Briefing for NGOs & Citizens responding to ROC Banding Consultation

Note: A DECC Consultation on changes to the Renewables Obligation banding (i.e. changes to which types of energy classed as renewable should attract which level of subsidies) has been published and runs until 12th January 2012. it relates to England and Wales only (there is a separate Scottish consultation). The consultation paper can be downloaded from www.decc.gov.uk/en/content/cms/consultations/cons_ro_review/cons_ro_review.aspx . For background information about subsidies for electricity (Renewable Obligation Certificates or ROCs) for bioenergy and waste as well as the proposed changes, see www.biofuelwatch.org.uk/2011/rocs_introduction/ . For a discussion of the impacts of ROCs for bioenergy and waste, see www.biofuelwatch.org.uk/2011/rocs_impacts . Please see these two Biofuelwatch briefings for full references and a more detailed discussion of points raised in this guide.

Introduction and Summary

This briefing paper is intended to assist NGOs and citizens who wish to respond this consultation. The review covers all forms of renewable energy. Our briefing only covers electricity from bioenergy and waste and does not comment on the questions on the other renewable technologies. We hope that our input will be helpful when you formulate your own submission. It has also been written in such a way as to allow you to select certain paragraphs to use directly if you so wish. We will however be producing a standard email alert for the general public and those NGOs who may be able to send a link to this for their supporters to take action.

The introduction to the consultation on DECCs website says: *'The lead banding scenario proposed in this consultation focuses on scalable lower-cost renewable technologies that will deliver the majority of the electricity we need to meet our 2020 targets'*. It is clear after reading the consultation that one low cost technology (which this quote scrupulously avoids) is biomass, which we would argue is not scalable without serious implications for people and planet because of the amount of land required. It should be borne in-mind that this is not surprising, since 82.5% of current renewable energy is provided by bioenergy.

The consultation on Renewable Obligation banding states: *'One of the primary aims of the banding review is to 'contribute to the effective delivery of wider energy and climate change goals to 2050, including Greenhouse Gas (GHG) emissions reductions, decarbonising of the UK grid and energy security'*.

The proposals in the consultation to greatly expand the use of biomass for power generation, far from reducing greenhouse gas emissions will further increase them, whilst not improving energy security. Most of the biomass fuel will have to be imported, requiring millions more hectares of land to be dedicated to energy crops, leading to more deforestation and land-grabbing and thus exacerbating the problems already being caused by the production of transport biofuels.

By 2020, the UK public will be paying in the order of 3 billion a year in subsidies to companies generating electricity from biomass, purportedly to reduce carbon emissions – even though those will in fact be further increased. Biomass & biofuel (referred to as bioliquid in the consultation) electricity will therefore be a wholly unnecessary burden on the UK economy,

reducing our economic competitiveness and driving more people into fuel poverty. It will also, directly and/or indirectly, contribute to more land-grabbing and thus hunger and human rights abuses in countries in the global South.

What are the problems with industrial-scale bioenergy?

- In contrast to other renewables like wind and solar, biofuel and biomass produce carbon from combustion, processing, transport and land use change. Indeed, the upfront carbon emissions from burning biomass are around 50% higher than those from burning coal per unit of energy and that carbon will not be re-absorbed by new trees and other plants for decades or centuries, if ever.
- Unlike other renewables, bioenergy produces significant levels local air pollution affecting health in this country, as well as black carbon (soot) which accelerates polar ice melt.
- Biofuel and biomass are not 'renewable' because they require land to be dedicated for decades to growing energy crops, taking land out of use for growing food.
- The production of biofuels and biomass overseas is associated with human rights abuses, land grabs, rainforest deforestation, malnutrition, soil & water pollution.
- Biomass power generation is an inefficient process. Up to 75% of the energy available in the biomass is wasted as heat.
- The Government proposes a cap on subsidies for bioliquids (liquid biofuels, mainly biofuels). That cap would be equivalent to five 50 MW biofuel power stations. If those were run exclusively on palm oil (by far the cheapest vegetable oil), they would require at least 110,000 hectares of new oil palm plantations. For other types of vegetable oil, even more land would be needed. This will mean more deforestation (directly or indirectly) and more land-grabbing.

ROCs for waste incineration

The consultation proposes to continue making subsidies available for electricity from waste, including waste which is not biomass but derived from fossil fuels. Specifically, it proposes to maintain ROCs for energy from waste with CHP, and waste (as well as biomass) gasification and pyrolysis. There are serious concerns about the impacts of waste incineration (including pyrolysis and gasification) including on air pollution and public health and on recycling and overall resource use. Under the EU's Renewable Energy Directive (RED), waste that is not derived from biomass cannot be classed as renewable energy. The Renewables Obligation is one of the main instruments by which the UK Government intends to meet the European 15% renewable energy target. ROCs for energy from waste is incompatible with the RED and could potentially lead to a legal EU challenge.

What are the key issues with the Consultation?

- The consultation proposes to not reward renewable technologies based on how much carbon they save, let alone how sustainable they are. If it did, biomass, including bioliquids could not be incentivised.
- The consultation highlights that the UK has among the best wind resource in Europe; wind is a free resource. In contrast biofuels & biomass are globally traded commodities that will inflate food and wood prices and be subject to supply constraints.
- DECC recognises that there are many other uses for and demands on biomass and that the overwhelming majority of wood to be burnt in power stations will be imported.
- Even though burning biomass creates 50% more carbon emissions than coal per unit of electricity, the government would like to convert much of our coal power generation to biomass.
- The Committee on Climate Change has advised that there is no place for biomass electricity after 2020 due to high carbon emissions, low conversion efficiency and security of feedstock due to lack of global land.

- The sustainability criteria for liquid biofuels used in power generation omit some of the most serious adverse direct effects and a suggested cap on the use of biofuel electricity could still lead to 110,000 hectares of new oil palm plantations resulting indirectly, if not directly (given the complete lack of auditing of 'sustainability' claims) in up to 110,000 hectares of rainforest destruction and/or land-grabbing.
- DECC recognise that subsidising Anaerobic Digestion could lead to food crops being grown specifically for producing biogas, but they do not propose to address this risk, even though some other countries, such as the Netherlands, have restricted biogas subsidies to certain types of waste only.
- The consultation suggests that cost is the only issue the review needs to consider. It omits to inform the public that when reviewing ROC banding, the Secretary of State must also consider sustainability and carbon emission reduction.
- Waste incineration will be continue to be eligible for ROCs despite the concerns and potential legal problems.

Please find below our position on the consultations question applying to biofuels and biomass which we hope will be of assistance to you when considering your response and submittal on this technologies. It is interesting to note (and we feel is indicative of the complexity and controversy of the feedstock) that of the 78 questions the review raises, 50 apply to these technologies. Compare this to a mere two questions on solar PV or hydro. So many questions might appear quite daunting, but you will see that many answers are the same since the questions are repeated for the various types of combustion and unfortunately the same problems exist for them all. In any case many of the questions can be answered in a brief fashion:

Relevant Questions:

18. ***Do you agree that we should not exempt existing generators from future changes to the UK's sustainability criteria for solid and gaseous biomass? Please explain your response with evidence.***

Not exempting existing generators will not address the issue of sustainability, since the future changes to the UK's sustainability criteria outlined are not fit for purpose. They do not include full lifecycle carbon emissions, Indirect Land Use Change, carbon debt, human rights abuses, land grabs, food security and food sovereignty issues, pesticide issues, virtual water importation, all soil and water issues, most habitat & biodiversity loss. For further evidence on these serious issues that have been omitted from sustainability criteria, please see:

http://www.biofuelwatch.org.uk/wp-content/uploads/ROCS-impacts-briefing.pdf

19. ***Do you consider that the 90% biomass purity threshold is still appropriate? Please explain your response with evidence.***

The 90% figure includes energy or plant matter and the background to this question arises from industry, that some high biomass content material and wastes can still contain small levels of fossil based contaminants which cannot be easily removed. They are therefore seeking to lower 90% level. The review proposes to keep retain the existing level, clearly any reduction would not be large. The 90% biomass purity threshold is not appropriate as biomass is not appropriate to provide ROCs for biomass as it is not sustainable and increases carbon emissions.

20. ***Do you agree with the Arup assessment of costs and deployment potential for biomass conversion? Please explain your response with evidence.***

This question concerns itself with fiscal matters. It is based on economics and takes no account of environmental costs.

21. ***Do you agree that 1 ROC/MWh is an appropriate level of support for biomass conversions? Please explain your response with evidence.***

We do not agree any ROCs are appropriate for biomass conversions. Biomass power stations produce 50% more carbon emissions than coal power stations. DECC claim: '*Co-firing is effective in abating carbon emissions from coal plant and is a cost-effective source of large-scale renewable electricity*.', DECC ignore stack emissions as they consider those emissions from biomass to be carbon neutral. DECC recognize that there are emissions associated with transport, processing and land use change but that is an underestimate of full lifecycle emissions. Regarding Indirect Land Use Change, the consultation says: '*We also intend to consider how any proposals to address indirect land use change (ILUC), currently being considered by the European Commission for biofuels and bioliquids, could apply to biomass and biogas.*' This is meaningless as the EC had by the time the consultation was published already decided not to address Indirect Land Use Change emissions at all for at least seven years. There is no mention of the considerable carbon debt which is decades or even centuries. The Committee on Climate Change (CCC) said in their Renewable Energy Strategy earlier this year that they saw no place for biomass electricity only power generation after 2020. They cited concerns over tight limits on land due to increased demand to feed a growing population and questions over the life-cycle emissions associated with biomass production. Furthermore, regarding contributions to Renewable Energy Directive (RED) 2020 targets, CCC advised that biomass would be better used for heat and expressed concern over relying on biomass long term, especially without Carbon Capture and Storage (CCS) – they acknowledge uncertainties over CCS viability.

Unsustainable demand for wood and wood-products – together with demand for land for monocultures - is already a key driver behind the destruction of forests worldwide (tinyurl.com/3mwbt5l). In this context, the creation of another vast market for wood, this time for bioenergy, can only accelerate deforestation and forest degradation. The global wood bioenergy market is still in the very early stages, though growing rapidly as a result of subsidies across Europe and North America. The impacts of this demand are likely to be very similar to those which result from the unsustainable demand for paper, particularly since both bioenergy and pulp and paper companies can use fast-growing, 'low quality' wood, albeit plans are to grow trees on even shorter rotations for bioenergy than for paper. Millions of hectares of forests, in Sumatra, Tasmania, Brazil and many other countries, have been 'pulped' and turned into plantations for paper. A recent article published in the scientific journal *Nature* confirms that tree plantations are one of the reasons for the destruction of tropical forests "with potentially dire consequences for tropical biodiversity"(tinyurl.com/3n2lxll). There are no reasons to expect the impacts of a large new wood demand for bioenergy to be any different. Not only tropical forests, but also boreal and temperate forests are being targeted for ever more intense and destructive logging and for conversion to plantations. It is estimated that deforestation is responsible for 25-30% of greenhouse gas emissions worldwide (tinyurl.com/3vbuqou).

Studies have shown that even if forests were not destroyed for bioenergy and if, instead, every tree felled was replaced by a new one – a highly unrealistic assumption – burning wood in power stations nonetheless leads to a 'carbon debt' of decades or centuries (e.g. tinyurl.com/3x25bcg and tinyurl.com/35lb35e), making global warming worse exactly during at a time when CO2 emissions must be brought down as fast as possible. Biomass power stations are particularly inefficient and CO2 smokestack emissions tend to be around 50% higher per unit of electricity produced than those from coal burning (tinyurl.com/3xsvxb2).

Biomass combustion causes similar levels of air pollution as coal burning – though even higher levels of small particulates and nitrogen oxides (with the Government already expecting to fail to implement EU legal limits for NO2 in 40 areas by 2015).

According to a report commissioned by the previous government biomass expansion could by 2020 lead to 1 ¾ million live years being lost just from additional small particulates. The Committee on Climate Change has advised that there is no place for biomass for electricity after 2020 due to carbon emissions, plant efficiency and security of feedstock due to lack of global land.

Biomass combustion raises nitrogen and ammonia levels that have an adverse affect on local marine ecosystems.

23. *Do you agree that all former fossil fuel generating stations which convert their entire generation to biomass before April 2013 should be transferred to the biomass conversion band? Please explain your response with evidence.*

No, for the reasons outlined above. To reiterate just one point, this would lead to more carbon emissions than if they were to remain fossil fuel generators. Such an act would also lead to all the other adverse sustainability issues outlined above. See same evidence.

24. *Do you agree that support under the biomass conversion band should be grandfathered at the rate set from 1st April 2013? Please explain your response with evidence.*

Biomass conversion should not be grandfathered for the reasons outlined above as this not only guarantees revenue for generators but also ensures continuation of environmental and social abuses.

25. *We would welcome evidence on the differential in generation costs, the costs of making biomass conversion economically viable for industrial auto-generators, and deployment potential for auto-generating coal to biomass conversion.*

Such a question takes no account of environmental costs.

26. *Do you agree with the Arup assessment of costs for enhanced co-firing? Please explain your response with evidence.*

Such a question takes no account of environmental costs. When reviewing ROC banding, the Secretary of State must also consider sustainability and carbon emission reduction.

27. *Do you agree that 1 ROC/MWh is an appropriate level of support for enhanced co-firing? Please explain your response with evidence.*

No. We are calling for no ROCs for enhanced co-firing for the reasons and evidence already submitted. This represents a doubling of the previous incentive.

28. *Do you agree that generating stations should generate at least 15% of their electricity from biomass in order to qualify for the enhanced co-firing band? Please explain your response with evidence.*

No. We are calling for no ROCs for enhanced co-firing for the reasons and evidence already submitted. This intention openly encourages generators to use a feedstock that not only produces more direct carbon emissions than coal but has a myriad number of undesirable consequences. The consultation professes: *'we would very much like to see the full conversion of existing coal plants to biomass.'*

29. *Do you agree that generators should meet this minimum 15% threshold on a monthly averaged basis? Please explain your response with evidence.*

No, for the same reasons as above.

30. *Do you agree that support under the enhanced co-firing band should be grandfathered? Please explain your response with evidence.*

Enhanced co-firing should not be grandfathered for the previously outlined reasons as this not only guarantees revenue for generators but also ensures continuation of environmental and social abuses.

31. *Do you agree with the Arup assessment of costs and generating potential for standard co-firing of biomass? Please explain your response with evidence.*

This question concerns itself with fiscal matters. It is based on economics and takes no account of environmental costs. When reviewing ROC banding, the Secretary of State must also consider sustainability and carbon emission reduction.

32. *Do you agree with the proposed level of support of 0.5 ROCs/MWh for standard co-firing of biomass? Please explain your response with evidence.*

No. We are calling for no ROCs for standard co-firing of biomass for the reasons and evidence already submitted.

33. Do you agree that standard co-firing of biomass should continue not to be grandfathered? Please explain your response with evidence.

Enhanced co-firing should not be grandfathered for the previously outlined as this not only guarantees revenue for generators but also ensures continuation of environmental and social abuses.

34. *Do you agree with the Arup assessment of costs and deployment potential for dedicated biomass? Please explain your response with evidence.*

This question concerns itself with fiscal matters. It is based on economics and takes no account of environmental costs. When reviewing ROC banding, the Secretary of State must also consider sustainability and carbon emission reduction.

35. *Do you agree with the biomass fuel price assumptions for domestic and imported fuel from AEA, and the use of a 10:90 domestic to imported ratio for average fuel costs for large (>50MW) dedicated biomass and 90:10 for small (<50MW) dedicated biomass based on the Arup report? Please explain your response with evidence.*

Once again, this question concerns itself with fiscal matters. It is based on economics and takes no account of environmental costs. When reviewing ROC banding, the Secretary of State must also consider sustainability and carbon emission reduction. The consultation alludes to the reality of where deforestation will occur: *'As supply chains for biomass are well developed in North and South America and Europe, we expect that the overwhelming majority of fuels for the expansion of biomass electricity will be imported. Discussions with industry indicate that this is already happening'*. And, '*We recognise the need to encourage deployment of both the larger, more cost effective generators as well as the smaller, more localised, bioenergy plants. Larger biomass plants are limited by the need for either a port location or a significant transport infrastructure for their biomass fuel'*.

It is wholly evident that existing 'larger' biomass powers stations and those in the planning system are indeed adjacent to ports to accommodate imported timber. Is this question suggesting that 90% of the feedstock for domestic electricity generation will come from overseas because it is cheaper than UKL timber? This is borne out by the experience of European countries that import palm oil for energy generation as it is the cheapest feedstock. If this is indeed the inference then it is somewhat nefarious given that the UK already imports the UK currently produce less than 9 million tonnes of timber and 60 million tonnes of timber is required to satisfy the 42 biomass power station currently in the planning system. A factor of 6.5 times the UK availability. It is interesting to note that only 4% of that supply is currently used for generating electricity. 96% has other uses. In 2009 the Forestry Commission proposed that the UK should plant an additional 1 million hectares of woodland by 2050 to improve carbon sequestration and to provide biomass. The Committee on Climate Change are proposing to use between 100m and 700 million hectares of land in other countries to satisfy UK renewable energy requirements using biomass and biofuels.

As context, total UK land area is 25 million hectares of which 12% is woodland, approximately 40% is agriculture and an insignificant proportion is devoted to Energy Crops. So should question 35 actually be about the availability of land and where this land is and how this affects social justice (eg land grabs) and biodiversity and habitat loss? It is perhaps salutary to rember the mass outcry earlier this year when the UKs forest were going to be sold off.

36. *Do you agree with the proposed level of support of 1.5 ROCs/MWh for dedicated biomass until 31 March 2016, reducing to 1.4 ROCs/MWh from 1 April 2016 ? Please explain your response with evidence.*

No. We are calling for no ROCs for dedicated biomass for the reasons and evidence already submitted.

37. *Do you agree that the support level proposed for dedicated biomass manages the risk of locking supplies of feedstock in to this sector? Please explain your response with evidence.*

Throughout the consultation references are made to creating a supply chain eg: It suggests that co-firing 'helps build the global biomass supply chain which still represents a barrier to investment in large-scale biomass electricity'. So one hand we seem to be being told that expanding a market will build a supply chain (or put another way, deforestation) but this question appears to be asking if the taxpayers subsidy is sufficiently high to allow generators to compete in the globalised free-market to outbid other timber uses (eg panel industry, paper & pulp, construction, etc) to 'lock-in' their supply. The consultation also recognises that there indeed other users of the worlds forests.

38. *Do you agree with the Arup assessment of generation costs and deployment potential of bioliquids, and the bioliquid fuel prices as set out in the Impact Assessment? Please explain your response with evidence.*

This question concerns itself with fiscal matters. It is based on economics and takes no account of environmental costs. When reviewing ROC banding, the Secretary of State must also consider sustainability and carbon emission reduction. This is the first mention of an Impact Assessment Does this include the impacts highlighted in this paper:

http://www.biofuelwatch.org.uk/wp-content/uploads/ROCS-impacts-briefing.pdf

39. *Do you agree that support for bioliquids should be the same as for solid and gaseous biomass under the dedicated biomass, biomass conversion, enhanced co-firing and standard co-firing bands? Please explain your response with evidence.*

No. We are calling for no ROCs for bioliquids as well as the various biomass. Virtually all current biofuels have been shown to be worse for the climate than the fossil fuels they replace if all direct and indirect impacts are considered. Palm oil is by far the cheapest type of biofuel that can be burned for heat and power and that is widely available. According to a 2007 report by the UN Environment Programme, palm oil is the main cause of permanent forest loss in Indonesia and Malaysia (tinyurl.com/3uexbdk). It is also increasingly a driver of deforestation in many other countries, including the Philippines, Papua New Guinea, Cameroon, Uganda, Benin and Mexico. Emissions associated with palm oil biofuels can be even higher than those from tropical deforestation in general: Particularly in Indonesia and Malaysia, a high proportion of new oil palm plantation is on peatlands. One study found that CO2 emissions from peat fires in 2006 Indonesia alone were 900 million tonnes (tinyurl.com/y8ko6jk) – far more than the UK's annual greenhouse gas emissions.

Even burning European rapeseed oil has been shown to be worse for the climate than burning mineral oil, due to emissions linked to fertiliser use and indirect land use change are considered (tinyurl.com/42l7a5a). Used cooking oil and some types of residues, such as tall oil, are often considered to be the most 'climate friendly' biofuels, however both are in very short supply and are already in high demand, for example for transport biofuels in the case of used cooking oil and by the chemical industry in the case of tall oil. Burning them in power stations will simply cause more palm oil or fossil fuels to be used elsewhere.

Bioliquids also have an adverse affect on the issues listed in answer 18 and once again we present our impacts briefing as evidence.

41. *Do you agree that a cap should be put in place on the amount of electricity generated from bioliquid that suppliers can use to meet their renewables obligation? Please explain your response with evidence.*

No as we are calling for no ROCs for bioliquids bands for the reasons and evidence already submitted.

42. *Do you agree with the level of the cap being set at 4% of each supplier's renewables obligation, broadly equivalent to a maximum level of generation of 2TWh/y in 2017? Please explain your response with evidence.*

No as we are calling for no ROCs for bioliquids bands for the reasons and evidence already submitted. Also, the consultation refers to sustainability: 'It is important that the RO does not incentivise a high level of bioliquid deployment that reduces the availability of bioliquids for use in other sectors, or on sustainability. To reduce the risk of creating these effects we are proposing to apply a cap on the number of bioliquid ROCs that an electricity supplier can use to meet their obligation. The proposed level of the cap is broadly based on the amount of electricity that can be generated from estimates of available sustainable bioliquid without impacting on heat and transport. We have adopted a cautious approach, in setting the cap at a low level, to take into account uncertainties in the data. We propose that suppliers may meet up to 4% of their annual renewables obligation within this banding review period using bioliquid ROCs. This should broadly equate to an overall cap of 2TWh/y in 2017'. This all sounds rather vague but clearly DECC has concerns over the amount of sustainable bioliquds available. To put 4% into context, this would amount to five powers stations the size of W4B plant in Avonmouth, Bristol. W4B have delayed construction until this consultation has set the ROC banding for bioliquids as this may affect the project viability and profitability. 4% equates to 450,000 tonnes of biodiesel, which is equivalent to adding 450,000 polluting diesel cars to adversely affect our air quality; 110,000 hectares of rainforest destruction if palm is used and more land if other feedstocks; ten times the amount of palm oil currently used for transport biofuels; represents the use of enough land to feed 562,500 UK citizens on an average diet.

43. *Do you agree that from 1 April 2013, bioliquids should be treated in the same way as solid and gaseous biomass for the purposes of our grandfathering policy? Please explain your response with evidence.*

Bioliquids should not be grandfathered for the previously outlined reasons as this not only guarantees revenue for generators but also ensures continuation of environmental and social abuses.

44. *Do you agree with the Arup analysis on costs and potential on EfW with CHP, including the estimates of gate fees used? Please explain your response with evidence.*

This question concerns itself with fiscal matters. It is based on economics and takes no account of environmental costs. When reviewing ROC banding, the Secretary of State must also consider sustainability and carbon emission reduction.

45. *Do you agree that 0.5 ROCS is an appropriate support level for EfW with CHP? Please explain your response with evidence. We would particularly welcome evidence relating to levels of gate fees received by generators and additional capital costs relating to heat offtake.*

No, since there are serious concern that this sector should even be in this public consultation. Under the EU's Renewable Energy Directive (RED), waste that is not derived from biomass cannot be classed as renewable energy. The Renewables Obligation is one of the main instruments by which the UK Government intends to meet the European 15% renewable energy target. ROCs for energy from waste is incompatible with the RED and could potentially lead to a legal EU challenge.

No as we are calling for no ROCs for EfW with CHP as incineration adversely affects air quality, the climate and is not an efficient use of resources:

Waste incineration emits hundreds of different chemicals, many of them toxic and many of unknown composition (tinyurl.com/6x2vyvx). Those include, amongst others, small particulates, dioxins and other halogenated organic compounds, mercury, heavy metals and nitrogen oxides. Some of them, such as dioxins and mercury, remain in the environment for a long time, accumulate over time and are toxic even in very low doses. Health impacts of

dioxins include cancer, birth defects, immune system damage, behavioural disorders, IQ deficits and disruption of normal hormone production. Mercury is a powerful neurotoxins, which means it attacks the central nervous system, as well as heart, kidney and lungs. Like many other toxins, it is particularly harmful to young children and to unborn babies.

Waste incineration produces black carbon – please see previous comments on this.

The RO only covers EfW with CHP and considers it 'a highly efficient renewable technology that offers significant carbon savings.' which is questionable as we reduce waste and there other uses for it. Incinerators tend to be built with PFI funding so developers enjoy two taxpayers subsidies.

The energy generated by incinerating waste is a small proportion of that which would be saved by recycling and reducing the same materials (tinyurl.com/275hqmm). For example, recycling paper saves over 9 times as much energy than incinerating it, recycling plastics saves 3 times more and reducing computer waste saves 1,700 times as much. Waste incineration in the UK and elsewhere in the world discourages reusing, recycling and, where appropriate, composting materials, whether fossil-fuel based plastics, or organic waste, including paper (tinyurl.com/6d9zso5). It thus encourages more overconsumption of natural resources, such as wood and fossil fuels and thus contributes to ecosystem degradation and destruction.

46. In addition to municipal solid waste, do you consider that there are any other types of wastes which could benefit from provisions deeming their biomass content or benefit from more flexible fuel measurement and sampling procedures? If so, please specify and provide evidence on how we might determine accurately the renewable content of these wastes.

No as we are unaware of any wastes (not already) identified in the consultation that does not adversely affect air quality, or climate change when incinerated.

47. *Do you agree with the Arup analysis on costs and potential on AD and AD with CHP, including the estimates of gate fees used? Please explain your response with evidence.*

This question concerns itself with fiscal matters. It is based on economics and takes no account of environmental costs. When reviewing ROC banding, the Secretary of State must also consider sustainability and carbon emission reduction.

48. *Do you agree with the proposed level of 2 ROCs/MWh for Anaerobic Digestion, stepping down to 1.9 ROCs in 2015/16 and 1.8 ROCs in 2016/17? Please explain your response with evidence.*

Most people in the UK associate biogas with energy from food waste. The consultation also refer to, sewage, slurries as well as food waste. When organic waste rots in landfill it emits methane, which is more than 20 times as powerful a greenhouse gas as carbon dioxide when calculated over a century. Turning such waste into biogas rather than putting it into landfill is clearly beneficial for the climate, provided that biogas does not compete with composting and thus lead to more synthetic fertilisers being used.

What the experience with biogas in Germany has shown, however, is that generous subsidies for biogas that do not discriminate between biogas from waste and biogas from whole crops, especially maize, result in large-scale land conversion and create the same food versus fuel conflict as biofuels. In Germany, even carbon-rich moorlands and nature reserves are being ploughed up and turned into maize monocultures and then cultivated with fertilisers which result in high emissions of nitrous oxide, a greenhouse gas some 300 times as powerful as CO2 – all of that to feed the country's 6,000 biogas digesters. The direct and indirect climate impacts of maize biogas are thus likely to be very negative (tinyurl.com/3g2o482).

The consultation is aware of this sort of threat: 'If evidence shows large-scale use of crops in AD and a resulting change in land used, we will consider measures to exclude from RO support the large scale use of crops in AD. We are exploring how such a mechanism could work in

practice.' Biogas feedstock is not globally traded but tends to be far more local than that for biofuels and biomass. Nonetheless, large-scale biogas production from whole crops such as maize will cause the same food- versus-fuel competition and is likely to further push up food prices in the same way as is the case for European and US biofuel production from corn and wheat.

Given these concerns, we are against any ROCs for biogas that is made from crops.

Biogas made from sewage, slurries and true food waste seems sensible but this may well be better used from the point of view of efficiency for transport (an issue raised over bioliquids in the consultation) or piped into the mains gas infrastructure for heating.

49. *Do you agree with the proposal to replace the standard and advanced pyrolysis and gasification bands with two new ACT bands? Please explain your response with evidence.*

No. Advanced conversion technologies (ACT) treat waste and biomass fuel to produce syngas and/or liquid fuels which can be used to generate electricity. There is no evidence that gasification and pyrolysis are any more efficient than conventional mass burn waste incineration. To the contrary, according to a report by the UK's Fichtner Consultant Engineers, both are even less efficient than mass burn incineration (tinyurl.com/6d9zso5). And a study commissioned by the German government shows that small-scale gasification for electricity has been developed for over 30 years, but that virtually all projects have faced serious technical problems as well as having very low efficiency (tinyurl.com/36ywgl7).

We are calling for no ROCs for ACT since gasification and pyrolysis emits hundreds of different chemicals, many of them toxic and many of unknown composition (tinyurl.com/6x2vyvx).

50. *Do you agree with the eligibility criteria for the new standard ACT and advanced ACT bands? Please explain your response with evidence.*

No, please see above.

51. *Do you agree with the proposed levels of support for the new standard ACT and advanced ACT bands? Please provide evidence on the relevant technology capital and operating costs (including levels of gate fees) to support your comments).*

No, please see above.

53. *We would welcome information on the nature and scale of actual or potential air emissions produced in the generation of electricity from pyrolysis oil.*

It is a cause for concern that this consultation proposes to subsidize an technology with customers money, when asking the public: *'There is limited evidence available on the likely air emissions that may result in using pyrolysis oil for electricity generation. We therefore invite information about the nature and scale of actual or potential air emissions produced in the generation of electricity from pyrolysis oil'*. This question suggests that DECC are also concerned about air quality issues. Why in that case are they not concerned about air quality (AQ) from combustion of biomass, bioliquids, waste & AD of food crops? Why are there no similar question to (53) in the relevant sub-sections? Please see our evidence supplied above regarding adverse affects of pyrolysis on AQ.

60. *Do you agree with the Arup assessment of generation costs and deployment potentials for CHP technologies, and with the fuel prices used in the analysis? Please explain your response with evidence.*

This question concerns itself with fiscal matters. It is based on economics and takes no account of environmental costs. When reviewing ROC banding, the Secretary of State must also consider sustainability and carbon emission reduction.

61. *Do you agree that 2 ROCs/MWh is an appropriate level of support for dedicated biomass with CHP? Please explain your response with evidence.*

No, as we are calling for no ROCs for dedicated biomass with CHP for the reasons and evidence already submitted.

62. ***Do you agree that 2 ROCs/MWh is an appropriate level of support for dedicated energy crops with CHP? Please explain your response with evidence.***

No, as we are calling for no ROCs for dedicated energy crops with CHP for the reasons and evidence already submitted.

63. ***Do you agree that 1 ROC/MWh is an appropriate level of support for standard co-firing of biomass with CHP? Please explain your response with evidence.***

No, as we are calling for no ROCs for standard co-firing of biomass with CHP for the reasons and evidence already submitted.

64. ***Do you agree in principle that 1.5 ROCs/MWh is an appropriate level of support for standard co-firing of energy crops with CHP? It would be helpful if you could provide evidence on costs and deployment potential to inform our decision.***

No, as we are calling for no ROCs for standard co-firing of energy crops with CHP for the reasons and evidence already submitted.

65. ***Do you agree with the arrangements for transition from the CHP uplift to RHI support as set out in this chapter (i.e. no RHI for projects accrediting under the RO; one-off choice between RHI and CHP uplift for projects accrediting between April 2013 and March 2015; no CHP uplift for projects accrediting after that date, unless the RHI is unavailable for that technology on 1 April 2015)? Please explain your response with evidence.***

No, as we are calling for no ROCs for standard co-firing of biomass with CHP for the reasons and evidence already submitted.

66. ***Do you agree that we should adopt a policy of grandfathering the CHP uplift for eligible projects from 1 April 2013? Please explain your response with evidence.***

The CHP uplift should not be grandfathered for the previously outlined reasons as this not only guarantees revenue for generators but also ensures continuation of environmental and social abuses.

67. ***Do you agree in principle that we should consider extending the CHP uplift to the new biomass conversion and enhanced co-firing bands until 31 March 2015? It would be helpful if you could provide evidence on costs and deployment potential to inform our decision.***

No, as we are calling for no ROCs for CHP uplift on all biomass for the reasons and evidence already submitted.

68. ***Do you consider it would be appropriate to introduce a CHP uplift into the RO for ACTs? If so, please provide evidence on capital and operating costs of plant operating in CHP mode, together with likely deployment potential between now and 2020 and, if possible, 2030?***

No, as we are calling for no ROCs for CHP uplift on ACT for the reasons and evidence already submitted.

69. ***Do you agree that we should narrow the definition of energy crops to limit its scope to only the short rotation coppice and perennial grass species as described above? Please explain your response with evidence.***

Narrowing the definition is welcomed as it previously included for example, eucalyptus monocultures or palm oil from oil palm plantations that had been planted on previously rainforested peatlands. However it is not narrow enough as it is still combustion of biomass that has an adverse affect on AQ, climate change (carbon & black carbon emissions) and an acceleration of monocultures of short rotation coppice might well replace natural grassland and other ecosystems in the UK. There is also an issue with these plantations being water-

intensive. When additional UK land is turned over to energy crops this will create the same conflict and displacement issues as existing energy crops between food and fuel. The result can be food insecurity or more deforestation in for example the tropics to grow food.

70. ***Do you agree that we should grandfather the energy crop uplift from 1 April 2013, but only for those crops meeting the new definition? Please explain your response with evidence.***

Energy crops should not be grandfathered for the previously outlined reasons as this not only guarantees revenue for generators but also ensures continuation of environmental and social abuses.

71. ***Do you agree with the proposed level of 2 ROCs/MWh for dedicated energy crops, stepping down to 1.9 ROCs in 2015/16 and 1.8 ROCs in 2016/17? Please explain your response with evidence.***

No, as we are calling for no ROCs for energy crops for the reasons and evidence already submitted.

72. ***Do you agree with the proposed level of 1 ROC/MWh for standard co-firing of energy crops? Please provide evidence on costs and deployment potential.***

No, as we are calling for no ROCs for standard co-firing of energy crops for the reasons and evidence already submitted.

73. ***Do you consider that we should extend the energy crop uplift to the new biomass conversion and enhanced co-firing bands? It would be helpful if you could provide evidence on costs and deployment potential to inform our decision.***

No, as we are calling for no ROCs for energy crops, biomass conversion and enhanced co-firing for the reasons and evidence already submitted. The latter two represent a staggering amount of biomass feedstock and the government would like to convert all coal to biomass. If the uplift were actually increased how many additional hectares of UK or foreign land would be conveted to energy crop monocultures so that generators could reap a higher reward for burning it in power stations?

74. ***Do you agree that the co-firing cap should be removed completely from 1 April 2013? Please explain your response with evidence.***

No as this only exacerbate all the myriad problems we have raised. Co-firing 15% or more biomass with coal (called 'enhanced co-firing') will attract double those subsidies. This is to encourage larger coal power stations to partly switch to biomass. So far, ROCs could only be claimed for co-firing up to 12.5% biomass with coal and that cap will be removed. 15% is not an unappreciable amount of biomass. Drax currently co-fires 222 MW of electricity, which is approximately 6% of generation, which equates to 1.1 million tonnes of biomass. It is clearly profitable to increase this mix from 6% to beyond 15%. Drax intend to convert 4 GW of coal to biomass and with the likes of Eon have joined forces with the REA in their Back Biomass to lobby DECC to increase subsidies for co-firing.

Current proposals are likely to result in much more co-firing of biomass with coal, which is additional to the burgeoning biomass electricity power station sector and dedicated biomass combustion. This is increased demand for wood is still further compounded by full conversion from coal to biomass. This year RWE was granted permission to convert its 1,131 MW (1.1 GW) coal power station at Tilbury to a 750 MW 100% biomass power station. This will be far larger than any existing biomass power station worldwide and will burn an estimated 750 million tonnes of biomass, mainly imported wood, a year.

75. ***If you think that the cap should be increased (i.e. to allow more co-firing) or restricted to standard co-firing of biomass, please state what an appropriate level for the cap would be and why? Please support your response with evidence.***

The cap should be restricted to zero percent so that there is no incentive to co-fire for the reasons and evidence already submitted.

78. In addition to the specific questions asked throughout this consultation document, do you have any other comments on any aspect of our proposals? In each case, please explain your response with evidence.

The Ministerial Foreword by Chris Huhne makes the role of biomass clear: '*maximise deployment of the cheapest renewable technologies, such as coal-to-biomass conversions and co-firing*.' One of the primary aims of the banding review is to '*contribute to the effective delivery of wider energy and climate change goals to 2050, including Greenhouse Gas (GHG) emissions reductions, decarbonising of the UK grid and energy security'*. We are later told that '*Before making any changes to those banding provisions, the Secretary of State is legally required to have regard to a number of matters. These are set out in primary legislation - Section 32D(4) of the Electricity Act 1989 (as amended by the Energy Act 2008) In summary this implies that any issues to consider are confined to likes of costs, income, the long term growth, and economic viability.'* In other words, only economic factors have been considered, not sustainability or carbon emissions. However, paragraph 2.8, of the Renewable Obligation Banding Review Process, published in March 2010 says: '*In setting the bands, the Secretary of State will need to have regard to the primary legislation*'. This states that '*before making any banding provision, the relevant minister must have regard to the following matters) wider strategic issues, such as sustainability, carbon emission reduction, cost effectiveness and Government strategies for waste management and biomass.'*

Furthermore, the consultation says: '*The UK Renewable Energy Roadmap sets out our approach to unlocking UK renewable energy potential and focuses on the technologies that have either the greatest potential to help the UK meet the 2020 renewables t*arget in a cost effective and sustainable way, or offer great potential for the decades that follow'. Biofuels and biomass are not sustainable.

The Committee on Climate Change see no place for biomass after 2020. The consultation says they '*have considered the availability of sustainably-sourced fuels where relevant.. The Government is developing a UK Bio-energy Strategy which will aim to set out our strategic framework for the use of bio-energy, based on our assessment of sustainable feedstock supply, demand across the bio-economy, and the economic and CO2 impacts of the alternative uses. The strategy is expected to be published around the turn of the year.'*

The consultation seems somewhat premature given that this report has not been published.

The consultation seems to somewhat prejudicial in favour of biomass based on economic rather than sustainability grounds. The Renewable Energy Agencys Back Biomass Campaign, (which coincides with the ROC Banding public consultation and actively promotes increasing ROCs for bioenergy) in conjunction with Drax and Eon was launched with UK Energy Minster, Charles Hendry who said: "*We want a balanced energy portfolio and we want biomass to play a central role in this," Hendry said. "Biomass electricity is both predictable and controllable and I am very interested in the potential for co-firing and conversion. I am confident that the bioenergy industry can deliver our ambition for around 6GW of biomass electricity by 2020, as set out in our renewables roadmap. The UK industry has been at the forefront in ensuring biomass electricity is sustainable and that it delivers real greenhouse gas savings," Hendry said. "The very clear sustainability criteria we now have in place will mean we know where biomass has come from and how it has been grown."*

The consultation clearly does not deal with sustainability or carbon emissions as Renewables Obligation Banding Review Process published by DECC in March 2010 makes clear. There was only one rather leading question on sustainability within the 78 questions. There was no request for evidence on these topics.

There is no discussion of the adverse affects the RO will have on local air quality and ecosystems.

The Parliamentary scrutiny process should take all the above omissions into account when voting to pass the review.