Centre for Environmental Strategy Working Paper 01/12

Locating the agency and influence of local authorities in UK energy governance

Shane Fudge
Michael Peters
Joanne Wade

ISSN: 1464-8083

Locating the agency and influence of local authorities in UK energy governance

Shane Fudge[1], Michael Peters[1] and Joanne Wade[2]

[1] Centre for Environmental Strategy, University of Surrey
[2] Independent Researcher

ISSN: 1464-8083

Published by:
Centre for Environmental Strategy, University of Surrey,
Guildford, Surrey GU2 7XH, United Kingdom.

http://www.surrey.ac.uk/ces/activity/publications/index.htm

Publication date: March 2012

1. Introduction

1.1 General policy context

The disappointing outcome of the Convention of Parties 15 (COP 15) talks in Copenhagen in December 2009 has highlighted the difficulties of reaching an internationally binding climate agreement. As Mulugetta *et al* (2010:7541) have reasoned: 'a comprehensive global agreement appears a distant possibility, and yet the need to act on climate change remains compelling and widely recognised'. The difficulties of the COP 15 negotiating process have also served to underline the importance of alternative political strategies through which to address the increasing urgency of a warming planet and through which to encourage greater levels of energy resilience. The potential role for community level energy initiatives to contribute to the broader aims of energy security and climate change strategy is now seen as an important feature in energy policy. Mulugetta *et al* point out that: 'it is clear that no single intervention can deliver the level of systemic change required to address climate change and energy security' (2010:7541) and it is increasingly being recognised in policy circles in the UK that established carbon reduction targets now require strong, co-coordinated efforts from a variety of different stakeholders. The call for local action in energy relates to both 'institutionally driven' (i.e. local government) initiatives, and more organic or 'grassroots' approaches such as *Transition Towns* and other low carbon community initiatives. A range of funding and support schemes have become available in the UK for this type of localized, community-based energy scheme. Observing the growing significance of this scale of intervention, Mulugetta *et al* (2010:7541) have argued that: 'they can make many important indirect contributions in creating the space to evaluate models of social innovation, the platform for nurturing and sharing of technical skills, as well as the marketplace where low carbon options can gain some traction. They can provide new political opportunities for active citizen engagement and challenge dominant discourses in energy'.

Until recently, a range of national performance targets for local government related to climate change and energy use arguably put local authorities in a central position with regard to this apparent political shift with a potentially important role in contributing towards and driving a range of initiatives which policy makers feel would be more effective at a local level of implementation. Although these performance targets were removed by the new Coalition Government, there remains a focus on defining a leading role for local authorities in this policy area, and in 2011 a new Memorandum of Understanding between DECC and the Local Government Group was signed (LGG and DECC, 2011). The 2009 *Low Carbon Transition Plan* (DECC, 2009) also reinforced the significance of encouraging 'place based' activities which can be coordinated by appropriate involvement from a more 'networked' governance approach.

This developing policy framework offers opportunities for local authorities to take the lead in stimulating technological innovation and for engaging in experimentation with local partnerships and models of behaviour change to encourage a shift from individuals and households to collective, community action (Heiskanan, 2009). Alongside encouraging a more influential role for local authorities in improving energy efficiency within their local area, these developments are also likely to be significant in creating the conditions for a new governing actors' network in energy supply and generation. For

instance, in a number of areas, including Woking, Gateshead, Milton Keynes, and Leicester, local councils have begun to initiate and regulate decentralized forms of energy distribution and supply, demonstrating workable alternatives to the UK's traditional energy infrastructure. While these developments remain the exception rather than the rule, there is no doubt that, spurred on by emerging changes in ways in which energy is used and conceptualised, the likelihood is that local authorities will be expected to become more engaged in different aspects of UK energy policy in the coming years.

1.2 Aims of this paper

This paper sets out to explore the changing position of local government in the UK and, in particular, its potential role and influence in driving a more local response to both climate change and energy security. We also examine some of the limitations and challenges faced by local government in efforts to engage their communities in drives towards a sustainable energy future. As the paper will suggest, the emergence of local government as a major player in the UK's low carbon transition has had a mixed level of success so far.

The paper considers, in particular, the ways and means by which local authorities have become more active players across a range of sustainability initiatives in the UK. Some have become organized around more technological, *systems* based approaches, including those which have branched into local energy generation initiatives; others have adopted more *social*/*cultural* approaches, with the intention of engaging and influencing the behaviours and practices of individuals and communities through a range of policy initiatives. Some local authority initiatives have attempted to develop combinations of the two approaches; reflecting the complex nature of this shift. The paper considers the characteristic elements of this shift in four ways:

- Assessing the evolution and future of the local government role in the context of evolving national policy;
- Reviewing the development of national policies for local authorities that have influenced local authority energy activities;
- Considering a range of energy and climate change initiatives established by exemplar authorities in the UK and elsewhere, and
- Exploring the process of change and transition in local governance, and the impact within this of external actors.

1.3 Structure

The first section of the paper will seek to assess the evolution and future of the role of local government in energy governance in the context of an evolving *national* policy setting, whereby the UK Government itself is beginning to set out a framework for a more localized system of energy governance. In this section, the context is defined through an exploration of different meanings of 'energy governance' considered in relation to:

- The post-war period and the ways in which energy policy has linked into the requirements of the wider UK political economy;
- Privatization and liberalization of energy supply markets during the 1990s;
- How the national policy framework has continued to evolve as the traditional setting for energy governance during the last two decades;
- The ways in which energy liberalization has influenced the role of local actors in energy supply and demand;
- Changes in policy that are encouraging a relationship between local government and energy and how this link is being accommodated in a new local governance framework.

The second section of the paper reviews more recent developments in national policy for local authorities that have impacted on the role of local authorities in local energy action, considering in particular:

- The changing role of local authorities over time and the main drivers/ influences in this process;
- The impact of changes in local government powers and responsibilities, during the Conservative governments of the 1980s and 1990s and under Labour from 1997 to 2010;
- Evolving policy under the new Coalition Government, and the local government response to this, and:
- Specific policy that has shaped local government action, for instance, on planning, energy in housing, and on renewable energy supply.

In the third section of the paper, we consider a range of energy and climate change initiatives established by four 'best practice' UK local authorities, and also describe similar community-based sustainable energy activities in the Cities of Freiburg and Hanover, Germany and Stockholm, Sweden. This leads to a review and discussion of the opportunities and constraints faced by local authorities in terms of engaging at a deeper level on the low carbon debate.

The final section of the paper explores the extent to which external forces and actors have shaped the path taken to date by local authorities on energy issues, and the impact that the current re-conceptualising of energy services may have.

2. Context

2.1 A brief history of post-war energy policy

In order to locate the ways in which 'place-based' energy generation and consumption are now beginning to inform the debate on what a low carbon economy in the UK might look like, this section considers what some of the current legacies might be from the ways in which *previous* energy regimes have been governed and presided over. Helm (2005) suggests that governing mechanisms – and the decision-making processes which have characterized them – might be viewed within three approximate

historical time periods: the consensus politics of the period from 1945 to 1979; the market-oriented policy the 1980s and 1990s, and the 'third way' policies of the last Labour Government.

1945 – 1979: consensus politics and a state-controlled energy system

Firstly, Helm suggests that from 1945 to 1979 energy policy governance in the UK was characterized by 'consensus politics' where state-led energy regulation was a central hub within a system based upon the democratic provision of healthcare, education and welfare. A large part of the rationale behind the state ownership of energy utilities during this period was to ensure that every home could now be affordably heated and lit. It was also thought that state energy governance was the most efficient way through which to ensure an extraction rate that would be able to feed demand and future forecasts from UK industry. Market forces were considered to be antithetical to these objectives and were thus rejected in favour of state regulation.

Nationalization itself affected governance and regulatory structures in the UK which, up to 1945, had emerged partly in relation to the increasing power of local government agencies, whose influence in service provision had included 'supplying about one third and two thirds respectively of the nation's gas and electricity consumption in 1945' (Byrne, 2000:22). Both these services and responsibility for revenues were passed into the administration of regional boards. Similarly, nationalization broke the links that many local authorities had previously held with the UK's water supply, and the Water Act 1945 saw responsibility for water and sewage pass on to the control of regional water authorities.

The post-war consensus itself had followed a strong social democratic argument that capitalism should be regulated by a particular form of governance in order to ensure against the laissez-faire market extremism that had threatened the social order and political stability of American and European societies in the 20s and 30s. A nationally based post-war energy policy in the UK was to be the cornerstone of ensuring the public good. Here, centralised government administration over the UK economy to ensure the execution of particular social goals was deemed to be essential in ensuring a stable, democratic society from the perspective of both the left and the political right.

1979 – 1998: the market for energy

The design of energy regulation that characterized the post-war period was rejected by the incoming Conservative Government of 1979. This Government argued that only a market-based approach would be able to address the inefficiencies and internal political dissent that had begun to cause problems for the state's involvement in securing the particular social goals of consensus government. The Conservative Government argued that markets should now be allowed to function with minimal state intervention, whereby individual freedom and not social justice should be the framework for policy makers.

Therefore, the Conservative Government's *Market for Energy* strategy introduced firstly the concept of *privatization*, whereby ownership of energy utilities was gradually transferred from the public to the private sector; secondly *liberalization,* where previously monopolised sectors of the industry were opened up to greater competition and economic incentives through changes in the regulatory framework; and thirdly *deregulation,* whereby harmonization in economic regulations and trade restrictions would further encourage the influence of market forces to iron out inefficiencies in pricing and resource production and allocation.

The introduction of market principles into the UK gas and electricity sectors was a particularly good illustration of the 'producer to consumer' driven ethos that was introduced by the Conservative Government as the chief remedy in redressing what was held to be the general political failure of state owned utilities in general, and the political framework of energy supply regulation in particular. The main argument proposed, as Chang (2001:2) points out, was that 'this imperfect nature of the state results in government failures: regulatory capture, rent seeking, corruption and so on. The costs of these government failures are typically much greater than the costs of market failures, and therefore it is usually better for the state not to try to correct market failures because it may make the outcome even worse'.

Energy policy since the late 1990s: a 'third way' between state and market

Mulugetta *et al* (2010:7541) suggest that, prior to the late 1990s: 'cheap oil and the neo-liberal ideology conspired against any radical changes in the collective behaviour of citizens or government policy'. They argue however that 'both the neo-liberal consensus and cheap oil now appear to have come to an end, and humankind is faced with an uncertain future on a number of fronts'. The limitations of regulation under the *Market for Energy* framework, and the need for more flexible forms of decision-making and implementation for energy in the UK, were brought into sharp focus by a number of developments during the mid-1990s:

- The growing evidence of the impact of climate change and wider international recognition that there needs to be a concerted global effort to cut greenhouse gas emissions, especially carbon dioxide;
- Rising fossil fuel prices and slower than expected liberalization of EU energy markets at a time when the UK is increasingly relying on imported energy;
- Heightened awareness of the risks arising from the concentration of the world's remaining oil and gas reserves in fewer regions around the world, namely the Middle East and North Africa, and Russia and Central Asia;
- The upcoming need for companies to make substantial new investment in power stations, the electricity grid, and gas infrastructure in the UK (DTI, 2007:6).

The climate change debate posed a particular set of problems for the market-based design which the Conservative Government had bequeathed to the incoming Labour Government in 1997. Energy privatization had clearly been instrumental in reducing the UK's CO_2 emissions, and the 1990s "dash for

gas" in particular, had resulted in a sharp decline in the UK's greenhouse gas emissions. However, CO_2 emissions levels began to rise again during the mid-90s, driven mostly by growth in both road use and air travel (Helm, 2004). There was also a growing awareness of the need to tackle energy demand in housing, which accounted for as much as 40% of the UK's CO_2 emissions total (Jones *et al,* 2000). Thus, while the Labour Government had felt sufficiently confident in 1997 to set an ambitious 2010 target of a 20% reduction according to 1990 baseline levels, there was growing evidence that more innovative policy initiatives would now be needed to address more directly patterns of energy consumption.

Oil and gas price rises also served to put energy supply issues into sharp focus in the UK during this time. Increased competition in the gas and electricity sectors, together with price regulation, had originally driven prices down for consumers and had served to uphold the political mantra of 'cheap energy for all'. However, the end of the 1990s saw less confidence in markets being able to deliver on this promise – certainly on a consistent basis. Therefore, energy policy in the UK, particularly from the period around 2000, has primarily been about trying to address these problems and, more specifically, negotiating an effective balance between political regulation and market forces.

2.2 Implications for local energy governance

The political legacy of structural changes in UK energy regulation

As the UK Government points out, the legacy of energy policy in the UK post-1945 is significant in relation to the challenges of sustainability:

> The energy system in the UK is highly centralised. Most of our electricity is generated in large power stations connected to a high voltage 'transmission' network and transported to regional low-voltage 'distribution' networks for distribution to points of use. More than two-thirds of our heat comes from gas that is fed through a nationwide gas grid. Both our electricity distribution and gas networks are optimised for a one-way flow, from a small number of entry points out to industry and buildings (DTI, 2007:61).

Liberalizing and deregulating both gas and electricity in the UK during the 1980s and 90s began to challenge an energy infrastructure model first developed under state-led energy regulation, by asking a series of questions. Of electricity in particular, policy-makers began to ask:

- Whether it might be possible to trade electricity as with any other commodity;
- Would a competitive model be compatible with the particular generation risks that characterize the electricity sector and the fact that security of supply must be present at every stage of generation?
- Could a deregulated industry improve upon the long-term contractual structure and vertical integration characteristic of the nationalized era of electricity generation?

The EIA (2007:1) point out that efforts in the UK, as one of the first nations to implement widespread privatization of its electric utilities: 'have been among the world's most ambitious and path-breaking in introducing market forces into this particular energy sector'.

Despite criticisms from some that privatization has simply seen the emergence of new monopolies around the UK's energy utilities, based on the influence of corporate power, Smith (2006) has suggested that changes which have taken place in the UK's political economy over the last thirty years have also been instrumental in encouraging the development of technological, political and economic 'niches'. This has been a development observed by Scrase *et al* (2010) who have made the particular point that:

> The neo-classical economic paradigm that has dominated energy policy in recent decades is loosening its grip under the challenges decarbonisation presents to energy systems. Other frameworks for interpreting and responding to those challenges are available. We can see this plurality evident in the UK Low Carbon Transition Plan, where neo-classical approaches sit alongside more interventionist industrial strategy and initiatives for engaging civil society in energy restructuring (Scrase *et al,* 2010:2).

As Scrase *et al* (2010) note, there is a good argument to suggest that the emergence of these niches has been both a reflection of and a response to the shifting nature of the energy issue over the last decade, both in the UK and also globally. Historically, the issue of energy demand has rarely been a point of discussion. For example, whilst there have been intermittent threats to energy security in the UK, notably in 1974 and 1979, there has always been a general political assumption that energy supply infrastructures – whether oriented through a nationalized framework of delivery or through the more recent market based approach – could always be optimized from the point of supply itself, in order to meet the level of energy demand in the UK. In recent years, however, there has been increasing discussion around the implications of growing levels of energy demand and of the associated carbon intensity. The problem of climate change for business-as-usual energy use in the UK became a particularly pressing issue for policy-makers in the aftermath of the *Royal Commission Report* (RCEP, 2000). Published in 2000, this report argued that, in order to align with the latest scientific evidence on the consequences of a warming planet, policy-makers needed to consider a 60 per cent reduction in the UK's carbon emissions, a much more radical change than the much weaker political targets that had been proposed up to that point. The 2006 publication of the UK Government commissioned *Stern Review* on the economics of climate change (Stern, 2006); the emergence of three UK Energy White Papers in 2003, 2007 and 2009; but most significantly 2008's Climate Change Act – which commits the UK to reducing levels of pollution by 80 per cent by 2050 – have been visible evidence that policy-makers have been exploring the possibilities for a more effective governing framework through which to address the conditions of what Helm (2005) has described as the 'new energy paradigm'. As the Department for Environment and Rural Affairs (Defra) pointed out in 2004:

> The environmental agenda has traditionally been focused on regulating point sources of pollution, for example from industrial plant. The future environmental agenda is about dealing with the myriad ways in which we put strains on the environment by how we produce, what we produce and the ways in which we consume. Our overarching goal is to be able to continue to

pursue economic growth with all the benefits it brings without damaging the environment at home or oversees (HM Government, 2004:23).

There has been a growing recognition that action at the local and community levels will become increasingly important in both engaging effective climate change mitigation and also in embedding resilience in the UK's energy system. At a statutory level in the UK, as argued above, this has been recognized in the growing trend to push for local accountability for CO_2 emission reductions, and for a more localized renewable energy infrastructure.

As well as the behavioural issues which are recognized as being a significant element of the shift towards a low carbon future (Defra, 2008), there is a recognition that existing *structural* issues must simultaneously be addressed. It has been acknowledged that policies which encourage behaviour change in individuals and communities will take a low carbon transition only so far. Re-modelling the current electricity grid in the UK, for instance, is just as important an issue for policy makers in the push to encourage a more sustainable energy economy. As Mulugetta *et al* have reasoned: 'It is clear that no single intervention can deliver the level of systemic change required to address climate change and energy security. Significant efforts are needed on many fronts, involving both small and large scale, implementing various ownership and delivery models, and deploying a wide range of low carbon technologies at the demand and supply ends (2010:7541).

Significant to a more localized vision of how energy might be produced and consumed in a more efficient way, there is a growing awareness that the centralized systems that have been a feature of both the nationalized and liberalized electricity regimes remain only 30 per cent efficient – a potential problem given the UK's increasingly stringent targets on CO_2 emissions. Concerns over increasing reliance on imported gas have also thrown the spotlight onto current use and practices around the supply side of electricity generation itself. The latest UK energy white paper, *TheLow Carbon Transition Plan,* points out that the government aims to supply around 30 per cent of the UK's electricity supply from renewable energy sources by 2020 – a percentage which 'will require around a five-fold increase in renewable generating capacity' (Jones and Eiser, 2010:3106). As *The Low CarbonTransition Plan* acknowledges, one of the principal challenges involves the transformation of a centralized system of energy generation into more a flexible, 'decentralized' design. This would incorporate an increasing role for community level energy initiatives in encouraging demand reduction alongside the deployment of distributed generation - now seen as an integral part of a future energy policy which is able to deliver on the increased urgency of UK carbon reduction targets and in relation to future energy security.

Integrating behaviour change and technological innovation

Walker and Devine-Wright (2008:497) suggest that the increasing possibilities of electricity and heat generated through micro and community scale generation, 'may suggest a significant change in UK energy policy away from focusing on the large-scale, centralized technical systems devised to generate and supply energy in the mid to late 20th century'. Jackson (2005) argues that an effective policy framework should be characterized by a judicious combination of technological innovation and the way

in which this is likely to interact and engage with local social and cultural terrains. A more 'place-based' energy infrastructure is itself beginning to emerge from these aims and objectives. In the UK for example, the practical difficulties of reaching increasingly stringent targets on CO_2 emissions have encouraged policy-makers to work more closely with behaviour change initiatives which target individuals and communities as a central part of this political strategy. As argued above, this has largely resulted from a political acknowledgement of the growing complexities of how to develop practical sustainability measures which 'buy-in' to their social and environmental surroundings. Significantly, policy-makers have been forced to acknowledge that structural shifts encouraged by energy privatization (and what were in effect *fortuitous* reductions in the UK's carbon emissions during the late 1980s and early 1990s) have been eroded, necessitating the need for a shift in emphasis towards a more consumption based policy strategy; one which would more effectively deal with the growth and increase in road and air travel (Royal Commission, 2000) and also with the primacy of behavioural and social norms around increased energy demand in housing and buildings (Jones *et al,* 2000).

Therefore, as Mulugetta *et al* (2010:7542) observe: 'technology makes a crucial contribution to solving the climate problem, but the significance of local and community level initiatives as vehicles for transforming the society-energy relationship should not be underestimated'. Walker *et al* (2008:2622) have reasoned for instance that 'community energy projects have the potential of building social capital, developing capacity, and enabling experiential learning, which might pave the way for future cooperative activities involving sustainable energy'. Thus, the broader vision of encouraging energy supply initiatives which are themselves more responsive to local or 'place' orientations, is inextricably bound up with trying to obtain more of an understanding of individual attitudes and values around climate change and energy use, and how best to engage with 'behaviour change' at a more broadly based consumption level. In UK policy circles there is a growing recognition that the kind of interface between policy making, market-led technological innovation, and the public which is likely to deliver current and future carbon reduction targets, can perhaps be provided through local authority bodies; building on their existing geographical and political proximity to individual, household and community level activities and practices.

3. Evolution of local governance in energy and other policy areas

3.1 The Thatcher years

Byrne (2000) suggests that the growing political and economic influence of local authorities on the governing structure in the UK was curtailed to a large extent by the programme of nationalization which followed the 2nd World War. Both nationalization, and then the market liberalization project introduced by the Conservative administration in 1979, favoured a political design that was steered largely by a top-down approach, whereby central government was at the hub of decision-making.

Thus, a decline in influence during both these periods accompanied an increasing reliance on central government funding for local governing and administrative agencies; a situation which was exploited at a political level particularly by the Conservative regime of the 1980s, in order to reduce the activities and

powers of local government. During this period, it was argued that global economic recession had highlighted a need for cuts and greater fiscal rectitude. The government needed to: a) reduce public sector spending; b) improve efficiency (or value for money); and c) to attack the 'national overhead' through cuts in the civil service; the removal of one tier of the NHS; and by setting up higher revenue targets for nationalized industries (Byrne, 2000:51). Local authorities had 'too few functions to perform, which resulted in their finding it difficult to establish a role for themselves' (Byrne, 2000:51). As Wade *et al* (2007:421) have observed, the market reform agenda introduced by the Thatcher administration, included the *Local Government, Planning and Land Act1980,* which 'introduced compulsory, competitive tendering (CCT) for construction, maintenance and highways work in England'. Furthermore, as they point out: 'the list of services subject to CCT was further extended by the *Local Government Act1988,* to include refuse collection, ground maintenance and catering among others'. They suggest that this agenda curtailed the political and economic capacity of local government in the UK by both shifting the focus on to the economic aspects of delivering the cheapest services and by stipulating that decision-making at this level would be mediated through the procedures and processes of the market. As they point out:

> The result was not only a focus on cost savings at the expense of local governance, community leadership and service outcomes, but also a large scale organizational restructuring which further removed attention from the other key areas of local government's role (Wade *et al,* 2007:422).

3.2 From Local Agenda 21 to Local Carbon Frameworks

The catalyst to a major political shift in this situation began with the return to power of the Labour Government in 1997. This period began a process of what Chadwick and Heffernan (2003:173) have described as 'the biggest programme of constitutional reform in British history', where a decentralized system of governance was promoted as the key feature of 'political modernization'. According to Giddens (1998), political modernization attempts to transcend both state and market regulation by widening and deepening political participation according to a more pragmatic 'what works best' approach. The 1998 UK White Paper, *Modernizing Government,* framed this period of constitutional reform in the UK, where the advent of political devolution saw the Scottish Parliament, the National Assembly for Wales, and the Northern Ireland Assembly become political markers for a decentralization of power to the UK regions. Significantly, local authority agencies were championed as an integral part of this drive towards local-level policy initiatives and decision making, in order to encourage what the new administration hoped would be a more democratic and more 'joined-up' model of governance in the UK. As Wade *et al* (2007:422) have pointed out: 'the Labour Blair Government came to power with a manifesto to 'modernize' local government. A significant part of this aim was to reduce the focus on prescribed processes and efficiency at all costs, and to develop a framework in which local government would function and move towards a greater regard for outcomes'.

Tracing the evolution of the key policies between 1997 and 2005, Downe and Martin (2006) suggest that there are four key phases, through which the UK Government has played a role in transforming the politics and performance of local government agencies in the UK. To these we have added a fifth phase, reflecting the recent interaction between national energy policy and the evolution of the local government role:

- *1997-1999Consultation*. The 1999 *Local Government Act* placed a statutory duty on local authorities to achieve 'Best Value'. Thus, five year reviews of local authority functions were drawn up with a range of stakeholders;
- *2000Legislation.* This was a period marked by extending the legislation beyond the 1999 Act's emphasis on service improvement to address the democratic accountability of local government and its capacity to engage with other local service providers and the public;
- *2001-2002 encouraging a 'best value' regime.* Problems surrounding the inspection the five year Best Value reviews (owing to many more being produced than anticipated) meant that the Audit Commission were unable to deliver on their ten week turn-around inspection commitment;
- *2002-2005 local authority role in community leadership.* The principal characteristic of this period was a much stronger emphasis on encouraging a community leadership role for local authorities in order to address issues that cut across different policy areas, such as health, well-being, crime and disorder, and regeneration. Government guidance strongly encouraged local authorities to form local strategic partnerships within their judicial boundaries, bringing together different parts of the public, private, voluntary and community sectors to enable different services and initiatives to support one another more effectively (Downe and Martin, 2006:466-470).
- *2005-present.* During this period, the Climate Change Act has seen the UK Government commit to an 80 per cent reduction in GHG emissions, with periodic assessment of progress. With respect to these developments, energy has become an increasingly influential element in the gradual devolution of power and responsibilities to local government level. More recent changes in planning and trading laws suggest a reconfiguration of governance around a higher profile for local government agencies linked to the greater urgency of sustainability issues.

Local authorities in England and Wales now have several responsibilities with regard to incorporating energy policy and climate change considerations into their policy functions and obligations. Encouraged by the recent shift from *government* to *governance* detailed previously, many local authorities have begun to carve a political niche for themselves around the objective of sustainability, and some have even framed policies within locally agreed targets for carbon emission reductions. The following section traces the significant policy developments that have shaped local authorities' increasing involvement and integration into the UK Government's evolving energy and climate change strategy.

National energy and climate policy

2003 – 'Our Energy Future: Creating a Low Carbon Economy'

In the wake of the 2000Royal Commission on Environmental Pollution's Report on*Energy and Climate Change*, the UK Government commissioned an Energy White Paper in response to the Commission's

recommendation that the UK needed to reduce its carbon emissions by 60 per cent by 2050. Following up the previous year's Performance and Innovation Unit (PIU, 2002) UK energy review, *Our Energy Future* made four recommendations:

- To put ourselves on a path to cut the UK's carbon dioxide emissions – the main contributor to global warming – by some 60% by about 2050, as recommended by the RCEP, with real progress by 2020;
- To maintain the reliability of energy supplies;
- To promote competitive markets in the UK and beyond, helping to raise the rate of sustainable economic growth and to improve our productivity and;
- To ensure that every home is adequately and affordably heated (DTI, 2003:11).

The 2003 Energy White Paper made a particular case for locally led action on climate change, emphasising that the UK's future energy strategy would involve a much greater focus on both local and regional approaches to delivering on what Helm (2004) describes as 'the new energy conditions'.

A follow up *Energy Efficiency Implementation Plan* restated this aim, as Wade *et al* (2007) have pointed out:

> Following on from the White Paper, the government published an Energy Efficiency Implementation Plan (Defra, 2003). This included: announcement of a competition for award of Beacon Council status for sustainable energy activity; possible inclusion of energy activities within the performance assessment process for local authorities and, and a Carbon Trust scheme to provide advice and finance for authorities to improve the energy performance of their own activities (the Local Authority Carbon Management Programme) (Wade et al, 2007:423).

2006 – The UK Government's Climate Change Programme

This document set out the UK Government's policies and priorities for action in tackling climate change in the UK and internationally. It built on the original *Climate Change Programme*, published in 2000, in assessing both the impact of existing policies and the potential contribution of new policy options to achieving the UK's national goal of reducing carbon dioxide emissions by 20 per cent below 1990 levels by 2010 and 60 per cent by 2050. It argued that 'action by local authorities is likely to be critical to the achievement of the government's climate change objectives…the government wants to see a significant increase in the level of engagement by local government in climate change issues' (HM Government, 2006:105-106). Several best practice case studies were highlighted, including the seven local authorities who were selected as 'Beacons' under the government's 2005 Sustainable Energy Beacon Council Scheme. In order to incentivise more local authorities 'to reach the levels of the best', the programme detailed a new local government performance framework, which was to be introduced post 2008, that would include 'an appropriate focus' on climate change.

It was argued that a key role for local authorities would be in raising awareness and enabling the realization of 'behaviour change' within local community jurisdiction. As well as leading by example, the programme pinpointed several areas where, through their increased power and responsibilities, local authorities could exert a substantial influence over local level carbon reduction, including housing, planning, local transport, powers to promote well-being, and activities such as their own local procurement and operations.

2007 – White Paper: Meeting the Energy Challenge

Meeting the Energy Challenge draws primarily on the findings, and the predictive models which inform them, of the 2006 *Stern Review* in order to highlight the 'economic costs of failing to act to tackle climate change' which demonstrate that continuing the pursuit of a business-as-usual approach to this issue is not an option. The *Stern Review* hadpointed out that in monetary terms this approach 'could be equivalent to at least 5% of GDP each year and could possibly rise to 20% of GDP or more if a wider range of risks and impacts are taken into account' (DTI, 2007:29). According to the estimates of the *Stern Review* the cost of immediate action however could amount to as little as 1% of GDP. The 2007 White Paper reiterates the main channels through which the aims and objectives of UK energy policy will be achieved:

- Carbon trading;
- Increased use of renewable energy;
- Increased energy efficiency;
- Competitiveness;

The role of local authorities in promoting behaviour change was further highlighted in *Meeting the Energy Challenge* – particularly in encouraging households to understand the link between climate change, their own actions, and how they could become more energy efficient. The White Paper highlighted recent research (CSE, 2007) arguing that a coherent national approach to climate change requires effective community initiatives as an integral component of such a strategy.

2007 – The Energy Measures Report

The 2006 Sustainable Energy Act required government to develop guidance for local authorities setting out the ways in which they could improve energy efficiency and increase the use of microgeneration in their area in order to reduce greenhouse gas emissions and reduce the number of households living in fuel poverty (BERR, 2007).

The *Energy Measures Report* was potentially useful in that it drew together for the first time, the existing sources of help and advice to local authorities on the relationship between climate change and fuel poverty into one document. The report argued in particular that:

> Local authorities are uniquely placed to act on climate change mitigation and to alleviate fuel poverty. They can take action on their own estates and housing stock but can also play a key role in motivating the wider community to take action, based on their understanding of local priorities, risks, and opportunities (BERR, 2007:34).

It did carry a measure of statutory weight, as local authorities are required to 'have regard to it' when carrying out their functions (BERR, 2007). However, there has been no enforcement of the use of the guidance.

2009 – Energy White Paper: The Low Carbon Transition Plan

The Low Carbon Transition Plan appeared in the wake of 2008's *Climate Change Act*, which committed the government to reduce carbon emissions in the UK by 80 per cent by 2050, with five-yearly carbon budgets designed to achieve significant progress in the interim. Core aims and objectives set out in the *Low Carbon Transition Plan* include:

- Renewable energy to increase to a total of around 30 per cent the UK's electricity use by 2020;
- The introduction of 'clean energy' cash-back schemes;
- A community based approach to delivering green homes in low-income areas;
- Channelling about 3.2 billion to help households to become more energy efficient;
- Piloting 'pay as you save' schemes to enable people to make their whole house greener;
- A bigger, smarter energy grid which would be able to connect up a larger percentage of renewable energy drivers and accommodate more flexible energy technologies (DECC, 2009).

The role of local authorities as a 'vanguard' of local and community action on climate change is noted 33 times in the *Low Carbon Transition Plan*. As the document explains:

> The Government wants to encourage and empower local authorities to take additional action in tackling climate change, where they wish to do so. It believes that people should increasingly be able to look to their local authority not only to provide established services, but also to co-ordinate, tailor and drive the development of a low carbon economy in their area. DECC, 2009, p. 94)

As Roberts (2010) points out, the *UK Low Carbon Transition Plan* suggests that the role and purpose of local authorities in tackling climate change has now become much more central to national government philosophy on climate change strategy in the UK. This change appears no longer to be motivated by the earlier viewpoint that 'we-need-everything-we-can-get' but by an authentic understanding of how effective action by local authorities is a vital and necessary condition for success in national efforts to meet the increasingly stringent targets for reductions in greenhouse gas emissions.

Increasing local authority powers and local autonomy

1994 – Local Agenda 21

Local Agenda 21 (set out in Chapter 28 of Agenda 21) was seen as one of the most innovative policies to have emerged from the Rio Earth Summit negotiations in 1992 (Agyeman and Evans, 1994); not least in relation to its promising political potential for both widening and deepening participation in policies aimed at encouraging sustainable development. As Agyeman and Evans (1994:153) point out: 'Local Agenda 21 does exhibit aspects of what many regard as key issues central to the achievement of sustainability as a policy goal. These include community environmental education, democratization, balanced partnerships between public and private sectors, and integrated policy making'. Indeed, one of the key principles of Local Agenda 21 was its argument that sustainable development should be an integral part of a more 'bottom-up' endeavour, and one of the principal aims was to be that local government departments should consult with the key stakeholders in their area in order to reach consensus on drawing up long-term, locally initiated environmental action plans.

Whilst the incorporation of Local Agenda 21 into local authority activity has been at best uneven (Fudge and Peters, 2009), Collier and Lofstedt (1997) suggest that its 'symbolism' was nevertheless significant in informing part of the gradual shift away from top-down governance in the UK. As argued earlier, budgetary constraints placed upon local authorities by central government during the 17 years leading up to 1997 – particularly an inability to be able to set their own level of revenue expenditure and restrictions on the amount of borrowing allowed for capital spending – had the effect of limiting the potential for local government to, for instance, develop their own environmental policies (Voisey*et al,* 1996). Collier and Lofstedt (1997) have made the point that some local authorities considered that involvement in Local Agenda 21 constituted a chance for them to regain a measure of independent power and local autonomy. According to this argument therefore, whilst Local Agenda 21 perhaps lacked a legal framework, it did encourage a political debate around the possibility for local government agencies to assume a much larger role in the UK's energy and environmental agenda.

2000 – The Local Government Act

An increased emphasis on the importance of developing community level strategies in local government policy was introduced under the *Local Government Act 2000*. Significantly, the *Local Government Act* began to establish a framework for partnership working and widened participation at the local level on energy issues. The *Local Government Act* set out the terms by which local authorities are encouraged to work with other key stakeholders in their area – through Local Strategic Partnerships (in England) and Community Strategy Partnerships (in Wales) – in order to develop community focused strategies which are able to deliver on the key aims and objectives which have been agreed. It has been suggested that the introduction of this new strategic responsibility provides a clear mechanism for local authorities to set out coherent plans for tackling climate change with regard to the principles outlined in *Local Agenda 21*. In its advice to local authorities on how to integrate climate change into the community strategy, the Improvement and Development Agency (IDeA, 2006) set out three core reasons why climate change is so aptly suited to a more community oriented approach:

- Due to its complex, cross-cutting nature, climate change is an issue that necessitates a coordinated, integrated response;
- Substantial reductions in greenhouse gas emissions require the engagement of all sections of the community. Local authorities have a pivotal responsibility in galvanizing a concerted, community action;
- Climate change provides new opportunities for linking the agendas of different organizations. Community strategies can provide a shared agenda and opportunity for effective partnership working in this regard.

Significantly, the Act also introduced a new power for local authorities, outlined in Section 2(1) which pointed out that, provided it is not specifically prohibited by other legislation,: "every local authority is to have the power to do anything which they consider is likely to achieve any one or more of the following objects:

a) the promotion or improvement of the *economic* well-being of their area;
b) the promotion or improvement of the *social* well-being of their area;
c) the promotion or improvement of the *environmental* well-being of their area'' (Cirel and Bennett, 2009).

As Wade has observed, this 'well- being' power forms part of the government's wider approach to the modernisation of local government, and could be a significant resource for authorities to use to improve services. It is intended to encourage councils to look beyond their immediate service delivery responsibilities to the wider well-being of their areas' (Wade, 2008:2). She makes the point that activities that can enable the reduction of carbon emissions contribute to addressing climate change and consequently the issue of environmental wellbeing. She further notes that 'a brief look at the potential impacts of climate change makes it clear that it can also contribute to social and economic wellbeing' (2008:35).

Significantly, the well-being power also came into effect during a time in which the instability of energy markets was continuing to highlight the problem of fuel poverty in the UK. There was increasing recognition that programmes to encourage energy efficiency and changes in behaviour around energy practices would be more effective at a local level of implementation.

A more substantial platform for local authorities to influence sustainability issues at the local level was given a further boost in 2003, when the potential to develop the commercial and trading potential of the power of 'well-being' was confirmed in *The Local Government Act 2003.* Through an extension of the legal framework first developed in 1988, there was now the possibility that greater levels of entrepreneurship and more joined-up thinking could now be encouraged at local authority level as a way in which to contribute more directly to the UK's sustainability goals. There was now the possibility for instance that the power of wellbeing – in conjunction with the power to trade – held the wide-ranging potential to 'enable local authorities to establish financial (and non-financial) mechanisms to support sustainable development, through areas such as renewable energy, sustainable transport and local food-sourcing' (SDC, 2010:2). However, whilst some observers have argued that these

developments suggested the potential for local authorities to become more influential over energy policy initiatives in the UK, Wade points out that 'the well-being power has not yet been extensively used. Some local authority officers remain unaware of its potential and many others are unsure how best to use it' (Wade, 2008:35). She reasons that a few local authorities, such as Braintree District Council and Kirklees District Council, have been able to develop fairly innovative energy strategies within their locales, but that these remain exceptions rather than the rule.

2006 – Local Government White Paper and a new role for local authorities

The approach adopted in the 2006 White Paper, entitled *Strong and Prosperous Communities* (CLG, 2006), emphasised the increased scientific urgency of the need to act on climate change, and to continue to prioritize it in policy. Attempting to build momentum on the need to act at the local level, this document provided local government agencies with new opportunities to drive local action by placing greater emphasis on their position as community leaders. It did so by emphasizing the following four principles:

- Strong and visible leadership;
- Leading by example through services delivered and in-house practices;
- Responding to calls for action and the priority placed on addressing these issues by local people;
- Coordinating innovative partnerships capable of delivering real changes and progress (CLG, 2006).

The UK Government's intention to include climate change within the new local authority performance framework was also set out in this document, as well as a proposed obligation on all local authorities to achieve future carbon reduction targets. This was to tie into Local Performance Indicators framework that had been developed since the *Local Government Act,* stipulating that local authorities would now be measured on key performance indicators within their jurisdiction. Politically, this would be facilitated through Local Area Agreements (LAA), an agreement between the members of a Local Strategic Partnership (including the Local Authority) and central government, which would be linked to central government funding for local activities.

The UK Government's stated intention for LAA's in *Strong and Prosperous Communities* was that they should 'provide local authorities and partners with the flexibility and capacity to deliver the best solutions for their areas through a reformed relationship between central and local government' (CLG, 2006). In this sense, the new LAAs would provide a more robust mechanism for ensuring that local priorities – notably issues that had not had a high profile at such as climate change and an interest in the environment – translated into effective action, 'bolstered, where appropriate, with local targets and indicators' (CLG, 2006).

The possibilities for local authorities to reduce carbon emissions through a *range* of approaches was also highlighted, including key areas such as procurement, energy efficiency of council-owned buildings,

green travel plans, development of local renewable energy sources for use in residential and community buildings, and the creation of new markets for low carbon technologies.

Localism, and Local Carbon Frameworks

The new Coalition government is implementing a localisation agenda, devolving more powers and responsibilities to individuals, communities and local government. Announced in the Queen's Speech on 25th May 2010, the 'Decentralisation and Localism Bill' (HM Government, 2010) has a range of aims linked to this agenda, including:

- Returning decision-making powers on housing and planning to local councils;
- Giving councils a general power of competence;
- Giving residents the power to instigate local referendums on any local issue;
- Giving local government and community groups greater financial autonomy; and
- Creating Local Enterprise Partnerships – joint local authority-business bodies to promote local economic development (replacing Regional Development Agencies).

Under the previous administration, a pilot programme designed to develop the local government role in delivering sustainable energy was announced. This 'Local Carbon Frameworks Pilot' was completed under the present administration, as part of the localism agenda. The pilot involved local authorities from nine areas across England, delivering a wide range of sustainable energy actions. The aim was to test the extent to which local government can deliver these actions, and to define the assistance that they require. The work on the pilots has informed the Local Government Offer on Climate Change (see below) and will continue to inform the sector's work in this area.

Housing and energy use

1995 - The Home Energy Conservation Act

The Home Energy Conservation Act 1995 (HECA) was introduced as a Private Members Bill with the principal intention being to exploit the position of local authorities as a way to access the energy profile of the residential sector through their role as public service providers (Jones *et* al, 2000:203). With residential energy use accounting for approximately 28% of total primary energy use in the UK, and with consumption levels forecast to increase – due partly to expanding numbers of households (Jones *et al* (2000:201) – it was hoped that HECA would enable local authorities to play a central role in reducing energy demand and to make a contribution towards reducing the UK's carbon emissions. One of the main objectives behind the aims of HECA was to contribute to the eradication of a growing fuel poverty situation in the UK, through more efficient energy use in the home: the UK Government hoped that this 'market failure' could be corrected by the appropriate application of HECA at the local level.

The policy framework behind HECA decreed that local authorities in the UK with housing responsibilities were required to produce an energy efficiency report, to be submitted to the Secretary of State, identifying:

- Practicable and cost-effective measures to significantly improve the energy efficiency of all residential accommodations in their area;
- Yearly reports to be submitted on progress made in implementing the measures (Defra, 2007:1).

In effect, the HECA would give local authorities the status of Energy Conservation Authorities (ECAs), with strategies formulated on the basis that each blueprint would enable 'each ECA to identify cost effective and practical measures which will result in a target reduction of 30% in home energy consumption (with resultant reduction in CO_2 emissions), over a ten-year period 1997-2007 (Aberdeen City Council, 2007:1).

It is important to note that, whilst HECA required the production of strategies and reporting on progress, it did not actually require local authorities to do anything to implement the strategies. Nor did it offer any additional resources to cover the costs of such action (Wade *et* al, 2007:422)

Warm Homes, Greener Homes: A strategy for household energy management

The last administration developed a new strategy to tackle energy use in homes entitled 'Warm Homes, Greener Homes (CLG/DECC, 2010). Central to this was the concept of a 'Pay-as-you-save' funding mechanism: energy efficiency improvements would be paid for via energy bills, with repayments set at a level that was lower than the monetary savings resulting from the investment. The delivery model proposed for this investment included local partnerships between energy suppliers, local authorities and other local organisations. The government envisaged local authorities 'playing a key role in coordinating action at a local level and ensuring it reflects the specific needs of their area'(CLG/DECC, 2010:18).

Support for microgeneration

Alongside a new strategy for energy demand management in homes, the government introduced new financial support mechanisms for small-scale renewable energy: Feed-in-Tariffs and the Renewable Heat Incentive. Whilst these mechanisms are primarily intended to improve the economics of investing in renewable energy technologies for householders, initial experience with Feed-in-Tariffs has demonstrated the opportunities offered to businesses and social housing providers to invest in appropriate renewable energy technologies on behalf of households. In some cases, these opportunities have led to the formation of new, local delivery organisations or increased activity by those already existing. A proportion of these organisations are led by, or have input from the local authority.

The Green Deal

The new administration is developing the 'Green Deal' (DECC, 2010) as its primary policy for the delivery of energy efficiency in households. As with the Warm Homes, Greener Homes strategy, it centres on the use of private sector finance in the form of loans that will be repaid out of energy bill savings. As with the previous administration, the current government sees local government playing a key role in the delivery of the Green Deal. The precise role is yet to be defined, but is being explored in the Local Carbon Framework Pilots (mentioned above) and in negotiations around the Local Government Offer on Climate Change (see below).

The planning system and renewable energy

The appearance of the UK Government's *Planning Policy Statement 1* (PPS1) in 2005 was a significant development in beginning the process of recognizing a key role for *local planning* in the nationaldelivery ofsustainable development. As Ludhe-Thompson and Ellis (2008) have pointed out, adopting the appropriate planning strategies will be critical to the Government's success in overseeing the transition to a more sustainable energy economy in the UK. As they have pointed out:

> *The UK Sustainable Development Strategy* (1999, 2005) identified the planning system as the key lever in helping to meet climate change emissions reductions targets. In order for climate change action to be taken through planning, it is necessary to point out the different policies which address climate change that can be framed at local level, and also the kind of development and adaptation which should be the result of these policies. Both mitigation and adaptation policies should be integral to all local plans across the UK (Ludhe-Thompson and Ellis, 2008:50).

Of particular significance, the *Planning and Climate Change* section of PPS1 (2006) contained 'new requirements for local planning authorities to ensure that tackling climate change becomes a primary concern for planning policy development and decision-making' (Ludhe-Thompson and Ellis, 2008:51). Whilst PPS1 aimed to provide a more coherent framework for local planning in order to reflect the aims outlined in the *UK Sustainable Development Strategy, The Planning and Climate Change* section of PPS1aimed at clarification on how activities and initiatives on reducing carbon emissions should now begin to be distributed between national, regional and local tiers of governance; 'ensuring that decisions are made at the most appropriate level and in a timely fashion to deliver the urgent action needed' (*PPS1: Planning and Climate Change*, 2006:3). The particular issues to be taken into account at a more *local* level of decision-making and implementation should now include:

- Driving the delivery of renewable and low-carbon energy;
- Using place shaping to encourage viable resource use, energy efficiency and reductions in emissions;
- Reducing the need to travel alongside growth;
- Considering social issues when developing places and ensuring they are resilient to climate change;

- Conserve and enhancing biodiversity; and,
- Responding to the needs of communities and businesses

Policy Planning Statement 22: Renewable Energy sets out a guiding agenda through which local authorities in the UK can develop renewable energy initiatives at the local level The 2003 Energy White Paper had stated the case for continuing to encourage a greater percentage of renewable energy initiatives to meet both carbon targets and energy security issues in the UK. However, as Wade *et al* (2007:423) have observed, 'historically, the spatial planning framework in the UK restricted the development of renewable energy installations: the presumption was that installations would be damaging to the local environment and developers had to prove otherwise if they were to be granted permission for the development'. Publication of PPS 22started a process of moving the emphasis towards a much more flexible regulatory system which would be more accommodating to initiatives around wave, solar, wind and microgeneration for instance. Local authorities in particular were now encouraged to prioritize the installation of renewable energy technologies if appropriate and to link these much more directly into planning and decision-making around buildings, residential housing, parks and greenbelts.

2006 also saw the first introduction of the *UK Microgeneration Strategy* (DTI, 2006). *The Microgeneration Strategy*, as Wade *et al* (2007:423) point out, 'was intended to create conditions in which the market for small-scale renewable energy technologies could develop'. Again, the *UK Microgeneration Strategy* noted the key role of local authorities to the effectiveness of this programme, particularly in ensuring that decision-making around local planning policies would now be in greater alignment with the possibility of encouraging the use of decentralized and micro generation technologies.

In addition to the general increase in policy attention following the Climate Change Act 2008, there have been a number of specific policy developments recently that have prompted further changes in national planning policy. These include:

- EU Directive 2009/28/EC on the promotion of the use of energy from renewable energy sources, where the UK has committed to sourcing 15 per cent of its energy from renewable sources by 2020 – an increase in the share of renewables by almost a factor of seven from about 2.25 per cent in 2008, in scarcely more than a decade;
- The *Household Energy Management Strategy* was published on 2 March 2010, and placed a greater emphasis on district heating schemes and identified an essential role for planning in facilitating delivery of these and other community-scale energy schemes;
- Publication of the proposed definition of zero carbon homes and the timetable within which all new developments must reach a zero carbon standard. Meeting the zero carbon standard involves a combination of energy efficiency measures and the use of decentralized energy solutions, to be set out through Building Regulations and through use of a range of 'allowable solutions', the details of which are still to be decided;
- *The Local Democracy, Economic Development and Construction Act 2009*replaces the requirement for a regional spatial strategy and regional economic strategy with a regional strategy (RS) from April

2010. Climate change, along with economic development and housing, has been identified as a priority for the regional strategies;

- *The Energy Act 2008* introduced powers for a Feed-In Tariff and the Renewable Heat Incentive aimed at driving an increase in renewable energy generating capacity, and which is likely to have an impact on planning (CLG, 2010).

The Government published a draft National Planning Policy Framework in July 2011 (CLG, 2011) According to Climate Change Minister Greg Barker, developing the programme around *this framework* will be instrumental in setting out both the agenda and also the vision for the role of local energy economies in the UK. Local planning authorities will be expected to set out the strategic priorities for their local area and these should include policies to deliver, *inter alia*, 'the provision of infrastructure for transport, minerals, waste, energy, telecoms, water supply and water quality' and 'climate change mitigation and adaptation' (CLG, 2011).

The local government response

The Nottingham Declaration on Climate Change

The Nottingham Declaration is a major voluntary scheme which was set up to provide a forum for local authorities to both demonstrate and accredit their commitment to addressing climate change. Originally introduced in October 2000 at a conference in Nottingham, the Declaration is a voluntary pledge that local authorities are encouraged to sign in order to symbolize a proactive approach to tackling climate change in their local area. The pledge is also significant in that it endorses the bottom-up political element of governing climate change, i.e. encouraging local authorities to work in partnership with both each other and with other local agencies to reduce emissions across the country (Energy Saving Trust, 2007).

The declaration itself is a one page statement which stresses the urgency of climate change and commits participating local authorities to action and welcoming the potential benefits that this action will enable. Signed by the chief executive as well as the elected leader of the council, it constitutes a broad statement of commitment to address the causes and impacts of climate change in ways that are attuned to local priorities.

The Declaration is supported by a range of tools to help local authorities design and implement programmes to address climate change. These resources are provided by the Nottingham Declaration Partnership, a coalition of interested public sector organisations. The scheme is managed under the auspices of the Energy Saving Trust (EST) and, so far, 320 of the 410 local authorities in England and Wales have signed the declaration (EST, 2010).

Perhaps the main problem so far is that, whilst a majority local authorities have signed up to the current declaration, they are not actually required to do anything so action remains based upon the volition of local authorities themselves.

The Nottingham Declaration has been superseded by the new *Local Government Offer (see below)*.

Implementation of the Home Energy Conservation Act

The Department for Environment, Food and Rural Affairs (DEFRA) has argued that HECA has largely been a success in most local authority areas. They reported that during the period spanning 1st April 1995 to 31st March 2006 'local authorities have reported an overall improvement in domestic energy efficiency of approximately 19.26% as measured against a 1996 baseline' (Defra, 2007:1). Some areas had already hit the HECA target, for instance energy efficiency in housing in Poole, in the South West, had increased by 35.1% and in Middlesborough, in the North East, by 31.3% more. However, also in the South West, housing in Christchurch only improved in energy efficiency by 11.3%, while in Elmbridge, in the South East, the improvement was only 6.6%. Jones *et al* (2000:201) argue that one of the problems with HECA has been 'the enormous variation in the quality of local authorities' strategies'. They suggest that some local authorities have taken the policy guidelines seriously and others haven't shown the same degree of enthusiasm.

In addition to this variation in response to the legislation on the part of local authorities, it should be noted that the majority of energy efficiency investment in homes over the period reported came from energy supplier activity under regulatory obligations. This investment was legally required and hence cannot be claimed as a result of HECA. Local authority engagement in certain areas may have made energy efficiency action easier or cheaper for the energy suppliers and hence increased overall cost-effectiveness of action in the area, and indeed it may have attracted a greater than average level of investment into certain areas thus leading to benefits to the local population. However, there is little evidence to suggest that energy supplier / local authority joint working was a key factor during this period.

The Merton Rule

More innovative local authorities can from time to time drive the policy agenda at the regional and national level. A key example of this is the development and implementation of 'the Merton Rule' (LB Merton, undated). This planning policy, which requires a proportion of the energy demand of a new development to be met from on-site renewable energy generation technologies, was first developed by planners at the London Borough of Merton. At the time, the legal power for local authorities to develop such policies was uncertain and had to be tested. Once this was established in the case of Merton, other authorities were able to follow the Council's lead and develop and implement similar policies. The policy was also reflected in Regional Spatial Strategies across England, increasing the pressure for its use in local authority planning documents. This increase in activity within the planning system is perhaps one of the drivers that resulted in the government's development of building regulations policy to ensure that all new build will be 'zero carbon' by 2019.

Inclusion of carbon reduction targets in Local Area Agreements

IDeA (2006) have argued that community strategies on addressing climate change can and do vary substantially in content, with no recognizable 'blueprint' for incorporating the issue into this level of policy implementation. They have argued therefore that a prioritization of core areas to be included in the strategy is a key step – a process that must involve discussion and deliberation among the organizations represented on the strategic partnership together with the views of other stakeholders and the wider community. For climate change to be included as an area for action, it has to be identified as a priority issue. IDeA (2006) suggest that this requires at least one sustainable development 'champion' on the board of the local strategic partnership with an awareness of climate change issues and zeal to highlight their importance and cross-cutting nature to other members.

Research, funded by the Pilkington Energy Efficiency Trust and the Energy Efficiency Partnership for Homes, into the initial impact of Local Area Agreements and NI 186found mixed results(Wade, 2010). Two thirds of all Local Area Agreements included NI 186 as a priority indicator. Through a series of stakeholder interviews, including officers in 25 of the 150 LAA lead local authorities across England, the various factors involved in the decision-making around the value of NI 186 in local level policy-making were discussed. Although this was a relatively small scale study, a number of factors emerged which suggest that, while it has raised the profile of carbon in local authority policy-making, there are a number of issues which needed to be addressed if NI 186 were to be more effective. These included:

- Gaps in understanding of local emissions and the most cost-effective ways to reduce these;
- A lack of confidence within local authorities in their own ability to have a significant influence on local area emissions;
- The need for better sharing of information and expertise within individual authorities and across local authority peer groups; and
- The need for a more active approach to seeking external resources to support climate change work.

Wade concludes that one of the major barriers to more widespread uptake and delivery on NI 186 relates to a current 'lack of confidence within local authorities in their ability to deliver emissions reductions' (2010:5). She suggests that there should be clearer guidance and more explanation on national data on carbon emissions in order to clarify where responsibilities should lie, for instance in the 'relative performance of different authorities in this area' (2010:5). As well as a need for greater partnership working and cross sectoral collaboration, she points out that there is also a need to devolve greater power and resources to the local level (for instance, giving local authorities hands-on management of CERT or PAYS). She also suggests that making NI 186 a *statutory* responsibility might encourage greater progress in this area.

The current government has removed the system of national indicators and LAAs and has not, as yet, replaced them with an alternative statutory driver for Local Authority action on carbon emissions.

The Community Energy Saving Programme: partnership working between local authorities and energy companies

The pilot scheme to test an area-based approach to the delivery of energy supplier energy efficiency programmes, CESP, was designed to involve local authorities as key delivery partners. Both energy suppliers and local authorities have found this partnership work difficult. Issues identified (see for example, Wade, 2010b) centred on misaligned objectives and very different ways of working/ organisational cultures. However, scheme participants believe that the experience has improved their ability to work in partnership with one another. This type of working will be crucial to the successful delivery of the Government's planned Green Deal / ECO initiatives.

The Local Government Offer on Climate Change

One key view of local government's role in delivering climate change objectives is given by the Local Government Group's 'Offer on Climate Change' (LGG, 2011). This document sets out the following reasons why local government involvement is crucial:

- 'local government is the nearest governance structure to the people and communities whose buy-in is needed to reduce the UK's carbon emissions;
- Local government has regulatory powers it can use;
- Local government has planning powers to shape and re-shape its local area;
- Local government has a strategic overview of delivery in the local area, and how to link services and functions for best value for money;
- Local government is not-for-profit and as such is trusted by local people to provide unbiased advice;
- Local government has the well-being of local residents and businesses its core objective;
- Local government can be held accountable for its actions to local people.' (LGG, 2011: 4)

The 'Offer' is in response to a request from the Secretary of State for Energy and Climate Change. To summarise, it states that:

'If government:

- Creates a single, simple source of funding
- Provides incentives for the Green Deal and Renewables
- Provides access to supporting data

Then the Local Government Group will work with the sector and partners to:

- Provide expert advice to Government, and
- Provide support, advice, leadership, accountability to councils and negotiate on behalf of the local government sector
- Facilitate the delivery of local carbon reduction policies and plans.

So that local government can:

- Help local people and businesses save money through greater energy efficiency and generating their own energy
- Reduce the cost of their own services by using energy efficiently and generating their own energy
- Identify local opportunities for reducing carbon, and determine how they can be delivered
- Support and incentivise local people, groups and businesses to be greener, and
- Increase energy generation and supply from renewable and decentralised sources.' (LGG, 2011: 5)

The offer does not suggest that local government should take on any responsibility for delivering against a local carbon emissions reduction target, which could perhaps be seen as a step backwards when compared with the use of NI 186. However, the more detailed proposals do refer to the development of a 'local carbon accountability framework'. The offer has resulted in a Memorandum of Understanding between local government and DECC (LGG and DECC, 2011).

4. Translating powers and responsibilities through to action

The précis of recent policy communications, legislation and guidance given above demonstrates the acceptance of a role for local authorities in combating climate change locally as a key component of a concerted national effort to curb carbon emissions, although the precise nature of this role remains unclear. In the last decade in particular, there has been a growing recognition from the UK Government that developing an effective political interface between policy initiatives and local government can provide a vital and practicable means through which to deliver carbon reduction at individual, household and community levels. Community action in the UK is an integral component of the 2009 Low Carbon Transition Plan, as noted above; and the new coalition Government's 'Big Society' approach also reinforces the centrality of community-level activities. A diversity of community energy initiatives has subsequently been established, highlighting the capacity for local support mechanisms and community energy systems to provide a focal point for collective action towards a more socially and environmentally sustainable future. A major drawback of these initiatives, however, is that they tend to attract participation from members of the community who are already routinely engaged in pro-environmental habits and behaviours, with a high awareness of environmental responsibility (Peters, et al. 2010)..

As argued earlier, reflecting the complex nature of climate change, the ways and means by which local authorities have become engaged in sustainability issues are noticeably diverse. Whilst some local authorities have adopted a more *systems* based approach, driven more by the search for more technological, structural answers, some have engaged a more *social* or *cultural* approach to the same problem, putting the behaviours and practices of individuals and communities at the forefront of policy

initiatives. Still other local authorities have initiated combinations of the two approaches, viewing technology and behaviour as more interrelated.

In the following subsections we refer to four case studies of UK local authority energy/climate change initiatives that were established to connect their community members in action towards more sustainable living. We also highlight three international examples (from Germany and Sweden). Outline details of the cases are provided in Table 1.

It is worth remembering that these case study UK local authorities and the initiatives that they have established to a large extent represent 'the exception' rather than 'the norm'. There are many more local authorities across the country that have yet to demonstrate a clear commitment to connecting with the climate change and sustainable energy agenda in practical and tangibly recognizable ways. Indeed, even for the relatively small number of best practice examples, there remains a core problem in tracing the effectiveness and scale of policy implementation by local government. For example, a study conducted in 2005 by the Centre for Sustainable Energy (on behalf of the DTI and DEFRA – CSE et al. 2005) designed to address this problem found no evidence of the impact on local carbon emissions of actions by local authorities and regional public bodies (that is, Regional Development Agencies and Regional Assemblies). It also revealed that where 'best practice' case studies had been documented of an individual local authority's work on a particular issue (e.g. improving its housing stock) they hardly ever contained detailed quantitative analysis of the carbon savings delivered or the precise contribution of the local authority to the accomplishment and related costs. In their UK-wide review of local authority action on climate change CSE et al. (2005) demonstrate clearly that the few current examples of good practice '…are principally down to the work of enthused, informed and committed individuals…[applying] their willpower, doggedness and professional expertise to create conditions within their organization in which they can operate effectively' (p. 20). Even for 'committed' local authorities the challenge of reaching and influencing broader sections of the community via the types of engagement programme outlined in Table 1 remains problematic for a variety of reasons which are explored in more detail further on in this section.

Name of initiative	***Operator***	***Central aims***	***Operation***
Low Carbon Community Project	Shropshire County Council	To achieve significant reductions of CO_2 emissions within three local communities, involving household residents and businesses	**Home energy checks, business and building audits, energy efficiency grants and 'Climate Change Months' awareness raising activities (which include climate change pub quizzes, film shows cartoon competitions and interactive workshops).**

Emissions based parking permit scheme	London Borough of Richmond	To reduce vehicle related CO_2 emissions in the area, encourage use of other modes of transport and cars with smaller engines and increase community awareness of the need to reduce transport emissions	**The price of permits for each controlled parking zone is based on the previously existing charges together with the cylinder capacity of the vehicle and its CO_2 emissions. Second and subsequent permits for a household are charged at 50% more than the first.**
Green Living Centre	London Borough of Islington	A community resource to help people in the borough reduce their carbon emissions in and around the home	**Face-to-face advice is available for visitors around four main areas: recycling, energy efficiency, biodiversity and green travel. A programme of 'one-off' events (e.g. 'plastic bag amnesties') are organized to complement the Centre's drive to connect with the public, boost its profile and engender greater interest and increased visitor numbers**
Oak Tree House low carbon demonstration home	Woking Borough Council	To show local people the types of measures they can implement in their own homes to help reduce their energy use and water consumption	**Oak Tree House in Knaphill has been transformed from an ordinary three bedroom detached house into Woking's first low carbon demonstration home - a showcase for energy efficiency, renewable technology and water saving improvements**
Solar City Concept	City of Freiburg, Germany	Development of a sustainable energy policy incorporating a clearly defined role for communities towards climate protection at the municipal/ local authority level	**The widespread application of solar energy technology to homes, businesses and other buildings. Retro-fitting of homes in particular demonstrates how an appreciation of social and community factors can intermesh with engineering/technology solutions towards an integrated strategy for sustainable**

			development and climate protection that includes different levels of stakeholders in the decision making process.
Urban development restructuring programme	HammarbySjöstad, Sweden	To transform a brown field site through urban development that addresses environmental and sustainability issues in a more focused way.	**Development of 9000 energy efficient apartments to house a population of 20,000 people, and 200,000 sq m of commercial floorspace to attract 10,000 people to work in the area. Installation of a renewable fuel-fired district heating plant and a new waste water treatment plant. Heavy investment in public transportation and sustainable transport infrastructure. Carpooling system available to local residents.**
The Kongsberg project	Kronsburg, Germany	To a) provide a solution to the serious housing shortage of the 1990s, and b) present a 'best practice' example of visionary urban planning.	**A range of innovative features have enabled household energy consumption to be reduced by 60-80 per cent. These include wind turbine installations, passive heat recovery, incentives for the use of energy efficient appliances, adjustment of building heights, orientation and density according to the area's natural contours in order to maximize sunlight; and installation of photovoltaic solar panels. Additionally sustainable water and land management practices have become widespread.**

Table 1: Outline details of various community-oriented energy and sustainability initiatives

4.1 Shropshire County Council

Shropshire County Council launched a 'Low Carbon Community' project (LCC) in April 2006, with the primary aim of reducing carbon dioxide emissions within three communities in Shropshire by 6% (3920 tonnes) by April 2009. LCC was developed within the three localities of Ellesmere (a small town), Cleobury Mortimer (a hillside village), and the 'Floodplain Community'. A core objective from the project management perspective was to create a climate for change to assist communities in understanding climate change and to 'hold their hands' through a process of doing something about it (McGowan 2007). There are several ways in which residents, businesses and community buildings in the target localities have been encouraged to engage with the project (which is still on-going) and contribute to carbon reduction, including:

- Home energy checks: a simple 2 page form that householders are encouraged to complete, giving basic details about the nature of their property (including size, age, heating system, levels of insulation, etc.) and return to the management team who then determine the current efficiency status of the home, and pinpoint measures to improve efficiency;
- Business and building audits: similar to the home energy check, but carried out by the management team (rather than self completion) with interested businesses and community buildings (including schools, public halls, churches, and tourist facilities), to assess current energy efficiency status and pinpoint areas for improvements;
- Grants: the project also established a range of grant schemes to encourage and enable progress in the implementation of measures to improve efficiency (including contribution towards the cost of cavity wall insulation, loft insulation and energy efficient lighting);
- Climate change months: to raise awareness of the project and climate change more broadly, a range of activities designed to engage residents are carried out for 1 month in each target community. These include climate change pub quizzes, film shows, cartoon competitions for 11–18 year olds and, at the end of the month, an interactive workshop where key issues relevant to the community are discussed and action plans formulated on an individual and group basis. Up-take of the grants has been 'surprisingly' low, as this project management interviewee explained: 'I think they say, with buses, that you have to tell people eight times before it actually sinks in that there is a bus that goes past their house that will get them to where they want to go. I am working on the theory that it's probably the same with insulation and cavity wall fillings . . .' (McGowan 2007).

4.2 London Borough of Richmond-upon-Thames

In their 2007–2017 Community Plan ('the Plan'), Richmond Council set out seven priorities which together constitute a vision for the Borough that is 'inclusive; puts protection of the environment at the core of its services and community life; delivers quality public services that truly reflect the needs of all its local people; and addresses its challenges by harnessing the capacity of all its partners in the public, private, voluntary, and community sector' (LBRuT2007). The particular aspiration of becoming the most sustainable ('greenest') Borough in London is Priority 2 of the Plan. A thematic subgroup of Richmond's Local Strategic Partnership was formed under the name of the Greener Richmond Partnership (GRP) to deliver the priorities and targets set under Priority 2 of the Plan and related areas of their Local Area Agreement, and to contribute to cross-cutting priorities and targets under the Plan. The stated principal

purpose of the GRP is to: 'Tackle climate change and other environmental issues, in an integrated approach with partners in the local business, housing, transport, public, voluntary, and community sectors by reducing the borough's contribution to climate change, ensuring it is able to adapt to changes in the climate and improving the local environment' (LBRuT 2007).

One climate change-oriented community initiative where substantial progress has been made is the emission based parking permits scheme (outlined in Table 1). It is an example of how local authorities can modify their existing services and regulatory framework in order to promote attitudinal and behavioural change among community residents. The main purpose of this scheme is to reduce vehicle-related carbon dioxide emissions in the area, encourage people to use cars with smaller engines and increase overall awareness among the community's residents of the need to reduce transport-related emissions (Pugh 2007). The price of permits for each controlled parking zone is based on the previously existing charges together with the cylinder capacity of the vehicle/its carbon dioxide emissions. Second and subsequent permits for a household were charged at 25% more than the first until 1st April 2008. Since then they have been charged at 50% more.

Prior to the scheme being established, Richmond Council carried out a wide-ranging public consultation which revealed approximately a 50/50 split of those in favour and those against. However, almost 60% of respondents indicated that the implementation of the scheme would influence them when they came to renew their car, (in terms of what they replace it with), and in this sense 'was quite a useful indication of the potential impact of this policy' (Pugh 2007).

Although some other local authorities also currently impose additional charges for second and subsequent permits for a household (including around half of the 33 London boroughs), Richmond were the first to apply an emissions based charge for parking permits and they hope that it will provide a model that can be adopted elsewhere (Pugh 2007). It is also hoped that this scheme will demonstrate local leadership and provide a basis for integration with additional legislative measures in other areas should they be applied.

4.3 London Borough of Islington

Islington Council have, during the last 5 years, established a range of initiatives to 'lead the way' in tackling climate change in an inner city environment (Hales 2007). All of these initiatives are embodied in the work of their Local Strategic Partnership (LSP) – the first in England to have adopted a borough-wide carbon reduction target as part of its Local Area Agreement with the Government. Key initiatives include a Climate Change Partnership of organizations (currently numbering 50) from the private, voluntary, and public sectors as well as the council itself, pledging to reduce their own emissions by 15% by 2010; a £3 million Climate Change Fund to support sustainable transport and renewable energy in homes, council, and community buildings; a Green Behaviours Project that aims to motivate local people

to make lifestyle changes and think about how their individual actions affect the wider environment; and a 'Green Living Centre' which opened to the public in November 2007 (outlined in Table 1).

One of the most important aims of the Green Living Centre is to assist people in the borough in reducing their own carbon emissions (Kirwan, 2008). Advice is available for visitors around four main areas: recycling, energy efficiency, biodiversity and green travel. Occasional 'one-off' events (e.g. light bulb exchanges) are organized to increase the profile of the Centre with members of the public, to boost interest and to raise visitor numbers. As the Centre's principal energy advisor explained, 'our events are designed to [advertise] that the centre is open…and to engage people in a broad range of sustainability issues' (Kirwan, 2008). Within the centre, visitors receive face-to-face advice, most frequently in response to queries about renewable energy and recycling. Recycling queries are often in relation to ordering a new box or reporting a failed collection. Residents wanting renewable energy installations or eco-refurbishment tend to be in the upper income brackets. The socio-demographic mix of visitors is broad-ranging, including the elderly, parents and young professionals. Accessibility from a busy shopping street is one of the Centre's main advantages, particularly from the perspective of the project management: 'this is a good thing and I think people like the accessibility–they know it is open. People who know of it have been coming in more regularly: they know it is there' (Kirwan, 2008). From the advisors' viewpoint, the availability of face-to-face advice is considered to be one of the Centre's key attractions. The demonstrations on show (including energy efficient light bulbs and reclaimed objects of interest) generate 'a more friendly and engaging dialogue. The fact that it looks good is also a strength–it is quite eye-catching and the window display does, I think, pull people in' (Kirwan, 2008). For residents who are not able to visit, another team of Council staff offer telephone advice, most usually concerning energy efficiency and grant advice.

4.4 Woking Borough Council

Woking is perhaps the best known from a group of local authorities – which include Milton Keynes, Kirklees, Leicester, Leeds and Gateshead, for being active in the development of their own locally initiated power generation infrastructure. Woking Council has been awarded Beacons for Sustainable Energy (2005 - 2006), Promoting Sustainable Communities through the Planning Process (2007 - 2008) and more recently the Beacon Award for Tackling Climate Change (2008 - 2009).

Woking Borough Council (WBC) embarked on the path to 'thinking globally and acting locally' in the early 1990s when it adopted a new approach to energy efficiency for its own buildings. This led to substantial savings in both energy and finance and the incorporation of small scale Combined Heat and Power units in corporate buildings in the mid to late 1990s (Curran, 2010). Energy efficiency and alternatives to conventional energy production were progressed and embedded in the Council's approach to asset and property management. To date the authority's portfolio of energy projects has come to include a range of low and zero carbon technologies, including solar photovoltaics, combined heat and power and a demonstration fuel cell.

Curran (2010) describes how in 2002 there was a shift in approach whereby the Council adopted a comprehensive Climate Change Strategy covering all of the services it provides. This Strategy marked a shift in focus from energy saving to carbon saving and the ability to contribute savings corporately from many service areas. Curran argues that this provided fresh impetus for WBC to pursue an agenda for community engagement in these issues and 'lead by example' through the learning activities from its early energy efficiency work and experiences in its own building management.

Woking's domestic emissions account for 41% of the Borough's total CO_2 emissions (DECC, 2009). Domestic water consumption in the Borough equates to over 170 litres per person per day – one of the highest levels of consumption in the UK. Working with its energy company, the Energy Centre for Sustainable Communities (ecsc) Ltd., building partner (Mansell Plc.), and environmental partner (Woking LA21), WBC has created the 'Oak Tree Programme' with the intention of assisting local homeowners to improve the carbon profile of their properties. The project provides residents with an opportunity to see for themselves how different energy efficiency measures and installations work (Curran, 2010).

The Oak Tree House demonstration project (outlined in Table 1) has three different types of insulation to reduce heat loss and a high-efficiency boiler and heating controls to provide heat where and when it is needed. Much of the hot water required in the house is provided by a solar hot water system. Energy saving lights and appliances have been installed to reduce electricity demand. A 2kWp solar photovoltaic system has also been installed.

Simple water-efficient shower and tap fittings reduce water consumption and a rainwater harvesting system provides water for the toilet and garden taps. The garden at Oak Tree House has similarly been designed with water and energy conservation in mind, including drought-tolerant planting and low-maintenance wildflower turf.

The refurbishment of this existing, typical three bedroom detached property was carried out using sustainable materials wherever possible and is intended to show that an energy and water-efficient house can also be a welcoming, attractive and comfortable home (Curran, 2010).

4.5 Germany - Freiburg

Freiburg is located in the south-western corner of Germany, close to the borders of France (Alsace, 20 km) and Switzerland (Basel, 60 km). Of the 150 km² of the area of Freiburg 40% is forest - the largest forest of German cities. The economy is based on the service sector and unemployment is comparatively low (Dresel, 2009). In 1986 the municipal council (local parliament) adopted a sustainable energy scheme defining three strategic priorities: saving energy, efficient technologies in energy provision (co-generation of heat and power), and renewable energy technologies. The environmental objectives of Freiburg energy policy: to get rid of nuclear (even with the focus on CO_2 nuclear is not considered an acceptable alternative), to protect limited and vulnerable natural resources, to avoid pollution, and - as a later addition -to cut down CO_2 emissions to mitigate global climate disorder (Dresel, 2009).

In 1996 the first climate protection action plan was set up. It is now being reviewed every two years with an update of the climate balance sheet. The biggest single contribution towards the reduction of CO_2 emissions has been a large co-generation power plant which supplies almost 50% of Freiburg's electricity. Still, the original targets could not be maintained mostly due to the growth of the city. Currently Freiburg aims at a 40% reduction of CO_2 by 2030 (with 1992 as a baseline). So far a reduction of 13.8% has been achieved (2009; per capita CO2 emissions have gone down by 20%).

This can be accounted for by a wide range of successful instruments:

- promotion of large and small scale CHP, public transport and bike lane policy (with very little increase in private vehicle transport in Freiburg and comparatively low numbers of car ownership but increasing numbers of passengers on public transport and bike users);
- low energy standard for all new buildings (which of course would still add to the CO2 burden unless they replace existing structures);
- energy-efficient renovation of the housing stock, and
- the application of renewable energy technologies

(Dresel, 2009).

In 2009 the total capacity of installed photovoltaic panels was 12.3 MW in over 1,000 units, plus more than 15,000 m² of solar thermal collectors. Other forms of renewable energy include wind turbines, biomass (wood chips and pellets for heating and even co-generation), bio-gas (from fermentation of organic waste) and hydro-power (with only a limited potential from the small river Dreisam).

The success of all of these policies as implemented by local authorities depends on the active participation of the local community and communities as stakeholders, where they are viewed as active participants in policy rather than passive objects. The importance of this ethos has become particularly apparent in the case of solar energy.

For citizens in Freiburg there are many opportunities to engage in - and demonstrate commitment to - solar energy. If they are home-owners they can set up their own solar installations. Another form of involvement is to become a shareholder in one or more of the larger renewable energy projects in the city (Dresel, 2009). This has become an important way of financing large-scale solar or other renewable plants, the most prominent example being the PV outfits on the football stadium of SC Freiburg. Additional opportunities for consumers include subscription to a green tariff for electricity from renewable energy sources, improved home insulation and uptake of other energy-efficiency measures in their households, and opting to travel by bicycle or public transport as a convenient alternative to using the car (Dresel, 2009).

The political role of the city has been important in responding to the local community's demand for local authorities to show and prove their own commitment to sustainability issues. For instance, people may lack specific information on sustainability issues or find bureaucratic procedures too complicated to negotiate in order to find a voice (Dresel, 2009). In order to facilitate citizens' own activity, Freiburg has itself made information widely available and has also made the application for things such as planning permission a one-stop affair. For example, an internet connection shows a solar map of the city and it

also shows whether building structures are suitable for solar equipment and what the specific options are. There are also information campaigns on energy-efficient renovation or on the possibilities of CO_2 reduction in everyday practices which people engage in. Rather than an emphasis on top-down teaching, the aim has been to open up possibilities for citizens to connect with and participate in Freiburg's agenda for the delivery of sustainable energy solutions (Dresel, 2009).

It has been acknowledged therefore that it is the task of the city to devise the necessary infrastructure to enable channels for environmentally conscious behaviours such as convenient tram lines, public transport connectivity, bike lanes, parking space for bikes etc. More generally, aim has been to keep the debate on energy issues alive, public and participatory, even if sometimes these issues prove to be controversial.

The city also makes available subsidies for energy improvement in the housing stock, as well as for PV and solar thermal from the local power company. The amounts which applicants can receive are not currently high but the demand is strong and they are clearly working as incentives if only as an 'appreciation' which citizens demand for their commitment (Dresel, 2009).

4.6 Sweden: HammarbySjöstad

HammarbySjöstad is part of Stockholm that is currently undergoing a large urban developmental restructuring programme. As with the above case studies, the overall goalin this particular redevelopment has revolved around the need to address environment and sustainability issues in a more focused way. As well as transforming a former brownfield site, a particular aim has been to reduce CO_2 emissions in the new development by 50 per cent from the corresponding level of the early 1990s. In order to obtain these goals, integrated planning and innovative solutions were incorporated into architectural plans first drawn up in 1990. When building is completed (expected to be around 2015) 'this new 200 hectare city district will comprise 9,000 apartments, housing a population of 20,000 people, and 200,000 sq m of commercial floor space attracting a further 10,000 people to work in the area. Approximately half of the total area has been developed to date and it is anticipated that the final scheme will be completed by 2015' (Homes and Communities Agency, 2010).

Objectives for the completion of HammarbySjöstad in2015 include:

- *Transport & mobility:* public transport use to have increased by 80% and a 25% proportionate use of electric biogas vehicles. It is also expected that a further 15 % of households and at least 5 % of the HammarbySjöstad workplaces will be signed up for participation in a carpool by 2010;
- *Energy:* The target for energy consumption of buildings is set at 50 kWh/m^2, out of which 15 kWh/m^2 is used for electricity. Further, all waste and wastewater coming from the inhabitants will be recycled and returned to the area in the form of renewable energy
- *Water:* 60% reduction of water consumption per person
- *Waste:* 90% reduction of landfill waste and 40% reduction of all waste produced.
- *Cleaner Sewage:* Fewer contaminants to be dispersed into the Stockholm archipelago via the treated wastewater, and a cleaner residual product, bio-solids, to be reused on agricultural land.

- *Social objectives:* citizen involvement, creating an attractive and sustainable place to live and work (GlashusEtt, 2007).

According to a Homes and Communities Agency Report (2010) the newly developed HammarbySjöstad is fast becoming a good example of the 'Swedish "green welfare state" approach to Eco-towns'. Therefore, it is hoped that the finished development will illustrate a holistic approach to sustainable development, where new jobs, growth and welfare are all incorporated into a more sustainable built environment. In particular, the report goes on to argue that 'as well as being ecologically innovative, it is also socially and politically ambitious in line with the Swedish government mandate that all citizens should be provided with a decent, safe, affordable home that will be sustainable in the long term'.

A renewable fuel-fired district heating plant provides energy for the area, while the Henriksdal sewage plant treats the wastewater. Waste is also recycled in the area itself as heat and food waste is composted into soil. Changes to the planning around transportation are also an important part of the newly developed HammarbySjöstad, where the intention to reduce private car use have seen large scale investment in public transportation. An increase in bike lanes and buses is complemented by a rail line that runs through the main HammarbySjöstadboulevard. There is also a car pooling system available to local residents (Sustainable Pittsburgh, 2011).

4.7 Germany: Kronsberg

Built primarily for the 2000 World Exposition, the Kronsberg project in Germany was developed with the aim of realizing two important objectives: a) to provide a solution to the serious housing shortage of the 1990s, and b) to present a 'best practice' example of visionary urban planning. As Krause and Sayani (2006:31) have pointed out: 'although in a suburban setting, Kronsberg has become a model community for global replication. The development has followed the key principles outlined by United Nations Agenda 21 as a model of sustainable development'. They also suggest that Kronsberg exemplifies the idea that sustainability measures can be consistently applied to the ways in which people live their everyday lives, demonstrating the possibilities that 'sustainable developments – even within an urban setting – are environmentally *and* socially feasible' (2006:31).

Kronsberg has been based around the construction of mostly high density apartment style dwellings with no single detached dwellings With Environmental aims closely integrated into to the objectives of the transport planning and residential development strongly linked to local public transport rail routes. The three rail stops are located so that nobody has to walk more than 600 metres to catch a tram. Planning of the residential street layout also permits no through traffic. A cycle-friendly street layout with a designated cycle street running the length of the district offers, together with a dense network of rural and urban footpaths, an attractive alternative to private motorized transport. Krause and Sayani also point out that 'overall, Kronsberg offers a full range of services within the community, such as

daycares, schools, healthcare facilities, shopping, and jobs, in order to minimize the need for travel' (2006:31).

As argued above, it is the ecological and environmental aims and objectives which appear to be the most innovative features of the Kronsberg community development. These include:

- Reducing CO_2 emissions and household energy consumption by 60-80 per cent;
- Use of wind turbines;
- Use of passive heat recovery methods;
- Use of incentives for the use of energy efficient appliances;
- Adjusting building heights, orientation and density according to the area's natural contours in order to maximize sunlight;
- Use of photovoltaic solar panels;
- To manage water so that the area's natural water balance remained the same after development;
- Natural absorption of rainwater through storm water ponds and drainage ditches;
- Open ponds and watercourses for amenity purposes;
- Natural 'commons area' maintained by grazing sheep;
- Mandatory tree planting based on construction;
- Mandatory waste collection sites for each building which encourage users to sort waste and recyclables;
- Private and communal compost sites;
- On-site community recycling depot and containers (Krause and Sayani, 2006:32).

Low energy housing construction was one of the central design objectives for the development of Kronsberg and, from the beginning, was viewed as integral to the goal of reducing CO_2 emissions in the city. The City Council itself was instrumental to the environmental objectives behind the development and set a target of a 60% reduction in CO_2 in relation to conventional construction standards. In order to cope with changing housing needs, a mixture of large and small apartments, and apartments suitable for families and for new lifestyles were provided. One of the main objectives was to try to avoid social segregation by mixing various forms of housing finance and ownership and limiting the proportion of apartments in which the municipality had the option to place socially or financially disadvantaged tenants. The government agency KUKA took responsibility for a programme of 'environmental counseling' during the development of Kronsberg, informing and training property developers, architects, craftspeople and residents. Within its skills and qualification programme, specialist seminars were provided and there were 'lightning training sessions' and 'info breakfasts' on building sites. Targeted publications on energy, water, waste and soil were also published.

5. Opportunities and challenges for the success of local government-led energy/environment initiatives

The previous section drew, in part, on a programme of empirical research which involved elite interviews with project management representative and survey work with community participants. As well as providing a depth of understanding in terms of the mission and vision of the various, predominantly 'behaviour change' initiatives described above, this work also revealed a series of barriers and challenges alongside the many opportunities and benefits available. Drawing on this empirical evidence, together with a broader range of literature that considers other types of local authority initiatives in sustainable energy and climate change including those relating to infrastructure, planning and finance we set out below some of the main opportunities and barriers facing local government in attempts to realise more sustainable patterns of energy management in their jurisdictions and shifts towards sustainable consumption and behaviour amongst their citizens.

5.1 Key opportunities

Defining the role of local authorities in tackling climate change requires an understanding of their capacity to influence UK policy in this area. Roberts (2010) asserts that this influence derives principally from the services they already deliver; the strategic roles they play; the regulatory influence they have to enforce national standards and directives; and the relationship they have with local residents, the voluntary and business sector and/or other public bodies in their vicinity. He argues, as a result, that local authorities have:

- Potentially a strong ability to establish and maintain a sense of local identity and civic pride which can make national and global issues seem locally relevant;
- Direct connections with individual households, community groups and businesses through existing service provision and electoral relationships;
- A democratically accountable role to provide civic leadership; and
- Opportunities to identify, gather and support local organisations and encourage businesses to provide services what reflect local circumstances and need.

There are three principal reasons why action by local authorities to address climate change holds the potential to be an essential element of a concerted national effort to enable carbon emissions reduction objectives to be met:

1. Implementation of carbon reduction is extremely diffused. This necessitates sustained change in behaviour, housing performance and consumer choices by every householder, transport user and business in the country;
2. Current levels of motivation to act amongst the individuals and groups who need to implement these changes, as well as recognition of the required actions, are still relatively limited;

3. Action needs to be enabled through a range of tools and technologies, services and skills. These are currently not all widely available and are often found in smaller organisations (voluntary, business or academic) which can 'fall below the radar' of national bodies.

[Roberts, 2010: 81]

The three factors above both confirm the need for local action and point to an essential role for local agencies in bringing about these changes– with a focus on building understanding, changing attitudes, providing motivation to act, and enabling new partnerships and service developments to test and deliver the transition to a lower carbon society (Futerra, 2005; CSE with CDX, 2007; Roberts, 2010). Local authorities, it is postulated, have the ability to provide these functions through their existing attributes, responsibilities and roles. For example, they are already expected to carry out the following under existing structures:

- Establish and control local planning strategy;
- Enforce building regulations and trading standards;
- Create and support effective partnerships, with each other and across sectors;
- Promote community well-being;
- Manage their own buildings, housing stock and staff activities and procure equipment and a wide range of services;
- Showcase good practice;
- Deliver a range of services to the public including housing, education, social services, waste management, leisure/tourism, culture and so on;
- Coordinate local regeneration and economic development activity;
- Make nationally significant issues locally relevant and motivating;
- Manage and/or influence public sector investment in local infrastructure; and
- Provide civic leadership within their communities, promoting behavioural change and leading by example (e.g. through Local Strategic Partnerships and Local Area Agreements).

It is argued that through active engagement across all of these existing activities local authorities have the opportunity to influence positive action on emissions reductions. Building on this recognition the Centre for Sustainable Energy has developed a Local and Regional Carbon Management Matrix which incorporates 49 existing local authority responsibilities/roles that are framed as relevant areas for action to tackle carbon emissions (CSE et al., 2005; CSE 2006, 2007). As Roberts describes, the Matrix "provides both a tool for assessing current performance and a guide for improving it by detailing the conduct likely to secure a 'weak', 'fair', 'good' or 'excellent' rating for each potential area for action (Roberts, 2010: 80).

From the empirical evidence referred to in Section 3 of this report, disseminating educational messages on the growing urgency of climate change across the community, with the intention of instigating behaviour change, came across as a uniting aim of these types of behaviour-oriented community climate change initiatives. Parallel to this aim is an emphasis on co-opting the cohesion and drive of already established social networks and community groups. This was an opportunity highlighted during the elite interviews where it was suggested by one participant that 'there is massive scope for propagating the

message through word of mouth…and tapping into existing social networks and groups – like the Women's Institute, Parish Council and the Young People's Forum' (McGowan 2007).In this sense the initiatives are, in principle, (and particularly from the 'project management' perspective), promoting and attempting to capitalize upon the processes of social learning.

With respect to the importance of awareness raising, there is an understanding and a desire to put 'the message' across in ways which can resonate effectively with the differing needs and priorities of the community members. This issue is central to the broader objective of engaging directly with individuals as pointed out by CSE, 2007 (p. 83); '…in order to stimulate understanding, improve motivation and secure action to reduce their carbon emissions.'

In relation to this, and as discussed earlier in this section, there are clear opportunities to be exploited through the modification of existing services in promotion of attitudinal and behavioural change. Considering the progress of their emissions-based charging for parking permits scheme, the Richmond Council, for example, pointed out that 'I think one of the biggest achievements of the policy so far has been in raising awareness of the contribution that the individual can have through their choice of vehicle'. The interviewee argued that a predominantly economic-based scheme would also have the potential to influence attitudes in a pro-environmental way.

The prospect of capitalising directly upon latent concerns about climate change that already exist among community members emerged as another recognisable opportunity from the empirical work; which links closely to social learning theory and persuasion. It has been capitalized upon particularly by the Green Living Centre in Islington, where a sizeable percentage of visitors are apparently interested in the design of the Centre because they admire the 'look' of it. The relevance of this is that much of the initial ethos in establishing the Centre was to make it as appealing as possible to a wide range of socio-demographic sectors (Hales, 2007). It was based on this line of reasoning that the prime high street location was chosen. As the Centre's Principal Energy Advisor explained: 'there are several features that means the Centre integrates well with the Islington coffee shop culture; its on Upper Street in Islington which is full of posh shops and cafes; the designers were very keen to make sure that it fits with the kind of shops and services in the vicinity. Some people are interested that we have a display cabinet with building materials and want to know where suppliers can be located.' It could be argued therefore that the importance of leading by example (a key element in the context of social learning) is being put into practice by the local authority striving to ensure that nearly all the materials used in the design and fitting of the Centre are sustainably sourced.

5.2 Barriers and challenges

In spite of the opportunities for local authorities to have an influence on carbon emissions in their localities there remains a set of limiting factors that can – and do – hinder the scope and extent of this influence. Research conducted for the Local Government Climate Change Commission analysing the 2006 Climate Change Programme (CSE, 2006) points to the relatively limited success of local authorities

in contributing to national policies for reduced carbon emissions, and identifies three main factors as to why this is the case:

1. Local authorities only have influence over some aspects of the measures outlined in the 2006 UKCCP (e.g. extremely limited participation in the EU emissions trading scheme but substantial influence in respect of area-based household energy-saving schemes);
2. A local authority's influence on CO_2 emission reductions depends on how effectively it exerts that influence through the various roles it performs (e.g. a local authority that is poor at engaging with community organisations, treats opportunities to secure funding from energy suppliers for home energy efficiency measures with indifference, or fails to secure a productive relationship with energy advice providers, will not be an effective catalyst for reducing emissions in these areas). The level of influence that a local authority can exert therefore depends on the quality of performance in its surrounding community;
3. A reluctance by Central Government to commit in the UKCCP 2006 to measures that relied on good local authority performance. The reason for this reluctance was due in part to the absence of robust data relating to the impact of local authority action on climate change and also uncertainty surrounding how best to improve local authority performance in terms of combating climate change locally (CSE et al, 2005; Roberts, 2010).

The empirical evidence referred to in Section 3 of this paper points to the reality that a local authority's ability to promote attitudinal and behavioural change can be thwarted by apathy and indifference towards climate change among the community members that it seeks to influence. The experiences of participatory climate change projects in both Shropshire and Islington, for example, illustrate the difficulties associated with engaging larger numbers of community members. From the project management perspective it was suggested that this might be attributed in part to the hectic nature of modern ways of living where individuals often give higher priority to issues other than climate change. They can often display inertia in the sense of *wanting* to make behavioural changes.

There remains a central challenge in the development of trust with community members - a key influencing factor when attempting to establish and maintain engagement. For example, one of the elite interviewees argued that a project's success is largely dependent upon participation which in turn depends on how effectively the initiative is promoted, and also the extent to which the target community believes and trusts in the organization developing the project alongside its proposed benefits.

A potential barrier to developing a sufficient level of trust was thought to be related to the perception and "image" of local authorities and their role in the community. The historical relationship between residents and their local authorities has often been characterised as one where limited trust and minimal confidence have been prevalent (Byrne, 2000). Whether provision of incentives for participation (e.g. financial support towards insulation costs) constitute a positive aspect of building a trust relationship with community members is not entirely clear. They do nevertheless provide a reason to participate additional to the anticipated environmental benefits that are central to this type of engagement programme.

Connecting effectively with the multiplicity of needs and priorities that exist in a community is a core challenge in this regard. Inevitably, addressing this barrier requires recognition of difference and diversity among individuals of the same community. Implicit in social learning theory, for instance, is the idea that there are benefits to be realised from approaches that embrace inter-community diversity.

Roberts (2010) argues that there is now a need for fresh insights and understanding on how best to secure the necessary improvement by local authorities in their performance as key players in the delivery of the UK policy framework for achieving carbon reduction targets. He suggests that the new local authority indicator on community carbon emission reduction "provides an ideal opportunity to start gathering data to enable the actions take by local authorities to be compared with the real emission reductions achieved" (p.87). Although the performance indicator itself has been withdrawn by the present administration, the collection of relevant data continues and therefore this opportunity remains. Figure 1 demonstrates some of the key relationships between local government, policy issues and other key bodies with respect to agency in influencing energy governance.

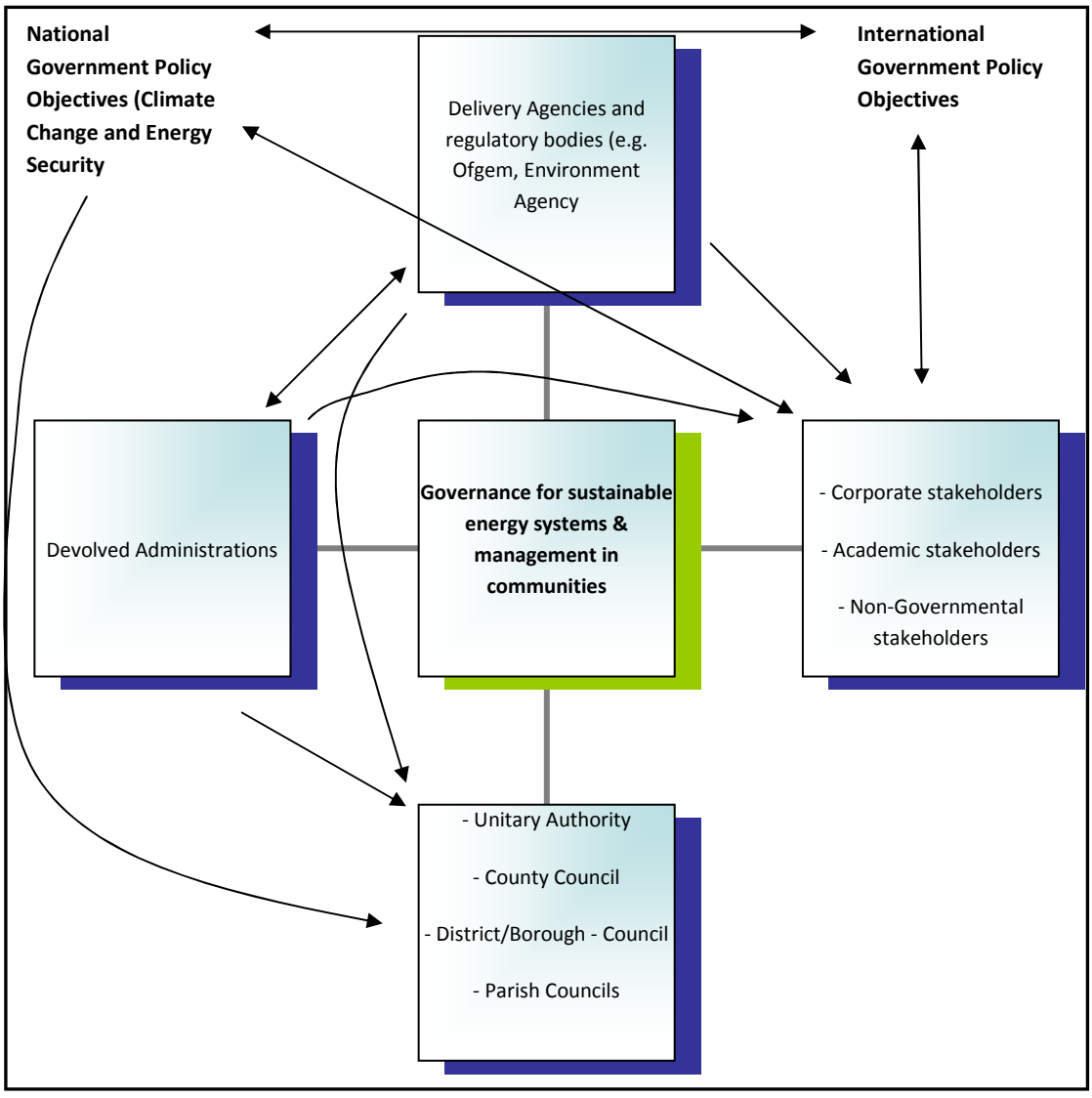

Figure 1: locating the agency of local authorities in influencing energy governance

6. The current state of flux: re-conceptualising energy services

As with the majority of western democracies, the overall policy arena of the UK is no longer a uniquely sovereign affair. The UK itself now sits not only within the influence of legislation from the European Union, but has also been subject to its own internal reorganization and growing influence of the regional and local decision-making structures outlined earlier.

The current decision-making framework for energy policy in the UK has been influenced firstly by a state-led regulatory regime, and then by the emergence of a market-led approach. The latter largely influences the current agenda (Mitchell, 2007), whilst being subject to a series of regulatory adjustments. The liberalization of energy markets has been significant in a political sense, in that it has meant that political leaders in the UK have become more restricted in their ability to *directly* intervene in energy issues. The switch to gas in electricity generation for instance, has meant an increasing reliance on imported energy and associated fluctuations in price. This scenario contrasts with the ways in which the UK Government was able to provide greater levels of control and guarantees over the UK's energy supply under conditions of nationalization and state supervision. The problem of climate change has also posed a series of dilemmas, where political leaders and businesses have struggled to address the economic problems of pricing 'externalities'. Instead, the last two decades has seen the growth of a number of specialised departments, whose role it is to work with trade and industry in finding policy solutions to both environmental and supply security problems *within* an overall market framework.

As Mitchell (2007) points out:

> In the UK, there are several institutions which work in the energy sector. For example: the environmental regulator, the Environment Agency; the Carbon Trust; the UK Energy Research Centre. However, the institution which implements the rules and incentives by which energy is bought and sold in the UK is Ofgem, and in this respect is the most influential of those energy institutions (Mitchell, 2007:6).

There are also several government departments responsible for the development of policy initiatives around energy and environment. These include: the Department for Transport, the Department for the Environment, Food and Rural Affairs, and the Department for Energy and Climate Change. Local authorities are increasingly constituting a 'second tier of government' with increasing local policy making powers and agencies such as the Energy Saving Trust and the Carbon Trust are funded by the UK Government to devise and implement, for instance, consumer and business facing behaviour change initiatives.

The UK Energy Secretary Chris Huhne (2010) has reiterated that local government bodies will continue to be encouraged to 'lead the way' in helping to develop community and locally led energy initiatives. One of the main ways through which this will happen, he suggests, will be through a 'reconceptualization' of energy service provision. As pointed out in the earlier sections of this paper, traditional energy services have been based primarily upon supply-side provision – delivered firstly

through a state-led political and economic infrastructure and, secondly, through a market-led approach, driven primarily by a few privatized companies. Additionally, investment decisions have, in general, been taken remotely from the communities where delivery occurs. More recently, the role of energy companies has tended towards prioritizing financial benefits over other objectives, with delivery of shareholder value necessitating financial returns, marginalizing technical options which could offer lower carbon impacts and, for end users, improved energy services.

The recent announcement that local authorities would now be in a legal position to trade renewable energy with the national grid for instance, lends weight to the argument that the UK is currently undergoing a major shift in its regulatory regime regarding both the primacy and the ethos behind 'energy services'. Promoting sustainability requires the major players in the energy industry to evolve from maximizing the sale of energy as a 'commodity' to a new way of providing energy services around the importance of delivering both low-carbon and low cost energy services, and to do this in collaboration with a wider range of stakeholders. Huhne suggests that the regulatory framework that is currently emerging in the UK is being developed for these purposes in order to encourage incremental changes to existing business arrangements and more radical innovations in relation to the saliency of climate and energy issues. Huhne makes the argument that the UK Government will continue to work on a responsive political framework which will enable local authority agencies amongst other stakeholders to develop renewable energy generation capacities – such as those mentioned above – to become more influential in driving the shift towards greener, more locally initiated energy systems.

Improvements in energy demand reduction and deployment of distributed generation therefore, could make a major long term contribution the UK energy system, carbon targets and energy security. The shifting regulatory system in the UK means that local authorities are now being encouraged to position themselves within the emergence of a number of issues which will characterize the evolving framework of a changing political and institutional landscape. For instance, greater control over energy issues at local authority level suggests that at some stage there will be points of conflict between these developments and the role of traditional energy service providers. This emerging scenario has raised questions such as:

- What will diversification from current energy regulation practices mean at a political level?
- Who will be best placed to deliver energy efficiency and environmental goals in the future?
- What would a more partnership based approach to energy supply work in practice?
- Should current energy suppliers continue to play a major role over energy supply in the UK?
- Should local authorities have an expanded role or would a new central delivery body be preferable?

On a statutory level, local authority engagement in this emerging energy framework now includes a number of projects where electricity and heat functions are channelled through micro and community scale generation. Significantly, in terms of the potential for new forms of political engagement and decision-making, such projects would, in the more recent past, have been constrained by the powers, finance and cultures of local authorities and their relationship to central government. Already, many local authorities have begun to take on a leading role in making some form of renewable energy supply

a pre-condition for any major new development. Recent government plans to introduce guaranteed payments through Feed-In-Tariffs (FITS) and a Renewable Heat Incentive (RHI) may well be instrumental in transforming the scale of local energy generation in the UK in the coming years. This argument was recently given fresh impetus with the announcement that local authorities would now be in a legal position to trade renewable energy with the national grid.

Significantly, the introduction of Feed in Tariffs and a Renewable Heat Incentive in particular, are likely to usher in new actors (including households, cooperatives, housing associations or schools) into the energy generation market. In turn, the emergence of new actors and the creation of new institutions and platforms for innovation could bring about the formation of coalitions around specific energy technologies. The energy industry itself seems to have endorsed the view (at least rhetorically) that it needs to move beyond delivering energy commodities to providing energy in a way that reshapes not only the supply basis of the system but consumption patterns as well. In doing so, a relationship that has largely been based upon a pure commodity transaction between sellers and users must now be understood as a set of formal and informal partnerships among private companies (e.g. utilities and housing associations), public sector organizations (e.g. local authorities) and citizens. Differing levels of knowledge and expertise between stakeholders will shape these partnerships. A significant barrier to a higher profile for local government is that many local authorities lack specific knowledge of the energy sector, and therefore the skill to engage actively with this agenda. The emergence of new structures – for example the role of Energy Service Companies (ESCOs) – demands knowledge and capacity to collaborate between energy suppliers, planners, property holders, community groups, financial services and the construction sector.

The emergence of this new 'energy service sector' will, in theory, allow local authorities to engage with the process of shaping the architecture of a more distributed form of energy production, and potentially enable citizen-consumers to understand more fully the consequences of their energy choices and their end use decisions. However, this demands that appropriate and sustainable engagement structures are in place to provide meaningful opportunities for community involvement and appropriate connections to energy providers, funders, regulators, and other communities of practice. This raises questions about who should create and maintain these structures and how they should be regulated at a political level. A substantial body of practice, policy and theoretical work exists to analyse effective community engagement and deliberative participation, and in particular the barriers and pitfalls to be avoided. Progress can be made in engaging communities with this agenda if general lessons and good practice in community engagement are considered, in particular, in understanding the political and cultural factors that shape how public agencies engage with communities. Many local authorities are struggling with shrinking resources, growing social needs and face significant challenges in successfully engaging communities in local decision-making. They are also struggling to grapple with the practical, emotional and psychological factors that can prevent individuals - especially the most vulnerable and disadvantaged - from participating in community decision-making.

References

Aberdeen City Council (2007), *Housing advice: Home Energy Conservation Act 1995 (HECA).* Available online: http://aberdeencity.gov.uk/ACC/web/site/Housing/Advice/HES/hoa_home_energy

Agyeman J. and Evans B. (1994), *Local Environmental Strategies.*Longman, Harlow

BERR (2007), *Energy Measures Report,* Department for Business, Enterprise and Regulatory Reform. Available online: http://webarchive.nationalarchives.gov.uk/+/http://www.berr.gov.uk/files/file41260.pdf

Byrne T. (2000), *Local Government in Britain: Everyone's Guide to How it all Works 7th Edition,* London, Penguin

Chadwick A. and Heffernan R. (eds) (2003), *The New Labour Reader,* Blackwell, Polity

Chang H.J. (2001), *Breaking the Mould: An Institutionalist Political Economy Alternative to the Neo-liberal Theory of the Market and the State,* Social Policy and Development Programme Paper Number 6.

Cirell S. and Bennett J. (2009), 'Charging and trading: The Local Government Act 2003', Special *Report by Eversheds.* Available online: www.eversheds.com

CLG (2006), *Strong and Prosperous Communities – the Local Government White Paper.* Department for Communities and Local Government, London. Available online: http://www.communities.gov.uk/publications/localgovernment/strongprosperous

CLG (2010) *Consultation on a Planning Policy Statement: Planning for a Low Carbon Future in a Changing Climate.* http://www.communities.gov.uk/publications/planningandbuilding/ppsclimateconsultation

CLG (2011) *Draft National Planning Policy Framework*.

CLG/DECC(2010), *Warm Homes, Greener Homes: A strategy for household energy management.*

Collier U. and Lofstedt R.E. (1997) 'Think globally, act locally? Local climate change and energy policies in Sweden and the UK.*Global Environmental Change.*Vol. 7:1, pp 25-40

CSE (2006), *The Local and Regional Carbon Management Matrix*, Bristol: Centre for Sustainable Energy, available at www.cse.org.uk/projects/view/1082

CSE (2007), *Council action to curb climate change: key issues for local authorities*, Report for the Local Government Climate Change Commission, London: LGA.

CSE with CDX (2007), *Mobilising individual behaviour change through community initiatives*, Report to Defra, DTI, HM Treasury, CLG and DfT, London: Department for Environment, Food and Rural Affairs, available at http://www.cse.org.uk/pdf/pub1073.pdf

CSE with Impetus Consulting and QE2 (2005), Local & Regional Action to Cut Carbon An appraisal of the scope for further CO2 emission reductions from local and regional activity, Report to DEFRA for the UK Climate Change Programme Review, CSE, Bristol.

Curran L. (2010) 'Woking Borough Council: working towards a low carbon community'. . In M. Peters, S. Fudge, and T. Jackson (eds) Low Carbon Communities:Imaginative Approaches to Combating Climate Change Locally.

Downe J. and Martin S. (2006) 'Joined up policy in practice? The coherence and impacts of the local government modernization agenda.*Local Government Studies.*32(4) pp 465-488

DECC (2009) The UK Low Carbon Transition Plan: National Strategy for Energy and Climate Change. Department for Energy and Climate Change. See also: http://centralcontent.fco.gov.uk/central-content/campaigns/act-on-copenhagen/resources/en/pdf/DECC-Low-Carbon-Transition-Plan

DECC (2010) *The Green Deal. A summary of the Government's Proposals.*http://www.decc.gov.uk/assets/decc/legislation/energybill/1010-green-deal-summary-proposals.pdf

Defra (2003) *Energy Efficiency – the Government's Plan for Action*. Department for Environment, Food and Rural Affairs http://www.defra.gov.uk/sustainable/government/documents/full-document.pdf
Defra (2006) *The Climate Change Programme Report.* Department for Environment, Food and Rural Affairs, http://www.defra.gov.uk/ENVIRONMENT/climatechange/uk/ukccp/index.htm
Defra (2007) *Climate Change and Energy: Home Energy Conservation Act 1995.* http://www.defra.gov.uk/environment/climatechange/uk/publicsector/localauth/heca9
Defra (2008) *A Framework For Pro-Environmental Behaviours: A Report.*Department for Food, Environment and Rural Affairs.http://www.defra.gov.uk/evidence/social/behaviour/documents/behaviours-jan08-report.pdf
DTI (2003) *Our Energy Future: Creating a Low Carbon Economy.* Department of Trade and Industry, CM 5761
DTI (2006) Microgeneration Strategy. Department of Trade and Industry http://webarchive.nationalarchives.gov.uk/tna/+/http://www.dti.gov.uk/files/file27575.pdf/
DTI (2007) *Meeting the Energy Challenge.*DTI, London. See also:- http://www.berr.gov.uk/files/file39387.pdf
Dresel, T. (2009), Personal Communication.Interview with Thomas Dresel, Project Executive, Solar Resion, City of Freiburg, Germany. Focusing on Freiburg's Solar City Concept, 15November 2009
EIA (2007), *Electricity reform Abroad and US Investment*, Energy Information Administration report. Available online: http://actrav.itcilo.org/actrav-english/telearn/global/ilo/frame/elect2.htm
Energy Saving Trust (2007) The Nottingham Declaration on Climate Change website, managed by the Energy Saving Trust. Available online:
http://wwwenergysavingtrust.org.uk/housingbuildings/localauthorities/NottinghamDeclaration accessed 10/01/08
Fudge S. and Peters M. (2009) 'Motivating carbon reduction in the UK: the role of local government as an agent of social change'. *Journal of Integrative Environmental Sciences.*Vol 6:2, pp 103-120
Futerra (2005), *UK Communications Strategy on Climate Change: Recommendations to Defra, DTI, Carbon Trust, Energy Saving Trust, Environment Agency and UK Climate Impacts Programme*, London: Futerra.
Giddens A. (1998) *The Third Way: The Renewal of Social Democracy.* Blackwell, Polity
GlashusEtt, (2007)a, HammarbySjöstad– a unique environmental project in Stockholm, The city of Stockholm, Alpha prints, 2007. www.hammerbysjostad.see Accessed 19/1/11.
Hales D. 2007. Personal Communication; Interview with Laura Hales, Climate Change Partnership Officer and Lucy Padfield, Energy Manager, London Borough of Islington Council. Focusing on the household and community engagement projects that are part of the Islington Climate Change Partnership and Islington's Climate Change Strategy.
Heiskanen E., Johnson M., Robinson S, Vadovics E, and Saastamoinen M. (2009) 'Low-carbon communities as a context for individual behavioural change'.*Energy Policy.*doi:10.1016/j.enpol.2009.07.002
Helm D. (2004) *Energy, the State, and the Market.*Oxford, Oxford University Press
Helm D. (2005) *'the assessment; the new energy paradigm'.*Oxford Review of Economic Policy. Vol. 21, No. 1
HM Government (2004) *Delivering the Essentials of Life: Defra's five year strategy,* HMSO, Norwich. Available online: http://www.ewc.polimi.it/dl.php?file=DEFRA%205year-strategy.pdf
HM Government (2006) *Climate Change and Sustainable Energy Act* http://www.legislation.gov.uk/ukpga/2006/19/contents
HM Government (2010) *Queens Speech – Decentralisation and Localism Bill*, www.number10.gov.uk, accessed 20/01/11

HMSO (2005) *Planning Policy Statement 1: Delivering Sustainable Development.* Office of the Deputy Prime Minister
http://www.communities.gov.uk/publications/planningandbuilding/planningpolicystatement1
Homes and Communities Agency. (2010) *Eco Towns: HammarbySjostad*http://showcase.homesandcommunities.co.uk/case-study/ecotowns-hammarby-sjstad-sweden.html Accessed 19/1/11
Huhne C. (2010), 'Huhne ends local authority power struggle'. Press Release. http://www.decc.gov.uk/en/content/cms/news/pn10_89/pn10_89.aspx
IDeA. 2006), Improvement and development agency; Integrating climate change into the community strategy. Available online from: http://www.idea.gov.uk/idk/core/page.do?pageId¼80855; cited 23 November 2007.
Jackson T. (2005), 'Motivating sustainable consumption: a review of the evidence on consumer behaviour and behavioural change'. *A Report to the Sustainable Development Research Network.* London, Policy Studies Institute
Jones C. and Eiser J. (2010), 'Understanding 'local' opposition to wind development in the UK: how big is the backyard?' *Energy Policy.*38 pp 3106-3117
Jones E, Leach M, and Wade J. (2000) 'Local policies for DSM: the UK's Home Energy Conservation Act'. *Energy Policy.*Vol. 28, pp 201-211
Kirwan, K. (2008), Personal Communication; Interview with Kerry Kirwan Principal Energy Advisor, Green Living Centre, London Borough of Islington Council, (May, 2008).
Krause A. and Sayani A. (2006) 'Planning sustainable communities: Kronsberg, Germany'. *Places and People: Planning New Communities.* Cities, Policy and Planning Research Series, University of Calgary
LB Merton, undated, http://www.merton.gov.uk/living/planning/planningpolicy/mertonrule.htm, accessed on 21/01/11.
LBRuT. (2007), Cabinet Paper, Item 10: Preparation of Climate Change Strategy. Richmond: London Borough of Richmond upon Thames Council.
GG (2011) 'Local Government's Offer on Climate Change: Full Proposal'. Local Government Association on behalf of the Local Government Group
LGG and DECC, (2011), Memorandum of Understanding between the LG Group and the Department of Energy and Climate Change, Crown Copyright 11D/0034
Ludhe-Thompson N. and Ellis H. (2008), 'Planning: central to delivery on climate change'. In C. Sinn and J. Perry (eds) *Housing, the Environment and Our Changing Climate.* Chartered Institute of Housing, Coventry
McGowan K. (2007), Personal Communication. Interview with Kris McGowan, Senior Project Manager, and Kate Knight, Team Leader 'Low Carbon Communities', Marches Energy Agency (MEA), Shrewsbury. Focusing on Shropshire County Council's Low Carbon Communities project 4 December 2007.
Mitchell C. (2007) *The Political Economy of Sustainable Energy.* London, Palgrave
Mulugetta Y, Jackson T, and Van der Horst D. (2010), 'Carbon reduction at community scale'.*Energy Policy.*Vol. 38, pp 7541-7545
Peters, M, Fudge, S., and Sinclair, P (2010), Mobilising community action towards a low carbon future: opportunities and challenges for local government in the UK. Energy Policy, Volume 38, Issue 12, December 2010, Pages 7596-7603, Special Section: Carbon Reduction at Community Scale
PIU (2002) *The Energy Review.*Cabinet Office Performance and Innovation Unit.

Pugh. 2007. Personal Communication; Interview with Trevor Pugh, Director of Environment, London Borough of Richmond upon Thames Council. Focusing on the council's Greener Richmond Partnership and climate change initiatives 30 November 2007.

Roberts S. (2010) 'The role of local authorities in galvanizing action to tackle climate change: a practitioner's perspective. In M. Peters, S. Fudge, and T. Jackson (eds) *Low Carbon Communities:Imaginative Approaches to Combating Climate Change Locally.*

RCEP (2000) *Energy – the ChangingClimate.* 22nd report of the Royal Commission on Environmental Pollution

Scrase J, Smith A, and Kern F. (2010) 'Dynamics and deliberations: comparing heuristics for low carbon innovation policy'. SPRU Working Paper, University of Sussex

SDC (2007) *Financing Local Futures: Sustainability in Practice,* Sustainable Development Commission, London. Available online: http://www.sd-commission.org.uk/publications.php?id=507

Stern N. (2006) *The Economics of Climate Change: The Stern Review.* Cambridge University Press

Sustainable Pittsburgh: Our Future. *HammarbySjostad, Stockholm.* http://www.sustainablepittsburgh.org/NewFrontPage/EcoMunicipalities/Eco_Municipalities_Hammarby_Sjostad_%20Stockholm.htmlInformation accessed on 19/1/11

Voisey H, Beuremann C, Sverdrup L, and O'Riordan T. (1996) 'The political significance of Local Agenda 21: the early stages of some European experience'. *Local Environment.* Vol. 1, pp 33-50

Wade J. (2008) 'Taking the lead – local authorities and the climate change agenda'. . In C. Sinn and J. Perry (eds) *Housing, the Environment and Our Changing Climate.* Chartered Institute of Housing, Coventry http://www.eceee.org/conference_proceedings/eceee/2007/Panel_3/3.108/Paper/

Wade J. (2010) 'Local Area Agreements: progress towards local leadership on climate change mitigation'. *Report to the Pilkington Energy Efficiency Trust and the Energy Efficiency Partnership for Homes.* www.impetusconsult.co.uk

Wade J. (2010b) 'Local Energy Partnerships: report on the EEPH, LGA and UKBCSE workshop'. *Report prepared on behalf of the Energy Efficiency Partnership for Homes.* www.eeph.org.uk

Wade J., Pearson A., and Flanagan B. (2007) 'Local government energy action in the UK: from service delivery to community leadership'. *ECEEE 2007 Summer Study: Saving Energy – Just Do It!*

Walker G. and Devine-Wright P. (2008) 'Community renewable energy: what should it mean?' In *Energy Policy.*36, pp 497-500

Walker G, Devine-Wright P, and Evans B. (2008) 'Embedding socio-technical innovation? Niche management and community based localism in renewable energy in the UK'. *Working Paper, Department of Geography, University of Lancaster*