A report by the Associate Parliamentary Sustainable Resource Group

Associate Parliamentary
sustainableresource
Group

WASTE MANAGEMENT INFRASTRUCTURE: INCENTIVISING COMMUNITY BUY-IN

‘Local communities need to feel empowered by decision-making processes and experience tangible benefits from the facilities that they host.’

FOREWORD

There is a clear imperative for the UK to divert a greatly increasing volume of waste away from landfill over the next decade. To meet this challenge, we must redouble our efforts on waste reduction and significantly increase the amount of waste we reuse, recycle or use for energy recovery. To achieve these aims, we will require an exponential increase in the pace of development of new waste management infrastructure across the country.

Government and industry have been working to meet this demand. The rate of planning approval for new facilities however, is well below what is required. Indeed, the National Audit Office notes that on our present trajectory, we are treading a fine line with regard to meeting crucial European targets.

At the heart of this problem lies public opposition to the development of new waste infrastructure in their communities. Although stakeholder engagement during the planning process has improved, there is a pressing need to reassess our approach and combat this issue from a different perspective.

Local communities need to be given a genuine stake in the development of new facilities, and realise tangible benefits as a product of this process.

This report represents an attempt to address this challenge by identifying innovative solutions that could serve to incentivise community buy-in to the development of new facilities; empowering local communities and delivering tangible community benefits.

A blend of distinct incentive structures are proposed, that offer the potential for local responses to specific local challenges. Successfully implemented, such ideas could breathe new life into the arena of infrastructure development, turning facility planning into a win-win proposition for all.

We would like to extend our thanks to SITA UK for sponsoring this report, and to all the people who generously gave their time and expertise during its course. We are also very grateful to Thomas Moody for compiling this report.

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Introduction

It is widely accepted that the UK will have to deliver significant infrastructure capacity over the coming decade in order to successfully recycle, reprocess, treat and dispose of its waste. The Waste Strategy 2007 estimated that between 300 and 500 new treatment facilities will be needed in England by 2020. However, achieving successful planning permission at the local authority level remains an acute challenge for the waste industry in the UK. Despite a theoretically sound planning system and distinct progress having been made with regards to stakeholder engagement techniques, a lack of innovation in community engagement has served to stifle the delivery of necessary infrastructure. Fresh thinking is required to empower local communities and turn waste infrastructure planning into a win-win proposition. In contrast to much of Europe, where waste management has become directly associated with delivering social benefits such as reduced energy bills, no widespread systems of community benefit have been established in the UK. This report proposes several distinct and innovative incentive structures designed to achieve successful community buy-in through the delivery of tangible benefits to local areas that accept the development of new waste management infrastructure. These are designed to be flexible in application and intended to deliver local benefits tailored to local circumstances. The report makes specific policy recommendations as to how these incentive structures may be developed.

Delivering Community Benefit

Building on existing stakeholder engagement techniques, the potential exists for the UK to develop a waste management system in which individuals and communities alike are given a genuine stake in the development and operation of facilities. At present, households are largely divorced from waste management systems, often resulting in strong opposition to the construction of new facilities. This is primarily due to a lack of genuine involvement in decision-making processes and has resulted in a largely reactionary approach to waste management, that has precluded a progressive dialogue regarding the infrastructure requirements of our present system. A step-change is required in how the UK approaches the issue of stakeholder engagement at the strategic planning level, building upon traditional public consultation techniques to embed incentive structures within the process of facility planning. Delivering tangible benefits to communities, as well as fostering a sense of collective ownership of waste management, is absolutely essential if the UK is to effectively manage the volumes of waste it needs to divert from landfill under the European Union Landfill Directive (1999).

Community Ownership of Facilities

Community ownership of waste management facilities has been a key mechanism in fostering a sense of shared responsibility for waste throughout much of Europe. Whilst in such cases waste management infrastructure may be run externally, crucially, facilities are seen to be owned by local communities. Many small-scale renewable

energy projects in the UK also utilise community ownership structures as a successful way of providing a community benefit that is closely tied to the performance of a production unit.[1] Shareholders in community-owned wind farms for example, are often able to enjoy a stake in profits derived from electricity generated and sold back to the National Grid, with additional benefits deriving from local employment, training and regeneration. In light of this, community ownership structures should be explored further in UK waste management systems as a means to foster a sense of genuine involvement in waste management facilities. A 'base-load' of shares might be distributed to all residents that fall within an agreed inclusion boundary for a facility. This would be designed to give the community that hosts a facility a genuine stake in its operation. Local authorities should support this process by assisting in the development of community investment groups to represent the interests of local shareholders.

Recommendation 1

Government should examine the potential use of community ownership structures for waste management facilities.

Recommendation 2

Local authorities should be encouraged to assist in the development of community investment groups to provide support for local shareholding schemes.

Utility discounts

Offering a discount on household utility bills to areas that allow the establishment of new waste management facilities has the potential to alleviate public opposition. There are two primary mechanisms through which such discounts might be provided. The first is to offer a one-off or annual payment to local households financed by revenues from gate-fees or, with regards to energy-from-waste (EfW), electricity generated and sold back to the National Grid. This could involve a deal between a waste contractor and the local utility providers in an area, to establish a system for offering rebates, most likely on local electricity and gas bills.

The second is for local authorities to be allowed to participate more directly in the running of Energy Service Companies (ESCOs), and offer utility discounts in conjunction with EfW contracts. This could be achieved by widening the supply limits for local exempt suppliers contained in the Electricity Order 2001; and by amending Section 11 of the Local Government Act 1976 to permit the sale of electricity that has been produced separately from heat. These changes would facilitate the development of utility discount schemes as a function of new waste infrastructure planning.

1 Walker, G (2008) 'What are the barriers and incentives for community-owned means of energy production and use?' Energy Policy, 36, pp4401-4405.

Recommendation 3

Government should consider the potential to amend Section 11 of the Local Government Act 1976 to permit local authorities to sell electricity that has not been produced in association with heat.

Recommendation 4

Government should consider removing the volume limit on the Class A exemption for small suppliers under the Electricity Order 2001.

Recommendation 5

Government should examine the potential to widen the Class C exemption for on-site supply under the Electricity Order 2001, to include the supply of electricity exported from another license exempt site.

Community Funds

With regard to addressing long-term social infrastructure requirements, a community fund represents a flexible vehicle through which to deliver planning gain.[2] This would be a fund specific to a waste contract, comprising an annual sum to be directed to local projects and services. This should be operated through a committee representing local resident and business interests. Whilst Section 106 of the Town and County Planning Act 1990, and the Community Infrastructure Levy, provide tools through which to deliver planning gain in conjunction with a waste contract, these may lack flexibility over the full lifetime of a project. The adoption of a community fund model is therefore a more secure, and direct, way through which to engage with local stakeholders and ensure the delivery of community benefit throughout, and beyond, the duration of a waste contract.

Recommendation 6

Government and industry should explore the community fund model as a flexible means to deliver planning gain. Government should support the sharing of best-practice in the setting up and operation of such funds.

2 This would not be connected to the Landfill Communities Fund.

District Heating and Cooling

There is great potential for energy derived from waste to be utilised to deliver local benefits such as district heating and cooling. District heating offers the potential to reduce the heating bills of local households connected to a network. However, at present, barriers exist with regard to developing the infrastructure required for heat distribution. Forward-thinking at the level of strategic planning is needed to overcome these barriers. This includes the need for greater use of heat mapping to co-locate heat supply with demand, as well as the requirement for all new-build plans to consider the potential for the inclusion of district heating.

Government should work with industry to overcome financial barriers in the establishment of district heating networks. This may be achieved by establishing a rolling publicly-guaranteed investment fund for district heating that could be used to underwrite potential risk to investors. The off-take risk associated with district heating development might also be reduced by guaranteeing heat demand from the central and local government estate.

Recommendation 7

Local authorities should use heat mapping as a strategic planning tool to better co-locate heat supply with demand.

Recommendation 8

Government should ensure that all new-build plans consider the potential for the inclusion of district heating.

Recommendation 9

Government should work with industry to overcome financial barriers in the establishment of district heating networks.

Recommendation 10

Government should explore ways of achieving security of demand for district heating systems.

Design

With regards to architectural design and technology, waste management facilities in the United Kingdom are often still plagued by the reputation of poor performing sites from the 1960s and 1970s. However, with the appropriate blend of modern design and technology, such facilities can successfully sit within the heart of business and residential districts. Evidence from the Commission for Architecture and the Built Environment's National design review panel suggests that such considerations are increasingly informing the design of waste facilities in the UK. However, with regards to the wider procurement of waste facilities, there is a need for greater client support and feedback review processes in order to ensure a successful design outcome. Government should therefore seek to establish a more standardised review process to ensure that design considerations for waste infrastructure developments are robust and evidence-tested.

Recommendation 11

Defra should establish a working group in conjunction with CABE to explore design possibilities for new waste management infrastructure.

Recommendation 12

Government should work to establish a standardised review process for waste infrastructure developments.

RESEARCH METHODOLOGY

This research project was carried out between October 2009 and February 2010. It is based on an extensive series of interviews with a cross section of relevant stakeholders, including industry representatives, local authority councillors and officials, stakeholder engagement professionals, the third sector, academics and independent experts. These interviews were complemented by in-depth desk-based research exploring the relevant literature from academia, government and industry.

During interviews participants were asked for their experiences and views on a range of issues including: incentive schemes; planning applications; public consultation; local political leadership and architectural design.

These interviews were followed by a roundtable discussion to review the report's findings with representatives from relevant stakeholder groups including industry, local authorities, stakeholder engagement specialists, the third sector and independent experts.

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GLOSSARY OF TERMS

Anaerobic Digestion	The process by which organic matter is processed biologically to produce biomethane and a digestate.
Biodegradable Municipal Waste	The fraction of municipal waste that will degrade within a landfill.
Combined Heat and Power	The cogeneration of power and heat from a single heat source.
Combined Cooling, Heating and Power	A CHP system that incorporates absorption chillers to produce chilled water that can be used for air-conditioning.
Energy from Waste	The process of recovering the energy embedded in waste material through a variety of processes.
Energy Service Company	A business that develops, installs and finances projects designed to improve energy efficiency, usually featuring sustainable energy sources.
Materials Recovery Facility	A facility to sort collection of mixed recyclable materials.

1 INTRODUCTION

The European Union (EU) Landfill Directive (1999) requires all Member States to significantly reduce the amount of biodegradable municipal waste (BMW) sent to landfill. In response, the UK has worked to significantly increase waste recycling, whilst investing in substantial new waste treatment infrastructure.

Local authorities and households alike have begun to respond to this challenge. The proportion of municipal waste recycled or composted increased from 34% to 36.9% between 2008 and 2009, whilst the total amount of municipal waste collected has decreased by an average of 1.2% over the past five years. These factors have led the overall level of municipal waste disposed of into landfill to decrease to 50.3% during 2008/09.[3] The National Audit Office (NAO) now expects the UK to meet its first landfill diversion target later this year, specifying a reduction to 75% of BMW landfilled in 1995.[4]

The challenge becomes more daunting, however, when one considers the tougher landfill diversion targets for 2013 and 2020 (specifying reductions to 50% and 35% of BMW landfilled in 1995 respectively). The NAO has stated that based on current data, the 2013 target will be challenging and will not be met if there continue to be programme delays or if the infrastructure delivered operates below optimum efficiency. The 2020 target is even harder to assess and will be contingent on wider efforts by local authorities and consumers to produce less waste and recycle more, as well as the success of the PFI investment programme in new waste infrastructure.[5]

To meet the target for 2020, the Waste Strategy 2007 estimated that between 300 and 500 new treatment facilities would be needed. This equates to the task of having to grant planning permission to around 50 new facilities a year in the run-up to 2020. Add to this the far larger tonnages of commercial and industrial waste that Government wants diverted from landfill and this figure more than doubles.[6]

Successfully delivering such infrastructure, however, remains an acute challenge for the waste industry in the UK, primarily due to public opposition at the local authority level. Despite a theoretically sound planning system and distinct progress having been made with regards to stakeholder engagement techniques, a lack of innovation in community engagement has been a major factor in stifling the delivery of necessary infrastructure. The creation of the Infrastructure Planning Commission, under the Planning Act 2008, was designed to streamline the planning process for nationally significant infrastructure. However, the Government's recently announced National Policy Statement on Renewable Energy only includes energy-from-waste (EfW) plants generating more than 50MW of electricity. This equates to relatively large facilities processing upwards of 500,000 tonnes of waste per annum, leaving the majority of facilities to navigate the conventional planning system with all of its attendant delays. In addition, the issue of non-energy generating infrastructure remains untouched.

3 Defra (2009) 'Municipal Waste Management Statistics for England 2008/09.'
4 National Audit Office (2009) 'Managing the waste PFI programme.'
5 National Audit Office (2009) 'Managing the waste PFI programme.'
6 Defra (2009) 'Commercial and Industrial Waste in England: Statement of aims and actions 2009.'

Fresh thinking is therefore needed to re-invigorate the UK's approach to strategic planning and turn facility planning into a win-win proposition for all involved. Local communities need to feel empowered by decision-making processes and experience tangible benefits from the facilities that they host. In 2006, the Barker Review of Land Use Planning identified that getting incentives right at the local level is essential to the success of the planning system.[7] In addition to examining existing methods of planning gain, such as Section 106 agreements, the Review also cited the need for the UK to develop more direct means of achieving community benefit during planning. However, despite this recommendation, the issue of incentivising community buy-in to developments has remained relatively mute.

This report proposes ways to achieve successful community buy-in through the delivery of tangible benefits to local areas that accept the development of waste management infrastructure. A combination of local ownership structures, utility discounts, community fund models and district heating systems are proposed as ways to deliver tangible planning gain to communities in a manner that has yet to be explored on a significant scale. In addition, the design of waste management facilities is explored as a means to ensure quality of place within the built environment. The proposed schemes are designed to be flexible in application and place an emphasis on the local control of waste management systems. Successfully implemented, such schemes could help to facilitate a step-change in public attitudes toward waste that will serve to drive the delivery of necessary infrastructure over the coming decade.

7 DCLG (2006) 'Barker Review of Land Use Planning.'

2 DELIVERING COMMUNITY BENEFIT

The vast majority of residents in the UK are largely disconnected from the infrastructure that is required to handle their waste. This is primarily due to a lack of involvement in decision-making processes, and the need for communities to experience more tangible benefits from the facilities that they host. As a result, waste management remains a largely misunderstood issue that is not associated with delivering any direct benefits to local communities. Rather, in the public eye, waste remains largely tied to notions of complicated bin systems, loud disposal vehicles and unattractive odours. A lack of communication of the potential benefits of waste management systems has been a key barrier to achieving successful community buy-in to new developments.

Progress with regard to stakeholder engagement techniques has been made. The Planning and Compulsory Purchase Act introduced the requirement for each local planning authority to produce a Statement of Community Involvement in preparation for consulting on planning applications.[8] This is designed to ensure the active, meaningful and continued involvement of local communities and stakeholders throughout planning applications. In addition, the Killian Pretty Review (2008) specifically targeted community engagement in the push for a responsive and customer-focused planning system.[9] Most waste companies now also utilise independent public consultants as standard practice during processes of stakeholder engagement.

Nevertheless, public opposition to the development of waste management facilities remains a distinct challenge for national government, local government and the waste industry in the UK. Whilst a recycling reward scheme has recently been piloted in the Borough Councils of Windsor and Maidenhead, and Halton, wider community incentives relating to the development of waste infrastructure have not been established within the UK's planning system.

In order to maximise community buy-in to the development of new waste management infrastructure, incentive structures need to become embedded within the planning process itself. At present, attempts to deliver community benefit in conjunction with new facilities are largely factored in at the back end of the development process. This has often resulted in a reactionary approach to planning applications, led by a vociferous minority who oppose the development of facilities in the local area. In order to turn around the conventional debate on facility planning, local communities need to be given a genuine stake in this process and experience tangible benefits from the facilities that they host.

This can be achieved by local authorities consulting with community leaders to discuss the planning gain that could be delivered in conjunction with the development of a piece of land. This would enable a community to establish the various benefits that could be derived from hosting a waste management facility and should provide a genuine incentive for local communities to discuss the development of vacant land.

8 DCLG (2004) 'Statements of Community Involvement and Planning Applications.'
9 DCLG (2008) 'Planning Applications: A Faster and more responsive system.

The distinct incentive schemes discussed in this report provide ways of delivering these tangible benefits to the communities that host new waste management facilities. These schemes are designed to be flexible in their operation and place an emphasis on the local control of waste management systems.

3 COMMUNITY OWNERSHIP OF FACILITIES

Community ownership of a waste facility can be achieved by the gifting of shares to local residents, in conjunction with a waste contract. This would give the community that hosts a facility a genuine stake in its operation, with returns paid to shareholders through annual dividends. In order to ensure that the benefits of shareholding are distributed on a community-wide basis, a 'base-load' of shares might be distributed to all residents that fall within the agreed inclusion boundary for a waste facility. Residents could then be given the option to purchase additional shares on top of this 'base-load'. As a result, projects might exhibit 100% community ownership or may alternatively be developed under co-ownership agreements with the private sector.

Existing small-scale renewable energy schemes in the UK demonstrate the largely untapped potential of ownership models whereby communities hold shares in local operating facilities. Such schemes have achieved successful buy-in to developments through an emphasis on self-sufficiency, local determination, engagement and empowerment.[10] For example, at one co-operative wind farm project, profits derived from electricity sold back to the National Grid are paid to shareholders in annual dividends, helping to foster a real sense of community buy-in to developments.[11] Indeed, Planning Policy Statement (PPS) 22 directs local planning authorities to foster on-site renewable energy projects of precisely this nature.[12] Community ownership may therefore prove to be an effective instrument driving future planning applications and should be explored in further depth.

3.1 Stakeholder Engagement

The growth of dispersed, community-owned schemes in the UK renewable energy sector has been contingent on astute public consultation with local communities in order to communicate the many benefits associated with community ownership models. Whilst support for the generation of renewable energy is increasingly widespread amongst policy-makers, industry and environmentalists, the development of a single wind-turbine may represent a physical intrusion that local communities will oppose. Effective and comprehensive communication of the many benefits of community ownership is therefore an essential process during stakeholder engagement. Such benefits might include shareholders receiving yearly interest payments based upon the profits from electricity generated during the previous year.

With regards to waste infrastructure, the paying of dividends to shareholders might equally apply to non-energy generating infrastructure such as a Materials Recovery Facility (MRF) in the form of revenues from gate-fees. Further economic benefits may also accrue to the local region such as job creation, the re-investment of profits into local businesses, and with regards to EfW facilities, the production of affordable energy.

Once community-owned, renewable energy schemes are underway, experience shows that they are less contentious due to the direct involvement of local individuals.

10 Walker, G (2008) 'What are the barriers and incentives for community-owned means of energy production and use?' Energy Policy, 36, pp4401-4405.
11 See Section 3.3 'Case Study – Energy4All' for more information.
12 DCLG (2004) 'Planning Policy Statement 22: Renewable Energy.'

Community ownership ensures that revenue is both distributed and reinvested locally, helping to foster a genuine sense of responsibility for such schemes.

Owning shares in a local renewable energy project has also been demonstrated to increase peoples' appreciation of energy generation, as well as wider issues relating to the environment and sustainable development. Shareholding and direct involvement in wider waste management infrastructure should similarly foster greater understanding of the potential economic and environmental benefits provided by waste facilities. Such education will prove absolutely essential in shifting cultural norms relating to the role of waste management in meeting future infrastructure requirements.

Recommendation 1

Government should examine the potential use of community ownership structures for waste management facilities.

3.2 Driving Community Ownership

In order to facilitate the development of shareholding in waste management facilities, a community investment group should be established to represent the interests of local shareholders. This would provide information and advice relating to shareholders' investments, whilst also managing the collective interests of the community in the case of a change in contractor or extension to existing facilities.

The community investment group should be established during the process of pre-application consultation, so as to assess the potential for local shareholding and examine issues such as the boundaries for gifting shares. Extensive consultation with local residents should be carried out to establish, where applicable, the potential to purchase an operating facility outright. For example, this might be the case with regards to local famers purchasing a small-scale anaerobic digestion plant. In this instance the community investment group might also provide access to experts such as civil engineers, financial and legal advisors, to assist in project management.

Local authorities can help to drive the uptake of community ownership structures by assisting in the development of community investment groups and identifying potential contracts for shareholding during the planning process. Such drivers will be a necessary co-requisite if the waste industry is to explore the possibility of community ownership structures as a means to alleviating public opposition to the development of new facilities.

Recommendation 2

Local authorities should be encouraged to assist in the development of community investment groups to provide support for local shareholding schemes.

CASE STUDY

3.3 Energy4All: Baywind co-operative wind farms
Community ownership of 6 wind turbines in Cumbria

Energy4All is a not-for-profit organisation that specialises in facilitating community-owned renewable schemes across the UK. It was born out of the Baywind Energy Co-operative, which successfully raised the finance necessary to purchase six wind turbines in Cumbria in the 1990s. Today, Energy4All specialises in launching private share offers for its co-operatives and has to date raised over £13million of equity capital for community projects. Members have often chosen to invest sufficient capital in projects to generate their own power needs (roughly £2,500 per household), and investments have reached up to £20,000.

Energy4All serves to demonstrate that a co-operative ownership structure is not only a commercially viable option, but one that may also deliver major benefits to the local community. With regards to the Baywind Energy Co-operative, attractive annual dividends on investments have been returned to members, with share offers also qualifying for the Enterprise Investment Scheme tax relief.[13] This enables qualifying shareholders to receive 20% tax relief on their initial investments of £500 or more.

The wind farm has also become an educational centre in its own right, with large numbers of adults and children frequently visiting the site throughout the year. In tandem with a local energy conservation trust set up by the co-operative, site visits have served to drive wider energy conservation and efficiency measures within the local community.

Energy4All serves to demonstrate how a community ownership model, combining business efficiency with co-operative ethics, can successfully deliver tangible benefits to local residents.

Key Features

– 1,300 shareholders through the UK (40% live in Cumbria or Lancaster).

– Profits derived from electricity generation are paid back to shareholders in annual dividends.

– Percentage of profits directed to community and environmental initiatives.

– Uses local contractors for site development, maintenance and support.

Total cost:
£1,870,000 share offer raised to purchase 6 turbines

13 For breakdown see: http://www.energy4all.co.uk/energy_projects.asp?ID=PRO1&catID=4

4 UTILITY DISCOUNTS

A discount on household utility bills could be offered to local residents in conjunction with the development of a new waste management facility. This would involve a deal between a waste contractor and the local utility providers in an area, to establish a system for offering rebates, most likely on local electricity and gas bills. For example, gate-fees from an MRF might be used to provide a financial rebate on utility bills to local residents, or an EfW plant might offer discounts to local residents that tap into its energy supply. Whilst the issue of defining boundaries for inclusion may prove difficult in some urban areas, this should not deter investigation of the potential to offer local utility discounts.

4.1 Energy Service Companies

One way to offer utility discounts, in association with EfW contracts, would be to enable local authorities to participate more directly in the running of Energy Service Companies (ESCOs). An ESCO is loosely defined as an entity which has been set up by a public sector organisation, with or without private sector participation, for the purpose of delivering energy efficiency measures. These often include the use of renewable energy technologies such as wind turbines, wood-fired heating systems and the co-generation of heat and electricity using biomass.

There are two basic types of renewable energy based ESCOs. The first are companies that generate and sell energy to fund energy efficiency measures in the local community.[14] The second are companies that produce and distribute an energy service to the local market as part of a regular commercial operation. For the purpose of delivering energy discounts to local communities, it is the first of these two options that are explored.

The legislative framework in relation to local authority companies is contained within Part V of the Local Government and Housing Act 1989, within which the governance of ESCOs essentially falls into one of three categories:

– Those wholly owned by the private sector;
– Those in which a local authority has an interest below 20%;
– And those in which the local authority has a 20% or greater shareholding.

Depending upon the extent of local authority participation, an ESCO is placed under differing levels of regulation. Where a local authority has a 20% or greater shareholding, the activity of an ESCO is constrained with regard to the use of private finance and distribution of electricity. Further legislation regarding the separate sale of heat and electricity inhibits the potential for local authority governed ESCOs to sell electricity other than that produced in association with heat. Changes to the regulations governing local authority participation in ESCOs are therefore necessary in order to increase the supply limits for offering utility discounts. This would enable a greater number of domestic customers to be supplied with a low-cost and sustainable source of energy.

14 For an example see section 4.3 'Case Study – Thameswey Energy.'

4.2. Local Authority Participation in Energy Service Companies

Section 11 of the Local Government Act 1976 empowers local authorities to lay heat networks to enable the development of district heating schemes. It provides that local authorities may produce both electricity and heat, but that they may not sell electricity other than that which is produced in association with heat. In practice this means that a local authority cannot sell electricity generated from sources such as wind or photo-voltaics to local residents. This has the subsequent effect of limiting the number of domestic customers that can be supplied with low cost energy.

This problem might be overcome if Government were to amend Section 11 of the Local Government Act 1976 to permit the sale of electricity that has been produced separately from heat.

Further licensing restrictions with regard to the supply, generation and distribution of electricity are contained within the Electricity Act 1989, as amended by the Utilities Act 2000. The Electricity Act prohibits the supply, generation, distribution or transmission of electricity without a license. Exemptions from these licensing requirements are found under Schedule 4 of the Electricity (Class Exemptions from the Requirement for a License) Order 2001.

Class A exempt supplier status is granted to small suppliers who do not, in total, supply more than 5 MW(e), of which not more than 2.5MW(e) is supplied to domestic consumers. The Class A exemption enables the owner to transfer electricity between sites on a license exempt basis, however this supply limit is aggregated across sites. The low maximum ceiling of total supply therefore places distinct limitations on the use of the Class A exemption in supplying domestic consumers and in facilitating the transport of electricity from one 'exempt' site to another.

A potential step for government would be to remove the volume limit on the Class A exemption in the case of supply between sites. This would facilitate the transport of electricity from one 'exempt' site to another, as well as increasing the number of domestic customers that can be supplied with low-cost, sustainable energy.

Class C exempt supplier status is granted to on-site supplies of electricity and supplies that utilise private wires. Here there is a limit of 100MW(e) overall and a limit of 1MW(e) demand fulfilment to domestic customers. This limit is per site (or set of private wires) and therefore the same electricity supplier can replicate this supply on any number of different sites. However, license exempt electricity imported by a Class C supplier from off-site cannot be sold on the second site within any available exemption other than Class A, with the limitations described above. A potential step for government would therefore be to widen the Class C exemption to include the supply of electricity exported from another license exempt site.

These changes would facilitate the growth of license exempt distributed generation, both in the supply of electricity between sites, and in the subsequent supply to domestic consumers on a license exempt basis. This in turn would increase the potential for utility discounts to be offered to domestic customers as a function of waste infrastructure planning.

Recommendation 3

Government should consider the potential to amend Section 11 of the Local Government Act 1976 to permit local authorities to sell electricity that has not been produced in association with heat.

Recommendation 4

Government should consider removing the volume limit on the Class A exemption for small suppliers under the Electricity Order 2001.

Recommendation 5

Government should examine the potential to widen the Class C exemption for on-site supply under the Electricity Order 2001, to include the supply of electricity exported from another license exempt site.

CASE STUDY

4.3 Thameswey Energy
First public/private joint venture Energy Services Company

Woking Borough Council has set up an Energy and Environmental Service Company (EESCO) – Thameswey Ltd – to capitalise on its intellectual property in small-scale community Combined Heat and Power (CHP) and enable the use of private finance to implement large scale projects. This has enabled savings of nearly £4.9million to be achieved by the Council, with further savings for householders and businesses in the Borough.

Due to the uncertainty of the legal issues surrounding public/private partnerships, Woking Borough Council received £25,000 from the Energy Saving Trust to explore whether it was legally possible for local authorities to participate in energy service companies. The Council formed Thameswey Ltd, to comply with this legal advice. Being a local authority company, but a public/private joint venture, allows Thameswey Energy (the energy trading name of Thameswey Ltd.) to escape the capital controls that would be imposed on a purely local government company. As a result, Woking borough Council has installed a wide range of sustainable energy measures including CHP, fuel cell technology, thermal storage and heat-fired absorption cooling technologies. The use of private wires enables electricity to be sold directly to customers and avoids transmission and distribution losses through the national grid.

Due to the mixed technology, community energy approach, the scheme satisfies its own electrical demands and exports surplus power over public wires to sheltered housing residents and other local authority buildings. This has been achieved via an enabling agreement for exempt supplier operation, which also receives the benefit of exemption from the Climate Change Levy. As a result financial savings have been made for households served by the Council's renewable energy projects.

Key Features

- Public/private joint venture allows Thameswey Energy to escape capital controls that would be imposed on a purely local government company, and to implement large scale projects, primarily with private finance.
- Using private wires enables electricity to be sold directly to the customer and avoids transmission and distribution losses through the national grid.
- Savings of nearly £4.9million have been achieved by the Council, with further savings for householders and businesses in the Borough.

Approximate total current output:
– 2.81 MWe (CHP),
– 1.4 MWh (heat-fired absorption cooling),
– 524kWp (photovoltaic)

5 COMMUNITY FUNDS

A community fund model represents a flexible operating structure through which to deliver long-term planning gain to a community. This would be a fund specific to a waste contract and operated through a committee representing local community interests.[15] The fund would provide an annual sum to develop, and invest in, relevant community projects and services. These might include the development of a local recreation centre, library, or services such as transport for the elderly.

The establishment of a Social Responsibility Committee or Community Liaison Group (CLG) to manage the fund should be factored into the process of pre-application consultation for a project, to ensure that stakeholder engagement is carried out at the earliest stage possible. This should help to alleviate any concerns relating to the transparency and operating structure of the fund. The operating criteria of the fund might also be included within the Operation and Maintenance (O&M) Agreement for a facility, to ensure the continued existence of the fund in the case of a change in plant ownership. This should provide a long-term guarantee to local communities of the benefits to be derived from the operation of the fund.

The committee or liaison group managing the fund should consist of a cross-section of stakeholders representing local residential and business interests. Organisations and groups would then be able to apply directly to the body managing the fund for approval of proposed projects and services. In addition, a proportion of the fund may be specified annually for long-term savings investment. This should secure the self-sufficiency of the fund in the long-term, and ensure that benefits to the local community continue to accrue beyond the lifetime of a waste contract. As a result, the community fund model should provide a more flexible means to deliver long-term community benefit than Section 106 of the Town and Country Planning Act 1990. Whilst this permits a Local Planning Authority to enter into a legally-binding agreement with a landowner regarding planning permission, such agreements have often prioritised physical infrastructure improvements at the outset of a waste contract and have therefore lacked long-term flexibility.

The establishment of the Community Infrastructure Levy (CIL), under the Planning Act 2008, has provided local authorities with a further discretionary tool through which to deliver planning gain to communities. Local authorities are empowered to charge the levy on most new types of development, with proceeds then being spent on the delivery of local and sub-regional infrastructure. However, at present, many local authorities remain unsure as to whether they will adopt the CIL due to a serious funding shortfall for infrastructure development. The adoption of a community fund model specific to a waste contract is therefore a more secure, and direct, way through which to engage with local stakeholders and ensure the delivery of community benefit throughout the duration of a waste contract.

15 This would not be connected to the Landfill Communities Fund.

5.1 Community Outreach

Through the use of a community fund model, various facilities and services can be delivered that directly benefit local stakeholders. Educational centres might be made available for community use, biodiversity areas could be developed, and general infrastructure improvements can be made in accordance with local preferences. Similarly, services such as transport for the elderly may be established. The value of such projects is contingent on the development of extensive community liaison programmes. Strong community outreach should be demonstrated during the process of pre-application consultation for a project to ensure that an early dialogue is developed with local stakeholders. This should ensure that processes of engagement extend to hard to reach groups and that local preferences and concerns are established before site applications are put in place. This should provide a genuine incentive for communities to discuss the potential benefits to be derived from hosting a facility.

In the past, part of the problem with models such as the Landfill Communities Fund has been the lack of transparency with which such structures have operated. To avoid this, strong inclusion programmes should seek to actively engage the local community, in order to ensure the benefits of social infrastructure developments are tangible to the communities they are intended to serve. A CLG will have a key role to play in securing this transparent and accountable operating structure.

Further feedback loops can be developed through the integration of local groups such as school children into the development of community projects. Pupils from local schools might be involved in the development of a community or biodiversity centre as a means to foster inclusion in outreach programmes, whilst also providing valuable environmental education. This would have the added benefit of promoting long-term awareness of the benefits of sustainable waste management to future generations.

A CLG could also seek to link with third sector organisations such as local charities and not-for-profit businesses to further promote community inclusion. Working closely with the third sector can produce a number of benefits including gaining support with project planning, enhancing knowledge of local issues and engaging with hard-to-reach communities. The third sector is already working closely with local authorities to provide services in relation to waste management. For example, an estimated 15% of kerbside recycling was contracted to the third sector in 2003/2004.[16] Greater involvement of the third sector in the delivery of planning gain should assist in achieving wider community buy-in to such developments.

Recommendation 6

Government and industry should explore the community fund model as a flexible means to deliver planning gain. Government should support the sharing of best-practice in the setting up and operation of such funds.

16 Defra (2009) 'Benefits of Third Sector Involvement in Waste Management'.

CASE STUDY

5.2 Case Study – Peterborough Renewable Energy Ltd. Community fund established for new Energy Park

Peterborough Renewable Energy Ltd. (PREL) has established a community fund for its new Energy Park. The fund comprises a £250,000 annual sum to spend on projects and services, alongside a further £50,000 for long-term savings investment. This is designed to ensure the self-sufficiency of the fund and that benefits are directed to local stakeholders throughout, and beyond, the lifetime of the waste contract. The specifications of the fund are also contained within the O&M agreement for the PREL Energy Park, to provide a long-term guarantee to local stakeholders.

Advice regarding dispersal and investment of the fund is offered by the PREL Community Cohesion Committee, consisting largely of members representing local resident and business interests. Individuals and groups are able to pitch directly to the Committee for funding approval. The community fund that has been established for the new PREL Energy Park is therefore characteristic of the flexible and transparent operating structure described above.

Key Features

– PREL Social Responsibility Committee provides advice and support in the dispersal of funds under the Objects of the PREL Community Cohesion Committee.

– Membership of the Committee consists of two members nominated by PREL, two nominated by Peterborough for Responsible Waste Management Forum, two representing local business, and four from local Residents organisations.

– Individuals and groups apply directly to the committee for funding approval.

The fund represents an annual £250,000 sum to spend, alongside £50,000 for long-term savings investment.

6 DISTRICT HEATING AND COOLING

District heating represents an energy system that can form a natural part of the energy supply for densely populated cities, as well as smaller rural communities; offering the potential to reduce the heating bills of residents. Within such schemes, heat is transferred from a district heating grid to a consumer's own heating system through an exchange unit. This heat can also be converted using absorption chillers, providing the further option of supplying a low-cost means of cooling during the summer. The most common sources for such schemes are waste, biofuel, natural gas, electricity and fuel oil.

Heat has traditionally been a residual component in the renewables revolution, however recent evidence suggests that it is starting to be incorporated into strategic energy plans. The Renewable Heat Incentive, included in the Energy Act 2008, will provide financial assistance to generators of renewable heat and producers of renewable biogas and biomethane. The Government's recent Heat and Energy Saving Strategy Consultation (2009) also highlighted the need for more district heating networks and CHP schemes.[17] This research suggests that district heating can provide cost-saving benefits to communities with a heat density above 3000kW/km^2. This equates to around 5.5 million homes in the UK, including up to 90% of all flats. In turn, this local control of heating supply can assist developers to achieve zero carbon status under the Code for Sustainable Homes (2008).[18]

At present, however, problems exist in procuring the necessary infrastructure required for heat distribution. Owing to the lack of a regulated market for heat in the UK, the private sector has faced difficulties in securing the finance required to lay heating infrastructure. This, in tandem with a general reluctance to build such capacity into existing developments, has left the potential for district heating in the UK vastly underutilised.

6.1 Strategic Planning

District heating networks are only commercially viable if they can secure a large and consistent heat load. The potential for locally supplied CHP to contribute to space heating must therefore be identified at the stage of strategic planning for waste management facilities. There are a variety of tools that central and local government can use to address this. The Planning and Climate Change Supplement to PPS1 allows local planning authorities to require new developments to connect to existing district heating networks.[19] It also encourages the co-location of heat supply with demand, such that planning authorities may specify that an EfW plant may only be built close to high heat loads.

This process could be strategically improved through the use of heat mapping, to ensure that each community has an evidence base for mapping sources of heat with potential recipients. For example, in 2008, Hampshire County Council commissioned a heat map

17 DECC (2009) 'Heat and Energy Saving Strategy Consultation.'
18 DCLG (2008) 'The Code for Sustainable Homes: Setting the standard in sustainability for new homes.'
19 DCLG (2006) 'Consultation Planning Policy Statement: Planning and Climate Change, Supplement to Planning Policy Statement 1.'

of the county based on Geographic Information System data. This is now being used as a valuable tool during planning decisions, to facilitate greater efficiency with regard to the generation and use of heat. In addition, it should be a requirement for all new-build plans to consider the potential for the inclusion of district heating. Significant potential therefore exists for future joint-ventures between waste management contractors and social housing developers to provide a low-cost source of low-carbon energy to residents.

Recommendation 7

Local authorities should use heat mapping as a strategic planning tool to better co-locate heat supply with demand.

Recommendation 8

Government should ensure that all new-build plans consider the potential for the inclusion of district heating.

6.2 Infrastructure Development

District heating systems are presently underutilised due to the current cost of retrofit and problems securing private finance to establish the required heating infrastructure. The lack of experience of district heating in the UK, coupled with lengthy payback periods, has meant that few investors are willing to consider the development of district heating networks. Further, in the absence of a regulated market for heat in the UK, the lending rates for such investments are unattractive.

Within other European countries, methods of reducing risk to investors have involved requiring consumers to connect to networks, taxing alternatives to heat, and providing public sector funding to support investments. Within the UK however, the present market framework prevents mandating consumer network connections, as well as price fixing through the use of tax. Alternative measures are therefore needed to overcome the financial barriers to district heating deployment.

One possibility in this regard would be to establish a rolling publicly-guaranteed investment fund for district heating, that could be used to underwrite the potential risk to investors. This would facilitate the introduction of private sector capital and be covered by a form of public guarantee. The investment fund would help to finance the up-front development of district heating systems, before they become operational and produce a revenue stream. In the long-term, the investment fund should become self-sustaining due to returns on investment from heating networks as they become operational.

The off-take risk associated with district heating development might also be reduced by guaranteeing heat demand from the central and local government estate. This would provide a 'base load' to heating systems from which a network might grow and develop. In tandem with the strategic planning measures outlined above, achieving security of demand should serve to minimise planning risk to investors whilst engendering local confidence in the uptake of district heating systems.

Recommendation 9

Government should work with industry to overcome financial barriers in the establishment of district heating networks.

Recommendation 10

Government should explore ways of achieving security of demand for district heating systems.

6.3 Personalisation of consumer service

In the past, district heating systems in the UK have been plagued by a lack of individual control over a communal source of heat. This has often encouraged bad behaviour such as opening windows to offset heat during peak hours when it is not required. The answer to this is greater individual control through services such as smart-metering, so as to remove the potential problems of a communal source of heat.

At present, consumers rely on their energy supplier to provide them with information regarding how much energy they consume. The forthcoming rollout of smart meters, which will make greater information available to consumers, will offer the opportunity to radically change how they engage with both the market and their energy service.[20] By offering higher levels of information to consumers, as well as providing quicker access to this data, smart metering could significantly reduce energy usage whilst personalising services such as district heating to the consumer. This should maximise the cost-saving benefits of district heating to the local community.

20 Caldecott, B & McIlveen, R (2009) Knowledge is Power, Policy Exchange.

CASE STUDY

6.4 – Biomass district heating network, Kielder, Northumberland

Biomass heating system owned by Northumberland County Council and operated by the Forestry Commission

Within the UK, smaller wood-fired district heating schemes are appearing in many rural communities, especially in the more remote areas of Northern England, Wales and Scotland. The forestry village of Kielder in Northumberland is one such example, where a 300kW biomass boiler provides heat to community and residential buildings through a district heating network. The biomass district heating system uses wood chips derived from Sitka spruce grown in the surrounding Kielder Forest. This has provided a market for local wood whilst also serving to significantly reduce transport costs and emissions. In addition to securing local forestry jobs, the wood chip fuel has also contributed to the Kielder Regeneration Initiative, helping to ensure the prosperity of the village in the years to come.

The biomass district heating network in Kielder is a great example of a district heating system that utilises local product streams to successfully deliver social and environmental benefits to the wider community.

Key Features

- 300kW biomass boiler provides heat through district heating network to community and residential buildings.
- Provides a market for Sitka spruce grown in the surrounding Kielder Forest.
- Supports local forestry and has helped to re-generate local economy.

7 DESIGN

Whilst good architectural design is not itself a direct incentive for local communities to host new waste management infrastructure, innovative design concepts have in many cases helped to alleviate public opposition to developments. Waste management facilities in the UK are still often plagued by the reputation of poor performing sites from the 1960s and 1970s. In many cases, this has created uncertainty around the operating standards of modern waste facilities, despite strict regulatory oversight.

Progress with regards to the design of waste facilities in the UK has been made. In 2008, the Department for Environment, Food and Rural Affairs produced a document, in conjunction with the Commission for Architecture and the Built Environment (CABE), examining the design of modern waste facilities.[21] In addition, the Design and Delivery Committee of the Planning Officers Society has attempted to take a lead on planning matters associated with design in the built environment. On the ground, this agenda has resulted in the development of high standard facilities, such as the Marchwood Energy Recovery Facility in Hampshire.

One of the roles of the statutory planning system is to ensure that new projects are being undertaken with the interests of the wider public in mind. It is now recognised in PPS 1 that achieving high quality architecture and urban design is a primary objective of the statutory planning system. In addition, the Government's recently published World Class Places (2009) makes the recommendation that there should be minimum design standards in place for all new public building programmes.[22]

To this end, CABE's National design review panel is currently starting to receive more waste infrastructure projects for evaluation.[23] The National panel carries out evaluations of projects, taking into account aspects such as aesthetics, the local landscape, sustainability of design, and a wider contextual analysis of the chosen site.[24] With regards to energy-from-waste plants, the panel has outlined that such facilities should seek to achieve a convincing balance between industrial aesthetics and attempts to make these buildings appear less prominent. The results of such reviews are subsequently distributed to designers, local planning authorities and other relevant parties.

In general however, there is a need for a more standardised review process to ensure that design considerations for waste infrastructure developments are robust and evidence-tested. In addition, local authorities need to be better supported in their development of spatial plans, to ensure that design considerations and quality of public space are a priority during the planning process. High expectations therefore need to be set with regard to the design standards of waste management facilities, with progress tracked through formal review processes.

21 Defra & CABE (2008) 'Designing Waste Facilities: a guide to modern design in waste'. Prepared by Enviros Consulting.
22 DCLG (2009) 'World class places: the Government's strategy for improving quality of place.'
23 For more information see http://www.cabe.org.uk/design-review/national/listing?tag=Transport%20and%20infrastructure&tagId=23&type=national
24 CABE (2006) 'Design review: how CABE evaluates quality in architecture and the built environment'.

Recommendation 11

Defra should establish a working group in conjunction with CABE to explore design possibilities for new waste management infrastructure.

Recommendation 12

Government should work to establish a standardised review process for waste infrastructure developments.

CASE STUDY

7.1 – Isseane waste treatment centre, Paris
Recycling and EfW facility located in the centre of Paris next to the River Seine.

In 2008 the Isseane waste treatment centre replaced an existing incinerator that had been in operation for 40 years. A successful combination of aesthetics and technology has allowed the facility to sit alongside companies such as IBM, the country's main television station, and cosmetic giant Yves Rocher. Standing a mere 21 metres in height, careful design has meant that two-thirds of the building actually sits below ground. The result is that the sites twin chimneys protrude no more than 5 metres above the main roofline. Such design considerations played a key role in gaining successful planning permission.

Isseane is also conceived on a proximity principle so that waste travels no more than six miles to be treated. The plant possesses the capacity to treat up to 460,000 tonnes of waste per annum, in addition to producing enough heat and hot water to supply the equivalent of 79,000 homes.

The design of the facility also takes traffic movements into careful consideration. As the building starts underground, all traffic movement associated with waste deliveries takes place below ground level, helping to alleviate local fears of excessive transport movements. This also helps to control dust, noise and odour levels. The location of the facility also makes use of the nearby River Seine, with barges taking away inert bottom ash from the incineration process for use in ancillary projects.

The Isseane waste treatment centre serves to demonstrate that with the correct blend of design, urban aesthetics and transport considerations, the potential exists for modern waste infrastructure to successfully sit within the heart of major European cities.

Key Features

– Capacity to treat up to 460,000 tonnes of waste per annum.

– Combined electricity (52MW) and Thermal (Hot Water) for 79,000 homes.

– Scale and visual impact reduced by burying the facility 30m below ground, leaving 21m above ground.

– Bold approach to constructing a new waste management facility within a high density urban area

8 CONCLUSION AND RECOMMENDATIONS

Public opposition to the development of new waste management facilities has been a major factor in stifling the delivery of the infrastructure required to meet EU landfill diversion targets for 2013 and 2020. Fresh thinking is therefore needed to re-design our approach to community engagement and embed incentive structures firmly within the planning process itself. With the correct blend of stakeholder engagement, local authority leadership and incentive structures, the potential exists to radically change the ways in which communities engage with local waste management systems. Delivering tangible benefits to local communities represents a means to foster a real sense of involvement in the development of infrastructure and to achieve a step-change in how future generations view the issue of waste management. This will be absolutely essential if the UK is to deliver the infrastructure capacity necessary to successfully recycle, reprocess, treat and dispose of waste.

The incentive schemes proposed in this report are designed to build upon existing best practice for stakeholder engagement and strategic planning, to give communities a genuine stake in the development of new waste management infrastructure. Successfully implemented, such ideas could breathe new life into the arena of infrastructure development, turning facility planning into a win-win proposition for all involved. A more inclusive system of planning gain would give communities a genuine stake in decision-making processes and help to shift cultural norms towards viewing waste as a valuable resource. Such a step-change in public attitudes will be absolutely crucial if the UK is to meet EU landfill diversion targets for 2013 and 2020.

The development of social infrastructure and community ownership models, alongside direct incentives, is intended to provide a holistic framework through which to deliver considerable planning gain to communities that host new waste management infrastructure. These incentive structures are designed to be flexible in operation and tailored to the specific needs of local communities. In light of this the report makes the following policy recommendations:

Community Ownership

1: Government should examine the potential use of community ownership structures for waste management facilities.

2: Local authorities should be encouraged to assist in the development of community investment groups to provide support for local shareholding schemes.

Energy Discounts

3: Government should consider the potential to amend Section 11 of the Local Government Act 1976 to permit local authorities to sell electricity that has not been produced in association with heat.

4: Government should consider removing the volume limit on the Class A exemption for small suppliers under the Electricity Order 2001.

5: Government should examine the potential to widen the Class C exemption for on-site supply under the Electricity Order 2001, to include the supply of electricity exported from another license exempt site.

Community Funds

6: Government and industry should explore the community fund model as a flexible means to deliver planning gain. Government should support the sharing of best-practice in the setting up and operation of such funds.

District Heating and Cooling

7: Local authorities should use heat mapping as a strategic planning tool to better co-locate heat supply with demand.

8: Government should ensure that all new-build plans consider the potential for the inclusion of district heating.

9: Government should work with industry to overcome financial barriers in the establishment of district heating networks.

10: Government should explore ways of achieving security of demand for district heating systems.

Design

11: Defra should establish a working group in conjunction with CABE to explore design possibilities for new waste management infrastructure.

12: Government should work to establish a standardised review process for waste infrastructure developments.

ACRONYMS

BMW	Biodegradable Municipal Waste
CABE	Commission for Architecture and the Built Environment
CCHP	Combined Cooling, Heating and Power
CHP	Combined Heat and Power
CIL	Community Infrastructure Levy
CLG	Community Liaison Group
EESCO	Energy and Environmental Service Company
EfW	Energy-from-Waste
ESCO	Energy Service Company
EU	European Union
kWh	Kilowatt hour
kWp	Kilowatt peak
MRF	Materials Recovery Facility
MW	Megawatt
MWe	Megawatt electric
MWth	Megawatt thermal
NAO	National Audit Office
NPS	National Policy Statement
PPS	Planning Policy Statement
PREL	Peterborough Renewable Energy Limited

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