UK-based power companies are using the myth that biomass is 'carbon neutral' to continue their emissions and greenwash their polluting activities permitted under the EU Emissions Trading System and other EU legislation. This deceptive accounting undermines analysis that places emissions from biomass on a par with fossil fuels. This British biomass boom is set to benefit polluters and cause widespread environmental destruction through land grabs and deforestation.

Nothing Neutral Here:

Large-scale biomass subsidies in the UK and the role of the EU ETS

CARBON TRADE WATCH

May 2012

Nothing Neutral Here: Large-scale biomass subsidies in the UK and the role of the EU ETS

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Executive summary

The UK government is subsidising the generation of biomass energy despite the fact that this will promote high carbon emissions, land degradation and cause deforestation. It is estimated that around 80 million tonnes of wood is expected to be burned in UK power stations each year.[1] Without overall reduction in energy use, much of the biomass required would be imported from outside the UK.

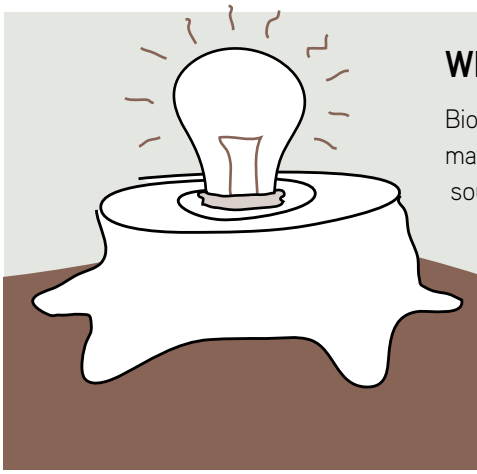
These subsidies are justified on the premise that energy generated by burning biomass causes no emissions: a myth imported into the design of the failed EU Emissions Trading System (EU ETS). While large energy companies looking to switch to biomass are currently accounted for in the EU ETS, emissions reductions reporting will be greatly exaggerated based on false biomass 'carbon neutral' status. This faulty misapplication of emissions accounting stems from UN guidelines provides further evidence of the EU ETS as a failed mechanism to reduce emissions.

Moreover, the myth creates the hope for polluters to bypass EU legislation such as the Large Combustion Plant Directive (LCPD) which demands that UK's coal and oil power stations be retrofitted for the purpose of reducing sulphur dioxide. This would allow polluters to not only keep their business going but also to be subsidised with public funds.

Companies investing in biomass energy on the premise that it is 'carbon neutral' avoid reporting emissions and perpetuate the false idea that they are using a clean and green source of energy, thus ignoring the high emissions and environmental impacts caused from land use change at the source of wood production as well as transport and during combustion.

Major UK utilities have already begun expansion. UK power utility RWE Energy for example, plans to expand its biomass imports from the US and Canada, partially from its own huge pellet facility in Georgia, US. Drax Power is also sourcing wood from the US and Canada, in regions that have already experienced high levels of deforestation and forest degradation from bioenergy. In 2010 MGT Power concluded a Memorandum of Understanding (MoU) with the Brazilian plantation company Suzano Papel e Celulose whose operations are likely to damage *cerrado* and Atlantic rainforest ecosystems, and threaten the livelihoods of local communities.

As global emissions continue to rise to unprecedented levels, irreversible climate change is rapidly becoming inevitable.[2] Protests and efforts to build political momentum against large-scale biomass energy facilities continue throughout the country, urging the UK government to end its subsidies for biomass and start reducing emissions at source. By 'overlooking' the emissions and land-related effects from growing biomass, a market is built based on increasing deforestation, land grabs and carbon colonialism.



What is bioenergy?

Bioenergy is the generic term for heat and power generated from burning organic materials.[3] It is used to describe energy derived from the transformation of biological sources, i.e. biomass including solid, liquid or gas fuels. The Earth produces biomass amounting to over 230 billion tonnes of trees, bushes, grasses, algae, grain, microbes and other biological sources per year.[4] When used on a small scale, biomass energy can often come from a by-product, residue or waste product of other processes, such as agriculture, animal husbandry and forestry.

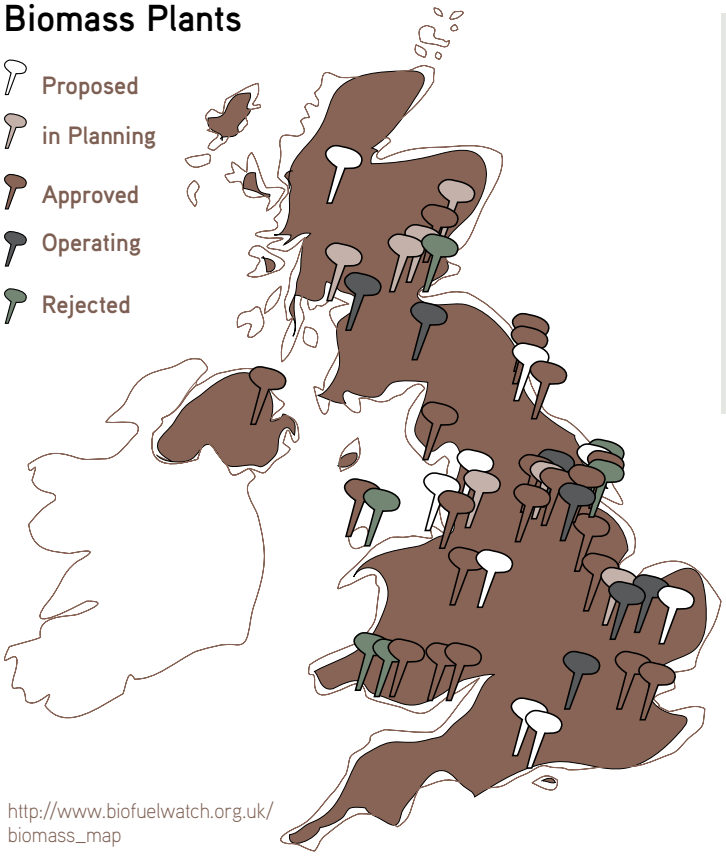
1. The British Biomass Boom

Generous state subsidies are leading to sky-rocketing demands for new biomass plants and partly or fully converted coal plants.[5] The UK government's bioenergy strategy states that carbon reduction goals under the EU ETS, coupled with EU legislation to meet renewable energy targets, will result in high investment in biomass energy generation.[6] In late April 2012, the government's new bioenergy strategy highlighted that up to 11 per cent of total UK energy consumption is set to come from biomass by 2020.

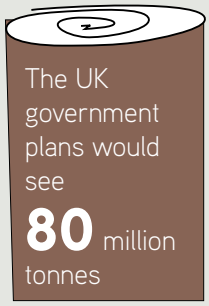
In December 2011, a spokesperson for the Department of Energy and Climate Change reportedly stated: "Operators of bioenergy plants will import wood for fuel too, and studies have shown there is no shortage of sustainably-sourced biomass in the world."[7]

This claim is strongly disputed. Analysis by research organisation Biofuelwatch estimates that to fulfil the new expansion plans, around 80 million tonnes of wood would need to be burned, much of which would be sourced outside of the UK.[8] According to the Forestry Commission, there is currently less than 10 million tonnes of wood available in the UK, which is for use across all industries.[9]

Biomass Plants



http://www.biofuelwatch.org.uk/biomass_map

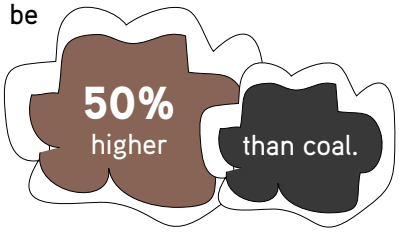


of wood burned in UK power stations each year,

when UK supplies are less than

million per year.

US Environmental Protection Agency estimates that CO2 'smokestack' emissions can be



In order to contribute to its emissions reduction targets, the UK Renewables Obligation (RO) was put into effect in April 2002. This 'obligation' is a market-based, key policy measure whose primary goal is to intensify electricity generation from 'renewable' sources. Since its introduction co-firing of biomass with fossil fuels has been eligible under the RO, the first time that any renewable energy initiative has included co-firing in the UK. In this scheme the largest contribution to renewables comes from biomass. Suppliers meet their obligations by presenting Renewables Obligation Certificates (ROCs), which may be sold by generators directly to licensed electricity suppliers or traders.[10]

Through the RO, the UK is making generous subsidies available for biomass-based energy. According to the Wood Panel Industries Federation, these UK subsidies amount to £75 per tonne of wood burned, a crucial factor in the expansion of biomass plants in the UK.[11]

The EU's Large Combustion Plant Directive (LCPD) demands that the UK's coal and oil power stations be retrofitted for the purpose of reducing sulphur dioxide (SO_2) emissions in order to meet what are still fairly high maximum permitted levels of SO_2 emissions. The LCPD requires a third of the UK's power stations to be slated for closure by 2015.[12]

As the Daily Energy Report from Total puts it: "It should be noted that despite changing the plant to biomass, the plants are still subject to the LCPD and due to close at the end of 2015, however, operators hope that changing to biomass will enable them to bypass the EU legislation, allowing them to run past 2015."[13]

State subsidies coupled with the 'carbon neutrality' myth under EU legislation, including the EU ETS, makes the shift to biomass burning an attractive option for companies seeking to run their polluting plants beyond 2015 and green-wash dirty energy investments.

Biomass lobby groups

The EU ETS has been notoriously susceptible to corporate lobbying since its inception.[14] Lobby groups such as the Association of Electricity Producers (AEP) and the Sustainable Aviation Fuel Users Group (SAFUG), that have British-based energy company members, aim to maintain the carbon neutrality myth in the EU ETS and other EU legislation to serve corporate vested interests.

Association of Electricity Produce (AEP)

The Association of Electricity Producers is an influential trade association for the UK electricity market, which aims to pressure governments, regulators and the media as it believes that the "market is constrained by energy and environment policy and a great deal of regulation."[15] It represents companies that are responsible for 95 per cent of the UK's energy generation capacity, including RWE npower, Drax, E.ON UK, and EDF Energy.[16]

In its 2011 position paper on 'biomass sustainability' and the EU ETS, it outlines that the treatment of biomass as carbon neutral under the EU ETS is a "key factor influencing the economics of biomass projects and underpinning present and future investment in biomass electricity generation."[17] AEP, in an attempt to greenwash biomass pollution, demands that biomass should comply to 'sustainability' (voluntary) standards under the renewable energy directive to shore up its zero-rated emissions status under the ETS.

Sustainable Aviation Fuel Users Group (SAFUG)

The Sustainable Aviation Fuel Users Group was formed in September 2008 with the support and advice from conservative environmental organisations such as the Natural Resources Defense Council and the Roundtable for Sustainable Biofuels (RSB). Their members include Air France, British Airways, KLM and Boeing.[18] The group is focused on accelerating the development and commercialisation of 'sustainable' aviation agrofuels.

Since January 2012, the inclusion of aviation emissions under the EU ETS has boosted new fears from the aviation sector of financial burdens to comply with new EU emissions regulations, which would require the purchase of emissions permits depending on quantity emitted during flights. In order to reduce costs and safeguard the profitability of airlines, there are moves by industry bodies to receive state financial support to commercialise 'biojet fuel'.

As stated by SAFUG:

> *"The current EU ETS legislation states that 'the emissions from biomass count as zero'. We believe this is an important principle. The legislation refers to 'biomass'. We believe that biofuel, or 'biojet', should be recognised as biomass in the ETS Decision 2007/589/EC and any other relevant legislation."*[19]

2. Biomass as renewable energy?

At present, bioenergy accounts for an estimated 82.5 per cent of all energy classified as 'renewable' in the UK.[20] An industry report commissioned by Department of Energy and Climate Change (DECC) claims that 20 per cent of the UK's primary energy demands could be met by bioenergy, which would entail more imports as long as overall energy use is not reduced.[21]

In order to meet the growing demand for biomass, energy crops and wood for bioenergy is likely to lead to a major increase in imports from Europe, Canada, Russia, North and South America.[22]

The EU is setting its sights on "renewable sources provided by countries like Russia and Ukraine (notably biomass)" and investment in large quantities of biomass for heat, electricity and transport as being necessary for "decarbonisation".[23] Furthermore, the biomass emissions reporting under EU legislation including the EU ETS and the Renewable Energy Directive (RED), classifies bioenergy production as 'carbon neutral'.[24]

A European Commission report has predicted that energy demand for biomass would exceed available material demand within Europe between 2015 and 2020.[25] Demand for wood-based biomass is spurred on by EU greenhouse gas and renewable energy targets, which could require over 300 million tonnes of wood.[26]

British policy-makers promote the EU ETS that will offset its high carbon development path, including the construction of coal-fired power plants and airport expansion, claiming that emissions caused by these new investments will be reduced elsewhere through the purchase of offset credits.

Energy generated by biomass burning is counted towards the UK's target to deliver 15 per cent of its energy as 'renewable' by 2020, as part of the EU-wide 20 per cent renewable energy target.[27]

Yet biomass is neither per se renewable nor sustainable, particularly on the massive scale planned by the UK government, and there are major concerns over imports from countries that carry out large-scale industrial plantations and logging, especially as the UK has only recently begun to bring under control imports of timber, after being the third largest importer of illegal timber in 2007.[28]

A key driver for deforestation and forest degradation is the large-scale demand for wood and wood products, including paper and pulp.[29] Moreover, these large-scale plantations frequently dispossess local communities of their lands in the Global South. In Guyana, Liberia, Brazil and Ghana, energy companies are investing in plantations for biomass export to European power stations.[30] In West Papua, rainforest concessions have been granted for conversion to woodchips and pellets for bioenergy exports.[31]

The expansion of biomass-fuelled power plants will maintain existing high-carbon infrastructure and the dominance of large multinational energy corporations. The large over-consumption of energy is not being challenged but on the contrary it is being locked-in, and even expanded, disguised under the fairy tale claims of 'carbon neutrality' and 'sustainable energy'.

3. The UK and Carbon Trading: a love affair with polluters

The UK government has been one of the leading advocates of carbon trading since its inception. In 2007, the Chancellor of the Exchequer Gordon Brown stated his ambition, "to build a global carbon market, founded on the EU Emissions Trading Scheme and centred in London. Today worth just $9 billion, emissions trading could grow to between $50 and $100 billion."[32] However, by the end of 2010 the World Bank estimated that the EU ETS was already worth US$141.9 billion.[33]

The UK government established the Climate Change Act in 2008, which is a framework to tackle climate change by reducing emissions in the UK by 34 per cent by 2020 and 80 per cent by 2050. These targets, which are not sufficiently ambitious to avoid catastrophic climate change, are to be met by a series of carbon budgets running over five-year periods. [34] The government and polluting companies can also purchase offset credits from 'emissions-saving' projects implemented in the Global South to count towards these cuts.[35]

The current coalition government continues to promote carbon trading through the EU ETS as the central approach to reducing emissions.[36] British policy-makers promote the EU ETS as a mechanism that will offset its high carbon development path, including the construction of coal-fired power plants and airport expansion, claiming that emissions caused by these new investments will be reduced elsewhere through the purchase of offset credits.[37]

The EU ETS is the world's largest carbon trading system, covering almost 11,000 facilities across the EU. It allows 50 per cent of all the emissions reductions in the scheme's phase 2 (2008-2012) and phase 3 (2013-2020) to be made via offsets.[38] Its very weak cap and the allowances for offsets in the EU ETS allow companies in the UK and other member states to continue emitting dangerous high levels of greenhouse gases.

In 2010, 97 per cent of global carbon market trading took place under the EU ETS, including trading offset credits from the Clean Development Mechanism (CDM) and the much smaller mechanism, Joint Implementation (JI), also used in the EU ETS.[39] Around four out of every five carbon offset credits generated globally are traded through the CDM. The remainder is traded on voluntary offset markets which are not linked to binding targets.[40]

This reliance on offsetting through the EU ETS has a major impact on UK policies to reduce domestic emissions as it does nothing to cut greenhouse gas emissions domestically and unfairly places the burden of emissions reductions onto countries in the Global South. Moreover, evidence shows that offset projects frequently displace local communities, create local conflicts and harm the environment.[41]

Who benefits?

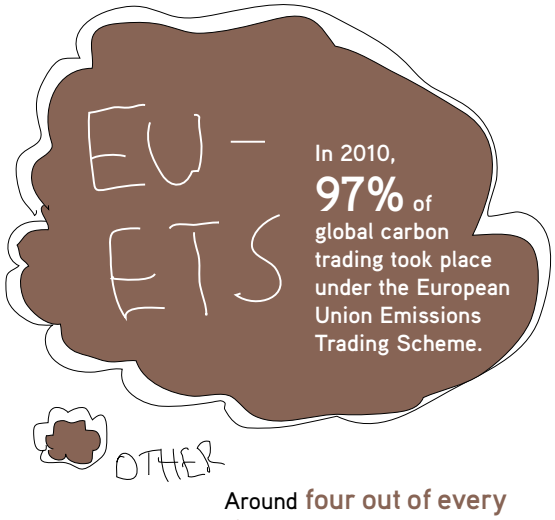
The EU ETS has subsidised polluters through its continued over-allocation of permits to pollute. In its first phase (2005 - 2008) this generated windfall profits for power producers while allowing polluters to emit 130 million tonnes more CO_2 than they actually did. Moreover, as a result of this excess of permits, the price of carbon credits collapsed from a peak of around €30 to below €1 in 2007. In its second phase (2008 – 2012) 'improvements' to the flawed system were set in place. However, EU countries continued to allocate allowances based on historic emissions, disproportionately rewarding heavy polluters.[42]

Research by market analysts Point Carbon and WWF calculated that windfall profits tend to be concentrated in "countries with emissions intensive (coal) plants setting the price the majority of the time." This implies an assumption that the 'normal' state of affairs is to over-pollute, and so sets a very loose standard against which other activity is judged.[43]

Furthermore, UK-based companies are the largest investors in offset credits for CDM projects, accounting for around 30 per cent.[44] Yet, as affirmed by the UK Financial Service Authority, this engagement is frequently not used by entities with emissions targets nor necessarily related to using these credits to offset emissions in the UK as these credits can be sold onto corporate and governmental buyers in other major emitting countries:

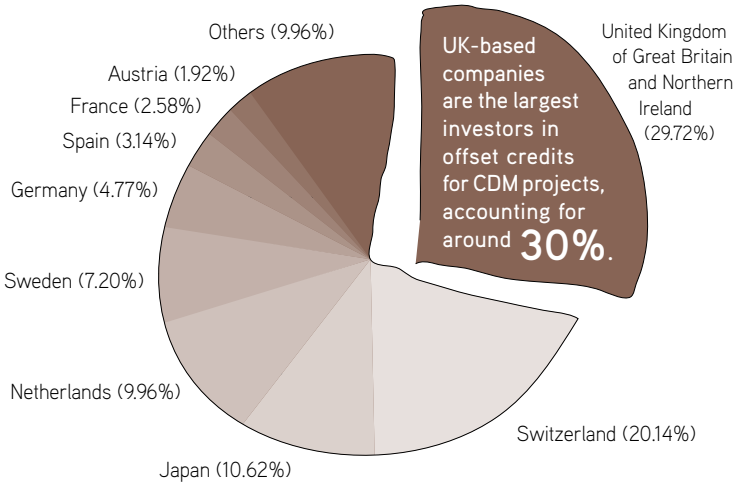
> *"Many FSA-authorised firms are involved in the emissions markets, including brokers, funds, institutional investors including pension funds, commodity trading advisors, electricity generators, and other physically-exposed hedgers. As a proportion of the total, only very few of these FSA-authorised emissions market participants actually have a UK-imposed emissions reduction requirement but are active in the market to offer services to clients, products to investors or purely to generate revenue. For example, investment banks have in general, played a significant role in providing funding to the emissions market and, as such, have a significant impact in the market."*[45]

UK-based companies are well-positioned to participate in carbon markets given that London is the world centre for carbon finance. The City of London Corporation, which owns the Square Mile, is at the heart of the multi-billion dollar carbon trading market and lobbied the UK government to play a more active role in carbon trading since 1999, six years before the EU ETS was established.[46]



Around **four out of every five** tonnes of carbon offsets are traded through the **Clean Development Mechanism**.

Registered projects by Annex I and Non-Annex I investor parties



UNFCCC, CDM, http://cdm.unfccc.int/Statistics/Registration/RegisteredProjAnnex1PartiesPieChart.html, retrieved April 2012.

The City hosts the central carbon trading institution of the European Union, the European Climate Exchange (ECX). In 2008, the ECX attracted over 80 per cent of the exchange trade volume in the European market, according to UK Financial Service Authority.[47] The complex structures that govern carbon trading allow multiple profit-driven actors to benefit financially, without any climate benefit being generated by these activities.

The carbon neutrality myth

The biomass carbon neutrality myth in the EU ETS stems from a misapplication of guidance provided under the United Nations Framework Convention on Climate Change (UNFCCC). As part of emissions reporting requirements, accounting for emissions from energy sectors and land-use change are separate in reporting of emissions to the UN.[48] Carbon emissions associated with biomass are classified as part of land use change emissions rather than energy. In order to avoid double counting of the emissions they are by convention supposed to be accounted where they first occur, in this case, during the growing of the biomass rather than at the location where the biomass is burned.[49] This excludes biomass combustion from any reporting.

The large over-consumption of energy is not being challenged but on the contrary it is being locked-in, and even expanded, disguised under the fairy tale claims of 'carbon neutrality' and 'sustainable energy'.

Therefore, if a forest is cut down to make way for industrial plantations for biomass, the carbon emissions from deforestation will be counted as land use emissions, and the accounting does not include the transport and 'smokestack' emissions produced during the combustion stage. This does not equate biomass with having no emissions but separates different sources of emissions for accounting purposes.

This separation of emissions morphed into an accounting loophole when UN emissions reporting conventions were adopted into the EU ETS without consideration of whether assumptions underlying these reporting conventions were applicable in the EU ETS. The result is a situation that unfairly allows all industries using biomass fuels to class those as having 'zero carbon emissions', thus offering an incentive for countries to switch to biomass energy to meet national emissions reduction targets and 'renewable' targets, and further, to have a 'free pass' on biomass emissions reporting.[50]

This creates a perverse incentive for EU member states and their energy companies to invest in biomass energy despite the associated land use, transport and 'smokestack' emissions as well as the large-scale amount of land from elsewhere needed to satisfy the high demand of wood pellets.

Land use, land use change and forestry, known by the acronym LULUCF in the UN climate negotiations, is not mandatory for industrialised countries' emissions accounting to the UN. However, proposals stemming from the UN climate talks in Durban in late 2011 could lead to new rules for LULUCF related emissions accounting within the EU. Yet, due to the limitations of the rules agreed as well as the high uncertainty and variability in the accounting systems for land and forests related emissions, a significant share of emissions from LULUCF will continue to go unaccounted for, including the land and forestry emissions caused by biomass imports upon which the UK will be increasingly reliant.

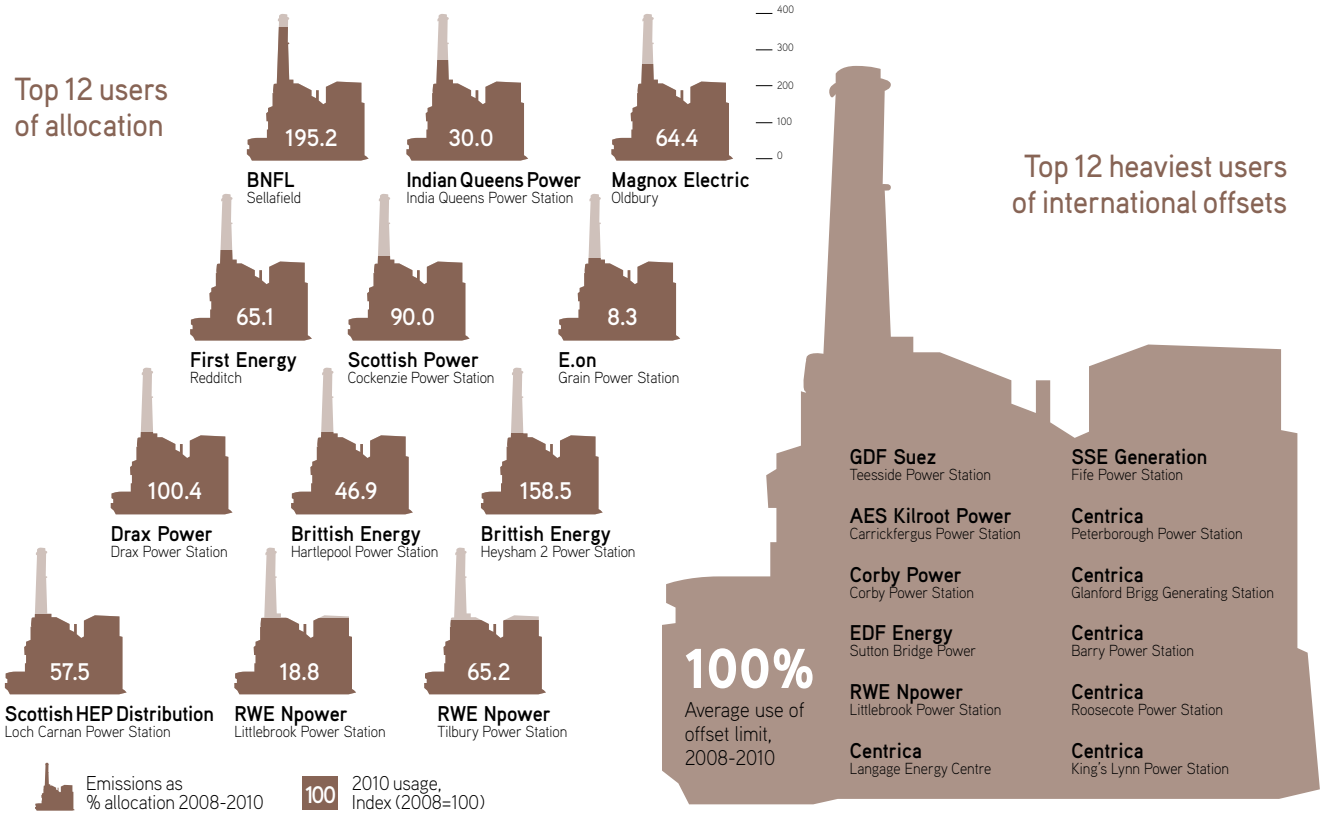
4. Deceptive Accounting : EU ETS and biomass

While opinions differ, according to a wide range of analysts, emissions from biomass can be on a par with fossil fuels, depending on the origin of the biomass used and the way in which energy is produced from the biomass. According to the Massachusetts Environmental Energy Alliance, based on statistics from the US Environmental Protection Agency, 'smokestack' carbon dioxide emissions from biomass are estimated to be on average 50 per cent higher than those of coal.[51] Scientists, including those from the EU's European Environment Agency (EEA), have also shown that bioenergy can substantially increase the levels of carbon dioxide in the atmosphere, just like burning coal, oil and gas if harvesting takes place on an industrial scale.

Forests and lands can take centuries to reabsorb the initial carbon emitted into the atmosphere, resulting in a 'carbon debt' during the time span until full re-absorption is reached.[52] Intensive use further decreases the amount of carbon stored in plants and soils as its capacity to replenish diminishes.[53] Moreover, the equivalences of carbon emissions of fossil fuel origin with those of biotic origin are riddled with complexities and uncertainties, which is why greenhouse gas standards for biomass are not the solution.[54] The EEA offer a stark warning regarding the negative impacts of ignoring the carbon debt of biomass:

> *"The potential consequences of this bioenergy accounting error are immense. Based on the assumption that all burning of biomass would not add carbon to the air, several reports have suggested that bioenergy could or should provide 20% to 50% of the world's energy needs in coming decades. Doing so would require doubling or tripling the total amount of plant material currently harvested from the planet's land. Such an increase in harvested material would compete with other needs, such as providing food for a growing population, and would place enormous pressures on the Earth's land-based ecosystems."*[55]

The fact that the EU ETS bypasses all the impacts biomass energy entails in terms of pollution acts as a *de facto* subsidy for polluting industries that invest in large-scale biomass.[56] This shows, once again, which actors are constantly benefiting from the EU ETS, while at the same time demonstrates how a system based on creative accounting and de-politicised discourse (such as 'carbon neutrality') do not deal with the root cause that the problem is supposed to address: reducing emissions at source and tackling climate change. Without drastically reducing the over-production and over-consumption of energy, biomass schemes are another example of transferring the problem from one source to another while key drivers of climate change remain unchallenged.



Mind the Gap: UK EU ETS emissions 2008-10, February 2012, ENDS Environmental Data Services.

5. Biomass companies in the UK

The main beneficiaries of state subsidies and biomass conversions are energy companies operating in the UK. Companies including Drax and RWE for example, explicitly acknowledge the financial benefits of biomass accounting.[57] While openly referring to the misleading 'carbon neutrality' of biomass, these companies use this as a green smokescreen for their polluting activities.

RWE npower

RWE npower – part of the German RWE Group – has around 6.5 million customer accounts and produces over 10 per cent of the electricity used in the UK which is generated from oil, coal, gas and increasingly, bioenergy.[58]

RWE npower has converted all three of the power station units to generate power from 100 per cent biomass in Tilbury B, located in the south east of England. In addition to Tilbury power station, RWE npower operates a co-firing (biomass and coal) facility at Aberthaw and Didcot A power stations, while their sister company, RWE npower renewables is currently developing a 50 megawatt (MW) biomass-fired combined heat and power (CHP) plant at Markinch, Fife which is scheduled for operation in late 2012 or early 2013.[59]

According to the company [RWE npower], the plant's conversion [to biomass] was part of a broader strategy that invests in, "sustainable energy infrastructure" including nuclear power.

The station, known as Tilbury B, previously operated as a coal-fired power plant from 1969 until 2011, is now the largest potential consumer of biomass in the UK. From late January 2012, the plant was fully operational with a potential capacity of 750MW, which would supply energy to 1.5 million households.[60] RWE npower state that they plan to use 2.3 million tonnes of wood pellets by 2015, a figure which appears highly conservative.[61]

However, at the end of February 2012, two of the three units of the power plant were affected by a fire, which shut down the entire station and at its height required 120 firefighters.[62] This highlights the susceptibility of biomass to uncontrollable fires, especially when storing and burning such vast quantities of wood pellets as RWE have been attempting.

According to the company, the plant's conversion was part of a broader strategy that invests in, "sustainable energy infrastructure" including nuclear power.[63] RWE npower claims that biomass is carbon neutral when burnt and using it "as fuel is therefore a valuable contribution to climate protection."[64] The carbon neutrality status under the EU ETS and EU legislation provides the company with additional financial benefits to national subsidies: "As with other forms of renewable generation, the electricity generated at Tilbury is considered to be carbon neutral under the EU ETS and therefore does not receive the financial penalties that non renewable generation is subject to."[65]

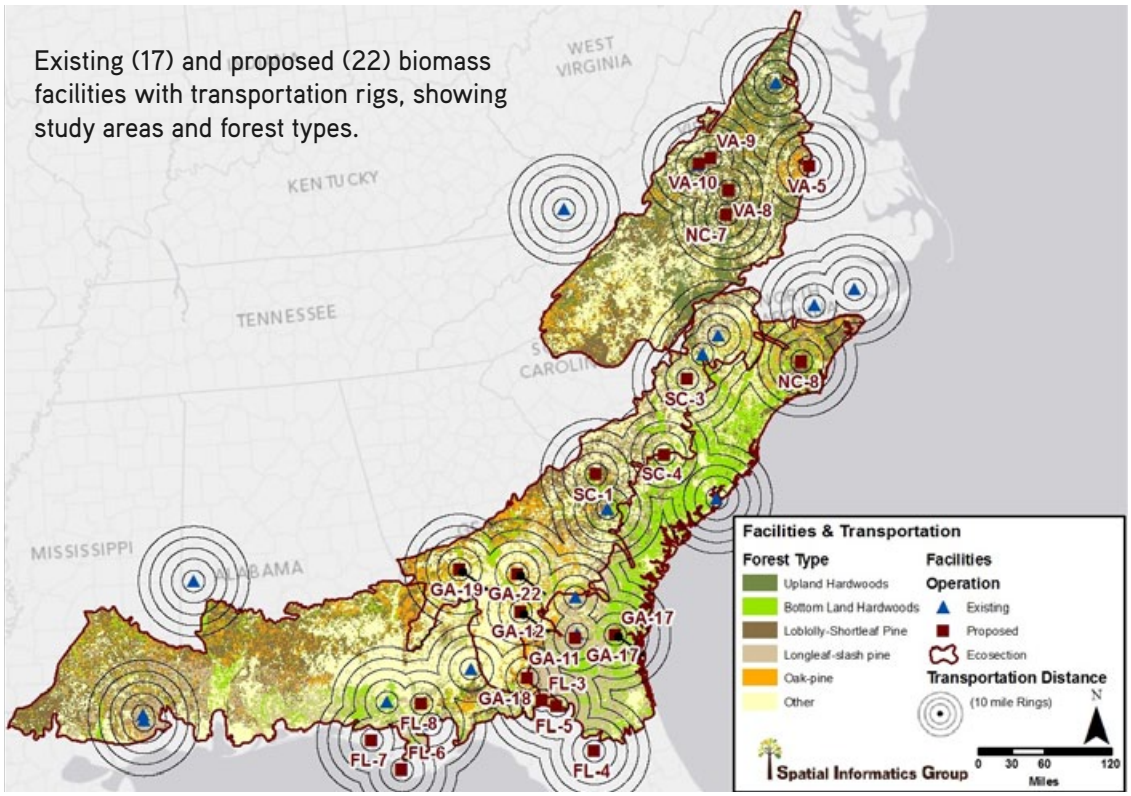
Biomass imports from the southern states of the US have already begun and RWE npower anticipate that 30-40 per cent of the wood pellets used at Tilbury will be imported from the RWE owned pellet facility in Waycross, Georgia, US.[66] RWE received the first delivery of 46,000 tonnes of wood pellets in November 2011, and another consignment from Georgia Biomass, in February 2012.[67] The wood is certified under the Sustainable Forestry Initiative, a North American industry-led voluntary certification scheme, which has been widely condemned as industry greenwash by a large number of NGOs.[68]

RWE Innogy, the renewable energy wing of RWE Group, wholly own Georgia Biomass. In May 2011, Georgia Biomass began production, and is one of world's largest wood pellet plants, with an annual production capacity of around 750,000 tonnes of wood pellets per year that requires 1.5 million tonnes of wood.[69] It is geared towards exports for European energy markets.[70]

Georgia Biomass also argues that biomass is a carbon neutral source of clean energy, acting as a substitute for fossil fuels as it provides "tremendous ecological benefits."[71]

Yet new studies warn that large amounts of lands are at risk from the expanding biomass industry, including for rising exports to the EU. Subsequent deforestation and industrial tree plantation expansion for bioenergy, marketed as a substitute for fossil fuels, is set to cause a spike in atmospheric carbon over the next 35-50 years, according to analysis that examined 17 existing and 22 planned biomass plants in seven states.[72]

This region is already the largest paper supplier for North America and the demand for wood pellets exported to the EU has risen dramatically in the last years.[73] As local communities and organisations testify, monoculture plantations for pulp and paper industry has already severely damaged local ecosystems that store millions of tonnes of carbon dioxide as plant-based carbon while dispossessing local communities from their lands and livelihoods around the world. Moreover, market-based mechanisms such as REDD+ (Reducing emissions from Deforestation and forest Degradation) which treat plantations as being the same as forests increase the pressure on natural ecosystems and land tenures.[74]



Biomass Supply and Carbon Accounting for Southeastern Forests, 2012

Combining these impacts with an expanding biomass industry is set to cause irreversible harm as natural forests are cut down to make way for fast-growing tree plantations, which is contested by researchers as to whether or not they store carbon in the long-term.[75] Moreover, monoculture plantations cause local environmental degradation that takes many forms including water and soil contamination through over-use of agrotoxics substances, water diversion, air pollution, and in some cases irreversible damage to plant and animal species. All of these factors, in turn, affect human life – primarily in rural communities and indigenous territories.[76]

ArborGen have petitioned the US government to release 500,000 GM eucalyptus seeds in seven southern US states in order to supply the bioenergy market.

While RWE and its suppliers do not currently source wood fibre that originates from genetically modified (GM) trees, companies like ArborGen have petitioned the US government to release 500,000 GM eucalyptus seeds in seven southern US states in order to supply the bioenergy market.[77] The cultivation of GM trees in forests or other ecosystems has unknown impacts but are likely to be destructive. If these trees are released on a large scale, they would be highly invasive and threaten water levels, soil chemistry and native biodiversity.[78]

Up to 60 per cent of the imported wood for the Tilbury B plant is sourced from Canada.[79] According to the Canadian Parks and Wilderness Society, wood for bioenergy from Canada has already caused severe harm to ecosystems, including clear-cutting in north-eastern Saskatchewan.[80]

New regulations are paving the way for biomass extraction for energy in provinces such as British Columbia, Ontario, Québec and Nova Scotia. No environmental impact assessments or public hearings have preceded these decisions. As highlighted by Greenpeace, Canada is the largest wood pellet producer in the world, after the US, and exports to Europe have undergone a 700 per cent increase in less than eight years.[81] The biomass boom, including for plants like Tilbury, is a key driver of this surging demand.

NEUTRAL

EU ETS is a "cost effective way to reduce emissions and spread low carbon technology across the globe."

E.ON

GREEN

biomass is carbon neutral when burnt and using it "as fuel is therefore a valuable contribution to climate protection."

RWE npower

GREENER

the "definition of biomass as carbon-neutral is very important"

Drax

Drax Power Limited

Drax Power Limited is a subsidiary of Drax Group PLC and is the owner of Drax Power Station in Selby, North Yorkshire, which is the largest coal-fired power station in the UK, supplying seven per cent of the country's electricity. As shown by Biofuelwatch, the Drax Selby power plant is by far the largest current user of biomass for bioenergy, having burned over one million tonnes of mainly imported wood in 2010.[82]

While Drax has announced that it is suspending plans to build two new biomass plants in the UK with the German company Siemens due to a lack of state subsidies, it is increasing the co-firing of biomass with coal in Selby, which will become predominantly biomass fuelled. Currently most of Drax's biomass originates from Canada, followed by the US.

However, the Production Director at Drax reportedly stated in the media that the company has plans to import wood pellets from South America as well as the US and Canada.[83] This is highly controversial because of the likely negative impacts on tropical rainforests, *cerrado* and other biodiverse lands upon which local communities depend. Drax refused to expand further on this admission made in February 2012, which it described as "commercially sensitive" in personal correspondence.[84]

Drax is also exploring options of developing a biomass facility with Siemens at the port of Immingham, UK. The company believes that investment in biomass strengthens its "environmental leadership position."[85]

Instructively, Drax explicitly acknowledges the financial benefits that it can reap due to biomass being regarded as carbon neutral under the EU ETS. As shown by correspondence between the EU DG Clima and Drax obtained under the Freedom of Information Act, Drax states that the "definition of biomass as carbon-neutral is very important" and that any "potential future requirement to purchase ETS allowances will reduce the financial viability of existing and future biomass plants. Indeed, any uncertainty around the potential for future legislative change is highly pernicious since it reduces investor confidence, raises project risks and lowers the potential for successful project development."[86]

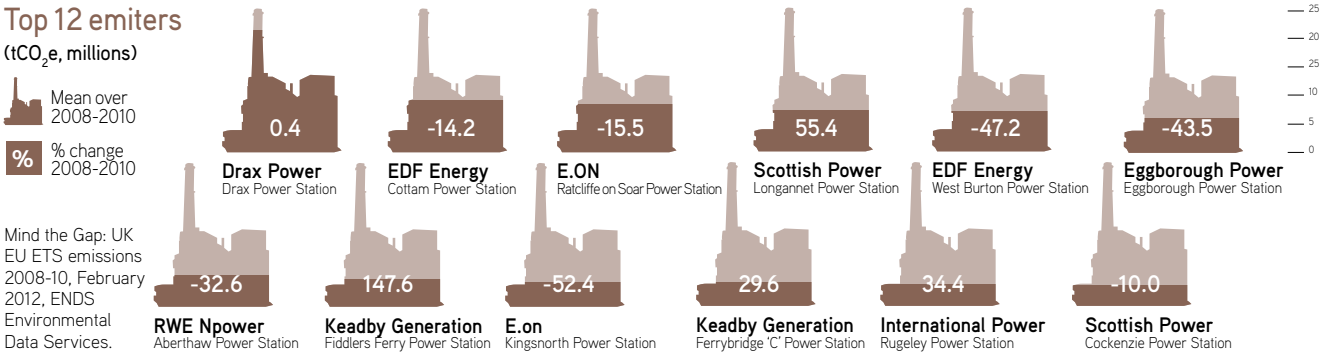
E.ON

E.ON operates one of the largest dedicated British biomass plants at Steven Croft, near Lockerbie in southern Scotland while the Kent power station is a co-fire biomass and coal facility. E.ON is looking to expand beyond this 44MW plant and have received planning consent to build a second dedicated biomass station at Blackburn Meadows, the site of a former coal-fired power station in Sheffield.[87] In addition, the UK government has given the go-ahead for a new 150MW biomass power plant that will be developed by E.ON Bristol in order to generate electricity for 160,000 homes.[88]

Biomass is lower in sulphur and may therefore allow E.ON to meet EU SO2 regulations while claiming over £100 million in public subsidies (through Renewable Obligation Certificates) every year.

At Ironbridge in the country of Shropshire, E.ON also has received approval to partly convert their coal power station to burn biomass. E.ON plans to start firing one of its 500MW coal units at Ironbridge with wood pellets from early 2013, with an option to co-fire 20 per cent with coal if the government's renewable energy subsidies review offers higher support for this type of power generation.[89] The US will be the main target for bioenergy imports.[90]

Ironbridge power station is due to close at the end of 2015 at the latest because it fails EU-wide regulation on air quality standards. While E.ON searches for ways to continue operations at this power station, the option of burning vast quantities of imported wood may offer them such an opportunity due to biomass 'carbon neutrality' claims. Biomass is lower in sulphur and may therefore allow E.ON to meet EU SO_2 regulations. At the same time, E.ON could claim over £100 million in public subsidies (through Renewable Obligation Certificates) every year.[91]



Protest outside the Department of Energy & Climate Change in London during their consultation into the level of state subsidies for dedicated and co-firing biomass power plants. 22 October 2011 (Photo: Andrew Butler)

MGT Power and Suzano Papel e Celulose

MGT Power is a British company which is set to run two of the world's largest biomass power stations by sourcing biomass in the UK and globally. In the north east of England MGT Power is planning the development of two 300MW biomass plants that together will generate electricity to power approximately 1.2 million homes when they are fully operational.[92]

MGT is currently developing projects in North and South America, Western Europe and the Baltics to supply these two large power stations with biomass.[93]

One supplier for MGT is the Brazilian company Suzano Papel e Celulose, which is investing in new eucalyptus plantations in an area with *cerrado* (savannah), one of the world's most biodiverse regions that also contains remnants of the Atlantic forest.

Suzano is the second largest eucalyptus wood pulp producer in the world, with five pulp mills located in Brazil, in the states of São Paulo and Bahia. It controls 722,000 hectares of land with 324 thousand hectares of eucalyptus plantations, in the states of Bahia, São Paulo, Espírito Santo, Minas Gerais, Tocantins and Maranhão.[94]

With the aim of Suzano Papel e Celulose to produce 5 million tons of wood pellets, a total of 150 thousand hectares of land would therefore be required, creating a serious threat to biodiverse forests and people's livelihoods.

In mid-2010, a Memorandum of Understanding (MoU) was signed between Suzano and the UK company MGT Power Ltd.[95] In response to this, the Suzano Group created a new company called Suzano Energia Renvovável (Suzano Renewable Energy). The expansion includes five wood pellet production units, with a total production capacity of five million tons of biomass. During this first phase the company has focused on securing land acquisitions and the construction of three wood pellet production units, producing one million tons each, which would start operating in 2013. Suzano estimates earnings of liquid income up to US$500 million by 2014, and has guaranteed sales contracts for 2.7 million tons.[96]

With the aim of Suzano to produce 5 million tons of wood pellets, a total of 150 thousand hectares of land would therefore be required, according to the company's director, André Dorf.[97] Furthermore, in May 2012, Suzano was reported as receiving approval from the Brazilian government to carry out the world's most advanced trials of genetically modified (GM) trees.[98] This is a serious threat to biodiverse forests and people's livelihoods. Brazilian social movements have a powerful history of resisting monoculture plantations and GM technology. Such developments would result in the destruction of territories and livelihoods.

A manifesto from women peasants in Brazil stated: "We are against green deserts, these huge eucalyptus, acacia and pine plantations that cover thousands of hectares in Brazil and Latin America... Where the green desert expands, biodiversity will be destroyed, soils will be damaged and rivers will run dry."[99]

Resistance against biomass plant in Leith

In Scotland, Forth Energy plans to open four biomass power stations but not without being targeted by 'climate camp' activists and local residents.[100] The community and activists began educating the Scottish government, carried out protests and occupied the Forth Energy's headquarters on 8 February 2012 in order to stop its plans that would inevitably lead to wood imports, forest destruction and high pollution levels.[101]

Later in February 2012, Forth Energy, which is a joint venture between Forth Ports, Scottish and Southern Electric, announced that it was withdrawing plans for a 200MW power station in the port of Leith. The company, however, stated that it was relocating to make way for other renewable energy projects and aims to develop wood-fuelled plants in other locations in Scotland.[102]

> We are against green deserts, these huge eucalyptus, acacia and pine plantations that cover thousands of hectares in Brazil and Latin America... Where the green desert expands, biodiversity will be destroyed, soils will be damaged and rivers will run dry." - Manifesto from women peasants in Brazil

Elsewhere in Scotland, Centrica, the parent company of British Gas, has plans in for a dedicated biomass plant at Roosecoote as does Scottish Power at Longannet.[103]

There are other cases of opposition from local residents and environmentalists to planned biomass plants throughout Britain. In Kidwelly in Wales, plans for two biomass power stations were halted after a planning battle was waged by local residents from the Gwendraeth Valley.[104] In November 2011, planning permission has also been rejected for Peel Energy's biomass plant in Trafford after local opposition.[105] Other local campaigns to stop biomass plants are taking place in various locations across the country.[106]

6. Conclusions

The classification of biomass as carbon neutral adds to the EU ETS's dramatic failure to generate truly sustainable climate and energy policies. This deceptive accounting fails to consider the many polluting links in the bioenergy supply chain from deforestation and the degradation of land to shipping and its combustion. Moreover, this also ignores the many social and environmental consequences of deforestation and land conversion for monoculture plantations.

Because the emissions are classified as 'neutral', the companies do not need to account for the emissions caused by the biomass in energy production under the EU ETS. However, as this report highlights, the EU ETS has many escape hatches that also allow companies to buy their way out of emissions reductions at source.

The promotion of bioenergy as a new 'green' energy solution is marred by evidence of its major contribution to greenhouse gas emissions and large-scale land grabs around the globe. Renewable energy does not mean per se sustainable energy. For instance, large-scale monoculture plantations cultivated to satisfy high energy consumption cannot be considered sustainable. Minimising excessive production and consumption is fundamental to genuinely reducing emissions rather than exporting them elsewhere.

The UK government should end all subsidies for bioenergy in line with the demands of over 80 international organisations, which have called for biomass energy plans to be scrapped.[107] Public money could be redirected towards reducing energy consumption, appropriate solar, wind and tidal energy projects, as well as community-based initiatives for sustainable farming and forestry.

UK biomass campaign websites

Biofuelwatch:
www.biofuelwatch.org.uk

Bioenergy Action Network:
www.bioenergyaction.com

Breathe Clean Air Group:
www.breathecleanairgroup.co.uk

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No Leith Biomass:
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