Biomass: The Chain of Destruction

biofuelwatch
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Executive Summary

1. Introduction

In 2012 Biofuelwatch published its first substantive report documenting the impacts of UK biomass policies and investments, called "Sustainable Biomass: A Modern Myth". That report closely investigated claims about the sustainability of biomass as an energy source. It provided compelling evidence that burning wood for electricity is anything but carbon neutral and can adversely affect the climate for decades to come. Now in our latest report, "Biomass: The Chain of Destruction," we turn our attention to the very real impacts on communities and forests around the world as a result of the UK's increasing demand for biomass.

2. An overview of Biomass in the UK

Large-scale electricity generation from biomass is a key element of the UK Government's renewable energy policy. Their 2012 UK Bioenergy Strategy states that bioenergy could provide between 8 and 11% of the UK's primary energy demand in 2020 – i.e. the majority of the country's overall renewable energy target of 15% by that date. Although bioenergy includes biofuels for transport, the bulk of it would come from burning wood.

Biomass electricity is supported by generous subsidies and energy companies have announced plans to burn over 82 million tonnes of biomass (mostly wood) in power stations. This is more than eight times the UK's total annual wood production. Already, with just a small fraction of the biomass plans implemented, the UK relies on 80% net imports for all of the wood and wood products used across the country.

Out of those 82 million tonnes, over 50 million tonnes would be needed by coal power stations which have got planning consent for (partial or full) conversion to biomass. In other EU countries large amounts of wood pellets are being co-fired with coal. However in the UK subsidies favour the conversion of whole power station units to biomass and, as a result, only one coal power station is understood to co-fire significant amounts of wood.

The rest of the anticipated demand comes from dedicated biomass power stations, with several large import-reliant plants already having been granted planning consent. So far, eight biomass power stations larger than 15 MW are in operation and a further seven are either under construction or have attracted sufficient investment to be built. None of the existing biomass power stations are operating at or near full capacity.

3. International Impacts

The knock-on effects of the growing demand for biomass in the UK are being felt around the world.

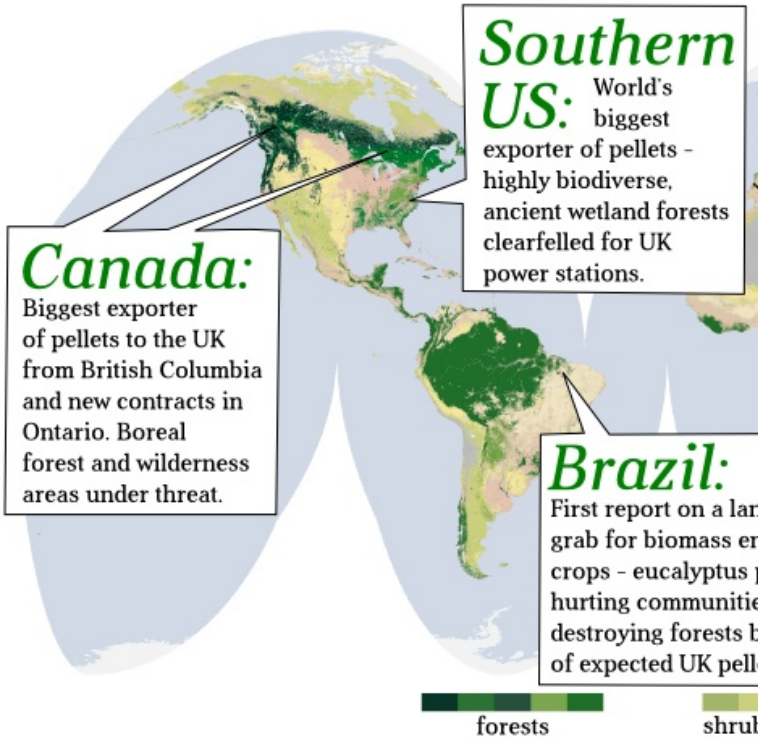
3.1 Eucalyptus Plantations for Energy: A Case Study about Suzano's plantations for wood pellet exports in the Baixo Parnaíba region, Maranhão, Brazil

The centrepiece of this report is an investigation into the impacts of eucalyptus plantations for wood pellet production in the Brazilian state of Maranhão, written by Ivonete Gonçalves de Souza of CEPEDES and Winfridus Overbeek of the World Rainforest Movement. The plantations belong to one of Brazil's largest pulp and paper companies, Suzano Papel e Celulose, who aim to supply wood pellets to biomass power stations owned by the UK company MGT Power. The report describes the methods which Suzano is using to grab land that traditional communities depend on. It shows how the rich forest vegetation, home to countless plant and animal species, is being bulldozed to make way for eucalyptus monocultures and how communities are experiencing the loss of their livelihoods, land and traditional way of living as a result. It looks at the differences between traditional eucalyptus plantations for pulp and paper and the much denser and shorter-rotation biomass ones. And finally, it looks at the experience of those communities which have so far successfully resisted Suzano's attempts to turn their lands into such plantations. To our knowledge, this is the first published case study of land-grabbing and deforestation from a country in the Global South, linked directly to biomass policies and demand from an EU member state.

MGT Power has planning permission to build a vast 295MW biomass power station at the Port of Teesside, larger than any similar biomass power station in the world. They have proposed a second one, of the same size, in Tyneside. Yet so far, neither Suzano's pellet plant nor MGT's power station appear to have attracted the funds required for construction to start. This is despite the fact that MGT announced a partnership with three Korean companies in October 2012. The dramatic impacts experienced by communities in the Baixo Parnaíba region of Maranhão are therefore not the result of any existing demand for wood in the UK. They are the result of an expectation that future power stations will soon create a lucrative new demand for eucalyptus wood pellets. In short, they are the result of speculative investments.

3.2 Forest destruction in the Southern U.S and Canada

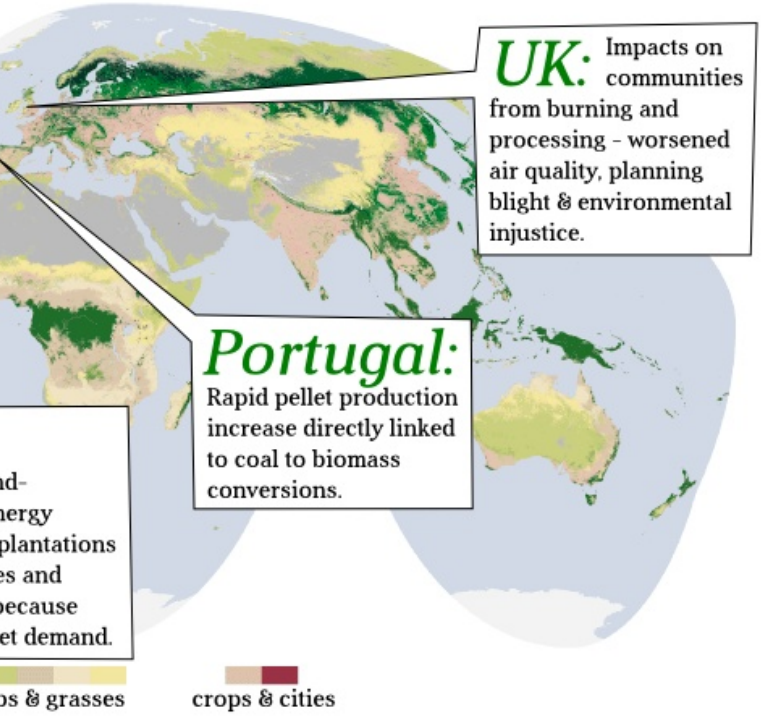
At present, virtually all wood which is imported for bioenergy is being burned in coal power stations, primarily by Drax since the closure of Tibury B. Nearly all of it comes from Canada and the southern US. As we explain in the report, coal power stations are only able to burn significant quantities of biomass if it comes from wood from slow-growing trees with little bark. Danna Smith, Executive Director of the US conservation NGO, Dogwood Alliance, describes what this means for forests in the southern US, the world's foremost pellet producing and exporting region. Together with the US NGO, Natural Resources Defence Council, Dogwood



Alliance has conducted a detailed investigation into the impacts of the largest pellet mill belonging to Enviva, one of Drax's key suppliers. They have documented how this plant impacts on remaining fragments of biodiverse wetland forests. As Danna Smith explains in her testimony for this report, most non-wetland forests across the southern US have already been destroyed, largely to make way for pine plantations for pulp and paper. The southern US wetland forests are the last refuge for large numbers of species. Indeed, they are one of the most biodiverse freshwater ecosystems in the world. Those forests are now being clear-cut to make

pellets, including for Drax. Unlike the impacts in Maranhão, the impacts described by Danna Smith are directly linked to Drax's actual current demand for wood pellets, boosted by UK Government subsidies and funding from the Green Investment Bank.

Yet again, the rate at which pellet plants are expanding and fuelling forest destruction across the southern US cannot be explained by current demand alone. According to a wood pellet industry spokesperson there is a " 'gold rush' from utilities to US, Canada & Brazil for security of long-term high volume supplies". Thus in the southern US too, the scale of the impacts result from the expectation of future market expansion in the UK and elsewhere in



Europe, and so often from speculative investments. The same is likely to be true in British Columbia, the main sourcing region for wood pellets imported to the UK, but unfortunately, there is a lack of independent research into the pellet industry in that region.

3.3 Portugal's Booming Pellet Industry

Pellet production in Portugal has jumped since 2005 from a small-scale industry to around 20 plants with a total production capacity of around 850,000 tonnes a year. There is direct evidence that coal to biomass conversions, as well as increased co-firing in several European countries, are driving this increase in demand. In 2011/12 the UK imported just over 68,000 tonnes of pellets from Portugal, most of which went to Drax when they were still co-firing biomass with coal. This made Portugal the 3rd largest exporter to the UK.

Eucalyptus plantations already cover 849,000 hectares of Portugal, or 10% of the country's land area according to the Food and Agriculture Organisation (FOA.) There are serious concerns that eucalyptus plantations could expand further in response to a new demand for woodchips and pellets for dedicated biomass power stations.

However, so far pellets appear to have been made largely or exclusively from plantation pines. There is evidence that large pellet producers are causing a shortage of raw materials by using whole trees, pushing up prices, and so forcing other forest industries to look elsewhere for their raw materials.

4. Uk Impacts

After looking at the effects of the UK's demand for biomass in other countries, the report goes on to deal with the impacts felt by communities affected by biomass power stations and by the operations of waste wood suppliers to these plants, here in the UK. The most serious local impacts of biomass electricity tend to be those on air quality and public health. The report, based on a series of testimonies from community activists, illustrates the lack of any effective regulation, planning policies and mechanisms which would protect public health from dangerous and harmful levels of pollution.

Although waste wood, much of it chemically treated, is widely seen as a particularly 'sustainable' source of biomass electricity, burning it results in particularly high levels of toxic air emissions. And it is not just residents living close to power stations who are affected, but also ones living close to wood recycling plants which increasingly supply energy companies with woodchips.

The report also highlights the substantial amount of research which shows that polluting industries often have a disproportionate impact on more socially and economically deprived communities. Biofuelwatch undertook its own investigation, which looked at the levels of deprivation in communities located near to biomass

power stations in the UK. Our findings show that biomass power stations in England are located in areas which are relatively more deprived than other parts of England. To our knowledge this is the only study of its kind to have been attempted for biomass power stations in the UK and there is a great need for more research to be done into this important area of environmental justice.

5. GE Trees for biomass

With subsidies and supports for bioenergy expanding and projections for massive future expansion, there is growing incentive for biotechnology companies to genetically engineer trees specifically to meet the potentially huge new demand.

Pine, eucalyptus and poplar especially have been subjected to ongoing research aimed to make them easier and faster to grow, and to render their wood more easily converted into fuels and chemicals via fermentation.

Experience with GMO food crops has clearly shown that containment of GM test sites is simply not possible, and that there are inevitable and unpredictable negative impacts. Public opposition to engineered trees is very strong and growing.

Engineered versions of native trees, which are long lived, spread their seeds and pollen very widely and have numerous wild relatives, are even more likely to cross contaminate and could present other risks to ecosystems where they are grown. In addition, growing vast monocultures of GE trees, whether native or not, has dangerous social and ecological impacts, including soil and water depletion and increased risk of fire.

6. Conclusions

Key findings of this report:

1. UK support for industrial-scale biomass for electricity is having measurable impacts on forests internationally. In particular, demand from UK coal to biomass conversions, and especially Drax, is resulting in the increased destruction of highly diverse forests in the southern US. In Canada, forests are coming under increasing pressure from the logging industry and the growth of the pellet industry. Pellet exports to the UK from these areas are set to increase substantially.
2. Land-grabs in north eastern Brazil, for eucalyptus plantations destined for biomass power stations, have lead to the destruction of forest ecosystems and communities losing access to their land and water resources. UK-based MGT Power are driving this demand.
3. UK-based communities living near biomass power infrastructure are experiencing worsening air quality and are not being protected by planning legislation. The legislative system is making it extremely hard for communities to play a part in decision-making, and is biased in favour of the developer.
4. More deprived communities in England are bearing a disproportionate burden of the impacts of the UK's current biomass boom.
5. With increasing demand for greater volumes of faster growing trees, biomass producers are turning to genetic engineering to increase yields.

We are calling for:

1. Large-scale industrial bioenergy to be removed from definitions of "renewable energy". The term “renewable” must be formalized to reflect the real costs to the environment and public health.
2. An end to subsidies, including targets and other state incentives, for industrial bioenergy.
3. A major policy shift away from large-scale energy generation through combustion, towards our energy needs being satisfied through a combination of genuinely climate-friendly renewable energy and a substantial reduction in both energy generation and use.

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For full report, colour images and references please see ***http://biofuelwatch.org.uk/2013/chain-of-destruction/***
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