WWF

POSITION PAPER

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WWF's recommendations for sustainability criteria for forest based biomass used in electricity, heating and cooling in Europe

The Renewable Energy Directive 2009/28/EC envisages an increase in the use of biomass for the production of electricity, heating and cooling to the point that it is expected to account for more than 50% of renewable energy consumption in the EU in 2020. As things currently stand, this biomass could be used without reference to any guidance on its sustainability - such as its ability to contribute to the reduction of greenhouse gas emissions. This state of affairs poses a significant threat to the protection from degradation of forests both inside and outside of Europe. The extensive use of unsustainable biomass could also threaten efforts to achieve EU wide greenhouse gas reduction targets for 2020.

Through the Directive 2009/28/EC "on the promotion of the use of energy from renewable sources" (RED), the European Union has set itself the target of delivering 20% of final energy consumption from renewable sources – with a specific target that 10% of energy used in the transport sector come from renewable sources[1].

According to projections provided in the latest National Renewable Energy Plans (NREAPS), by 2020 more than 10% of final energy consumption will be delivered by biomass. Biomass would then represent about 50% of the overall renewable energy consumption in Europe, with forest biomass playing a major role, delivering more than 70% of all biomass used in the EU. WWF therefore urges the EU and Member States to introduce legally binding sustainability criteria for biomass used for electricity, heating and cooling in order to ensure that:

- **There is full accounting of carbon emissions from biomass to allow prioritisation of biomass based on their real GHG mitigation potential, as well as the efficient use of biomass.**
- **There is zero use of valuable land in order to protect biodiversity and the ecosystem services of forests or restricted use in line with the management criteria for these areas.**
- **There is implementation of sustainability principles for forest management.**
- **Internationally proclaimed human rights are respected, including customary and statutory tenure and use rights, and the right to give free and prior informed consent.**
- **These principles are implemented in a credible way.**

IMPACTS OF INCREASED BIOMASS USE

The projected use of forest biomass for electricity, heating and cooling could, and most likely will, contribute to the intensified use of forests, including higher harvest rates and a greater focus on faster growing tree plantations both inside and outside of Europe. This would pose major risks to biodiversity and ecosystem services including water cycles and carbon sequestration. WWF believes that these risks must be acknowledged by European society and that, consequently, European policy must seek to avoid negative developments and promote the sustainable use of natural resources.

Biodiversity impact

According to the UNECE's Forest Sector Outlook Study II for 2010-2030, the increased use of biomass will have negative consequences: "If wood is to play its part in reaching the targets for renewable energy, there would have to be a strong mobilisation of all types of wood. Supply would have to increase by nearly 50% in twenty years (Promoting wood energy scenario). However the mobilisation of such high volumes would have significant environmental, financial and institutional costs"[2]. The European Environment Agency concluded that unsustainable forest management, fragmentation, airborne pollution and climate change are major threats to Europe's forest biodiversity[3].

Intensifying forestry by draining wet forests and peatlands, fertilising, introducing forest tree species with differing genotypes and generally losing of natural structures negatively affect forest biodiversity in Europe. One clear example of the consequences of this kind of action is that "between 1980 and 2005, the population size of common forest bird species declined by 31 % in Northern Europe and by 35 % in Southern Europe (....). As a particular example, populations of Lesser-spotted Woodpecker (Dendrocopos minor) and the Willow Tit (Parus

[1] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0016:0062:EN:PDF
[2] http://www.unece.org/fileadmin/DAM/timber/publications/sp-28.pdf#page=11
[3] European Environment Agency 2010: Forest ecosystems: 10 messages for 2010

montanus) declined (...). Both depend on deciduous forests with old trees and deadwood (EEA, 2008)."

Globally the threat of further forest degradation and possible ecosystem conversions is clear, especially considering the projected increase in forest biomass use. A recently published WWF report concludes that bioenergy will drive expansion of forest management, forest degradation and conversion of forests globally as a result of growing demand from the bioenergy sector[4].

Therefore, without ambitious energy savings and clear sustainability policies, the use of biomass in Europe is likely to happen globally at the expense of our natural ecosystems and of the services they provide.

Carbon impact

WWF supports limiting global average temperature increases to 2.0 C above pre-industrial level. To achieve that aim, we aim for a 100% renewable energy future by 2050[5]. One of our key objectives is, therefore, the reduction of carbon emissions through renewable energy use, including biomass. In order to reach that objective and to ensure that Europe truly fosters sustainable and climate friendly investments in the future, the European Commission needs to develop a better understanding of the potential carbon consequences of the biomass use for energy purposes, and to consider these when developing policies. The biomass use for energy is not climate neutral and there is an important difference in the time lag of emissions released through immediate combustion compared to the slow release over time of biomass that is left to decompose. This time lag is generally greater with forest biomass versus other short rotation biomass.

WWF is convinced that biomass has an important role to play as a renewable resource in a more sustainable energy future. However, the availability of biomass, especially of sustainably produced biomass, is limited. Therefore, **the use of biomass has to be balanced and combined with reduced consumption of heat, electricity and fuels within the next few years if a sustainable level of consumption and production is to be achieved[6]. The exploitation of biomass** must be prioritized for those sectors that cannot replace fossil fuels with other renewables sources, as high temperature industry processes, aviation, shipping and heavy trucks. **For 2030 and beyond the EU must develop ambitious energy policies that are based on an assessment of sustainable biomass potentials and that give priority to resource efficiency, energy saving strategies and renewable energy options with greenhouse gas savings until 2050.**

[4] WWF International2011: Living forests report chapter 2: Forests & Energy
[5] WWF 2011: The Energy Report, 100% renewable energy by 2050
[6] http://www.footprintnetwork.org/de/index.php/GFN/page/ecological_footprint_atlas_2008/

WWF'S KEY RECOMMENDATIONS

WWFs key recommendations to set a sustainable level playing field for forest based biomass used in electricity, heating and cooling are:

1. Ensure a significant reduction of greenhouse gas emissions

Using biomass is not climate neutral. To understand the true climate change mitigation effect of biomass, greenhouse gas calculations need to not only reflect all emissions produced during production, harvesting, transportation and processing, but also the soil carbon emissions and the carbon payback time of the specific feedstock[7]. Even though the carbon debt issue is complex and raises a number of questions, it is of utmost importance that the EU aims to reach real greenhouse gas reductions through the biomass use. Therefore, the different payback times of carbon of biomass[8] sources need to be assessed and taken into account.

WWF Asks:

The Commission and Member States should introduce a transparent and comprehensive greenhouse gas methodology in order to provide a means through which different forms of biomass can be graded, and prioritised in the energy mix, according to their real GHG mitigation potential once the issue of carbon debt has solidly been taken into account. The definition of such a methodology must be based on a transparent and science based discussion on carbon accounting and carbon debt with Member States and other stakeholders in order to develop a common understanding of the issue.

2. Encourage the efficient use of biomass

The efficiency of the installations using biomass varies significantly within the EU, ranging from under 40 % to 90 %[9]. More efficient plants produce the same amount of energy with less fuel.

WWF Asks:

Requirements such as minimum efficiency standards and/or incentives for highly efficient installations should be introduced to ensure that the biomass use is limited and guided towards the most efficient technologies available. Cascading[10] use of biomass as well as combined heat and power production need to be incentivised where appropriate.

[7] Repo et al. Indirect carbon dioxide emissions from producing bioenergy from forest harvest residues http://onlinelibrary.wiley.com/doi/10.1111/j.1757-1707.2 010.01065.x/abstract

[8] More information on carbon debt under: Opinion of the EEA Scientific Committee on Greenhouse Gas Accounting in Relation to Bioenergy: http://www.eea.europa.eu/about-us/governance/scientific-committee/sc-opinions/opinions-on-scientific-issues/sc-opinion-on-greenhouse-gas/view.: Haberl, H., et al., Correcting a fundamental error in greenhouse gas accounting related to bioenergy. Energy Policy (2012), doi:10.1016/j.enpol.2012.02.051

[9] Ecofys 2010: Evaluation of improvements in end-conversion efficiency for bioenergy production. Final report

[10] Cascading use, e.g. when biomass is used for material products first and the energy content is recovered form the end of life products, tends to provide a higher environmental benefit than primary use as fuel, Wuppertal Institute 2007Towards a sustainable biomass strategy.

3. Protect highly bio-diverse forests as well as attributed services

The Renewables Directive has given guidance on several no-go areas for the production of biofuels and bioliquids (Art. 17, 3 a-c). However, forest areas are only covered under the heading (a) '*primary forest and other wooded land, namely forest and other wooded land of native species, where there is no clearly visible indication of human activity and the ecological processes are not significantly disturbed*' (Art 17, 3 a). Highly biodiverse forests, including modified natural forests, semi-natural forests and fast growing tree plantations have not been addressed yet. Under the current regulatory framework it is possible that semi-natural forests could be converted into monoculture forests. The degradation and conversion of forested areas are the main expected and severe impacts for forest areas of this directive.

WWF Asks:

Building on the existing no-go areas for biofuels and bioliquids, this principle should be extended to forested areas of high conservation value. In such forests covered by the criteria below, biomass extraction should only be allowed if it maintains and/or enhances existing High Conservation Values[11]. These include:

- forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g. endemism, endangered species, refugia); and/or large landscape-level areas, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance;
- forest areas that are in or contain rare, threatened or endangered ecosystems;
- forest areas that provide basic services of nature in critical situations (e.g. watershed protection, erosion control);
- forest areas that are fundamental to meeting the basic needs of local communities (e.g. subsistence, health) and/or critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities);
- forest habitats that are relevant for achieving the objectives of the EU Biodiversity Strategy, including forest habitats included in Annex I of the Habitats Directive, and relevant forests habitats for species protected under the Birds and Habitats Directives.

Forest cover, Juruena National Park, Brazil, June-July 2006 © Zig Koch / WWF

[11] http://en.wikipedia.org/wiki/High_conservation_value_forest

4. Manage forests sustainably

Increasing demand for forest based biomass is leading to changes in forest management. Increased harvesting is not always sustainable, especially considering that some European forests are already in a poor environmental state. Biomass harvesting must not negatively influence, over the long term, the essential ecosystem services that forests provide. Thus, forested areas need to be managed in a sustainable way. In WWF views, current legislation cannot ensure that either domestic or imported biomass is produced in a sustainable manner.

WWF Asks:

When managing forests for biomass production sustainable levels, methods and types of harvesting and extraction of biomass must be adhered to in order to ensure that GHG savings are delivered and biodiversity and natural resources are enhanced**.** All forest functions must be preserved and negative environmental impacts must be avoided.

To ensure this, the following principles should apply:

- Forest management shall be carried out in a way that does not negatively affect other forest functions (such as biodiversity, water protection etc.) and should not lead to forest degradation or forest destruction;
- Areas with high biodiversity value shall be identified and their management adjusted in order to maintain these values. There shall be no conversion of high value forests (including natural, modified natural forests, semi-natural and degraded forests) into fast growing tree plantations used to produce biomass;
- There shall be no harvesting for biomass in areas prone to high levels of erosion;
- Forest management shall preserve the resilience of forest ecosystems, maintain and enhance genetic diversity, as well as species diversity;
- Trees and deadwood elements shall remain at harvesting sites in order to sustain biodiversity;
- There shall be no overharvesting of less common natural tree species. Soil and water courses shall be protected;
- Natural soil production capacity and natural quality of water run-off shall be maintained;
- Biomass production shall maintain or enhance the quality and quantity of surface and groundwater;
- There shall be no use of chemicals damaging life in recipient water systems and no use of pesticides banned by national law or international agreements.

5. Biomass should have a clear legal origin

The biomass used in the EU should not fuel illegal practices in EU Member States or in those countries from where the EU is importing biomass. Measures must be put in place to ensure that no biomass that is accounted for in national targets comes from illegal deforestation or contributes to the degradation of forest and agriculture ecosystems.

WWF Asks:

The EU's timber regulation ((EU) No 995/2010) should be taken as a basis to determine the legality of wood products used for biomass. In addition, biomass should only be imported to the EU from countries which have fulfilled the requirements of the international treaties they have signed.

6. Respect internationally proclaimed human rights

Biomass production, as with other forms of land use, has the potential to be associated with conflicts resulting from land tenure and natural resource disputes. To avoid conflict and to ensure that the rights of local and indigenous communities are respected, certain measures must be taken.

WWF Asks:

The EU must ensure that biomass production activities in countries from which we are importing comply with internationally recognised human rights as contained in the Universal Declaration on Human Rights and the UN Declaration on the Rights of Indigenous Peoples, including customary and statutory tenure and use rights, and the right to give free and prior informed consent.

7. Implement sustainability requirements in a credible way

WWF proposes the development of legally binding sustainability criteria for biomass used for electricity, heating and cooling within a European framework. This would allow policy makers to build a truly sustainable level playing field for the European market. These principles will need to be transposed into national law and fully implemented. They should also be used to catalyse the increased use of existing schemes by setting a framework of criteria at EU level. This approach has been used for the biofuels criteria, where different certification systems are benchmarked against the legal framework. The Commission must carry out this benchmark exercise with full transparency. The methodology to benchmark the ceritification systems must be developed based on broad stakeholder participation.

WWF Asks:

A truly sustainable level-playing field for biomass used for electricity, heating and cooling should be built as mandatory requirements for Member States into the EU legal framework, with a mechanism to recognize voluntary certification schemes towards this legally binding standard. The recognition of schemes needs to be fully transparent and the methodology built on the basis of stakeholder participation.

WWF • WWF'S RECOMMENDATIONS FOR SUSTAINABILITY CRITERIA FOR FOREST BASED BIOMASS

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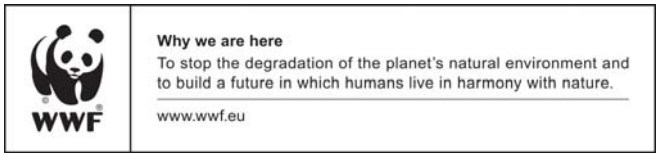

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