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Dear Mr Rafferty,

Greener Leith submission to the Scottish Government Consultation on amendments to the Renewables Obligation (Scotland) Order 2010.

Please find below our response to section 2 and Section 3 of the above consultation.

What are your views on the need for a review of the balance between support (and the related availability of supplies) for biomass electricity and CHP or heat only stations?

There is a finite supply of Biomass. Recent, independent research[1] indicates that utility scale, electricity only biomass plants fueled mainly by virgin timber are 'a threat to climate and forests.' This is because they are unlikely to produce a significant carbon saving in the 20 year period that the RO subsidies are paid, or in the timescale that Scottish climate change legislation requires.

Indeed, we note that there is growing scientific consensus[2] that "Clearing or cutting forests for energy, either to burn trees directly in power plants or to replace forests with bioenergy crops, has the net effect of releasing otherwise sequestered carbon into the atmosphere, just like the extraction and burning of fossil fuels. That creates a carbon debt, may reduce ongoing carbon uptake by the forest, and as a result may increase net greenhouse gas emissions for an extended time period and thereby undercut greenhouse gas reductions needed over the next several decades."

Therefore large plants, of 50Mw or larger, where very little of the heat is used, should not be eligible for any RO subsidy. RO subsidies should be focussed on supporting biomass plants that repay any carbon debt quickly, by operating efficiently and making full use of all the heat generated at the outset.

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[1] Review of the Manomet Biomass Sustainability and Carbon Policy Study, Clean Air Task Force July, 2010. Available at: http://www.catf.us/resources/whitepapers/files/201007-Review_of_the_Manomet_Biomass_Sustainability_and_Carbon_Policy_Study.pdf

[2] 90 Scientists Urge Congress Not to 'Cook the Books' in CO2 Accounting for Biofuels, Other Bioenergy Sources. Joint letter to US Congress. Available via: http://www.prnewswire.com/news-releases/90-scientists-urge-congress-not-to-cook-the-books-in-co2-accounting-for-biofuels-other-bioenergy-sources-94741714.html

Given the scale of the potential impacts of larger plants, we propose that all plants larger than 50Mw, should conform with CHPQA standards[3] from the commencement of generation, to qualify for any RO uplift a 1.5 or 2 ROCs per Mwh.

What do you think of the Scottish Government's decision to restrict the extension of grandfathering to anaerobic digestion and energy from waste with CHP stations, pending the longer term review of support for biomass referred to above?

Greener Leith supports this decision.

Is 60% saving (equating to 285.12 kg CO2/ MWh) the right minimum GHG emission threshold?

Whilst we can see the benefit of basing emissions thresholds on EU standards, given the scope for growth in the renewable energy sector in Scotland, we suggest it would be more appropriate to seek savings relative to the likely carbon intensity of grid electricity going forwards. By 2030, this is predicted by the Environment Agency[4] to be around 100kg CO2/ Mwh. Proponents of biomass often argue that its use displaces coal fired generation, providing reliable base load power that other, less reliable, renewable sources cannot meet.

However, we note the latest Scottish Government energy policy statement[5] suggests that there will be very little unabated coal fired plant remaining in Scotland in a few decades. Given this, it may be more appropriate to seek, at the very least, an alternative fossil fuel reference, such as combined cycle gas turbine power generation.

This point is particularly pertinent to biomass plants where the heat generated is not used to offset further fossil fuel use in providing heating or cooling nearby.

Do you agree that the sustainability criteria restricting the types of land used should be consistent with the criteria imposed on bioliquids by the RED?

We have no comment on this aspect of the consultation.

Do you agree that biomass generators above 50 kW should be required to report against the sustainability criteria from April 2011? What is your view on the information that should be included in the report?

The report should include details of the nature of the fuel, volume of fuel, source of the fuel, land use history, chain of custody information, and information on any 3rd party certifying bodies and the specific certificates relating to the fuel used.

In addition, the biomass plant operators should make this information easily and freely available on their website. Locating these reports on the existing public sector websites is not a simple task.

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[3] CHPQA Guidance Notes. CHPQA. Available at: http://www.chpqa.com/html/notes.htm

[4] Biomass: Carbon Sink or Carbon Sinner? (2009) Environment Agency. Available at: http://www.environment-agency.gov.uk/business/sectors/32595.aspx

[5] "Draft Electricity Generation Policy Statement 2010: Scotland - A Low Carbon Society." (2010) Scottish Government. Available at: http://www.scotland.gov.uk/Publications/2010/11/17094217/0

Do you agree that for biomass generators of 1 MW and above there should be a transition period of mandatory reporting against the sustainability criteria from April 2011, before compliance is linked to the receipt of ROCs from April 2013?

Yes.

Do you agree that, for biomass generators below 1 MW, compliance with sustainability criteria should not be linked to the receipt of ROCs?

Yes.

Do you agree with the exclusion of waste as well as sewage and landfill gas? Should anything else be excluded?

No, waste sources, but not landfill gas or sewage, should be included in reporting requirements for plants larger than 50Mw. We note for example, that some wastes, such as paper, deliver a greater carbon saving if they are recycled[6], rather than incinerated. There is therefore a carbon cost associated with using some wastes as fuel in a biomass plant.

In order to promote public transparency and to encourage operators of plants that use waste as a fuel to focus on sources that will generate a genuine carbon saving, waste fuel types, sources, and quantities should be disclosed.

Furthermore, given the public concern over the combustion of wastes of all kinds, we argue that it would help to allay some of these fears if public disclosure was regarded as a key part of operating plants that rely on waste fuel sources to operate.

Do you consider that sustainable forestry management practices should be a mandatory part of the criteria, or addressed in guidance? In particular, how can the potential environmental impacts on woodlands be balanced against the compliance burdens on small businesses?

Larger plants should be subject to mandatory reporting criteria. An ongoing commitment to sourcing fuel from sustainably managed forests are vital to ensuring that the carbon savings claimed by plant operators are delivered. Furthermore, given that increasing use of biomass for electricity use is likely to lead to more intensive use of the existing forest resource, as well as the conversion of land from other uses, then third party certification of forest management practices will play a vital role in helping to mitigate against long term land degradation and loss of biodiversity.

Whilst none of the main certification schemes provide a 100% guarantee of sustainability, we believe that RO payments should be predicated on the use of Forest Stewardship

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[6] Environmental Benefits of Recycling, WRAP, May 2006. https://docs.google.com/viewer?a=v&pid=explorer&chrome=true&srcid=1r2PdPyHrFuEQY1dyxHHK4msVOLsR7i7Hv8is7U-K6SLkYZt6P1dgNOMlZ7Ad&hl=en&authkey=CJ7DgN8P

Council certified wood fuel as this has the most robust standards and best Chain of Custody monitoring.[7]

Do you have any other comments on the issues or proposals in this chapter?

For developers proposing plants in excess of 50MW, it is vital the Scottish Government conducts an independent assessment (funded and commissioned by the Scottish Government and made available to the public in full) of the emissions saving claims and Life Cycle Analysis supplied by the developer.

Furthermore, given that all biomass plants start life with a 'carbon debt,' all such analyses should clearly demonstrate that the claimed carbon savings can be delivered within the lifetime of the subsidy payments. Biomass developments that cannot meet the minimum carbon emission threshold within the twenty year lifetime of the subsidy scheme, should not be eligible for RO support.

We believe that further oversight of large plants is justified as there is the scope for these plants to qualify for a great deal of public subsidy through the RO scheme. The potential environmental impact of these plants is also much larger.

For example, we estimate that the large biomass plant for Leith, currently proposed by Forth Energy, is likely to qualify for around £800million in RO public subsidy over the 20 years it operates - even assuming it operates with more than 25% downtime. Given the large sums of public money that are at stake, it is vital that it is spent wisely - on projects that will deliver a carbon saving in the timescale that is demanded by both the science of climate change and Scottish Government legislation.

In addition, we propose a moratorium on the construction and consenting of all large biomass plants in Scotland until a policy and scrutiny mechanism is put in place that ensures a public, independent verification of developers GHG emissions claims can take place. This moratorium proposal has gained considerable support from other organisations and politicians at every level of government[8] and across the political parties[9].

As an example, to underline the importance of independent scrutiny, we note from our own analysis of the Life Cycle Analysis (appendix 1, attached) supplied by Forth Energy for their proposed large Biomass REP at Dundee that it may be based upon several omissions and assumptions that serve to inflate the likely carbon savings the plant will deliver. Secondly, it contains no information on when the claimed carbon savings will be realised. Thirdly, the full, 'independent' report conducted by SISTECH, on behalf of Forth Energy has not been released to the public for external scrutiny.

It has therefore not been possible for members of the public, to understand with certainty how the figures proposed in the Environmental Statement for this plant have been arrived at. This leads us to question whether the Government Officers responsible for assessing

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[7] "FSC summary report - Comparative analysis between the FSC Controlled Wood requirements and PEFC, PEFC Germany and SFI".(2009) Available at: http://www.fsc.org/fileadmin/web-data/public/document_center/publications/PEFC_and_FSC/FINAL-Summary_Report_FSC_CW_and_PEFC-EN.pdf

[8] "National Call To Halt Big Biomass" Greener Leith, Oct 2010. Available at: http://www.greenerleith.org/greener-leith-news/2010/10/6/national-call-to-halt-big-biomass.html

[9] "Cross party support for Biomass Debate" 22/11/2010 The Guardian. Available at: http://www.guardian.co.uk/edinburgh/2010/nov/22/edinburgh-leith-biomass-parliament-debate-motion-somerville

the application have sufficient data to be able to judge the quality of the supplied Environmental Statement, and Life Cycle Analysis in this case too.

At the very least, developers must be required to provide sufficient detail in their Environmental Statements (and justifications/sources for any associated data) for a professional analyst to understand the assumptions, judge the quality of the Environmental Statement, and re-produce the results.

Whilst we do not have the resources to conduct a detailed analysis of the Forth Energy LCA on our own, we include this brief analysis below that highlights some key omissions and convenient assumptions in the Forth Energy Environmental Statement, in order to demonstrate the importance of independent, transparent assessment of GHG savings claims made by developers proposing large, utility scale biomass plants.

About Greener Leith

Greener Leith is a registered Scottish Charity set-up in 2006 and managed ever since by residents of Leith. Greener Leith aims to promote Sustainable Development, Community Involvement and Better Public Spaces.

Greener Leith is a strong advocate for action on climate change.

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Appendix 1. Omissions and Misleading Assumptions in the Forth Energy Dundee REP LCA.

1. Use of heat.

According to the documentation provided by Forth Energy, the Life Cycle Analysis is based upon the "expected electricity/heat output," as opposed to the actual use of heat when the plant is constructed.

Forth Energy have no confirmed customers for the heat generated by the Dundee plant, nor does it have developed plans to construct a district heating network. Therefore, it is likely to operate as an "electricity only" plant for many years after construction. This means it will operate at an efficiency of around 35%, whereas a CHP plant of a similar scale, where the heat is used, is likely to operate at an efficiency of 80-90%. The difference in the GHG savings associated with the plant assessed at 'actual heat use' and 'expected heat use' is likely to be significant - and serves to significantly over-inflate the claimed carbon savings that the plant is likely to deliver over the lifetime of the RO subsidies.

2. All waste diverted from Landfill would release an immediate and equivalent quantity of methane.

It is proposed that the Forth Energy plants will operate using a combination of virgin timber (70 - 90%) and "other fuels" (10-30%) including paper, cardboard, timber, treated timber, Miscanthus, Short Rotation Coppice and agricultural residues.

The Life Cycle Analysis assumes that all the waste that is burned in the plant avoids the equivalent amount of waste being sent to landfill and 'credits' the emissions profile of the plant with a GHG saving equivalent to an immediate release of methane. Methane is a potent GHG, and in the words of the LCA itself, "Even though the overall percentage of wood waste to be included in the fuel mix is very small (<2%), the avoided methane emissions are significant."

This assumption also serves to inflate the GHG savings claimed for the plant. In the case of wood, paper and cardboard wastes there is no recognition that this waste could be recycled rather than burnt. Recent research by WRAP (referred to earlier in this paper) highlights that there is a greater carbon saving from recycling paper than incinerating it. Furthermore, whilst data on the relative merits of recycling wood over incinerating it is not available, we should point out that any incineration of waste wood that involves the use of the heat, is likely to lead to a greater carbon saving over incineration in the plant proposed for Dundee where the heat will not be used.

Even if it were assumed that that all this waste went to landfill, rather than crediting the proposed plant with an immediate GHG saving, a time based analysis would recognise that the waste would decompose slowly over time, so it is incorrect to attribute an immediate saving. In addition, modern landfill sites capture around 92%[10] of the methane released by the decomposing waste - and burn it to produce, energy, CO2 and water. It would appear therefore, that this is a second assumption that serves to exaggerate the carbon savings produced by the proposed plant.

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[10] An estimate of methane emissions from UK landfill sites based on direct flux measurements at representative sites. (1997) National Physical Laboratory. Available at: http://www.npl.co.uk/server.php?controller=publication&action=conPublication&contentId=887

3. The timber used in the plant would be incinerated elsewhere, were it not used to produce electricity by Forth Energy

The LCA provided by Forth Energy makes no assessment of what would happen to the timber that will be burnt in the proposed Dundee plant, were it not burnt to produce electricity.

Given that the plant will use timber from 'third party certified sources' it is likely that most of the fuel will be sourced from existing commercial plantations. Harvesting it and burning the timber produces an immediate carbon emission that must be sequestered by the subsequent growth of new trees. This process can take many, many decades.

If the timber were used for building materials, paper, packaging, or furniture then the carbon emissions associated with these uses would not take place immediately - and the relative balance between sequestration from regrowth and emissions is more easily maintained.

Furthermore, if the global commercial timber market becomes dominated by utility scale, electricity only biomass plants then other uses that have less short term carbon impact may be priced out of the "certified" market. This could lead to product substitution in some markets and this presents a potential carbon cost to the project. For example, research suggests[11] that wood framed houses use about 10% of the carbon associated with concrete and masonry during construction.

By ignoring the fact that there are other uses for existing commercial timber plantations that release significantly less carbon over the short - medium term, the Forth Energy LCA overstates short-medium term carbon savings.

4. All sources of biomass are 'carbon neutral.'

The carbon emitted by burning biofuels is not inherently carbon neutral, but a function of the source of the biomass and the net effect of any land use change.[12] As, Searchinger et al. put it, "the clearing of long-established forests to burn wood or to grow energy crops is counted as a 100% reduction in energy emissions despite causing large releases of carbon."

They identify a carbon accounting "error" where net carbon emissions at harvesting are not counted by current EU polices - but neither are they counted on combustion. The solution they propose is, "to fix the accounting of bioenergy. That means tracing the actual flows of carbon and counting emissions from tailpipes and smokestacks whether from fossil energy or bioenergy. Instead of an assumption that all biomass offsets energy emissions, biomass should receive credit to the extent that its use results in additional carbon from enhanced plant growth or from the use of residues or biowastes."

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[11] "Carbon Sequestration in Forests" (2009) Congressional Research Service. Available at: http://www.fas.org/sgp/crs/misc/RL31432.pdf

[12] Fixing a Critical Climate Accounting Error (2009) (Searchinger et al.) Science Magazine. Available at: https://inlportal.inl.gov/portal/server.pt/document/71117/tab_8,_fixing_a_critical_climate_accounting_error_pdf

The LCA provided by Forth Energy makes no assessment the carbon emissions associated with the land use impacts that harvesting large amounts of timber to generate electricity, or converting land to use as energy crops, will have. Instead it makes a simplistic assumption that simply replacing every tree cut down with another one will mitigate against all carbon emissions.

Just as in the biofuels sector, the huge international growth in demand for timber and the resultant direct and indirect land use management, changes that these utility scale, electricity only plants are likely to promote will drive further net carbon emissions that are currently poorly accounted for. This is a further critical omission that serves to over estimate[13] the likely carbon savings associated with the proposed Dundee plant.

[13] "EU Biofuels Driving Environmental Destruction" Friends of the Earth. Available at:http://www.foe-scotland.org.uk/news081110