

Industrial Bioenergy: More Plantations and Industrial Logging to Fuel Power Stations?

Small farmers, indigenous peoples and other communities have always used local biomass to obtain energy for their own needs. Such local small-scale bioenergy can be a sustainable way of producing energy for communities. However, a new push for large-scale industrial bioenergy is underway, which poses a serious threat to forests and other ecosystems, to rural communities and forest peoples. This briefing looks at the new push for bioenergy for heat and power only – the impacts of agrofuels for transport are already well-documented elsewhere.

Biomass includes all manner of plant materials, animal fat and other slaughterhouse offal, sewage sludge and virtually anything of remotely biological origin. Companies even try to class municipal solid waste, construction debris and tyres as biomass, with different definitions applying in different countries.. The bulk however is wood, followed by vegetable oils. Across Europe, the US and other countries, a large new infrastructure for burning biomass is being put into place, with biomass power stations, co-firing with coal, and large-scale production of wood pellet heaters. Much biomass will be imported from the global South, though impacts on European, North American and Russian forests are likely to be devastating, too.

The fastest growing market for wood?

Today, demand for wood for industrial wood energy is small in comparison to demand for the pulp and paper industry, but is growing very fast. In the *EU*, two-thirds of so-called ‘renewable’ energy comes from biomass – including 80% of the growth in ‘renewables’ between 1990 and 2005. The European Commission wants 14% of the EU’s energy to come from biomass by 2020, largely from wood. According to a news investigation, biomass power station plans in the UK would require 20-30 million tonnes of wood every year, including for the world’s largest wood power station which is being built by Prenergy in Wales.

One company alone, Drax (who own the UK’s biggest coal power station) plans to burn 6.1 million tonnes of imported biomass a year. In just two months, 6 new biomass power stations were announced in

the UK. Across Europe, native forests are more than ever, over-exploited. Wood chips and pellets are now being imported from South America, the US, Canada, Portugal, South Africa, Russia, etc.

In the southeastern U.S., which has already been largely converted from very highly biodiverse forests to sterile pine monocultures in service of the pulp industry, government policy has sparked proposals for some 102 biomass or biofuel energy facilities in the region in the past few years. Some involve conversion of older coal power stations, to woodchip, or cofiring (wood and coal mixed). Industry refers to this area as the “Saudi Arabia of biomass”. If southern U.S. plantations shift to supply U.S. and European biomass demand, South America and other regions will be under ever more pressure to fill the vacuum for pulp and paper. In the state of Massachusetts, 5 new facilities are proposed to generate about 130-200 Megawatts of electricity. One megawatt of generating capacity requires 13,000 tons of wood per year. In total, these 5 facilities would burn at least 2.4 million ton of wood per year, requiring that all public and private forests in the state be logged in just 6 years, at levels far more intense than current practise. Delivering this quantity of wood to the facilities would require about 600 logging truck trips per day, over 184,000 trips per year. Millions of gallons of water would be drawn from rivers and waterways in the state to cool the facilities, much of which would be lost as vapor and the rest, heated and contaminated, dumped back into the waterways. All of this would increase the generating capacity of the state a mere 1.3%, an amount that could easily be met through efficiency. Similar scenarios are unfolding throughout the U.S.

An *international trade in woodchips and pellets* is rapidly developing. MagForest, a Canadian company operating in the Republic of Congo, will soon ship 500,000 tons of woodchips annually to Europe. IBIC Ghana Limited claims it can ship 100,000 tons of tropical hardwood and softwood a month from Ghana for bioenergy. Sky Trading, a U.S. company, is offering to supply up to 600,000 tons of wood chips for biomass from the United States or Brazil. Green Energy Resources, based in Nevada, has stated their goal of “supplying 20 percent of the European demand for woodchip by 2015”. Brazil's International CMO Business Biomass says it is dedicated to reducing coal use and can obtain wood chips from Brazil,

Chile, Uruguay and Argentina to supply the European energy market. Brazil Biomass and Renewable Energy offers. *New industrial tree plantations* are being set up to produce wood pellets for power stations. Indonesia, South Korean company has applied for a 200,000 hectare concession in Central Kalimantan, to produce wood pellets for 'green energy' in South Korea. UK firm Carbon Positive has entered a joint venture to develop 160,000 hectares of tree plantations for bioenergy in Indonesia, including in West Papua. Conservation International is helping the Indonesian company Medco to develop plantations for wood pellets, mainly in West Papua. Medco Group is reportedly planning up to 300,000 hectares of such plantations overall.

In the words of Heinrich Unland, chief executive officer of the German company Novus Energy GmbH: "Wood is very quickly becoming a very important part of the energy mix and in a few years will be a global commodity much like oil".

Carbon Neutral Myth

The myth that wood is "renewable" and "carbon neutral" is false. Burning wood immediately releases about 1.5 times more smokestack CO₂ than burning coal. Trees regrow and re-sequester that carbon only after decades. The peat industry and the governments of Finland and Sweden even want peat to be regarded as 'slowly renewable' biomass – though it is almost pure carbon and would take thousands of years to 'renew itself'. According to the Energy Information Administration projections, a 20% renewable standard in the US would result in the emission of 700 million tons of CO₂ from biomass burning, ironically, roughly equivalent to the amount permitted for international forest related offset provisions under the house-passed climate legislation. This would represent about 10% of total US emissions in 2020. Yet under current policy, counted as "carbon neutral" renewable energy, these emissions are unaccounted.

Vegetable oil and biogas for heat and power:

In Germany, Italy, the UK and elsewhere, many large power stations and smaller "combined heat and power" (CHP) plants have been built or are in planning that will burn vegetable, especially palm oil. These are fuelling the destruction of forests, small farms and other lands, including conversion of SE Asian peatland forests to oil palm

plantations, the single largest source of CO₂ emissions on the planet. In the US, biodiesel from vegetable oils is increasingly used for heat and power.

Biogas is made with manure, sewage and other 'waste', and biogas CDM credits primarily subsidise the industrial livestock industry. However, Germany, the world leader in biogas, has seen major increases in maize monocultures, with 240,000 hectares used for maize for biogas in 2007, at a high cost to biodiversity, freshwater and soils.

The scale of the threat:

Industrial bioenergy poses one of the greatest new threats to forests, biodiversity, people and the climate. A recent peer-reviewed study showed that if a carbon tax (or for that matter any other 'carbon reduction' policy) was applied which counts only fossil fuel carbon and falsely considers biomass to be 'carbon neutral' "we will see all of the world's remaining forests, savannah's and grasslands converted to energy crop monocultures by 2065."

To supply the voracious demands of large biomass facilities is difficult, expensive, requires operation of machinery and trucking as well as new plantations. To do so "economically and efficiently, in close proximity to facilities, in some cases, suppliers have resorted to harvesting whole trees and also stumps, leaving soils entirely denuded, compacted, and exposed to erosion, with little potential for regrowth, except with high levels of agro-chemicals.

The long term negative impacts of over-exploitation, removing residues rather than permitting them to decompose and recycle nutrients into soils, and expanding demand for agriculture and forestry products are deeply concerning. Particularly in light of recent predictions by the UN that, by 2060, over 70% of the world's soils will be degraded or desertified. "Making use" of residues and non-food crops is promoted as a means of avoiding competition with food production, but degradation of soils and depletion of waterways underlies both.

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