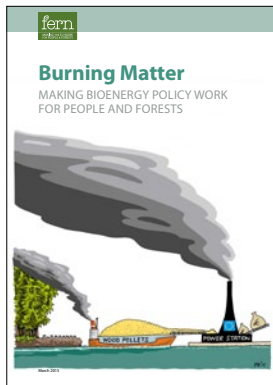


Burning Matter

MAKING BIOENERGY POLICY WORK
FOR PEOPLE AND FORESTS





Acknowledgements

Burning Matter: Making Bioenergy Policy Work for People and Forests

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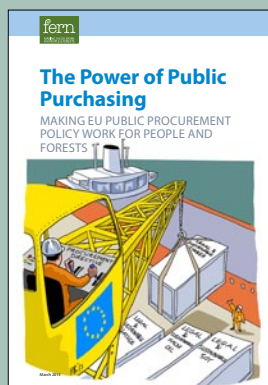
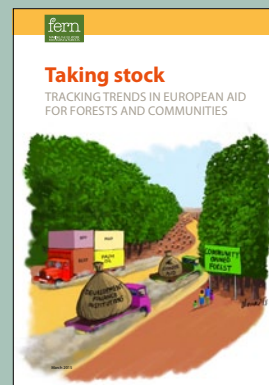
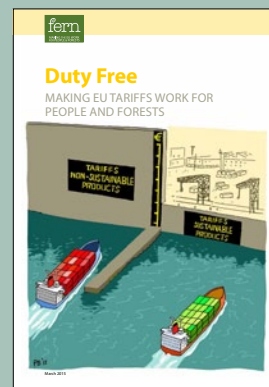
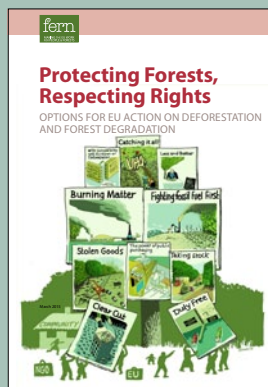
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"I do not want a Europe stuck on the sidelines of history ...
I want a Europe at the heart of the action, a Europe which moves forward, a Europe which exists, protects, wins and serves as a model for others."

Jean-Claude Juncker, President of the European Commission, Opening Statement in European Parliament, 15 July 2014

The EU has set itself the goal of ending deforestation by 2030. More than 70 per cent of deforestation in the tropics is the result of land being cleared for commercial agriculture. 36 per cent of the crops and livestock products that were grown on deforested land and traded internationally, was consumed by the EU: twice as much as China and Japan combined. Even in 2015, with China's consumption increasing at a rapid rate, the EU still has a far larger footprint per person than China.

Much of this deforestation is illegal. In 2012 alone the EU imported EUR six billion of soy, beef, leather and oil palm that came from land illegally cleared of forests. Not only is our consumption destroying forests: it is undermining global governance and the rule of law.

Market pressure from consumers who do not want to be party to this trail of destruction is increasing. Far-reaching corporate commitments on zero deforestation have shown that businesses are also ready to act. But consumers and companies cannot act alone.

The EU, as one of the largest importers of forest risk commodities needs to act and serve as a model for others. It must base its policies on the fact that many of the world's forests belong to communities who depend on them. Forest protection will not work, therefore, unless it goes hand in hand with respecting and strengthening communities' tenure rights.

This report is one of a series presenting recommendations to the EU for an Action Plan to halt deforestation and respect rights, looking at EU aid, climate, consumption, financial, illegal logging, renewable energy and trade policies. Together, the series forms a comprehensive action plan for the EU, available at www.fern.org/EUdrivers.

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Summary

Since 2009 the use of biofuels as substitutes for fossil fuels in transport has been encouraged by the European Union (EU). This has led to a significant increase in imports of biofuels and biofuel feedstock, and an accompanying impact on deforestation in producer countries, mainly in terms of clearance of forests for soy and palm oil production. It has also proved a highly expensive way of reducing emissions from road transport. We therefore recommend that EU Member States' subsidies for land-based biofuels are phased out, and removed completely after 2020.

The EU's increasing use of wood as a fuel for electricity generation has also led to one of the most dramatic changes in timber consumption patterns in recent years. This is beginning to have significant negative impacts on the climate and on forests, both inside and outside the EU. The EU support-framework for biomass should therefore be completely revised to restrict its use to levels that can be sustainably supplied.



Introduction

In 2009, the EU agreed a target of ensuring 20 per cent of energy consumption from renewable sources by 2020. Included in this was a Member State target to source 10 per cent of energy for transport from renewable sources, largely meaning biofuels. Since then the negative environmental and social impacts of increased biofuels production have become increasingly apparent.

The EU has now come to recognise – to some extent – the problems caused by the biofuel aspects of its energy policy. A 2012 proposal by the European Commission on how to account for the indirect impacts of biofuels on land use

triggered a debate which is still under way, as are debates about 'sustainability' criteria designed to mitigate the negative impacts of biofuels consumption. The potentially even bigger negative impact on forests of EU energy policy, however, stems from the use of biomass for heat and power, a topic that has not yet received the attention it deserves.

This paper explains that if the EU wants to meet its target of halving deforestation by 2020 and halting it by 2030, there will need to be a substantial revision of its biofuels and biomass policies.

"...if the EU wants to meet its target of halving deforestation by 2020 and halting it by 2030, there will need to be a substantial revision of its biofuels and biomass policies."

Duta Palma is a subsidiary of a corporate group that is member of the RSPO, the Roundtable on Sustainable Palm Oil. This image of Indonesia reflects exactly what RSPO wants to prevent, but so far it has yet to act on this case.

© Walex/FlickrCC



Biofuels

Transport fuel produced from organic matter has been used for road transport in some countries for decades. Growing concerns over energy security, coupled with a desire to sustain the agricultural sector and rural economy – and, more recently, targets to reduce carbon emissions from the transport sector – have helped to trigger a rapid increase in production and consumption, with several countries adopting support policies. As a result, global biofuel production grew from 16 billion litres in 2000 to about 110 billion litres in 2012,¹ and now accounts for a significant share of the global use of several crops: 20 per cent of sugar cane, for example, and nine per cent of vegetable oil and coarse grains (2007–09 figures).²

Two main types of biofuels are used in road transport: ethanol, made primarily from wheat, maize or sugar, which can replace or be blended with petrol; and biodiesel, made mainly from vegetable oils such as rapeseed, soy, palm or sunflower seed, or tallow, which can substitute for diesel. Biodiesel accounts for about 70 per cent of road transport biofuel use in the EU.³ So-called ‘second generation’ biofuels made from organic waste and residues are being encouraged, because of their lower environmental impact, and are just beginning to be commercialised; other types, such as biofuels from algae, are even further from the market.

“EU support for biofuels has proven expensive, costing Member States an estimated EUR 5.5 billion – EUR 6.9 billion a year in subsidies.”

The EU regime for biofuels was set by the 2009 Renewable Energy Directive, which includes a minimum ten per cent target for renewable fuels in each Member State’s transport



Sugar cane field in Brazil.

© Cícero R.C.Omena/FlickrCC

sector by 2020; and the 2009 Fuel Quality Directive, which requires all fuel suppliers to meet a six per cent reduction in greenhouse gas emissions by 2020 across all fuel categories, and sets fuel specifications for ethanol and biodiesel.⁴

In response to these targets, the EU’s consumption of biodiesel has expanded significantly, from less than 500,000 tonnes in 2000 to over ten million tonnes in 2010.⁵ Most of this has been supplied by increased domestic production from waste oil, sunflower and particularly rapeseed, the main feedstock. Production of rapeseed has remained roughly stable since 2009, however, despite higher prices, suggesting that a ceiling on production may have been reached.⁶

Correspondingly, EU exports of vegetable oils have fallen and imports have risen sharply – mainly of palm oil and, to a much smaller extent, of soybean oil. The data suggest that most of the palm oil is not being directly processed into biodiesel, but

1 International Energy Agency, *Tracking Clean Energy Progress 2013*, IEA, 2013, p 90.

2 *Price Volatility in Food and Agricultural Markets: Policy Responses*. Policy report including contributions by FAO, IFAD, IMF, OECD, UNCTAD, WFP, the World Bank, the WTO, IFPRI and the UN HLTf, 2 June 2011, p 10.

3 UN Conference on Trade and Development, *The State of the Biofuels Market: Regulatory, Trade and Development Perspectives*, UNCTAD, 2014, p 17.

4 ‘Renewable Energy Directive’ 2009/28/EC and ‘Fuel Quality Directive’ 2009/30/EC *Vegetable Oil Markets and the EU Biofuel Mandate*, ICCT, February 2013, p 2.

6 Bailey R, *The Trouble with Biofuels: Costs and Consequences of Expanding Biofuel Use in the United Kingdom*, Chatham House, April 2013.



EU biofuel policies have led to an increase in palm oil production.

© Eoghan Rice/FlickrCC

is filling the gaps left by the diversion of domestic vegetable oils into the biofuel market.⁷

The Renewable Energy Directive contains sustainability criteria designed to ensure that the biofuels used to meet the targets deliver significant greenhouse gas savings compared with the fossil fuels they replace (at least 35 per cent, rising to 50 per cent in 2017 and, for new installations, 60 per cent in 2018), and have not been produced from land converted from primary forests, wetlands, peat lands or protected areas. Biofuels that do not meet these criteria can still be used, but they do not count towards the renewable energy target, and are not eligible for the incentives made available by EU Member States, which include favourable tax treatment and minimum blending requirements. Compliance with the criteria has to be proven by the suppliers of biofuels, who can either carry out their own calculations of greenhouse gas savings, or use default values provided by the European Commission. The default value for palm oil biodiesel is 19 per cent, which is clearly below the threshold – i.e. palm oil does not meet the sustainability criteria (though if it is manufactured with methane capture at the mill, the default

value rises to 56 per cent). The default value for soybean biodiesel is 31 per cent, also below the threshold. Blends of rapeseed oil, palm oil and soybean oil, however, can exceed the threshold.

As noted above, the sustainability criteria prohibit production of biofuels from land converted from primary forests, wetlands or peat lands, and the emissions figures were based on the assumption that any changes in land use arising from biofuel production cause no increase in net carbon emissions. The demand for biofuels has been so high, however, that land which would otherwise have been used for food production has increasingly been diverted to biofuels; and, in turn, forest has been converted to farmland for food crops. Research increasingly highlighted how the increase in emissions caused by this indirect land-use change (ILUC) could have a significant impact on the net emissions of greenhouse gases from biofuel production – possibly even leading to biofuel use resulting in higher emissions than the fossil fuels they replaced.⁸

7 *Vegetable Oil Markets*, op. cit., p.6.

8 See, e.g., Catherine Bowyer, *Anticipated Indirect Land Use Change Associated with Expanded Use of Biofuels and Bioliquids in the EU – An Analysis of the National Renewable Energy Action Plans* (Institute for European Environmental Policy, March 2011).

Accordingly, in October 2012 the European Commission published a proposal to introduce ILUC factors to modify the emission figures for all land-based biofuels, though this was to be for reporting purposes only (i.e. it is not a modification of the sustainability criteria).⁹ The proposal also included bringing forward the 60 per cent minimum threshold for new installations from 2018 to July 2014, and limiting the contribution of land-based biofuels towards the renewable energy target in transport to 5 per cent. This was intended to freeze EU consumption of land-based biofuels and to open up more of the market for non-land-based biofuels from algae, waste and residues. All support for food-crop-based biofuels was to be ended after 2020.

Three ILUC emission factors were proposed: for cereals (12 gCO₂eq/MJ),¹⁰ sugars (13 g) and oil crops (55 g). The comparatively high ILUC factor for oil crops would disqualify most biodiesel made from palm oil, rapeseed and soybean oil, if the sustainability criteria were modified to include them. In September 2013, the European Parliament voted in support of the proposal to include ILUC factors, although it amended the 5 per cent cap on land-based biofuels to 6 per cent.

The Council and the European Parliament failed to reach a final agreement before the European Parliamentary elections in May 2014, however, so the debate resumed anew in June 2014, when EU energy ministers voted to increase the cap to 7 per cent.¹¹ In February 2015, the Environment Committee of the Parliament voted to reinstate the 6 per cent cap, to include ILUC factors in the sustainability criteria, and to end all support for land-based biofuels after 2020.¹² At the time of writing, debate over the proposals is continuing, and is unlikely to be resolved until late 2015.

Overall EU support for biofuels has proved highly expensive, costing Member State governments an estimated EUR 5.5 billion – EUR 6.9 billion a year in subsidies.¹³ An additional EUR 5 billion a year is paid by motorists in higher fuel bills. It has been argued that if the same amount was spent directly

“Increased biofuel use in the EU and elsewhere is clearly helping to drive deforestation, both directly and indirectly.”



EU bioenergy policies have driven conversion of forests.

on improvements to vehicle technology, greater reductions in emissions could be achieved, while at the same time cutting motorists' bills.¹⁴

Increased biofuel use in the EU and elsewhere is clearly helping to drive deforestation, both directly and indirectly. A 2011 study concluded that 'biodiesel from oil palm may have been responsible for up to 2.8 per cent and 6.5 per cent of direct deforestation in Indonesia and Malaysia, respectively, while biodiesel from soybean in the Brazilian state of Mato Grosso may have been responsible for up to 5.9 per cent of direct deforestation.' Indirect deforestation was significant and likely to grow in the future.¹⁵ The use of food crops for biofuels can also raise global food prices, by diverting crops from food production, and aggravate price volatility in agricultural markets.¹⁶

9 Proposal for a Directive of the European Parliament and of the Council amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources. COM(2012) 595 final, 17 October 2012.

10 The greenhouse gas (GHG) intensity for fuels and energy is expressed in terms of grams of carbon dioxide equivalent per Mega Joule of fuel [gCO₂eq/MJ].

11 'EU Energy Ministers agree to limit production of food-based biofuels', *BRIDGES*, 19 June 2014.

12 'EU Parliament committee backs new limit on food-based biofuels', *BRIDGES*, 5 March 2015.

13 2011 figures for market price support, tax exemptions and R&D grants. Charles C et al., *Biofuels – At What Cost? A Review of Costs and Benefits of EU Biofuels Policies*, IISD, April 2013.

14 *Ibid.*

15 Gao Y, Skutsch M, Masera O, Pacheco P, *A Global Analysis of Deforestation due to Biofuel Development*, CIFOR, 2011, pp ix–x.

16 *Price Volatility in Food and Agricultural Markets*, op. cit. p 10.

Recommendations to the EU

EU biofuels policy is clearly impacting forests in developing countries, creating additional incentives for the production of palm oil and soybean oil (even if not directly for biofuels, to replace the rapeseed and other oils diverted from other uses to biofuels), and displacing food production. The impact on small holders is not entirely clear – palm oil is often produced by smallholders – but the rapid expansion of the industry has had serious negative impact on forest peoples and communities.¹⁷ We recommend that:

- After 2020, the EU and its Member States end all support for land-based biofuels. Any targets, subsidies or other policy support should be limited to biofuels derived entirely from non-land-based sources. Other instruments, such as tougher vehicle fuel emissions standards and support for electric vehicles, should be used to reduce greenhouse gas emissions, and will do so more cost-effectively.
- In the short term, adopt a five per cent cap for the contribution of land-based biofuels towards the renewable energy target, and introduce ILUC factors into the sustainability criteria (and not merely for reporting). This would make some biofuels ineligible for subsidy and would mean they could not be counted towards the target.
- Ensure in short term that biofuel sustainability criteria include social criteria, such as the requirement for Free Prior and Informed Consent of local communities and respect for communities' rights to land and resources.

¹⁷ *Conflict or consent? The oil palm sector at a crossroads*; FPP, Sawit Watch and TUK Indonesia 7 November, 2013 available at www.forestpeoples.org

Biomass

The use of biomass and specifically wood biomass, in modern technologies for electricity and heating generation has grown steadily over the last decade.¹⁸ Compared to other renewables, biomass has a number of advantages: biomass plants can be switched on or off to cope with fluctuating demand for energy, and existing coal plants can be converted to biomass, or coal can be co-fired with biomass, relatively cheaply.

Although there are alternatives to the use of wood in biomass power stations, including organic waste, agricultural residues and energy crops, they tend to be less energy-dense, more expensive and more difficult to collect and transport. Wood is therefore likely to remain the biomass fuel of choice. It is possible to achieve a positive environmental impact by using wood waste and residues from the timber industry, such as mill waste and small diameter materials from logging that would otherwise be burned or left to decompose. Practice has shown however that it is often more cost effective for whole trees to be harvested and converted to chips or pellets.

The assumption lying behind the support given to biomass in many countries is that it is a carbon-neutral energy source. This assumption is wrong.

When burned, wood emits greenhouse gases, potentially at a higher level per unit of energy produced than some fossil fuels, because wood is less energy-dense and contains higher quantities of moisture.¹⁹ The production and use of the wood may also generate additional emissions from activities such as cultivating and harvesting forests, processing the wood (for example into pellets, which contain less moisture), or from ILUC. At the same time, the wood extracted from the forest can no longer sequester carbon from the atmosphere, creating a double effect: emitting carbon at the moment of combustion and decreasing capacity to sequester carbon. The substitution of biomass for fossil fuels in generating electricity or heat therefore creates a 'carbon debt'. Over time, regrowth of the harvested forest could potentially remove

this carbon from the atmosphere, reducing the carbon debt; the period until carbon neutrality is known as the 'carbon payback period'.²⁰

This carbon payback period is critical to the contribution of biomass energy to climate policy goals. A huge range of factors affect this figure, including the type of forest and feedstock used, the amount of energy consumed in cultivation, collecting and transporting the biomass, the combustion efficiency and possible displacement of wood by

"EU's use of wood as a fuel for energy generation has led to one of the most dramatic changes in timber consumption patterns in recent years."

carbon intensive materials such as concrete or metal in other sectors. Calculations suggest that the payback period can vary enormously, from less than 20 years to many decades, and in some cases even centuries.²¹ The most positive outcomes for the climate derive from situations where wood residues (from forest management – twigs, bark, etc. – or mill residues from sawmilling) that would otherwise be burnt as waste are instead converted to pellets and used for energy. The most negative impacts involve harvesting old-growth forests, using stem wood or increasing harvesting rates in already managed forests.²²

18 International Energy Agency, *Renewable Energy Medium-term Market Report* 2014, IEA, 2014.
19 See for instance Schlesinger WH, Allen M, Aneja VP et al., Letter to Nancy Pelosi, US House of Representatives and Harry Reid, US Senate, 17 May 2010.

20 'Carbon debt' is not a precise term; it is sometimes used instead to refer to the period it takes for growing trees to recapture the emissions released from an equivalent amount of carbon. The meaning used here (and of carbon payback) is taken from Mitchell SR, Harmon ME, O'Connell KEB, 'Carbon debt and carbon sequestration parity in forest bioenergy production', *GCB Bioenergy*, 2012, vol. 4, no. 6.

21 For a detailed assessment, see Stephenson A, Mackay D, *Life Cycle Impacts of Biomass Electricity in 2020: Scenarios for Assessing the Greenhouse Gas Impacts and Energy Input Requirements of Using North American Woody Biomass for Electricity Generation in the UK*, Department of Energy and Climate Change, July 2014.

22 European Commission, Joint Research Centre, Institute for Energy and Transport. *Technical reports: Carbon Accounting of forest bioenergy, conclusions and recommendations from a critical literature review*, 2013



Greenhouse gas emissions caused by biomass are currently not correctly accounted for.

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Carbon Neutrality and the United Nations

The assumption of carbon neutrality originates from the greenhouse gas inventory and reporting guidance developed by the Intergovernmental Panel on Climate Change for the national greenhouse gas inventories submitted under the United Nations Framework Convention on Climate Change. To avoid double-counting, carbon dioxide emissions and removals from forestry are reported in the Land Use, Land-Use Change and Forestry (LULUCF) sector independently from the end use of such biomass, while the carbon emissions from biomass combustion are then reported under the energy sector only as a memo item, not as emissions.

The way in which this system was translated into the Kyoto Protocol created a series of loopholes, which generated incentives for countries to account only for activities that gave them credits (e.g. burning biomass instead of fossil fuels), while ignoring those that gave debits (e.g. accounting for the accompanying negative impact on forest removals, which was optional).²³ Estimates suggested that lenient interpretation of the rules could result in emissions rising

by up to 0.6 gigatonnes of carbon annually – up to 10 per cent of the gap between countries' emissions reductions pledges and those needed to limit temperature rise to two degrees above pre-industrial levels.²⁴ Although some of these loopholes have now been plugged, others remain, and the likely impact on total emissions is not known. Most seriously, the assumption of immediate and complete carbon neutrality for biomass has been established in many countries' policy frameworks, creating substantial incentives for investments that in reality always increase carbon emissions in the short term, and sometimes (perhaps often) in the medium and long term as well.

Biomass use in the EU

The EU has been, and remains, the main global source of demand for wood for biomass electricity and heating. This is largely a result of the renewable energy targets adopted for each Member State under the 2009 Renewable Energy Directive. Biomass electricity and heat is expected to make up almost half of the 2020 EU renewable energy target, and is projected to account for 18 per cent of total EU electricity production by 2020.²⁵

23 For a summary of the issues, see Kate Dooley, *Misleading Numbers: The case for separating land and fossil based carbon emissions* (FERN, 2014).

24 *Bridging the Emissions Gap: A UNEP Synthesis Report* (UNEP, 2011).

25 Atanasiu B, *The Role of Bioenergy in the National Renewable Energy Action Plans: A First Identification of Issues and Uncertainties*, Institute for European Environmental Policy, 2010.

Looking further ahead, the 2030 climate and energy package proposed in 2014 (still under discussion) envisages the EU achieving a 27 per cent share of renewable energy by 2030 (49 per cent of electricity generation). Biomass and waste are expected to account for 56 per cent of this, mostly in heat; biomass and waste are projected to provide about 15 per cent of total electricity production. There is an accompanying increase in domestic production of biomass feedstock, of which about a quarter comes from forestry – implying a growth in woody biomass production of 50 per cent between 2005 to 2030.²⁶ The analysis also assumes, however, a substantial increase in the consumption of energy crops, which is projected to grow more than 17-fold from 2005 to 2030. If this assumption proves to be too optimistic, the consumption of forest biomass may increase further.

The impact of EU biomass policies on forests globally is therefore significant. Studies of the availability of European wood for energy use generally conclude that in the absence of additional measures, at some point between 2015 and 2025 demand for wood for energy will exceed supply and will eat into supplies to other forest-based industries.²⁷ A significant increase in the rate of extraction is likely to go hand in hand with substantial environmental, financial and institutional costs.²⁸

"The assumption lying behind the support given to biomass in many countries is that it is a carbon-neutral energy source. This assumption is wrong."

The EU is the world's major producer and consumer of wood pellets for biomass energy (by 2010, pellets had become the dominant wood energy commodity on international markets, thanks to their low moisture content and the ease of transporting and storing them). From 2000 to 2010, EU production, demand and imports of wood pellets all

increased more than tenfold.²⁹ In 2013, the EU accounted for just over half of total global wood pellet production; the main producing countries were Germany, Sweden, Latvia, and Portugal.³⁰ The US and Canada between them accounted for about 25 per cent of global production.

In 2013, EU consumption of pellets exceeded domestic production by about 50 per cent.³¹ This growing demand causes negative impacts in European forests, but also shows that the EU is creating extra pressure on forests in non-EU countries. As such, demand for biomass in the EU is in direct opposition to the EU's objective to mitigate its global impact on deforestation and forest degradation. Even if EU production expands further, it may be cheaper for countries in Western Europe, such as the UK, to import pellets from North America. Furthermore, expansion of Russian supplies may be constrained by the legality requirements of the EU Timber

Regulation (if properly enforced). Increasing impacts on forests in the US and Canada can therefore be expected. Given that the demand for wood from the same areas is also expected to increase with recovery from the global recession, there are serious concerns over the impact on forest management in these countries.

Impacts on forests can be significant. In the south-eastern United States (US), for example, concerns have been raised that pellet manufacturers are logging whole trees and converting them to pellets. A survey in 2012 of the five largest wood pellet producers in the US (all of whom were supplying wood pellets to EU companies) provided evidence – including photographs on company websites – that whole trees were being used alongside residues.³² There will also be impacts on biodiversity, for

For more discussion on the EUTR, see **Catching it all - making EU illegal logging policies work better for people and forests** Available at www.fern.org/catchingitall



26 European Commission Staff Working Document, Impact Assessment accompanying the document *A Policy Framework for Climate and Energy in the Period from 2020 to 2030*, COM(2014) 15 final, 22 January 2014. See also European Commission Staff Working Document: *State of play on the sustainability of solid and gaseous biomass used for electricity, heating and cooling in the EU*, 28 July 2014, SWD (2014) 259 final

27 See for instance Mantau U et al., *Real Potential for Changes in Growth and Use of Forests, EU Wood, 2010; The Future Role of Biomass in 2030 EU Energy Policy*, CAN Europe, September 2013.

28 See e.g. *The European Forest Sector Outlook Study II 2010–2030*, UNECE and FAO, 2011, pp 97–8.

29 Lamers P, Marchal D, Heinimo J, Steierer F, 'Global woody biomass trade for energy,' in Junginger M, Goh CS, Faaij A, eds, *International Bioenergy Trade*, Springer, 2014.

30 Huang J, *Wood Pellet Global Market Report 2014*, available at <http://www.biofuelmachines.com/wood-pellet-global-market-report-2014.html>

31 Eurostat, *Forestry statistics in detail* shows that although the EU was the largest producer of wood pellets in 2013 with an output of 13.2 million tons in 2013 while the level of imports from outside the EU rose to 6.4 millions tons

32 Dogwood Alliance, *The Use of Whole Trees in Wood Pellet Manufacturing: Evidence of the Use of Whole Trees by Top Wood Pellet Exporters from the US South to Europe*, November 2012, available at <http://www.dogwoodalliance.org/wp-content/uploads/2012/11/Whole-Tree-Wood-Pellet-Production-Report.pdf>

"In 2013, EU consumption of pellets exceeded domestic production by about 50 per cent. The main sources of imports were the US, Canada and Russia"



Energy forest (biomass from willows) in Sweden. Willows grown for wood chips on abandoned agricultural fields.

© Viseskogen/FlickrCC

example from increased rates of logging or the expansion of plantations, a likely outcome of increased demand for biomass. Other environmental impacts may include increased sediment and nutrient loads in local water, and a reduction of net watershed flows into regional streams, lakes, and groundwater systems.³³ The European Commission has commissioned a study looking into the impact on US forests of EU biomass consumption, which is expected to come out at end of 2015.

EU Member States are also beginning to respond to these concerns. In 2013 the UK announced a cap on approvals for new dedicated biomass plants, though it still maintains

support for co-firing biomass with coal. Attempts by the European Commission during 2013 to develop criteria for large biomass installations, including a minimum greenhouse gas saving threshold, and sourcing from sustainably managed forests, failed to reach internal agreement; and a number of Member States, including the UK and Netherlands, have now developed their own national sustainability criteria; criteria are also under development in Belgium. These are currently creating an uneven playing field, and are also limited in scope, failing to take account of a variety of factors such as changes in forest carbon stocks, any effects of ILUC, or emissions from transporting the biomass.³⁴

³³ See for example *Forestry Bioenergy in the Southeast United States: Implications for Wildlife Habitat and Biodiversity*, National Wildlife Federation, 2013.

³⁴ 13 March 2015, Dutch environmental NGOs and energy companies have agreed on the implementation of sustainability criteria, that are likely to include criteria on sustainable forest management, carbon-debt, ILUC and greenhouse gas accounting as well as process criteria (such as regarding certification)

Recommendations to the EU

The EU 2020 renewables target has led to a significant expansion of the market for wood for electricity and heat generation, with negative impacts on forests in and outside the EU and potentially on greenhouse gas emissions. We recommend that the EU develop a new biomass policy which should:

- **Match its use of biomass for power and heating to a level which can be sustainably supplied from domestic sources, and which takes into account competing uses of biomass by other sectors. This will reduce the pressure that EU biomass consumption is putting on land and forests globally.**
- **Ensure that biomass is used with greater resource efficiency, e.g. by developing measures following the principle of 'cascading use', i.e. when biomass is used for materials and products first, and the energy content is recovered only from end-of-life products, respecting the waste hierarchy (reduce > re-use > re-cycling > recovery energy).**
- **Ensure the development of EU-wide binding sustainability criteria to ensure that the use of biomass is restricted to wood waste and residues from the timber industry, sourced as locally as possible and requiring real carbon savings on the basis of a sound methodology to measure carbon emissions, including ILUC effects and energy used in cultivation, processing, transport and combustion.**
- **Making biomass use conditional on comprehensive environmental and social sustainability criteria, and develop clear and sound criteria and indicators under sustainable forest management models or other verification systems.**
- **Phase out biomass being used for large scale co-firing in coal-fired power plants and dedicated biomass plants for electricity generation only, as they are inefficient and lock in the use of more coal.³⁵**

In addition to policy directly impacting biomass sourcing and use, we also ask that the EU:

- **Revise the EU Emission Trading System to ensure that greenhouse gas emissions from biomass for energy are treated according to their actual climate impact (currently they are considered carbon neutral, meaning that operators do not have to surrender European Emission Allowances against emissions from any type of bioenergy, wrongly incentivising biomass).³⁶**
- **Press for the reform of the way in which biomass energy is treated under the accounting rules of the United Nations Framework Convention on Climate Change, to reflect the aims set out above.³⁷**

35 *EU bioenergy potential from a resource efficiency perspective*, European Environmental Agency, 2013

36 *Reasons to change the zero-rated criteria for biomass in the EU ETS*, Birdlife, European Environmental Bureau, and Transport and Environment, March 2015

37 *Carbon impacts of bioenergy under European and international rules*, ClientEarth, November 2012

"The use of crops and wood for energy drives deforestation in the EU, North-America and the tropics, making EU bioenergy policies a burning matter."



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