Title: Sustainability requirements for solid and gaseous biomass in the Renewable Heat Incentive	**Impact Assessment (IA)**
IA No: DECC0094	**Date:** 13/07/2012
	Stage: Consultation
Lead department or agency: DECC	**Source of intervention:** Domestic
	Type of measure: Secondary legislation
Other departments or agencies:	**Contact for enquiries:** Alan Scarlett – 0300 068 5118/ Danny Newport - 0300 068 6023

Summary: Intervention and Options

RPC: RPC Opinion Status

Cost of Preferred (or more likely) Option				
Total Net Present Value	**Business Net Present Value**	**Net cost to business per year** (EANCB in 2009 prices)	**In scope of One-In, One-Out?**	**Measure qualifies as**
£71m	£m	£m	No	N/A

What is the problem under consideration? Why is government intervention necessary?

Without mandatory sustainability criteria for biomass to ensure the lifecycle greenhouse gas (GHG) emissions are below a defined level, the RHI could potentially be subsidising inefficient, unsustainable biomass that isn't renewable and delivers little or no carbon savings relative to heat from fossil fuels. Introducing sustainability criteria in the RHI will help ensure that the RHI is meeting its objectives and is good value for money as a Government policy. The levels in this consultation also seek to provide a clear and uniform methodology for biomass sustainability across the UK policy landscape, introducing consistency of approach with the Renewables Obligation and EU.

What are the policy objectives and the intended effects?

The introduction of sustainability criteria in this area primarily aims to ensure the lifecycle GHG emissions of biomass are acceptable and to prevent adverse land use change such as deforestation, thus ensuring biodiversity and other environmental impacts are protected. Other important objectives are to ensure industry is given the certainty over investment conditions they need in order to meet the 2020 renewable energy targets, and to deliver the security of supply and benefits that these imply. The UK also aims to ensure that indirect adverse impacts are minimised – for example on global food supplies and indirect land use change.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

The options considered are (i) do nothing (ii) implement GHG savings criteria requiring a reduction of GHG emissions of 60% from the EU Heat Comparator. Not introducing sustainability standards for solid biomass risks heat users using feedstocks from unsustainable sources that deliver little or no GHG savings on a life-cycle basis and could sometimes lead to higher emissions. A lack of strict standards for sustainable biomass also has the potential to lead to destructive impacts on land use through deforestation or destruction of other carbon sinks. In addition, Introducing mandatory solid biomass and biogas sustainability criteria would provide consistency across the UK's renewable energy policy.

Will the policy be reviewed? It will be reviewed. **If applicable, set review date:** Month / Year

Does implementation go beyond minimum EU requirements?			**Yes**		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	**Micro Yes**	**< 20 Yes**	**Small Yes**	**Medium Yes**	**Large Yes**
What is the CO2 equivalent change in greenhouse gas emissions? (Million tonnes CO2 equivalent)			**Traded: -0.1**	**Non-traded: 0.3**	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister: Gregory Barker Date: 29 June 2012

Summary: Analysis & Evidence — Policy Option 1

Description:

FULL ECONOMIC ASSESSMENT

Price Base Year 2012	PV Base Year 2012	Time Period Years 8	Net Benefit (Present Value (PV))		
			Low: £12m	**High: £86m**	**Best Estimate: £70m**

COSTS (£m)	**Total Transition** (Constant Price) Years	**Average Annual** (excl. Transition) (Constant Price)	**Total Cost** (Present Value)
Low		Optional	**-£1m**
High		Optional	**£79m**
Best Estimate			**£54m**

Description and scale of key monetised costs by 'main affected groups'

Sustainability standards could reduce the amount of biomass in heat generation taken up in the RHI, which would have to be replaced by other technologies to meet the RES 2020 target. Costs relate to resource costs of renewable generation. Costs include estimated administration costs on biomass suppliers and operators.

Other key non-monetised costs by 'main affected groups'

Each increase in the cost of biomass leads to a decrease in the overall level of renewable heat taken up in the RHI. If we were to assume that this reduction in deployment were replaced by offshore wind in order for the UK to meet its renewables target, this would increase the costs of each policy considerably.

BENEFITS (£m)	**Total Transition** (Constant Price) Years	**Average Annual** (excl. Transition) (Constant Price)	**Total Benefit** (Present Value)
Low		£1.6m	**£13m**
High		£0.9m	**£7m**
Best Estimate		£2m	**£16m**

Description and scale of key monetised benefits by 'main affected groups'

The key benefit is higher GHG savings as a result of lower lifecycle emissions from biomass, which are estimated on a lifecycle basis.

Other key non-monetised benefits by 'main affected groups'

There could be other benefits such as preservation of biodiversity, water and soil quality gains, nature protected areas and areas of high carbon stock. These are indirect impacts which are not possible to quantify. There could be indirect land use changes and associated impacts on GHG emissions which are currently not known.

Key assumptions/sensitivities/risks **Discount rate (%)**

The key assumptions are the lifecycle analysis of the greenhouse gas emissions from biomass, and the impact of mandatory sustainability criteria on the price of biomass. Other assumptions relate to the price of carbon, and the impact of reduced take-up of biomass heating technologies on the rest of the renewable heat market.
This IA highlights uncertainty in these areas and requests evidence where appropriate to help develop final policy appraisal.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs:	**Benefits:**	**Net:**	No	N/A

Evidence Base (for summary sheets)

Problem Under Consideration

1. The UK announced the launch of a Renewable Heat Incentive (RHI) on 10 March 2011, aimed at stimulating the market for renewable heat, including solid biomass, in the UK. However, there are currently no mandatory sustainability criteria for solid biomass used in heat generated under the RHI. The EU has left the introduction of sustainability criteria for solid biomass to the discretion of each member state, with the EU only giving recommendations for potential criteria as outlined in their 25th February 2011 report[1]. The lack of certainty over future sustainability standards creates risk for industry in sourcing fuel supplies and limits the release of the necessary debt finance to develop biomass technologies needed for the UK to meet the 2020 renewable energy target.

Rationale for Intervention

2. The rationale for intervention relates to the fact that the RHI offers subsidies for biomass. The primary objective of the RHI is to help to facilitate the heat sector's contribution towards the Government's legally binding target of supplying 15% of total energy consumption from renewable sources by 2020. In addition, the RHI is aimed to deliver significant reductions in carbon emissions, helping to mitigate the damaging effects of global warming. The RHI subsidises biomass and biofuels in a number of forms, including biomass boilers, biogas and biomass used in district heat networks.

3. Without mandatory sustainability criteria for biomass to ensure the lifecycle greenhouse gas (GHG) emissions are below a defined level, the RHI could potentially be subsidising inefficient, unsustainable biomass that isn't renewable and delivers little or no carbon savings relative to heat from fossil fuels. Introducing sustainability criteria in the RHI will help ensure that the RHI is meeting its objectives and is good value for money as a Government policy.

4. Mandatory sustainable biomass criteria have been in place in the electricity generation sector since April 2011[2], the introduction of sustainability criteria in the heat sector provides the opportunity to make policy consistent across different sectors, in order to ensure stability and confidence in biomass.

Policy Objective

5. The introduction of sustainability criteria in this area primarily aims to ensure the lifecycle GHG emissions of biomass are acceptable and to prevent adverse land use change such as deforestation, thus ensuring biodiversity and other environmental impacts are protected. Other important objectives are to ensure industry is given the certainty over investment conditions they need in order to meet the 2020 renewable energy targets, and to deliver the security of supply and benefits that these imply. The UK also aims to ensure that indirect adverse impacts are minimised – for example on global food supplies and indirect land use change.

Options Considered

I. Do Nothing

6. Not introducing sustainability standards for solid biomass risks heat users using feedstocks from unsustainable sources that deliver little or no GHG savings on a life-cycle basis and could sometimes lead to higher emissions. A lack of strict standards for sustainable biomass also has the potential to lead to destructive impacts on land use through deforestation or destruction of other carbon sinks. The potential contribution to emissions reductions, as well as the important

[1] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52010DC0011:EN:HTML:NOT
[2] http://www.decc.gov.uk/en/content/cms/meeting_energy/bioenergy/sustainability/sustainability.aspx

role biomass is expected to play in meeting the 2020 Renewable Energy Strategy (RES) target under the RHI means that doing nothing is not considered a reasonable option but serves here as a counterfactual.

II. Introduce Sustainability Scheme for Biomass

7. The Renewable Energy Directive ("RED") sets mandatory sustainability criteria for bioliquids used for electricity and heat generation (and biofuels used for transport). However, the introduction of sustainability criteria for solid biomass and biogas is at the discretion of each member state, with the Commission only giving recommendations for potential criteria[3]. The Commission's main recommendation is that for simplicity and clarity, member states who choose to introduce sustainability criteria for biomass and biogas should use criteria similar to those mandated for bioliquids and biofuels.

8. Sustainability reporting for biomass was introduced into the Renewables Obligation (RO) in April 2009. The intention was to develop knowledge and expertise ahead of a potentially more rigorous, EU-wide sustainability scheme. The current RO sustainability reporting requires generators of greater than 1MWe to submit an annual report on their biomass feedstocks, assessing their lifecycle greenhouse gas emissions relative to fossil fuels taking into accound the energy conversion efficiency of their plant, and country of origin and any land use change since November 2005. The RO has enforced a minimum target of a 60% reduction on greenhouse gases since April 2011. In addition, generators are required to confirm to the regulator that any materials other than wastes are not sourced from raw materials obtained from land which is important on carbon or biodiversity grounds.

9. Introducing mandatory solid biomass and biogas sustainability criteria would provide consistency across the UK's renewable energy policy. The RHI currently requires that biomass installations with a capacity of 1 MWth and above are required to report quarterly on the sustainability of their biomass feedstock. This proposal is to go further than this, adopting a mandatory minimum GHG saving criteria similar to that in the RO. In addition, heat generators with a capacity of less than 1 MWth, for whom the administrative burden of these reporting criteria has been deemed too high (see section on administrative costs below) would be required to purchase their biomass from an approved biomass feedstock supplier, monitored by an approval body chosen via a competitive tender. For consistency, and to minimise administrative burden, evidence of compliance with the UK Forestry Standard (which outlines Government's approach to sustainable forest management) should be regarded as proof of sustainable land management by this approval body.

10. The GHG emissions target includes all emissions attributable to the feedstock up until the point of combustion. This means that the efficiency of the technology being used to generate heat from the feedstock will affect the overall emissions. We propose that plant efficiency will be dealt with by:

    - assuming a deemed basis efficiency for users of biomass of less than 1MWth. Such that in order to qualify for an approved biomass suppliers list, suppliers would have to demonstrate that their biomass has lifecycle emissions of less than the target, given an assumed, deemed, efficiency.

[3] as outlined in their 25 February 2010 report:

- Biomass users of greater than 1 MWth will have the opportunity to demonstrate a higher plant efficiency as part of the reporting criteria, potentially allowing them to purchase biomass biomass with higher lifecycle emissions excluding the point of combustion.

11. In order to develop a sustainability scheme for biomass and biogas, the following elements of the scheme need to be considered:

    (i) The scope of the scheme in terms of production of biomass and which sources of biomass or biogas are covered

    (ii) GHG savings performance criteria

These are considered below.

Discussion of Options

(i) Scope of the Scheme in biomass production sources

12. When biomass sustainability requirements were put into the Renewables Obligation, it was decided to follow the recommendations of the 2010 EU report for solid and gaseous biomass[4]. These are that that the scope of the Scheme is similar to that mandated for bioliquids and biofuels:

    - A restriction on the use of raw materials obtained from land with high biodiversity value, including primary forest, areas designated for nature protection purposes, and highly bio-diverse grassland.

    - A restriction on the use of raw material obtained from land with high carbon stock. A restriction on the use of raw material obtained from land that was peatland in January 2008. Limited exceptions to the above restrictions on the use of raw materials as recognised by the RED in the sustainability criteria for bioliquids. For example, where it is shown that the harvesting of the raw material is necessary to preserve grassland status.

13. In addition, the Commission recommends that use of waste is exempt from these sustainability criteria. This reflects both the routinely high greenhouse gas savings achieved and the challenge of setting default values for the wide range of possible waste feedstocks.

14. It is important to have consistency of application across UK renewables policy and the EU on these issues, not only because they protect areas of high carbon stock or biodiversity, but it gives bioenergy suppliers clear and consistent signals as to the sources that are excluded.

(ii) Administrative Costs

15. To estimate the impact of the verification requirement on large heat generators, we use an estimate from the Renewable Fuels Agency (RFA) that estimates verification costs under the RTFO to be **£15,000 pa for large operators and £1,500 pa for small ones.**

16. The EU uses a Standard Cost Model to estimate the cost of chain of custody certification. This suggests a cost of between £700-£2,500 per year for individual biomass producers. In addition to

[4] http://www.decc.gov.uk/assets/decc/Consultations/Renewables%20Obligation/1057-ia-ro-biomass-bioliquids.pdf

this, they suggest that when operators have to demonstrate actual GHG savings, costs could be 10-20% higher, implying an additional cost of **£70-£500.**

17. In the impact assessment for sustainability criteria for bioliquids in the RO, Ofgem estimated that a mandatory reporting scheme would have initial setup costs of around **£1 million**, with subsequent staff costs of around **£125,000 p.a**. It seems reasonable to assume that, given that Ofgem would be managing the scheme for the RHI too, along with the relative size of the RHI compared to the RO, that the setup costs would be greatly reduced, and that staff costs would be lower too, due to scale benefits and learning by doing.

18. As it will be done via a competitive tender we don't have an estimate for the setup costs of the proposed approved supplier scheme for small biomass users but they not expected to be large, and there will be small registration fees for suppliers in the region and annual subscription fees, neither of which is anticipated to be very burdensome. The Forestry Commission may face an as yet unknown increase in administrative costs if it is called upon to provide information of felling licences and woodland management plans as part of the approved supplier scheme.

19. There will be no direct administrative cost to small biomass users of the approved suppliers scheme

20. ***DECC recognises that assumptions on administrative costs are uncertain and would appreciate any available evidence on the likely administrative impacts of this policy change.***

(iii) GHG savings performance criteria

21. The Commission recommends that Member States that have or who introduce sustainability schemes for solid and gaseous biomass ensure that these are as far as possible, in line with the criteria as laid down in the RED, which aims to ensure consistency and equal treatment across uses. Article 17(2) sets out the following criteria for biofuels and bioliquids:

    - Minimum GHG savings values of 35%, rising to 50% in 2017 and 60% from 2018 for installations in which production started on or after 1 January 2017.

22. The Renewables Obligation decided upon a criteria enforcing a minimum GHG savings of 60% relative to the EU comparator, exceeding the recommended EU criteria in the early years of the scheme. This was due to the EU comparator emissions factor being significantly higher than the UK marginal emissions factor for electricity, which means that a 35% reduction of GHGs from the EU comparator is no reduction at all from the UK marginal emissions factor. Table 1 below, from the impact assessment on sustainability criteria in the Renewables Obligation[5], published on 7 December 2010, highlights this.

Table 1: EU recommended minimum GHG emissions savings in the RO

	2010	2017	2018

[5] http://www.decc.gov.uk/assets/decc/Consultations/Renewables%20Obligation/1057-ia-ro-biomass-bioliquids.pdf

Relative to EU comparator 712.8 kgCO2 / MWh	35%	50%	60%
Relative to UK marginal electricity emissions factor 393.9 kgCO2/MWh	-18%	10%	28%

23. The EU fossil-fuel comparator for heat is 87 gCO2 / MJ, which is 313.2 kgCO2 / MWh[6]. The table below shows that, similar to the comparison for electricity, the EU recommended minimum GHG emissions target would be above the emissions factor for gas, meaning that biomass that has higher emissions than a fossil fuel would be classed as 'sustainable'. For this reason, along with a desire for consistency across UK renewables policy, we have determined that a 60% GHG reduction target, which implies a 32% reduction from gas, is more suitable.

Table 2: EU recommended minimum GHG savings for heat

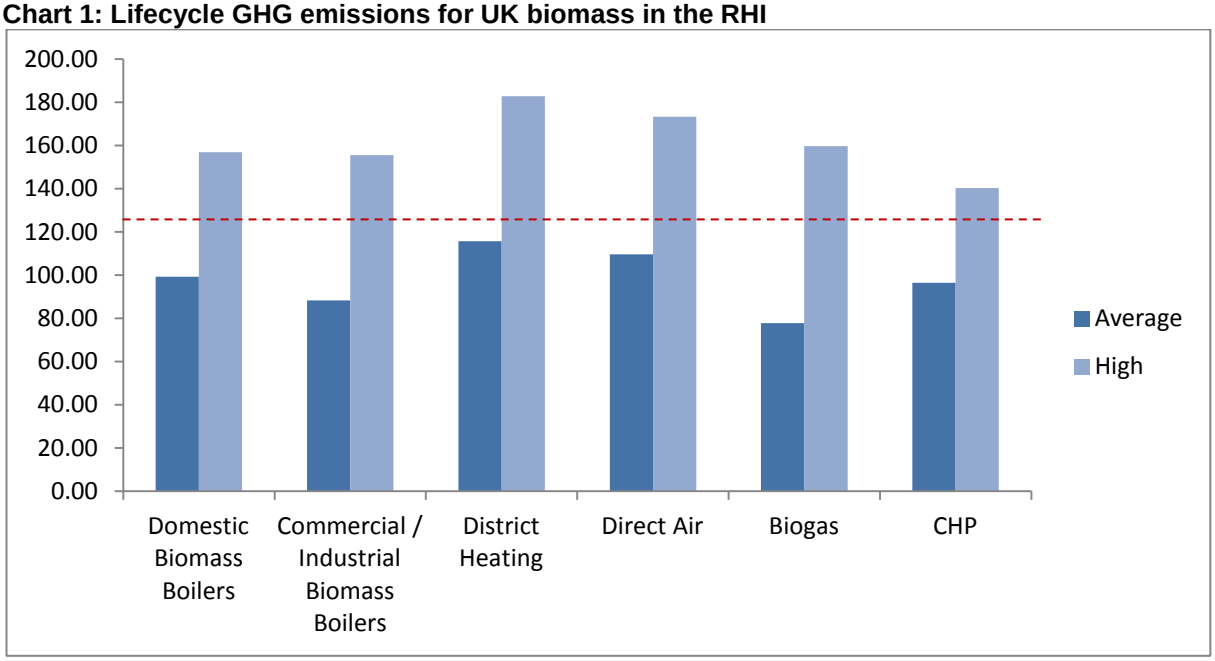
	2010	**2017**	**2018**
GHG Emissions threshold	203.58 kgCO2/MWh	156.6 kgCO2/MWh	125.28 kgCO2/MWh
Relative to EU comparator 313.2 kgCO2 / MWh	35%	50%	60%
Relative to UK gas emissions factor 183.3 kgCO2/MWh	-11%	15%	32%

24. In addition to ensuring that biomass will provide GHG savings over gas, applying a 60% savings target now simply means that we will be enforcing the EU's recommended target now, instead of gradually increasing it until 2018. This could be beneficial for confidence in the market and in the continued availability of feedstocks, avoiding possible price spikes that might result if the UK tightened its GHG targets again in the future, once heat generators were locked into biomass.

25. While this is a stricter absolute emissions target for biomass than the target currently set in the Renewables Obligation, this is not expected to have a huge impact on the supply or price of biomass in the RHI, because, as illustrated in the chart below, the feedstocks, technologies and sectors relevant to the RHI are already close to within the targets we would be imposing. In addition, due to the much higher efficiency of biomass heat over biomass electricity, much less biomass is needed per MWh of heat than electricity meaning that the emissions targets per volume of biomass are much more comparable between heat and electricity.

[6] EU comparators for heat and electricity are on p17 of the EU report on the requirement for sustainability criteria for solid biomass and biogas: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0011:FIN:EN:PDF.

Chart 1: Lifecycle GHG emissions for UK biomass in the RHI



26. The lifecycle GHG emissions in the RHI were calculated using estimates of emissions intensity from ADAS for energy crops, the UK Forestry Commission report on the carbon impacts of biomass for UK Forestry[7]. We then used assumptions from AEA on the type of feedstocks used in each technology and sector to create the average and high lifecycle emissions shown above.

27. While the chart indicates that some biomass would not currently meet the proposed GHG threshold, which is indicated in the chart by the dotted red line, the average lifecycle emissions of biomass are comfortably below the threshold for each technology and sector.

Costs and Benefits Analysis

28. We have very little data on the likely effect of the introduction of sustainability criteria on biomass prices. Industry responses indicated that the effect of sustainability criteria in the renewables obligation could lead to an increase in the price of feedstocks in the region of 10%[8]. Given the lifecycle analysis above, which indicates that the vast majority of biomass in the RHI would meet sustainability criteria, and the fact that biomass boilers are considerably more efficient than biomass burned to produce electricity (assumptions from AEA indicate that biomass boilers would be between 80%-85% efficient, compared to around 40% for biomass electricity), we have looked at a central scenario of 5% increase in the levelised cost of burning biomass, meaning a 5% increase in the capital, installation and running costs of biomass, and a 5% increase in the cost of fuel. This equates to approximately a 10% fuel price increase alone. For comparison, we have looked at two other scenarios, one in which biomass sustainability doesn't lead to any increase in the cost of biomass and one where it leads to a 10% increase in the levelised cost of biomass (equivalent to a 20% increase in the price of feedstocks).

    We believe scenario 3 (a 10% cost increase) to be an unlikely large response to sustainability, given our estimates of the lifecycle emissions of the feedstocks and technologies. A plausible scenario might be that the initial affect of sustainability will be quite small, as demand for biomass won't initially be high enough that the reduced supply of biomass has a major effect on heat. However, as uptake of biomass increases towards 2020, we might expect the market to adjust, with prices increasing to something more in the region of Scenario 2.

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[7] http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/bio-energy/5133-carbon-impacts-of-using-biomanss-and-other-sectors.pdf

[8] : Estimated 10% price premium paid for sustainable biomass feedstock based on feedback from industry during the RO Banding Review consultation

29. The impacts of restricted supply of biomass on prices or the ability to service demand are highly uncertain, therefore ***DECC requests any relevant evidence available be submitted as part of responses to consultation.***

30. To estimate the costs of these three scenarios, we implemented these three price scenarios into the RHI model, in order to project uptake of biomass and alternative renewable heat technologies in these three scenarios.

31. To estimate carbon benefits, we assume the life-cycle emissions of biomass, based on the lifecycle analysis above. We assume that the range of emissions of biomass under sustainable biomass criteria is capped by the minimum GHG savings threshold of 125.28 kgCO2/MWh. The average lifecycle emissions in each sector, which are shown above in chart 1, are then reduced accordingly to account for this cap. Carbon emissions due to the change in uptake of other technologies in the RHI are also taken into account. Carbon is assumed to be saved at either the traded or non-traded price of carbon, as appropriate, in line with the Green Book Supplementary guidance.

32. Table 3 below shows results of cost benefit analysis.

Table 3: Cost Benefit Analysis of Biomass Sustainability Scenarios

	Scenario 1: 0% Increase in cost of biomass	**Scenario 2: 5% Increase in cost of biomass**	**Scenario 3: 10% increase in cost of biomass**
Resource Costs £m	**-(£1)**	**£54**	**£79**
Carbon Benefits £m	**£13**	**£16**	**£7**
NPV £m	**£12**	**£70**	**£86**

33. Scenarios 2 and 3 result in lower resource costs than the counterfactual, because the increase in the price of biomass leads to a reduction in overall uptake of renewable heat in the RHI. Although this appears as a cost reduction, when factoring the reduced supply of renewables, this would represent a cost as alternative deployment is expected to be more expensive. Each increase in the cost of biomass leads to a decrease in the overall level of renewable heat taken up in the RHI. Specifically, we estimate that a 5% increase in the cost of biomass would lead to an overall reduction in renewable heat compared to the counterfactual of 1.1 TWh in 2020. Similarly a 10% increase in the cost of biomass is projected to reduce renewable heat take-up by 2.8 TWh by 2020. If we were to assume that this reduction in deployment were replaced by offshore wind in order for the UK to meet its renewables target, the NPV in scenario 2 would reduce considerably, and would lead to a negative NPV in the case of scenario 3.

34. The carbon savings from the sustainability criteria are 156, 138 and -9 ktCO2 for scenarios 1, 2 and 3, respectively. Scenario 3 has a positive carbon saving in value despite an increase in the overall volume of carbon emissions, because the increase in the cost of biomass compared to the counterfactual scenario leads to higher carbon savings in the non-traded sector, but also an increase in uptake of technologies such as heat pumps, leading to higher non-traded emissions than the counterfactual. Because non-traded emissions have a higher value, this means that overall emissions increase in scenario 3, but a net saving in value.

Risks and Sensitivities

35. Another source of uncertainty is the level of lifecycle emissions that will be saved under this threshold. While the feedstock estimates are based on extensive data from a number of sources, listed previously, there is a lot of uncertainty about exactly what level of emissions savings we could expect, and about the exact distribution of lifecycle emissions of the feedstocks in the RHI. If only a very small percentage of currently available feedstocks are above the proposed emissions threshold, then the carbon savings figures above are overstated. Conversely, there are factors including price which could mean that a higher percentage of biomass currently used, doesn't meet the criteria. If we were to halve or double the change in emissions factor for biomass as a result of sustainability criteria by a factor of two, it would result in a carbon savings in scenario 2 of **£10m** or **£27m**, respectively, resulting in a NPV of **£66m** or **£83m**.

36. There is also uncertainty surrounding the value of carbon savings that can be attributed to this policy. The carbon savings values above follow the central projections for carbon values in DECC's IAG guidance. However, if they were instead to follow the high values from the Green Book guidance, the value of carbon saved would increase from £16 million to £170 million in the 5% price increase scenario.

Indirect impacts

37. Sustainability criteria on biomass in the UK or across the EU could lead to indirect impacts which are hard to quantify. These include benefits to bio-diversity, protection of areas of high carbon stock and/or nature reserves which, as well as safeguarding carbon sinks could have positive recreational or conservation benefits.

38. There could also be a range of indirect effects not captured above. It is also possible that demand for sustainable biomass could displace agricultural production onto uncultivated areas with impacts on food prices, biodiversity and land use change impacts. Such indirect impacts are very difficult to model due to the complex nature of agricultural markets, the uncertainties involved in assessing the cause and effect interactions and pathways, and the difficulties in projecting to the future. While the cost benefit analysis above assumes substitution away from biomass into other renewable technologies, risks on indirect land use change factors remain. The Commission has recently consulted on the likely relevance of the indirect land use change problem[9] and on potential ways of addressing it. None of the above estimates takes account of possible costs and benefits associated with ILUC impacts. However, the 'worst case' direct land use change assumptions of Energy Crops replacing primary forests (see para 28 above) can be considered as a proxy to illustrate the possible scale of ILUC impacts and shows that these are likely to be significant.

Specific Impacts Tests of biomass sustainability criteria

Statutory Equality Duties Impact Assessment

39. The same set of criteria applies equally across race, disability and gender, therefore there is no change expected in equality impact outcomes.

Competition Assessment

40. The sustainability criteria add a regulatory burden and cost to providing heat via biomass. This could potentially distort competition by increasing the cost of biomass heat, relative to other renewable and non-renewable technologies. However, the standards might encourage a more

[9] http://ec.europa.eu/dgs/jrc/index.cfm?id=1410&obj_id=11270&dt_code=NWS&lang=en

level playing field by setting and agreed market standard for ‘sustainable biomass’ across the UK and create a more unified market. It could increase the attractiveness of biomass as a heating solution if potential consumers can be confident it is sustainable.

Small Firms Impact Test

41. By putting different sustainability criteria on small-scale and large-scale biomass, we aim to minimise the burden that this could place on small firms. Microenterprises currently supplying biomass fuel from woodlands managed in accordance with the UK Forestry Standard present a low risk in terms of sustainability and are likely to be especially vulnerable to increased administrative costs. However, for large-scale biomass, the compliance costs of this scheme are not expected to vary much. This represents a potential disadvantage for smaller firms who face the same reporting criteria as larger firms. However, the magnitude of these costs, which are outlines above, do not appear to be unreasonably high when compared to the amount of RHI support that these firms would be receiving.

Carbon Assessment

42. The value of carbon savings in the different scenarios for a biomass sustainability scheme are shown in Table 3 above. The total volume of carbon saved is given in paragraph 33.

Wider Environmental Impacts

43. The RHI is proposing restrictions on the emissions of biomass installations alongside this policy,, which should ensure that the increased combustion of biomass due to the RHI, will have minimal effects on air quality.

Social Impacts

44. As mentioned above, the combustion of biomass and bioliquids will have implications for local air quality, which could impact on ***health and well-being***. However, the sustainability criteria is expected to reduce the overall level of biomass used to generate heat, which, along with the air quality restrictions being introduced, which are mentioned above, should mean a positive overall impact.

45. On ***Human Rights Impacts***, if the proposals for sustainability criteria engage article 1 protocol 1 of the ECHR (protection of property) then we consider the proposals are compliant because (a) they will be implemented through legislation (b) they pursue a legitimate aim (that bioenergy should be sustainable) (c) they are necessary (as the only way to ensure the RHI only supports bioenergy that meets the criteria) (d) they are proportionate (the sustainability criteria do not go further than necessary to achieve the aim). No other convention rights are considered to be potentially engaged by the proposals.

46. In terms of ***Justice Impacts***, the proposals increase the legislative complexity of the RHI. Lack of clarity in the provisions of the Renewable Energy Directive setting the bioliquid sustainability criteria may create potential scope to challenge decisions applying those sustainability criteria. These risks should be reduced by guidance from the Commission, Ofgem and DECC. Therefore, the proposal is not considered likely to increase the volume of cases going through the courts.

47. In terms of ***rural proofing***, a large proportion of biomass and bioliquid feedstocks are produced by the farming and forestry sectors. Therefore, increasing the proportion of energy from biomass is expected to mean new business and job opportunities in rural areas as part of an expanding UK biomass supply chain. Although there has been no separate or explicit assessment of the needs of rural areas, these proposals are set within this wider policy context and aim to ensure that the impacts on consumers and their bills are reasonable. is insufficient information on the geographical location of bio

Summary of preferred option

48. The preferred option is to introduce a minimum GHG threshold of 60% relative to the EU-wide fossil fuel comparator, and to apply the criteria to all biomass heat receiving RHI subsidies. This will help ensure that significant carbon savings are achieved as biomass heat grows as an alternative option to fossil fuels. Our decision on the target of 60% relative to the EU comparator guarantees that biomass heat will achieve GHG savings relative to each fossil fuel used to produced heat, while hopefully minimising the burden on consumers and the impact on the market for biomass heat.