growth of self build housing indicates a latent consumer demand for higher quality sustainable housing. He considers the UK building industry to be primarily responsible for this situation:

“The [UK] construction industry is the only one that seems to pay no attention to what the customer wants - developers just put up houses as cheaply as they can while complying with the building regulations. In other industries businesses listen, then give customer what they want for a higher price. So we decided to be a lot more customer-focused.” (Wright, S. quoted in Johnson 2001).

A statement from one of the Millennium Green residents suggests the existence of dormant latent demand. When the Proctor family purchased a house on the development they were not primarily motivated by sustainability issues. Mrs Penny Proctor now agrees that:

“It would be difficult to move back to a normal new home now.” (quoted in Jackson 2002).

### Satisfied consumer demand for Green Electricity?

In contrast to the housing sector, the electricity utilities have developed green consumer products since privatisation and liberalisation. This section examines why the utilities decided to do this, and whether it was simply in response to consumer demand.

A MORI poll commissioned by PRASEG in 1996 revealed there to be high potential domestic consumer demand for Green Electricity (MORI 1996). Over twenty percent of domestic consumers surveyed stated that they would be willing to pay a premium on their electricity bills to receive Green Electricity. Furthermore, over two-thirds of respondents said they would purchase Green Electricity if it were not more expensive (MORI 1996). The development of several green electricity products when the domestic market was liberalised in 1998 can be seen in part as a response by the utilities to this survey.

Developing new products such as green electricity also satisfied a wider commercial objective of increasing market differentiation. Since liberalisation of the electricity market the utilities have been actively trying to differentiate themselves from their competitors, in order to promote their brand name and stimulate consumer choice within the emerging market.

This ‘tidy’ explanation of the emergence of green electricity becomes rather more complex, however, when one examines the *actual* consumer demand for green electricity since liberalisation, and also the source of renewables that make up the majority of green electricity products. These two issues are discussed in further detail below.

Actual consumer demand for green electricity has been much lower than indicated by the 1996 MORI poll. The most recent survey indicated that just over 45 000 house-

**Table 2. Green electricity products in the UK (source: (Friends of the Earth 2002)).**

Product	Supplier	Average Cost per year* (Euro)
<b>Energy-based products</b>		
Unit[e]	Unit Energy Ltd	426
Ecotricity	Ecotricity	n/a
Green Energy 100	Green Energy UK	413
Eco Energy	Northern Ireland Electricity	n/a
Green Energy 10	Green Energy	364
Juice	Innology Group	364
<b>Fund-based products</b>		
GreenPlan	TXU Energi	328
Green Tariff	London Electricity	403
Green Energy	Scottish Power	334
RSPB Energy	Scottish & Southern Energy	334
Green Fund Tariff	Seeboard Energy	344

\*based on average annual cost for a family home in London

holds in the UK purchase some form of green electricity product (Green Prices 2002). This represents just 0.2% of UK households. Indeed, a survey of the utilities conducted just after liberalisation in 1998 showed that the utilities themselves were predicting low consumer uptake: only approximately 100 000 customers were expected in total (Lovell 1998).

It is suggested that most businesses would be unlikely to launch a new product if they consider that its uptake will be limited to such a niche market. Were the utilities therefore primarily responding to consumer demand, combined with a hope of enhancing their brand name? There is evidence of another critical ‘push’ factor for the producers to develop Green Electricity: liberalisation coincided with approximately 300 MW of renewable electricity generation capacity becoming available for purchase by the utilities (Moore 1998; DTI 2001).

This occurred because a number of government funded renewable energy projects (NFFO projects) reached the end of their funding period. This renewable energy was relatively cheap, as its capital costs had largely been paid. Importantly, it was also relatively risk free for the utilities as they were not required to develop any new renewable generation plants themselves in order to launch an energy-based Green Electricity product, at least in the short term. The development of Green Electricity therefore made sense from the producers’ point of view: the utilities choices were structured at the time in such a way that green electricity was an appealing commercial prospect, despite the accurate predictions of low consumer uptake.

### Comparing producers’ choices about green electricity and low carbon housing

To summarise, there is judged to be reasonable evidence for latent consumer demand for low carbon housing in the UK, to which the principal housing producers – the commercial house builders – have yet to respond. In contrast, in the electricity sector, utilities have developed a range of green products, but consumer demand has remained low.

This section will assess how and why these two newly privatised sectors have evolved differently in relation to green consumer products. The discussion will focus on the choices faced by producers, rather than consumers, as it is argued that the producers have been more influential than consumers in terms of determining the types of product available to date.

The operating environment (the 'business climate') of the producers will firstly be examined, followed by an assessment of the ways in which green consumerism has restructured, or has the potential to restructure it. It will be shown that green products offer a much greater challenge to the operating environment of housing producers in comparison to the energy utilities. This helps explain why low carbon housing is not being extensively developed.

#### THE PRODUCTION 'OPERATING ENVIRONMENT'

It is argued that housing and energy producers' operating environment has shifted since privatisation towards a focus on the following two issues, namely:

- Profits and competition,
- The customer relationship,

Government regulation and policy remain important, but operate alongside these other drivers.

#### Profits and competition

Since privatisation and liberalisation electricity and housing producers have become increasingly concerned with maintaining high profits, in order to remain viable. The main source of profits, however, is different for the two sectors. Housing producers gain most profit from land development, ie purchasing, 'banking' and developing new sites (Ball 1983). Thus the housing industry is very unusual, in that the product itself is not the main focus of attention (Ball 1999; Barlow 1999; Barlow 2000). Utilities, however, are more typical in that they gain most profit from selling their product, ie energy. UK households spent about £30 billion on energy products per year, making energy equal to 5.2% of total consumer expenditure (Barker 2002). The main basis upon which utilities have competed for customers since liberalisation has been through lowering the price of electricity: prices fell 23% in the period 1990-99 (DTI 2001). The location of profits in the two sectors – 'upstream' for housing, 'downstream' for utilities – affects the type of customer relationship within the two sectors, discussed below.

#### Customer Relationship

The type of customer relationship has changed significantly in the energy sector since privatisation and liberalisation, whereas in housing it has remained relatively unchanged.

Utilities have a much closer relationship with their customers post liberalisation: they are much more customer focused (Guy, Graham et al. 1996; Guy, Graham et al. 1997; Guy and Marvin 1998). This is because they are now actively competing for new customers, whereas previously they were obliged to serve all customers located within their supply area. Furthermore, utilities have a strong financial interest in maintaining good relations with their existing customers: consumers are able to switch their supplier frequently, every 28 days if desired (HMSO 1989). It is expensive to discon-

nect and recruit customers. Utilities therefore have an incentive to develop customer loyalty with their existing customer base.

Housing producers, however, have largely retained their 'upstream' focus, as this continues to be their main source of profit, as discussed above. There is another characteristic of the customer relationship in housing that also promotes a more distant relationship with customers, namely that UK house builders are predominately speculative (Barlow 2000), that is they do not build housing for a specific client. Thus housing producers only have a 'one-off' point of sale interaction with their customer: there is no ongoing relationship, either pre or post purchase. Two implications follow from this. Firstly, there is little or no opportunity for a potential buyer of the house to request certain features at the design stage, when it is easier to incorporate low carbon features at little or no extra cost. Secondly, the lack of a relationship in the post purchase stage means the producer has no financial interest in making sure the cost of running the house is kept to a minimum, as any financial saving does not return to them.

Other significant influences on the type of customer relationship in housing are that consumers are not flexible to switch to a different producer in the same way that utility customers are. Customers invest considerable resources (time and money) in purchasing a house, and are not likely to move just because it is thermally inefficient. Also, as most consumers purchase a house because of its location (Ball 1983; Bartlett, Potter et al. 2002), producers know that the product itself is likely to be of lesser importance.

There is, however, some evidence of a more customer focused approach emerging within the housing industry (Barlow 2000; Bartlett, Potter et al. 2002). Some housing producers are now offering limited after sales service (Bartlett, Potter et al. 2002) and greater customisation of internal features of the house (Nicol and Hooper 1999). Indeed, an improved customer focus is one of the key aims of the government initiated Rethinking Construction program (Egan 1998). The Housing Forum, which operates as part of this initiative, was launched in 1999 in order to modernise the housing industry (The Housing Forum 2003).

#### Regulation

The main focus of regulation in both sectors has paralleled the two issues discussed above, i.e. competition, and customer relations. In the housing sector the land use planning system and the building regulations are also critical regulatory areas.

The relationship with government remains strong, as housing and energy are key sectors (hence why there were until recently in public ownership). Thus to a certain extent these sectors can be seen as having been 'reregulated', rather than 'deregulated' (Roberts, Elliot et al. 1991; Barlow and King 1992; Collier 1998). For the electricity sector there is a specific regulatory body, OFGEM (The Office of Gas and Electricity Markets), that regulates the sector. There is no comparable regulator for commercial housing producers. Regulation and policy in both sectors has been criticised for being ad hoc and poorly co-ordinated (Williams 1997; Malpass and Murie 1999; RCEP 2000).

In general, environmental regulation has not been prioritised by government in establishing the regulatory frame-

works. OFGEM, for example, has statutory duty only to 'pay regard to' environmental and social issues (HMSO 1989). The discussion below will be limited to a brief review of the main low carbon policies affecting energy and housing producers. Also, note that the discussion on housing relates only to regulation of commercial housing producers. The social housing sector is, of course, subject to greater regulation and has its own regulatory body – the Housing Corporation (England and Wales).

#### *Low carbon regulation*

The energy sector is viewed as a key sector to achieve government climate change targets, as one might expect. Thus low carbon policies are much more significant for energy producers than housing producers. Two key 'low carbon' policies include the Renewables Obligation, and the Energy Efficiency Commitment (PIU 2002). The Renewables Obligation has been in operation since April 2002 (HMSO 1992). It requires electricity supply companies to source 10% of their electricity from renewable sources by January 2011. The energy efficiency commitment (EEC) requires suppliers with 50,000 or more customers to promote improvements in domestic sector energy efficiency; half of the improvements must be from low income households (HMSO 2001).

In terms of the housing 'product' (the built fabric), the main low carbon regulation relevant to commercial producers is Part L of the Building Regulations, which relates to thermal issues. The Building Regulations are updated every five years. A key outcome of the last update, implemented in 2002, is that all new houses are now required to display information on their energy performance (their 'SAP' rating) when sold (Jones 2002). The building regulations have been criticised, however, for allowing 'trade-offs', thus weakening their effectiveness, and more generally for being set at too low a level, particularly in relation to other European countries (Bell and Lowe 2000; Energy Saving Trust 2000; RCEP 2000; Olivier 2001).

The government has also initiated the development of eco-labels for green consumer products. The main ecolabel in the energy sector for green electricity products has been operated by the Energy Saving Trust (a government quango). This scheme, however, stopped operating in 2002 (Energy Saving Trust 2002). In the housing sector there are several different energy and sustainability rating schemes: the two main energy schemes are the Standard Assessment Procedure (SAP) and the National Home Energy Rating (NHER) scheme (BRE, DEFRA et al. 2001; NHER 2003). There is also a more general sustainability ecolabel developed by the UK Building Research Establishment (BRE) called EcoHomes (BRE 2001).

#### **HOW DO GREEN CONSUMER PRODUCTS AFFECT THE PRODUCERS' OPERATING ENVIRONMENT?**

This section examines the ways in which the development of green consumer products alters how producers' choices are structured in the housing and energy sectors. It is hoped that this approach will lead to a clearer understanding of why green electricity has been developed by energy utilities since privatisation, and yet green consumer products, such as low carbon housing, have been slow to be developed by

housing producers. The main reason is because green electricity does not currently present a challenge to the dominant mode of operation of the utilities. This is in contrast to the housing sector, where green consumer products would require a more radical shift in focus.

The discussion is structured by assessing the impact of green consumerism according to the three key drivers discussed in the section above: profits & commercial competition, customer relations, and regulation.

#### **Profits and commercial competition**

Most utilities have launched green electricity products that cost more than their 'normal' product (see Table 2). In this way they are able to cover any actual or perceived costs associated with the product: there is hence little or no financial risk involved. This is particularly the case for energy-based products, as utilities are able to negotiate contracts with existing renewable generation plants. Any risk of fluctuating generating cost is therefore carried by the generator, not the utility. Additionally, the prices negotiated are likely to be favourable for the utility, as these generators had already had most of their capital cost paid off by the government's non-fossil fuel obligation (NFFO) scheme. With energy-based products, there is the potential to outsource the development of any new renewable generation, and in a similar way the risk can be managed effectively.

Thus viewed from the producers' perspective, it becomes easier to understand why green electricity products were launched, despite their own predictions of low uptake. Why not? It was a low risk option: the financial disadvantages were few, and the potential advantages included improving their green image, differentiating their brand, and hence gaining more customers, and better profit margins.

In contrast to these relatively risk free choices faced by utilities, housing producers face uncertain financial gain from developing green products, for two reasons. Firstly, speculative producers (ie those building not for a specific client) cannot be sure in advance of developing a product that it will be sold for a higher price, ie that any extra costs involved in developing a green house will be recouped upon sale. This risk is reinforced by the fact that they need to invest capital in advance to develop new products. Most house builders use standard house types: the top 25 builders in the UK use an average of twenty standard house types (Nicol and Hooper 1999), and considerable resources are invested in developing these.

Secondly, unlike with green electricity, there will be a financial benefit that accrues to the customer when purchasing low carbon housing, because it is likely to have much lower running costs. However, crucially, this financial benefit does not return to the housing producer, as there is no ongoing relationship with customers, as discussed above. The only financial advantage, therefore, in developing green housing products, is if it increases its customer base. However, as housing producers do not make most of their profit from selling more houses, but rather managing their land banks effectively, this is not a key factor for them. Moreover, if there is a shortage of housing supply (as there is currently) housing producers are virtually guaranteed to sell what they produce – they simply do not have to compete for customers (Mathiason 2002).

### The customer relationship

Housing producers have a more distant relationship with their customers. One outcome of this with relevance to the discussion is that there is very little available information on consumer housing preferences. A large scale survey of 10 000 consumers of new housing in the UK commissioned by the Housing Forum in 2000 was the first of its kind (MORI 2000; Crewe 2002 pers. comm.).

There are two immediate outcomes of this dearth of information: firstly housing producers believe (or are able to say that) there is no consumer demand for green products, or better quality housing. Secondly, the financial risk of developing green products is much higher in the absence of detailed information about consumer preferences. The size of the potential green consumer market is unknown.

Electricity utilities, however, have a much more important, closer relationship with their customers. They therefore have invested considerable resources in gaining more information about customers since liberalisation, through, for example, profiling different types of customer (Guy and Marvin 1998). Customer information such as that found in the 1996 MORI poll suggesting that roughly 20% of customers were prepared to pay more for green electricity was available to the utilities, and was certainly influential in their decision to launch green products, even if they did not agree the uptake would be that high (Lovell 1998).

### Regulation

The regulatory framework has also influenced the decisions made by housing and energy producers. Environmental legislation which reinforced the development of green products was present in the energy sector, but is largely absent for housing producers.

At the time of liberalisation, the energy producers were confident that further legislation would follow to encourage development of renewables, particularly in light of the government target for 10% of electricity from renewable sources by 2010 (DETR 2000). Thus energy producers could plan towards renewable generation becoming a more important part of their business in the medium to long term. It therefore made commercial sense to invest in the technologies and to develop expertise, through launching green products. Indeed, there has been controversy over the extent to which green electricity products offer any 'additionality', that is whether the renewable generation that comprises these products would have been developed anyway by the utilities, due to forthcoming regulations requiring them to invest in renewable energy generation (ENDS 2002; *ibid.* 2002b).

In the housing sector, the regulatory framework is less certain with regard to low carbon issues. The Building Regulations are updated every five years. Thus although most housing producers expect Part L of these regulations to be upgraded over time, there is no absolute certainty about this. Indeed, there has been effective resistance by the housing producers against changes to the Building Regulations to increase thermal performance (Olivier 2001). This uncertain regulatory climate makes investment in low carbon products riskier for commercial housing producers. This is in contrast to the social housing sector, where the Housing Corporation has set a target for 50% of new developments to be built to an

EcoHomes 'Good' standard from 2003 (The Housing Corporation 2001). This target will be increased over time.

### Conclusions and Recommendations

This article has attempted to explain why green consumer products have been developed within the electricity sector in the UK since privatisation and liberalisation, and why they remain largely absent from the housing sector. The analysis has concentrated on the ways in which choices are structured for consumers and producers. In this way the notion that privatisation leads to 'free' market choices and greater flexibility and choice has been challenged.

It is hoped that this assessment helps overcome some rather entrenched concepts within academic, policy and practitioner debates in this field. Most typically the starkly constructed divisions between the respective roles of the market and regulation, and consumers and producers, in achieving a transition to a lower carbon future. It is suggested that these (largely theoretical) divisions serve to both oversimplify what are in reality complex situations, and also promote a 'blame culture', thereby absolving certain groups of any responsibility to act.

Three general policy recommendations are as follows:

For policy makers to reconsider the premise that there will necessarily be a positive 'trickle down' effect from the existence of green products within a sector. In other words, the idea that the existence of a few green products will automatically encourage other producers to take similar action needs to be challenged. This will remain the case until the broader decision making framework for producers within a sector is altered so as make investment in environmental products a sensible (i.e. profitable) commercial activity. One-off government funding to encourage such products, in evidence in both sectors (the 'perpetual demonstration project syndrome'), will have no long term impact until it is combined with wider structural changes within these sectors. Such changes might involve, for example, the government setting long term environmental targets, as well as a policy framework that work towards these, in order to reduce risk for commercial producers and stimulate strategic planning. The existence of such targets in the energy sector in the UK has been shown to have a reasonably positive effect, at least in terms of the development of green consumer products, whereas the lack of them in the housing sector has increased risk for producers, and therefore restricted green product development.

Thus, secondly, more attention needs to be paid to the ways in which *non-environmental* choices are structured for both producers and consumers. In this way opportunities for altering these choices so as to encourage positive energy, or broader environmental outcomes, can be better evaluated (Guy and Shove 2000). For example, there is anecdotal evidence that housing producers are trying to encourage more people to work in the construction industry, which has an acute skills shortage, by improving its image through green housing schemes (TCPA 2002 pers. comm.). Such secondary, unexpected routes by which green products might become more attractive for producers should be given greater attention by policy makers.



Thirdly, government has to accept the implication of having privatised and liberalised important national sectors such as housing and energy: policy makers' influence is reduced. For example, in the UK housing sector, with the progressive removal of formal government regulation, more informal commercial rules and practices have emerged to ensure some stability and minimise risk within the sector, including greater use of standard house types (Barlow and King 1992). For the government, and many others, to then criticise the commercial housing producers as conservative, and lacking innovation (see for example Prescott 2002), is in many ways unfair, and unconstructive. The choices these commercial organisations are making are entirely rational, when viewed from their perspective, ie competing to remain profitable in a market based environment – an operating environment which government has created and structured (Ball 1983).

Misunderstandings arise because from an overall societal perspective 'rational' behaviour is defined much more widely to include economic, environmental and societal outcomes. Thus from the perspective of government or the general public, it would be 'rational' to have higher quality new housing which costs less to run, and to invest in lower polluting renewable forms of energy generation. Recognising the limitations, and opportunities, of policy making in privatised sectors is a crucial first step, which will hopefully lead to more constructive, less polarised dialogue.

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