

May 2015

Re: the Fifth Carbon Budget – Call for Evidence



Question 12: What would you consider to be important characteristics of an effective carbon budget? What is the evidence for their importance?

We are responding on behalf of Biofuelwatch, a UK and US-based organisation that campaigns on issues of industrial-scale bioenergy. We wish to only present evidence on bioenergy aspects of the Fifth Carbon Budget.

Since the publication of the Fourth Carbon Budget and the Committee's Bioenergy Review that preceded it, evidence on the carbon emissions associated with bioenergy, and indeed the environmental and social impacts of large-scale bioenergy, has increased substantially.

At the same time, bioenergy has continued to be a central pillar of renewable energy policy in the UK, with key infrastructure and policy developments leading to a major increase in volumes of imported wood for electricity generation in particular. In 2014, bioenergy accounted for 70.5% of fuel input (in oil equivalents) into UK renewable energy generation, with plant biomass and co-firing comprising 22.1% of this. In addition, transport biofuels accounted for another 9.7% of the bioenergy total¹. These figures will all increase as new biomass-burning capacity comes online and with an increase in the Renewable Transport Fuel Obligation mandate.

In 2013, wood pellet imports reached over 5 million metres cubed (equivalent to around 3.5 million tonnes), more than doubling from 2012². Support for large-scale biomass electricity generation in the form of Renewable Obligation Certificates and Contracts for Difference is driving this increase. Figures for imported wood pellets in 2014 are expected to be significantly higher again, as Drax increases its biomass use and as new power stations come online or are (partially) converted from coal to biomass. Indeed, Drax alone increased pellet use from 0.7 million tonnes in 2012 to 1.6 million tonnes in 2013 and 4.1 million tonnes in 2014. It will burn up to 6.9 million tonnes once its third unit conversion is completed in 2016. The vast majority of these pellets are imported and each tonne of pellets requires 2 tonnes of green wood.

Support for biomass electricity in the UK is awarded on the assumption that electricity generated this way is low-carbon. However, generators are required to use a flawed carbon accounting methodology to report on emissions intensity, a methodology that has been robustly criticised by many members of the scientific community, as well as the Department of Energy and Climate Change's own further work on accounting for emissions from this sector³ (as discussed below). Despite this though, the continued support offered to energy generators in the form of lucrative renewable energy subsidies is incentivising biomass burning, making it an ever more important part of the UK energy mix.

For example, the largest biomass power station in the UK, Drax in Yorkshire, is currently reporting substantial carbon emission reductions from the biomass that it burns. These figures are accepted by Ofgem and DECC, responsible for overseeing and administering the renewable energy subsidies that Drax receives. Drax's carbon accounting relies on the Ofgem Solid and Gaseous Biomass Carbon Calculator (B2C2), based on the EU's Renewable Energy Directive, a framework that does not account for changes in the carbon stock of the forest, foregone carbon sequestration of land, or indirect impacts on carbon stocks in other areas of land.⁴ These omissions are significant, and result in large discrepancies between

1 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/337684/chapter_6.pdf Page 4/160

2 <http://www.forestry.gov.uk/website/forstats2014.nsf/o/5EEODC427449DFC380257356002DD152>

3 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/349024/BEAC_Report_290814.pdf

4 According to Ofgem, "The UK Biomass & Biogas Carbon Calculator incorporates the calculation methodology set out in the Renewable Energy Directive [Directive 2009/28/EC of the European Parliament and Council on the use of

carbon intensities being reported by generators, and actual levels of emissions when all contributing factors are taken into account.

Recent publications by DECC support this view. Last year, DECC published its Biomass Emissions and Counterfactual (BEAC) model and report, which looked at the potential availability of North American biomass feedstocks for electricity in the UK in 2020, along with associated greenhouse gas intensities and energy requirements. The report highlights the significant flaws in the Renewable Energy Directive methodology, as have been described above.⁵

Based on BEAC, several of the pellet sources declared by Drax would have higher emissions than those of equivalent electricity from coal over a substantial period. Evidence documented by environmental organisations in the southeastern US, when applied to the BEAC, can be used to show that certain sourcing by Enviva, a major Drax pellet supplier, is comparable to Scenario 13(a) resulting in a carbon intensity of 3346 kg CO₂/MWh, and Scenario 13(b) resulting in a carbon intensity of 2717 kg CO₂/MWh. An average of these two scenarios results in a carbon intensity 3 times the 1018 kg CO₂/MWh attributed to burning coal.⁶ Despite this, Drax power station is consistently reporting greenhouse gas emissions that are substantially lower than the targets it is required to meet.⁷

We have compiled a detailed list of studies and peer-reviewed articles that deal with the carbon impacts of biomass electricity, that can be found here: <http://www.biofuelwatch.org.uk/resources-on-biomass>. In addition, the report "Dirtier than coal?" published by RSPB, Friends of the Earth and Greenpeace can be found here: www.rspb.org.uk/Images/biomass_report_tcm9-326672.pdf, dealing in detail with biomass carbon debt. The scientific community is increasingly appealing to policy makers to correct carbon accounting mistakes, for example: http://docs.nrdc.org/energy/files/ene_13090603a.pdf.

From the evidence detailed above it is clear that current bioenergy policy in the UK contradicts climate science in terms of how carbon emissions from this sector are accounted for, and therefore what support they are eligible to receive.

Without an accurate and independently verified assessment of actual carbon savings from bioenergy that accounts for changes in forest carbon stocks, as well as direct and indirect impacts on land, any carbon budget set for bioenergy will be deeply flawed and significantly underestimate emissions from the sector. The assumption that bioenergy is carbon neutral, with accounting only for fossil fuels used during logging, processing and transportation of feedstocks and direct land use change, would undoubtedly lead to missed carbon reduction targets, considering the size of these sectors. It is important to note that neither clearfelling of forests nor conversion of native forests to industrial tree plantations, both of which result in large carbon emissions, are classed as 'land use change' under government rules. Because of this, none of these emissions would be accounted for under currently proposed greenhouse gas standards in the UK.

If the Committee fails to fully investigate these issues and recommends that bioenergy be treated as per the findings of the 2011 Bioenergy Review and the budgets set in the 4th Carbon Budget, any outcomes of this process will have limited value and hamper efforts to tackle climate change globally, and reduce the UK's contribution to it.

Contact: biofuelwatch@gmail.com

energy from renewable sources and subsequently repealing Directives 2001/77/EC and 2003/30/EC], taking account of the recommendations set out by the European Commission in their report on sustainability requirements for solid and gaseous biomass [Report from the Commission to the Council and the European Parliament on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling, SEC(2010) 65 and SEC(2010) 66]." See: <https://www.ofgem.gov.uk/publications-and-updates/uk-solid-and-gaseous-biomass-carbon-calculator>.

⁵ "However, the Renewable Energy Directive LCA methodology does not account for changes in the carbon stock of a forest, foregone carbon sequestration of land, or indirect impacts on carbon stocks in other areas of land" See: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/349024/BEAC_Report_290814.pdf, Page 5 and a more detailed explanation on Page 41.

⁶ See also <https://www.foe.co.uk/sites/default/files/downloads/decc-s-biomass-carbon-calculator-beac-what-it-means-bioenergy-74112.pdf>

⁷ <http://www.drax.com/biomass/biomass-data/>