Bioenergy Review (2018) - Call for Evidence

Please answer only those questions where you have particular expertise and are able to provide links to supporting evidence.

In 2011 the Committee on Climate Change (CCC) published a Bioenergy Review to provide an assessment of the potential role of bioenergy in meeting the UK's carbon budgets. The Bioenergy Review drew on the best available evidence to address questions relating to the sustainability of bioenergy, lifecycle emissions, resource availability and best-use across the economy. It highlighted the importance of bioenergy for meeting the UK's climate change targets and made recommendations for tightening the sustainability standards for bioenergy resources - recommendations that were subsequently adopted by the UK Government.

The CCC is now planning to update its work on bioenergy, culminating in a new Bioenergy Review to be published in Autumn 2018. This will consider the latest evidence to provide an updated view on the role of bioenergy in decarbonising the UK economy through to 2050. Key themes to be explored include sustainability and certification, GHG emissions accounting, developing sustainable supply, non-energy uses of bioenergy resources, and transitions to future best-uses of bioenergy resources. We will identify recommendations for further action and aim to develop indicators to allow the CCC to monitor progress over time.

Stakeholder engagement will underpin the 2018 Bioenergy Review. This Call for Evidence is the first formal step in the engagement process. It is intended to provide all stakeholders with the opportunity to input to the CCC's work and to enable the CCC to draw on the full range of up-to-date evidence relating to bioenergy production, sustainability and use.

The Call for Evidence will be followed by stakeholder workshops on specific key topics in 2018. In addition, we will be establishing an Expert Advisory Group to provide advice and support to the CCC throughout the review.

Responding to the Call for Evidence

We encourage responses that are brief and to the point (i.e. a maximum of 400 words per question, plus links to supporting evidence), answering only those

questions where you have particular expertise. We may follow up for more detail where appropriate.

Please use the website form when responding, or if you prefer you can use this word form and e-mail your responses to: communications@theccc.gsi.gov.uk. Alternatively, if you would prefer to post your response to us, please send it to:

The Committee on Climate Change – 2018 Bioenergy Review Call for Evidence
7 Holbein Place
London SW1W 8NR

The deadline for responses is 9am on 5th February 2018.

Confidentiality and data protection

Responses will be published on the CCC website after the response deadline, along with a list of names or organisations that responded to the Call for Evidence.

If you want information that you provide to be treated as confidential (and not automatically published) please say so clearly in writing when you send your response to the consultation. It would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded by us as a confidentiality request.

All information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information legislation (primarily the Freedom of Information Act 2000, the Data Protection Act 1998 and the Environmental Information Regulations 2004).

Information on organisation / individual submitting response

If you are responding on behalf of an organisation please provide a brief description of your organisation and your role within this organisation.

If you are responding as an individual we would be grateful if you could provide a brief description of your background and interest in bioenergy.

GHG emissions and sustainability of bioenergy imports

Our 2011 Bioenergy Review concluded that UK and EU regulatory approaches should be strengthened to better reflect estimates of the full lifecycle emissions of bioenergy feedstocks, taking into account both direct and indirect land-use change impacts. Whilst changes have been made to these regulatory frameworks, both life-cycle emissions and the wider sustainability impacts of bioenergy remain highly contested issues, particularly in relation to bioenergy imports. Given the potential role for bioenergy in the UK's low-carbon transition, and the potential increase in bioenergy feedstock production in the future, it will be essential that policy is based on the latest available evidence and that bioenergy is genuinely sustainable.

The term 'sustainable' here is used to cover a wide-range of issues relating to GHG emissions, biodiversity, water use, land-use, land-rights, air-quality and other social and environmental issues.

1. What is the latest evidence on lifecycle GHG emissions of biomass and other biofuels imported into the UK? How could this change over time as a function of scaling up supply? We are particularly interested in evidence that considers the full range of relevant issues including changes to forest and land carbon stocks, direct and indirect land-use change and wider market effects.

   Ensure that lifecycle analysis of various fuels that are products include emissions cost of harvest, extraction and transportation.

2. Under what circumstances can imported biomass and other biofuels deliver real GHG emissions savings (considering full life-cycle emissions and indirect/wider market effects)? Conversely, what evidence is there for ruling out certain sources on the grounds of lifecycle GHG emissions or sustainability risks?

   Biofuels can deliver real GHG savings when they are replacing fossil fuels, so long as they are from sustainably certified managed forests which will be replanted.

   It is essential that trees are harvested at a rate below the annual increment, ie wood is not taken faster than it grows. For example if the mean annual increment is 16m^3 per hectare per year, the amount of timber taken from the forest must be less than 16m^3 per hectare or the amount of carbon stored in the forest reduces and carbon is emitted.

   If the demand for biomass results in new forest being planted, and storing carbon in standing timber before it is harvested, then there will be a net carbon benefit.

3. Currently the UK imports a significant proportion of wood pellets for biomass electricity production from North America, particularly the south-east USA.

    a) What are the wider market impacts of demand for wood pellets on forestry management practices and carbon stocks at the landscape level in North America?
    b) What evidence is there that wood pellet production displaces other uses of forestry products in North America? (e.g. panel board or lumber production)
    c) What are the most likely alternative/counterfactual uses of forestry products used for wood pellet production?
    d) How are these wider market impacts (sub-questions a-c) likely to change over time if demand for wood pellets significantly increases?

c) In the UK, wood pellets are made of softwood which can be used for a wide range of products. In particular, building products, such as Cross Laminated Timber or particleboard, will lock up the carbon in timber for many decades. However, softwood trees produce a number of products. In North America, the timber used for cross laminated products is not the same part of the trees as used for pellets. The pellets are sourced from areas where the board and pulp markets have virtually collapsed.

4. Aside from GHG emissions, what evidence is there of other sustainability impacts associated with imported biomass or other biofuels? What evidence is there for how these might change as a function of scaling up supply (from the US, and internationally)?

5. Are there any benefits resulting from importing biomass or other biofuels into the UK (e.g. development benefits)? How might these vary internationally? What are the conditions required for any benefits to be realised?

    The UK is the second biggest importer of timber in the world (mainly sawn timber from Europe). The shortage of UK-grown wood already threatens the UK timber processing industry, which supports around 40,000 jobs and provides a high level of added value.

    Increasing the amount of UK timber used for biomass pellets in the short term, even if the longer-term supply is secured through extensive woodland creation, would result in raw materials becoming unavailable for these businesses, resulting in closures and job losses in UK sawmills. Due to a lack of new planting

and restocking, the availability of UK timber is expected to decline within 15 years.[1]

In terms of small-scale firewood for heat, the situation is different. Imported firewood poses significant biosecurity risks, and this product could easily be produced from UK broadleaf woodlands. The resulting increase in woodland management would also increase the value of these woods for the environment, amenity and hardwood timber production.

Sustainability policy and certification

The sustainability framework for bioenergy in the UK has evolved significantly since 2011. Changes have included the tightening over time of lifecycle GHG emissions limits for bioenergy supported under Government incentive schemes, changes to EU rules on liquid biofuels and the development of certification schemes. Nonetheless questions remain regarding the current framework's capacity to guarantee high sustainability standards.

The term 'sustainability framework' refers here to the policies, regulations and incentives in place to promote bioenergy sustainability in the UK.

6. What are the strengths, weaknesses and gaps of the current sustainability framework for bioenergy in the UK? How could the current sustainability framework for bioenergy in the UK be improved to address these issues?

   The current systems laid out in the Ofgem and BEIS guidance are adequate if audited correctly.

7. Ofgem has identified a number of certification schemes that it considers appropriate for demonstrating compliance with the 'Land Criteria' under the Renewable Obligation sustainability standards. Are these certification schemes adequate? Why/why not? How could they be improved?

   As above.

8. What certification schemes currently represent 'best practice'? Why?

[1] http://www.confor.org.uk/media/246292/wood-fibre-availability-demand-report-2016-final.pdf

9. Ofgem has set out approaches to calculating bioenergy GHG emissions for demonstrating compliance with the 'GHG Criteria' under the Renewable Obligation sustainability standards. Are these approaches adequate? Why/why not? How could they be improved?

   For RO yes, these are adequate.

10. Please highlight any further measures you feel are required to ensure bioenergy feedstocks used in the UK are sustainable and deliver significant life-cycle GHG emissions savings. Why are these measures needed?

    There should be one set of sustainability regulations for all kinds of imported forest products. This will ensure consistency in how this material delivers GHG benefits and impacts on forests.

    There should be a suite of biosecurity measures appropriate to the risk posed by different timber products: from pellets and pulp at the least threat, through chip and sawn timber, to timber packaging and firewood at the greatest threat.

11. Some large UK users of imported biomass use a risk-based approach to assess the sustainability risks associated with importing biomass from specific jurisdictions. What is the role for these approaches?

    Yes, there is a role for a risk-based approach.

Supply of bioenergy feedstocks

In our 2011 Bioenergy Review we considered scenarios for the amount of sustainable bioenergy resource available to the UK over the coming decades. Our central 'Extended Land Use' scenario suggested that around 10% of the UK's primary energy demand could be met from bioenergy in 2050, with over half coming from domestic feedstocks. We are now looking to develop new supply scenarios through to 2050 to reflect the latest evidence on sustainability and different assumptions about the potential future availability of imported and domestically produced bioenergy resources.

To support the development of these scenarios and our wider work, the CCC is currently undertaking new analysis on how the use and management of land in the UK can deliver deeper emissions reduction and increased sequestration. This analysis will provide updated data on the potential supply of non-waste and non-food bioenergy resources from UK sources. For projections of international bioenergy resources and waste-based UK bioenergy resources we will review the latest evidence

and publicly available literature. We are particularly interested in quantitative estimates of resource potential, broken down by feedstock type, that are underpinned by explicit assumptions relating to sustainability.

12. What are the most credible and up-to-date estimates for global bioenergy resource potential through to 2050, broken down by feedstock type? What key assumptions underpin these estimates?

    Please provide details of any assessments of global bioenergy resource explicitly tied to sustainability standards (covering GHG emissions, biodiversity, water use, land-use, land-rights, air-quality and other social and environmental issues)

    - Global wood fuel production in 2016 was 1,863 million m3 in 2016, and has remained relatively stable.
    - In contrast, production of wood pellets is increasing rapidly, from 18 to 28 million tonnes between 2012 and 2016.
    - The USA, Canada, Germany, Sweden and Latvia together account for almost half of pellet production.
    - The top five producers were the UK, USA, Denmark, Italy and Republic of Korea. The UK alone accounts for over a quarter of global consumption.[2]
    - The WWF *Living Forests Report* (2013) estimated that global timber demand will treble by 2050, putting great pressure on all forests and all kinds of timber use.[3]

    The Woodfuel Strategy for England estimated that English woodlands could achievably supply 2 million tonnes of firewood per year through better management, saving 400,000 tonnes of carbon if this replaced fossil alternatives. [4]

13. What is the latest evidence relating to the availability of 'marginal' and abandoned agricultural land for growing bioenergy crops (where possible, reflecting broader sustainability requirements e.g. water stress, biodiversity, social issues)? Is this evidence adequately reflected in global resource estimates?

    The recent WRI Nature conservancy report, *The business of planting trees: a growing investment opportunity*, reports on the recent growth of the 'landscape

[2] http://www.fao.org/3/i7034en/I7034EN.pdf p.15

[3] https://www.worldwildlife.org/publications/wwf-s-living-forest-report-chapter-4-forests-and-wood-products

[4] https://www.forestry.gov.uk/pdf/fce-woodfuel-strategy.pdf/$file/fce-woodfuel-strategy.pdf

restoration industry', employing a wide range of business models that deliver financial returns while restoring forests and their ecosystem services.[5]

The WRI report *Roots of Prosperity: the economics and finance of restoring land*, estimated the global cost of land degradation at $6.3 trillion a year. Some of the shortfall in investment required to restore it, estimated at around $400 billion a year, could be found through well-designed sustainable forestry projects.[6]

14. What are the most credible and up-to-date estimates for the amount of bioenergy resource that could be produced from UK waste sources through to 2050? Where possible please state any assumptions relating the reduction, reuse and recycling of different future waste streams.

    Wood fibre grown in Britain is already fully used, as is wood recovered from post-consumer waste. Recovered wood accounts for a very high percentage of the fibre used to make particle boards.[7] Food waste, for example, may represent a bigger opportunity.

15. What factors (opportunities, constraints, assumptions) should the CCC reflect in its bioenergy resource scenarios through to 2050?

    A reduction in agricultural subsidies as a result of Brexit could drive diversification into forestry on marginal land. This has the potential to significantly increase UK timber supply.

    Bureaucracy, public opposition, political lack of interest in forestry, and opposition from NGOs and agriculture to conversion of land to forestry, are the reason more forest has not been planted to date. These represent significant obstacles to be overcome.

16. What should be the assumptions on the share of international resource which can be accessed by the UK (e.g. per capita, current or future energy demand)?

    The WWF *Living Forest Report* predicts that timber demand will treble by 2050.[8] At present the UK is the second biggest timber importer in the world.[9]

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[5] https://www.wri.org/sites/default/files/business-planting-trees_0.pdf

[6] https://www.wri.org/sites/default/files/roots-of-prosperity.pdf

[7] http://www.confor.org.uk/media/246292/wood-fibre-availability-demand-report-2016-final.pdf

[8] https://www.worldwildlife.org/publications/wwf-s-living-forest-report-chapter-4-forests-and-wood-products p.8

[9] https://www.forestry.gov.uk/forestry/infd-7aqdgc

17. What are the prospects for the development and commercial production of 3rd generation bioenergy feedstocks (e.g. algae)? What are the timescales, costs, risks, opportunities and abatement potential of using algae to make biofuels?

Scaling up UK sustainable supply

An objective of our current work on bioenergy is to better understand and reflect the potential for scaling-up of the supply of sustainably produced domestic (UK) bioenergy resources through to 2050. We aim to identify and develop policy recommendations for 'low-regrets' measures/strategies that can be implemented in the near term.

18. What are the main opportunities to scale-up the supply of sustainably-produced domestic bioenergy supply in the UK? Where possible please provide details on the scale of opportunity.

    The UK has only 13% forest cover, compared with an average of almost 40% in the rest of Europe. Timber grown in Britain is covered by the UK Forestry Standard which ensures that newly created woodland contributes to land restoration, with biodiversity, flooding, carbon and other ecosystem benefits. Forest bioenergy is produced with a fraction of the ploughing, fertilizer and chemicals required for agricultural bioenergy crops. Creating new forest is the best way to scale up the supply of domestically-produced bioenergy in the UK.

    The UK climate is very well suited to growing timber for a range of uses and there are large areas of land which are neither prime agricultural land nor of high conservation value, where both profitability and natural capital would be enhanced by forestry.

    Ending the import of imported firewood (which is a biosecurity risk) will create a market for UK firewood supply and incentivise woodland management. Supporting biomass boilers, CHP, district heating, local heat networks and RHI will all benefit UK woodfuel. Kent Renewable Energy Ltd (KREL) is a good example of a way to create a market for local woodfuel.

19. What risks are associated with scaling-up domestic supply and how can these risks be managed?

Risks to UK forests are minimal due to the high level of requirement under the existing regulation, eg felling licenses. This guarantee of sustainability is harder to ensure with imported timber.

There is risk in skewing the market for wood products, reducing the amount of wood used for higher-added-value products such as board and construction timber, and thus impacting the timber processing sector. This would reduce the impact of forestry's climate change mitigation by removing long-term carbon storage in timber products, which the Read report (2010) cited as the single biggest measure the forest sector could contribute.[10]

20. What 'low-regrets' measures should be taken now (e.g. planting strategies) to increase sustainably-produced domestic bioenergy supply?

    Deliver planting targets in England of 130,000 hectares by 2032, as recommended in the Clean Growth Strategy (c.9,000 hectares per year); and in Wales of 100,000ha by 2030.

21. What international examples of best-practice should the UK should look to when considering approaches to scaling-up domestic supply?

    DFID supported forest landscape restoration in Ethiopia to 15 million hectares of degraded lands, to secure domestic supplies of wood fuel.[11]

    China, the only country in the world which imports more timber than the UK, plans to plant 6.6 million hectares (an area the size of Ireland) in 2018 and to reach 26 per cent forest cover by 2035.[12] By comparison, England aims to reach 12 per cent tree cover by 2060.

22. What policy measures should be considered by Government to help scale-up domestic supply?

    1. Woodland creation
    2. woodland management

[10] https://www.forestry.gov.uk/forestry/infd-7y4gn9

[11] https://forestsnews.cifor.org/43590/q-a-lessons-from-ethiopia-for-forest-landscape-restoration?fnl=en

[12] http://forestpress.hu/en/index.php/news/2475-china-to-plant-forest-the-size-of-ireland-in-bid-to-become-world-leader-in-conservation

3. Integrated land use, to remove 'perverse subsidies' which prevent farmers from planting trees. This is the strategy set out in Confor's Brexit policy paper, *A Common Countryside Policy*.[13]

Best-use of bioenergy resources

Our 2011 review developed a hierarchy of appropriate uses for bioenergy feedstocks based on minimising costs and maximising abatement. We concluded that if CCS technology is available it is appropriate to use bioenergy in applications with CCS, making it possible to achieve negative emissions under the right circumstances. This could include power and/or heat generation, hydrogen production, and biofuels production for use in aviation and shipping. If CCS is not available, bioenergy use could be skewed towards heat generation in energy-intensive industry, and to biofuels in aviation and shipping, with no appropriate role in power generation or surface transport. In either case, we concluded the use of woody biomass in construction should be a high priority given that this can potentially secure negative emissions through a very efficient form of carbon capture.

We are now looking to update this analysis to reflect the latest technological and market developments. We are particularly interested in technologies such as biomass gasification, CCS and advanced second and third generation biofuels as well as the potential role of hydrogen to support decarbonisation across the economy. To support our consideration of these areas, the CCC is currently undertaking analysis into the potential of the hydrogen economy and we are planning to undertake further investigation into non-energy uses of bioenergy resources.

23. Gasification has been identified as a potentially important technology for unlocking the full potential of bioenergy to support economy-wide decarbonisation.
    a) What are the likely timescales for commercial deployment of gasification technologies?
    b) What efficiencies and costs are likely to be achieved? What scope is there for improvement and/or cost reductions over time? Please differentiate between feedstocks where possible/necessary.
    c) What are the main barriers and uncertainties associated with the development, deployment and use of gasification technologies?
    d) What risks are associated with gasification technologies and how can these be managed?
    e) What policies and incentives are required to facilitate commercial deployment?

[13] http://www.confor.org.uk/media/246687/common-countryside-policy.pdf

24. Bioenergy with Carbon Capture and Storage (BECCS) has been identified as a key potential mechanism for achieving the UK's 2050 carbon target due to the 'negative emissions' it could offer.
    a) What are the potential timescales for commercial deployment of BECCS technologies?
    b) What are likely to be the optimal uses of BECCS (e.g. electricity generation, hydrogen production)?
    c) What efficiencies and costs are possible?
    d) How will performance and cost differ according to feedstock type? What are likely to be the optimal feedstock types for BECCS? What are the implications for domestic supply vs imports (e.g. feasibility, considerations in scaling up over time)?
    a. What are the main barriers and uncertainties associated with the development, deployment and use of BECCS?
    b. What are the risks associated with the pursuit of BECCS that go beyond the risks that relate to supplying sustainable feedstocks and CCS more generally? How can these be managed?

25. Once developed BECCS is a technology that could be deployed in many different countries around the world. What principles and mechanisms should be used to determine where BECCS is deployed and how any associated negative emissions are accounted for? Should any UK participation in any international BECCS scheme be counted as additional to efforts to meet domestic carbon budgets?

26. There is currently substantial interest in the development of 'advanced' biofuels for use in sectors such as aviation, shipping and/or heavy duty transport.
    a) What are the most promising technologies/processes for advanced biofuel production up to 2050? Please provide details on each technology/process including advantages/disadvantages, timescales for commercial deployment, feedstock type, fuel type and end-user.
    b) What efficiencies and costs are likely to be achieved? What scope is there for improvement and/or cost reductions over time? Please differentiate between technologies/processes.
    c) What are likely to be the optimal feedstock types for advanced biofuel technologies?
    d) What are likely to be the optimal end-uses of advanced biofuel technologies?
    e) What are the main barriers and uncertainties associated with the development, deployment and use of advanced biofuel technologies?
    f) What risks are associated with the pursuit of advanced biofuel technologies and how can these be managed?

g) What policies and incentives are required to facilitate commercial deployment of advanced biofuels?

Unless we get trees in the ground these will all remain theories.

27. In 2015 the Government published the Industrial Decarbonisation and Energy Efficiency Roadmaps to 2050. These Roadmaps explored decarbonisation options across multiple industrial sectors and the estimated deployment potential, timescales, cost data and abatement for each option (including bioenergy). Are there any substantial changes from these estimates that the CCC should consider when assessing abatement options in industry? If so please provide your reasoning and details of any recent evidence that relates to these changes.

28. In our 2011 review we identified wood in construction as a potentially effective method of CCS and a high priority 'non-energy' use in our best-use hierarchy.
    a. What lifecycle GHG emissions savings can be achieved by using WIC? Under what circumstances does WIC fail to deliver GHG emissions savings? Please consider the full range of impacts associated with using WIC including substituted product emissions (e.g. cement), product equivalence (impacts on co-products), end-of-life options and biogenic carbon storage.
    b. What is the potential for increasing the amount of wood used in construction in the UK? What are the barriers and how can they be overcome?
    c. What is the potential for using UK-produced timber in construction rather than imports? What are the barriers and how can they be overcome?
    d. What is the expected lifetime of different wood products in construction (e.g. cross-laminated timber)?
    e. What currently happens to wood in construction at the end of its useful life? What other viable options should be developed?

The biggest barrier to increasing the amount of wood used in construction in the UK is the lack of forest resource.

a) Structural timber alone has reached 27% of the market UK wide; 75% in Scotland, England and Wales catching up, predicted to increase beyond 30% (STA stats). Housing delivery is said to have increased by 4% (other stats suggest 10%), a prime market for wood due to its speed, cost efficiency, and availability, which suits the offsite agenda government is pushing. Developers, housing associations and architects are engaging in the agenda and several players are setting up their own factories. Demand is huge and the timber industry is investing into new plants for

increased capacity (e.g. James Jones plant for i-joists). Home-grown homes are on the agenda of councils in wooded areas, more and more architects that engage with sustainability agenda are asking for more local timber solutions for low carbon and healthy buildings agenda.

Emerging markets where wood will be seen as a good solution:

- Private Rental schemes/Build Rent. The British Property Federation estimates that as many as 70,000 build-to-rent units are either built, under construction or in planning in the UK. After many years of gestation, the market is now beginning to mature and really innovate. Many believe that, in 15 or 20 years' time, more people will rent in the UK than own their homes. This is caused by a lack of affordable 'built-for-sale' housing stock. Large pension funds and property companies are increasingly attracted to PRS because they offer non-volatile, high-quality investments that deliver long-term returns. PRS investors are looking for income over long periods. As such, maintaining the quality of a site is important.
- Custom Build/Self Build: about 80% of solutions are timber based. Customers tend to choose a lot of timber also for fit-out of their homes. The market is set to increase to deliver 15-20k homes p.a. by 2020.
- Social Housing. One of the largest development sectors in dire need of affordable low maintenance solutions that are speedily available (and can provide employment for clientele). Here, wood and timber offsite construction can contribute massively and is in demand (especially mid- to low-rise currently).
- All 3 markets more likely to choose timber windows, doors and stairs as these can be repaired and long lasting.

a) What are the barriers and how can they be overcome?
    - Lack of experience, know-how
    - Perceived risks: fire, rot
    - Perceived costs
    - How to overcome: knowledge transfer among peers; evidence based performance data; testing; good examples; training

b) Currently very low as lack of availability (main barrier). Big interest from those engaging in local agenda, sustainability and resilience discussion (see above). Certainly on the rise and more widely used in bespoke projects.

29. There are also a number of other potential non-energy uses of bio-feedstocks including bio-based plastics and bio-based chemicals.

a. What other non-energy uses of bio-feedstocks have the most potential through to 2050 in terms of GHG abatement, cost, timescales and market size?
b. What are the barriers to increasing these non-energy uses and how can these barriers be overcome?
c. What risks are associated with the pursuit of other non-energy uses of bio-feedstocks and how can these be managed?

a) Biochemicals and bioplastics from wood, such as lignin, have the potential to become a bio-based substitute for a wide range of petro-based products[14] The development of these technologies should be supported.
b) The lack of raw materials due to low levels of tree planting.
c) If there are inadequate sources of sustainably-grown timber, there is a risk that proliferating uses of wood products will result in rising timber costs and/or over-exploitation of natural forests.

GHG emissions reporting and accounting

GHG emissions reporting rules for bioenergy are different to those for other forms of energy. Emissions relating to the use (combustion) of bioenergy resources are not reported in the country of use but rather in the country where bioenergy resources are produced. Only Annex 1 countries under the Kyoto Protocol currently account for land-use emissions as part of binding emission reduction targets. In addition under Paris Agreement rules emissions (as under the Kyoto Protocol) will be reported against land-use baselines that may already assume a degree of land-use change. For these reasons and others, bioenergy GHG accounting has been criticised for not properly reflecting the impacts of bioenergy.

30. What are the strengths and weaknesses of the current approach to GHG emissions accounting for bioenergy in the UK and internationally? Specifically, what are the main gaps in the current land use emissions accounting rules?

The current system is adequate and if anything for UK is too detailed. It is extremely difficult to have UK timber which falls outwith the current targets. For UK and imported timber the current calculations are adequate. The issue is how much of the data is audited .

31. What are the risks, in terms of GHG emissions, associated with importing biomass or other biofuels from countries that have not committed to limiting or

[14] http://www.upmbiochemicals.com/Pages/default.aspx

reducing emissions under the Kyoto Protocol or Paris Agreement? How can these risks be managed?

The GHG calculations are the same whether the country signed up to Kyoto or Paris.The emissions are either within the threshold or not. If they are not even if the country has signed up to the agreements then the fuel is unacceptable.

32. What alternative method(s) for bioenergy emissions accounting should be considered? What would the implications of these alternative method(s) be?

Indicators

As part of the 2018 Bioenergy Review the CCC is planning to develop a set of indicators to track progress towards key bioenergy outcomes. We envisage these will cover key areas such as sustainability, policy development, supply and best-use.

33. What key areas should be reflected in these indicators?

- Area of Woodland in sustainable management
- Area of new woodland created
- Volume of UK timber used in construction
- Percentage of new homes built from UK timber
- Reduction in rural fuel poverty
- Area of undermanaged woodland
- Productivity per hectare of woodland

34. Please provide details of any examples of international best-practice in the area of bioenergy indicators.

Other

35. Please submit any further evidence that you would like us to consider.

The Woodfuel Strategy for England set out a plan to produce significant quantities of bioenergy domestically, while generating multiple environmental and economic benefits.[15] This strategy received strong NGO support through Wildlife and Countryside Link.[16]

[15] https://www.forestry.gov.uk/pdf/fce-woodfuel-strategy.pdf/$file/fce-woodfuel-strategy.pdf

[16] https://www.wcl.org.uk/docs/2009/Link_position_statement_Woodfuel_Strategy_03Jul09.pdf