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Review of Waste Policies
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SSE Response to Call for Evidence- DEFRA Review of Waste Policies

Dear Sir/Madam

SSE welcomes the opportunity to respond to the call for evidence on England's 'Review of Waste Policies'. Please see the attached annex for our comments and our answers to specific questions.

SSE, formerly Scottish and Southern Energy, is one of the largest utilities in the UK employing over 20,000 staff. It is the largest generator of renewable electricity, the second largest supplier of electricity and gas with over 10 million customers and is also involved in the distribution of electricity and gas, and in telecoms and water. As a large utility SSE have interests in waste policy for two main reasons:

- SSE is involved with the management of large volumes of waste produced as a result of various businesses including electricity generation facilities, customer service centres, offices and numerous depots.
- SSE is interested and involved in the development of anaerobic digestion for the production of biogas and renewable electricity as means to increase the percentage of renewable energy supplied to customers. SSE also has experience of waste combustion and is currently planning to build a multi-fuel combined heat and power facility at Ferrybridge in Yorkshire.

SSE is very supportive of the Government's aim for England to become a 'zero-waste economy' and we would like to take the opportunity to re-iterate our high level views on how the UK can become 'zero-waste' before going into the details of each question in annex 1.

- An integrated and strategic approach is required for waste strategy in England and this must incorporate issues of planning, licensing, permitting, incentives, education and awareness raising.
- SSE believes that as well as having environmental benefits, the economic benefits of a zero-waste economy are significant and will result in job creation and the emergence of new businesses.
- Significant changes in waste collection and segregation systems are vital for England to become a zero-waste economy and are vital for a significant increase in the use of anaerobic digestion.

- Energy from Waste combustion can significantly reduce volumes of waste going to landfill and volumes of contaminated waste and can provide a secure and flexible low carbon source of electricity.

- SSE believes that there are a number of specific areas where important regulatory changes are required. A major problem for SSE is the regulation of Pulverised Fuel Ash (PFA). A quality protocol is being worked on for (PFA) but this work has been ongoing for a considerable length of time. We would therefore welcome Defra's support in ensuring that the quality protocol for PFA is completed and implemented as soon as possible, in order to realise the significant environmental benefits from PFA.

I hope that our comments are helpful. If you would like to discuss any of the points raised in more detail, please do not hesitate to get in contact. We would also welcome any opportunity to discuss this consultation in person.

Yours sincerely

Rufus Ford

Policy Manager

Annex 1

General

What should the nation's ambition for waste management be? What do we need to do to achieve a 'zero waste economy'?

SSE very much agrees with the Government's strategy to aim for 'zero-waste'. The twin issues of resource depletion and climate change require significant changes to both the UK's energy and also waste systems which are intrinsically linked. SSE understands the term 'zero waste economy' relates to an ongoing target rather than an actual system that produces no waste, in reality there is always likely to be some waste. Travelling towards a zero waste target would therefore simply mean minimising the volume of waste going to landfill and ensuring that as much waste as possible is recycled. This approach would therefore be very similar to that of the 'waste hierarchy' and SSE supports this methodology with the additions described further on in this response.

How could the contribution waste management in England makes to the economy and our environmental and energy goals be maximised?

Numerous environmental and economic benefits are likely to result in the increased use of energy from waste (EfW) and so therefore by ensuring that the necessary infrastructure is in place to encourage the active reduction of the amount of waste that goes to landfill, government will also be creating jobs and helping to meet energy and environmental goals.

How can Government make the best use of the skills and knowledge of the private sector, civil society and local communities in delivering a zero waste economy?

To maximise the skills and knowledge available in relation to waste management it is important that the Government looks at beacons of good practice, areas of the EU and further a field in other international locations where recycling rates are particularly high. There is also a wealth of knowledge relating to waste management in academia as well as in the private sector. It is vital that the government forms good relationships with these bodies as it will be these bodies that will deliver the 'zero carbon economy'.

Do local authorities have the right responsibilities for waste services? Are there further services that could be devolved to local authorities or directly to local communities?

SSE believes that there may be benefits in ensuring that the research carried out by local councils in relation to waste management is nationally co-ordinated. This will reduce the costs associated with waste research and also lead to a more integrated waste management approach between authorities not just in relation to research but also in the delivery of projects. It is likely that if local authorities are not co-ordinated, strategies may be taken forward that may be best for more local scales but do not assist the government in meeting its national waste and environmental goals, in particular in promoting a significant increases in anaerobic digestion (AD) where secure waste streams are vital. There is a clear balance to be had here between localism and waste management policy.

How can illegal waste activity be minimised, including reducing levels of fly-tipping? Are sanctions for breaches of waste regulation fair and proportionate?

No comment

How can we balance regulation to ensure that we protect health and the environment without unnecessarily burdening businesses and local authorities? What are the opportunities to reduce or remove the burdens of regulations?

SSE feel that it is important that the UK relies on EU standardisation and does not gold plate the requirements. For example, in Denmark, Sweden, Netherlands and Germany, biogas plants are not required to pour large volumes of concrete to create large bunds. This is a significant carbon burden to add to a project, and from an investment perspective it is excessive in cost adding some extra £1-3 million depending on the project and only required in the UK.

SSE also believe that there is significant scope to use ash produced as a by-product of coal fired generation extensively as secondary aggregates and this would reduce greenhouse gas emissions and also reduce volumes of ash being landfilled. However, the ongoing debate between industry and the Environment Agency on what is the correct categorisation of PFA under waste legislation creates a stigma and additional bureaucracy which has an adverse impact on the demand for the product. This can result in unnecessary disposal and a corresponding increase in demand for virgin materials, which adds to the environmental burden. A quality protocol is being worked on for PFA but this work has been ongoing for a considerable length of time. We would therefore welcome Defra's support in ensuring that the quality protocol for PFA is completed and implemented as soon as possible, in order to realise the significant environmental benefits from PFA.

The landfill tax escalator is a key policy tool for diverting waste from landfill and it is useful to know what the rises are until 2014 however after this date there is no clear direction of the policy. SSE believes that the government should make its intent for the landfill tax clear to allow strategic planning for waste management.

Waste Prevention

What roles should (i) national and local government; (ii) businesses; (iii) voluntary organisations; and (iv) individuals take in order to prevent waste from arising, and to reduce the hazardousness or environmental impact of waste?

SSE works hard to try and minimise the volume of waste it produces. A focus on waste prevention could be very important as there are still instances of over-packaging and situations where recyclable options are available but not used. SSE is closely following the case of a supermarket that is currently being prosecuted by Lincolnshire Trading Standards in relation to over-packaged goods. It is likely that there are many situations like this where existing regulations can be administered more pro-actively with significant benefits for waste reduction.

SSE also believes there are still many options for waste to be obviated domestically where free collections provide little incentive to reduce waste.

What can be done to encourage businesses to design and manufacture products which produce less waste – such as those which last longer, can be upgraded and/or repaired, and don't have hazardous components? How might Responsibility Deals contribute to this?

No comment

Which waste streams or materials should be a priority for waste prevention?

The main hazards associated with waste management are generally those associated with landfill which releases greenhouse gases and can result in pollution to local eco-systems. Heavy metals and other persistent pollutuants such as fire retardents or PCBs (Poly-chlorinated

biphenyls) are often major concerns in landfill and targeting these away from landfill could be of particular importance. By increasing recycling, the impacts of landfill will be reduced.

The waste streams that should be prioritized are 'active' wastes that result in emissions as well as hazardous wastes such as heavy metals. Active wastes include mostly organic material such as food waste but also sewage and agricultural waste. Most electronic equipment contains heavy metals and generally, recycling rates for these are increasing.

How should waste prevention be measured?

No comment

Preparing for Reuse

SSE has no comments for this section other than that it supports the reuse of products and components.

Recycling

What should the role and nature of local authority waste management collection and disposal services be?

SSE believes that increased segregation of domestic waste with a particular focus on organic and food waste is vital for an increase in the use of anaerobic digestion technologies (AD) and equally vital for increasing recycling rates. It is critical that the government understands that garden and kitchen waste are not the same types of waste and cause significant difficulties for energy projects. Garden waste is not just grass and leaves, which are acceptable to biogas plants and compost facilities. Garden waste usually contains branches, thick wood, stones, large clumps of mud and other difficult mixed materials. Garden waste collected separately can be more easily sorted into component parts for use. However by combining sticky wet kitchen materials the entire load gets cross contaminated making it difficult for any technology to manage.

Also, it is a myth that local authorities can't collect food waste separately. In many of the locations that are collecting "co-mingled" i.e. kitchen + garden wastes, in actuality four months of the year in winter no garden waste is generated. These collections are therefore kitchen only.

To demonstrate the cost effectiveness and the ease for collecting source segregated waste a number of smaller, entrepreneurial waste companies are running food only collection programmes. We assume that Defra is aware of the Cyrenians in Edinburgh that operate a social enterprise firm (well loved by the new government) dedicated to food waste collection.

This is one of the single most important barriers to stalling the growth of biogas industry. A national approach is required.

SSE does not support the move to weekly municipal solid waste (MSW) collections for domestic settings. The governments own research[1] has shown that the move back to a system of weekly collections would increase costs and reduce the rates of wastes that can be recycled or used for anaerobic digestion. This has the potential to impact on proposals in the coalition programme for government as well as the overarching aim of the government to reduce the national budget

[1] ENDS, (2010), Return to weekly collections to slash recycling rate, Available from: http://www.endsreport.com/25096/return-to-weekly-collections-to-slash-recycling-rate

deficit. Weekly food waste collections could however be very important as it is generally the build up of food waste that is likley to cause issues to do with smells and vermin.

How can individuals, businesses and communities best be motivated to recycle more?

In the domestic sector, engaging individuals with the issue of recycling and waste is very important and people cannot be expected to recycle their waste just because facilities are available. The issues are very similar to our experience with engaging consumers in energy issues. Studies have shown that community scale projects are generally much better for engaging issues as the behaviours are normalised and there may even be situations where engagement with energy could be linked to waste and recycling behaviours.

For businesses, although voluntary mechanisms such as environmental management programmes may be a good place to start, it is likely that some changes to legislation may be required. It's worth noting that although this may increase costs in the short term, recycling is often a cheaper option and so in the long term costs may also be reduced.

How does the choice, including frequency, of collection service impact on the quantity and quality of waste fit for recycling?

As mentioned previously, SSE does not support the move back to weekly MSW collections as this will increase costs and increase the volume of waste going to landfill.

Should greater emphasis be placed on using recyclable/recycled materials in manufacturing and production and, if so, how should this be achieved?

There may be scope for mandating the use of recycled materials and products especially as the availability of recycled materials rises with the recycling rate. In paper or glass for example, it may be possible to mandate what proportion of feedstock is recycled.

Energy Recovery

What are the barriers to delivering an increase in EfW capacity, including a huge increase in generation from anaerobic digestion? How might these be addressed?

SSE believes that it makes clear sense to align energy and waste policy as a result of the connections between these areas.

In the coalition's 'Programme for Government' the coalition stated that:

'*We will introduce measures to promote a huge increase in energy from waste through anaerobic digestion*.'

<u>Anaerobic Digestion</u>

SSE is extremely pleased to see that the appetite for biogas from AD is so strong. Biogas plants take material diverting it from landfill and so reduce greenhouse gas emissions by providing renewable gas, low carbon electricity and organic fertiliser (digestate).

Biogas plants are also relatively small scale and can even be positioned in small industrial units in urban locations providing local and embedded renewable electricity, gas and heat generation.

SSE believes that for organic wastes, biogas should always be considered as this method provides greater environmental and economic benefits than other management techniques. However, AD is only suitable for certain waste types and so this means that it is not easy to fit into the waste hierarchy. SSE believes that biogas plants could sit along side recycling in the

waste hierarchy. Furthermore, SSE firmly believes that In-vessel Composting should not be promoted. In-vessel composting (IVC) takes the similar material as biogas plants but rather than creating energy, they are net energy drain on the community.

For the most part, biogas technology is highly adaptive and can take a wide range of biodegradable waste streams. In other EU nations with a more mature biogas industry the plants are fitted with appropriate technology to take not just Category III (raw/part cooked meat and fish) but also Category II material (animals that die on farms, manure and animal organs). So while there are some feedstock (waste) streams that are not suitable, we genuine believe that biogas should fit with recycling/compost in Defra's existing waste hierarchy as shown in figure 1 however this would need to be flexible due to the specific nature of the inputs required for biogas.

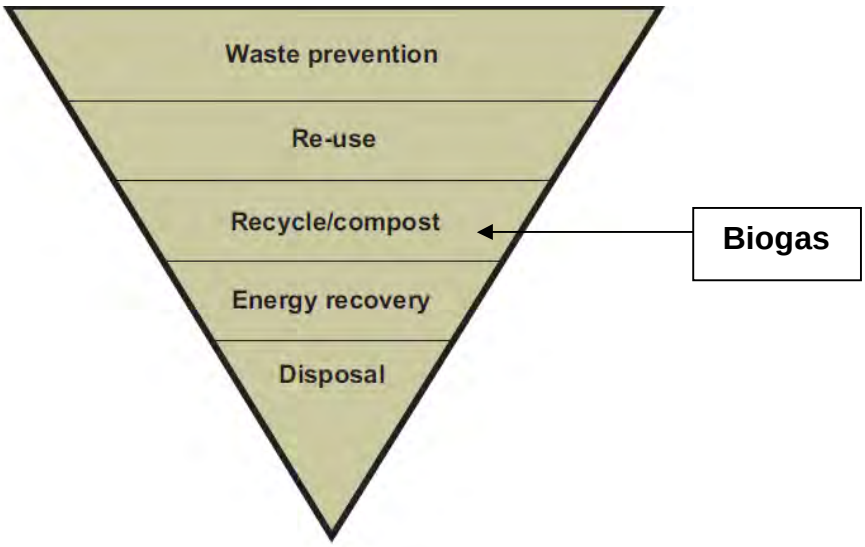

Figure 1. The Waste Hierarchy and where SSE feels biogas should be positioned

From biogas plants, electricity can be produced by directly burning the gas onsite in a gas engine. This low-carbon electricity is currently supported by the Renewables Obligation and Feed in Tariffs. However as green gas is a scarce and precious commodity SSE believes that it would make most sense to put this low carbon gas into the gas network when possible. Once in the gas network, this gas could be used by household boilers which can now have efficiencies of over 90%. The green gas could also be taken out of the grid for cleaner more efficient lorries or busses. Biogas could therefore become a significant part of the solution to reducing the carbon intensity of heat, an area that has traditionally been neglected. It is therefore crucial to introduce the renewable heat incentive (RHI) which means that from April 2011, renewable gas produced by biogas plants will be supported financially and have support in lieu of ROCS for electricity.

Although the RHI is likely to create some uplift in biogas it is likely that more changes will be required to create the 'huge increase' in anaerobic digestion required by the government. This is as a result of the significant changes required for infrastructure including new collection systems for biodegradable waste as well and the development of new biogas plants which will need to be located relatively close to waste production. Biogas is still a relatively young industry and so will likely require encouragement. It is therefore vital that energy and waste policy are well aligned in order to create a significant increase in the number and capacity of biogas plants.

SSE recognises the key barriers to a significant uplift of biogas as:

- A lack of legislation and government support for biogas technologies. A top down approach could be very important for creating a 'step-change' in the use of biogas technologies and the Government could set national biogas targets to support their goals.

- The collection and segregation of food waste - **This is vital to the entire biogas process.** The food waste cannot be mixed with other wastes as this will disrupt the anaerobic digestion process. The government could look to Ireland where businesses are now mandated to separate food waste so that it can be collected separately, if the businesses do not separate the waste, they are liable for very heavy fines. The Irish government has also banned the use of food macerators that put food directly into the sewage system and so now this waste must also be collected. These collections will be the responsibility of local authorities and boroughs and is likely to be implemented by business. Although this is not yet mainstream in England, there are numerous examples of this practice taking place already and a number of these examples are within London boroughs; Wales is also pursuing source segregated waste collection for increasing the use of biogas.

- Biogas requires the development of new waste management facilities. While it is difficult to see how these large industrial spaces could be owned by communities, it is vital that communities are aware of the importance of reducing and re-using food waste so that these new facilities will be accepted. The government could simplify planning / consent processes for biogas facilities to assist a rapid uplift of the technology.

- Standards will be required for the digestate material which is produced along side the biogas so that this material is fully compliant with laws permitting it for agricultural use. The introduction of BSI PAS 110 is a significant step in the right direction however more legislative changes may be required to ensure that the use of digestate is easy and cost effective.

Combustion and EfW

Combusting waste significantly reduces the quantity of waste going to landfill and simultaneously generates significant quantities of flexible, reliable renewable energy. SSE has experience in the combustion of Solid Recovered Fuel at the Slough Combined Heat and Power site where alongside biomass, some shredded paper and plastic was combusted for the production of heat and electricity. As well as this, SSE is also planning to build a multi-fuel plant that could use Solid Recovered Fuel at Ferrybridge in Yorkshire.

Historic concerns about emissions have now been addressed by legislation and although combustion does not eliminate all hazardous waste, such as heavy metals, it does significantly reduce the volume of contaminated material which can then be disposed of at dedicated sites. SSE believes that there is a role for the government in informing the public about these sustainable credentials.

For waste that cannot be recycled or used in anaerobic digesters, there are clearly benefits for combustion and the issues associated with landfill are almost certainly more significant that Energy from Waste Combustion.

SSE's experience of using biomass fuel for electricity generation has shown how important it is to have a reliable and consistent fuel source such as wood for the efficient operation of biomass and multi-fuel power stations. SSE believes that Mechanical and Biological Treatment (MBT) offers clear benefits to the problem of mixed wastes and the issues associated with different wastes in different streams. MBT can sort mixed waste separating out recyclables, biological waste suitable for AD and also waste suitable for incineration. SSE believes that this treatment can produce high quality fuel that can be used at multi-fuel combustion plants.

SSE believes that the government should support the development of a market for Solid Recovered Fuel to ensure consistency for fuel sources and therefore support a market for this key technology.

What role should Government, industry and voluntary groups play in communicating the benefits of EfW to local communities?

Because of the significant investment required for energy from waste combustion, it is likely that most developers will be private investors from both the energy and waste industries. Government must make the benefits of energy from waste clear to local authorities and it will be the responsibility of local authorities to facilitate the delivery of energy from waste facilities.

How can Government best support local government in the development of waste management plans that include EfW facilities?

Government must continue to support any financial incentives for energy from waste including the renewable obligation and the forthcoming renewable heat incentive. Government could also assist with planning consent for these kinds of projects. SSE very much supports the idea of local authorities keeping business rates for wind farms and believes that similar measures could be introduced for EfW and AD.

What steps can be taken to encourage community ownership of EfW facilities?

Modest investment costs compared to other energy from waste sources and the ease at which AD plants can be connected to urban gas and electricity grids means that these types of facility are well suited to some form of community ownership. We are currently unaware of this type of scheme in the UK however if this were to take off, there could be significant benefits for planning consents as well as community benefits. SSE believes that the government needs to set up a supportive framework for all types of ownership for EfW facilities and then, whoever wants to be involved in the facilities can be.

Disposal

How best to further reduce the amount of waste going to landfill?

SSE agrees that landfill should be the last resort for most waste and work commissioned for DEFRA[2] and also details contained in Defra's 2007 Waste Strategy[3] show that sending unsorted municipal solid waste to landfill is the worst option in terms of greenhouse gas emissions.

By focusing on all levels of the waste hierarchy above disposal, volumes of waste going to landfill will be reduced.

What are the types of waste where a continuation of landfill might be acceptable?

Wastes that are non-combustible, hazardous or not suitable for management on other levels of the hierarchy may still require landfill. There are however likely to be instances where the materials which are currently being sent to landfill that cannot be reused, recycled or used in energy recovery can be replaced with other materials. For these kinds of materials, a life cycle approach is required rather than a simple hierarchy.

When should we aim to be as close to zero waste to landfill as possible?

SSE understands that zero-waste is likely to be a mobile goal rather than a fixed date.

[2] DEFRA, (2006), Carbon Balances and Energy Impacts of the Management of UK Wastes, produced by E.R.M. and Golder Associates
[3] DEFRA, (2007), 2007 Waste Strategy

Further Comments

SSE feel that key to good waste policy is not just the overall approach i.e. a waste hierarchy, but also an idea of which wastes are going through specific waste streams so that the use of life-cycle analysis can be used to minimise wastes which enter the waste stream which cannot be recycled or re-used. It is therefore very important that steps are taken to increase knowledge about the composition of the waste stream, without this knowledge, optimal waste policies cannot be developed.

Table 1 contains data produced for DEFRA in 2006 which shows 3 scenarios, 'high resource' focuses on recycling and re-using, 'high energy' focuses on maximising energy output from the waste and 'combined' is a combination of the two. The data highlights the complexity of various options for waste management and how associated carbon emissions vary if different management routes are taken.

Material	Net GHG Emissions over Baseline (kg CO_2-eq/ tonne)	Net GHG Emissions over Baseline (kg CO_2-eq/ tonne)	Net GHG Emissions over Baseline (kg CO_2-eq/ tonne)
	High Resource	*High Energy*	*Combined*
Paper/Card	-104.1 to -143.0	-181.7 to -311.7	-123.3 to -170.9
Kitchen/ Food Waste	-27.0 to -51.5	-85.7 to -168.0	-40.8 to -75.4
Green Waste	-11.2 to -16.4	-87.7 to -158.7	n/a
Agricultural Crop Waste	9.6 to 16.9	-69.5 to -205.0	n/a
Manure/ Slurry	4.7 to 5.5	-28.9 to -70.3	n/a
Other Organics	17.6 to 38.0	-65.8 to -193.7	-29.7 to -72.3
Wood	-23.2 to -26.2	-255.8 to -558.0	-149.1 to -295.3
Dense Plastic	127.5 to -455.0	163.8 to 561.1	-404.0 to 342.3
Plastic Film	132.1 to -324.1	192.1 to 482.6	-274.9 to 319.3
Textiles	-178.2 to -276.6	-61.2 to 143.6	-138.3 to -361.7
Ferrous Metals	-64.7 to -93.5	n/a	n/a
Non-ferrous Metals	-798.9 to -852.9	n/a	n/a
Silt/Soil	0.6 to 2.3	n/a	n/a
Minerals/Aggregate	0.1 to 0.1	n/a	n/a

Table 1 Net Greenhouse Gas Emissions (kg CO2-eq) per Tonne of Waste Material –Net Impacts over Baseline[4]

It is clear then that a strategic and long-term path for waste management is realised as any short term policies are likely to result in sub-optimal policies in the long term. Perhaps the Government may consider a pathways analysis tool, much like the Department of Energy and Climate Change's 2050 pathways analysis. This long term view will allow Government to know what key decisions need to be made and when these decisions need to be made by to ensure that the UK becomes a 'zero-waste' and 'low-carbon' economy.

SSE also wants to highlight the point that for any waste management system to be truly effective and particularly in the case of AD, the collection and segregation of the waste is vital. Government needs to ensure that waste collection and segregation are particular areas of focus for any new policy and that without focussing on these areas, the government is unlikely to

[4] DEFRA, (2006), Impact of Energy from Waste and Recycling Policy on UK Greenhouse Gas Emissions, produced by E.R.M.

meets its goals of heading towards ‘zero-waste’ and creating a step-change in the volume of AD in England.

The Government must also be careful that any policies are formed using an integrated approach where all relevant issues are considered together. This includes aligning planning, licensing, permitting, incentives, education and awareness raising.

Overall then, SSE recommends that any waste policies are formed strategically and holistically to ensure that the government aims of zero-waste and low-carbon are reached.