



Large Scale Biomass plants and issues with subsidies through the ROCs system

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Friends of the Earth Scotland considers the use of biomass to be potentially a beneficial renewable source of energy, particularly with regard to the development of localized use of sustainably sourced biomass energy for heat generation. In Scotland, this is particularly relevant for rural households off the electricity grid.

Yet biomass is an inherently different type of technology than other renewable technologies, such as wind, solar or marine. As a depletable resource, it must be used wisely. We are therefore concerned that large-scale electricity generating biomass plants constitute an inefficient use of the resource and create an undesirable incentive for the import of biomass from unsustainable sources such as Brazilian rainforests. We therefore oppose proposals from Forth Energy to build large-scale (100-200MW) plants at Dundee, Grangemouth, Leith and Rosyth.

Subsidies for Biomass

The Renewable Obligation (RO or ROCs) that sets the levels of subsidy available for different renewable energy projects, including that of biomass, is currently being reviewed by both the UK and Scottish Governments. The Scottish Government consultation closed last month and an order is due to be laid before Parliament by summer 2012, subject to affirmative procedure. The Scottish Government have raised concerns about the impact of the UK's proposals on the domestic wood market and the consultation document proposes to remove support for large scale electricity-only stations.¹ While this is welcome, in a number of areas, including co-firing and bioliquids, the proposals mirrored the UK Government's proposals and could lead to an unsustainable level of large-scale inefficient biomass.² Below we set out some of the difficulties with biomass for power generation and the reasons why subsidies need to be radically reformed to ensure biomass plants that have a negative environmental impact are not financially rewarded.

1. Supply/demand

Unlike other renewable technologies that can rightly benefit from subsidies designed to increase demand, this approach to biomass risks the demand for fuel outstripping available supply. We believe any approach to biomass subsidy in Scotland should start with estimated Scottish supply of biomass. The Woodfuel Task Force estimates this as 432,000 tonnes, increasing to a potential 1,000,000 by 2020³. There is a need to ensure that demand isn't allowed to outstrip this figure.

If Forth Energy's four proposals were given the go-ahead it is estimated that they would burn 5.3 million tonnes of wood per year. Perhaps as a result of this they propose to source their biomass from overseas; in this case North America and Scandinavia. Not only is this worrying from a carbon point of view, but there is no global overview of the impact that Scotland importing biomass could have on the world's forests. A range of organisations from North America have already raised concerns about this.⁴

If there is to be financial support for biomass through ROCs, there must be strict rules ensuring subsidies stop when it is apparent that Scottish demand for fuel is outstripping the sustainable availability of Scottish biomass supply.

2. Carbon neutrality

Unlike other renewable technologies that are genuinely carbon neutral, biomass releases carbon when burnt. While this can be offset if additional trees are planted to provide that resource, this payback period has been estimated to span decades if not centuries.⁵

In addition to this 'carbon debt' is the issue of 'indirect land-use change' (ILUC). This stems from the fact that use of biomass for energy necessitates that land cannot be used for alternative uses. As the European Environment Agency Scientific Committee has concluded:

“It is widely assumed that biomass combustion would be inherently “carbon neutral because it only releases carbon taken from the atmosphere during plant growth. However, this assumption is not correct and results in a form of double-counting, as it ignores the fact that using land to produce plants for energy typically means that this land *is not producing plants for other purposes*, including carbon otherwise sequestered.”⁶

ILUC remains unaccounted for in the international carbon accounting system for biomass, leading to serious climate change miscalculations and misdirected policy.

In addition to the carbon impacts are the well-documented social impacts of ILUC, pushing up global food prices and driving millions of poor people off their land, particularly in indigenous communities.⁷

A final complication is the transportation emissions associated with shipping and/or trucking biomass from where it is felled to where it is to be burnt.

Only by taking these factors together - carbon debt, ILUC, and transportation emissions – is a proper analysis of lifecycle biomass emissions attained. The UK Committee on Climate Change (CCC) Bioenergy review published in December 2011, found:

“The current accounting system in the UK reflects these lifecycle emissions only for domestically produced bioenergy feedstocks. Imported bioenergy, which accounts for the majority of total UK bioenergy consumption, is regarded as zero carbon in the national inventory, and hence in carbon budgets.”⁸

Given these concerns, it is clear that subsidies for renewable technology should not be provided unless installers and operators can guarantee that the biomass resource they are using is genuinely carbon neutral (including over what timescale) and avoids other negative human rights and ethical impacts. Biomass imports, even under a Forestry Stewardship Council certification, cannot provide this guarantee.⁹ In our view it would therefore be inappropriate for the Government, even inadvertently, to subsidise imported bioenergy.

3. Efficiency of use

Because biomass is a depletable resource, it must be used wisely. This means, when used for energy, it must be used in the most efficient way possible. Biomass for electricity-only generation is incredibly inefficient. While we welcome Scottish Government moves to withdraw funding for large-scale electricity-only biomass, we

believe there is no justification for subsidy for biomass for electricity at any scale. The cap should therefore be set at 0 MW.

Good quality biomass combined heat and power (CHP) however, can deliver high efficiency levels. While there may therefore be a case for subsidising good quality CHP there are issues around (a) what qualifies as good quality CHP and (b) biomass supply and carbon neutrality.

a) Good quality CHP

The EU Renewable Energy Directive (2009) states “In the case of biomass, Member States shall promote conversion technologies that achieve a conversion efficiency of at least 85 % for residential and commercial applications and at least 70 % for industrial applications”.¹⁰ Similarly, DEFRA’s ‘Quality Assurance for Combined Heat and Power: The CHPQA Standard: Issue 3’ recommends efficiency levels of 70%.¹¹

However, the DECC Guidance Note 44 which the Scottish Government decided in 2009 to apply in Scotland, too, explicitly provides that for the purpose of ROCs this efficiency standard will not apply to all size power stations. It stated that to qualify for ROCs, biomass CHP Schemes over 25MW must demonstrate only 35% overall efficiency (gross calorific value).¹²

As such, if developers were able to achieve efficiency levels as low as 35% and remain eligible for the enhanced ROC banding for biomass with CHP, such a band would effectively serve as a loophole and undermine the intentions made by the Scottish Government to ensure that biomass is deployed in a way to make the best use of available heat and deliver greenhouse gas emissions savings.

b) Carbon Neutrality

The issues around carbon neutrality of biomass, and sustainability of supply, outlined previously in this response, remain valid even if a more efficient use of the feedstock were to be made.

There must therefore be a cap for biomass with CHP. We understand Scottish Government research is suggesting the cap should be 10 MW for dedicated biomass. We believe this cap (10MW) must be extended to biomass with CHP. Alongside this, there must be strict regulations ensuring that demand doesn’t outstrip the total sustainable Scottish supply, is locally sourced and properly managed ensuring genuine carbon emissions savings.

While Friends of the Earth Scotland considers biomass to be a potentially beneficial renewable source of energy and support the development of localised use of sustainably sourced biomass for heat generation, unless the Scottish Government can reassure us how it intends to address these concerns, we cannot have faith that ROCs for biomass are appropriate.

1 Scottish Government news release, 30 October 2011: <http://www.scotland.gov.uk/News/Releases/2011/10/28105521>

2 Scottish Government consultation (closed 13 January) available at: <http://www.scotland.gov.uk/Publications/2011/10/27123530/0>

3 Woodfuel Taskforce (March 2011) ‘Update report to Scottish Ministers’, available at: <http://www.forestry.gov.uk/forestry/INFD-7APFXA>

4 Open letter of objection to Forth Energy’s plans for construction and operation of four biomass power stations from American groups (March 2011: Biomass Accountability Project, Center for Biological Diversity, Dogwood Alliance, Friends of the Earth US, and Save Americas Forests. http://www.foe-scotland.org.uk/sites/files/foes_leithbiomass_objection.pdf

5 Manomet Study of Woody Biomass Energy (June 2010) and subsequent responses to critiques, available at: <http://www.manomet.org/node/322> and Giuliana Zanchi Naomi Pena Neil Bird (May 2010) ‘The upfront carbon debt of bioenergy’, Joanneum Research, available at:

http://www.birdlife.org/eu/EU_policy/Biofuels/carbon_bomb.html

6 European Environment Agency, Scientific Committee (September 2011) 'Opinion on Greenhouse Gas Accounting in relation to Bioenergy':

<http://www.eea.europa.eu/about-us/governance/scientific-committee/sc-opinions/opinions-on-scientific-issues>

7 Friends of the Earth International report (December 2011) 'In the REDD: Australia's carbon offset project in Central Kalimantan':

<http://www.foei.org/en/resources/publications/pdfs/2011/in-the-redd-australias-carbon-offset-project-in-central-kalimantan/view>; and Molnar et al, (March, 2011) "Large acquisition of rights on forest lands for tropical timber concessions and commercial wood plantations". Rights and Resources Initiative (RRI) contribution to ILC

Collaborative Research Project on Commercial Pressures on Land, Rome: http://www.rightsandresources.org/publication_details.php?publicationID=2242

8 Committee on Climate Change (December 2011), 'Bioenergy Strategy Review', page 23:

http://downloads.theccc.org.uk.s3.amazonaws.com/Bioenergy/1463%20CCC_Bioenergy%20review_bookmarked_1.pdf

9 There are a number of reports that some FSC certificates are not guaranteeing rigorous social and environmental safeguards. In recent years founder members, Friends of the Earth England, Wales and Northern Ireland and FERN have withdrawn support: <http://www.fern.org/leavingFSC> and

http://www.foe.co.uk/resource/faqs/sustainable_timber_fsc.html. Moreover, by definition certification systems can only address sustainability on the level of individual plantations, not wider knock-on effects resulting from the increase in demand for wood and energy crops: e.g. the macro-effects of diverting land away from food production towards energy crops.

10 See article 13, available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0016:0062:en:PDF>

11 Quality Assurance for Combined Heat and Power: The CHPQA Standard: Issue 3' (January 2009), available at

https://www.chpqa.com/guidance_notes/documents/CHPQA_Standard_Issue3.pdf

12 DECC Guidance Note 44, 'Use Of CHPQA To Obtain Renewables Obligation Certificates (ROCs) Including Under A Banded Obligation (Expected To Apply From April 2009)' Paragraph 10, page 9, available at https://www.chpqa.com/guidance_notes/GUIDANCE_NOTE_44.pdf