

Sustainable Biomass: A Modern Myth: Executive Summary

A review of standards, criteria, and schemes certifying industrial biomass as "sustainable", with particular emphasis on UK biomass electricity developments, September 2012

Full report available at www.biofuelwatch.org.uk/2012/biomass_myth_report

Large-scale industrial bioenergy expansion, mostly wood burning for electricity, is rapidly expanding globally with policy supports that include subsidies and mandates for alternative, "renewable" energy. The UK is at the forefront of this expansion, with industry plans which, if implemented, would result in burning 90 million green tonnes¹ of wood a year - nine times as much wood as is produced annually. UK is thus set to become an importer of wood for energy on a globally unprecedented scale. As evidence of serious negative impacts on forests, other ecosystems, air quality, climate as well as human rights including land rights has mounted, the solution proposed is to require certification in accordance with sustainability standards. These standards, mandatory ones proposed in the UK and discussed in the EU, and voluntary ones being drawn up by industry, are being developed simultaneously with the creation of this large new artificial global market in wood. Government and industry are thus linking sustainability policies to large-scale investments in bioenergy supply chains and power stations. This is the context within which sustainability standards are being developed and in this context, sustainability standards cannot address the wider, largely indirect, impacts of creating a fast growing new market for wood given that already existing demand for wood, including for paper, is already unsustainable and a major driver of global deforestation and forest degradation. The negative impacts result from the scale of demand itself, a function of subsidies and mandates. The UK will soon become the first country in the EU, and indeed the world, to introduce mandatory biomass sustainability standards for all subsidised bioenergy.² This report therefore focuses on UK, but is widely relevant wherever standards and certification, as well as companies' own biomass sustainability policies are offered as a means to ensure sustainability.

Growing Concerns: Wood for bioenergy in the UK is increasingly imported, primarily from Canada, the Southeastern US, Eastern Europe and Russia and Scandinavia. South America (especially Brazil), and Central and West Africa are seen by industry as providing large future sources of biomass imports into the UK and other EU countries. Given that most of the larger biomass power station plans in the UK are import-reliant, the impacts will largely – though not exclusively - be felt overseas. While there is talk of using "forestry wastes and residues" these are clearly not available in sufficient quantity and wood from whole trees – chipped or pelletised - are required. Bioenergy companies repeatedly assert that plenty of biomass is available. Among other myths explored in this report, they claim that large amounts of wood can be safely removed from beetle infested forests in North America, that greatly increased logging can reduce the risk of catastrophic wildfires, and provide large amounts of biomass, and that large areas of abandoned, marginal or waste lands are available for bioenergy production worldwide. Increased demand for bioenergy is already resulting in the more intensive logging including very destructive whole tree harvesting or brash removal and replacement of forest and other ecosystems with monocultures. Expansion of industrial tree plantations for bioenergy is expected to lead to further land grabbing and land conflicts. At the same time, communities affected by biomass power stations are exposed to increased air pollution (particulates, nitrogen dioxide, sulphur dioxide, dioxins etc.) and thus public health risks. Meanwhile, a growing number of scientific studies show that burning wood for energy commonly results in a carbon debt of decades or even centuries compared with fossil fuels that might otherwise have been burnt.

¹ Green tonnes of wood are tonnes of harvested wood which contain a high proportion of moisture.

² The US state of Massachusetts has also approved mandatory biomass standards, however both the context and the standards are quite different from those in the UK and are not discussed in this report.

Industry, policy-makers, and even some environmental groups, assume that these problems can be addressed by requiring that wood for bioenergy be certified or audited in accordance with sustainability standards. But will this approach work?

The certification industry: Globally, sustainability certification and auditing has itself become a big business, set to become much bigger still as there is growing interest in, and profitability from industry selling itself as “green” and “sustainable”. Major new “green industry” initiatives are being established - by industry sectors, by various new “public-private partnerships” and as a result of government policies. Whether a timber, energy or other company chooses its own label, a national or less known industry standard or a global certification scheme such as the Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification (PEFC), the two largest wood certification schemes, chances are that it will turn to a firm belonging to the same group of private “inspection, verification and certification” companies. These include SGS, Bureau Veritas, TÜV SÜD and TÜV NORD as well as Peterson Control Union and their subsidiary, Control Union Certifications, and Scientific Information Systems. These companies specialise in sustainability (and other) inspections, verification and certification and offer a broad array of certificates, labels and standards. Many of them are the same companies that also profit from carbon trading, as accredited verifiers for the Clean Development Mechanism and/or other schemes. Sustainability services are thus a big and profitable business. Bureau Veritas for example describes itself as having “80,000 clients in more than 100 countries, delivering over 100,000 certificates... the world's leading certification body”. SGS refer to themselves as the “world's leading inspection, verification, testing and certification company”, with over 70,000 employees and more than 1,350 offices and laboratories. In 2011, their total revenue was 4.8 billion Swiss Francs (£3.17 billion or \$4.9 billion). A closer look at these companies is critical to assessing whether certification for bioenergy can or will be effective.

Certification companies are not necessarily committed to sustainability, but rather profit from whatever certification industry requires. For example, SGS, at the forefront of wood certification (offering FSC, PEFC, SFI and other certificates), also “*partners the coal mining industry providing extensive analysis, sampling and superintendence to drive productivity and speed to market.*” SGS also includes investors Alberta's tar sands industry amongst its clients: “*By evaluating environmental protection, SGS provides the transparency the oil sands industry needs to generate trust.*”

Complaints against the certificates awarded by these companies are all too common, and in some cases have resulted in suspension or revocation of their status as accreditors. For example, illegal logging by the Malaysian logging company Barama (Samling subsidiary) in Guyana had been FSC certified by SGS. SGS also certified Veracel Celulose eucalyptus plantations in Brazil even as Veracel was under severe criticism for human rights abuses, and had almost 900 legal cases, including several criminal suits, pending against it. Veracel was subsequently fined and ordered to remove eucalyptus from 96,000 hectares of Atlantic Forest. SGS also certified wood by Sinar Mas subsidiary Asia Pulp and Paper in Indonesia as sustainable, according to the PEFC. Asia Pulp and Paper have been identified as one of the main companies responsible for the destruction of rainforests including peatlands and critical orangutan habitat in Sumatra, as well as for serious social and land conflicts.

Biomass burnt at the world's largest biomass power station, RWE NPower's Tilbury B³ (converted from coal) is largely certified in accordance with the “Green Gold Label” by Control Union Certificate, (a subsidiary of Peterson Control Union Group). The same consultancy firm acted as consultants to counter Greenpeace criticism of another notorious Sinar Mas Subsidiary in Indonesia, palm oil company PT Smart. The operators of the UK's largest coal power station, Drax, who have so far been burning the largest volume of biomass in the UK, have engaged “Terra Veritas” which appears to have no experience with forest certification, to verify the sustainability of their supplies.

Industry can “shop around” to find a certification company that will best serve its interests, or develop its' own internal procedures.

UK biomass sustainability and greenhouse gas standards (as well as those debated in the EU) are set to largely mirror those that currently apply to biofuels under the EU Renewable Energy Directive (RED). The

³ Tilbury B's 750 MW biomass capacity is by far the biggest worldwide, however due to a major fire in February 2012 they have been operating well below their capacity and have probably burnt less wood than Drax.

RED allows energy companies which blend biofuels to shop around among a large number of verification and certification companies in order to find one most likely to verify that their biofuels meet the standards. Biofuels certified under various, so far nine, voluntary standards, including several producer's own in-house schemes are eligible. Similarly, energy companies investing in biomass are already developing their own in-house sustainability policies.

Drax, engaging the services of TerraVeritas, put forward seven principles of sustainability. Those state that producers will be required to answer questions on a form assuring compliance with these principles. There is no indication that any sort of verification will be required. Sparse information previously provided by Drax about their biomass suggests that they have not consistently complied with their own policy.

Forth Energy (proposing three large biomass power stations in Scotland) promised to develop a comprehensive biomass sourcing policy to address minimum greenhouse gas savings, including direct and indirect land use change impacts, wider environmental and social impacts and to be independently audited and verified. So far however, Forth has produced no such a policy, nor specified who would audit its supplies or where they would come from. Instead, it has commissioned reports from consultancy firms SISTech and Pöyry (a consultancy with long and controversial history of writing optimistic, contract-winning, assessments for industries) to show that sufficient sustainable supplies would be available worldwide and that high levels of greenhouse gas savings would be reached by the proposed power stations.

RWE NPower (operators of the 750 MW Tilbury B cofiring plant) has clearly indicated its pellets will be largely sourced from the Southeastern US and Canada (British Columbia). They are investing in their own pellet production facilities in Georgia, US – the world's largest so far - and have their internal procurement set of sustainability principles. They are working towards having all of their pellets "independently assured" under the Green Gold Label (GGL). The independence of the Green Gold Label accreditation scheme however, is highly doubtful: The two only members of GGL's Executive Board represent RWE. Pellets from the SE US are largely derived from massive pine plantations planted after clearcutting native forests in one of the most biodiverse regions in the Americas. In this context, sustainability tends to be defined narrowly in terms of "growing more pine than is harvested".

E.On, with several large biomass investments including the planned conversion of Ironbridge coal power station to biomass, has contracted with Enviva who are to supply wood pellets also from the Southeastern US. E.On, like other energy companies, has a sourcing sustainability policy, but no means of ensuring and verifying compliance with vague principles. For example, their policy states "*Biomass production shall be undertaken in such a way as to contribute to the social and economic development of local, rural and indigenous peoples and communities*". According to E.On's biomass policy they do not even commit to any type of external auditing. Internal and external audits and even site visits may be undertaken by their own staff – yet they have no experience or qualification related to forest management or verification of wood supply chains.

Enviva has obtained chain of custody certification for their pellets from SFI, PEFC and FSC. Chain of custody certification is based on web based "risk assessment", without any requirement for site inspections.

The largest wood pellet investors and users in Europe are now collaborating to draw up their own standards and "inform" policy makers. The Initiative Wood Pellet Buyers (IWPB), launched by GDF Suez, includes six of Europe's largest energy companies. While the IWPB principles appear in some respects more comprehensive than some others, there is, once again, no indication they are serious about developing a robust system for verification. Proof of compliance could simply require a statement from one of several verification consultants, instructed by an energy company. No transparency rules or avenues for appealing are proposed. Such standards based upon business contracts between companies and their chosen consultancy firms, paid to provide allegedly "independent" verification, can ensure nothing other than that a company has ticked the right boxes.

Voluntary forestry certification schemes, FSC/PEFC are assumed by energy companies and the UK and Scottish Governments to be reliable proof of sustainability in spite of mounting evidence to the contrary. PEFC, founded by forestry industry groups, endorses a wide range of schemes, dominated by forestry industry whose primary interest is to maximise productivity in terms of wood production. NGO evidence has shown PEFC certificates having been granted for wood associated with a wide range of

environmental destruction and violation of human rights. FSC has enjoyed support from more NGOs, although several have resigned their membership in recent years and many concerns have been raised. For example, FSC has been criticised for certifying monoculture tree plantations, including invasive species, as sustainable. FSC certificates have been granted in respect of wood from illegal sources, destructive logging including clearcutting of oldgrowth and other highly biodiverse forests, plantations linked to the eviction of communities, violent human rights abuses, soil and water depletion and pollution, as well as the killing of wildlife such as more 2000 baboons in South Africa. In sum, even the most widely respected forest certification scheme cannot ensure that wood certified as sustainable complies with its own principles and criteria nor with what most people would regard as basic requirements for genuinely sustainable forestry.

Proposed mandatory UK biomass sustainability standards. The UK and Scottish Governments are to introduce mandatory biomass sustainability and greenhouse gas standards for all biomass electricity subsidised through Renewable Obligation Certificates (the main driving force behind the expanding biomass industry) from October 2013. These are expected to also apply to bioenergy subsidised through the Renewable Heat Incentive. They will be based largely on EU biofuel standards with the addition of Sustainable Forestry Management ones which would include any wood from forests and tree plantations certified by the FSC or PEFC.

Among other limitations, EU biofuel standards have been criticised for ignoring human rights and other impacts on people, impacts on water and soils as well as all emissions from indirect land use change, arguably the largest source of biofuel emissions. The same concerns apply to proposed biomass sustainability standards, yet those will be even weaker than biofuel ones: Under the EU RED, biofuels produced at the expense of forests do not qualify as sustainable, however industrial tree plantations (other than palm oil) and clearcuts are classed as 'forests' by the EU and UK. While palm oil from plantations established at the expense of biodiverse forest in, say, Indonesia, would (in theory) fail the biofuels standard, wood pellets from timber plantations from the same forests could be classed as sustainable.

As well as indirect land use change, the well-documented carbon debt from biomass energy will also be ignored. This is the carbon spike which occurs because burning wood for electricity releases on average 50% more carbon dioxide than burning coal for the same unit of electricity, yet it will take future trees and other vegetation decades or even centuries to re-absorb that carbon, if it is reabsorbed at all.

The report considers whether improved greenhouse gas standards could in theory provide assurances that any bioenergy generated genuinely reduces greenhouse gas emissions. It concludes that this would not be possible: It would be impractical and virtually impossible for any life-cycle assessment of emissions from logging and land conversions to fully capture the diverse, intricate, often indirect complexities of forest ecosystems, soils, biodiversity, human social and economic factors and more that contribute to emissions. Furthermore, the precise length of the carbon debt of bioenergy depends on assumptions about what will happen to forests and plantations in decades to come, i.e. on predictions which are impossible to make with any certainty. It concludes that energy policies must be informed by the science which shows that large-scale biomass will commonly worsen climate change for the foreseeable future and that this requires fundamental policy change, not different biomass standards. Renewable energy policies and subsidies need to be fundamentally reformed, to ensure that supports for large-scale industrial biomass are curtailed.