



**Consumer
Focus**
Campaigning for a fair deal

A new energy infrastructure

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Note

Prashant Vaze and Ed Mayo are Chief Economist and former Chief Executive of Consumer Focus respectively. This is the first in an occasional series of discussion papers produced to contribute to on-going debates on issues that effect consumers. **It does not represent the agreed policy of Consumer Focus.** The authors are grateful for comments received on early drafts by Michael King Associate, CHPA and Chairman, Aberdeen Heat & Power Co., Marian Spain *Energy Savings Trust*, John Scott KEMA Ltd, Nigel Cornwall Cornwall Energy Associates.

Summary

There are an estimated 4.6 million households in England who live in fuel poverty – for these people the cost of keeping warm represents a tenth of their income or more. This cost is likely to rise as we develop zero carbon energy sources and renew our aging energy infrastructure. The levies on customer energy bills fund the necessary investment in energy efficiency, energy networks and renewable energy. They already represent a high proportion of customers' energy bills and these costs are expected to rise as further low carbon policies are rolled out.

But are customers paying too much because of poor integration between these different programmes? The current regulatory model does, more or less, what it aims to do, which is to encourage an efficient supply of energy to meet the country's demand. To do this, it has encouraged a series of market and monopoly silos – bringing competition in where possible and regulating monopolies where not. What it does not do, which is the central challenge for a low-carbon economy, is to encourage an efficient use of energy. There is a huge prize for consumers if public policy on energy efficiency, network renewal and renewable heat and power policies is seen in the round as a community investment challenge.

Government, on top of the post-privatisation framework of regulation, has added a diverse range of incentives to encourage renewable energy and energy efficiency. The result, though, is a complex 'pepper pot' approach of different initiatives, which are worthwhile in themselves, but do not address the fundamental weakness in the framework. This is that no-one can invest in a truly efficient system for the overall use of energy, because they have no mandate to work across those market and monopoly silos.

What may be needed is an approach that can provide incentives for investment in a low-carbon infrastructure across the different silos of electricity, gas, micro-renewable generation, zero carbon heat and energy efficiency retrofit in existing homes. After all, it has long been argued that if we paid for the services that energy gives us rather than the units of energy we use, companies would have an incentive to invest in energy efficiency and other ways of meeting consumer demand while reducing the supply of energy. This, in a nutshell, is what we need to move to a low-carbon economy.

To do this, we make the case that the current monopolies for the regional networks could be opened up and made contestable, in order to promote investment in a systematic way in a low-carbon economy. The approach we suggest should be examined in greater depth is therefore a 'franchise' model, with an important role for local authorities and community partners, to franchise the investment and operation of low-carbon infrastructure. We call these 'Low-Carbon Investment Franchises'.

The advantage of a local approach is that it allows for what the policy imperative demands: a low-carbon transition, which incorporates not just the supply-side but also the demand-side. The shift to a low-carbon society needs to be advanced at neighbourhood level and not just at national and global levels. People, schools and businesses need to invest in energy efficiency and change their behaviour. But, again, while a complex 'pepper pot' array of grant schemes exists or is coming on-stream – from improving energy efficiency street by street, engaging local people and promoting micro-renewable generation and renewable heat – they only reach, and perhaps could only ever reach, a minority of areas. These programmes are not 'joined up', and crucially they are not integrated with network investment decisions.

Perhaps the main benefit of the grant schemes is that they help to test the methods that could be rolled out far more effectively as part of a comprehensive local approach. They show that a new set of actors – customers, local authorities, energy co-operatives and community groups – can play a more central role in decarbonising communities through the planned roll-out of low carbon infrastructure.

In particular, local authorities¹ could play a much more central role. They already have sustainable development duties, high profile performance targets and a substantial influence over energy infrastructure and energy efficiency under planning and building regulations. Local authorities are already important delivery agents. Their planning statements have to reflect central guidance on climate change (PPS 1) and renewables (PPS 22) for *new development*. But the role played by local authorities has to change. The code for sustainable homes, culminating in zero carbon homes by 2016 (in England), means further measures in new homes are much less important. Targets agreed by the Assembly Government in Wales are more stringent with an aspiration to achieve zero carbon emissions from new buildings by 2011. Local authorities now have to focus on existing homes, if they are going to help achieve national carbon budgets.

Legitimate concerns can be raised about the ability of local authorities to take on a more substantial role in energy planning. Local authorities vary in terms of their competence and track record on these issues, but, looking forward, we suggest they are the best placed institution to broker the political compromises and satisfy the competing interests that relate to the conservation of built heritage, liveability and sustainable development. But we also recognise at the moment most local authorities do not have the requisite political will, resources or skills set to steer the area based decarbonisation. To grow into the role they will need training, more resources and not just an unfunded mandate. Some authorities are embracing this challenge already. But if these ideas are taken forward at scale considerable thought will have to be given about how and whether these skills can be developed.

Now is a good time to bring these different strands together. Several recent reports and policy initiatives have stressed the scale of the challenge and need to act now:

- Ofgem published its initial results from Project Discovery². The analysis suggests as much as £200 billion needs to be invested in the energy system by 2020. Consumer bills might have to rise by between 14 per cent and 60 per cent. The Ofgem RPI-X@20 process is considering root and branch reform of the regulation of energy networks
- The Committee on Climate Change recent progress report³ presents accelerated trajectories for decarbonising homes. It sets a target of 2.2 million homes to have solid wall insulation by 2022, for a street by street approach to installing energy efficiency and for a delivery role for local government
- The Department for Energy and Climate Change (DECC) is presently considering the replacement of the Carbon Emissions Reduction Target (CERT) by the supplier obligation. It is expected to publish its new Heat and Energy Saving Strategy early in 2010

We suggest these processes consider some of the ideas raised in this paper. The first steps towards this are producing:

¹ Sustainable Communities Act 2007, Local Area Agreements which include National Indicators 185 and 186.

² Ofgem (October 2009) Project Discovery – Energy Market Scenarios.

³ Committee on Climate Change (October 2009) 'Meeting carbon budgets – the need for a step change'.

1. **Integrated plans for community energy efficiency, network development and decentralised heat generation:** A mandate and resources for local authorities, acting singly or jointly, to define their long-term plan of new investment in gas, power and heat networks, external retrofit energy efficiency and heat generation authorised after a due process of consultation, or referendum, with citizens and housing associations in a neighbourhood.
2. **Franchising investment:** An action plan for the introduction of competition into implementing the investment programme by introducing franchises to undertake their construction and operation⁴. Bids from incumbent network operators, construction firms, water and telecoms companies or co-operatives would be welcomed.
3. **Establishing a new class of regulated assets:** Creation of *network ownership companies* (or co-operatives) in which the new network assets would be vested. These would maintain regulatory accounts and recoup a return on their investment through regulated charges on those customers benefitting from the investment⁵.
4. **Integrating the social and energy efficiency schemes:** Franchisees would draw upon the current and new grant regimes and existing energy customer funds; this would require support from appropriate national agencies and the establishment of data sharing protocols to provide information on the eligibility of grant for vulnerable households. The companies would bring together the Supplier Obligation, Community Energy Saving Programme and support for smaller⁶ renewable electricity schemes. The franchisees could also handle the social funds (Warm Front and Decent Home) to ensure that vulnerable households would be able to fully access the low carbon infrastructure.
5. **Assessing bids for least cost, social and environmental objectives:** Ofgem would oversee the awarding of franchises by scrutinising the bids to ensure they met cost efficiency goals⁷. The existing regulation of distribution companies would be simplified, removing the incentives to innovate and extend the networks and retaining just the operation and maintenance of the networks. We would expect Carbon Trust and Energy Savings Trust to also support the scrutiny of the bids to ensure feasibility⁸.

⁴ This might include operation of monopoly heat facilities like CHP, heat only combustion plants and heat stores. The operation and repair of existing power and gas networks would remain with the role of existing distribution companies.

⁵ For a new class of Regulated Asset Base, customers' 'distribution' charge would vary individually depending on the amount of investment made on their behalf.

⁶ Less than 50 MW.

⁷ As well as continuing to administer RO, CERT, CESP other future schemes and determining the rate of return on regulated capital.

⁸ Similar to role played by EA and DWI in the price determination of water and sewerage networks.

6. **Rolling-out community energy services:** The above creates mechanisms and institutions which would roll-out investment in decentralised energy provision and energy efficiency according to local priorities. The gas and electricity suppliers would still have no incentive to encourage behaviour change and manage demand for energy. A community Energy Service Companies (ESCO), such as an energy company (or co-operative)⁹, could be a key institution in addition to traditional supply companies, to engender the changes in energy use behaviour¹⁰. The key difference between the ESCO and traditional suppliers is that the contract specifies that customers are charged for the output of energy services not the kWh of energy consumed. The ESCO has an interest, shared with consumer, to keep the actual use of energy to a minimum.

⁹ See, for example, Erbmann, R Goulbourne H and Malik P 'Collective Power – changing the way we consume power', Co-operative Party, 2009.

¹⁰ Despite interest in and the potential for such social enterprise models for over fifteen years (See, for example, Birmingham Settlement Community Energy Research and Bristol Energy Centre (1993), The Hidden Disconnected), the UK has very few successful energy service companies operating in this way at community level. The 'ESCOs' would be made up of traditional supply businesses and community or customer co-operatives to ensure that they behave in consumer interests. This could allow the roll-out of long term energy service tariffs stimulate demand side reduction actions by the ESCO. Local behavioural change programmes benefit from entire neighbourhoods adopting new norms. 'Nudge' style contracts – where customers who had benefitted from investment would be automatically contracted to an ESCO – would receive behavioural advice, tariffs might be redesigned around outcomes (customers pay according to measured average internal temperature during the heating season, rather than gas use) but customers have the freedom to opt out. Considerable thought needs to go into whether such contracts could be written and customer behaviour fairly monitored.

Introduction

The cost of keeping warm is a major issue for many households. As the UK becomes even more dependent on imported gas, and as international supplies run down, the cost of keeping warm is likely to rise further without adequate roll-out of insulation. Scenarios published by Ofgem suggest energy prices might rise by as much as 60 per cent over the next decade. The levies on customer energy bills to fund investment in energy efficiency, energy networks and renewables is already an important share of energy costs, but it will become even more so.

There is a huge prize for consumers if public policy on energy efficiency, network renewal and renewable / zero carbon heat and power policies is seen in the round as a communal investment challenge. Deploying external insulation and local renewable energy will affect the 'look' of neighbourhoods. It will need communities to come together to specify and articulate how they want their localities to decarbonise affordably.

In this paper we offer some ideas for discussion by policy makers in Government, local authorities and the regulator on how an area based low carbon investment plan might operate. We set out what we consider a logical set of arguments and conclude that if consumers are to receive low cost, renewable warmth and power on a sustainable basis we need to start thinking about network investment, energy efficiency and distributed generation simultaneously and on an area basis. We offer some ideas on how this might be inserted into the current UK policy and institutional environment. Our idea is that beneficiaries from this investment would fund the cost of the investment through savings in their future energy bills. If these investments are 'efficient' they would have lower bills, despite higher unit energy costs.

None of the ideas in this paper should be interpreted as opposition to the rapid and cost-effective deployment of large electricity centralised plant envisaged in DECC's recent national policy statement.

Background

‘...a great town exists to discharge towards the people of that town the duties that a great nation exists to discharge towards the people of that nation – that a town is a solemn organism through which should flow, and in which should be shaped all the highest loftiest and truest ends of man’s intellectual and moral nature.’

Rev George Dawson, Birmingham circa 1860¹¹

Listening to George Dawson was the businessmen Joseph Chamberlain who went on to become the City’s mayor and who masterminded the municipal takeover of the two competing gas monopolies and who also oversaw the construction of Birmingham’s water supply. UK’s local authorities have in the past been at the international forefront of introducing innovative and principled investment for the betterment of their communities. This included investing in 70 miles of aqueducts to convey water from Wales. This transformation of Birmingham’s energy and water supply was achieved over the space of about 30 years and overcame the scourges of high energy prices charged by local gas monopolies and poor sanitation.

Today’s great challenge is providing consumers with affordable and decarbonised warmth and power within existing buildings. It requires the:

- mobilisation of Chamberlain-esque investment in installing energy efficiency in older homes
- development of low and zero carbon heat and power sources
- refurbishment and construction of heat networks
- management of information flows between homes and networks
- construction of stores (batteries and heat accumulators), smart grids and new time-of-use style tariffs to ensure networks operate efficiently

Above all, much of this requires collective as well as individual action. This is true for the infrastructure needed for low-carbon living – ranging from investment in external insulation and the economic development of new networks – and just as true for the social norms and individual behaviours needed for sustainable consumption.

Ecologies of scale

Companies cannot be sure of how much and where to invest in extending and modifying networks unless they know the path by which the community will decarbonise. Will it be through heat pumps using zero carbon electricity, or through district heating fed from zero carbon heat sources like biomass, or carbon capture and storage fired combined heat and power (CHP). The reason why we need to consider low-carbon infrastructures as a plural rather a single national system is that these decisions are not made centrally but at different scales.

- **National decisions:** eg on how to decarbonise road vehicles: plug-in electric or biofuels, standards for smart network operation, deployment of large power stations and transmission networks

¹¹ Hunt, Tristram (2004) *Building Jerusalem – The rise and fall of the Victorian city*.

- **Sub-national decisions:** eg on the deployment of large scale heat transmission pipes¹²
- **Local decisions:** eg on suitable deployment of external energy efficiency, micro-generation, district heating and heat pumps
- **Individual decisions:** about when to insulate homes, upgrade appliances and cars

These low carbon investments often substitute for new network investments. Indeed the construction of district heating networks makes the local gas network redundant; conversely the decision to electrify road vehicles could conceivably double loads on local power networks without actions to manage the scheduling of demand. If decisions about network investment are made without reference to demand-side use, we will see many futile and inefficient investment decisions.

The existing mechanisms and institutions are not well suited to this radical agenda. Ofgem's paper on who should plan new network investment (Ofgem 2009a) puts forward three models: Central Government led, Joint Industry led, Adapted Regulatory Framework. None of these ask the question what is the appropriate political level and what role should users play. Decisions are, or should be, made at many levels, but one agency has to draw the threads together and ensure they are delivered.

The essence of the ideas in this paper is that at the national level, as part of a wider energy policy, the rules are created to allow energy networks to be opened up in a more effective way for low-carbon investment at the local level. At this level, in turn, careful design can encourage an appropriate interface with community energy services that focus on demand-side adaptation to low-carbon energy use. After all, reducing demand is the other great challenge facing the energy system. We know that improving efficiency does not of itself reduce demand. It has to be accompanied by a change in underlying habits and there is an emerging behavioural economics literature on how consumers can be encouraged to work co-operatively to create new norms.

Achieving this is not a technical challenge but a social marketing one. Consumers will respond and take advice from organisations to whom they relate to and which they respect. And consumers respond to the example set by their peers and their communities. Exemplar homes where local authorities or community groups illustrate the energy efficiency improvements possible within the local housing stock can help shape people's views of what is desirable and achievable for them. Energy supply companies are poorly viewed by their customers, in part, because it is clear to them the interests of the companies are not aligned with their own. Worse than this, energy supply companies have no desire to reduce demand, quite the opposite.

So, alongside the current role of investors, energy network and supply companies, this suggests a larger role for two key actors – local authorities and community energy service companies/co-operatives. The latter can play a role in encouraging and securing the commitment to bring about behavioural change. We are not used to seeing local authorities active in energy planning but they do have roles for new development through planning regulations (PPS 1 Supplement) and also through national indicators 185 and 186. The low/zero carbon hub in Wales is applying demanding carbon reduction targets to regeneration projects.

¹² Avedore CHP power station in Denmark produces 840MW of power sufficient for serving the needs of 1.2 million power customer and 300,000 heat customers. Heat is stored on site for up to 10 hours and conveyed 30km from outside Copenhagen to the city. Heat is shared over a number of municipal boundaries.

Research undertaken for the UK Green Building Council¹³, in which 1,074 adults in GB were interviewed, shows that while views are split about who should lead the development of sustainable community infrastructure, local authorities were the most favoured candidate (24 per cent of vote), followed by national Government (20 per cent), local community forming a co-operative (14 per cent), newly set up local utility company (13 per cent). Gas and water utilities only received seven per cent of the vote. Local authorities and local community groups (in the form of a co-op) were also the most trusted to perform day-to-day management. Results from this study are reproduced in Annex 1.

Local authorities have the political mandate to reconcile tensions and trade-offs. At the local level these tensions can dominate political discourse. For instance interests in conserving the built heritage often oppose external insulation programmes. The appropriate location of decentralised power, waste combustion and CHP plant are matters of great local political concern. As the example of Denmark shows (see below) – given the right legal framework local authorities can make a real difference. We believe local authorities sometimes working together, and drawing on national guidance should define the energy infrastructure investment needs. This co-ordination is needed to avoid a multiplicity of contracts and because the skills needed to define the investment is in short supply.

Municipal delivery of CHP in Denmark

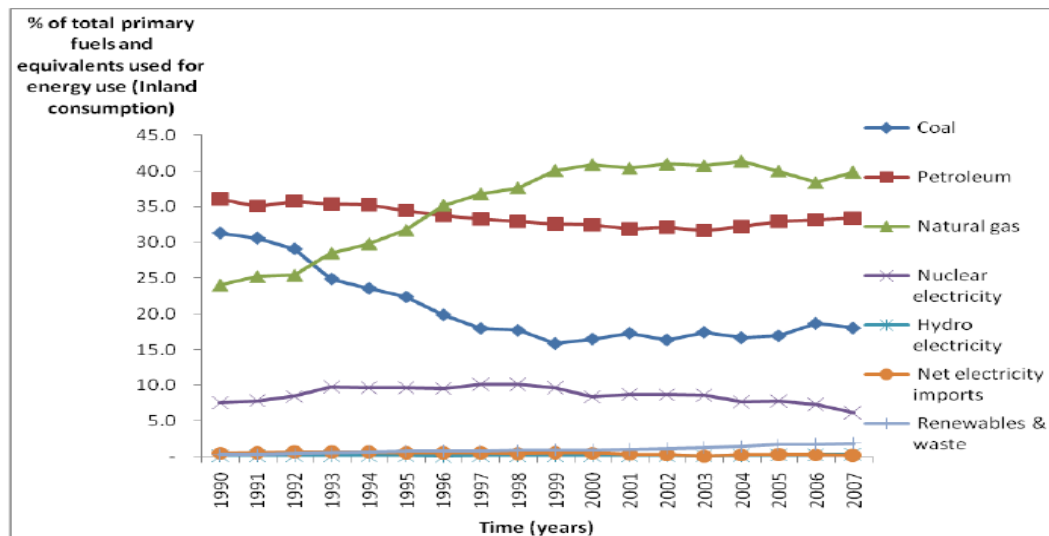
Denmark has for the past three decades integrated renewables (wind) and combined heat and power (both fossil fuel based and biomass) into its energy mix. Over 60 per cent of its space heating is derived from district heating and CHP. Around three quarters of the district heating networks are owned by their consumers; just over a quarter is owned by local authorities. Increasingly heat is supplied by exploiting waste heat from large scale efficient thermal power stations burning coal and gas. The 1979 Heat Supply Act was instrumental in stimulating major investment in refurbishing and extending heat networks with local authority's leadership.

Municipalities were asked to identify all their local heat sources (waste incinerators, power plants, refineries) and heat loads in order that the supply of heat could be centrally organised. The heat sector is a planned monopoly, in the sense, that areas of space are designated as either gas heated or district heated according to the housing density. Heat is always sold to the heat network at the long-run marginal cost of production ie to reflect the fuel, investment and a fair return on capital.

¹³ Icaro Consulting (November 2009) 'Understanding consumer attitudes to *sustainable community infrastructure*' <http://www.ukgbc.org/site/home>.

Community Energy Service Companies (ESCOs) are locally accountable organisations that deliver warmth, hot water, lighting and other electricity services to households and businesses based around sound energy usage advice and investment. The ESCO charges customers for the output of energy services not the kWh of energy provided¹⁴. There is a strong alignment between the business interests of the ESCO and society's interests. The successful ESCO makes most of its money from reducing the use of gas and electricity needed to meet its customer's needs not from selling more energy, which in the British system presently means burning fossil fuels. The figure below reminds us of how important fossil fuels remain in delivering power, heat and transport.

Percentage renewables and fossil fuels in the UK energy mix (1990 – 2007)



Source: BERR Digest of UK Energy Statistics 2008

The Community ESCO encourages behaviour change in its customers¹⁵. Community ESCO staff might go into customers' homes and teach them how to use their heating controls, apply social marketing techniques to develop commitment and motivate the necessary behavioural changes, by implementing low cost or no cost changes on behalf of their customers. We would argue people learn and change their behaviour and create new social norms from watching and listening to good experiences of their friends and family, not from leaflets and Government websites. But to engender this sort of community buy-in requires the customer to strongly identify and trust the supplier.

The logic of this argument would be for a much greater role for community ESCOs or some similar structure, operating on something approaching an equal footing with energy supply companies. Later in the document we show why we think this is not the case at the moment. In particular they should be able to enter into long term service contracts with their customers which would share savings in energy use reduction between both parties. This would fully align the interests of the ESCO with cost-effective carbon reduction.

¹⁴ Though the bill may retain a variable element to offer incentives to households and businesses to switch appliances off and not overheat their homes.

¹⁵ Erbmman, R Goulbourne H and Malik P 'Collective Power – changing the way we consume power', Co-operative Party, 2009.

A ‘Low-Carbon Investment Franchise’

We have coined the term the ‘Low-Carbon Investment Franchise’ to describe an enterprise that would deliver a programme of investment as specified by local authorities acting solely or jointly. Local authorities could consult with local interest groups, especially social housing providers and agree on the pattern and style of investment best suited to local needs. The local authorities would develop an agreed programme of investment in retrofit energy efficiency and new build gas, electricity and heat local networks. This would complement local authorities existing roles on new build through building regulations and planning consistent with the Code for Sustainable Homes and the zero carbon developments from 2016. This may be contracted as a single block or in different spatial / task related blocks depending on the market’s appetite. They may also become involved in local renewable or combined heat and power generation. They also have important implications for the existing gas and electricity distribution systems.

What activities would a low-carbon investment franchise carry out?

The specification document might contain the following:

- Geographically drawn out plans showing locations for investment in community micro-generation (energy from waste, wind turbines, solar technologies), existing and new district heating networks, heat stores, recharging points for electrical cars, areas where home owners would invest in ground source heat pumps (see Annex 2)
- A programme of investment in ‘communal’ energy efficiency measures which would include external / internal insulation, double glazing and air tightness measures
- Timeline for rolling out the different technologies and the required scheduling of investment over the period of the franchise (there might be merit in linking the period to carbon budgets and targets). Instead of a time limit the franchise might instead could be held continually by the winner so long as quality criteria are met, if this would help avoid drying up of investment towards the end of the franchise period
- The local electricity grid might need to invest in greater local capacity, two way flows of current, flows of information to enable demand side management and allow time-of-use tariffs. The gas network might need to plan for substantial reductions in use of domestic gas, growth in decentralised CHP and the injection of biogas. We expect where possible investment in the electricity grid will also be opened up to competition to stimulate innovation subject to existing network owners’ property rights. The issue of how much investment would be undertaken by the franchisee and how much by the incumbent utility is clearly a sensitive one and needs to be thought through carefully. The ultimate objective would be for consumers to have the lowest cost investment bearing in mind that incumbents have legitimate property rights and detailed and commercially sensitive knowledge of their own networks

Why do we need a Low-Carbon Investment Franchise model?

Integrated and planned community investment in energy efficiency, especially in the retrofit of existing homes, networks and decentralised generation is a solution to help customers more efficiently access the energy supplies they need. They do this by:

- Making low carbon infrastructure the output, not just a regulatory obligation, for the business. This encourages a better balance between energy efficiency, renewable electricity and CHP
- Transferring the hassle and upfront investment cost of high cost energy efficiency measures from the customer to the franchise
- Co-ordinating the roll-out of investment that needs geographic proximity to obtain economies of scale. These technologies include external insulation, district heating / CHP and community renewables
- Reducing the cost and complexity of price setting. By introducing competition through franchising we do away with the complex price setting and incentive structure that network regulation now uses

The planning of community investment franchise document is also a safe place in which to present and debate difficult political challenges. The opposition in planning faced by energy from waste and small scale renewables arises because we are asking local communities an important question in the wrong way. The question should be: 'If we are seeking to reduce local energy use, and given the costs and effectiveness of the options, which of these local opportunities do we favour?' Hostility to some low carbon technologies arise because communities are only presented with changes to the locality that they fear might reduce house prices and not the upside benefits of lower energy bills.

How would the franchise fund its investments?

Any franchise undertaking these public works would need to have access to cheap capital. We believe that repayment of the investment should be funded through the energy bills of all *potential beneficiaries* of the programme once the investment has been constructed and is in place. This would also include people who have not yet chosen to connect to facilities like heat networks.

In practice this may mean the creation of a new class of regulated asset base and a charge on energy bills so the franchisee sees a return on the project once it has built the agreed asset and 'sold' the asset to the regulated asset base. Recent papers by Dieter Helm and colleagues (Helm, 2008 & Policy Exchange 2009) give some interesting details about how this might work and the scale of the cost (£250 billion invested by 2020). We would expect the payments made to the traditional electricity and gas distribution companies to be substantially lower than now. This is because

- less new investment needs to be undertaken in the traditional networks
- the regulator should apply a lower cost of capital (weighted average cost of capital) to reflect the diminished risk profile of the investment undertaken by the network companies – much closer to bonds rates than the present weighted average cost of capital (see Helm, 2009) – as the company is merely maintaining and operating its existing asset base rather than extending it

The franchisee would fund the investment either from their balance sheet or from issuing 'green' bonds. Pension funds and other investors interested in a secure and low risk investment would be particularly attracted to purchase these bonds, especially if they are interested in marketing the savings vehicles to the environmentally concerned savers.

The Government is introducing legal powers to vary the distribution charge for each customer – the so-called distribution network operator (DNO) model or ‘Pay As You Save’ – first mooted in the Supplier Obligation Call for Evidence and presently being piloted by the Energy Savings Trust. This might be the appropriate mechanism to recover costs from beneficiaries of external insulation programmes, micro-renewables and heat networks (even if they have not yet connected themselves). As we describe later vulnerable customers could be protected from the increase in bills from the new levy by funnelling resources now spent on Decent Homes and Warm Front through the franchise.

The total effect of these suggested changes will be to increase the unit cost of energy to beneficiaries of the low carbon investment, but this will be offset by lower energy consumption. The overall energy bill will be lower if investment funds are cheaply sourced (hence we advocate using the regulated asset base as a means of finance). Ofgem’s Project Discovery scenarios remind us that underlying fossil fuel and electricity prices are likely to rise by between 15 per cent and 60 per cent because of foreseeable global energy market pressures. Consumers will gain from the investment if investment projects are ‘efficient’. The PAYS system allows the charge on energy bills to be attached to the households who directly benefit from the energy investments. Customers who are not benefitting from the local energy investment would not be asked to contribute through the higher network charge. If the internal rate of return on the energy efficiency work plus the inflation in energy costs is less than cost of raising the finance (the yield and repayment costs of on the bond) the customer should see a reduction in their overall energy bill. We would expect exactly the same logic to apply to obtaining a return in the investment made by the franchisee into the fabric of customers’ homes (external insulation, roof mounted micro-generation). This too would be part of the regulated asset base and therefore cheaply financed. The property itself will of course belong to the owner. These changes to the definition of the regulatory asset base will require primary legislation.

Local authorities and low carbon solutions

The proposal being outlined here makes assumptions about local authorities’ ability to step up to the mark. We believe that local authorities can and must have a greater role in delivering low carbon infrastructure. However, the majority of local authorities clearly do not yet have the necessary resource/expertise to manage/deliver this framework and will require considerable support to do so. Developing the capacity to manage the proposed framework is a major challenge and we advocate early piloting work with a small number of representative authorities to understand the challenges and develop the cadre of expertise to roll this out. The scheme we describe needs strong partnership with central agencies to ensure consumer interests are protected against poor performance and security of supply is not compromised.

An alternative to the local authority directly managing the relationship with the market is the option of creating agencies which are rewarded on the delivery of outcomes precisely matched to social goals (eg cost-effective improvements in energy efficiency, deployment of low carbon infrastructure, suitable customer service, reduction of fuel poverty). In the USA *Efficiency Vermont* has been set up with a public-private ethos. It is charged with using targeted community based interventions to deliver incremental measured energy savings. So far its savings have been achieved by adopting a ‘whole house’ approach looking at heating, air conditioning, lighting and appliances. There is a rigorous savings verification process to ensure the appropriate installation of measures.

Local authorities have faced difficult challenges in other spheres and responded positively. Recycling rates have quadrupled over the past ten years. Local authorities working with central Government units have been successful in producing new waste disposal facilities (Defra Waste Implementation Plan) and secondary schools (Government's *Building Schools for the Future* programme). Obviously the area based delivery of low carbon infrastructure is on a much greater scale, but not one entirely alien to the bodies.

How do we encourage behaviour change – and why ESCOs can't work under current arrangements?

The idea of securing investment in energy efficiency and using the guaranteed proceeds from lower energy use as security – the core of our idea – is of course the familiar concept of the ESCO. In this paper the supply side business is treated as a separate from the low carbon investment side business.

We believe that an ESCO-style supplier is still needed to bring about behaviour change in consumers. The type of changes we are talking about include teaching people to correctly use their heating controls, to better understand ventilation losses, to make a commitment and self police energy conserving actions. This section draws on the problems that ESCOs have encountered and which we have tried to address with our model.

The community-style ESCO is a fringe activity for the 'Big Six' retail suppliers and there are many examples of ESCO style projects failing commercially and sometimes failing their customers too. The potential for such developments is far from being realised. ESCOs face a number of significant hurdles compared to the incumbent business model pursued by the 'Big Six'. Existing energy companies and new entrants have largely failed to create commercially viable businesses from ESCOs except on a small scale or in selected niche markets.

There are two primary sets of obstacles facing ESCOs – those relating to energy efficiency and those relating to distributed energy.

Existing ESCOs and energy efficiency

The current ESCO business model's success depends on:

- access to bulk energy (predominantly gas and electricity) at competitive prices
- capital to fund investments
- efficient installation of energy efficiency measures
- billing and customer service systems

They face disadvantages in all of these:

Access to gas: ESCOs purchase relatively small quantities of gas either from other suppliers or wholesale markets and so are in a poor position to negotiate favourable rates – the ‘Big Six’ are either vertically integrated¹⁶, achieving considerable economies of scale, reducing both the absolute costs of their fuels and also the costs of hedging against wholesale price volatility. Once they achieve a certain size ESCOs are required to become licensed to supply energy imposing further costs and complexity¹⁷.

Cost of capital: to ESCOs is high. Customers have to opt into an ESCO contract and this means their customer base is scattered across an area reducing the scope for earlier revenues. This makes it impossible to exploit the economies of scale from street-at-a-time installation although the basic proposition may be sound. These factors increase the riskiness and cost of investments.

Cherry-picking of low cost energy efficiency: ESCOs are operating in an environment where energy efficiency’s ‘low hanging fruit’ (cavity wall insulation, loft insulation) are already being rolled out aggressively by the Big Six suppliers through regulatory obligations imposed first through EEC and since 2008 through CERT. The cost of installing these measures is not being borne by individual households; they are typically socialised (for the priority group customers) or purchased and delivered in bulk by the ‘Big Six’. In our view the existing model for rolling out energy efficiency works well for low cost measures, but it is not a viable model for rolling out higher cost like solid wall insulation or community-based measures.

Customer service: Lastly energy suppliers have a notoriously poor reputation for customer service. According to Consumer Focus data on customer satisfaction they are the worst of 45 customer facing markets that we survey. Nonetheless, their low price / mass market business model ensures their cost base is low and arguably has debased the market for higher value or quality services. As a consequence the playing field for energy services is far from level.

ESCO and distributed electricity generation including CHP

If an ESCO engages in distributed generation of renewable power or CHP it also needs:

- affordable access to the DNO’s grid to distribute its generation to its local customer base
- the ability to sell surplus power and buy shortfalls from the market at a fair price
- overcome the regulatory hurdles of being a licensed supplier and possibly generator

¹⁶ Vertically integrated companies are united through a hierarchy with a common owner. Usually each member of the hierarchy produces a different product or (market-specific) service and the products combine to satisfy a common need.

¹⁷ This requirement was removed only recently, in March 2009. In its place an obligation has been placed on the Big Six to offer exempt supplier services to decentralised participants and suppliers were tasked with developing an appropriate agency services agreement. However this has not been progressed. We return to this issue below.

Grid access: DECC and Ofgem have looked at network access pricing a number of times but have failed to develop a model that satisfies the needs of distributed generation. The cost of accessing local wires to transport power, sometimes just a few metres, remains based on the DNOs overall average system costs which makes up around 20 per cent of the retail electricity price (second only to generation)¹⁸. Frustration at the pricing system has encouraged calls for greater use of ‘private wire’ solutions where rival grids are built to avoid using existing DNO controlled infrastructure. This is inefficient.

Electricity prices: Suppliers offer ESCOs low ‘spill’ prices for any surplus electricity they purchase (and in some cases do not pay for the export at all) and charge prices near standard retail tariffs for any power the ESCO purchases from them. They argue distributed generation – like wind and CHP is unpredictable – and the energy of little value to them and some argue it actually imposes new balancing costs on them. This need not be true for CHP. Unlike electricity, heat is cheap to store. The Avedore CHP station in Copenhagen stores heat for 10 hours allowing the plant to be operated to follow the electricity load curve and improve the overall efficiency of the electricity network – this should reduce overall system costs not increase them. But current tariffs in the UK do not incentivise such efficiency gains.

Regulatory hurdles: Electricity supply is ordinarily a licence-able activity. Current energy licensing regulations prevent unlicensed businesses supplying more than 1MW to domestic consumers (effectively capping their size to roughly 1,000 households) – obtaining licences invariably requires compliance with other regulatory and code requirements, which is expensive for small firms and also require expensive indemnities. Generators above 50MW need generation licences. A number of possible ideas to promote distributed generation were considered by the distributed energy working group – including removing supply licensing requirements (eg the ability to switch) by effectively enabling a local franchise but this approach was rejected. We think we should re-open some of this thinking (through Nudge style contracts where the default contract is with the ESCO) subject to the structure having a strong community or customer ownership and control structure.

We think these problems arise from the structure of the market, and they cannot be resolved without changes to the regulatory system. The suggestions we’ve made do not by any means resolve the problems faced by ESCOs, but we believe DECC and the regulator must address the issues identified above if they wish to see the development of business models that discourage unnecessary energy use.

¹⁸ There is no short-haul tariff as in gas, which facilitates local trades.

How do the ideas of integrated community energy investment fit with existing energy efficiency and social policies?

Today's configuration of the energy market was designed when the political priority was improving financial efficiency, providing retail choice (and thereby stimulating competition) and reducing the cost base. The consolidation of the industry into six vertically integrated entities has resulted in companies with homogenous behaviour. They are unresponsive to consumer feedback, and their competitive effort (on the supply side) is entirely focused on matching supply with generation in order to reduce the group's exposure to price volatility and to acquiring new customers at least cost. We would argue customers are best served by companies that are strongly encouraged to meet the challenges of fuel poverty, climate change and customer service.

A parallel structure has been devised to deliver low carbon investment and social policy goals. Energy efficiency for vulnerable people is funded through Decent Homes, Warm Front and priority group targets within CERT. It is accessed by 'voluntary' individual request. Non-vulnerable households are eligible for the installation of largely unsubsidised CERT measures. The Warm Zones, the new CESP and the short-lived community energy programmes have sought to bring about community level low energy solutions – these only operate on the small scale.

The current CERT system has undoubtedly been successful in ensuring the large domestic suppliers achieve energy and carbon reductions. But it has also encouraged gaming of the rules rather than reducing emissions through the most cost-effective means (for instance suppliers have provided 140 million low energy light-bulbs through EEC1 and EEC2 – equivalent to around five per home – leading to the suspicion many have never been installed). The CERT model does not work for high cost measures like solid wall insulation where the unit costs may be £10,000 per home and cannot easily be financed from the general energy customer because of the high costs involved. We think it unsuited to this purpose.

The delivery of low carbon occurs through regulatory requirements has to be imposed upon energy suppliers because it is fundamentally not in the suppliers' commercial interests. (This is a characteristic of the regulatory nature of the obligations, not of the individuals within the company many of whom are committed to low carbon energy and customer service). The difference is starkest for energy efficiency where present incentives encourage cheap CERT installations into the homes of rival supplier's customers and to be indifferent as to how well they work *in situ* – the exact opposite of what an integrated system should deliver.

Integrated investment

To achieve the benefits identified in this paper would require the planning of investments to simultaneously consider energy distribution, energy efficiency and decentralised power and heat production. The investment demands put upon the gas and power distribution system are highly path dependent. Is a locality going to decarbonise using heat pumps, district heating, decentralised renewable or high performance energy efficiency? No sensible investment decision can be taken by a local power or gas network without information since these different options place very different demands on the networks.

This integrated investment can reduce the cost and disruption of investment and ensure new energy sources (distributed generation but also surplus heat from thermal power stations, biomass, and combustible waste) are more efficiently exploited. And we must do this in the next decade if these measures are to make a real contribution to the achievement of mandatory carbon budgets.

The current regulatory framework inhibits this integration: gas and electricity networks have access to cheap capital as a result of the regulators' duty to finance investment. Energy efficiency and distributed generation on the other hand has to find project finance at commercial interest rates. What is really needed to reduce the cost of delivering low cost carbon are interchangeable investment classes across networks, energy efficiency and distributed generation. Investment funds should seek out the lowest cost means of achieving social outcomes irrespective of class.

This has not been permitted for gas and power. Distributors have no mandate to offer energy efficiency or local generation (indeed they are precluded from such contestable activities) preventing investment in energy efficiency, or funding of transformational equipment like heat pumps.

Innovation

Networks have not always exploited the innovation funds that Ofgem has created¹⁹ in order to foster new thinking²⁰. KEMA's recent report²¹ on the extent of innovation in networks internationally concluded that while innovation was taking place at the project level, this was not being deployed at the commercial scale²². The new Low Carbon Networks Fund (LCNF) will add £500 million over five years for pilots and trials of new/innovative technologies during the new Distribution Price Control Review period, while welcome the increased funding, we wonder if this will bring about the sea-change in integrated cross-network thinking that is necessary. Heat networks are presently unregulated altogether. Investment in energy efficiency is promoted through regulatory requirements to deliver imputed carbon savings based on the paper performance of investments rather than their efficacy in the field.

¹⁹ See Ofgem (2009) 'Innovation in energy networks: Is more needed and how can this be stimulated?' for critique of take up of Registered Power Zones (RPZ) and Innovation Finding Incentives (IFI).

²⁰ Ofgem has in its recent initial proposals for distributor revenue awards from April 2010 proposed a £1bn 'kitty' for smart investments. The IFI is to be continued as part of these new arrangements; RPZ is to be stopped and will be superseded by a larger Low carbon Networks Fund.

²¹ KEMA is a global company specializing in strategic & technical energy consultancy, see www.kema.com

²² <http://www.ofgem.gov.uk/Networks/rpix20/forum/innovation/Documents1/KEMA%20Technology%20changes%20Final%20Report.pdf>

The distribution networks are not being innovative or pro-active in pushing the necessary changes. The challenges posed by, for example, introducing biogas into the local gas network, two-way flows of electricity through sub-stations and the distribution grid, developing information flows to allow time-of-day tariffs instead of energy use profiles are substantial. But this is an insufficient analysis of the types of change the decarbonisation of the economy will precipitate. What is the future for domestic gas supply in 30 years time? How shall we keep homes warm if not by gas? The transformation innovation wrought through the telecommunications industry has been to fuse voice, data and TV distribution through *competing* cable, wire and wireless networks. The point is worth stressing – it is not merely the tariffs and supply that have integrated but the platforms themselves.

Ofgem commissioned CEPA²³ to look into the use of RPI by other utilities (CEPA, 2009). The regulatory model adopted in the mobile telecoms industry is perhaps the most interesting. The roll-out of 3G required finely co-ordinated investment plans by handset manufacturers like Nokia (so users could use innovative hardware features), significant new investment by the licensed network franchises (like Vodafone), new infrastructure equipment (like Siemens) and supporting innovation by a myriad of other companies (including operating systems and roaming providers). Investment need was arrived at bidding for the award of contracts, not on capital allowances to a regulated monopoly.

Competition in investment not supply

The current policy framework²⁴ places great emphasis on preserving retail competition. While it is certainly the case energy consumers value their ability to switch suppliers, *all the energy utilities are poorly regarded*. The cost of churn from one poor performing supplier to another is equivalent to many months of supply margin, making energy supply little more than a zero sum game. It's untested whether a 'reliable' community supplier would be preferred, especially if there is a sense of local ownership and genuine control, and therefore whether customers would receive commensurate benefits in return for the loss of their right to switch. We would still need to retain safeguards to protect communities from poor performing monopolies, but these sort of backstop measures exist in other networks like water.

Indeed until recently customers had a right to change supplier with '28 days notice'. This has now been altered making it easier for long-term ESCO contracts to be entered into. However, these can only be entered into voluntarily. Meaningful competition in distribution is forbidden but this is where the real upward price pressure is being experienced. In the past companies have overstated their need for investment and under-spent on the money made available to them.

Compared to these substantial and deep-seated problems the present efforts to stimulate the development of Community ESCOs seem modest. The most significant of these is the publication by Ofgem in spring 2009 of the energy-supply license modification to make it easier for distributed energy schemes to operate as licensed suppliers. This makes it easier for local generators (including CHP) to sell their power to nearby customers.

²³ <http://www.cepa.co.uk/>

²⁴ The regional electricity and gas companies were separated into monopoly distribution network and competitive supply businesses after 2000.

Social interventions

DECC and CLG fund programmes to install energy efficiency and boiler updates in qualifying private and social homes. A proportion of CERT installations have to be in the homes of priority groups too. It is widely recognised that these schemes are difficult to target on the fuel poor and complex as different criteria are used by the different schemes. There would be great merit in having a single set of criteria for eligibility to funds and a more precise dataset to target beneficiaries.

Who will be responsible for delivery?

The ideas suggested above represent a substantial change in the operation and delivery of energy and energy efficiency markets. What role might the existing organisations play in this and what precedence is there for successful delivery? This is obviously a difficult question to answer, but there are three main roles we see.

- a. **Mapping the current and future energy infrastructure need.** In our model local authorities have the primary role here identifying and timetabling the investment in energy efficiency, new networks and monopoly generation (heat plant) and storage facilities (heat accumulators). Local authorities are, within their existing powers, promoting integrated low carbon investment²⁵. Within London 18 Boroughs have commissioned work on energy networks or ESCOs²⁶; however few of the Boroughs presently have the skills or resources to action the findings from the studies underlining the need to invest in capacity building.
- b. **Managing the award of the infrastructure franchise:** A number of different agencies have the skills to undertake this task. Ofgem is presently managing the competitive tender process for the off-shore wind transmission infrastructure. It will award a contract to build, maintain and operate the Offshore Transmission Owners (OFTO), a contract worth around £15bn for connecting up the wind farms for the first three rounds of new build. The Energy Savings Trust has been appointed by the Utility regulator in Northern Ireland to oversee the funding of projects of between £50,000 and (initially) £300,000 with an aim of reducing carbon emissions using a mixture of energy efficiency or renewables²⁷.

²⁵ Nottingham City Council's Enviroenergy already heats and powers 4,600 homes using energy from a CHP from waste incinerator. It is presently franchising the extension of this system using capital it has attracted from the European Investment Bank. Local authorities need to work together to plan the location and deployment of large 'sub-national' infrastructure needs such a linking of large thermal power stations to heat networks. The Association of Greater Manchester Authorities is performing just such a function.

²⁶ *Per com* Michael King.

²⁷ The Northern Ireland Sustainable Energy Programme (NISEP) has existed since 1997/98 in order to implement energy efficiency schemes for domestic and non-domestic customers with the aim of reducing carbon emissions. In 2002 consultations resulted in the majority of funding (80 per cent) being targeted at alleviating fuel poverty. A recent review, published in March 2009, has resulted in the name change and a range of amendments.

- A staged opening up of the scheme to other applicants will include gas suppliers from September 2009 and other pre-registered organisations from September 2010
- Eligible initiatives will be expanded to include renewable energy measures as well as energy efficiency measures
- The minimum bid for funding will be £50,000 per scheme and the maximum first time bid will be £300,000 (cap to be removed upon proven delivery)
- 80 per cent funding will be ring-fenced for priority customers (34 per cent ring-fenced for whole-house solutions and 46 per cent for other fuel poverty schemes)
- 10 per cent funding will remain open to applications from the commercial or non-commercial sectors
- 10 per cent funding will be ring-fenced for innovative schemes and new, but proven, technologies in the non-vulnerable sector.

- c. **Delivery of the investment:** There are different skills and competences that can be brought together for the delivery stage. Private sector consultants no doubt will have a major role in supporting local authorities develop detailed plans of their infrastructure needs. These would need to be agreed with relevant housing authorities. Organisations like the Local Government Association and IdEA could play a role in transferring best practice. An evaluation by Arup for CLG of 100 PPS1 Supplement on Climate Change found that 47 per cent of local authorities had already carried out renewable / low carbon feasibilities for their areas and 11 per cent had assessed heat islands. However the overall impression was still that on the whole regional and local Government planners did not have the expertise to deal with energy planning. Bids will be invited from suitable companies to deliver, maintain and where appropriate operate the investment programme and facilities for a time limited period. It is expected that the utilities, construction companies and waste companies would play a role in different types of investment. We see similar consortia come together for other major infrastructure projects managed by local agencies such as flood defences and PFIs for schools and waste facilities. We expect the consortium to raise only the project finance, not the long term debt.

While presenting thinking which argues for a particular solution we recognise this has to be tested against other possible approaches. Consideration needs to be given to the cost/benefits of combining improved regulatory frameworks (including funding mechanisms) with better utilisation of the planning system code for sustainable homes compared to the proposed local/regional franchise model.

The majority of local authorities clearly do not yet have the necessary resource/expertise to manage/deliver this framework and will require considerable support to do so. Developing the capacity to manage the proposed framework is a major risk to under-deliver of carbon saving in the interim and it is not clear that such resource will be available given the need for Government to reduce debt and the implications of this on local authority funding. A radically different approach might be to create local institutions like *Efficiency Vermont* charged solely to deliver the low carbon infrastructure and with a strong alignment between their reward structure on the agency and the nation's social and climate objectives. We have used such structures before for instance in the commissioning and delivery of the Olympics project.

Historically many local authorities do not have a particular strong record in this area for instance in enforcing compliance with building regulations re: air tightness and in the use of the Housing Health and Safety Rating System. Local authorities need to be given the resources, tools and support to deliver existing requirements as a priority before taking on additional responsibilities.

Key principles and next steps

The ideas we discuss in this paper are far reaching. We have explored the idea of creating a franchise model which could allow action at a local level to co-ordinate local power, gas, energy efficiency and heat investment programmes. This discussion document is wide ranging in its scope and requires discussion as to its practicality. In particular we need to consider how such franchises might interact with existing gas and electricity networks. We believe that franchises rather than the distributors and suppliers could become responsible for all new low carbon investments, financed by the development of a new regulated asset base.

No doubt, there could be different ways to achieve these ends and what we outline would benefit from development and eventually piloting. However, it may be helpful to identify the key principles that underpin our proposals so we can agree on objectives if not the reforms themselves.

- 1) **Planning rather than 'laissez faire':** approach to investment in low carbon delivery. We reject the idea that the role of Government is simply to create a level playing field and create incentives around the margin. Already with banded Renewable Obligation (RO), the Infrastructure Planning Commission and Government's national policy statements we are seeing interventionist measures in electricity and planning.
- 2) **Putting Ofgem's sustainability duty into practice:** Ofgem through its work on managing CERT and the RO could develop expertise in understanding financial costs and the drivers of low carbon investment. It might be able to develop these skills to design a regulatory system that help meet society's social and environmental goals at least cost, and can advice on whether bids from local franchises are likely to meet climate, fuel poverty and least-cost objectives. We would expect it to develop much stronger engineering skills or to buy them in. The water regulator, Ofwat, does this with its system of civil engineering 'reporters'. We expect the Energy Savings Trust and Carbon Trust to play a stronger role in technological selection.
- 3) **Introducing competition into network investment:** we argue that funds should not automatically be allocated to incumbent networks post RPI-X@20. Serious thought should be given to introducing competition to 'new' investment in networks and other low carbon investment. The refurbishment and operation of the existing network remaining with the incumbent and regulated on a simple RPI-X formula stripped of incentives or projects that will increase the regulated asset base. In the first instance this might be achieved by allowing third party developers to have access to the proposed low carbon network fund.

- 4) **Introducing community engagement:** under National Indicator targets local authorities are charged with reducing the carbon footprints in their boundaries and registered social landlords with providing affordable warm homes. We would wish community interests to engage with and jointly agree and develop specifications for new investment with local authorities. Local authorities would develop agreed ideas of the decentralised electricity locations, energy efficiency programmes and heat networks and let franchises build and operate these networks for a fixed period.

- 5) **Integrate local power, gas, energy efficiency and heat network investment programmes:** energy efficiency and the three networks could complement and also compete with each other. Community level action can help promote efficient solutions that would not be possible when decisions are made in isolation. The decision to meet future heating needs from district heating or from heat pumps or from extensive retrofit of energy efficiency all meet the same customer need – low cost warmth, but they place radically different demands upon networks. Community investment plans would need to specify the local solution and formulate an integrated bid on this basis. The cost could either be recovered either from the entire customer base, or from the direct beneficiary, following the DNO or Pay-As-You-Save model²⁸.

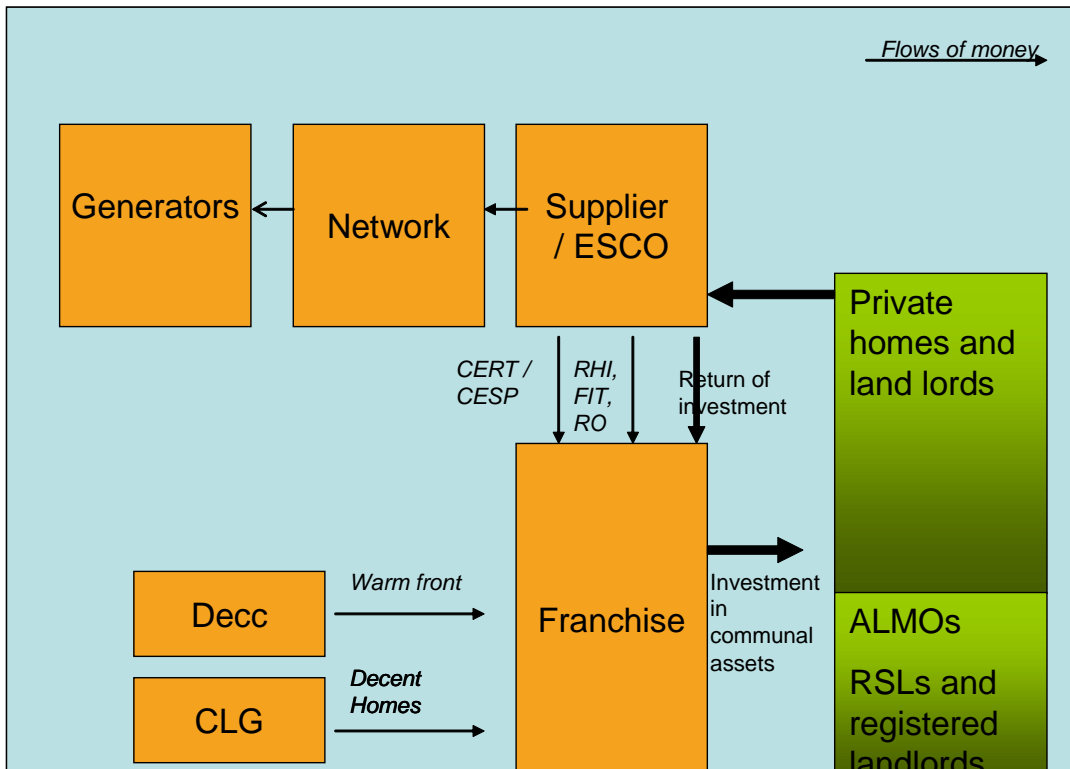
- 6) **Pooling of grants and organisational support through this process:** this approach would be underpinned by the more effective use of current grant regimes to offer development finance and by support from appropriate national agencies. Local people would benefit from improved energy efficiency, lower costs and a lower carbon footprint over time. The diagram shows how the different schemes and funds might be woven together to make the patchwork of programmes more integrated, and with separation of funding streams mandated from central Government. Once the franchise had been awarded by the local authority the franchisee through investment in energy efficiency and renewables would be eligible to generate CERT, CESP and RO certificates / credits, might be entitled to apply for Warm Front and Decent Homes support and most importantly would levy a franchise charge from the energy bill.

Some will argue 'If it ain't broke why fix it'. This is a fair comment. We believe that we need to ask fundamental questions about whether the current system of regulating networks and investment in community energy infrastructure needs to be changed in order to deliver the low carbon agenda. Local authorities are being held to account for local climate change targets but lack the tools to reduce emissions in their existing stock of homes, the present mechanism of CERT is unable to drive through investment in energy efficiency at the scale or speed necessary and lastly present thinking in utility network regulation will not allow the game shifting revolution in low carbon heat and power delivery.

Fortunately all of these areas of policy are under review and we hope to feed these ideas into the following processes:

- a. the review of the RPI-X@20 process which will be published in 2010 and apply to future price reviews
- b. the Heat and Energy Saving Strategy paper in the new year which will discuss the development of the supplier obligation, which will replace CERT, in 2015 and will have to implement decarbonisation of difficult to treat homes

²⁸ As described in DECC's July 2009 Low Carbon Transition Plan and amplified in the supporting Renewable Energy Strategy.



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Annex 1: Public Attitudes on leadership and delivery agents for sustainable community infrastructure

Drawn from ICARO (November 2009) 'Understanding consumer attitudes to Sustainable community infrastructure' Research undertaken for UK Green Building Council & Zero Carbon Hub

Figure 8 shows responses on who should provide initial leadership on sustainable community infrastructure (this idea incorporates heat from district heating, waste disposal, water treatment and ICT).

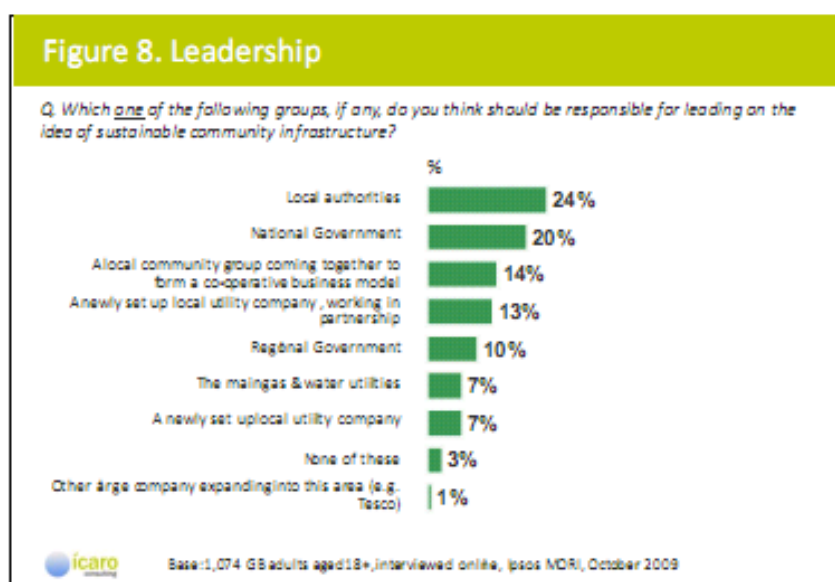
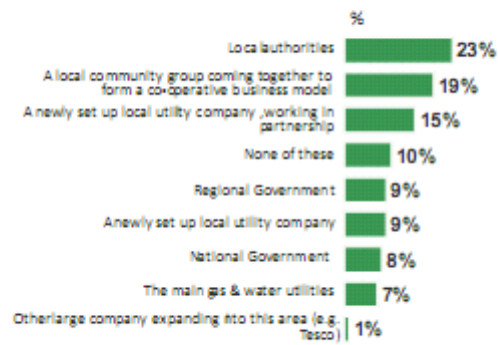


Figure 9 shows responses on which institution of industry is most trusted to provide day to day management of the sustainable community infrastructure.

Figure 9. Day to Day Management: Most Trusted

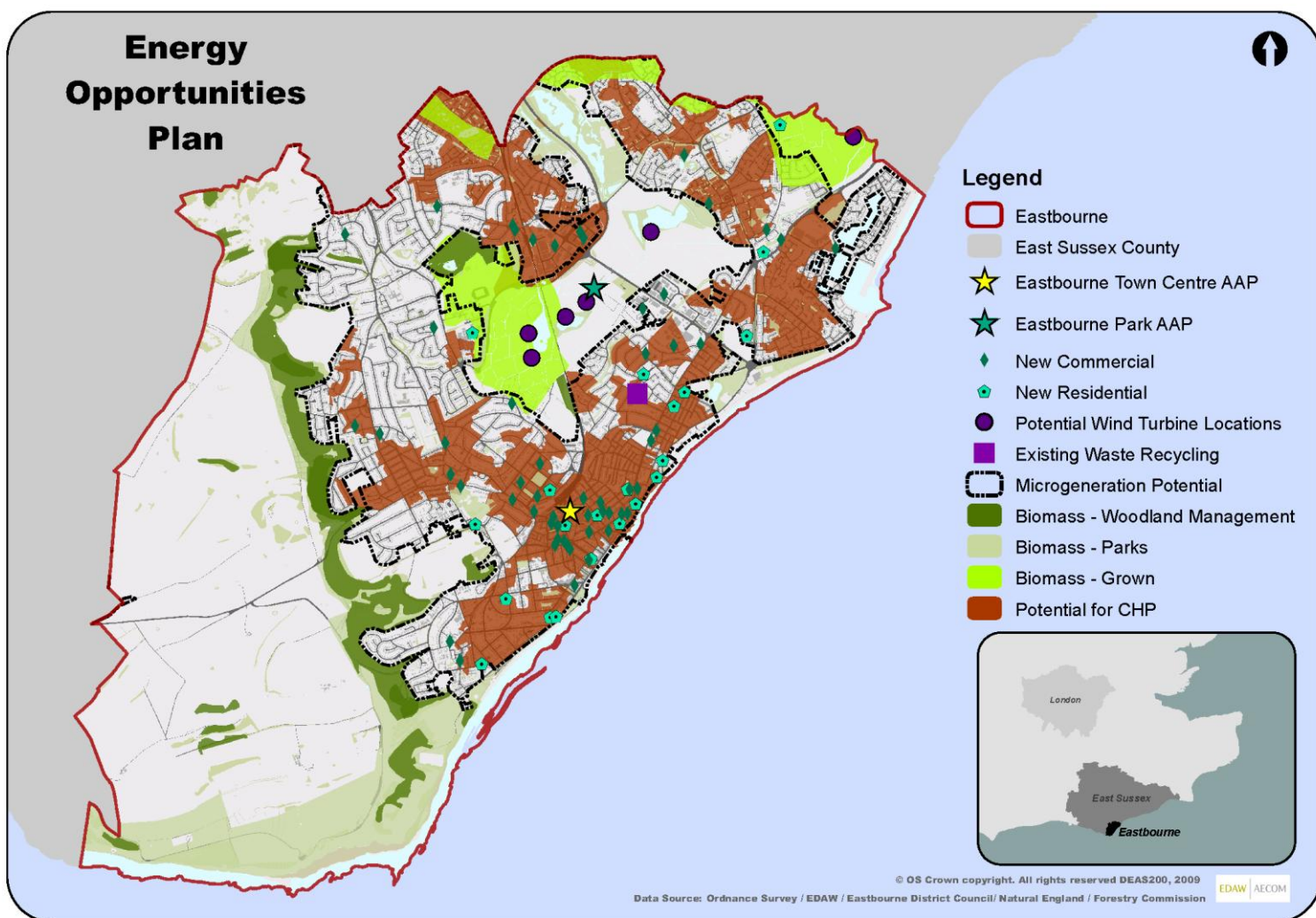
Q. And which one of the following groups, if any, would you trust most to have responsibility for the day to day management and maintenance of sustainable community infrastructure?



Base: 1,074 GB adults aged 18+, interviewed online, Ipsos MORI, October 2009

The least trusted include the 'main gas and water utilities' (7 per cent), national Government (8 per cent), other large companies (1 per cent).

Annex 2: Diagram of the Eastbourne Energy opportunity plan – developed by Eastbourne district council





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