

WWF Japan Position Paper (May 2019 Edition)

Bioenergy as a Sustainable Energy Source

Biomass has generally been considered a carbon neutral energy based on the calculation methodology of the United Nations Framework Convention on Climate Change and its use as an energy source could contribute to the reduction of Japan's greenhouse gas emissions. However, there is a need to take into consideration the reality of carrying capacity limits, as tightening energy demand and supply conditions could force bioenergy into intensifying competition with food crops and other existing needs, ultimately posing a risk to forests and other ecosystems.

The purpose of "Bioenergy as a Sustainable Energy Source" is to show ways in which some bioenergy, which are listed among the sources of renewable energy envisioned in WWF Japan's "Long-term scenarios for achieving a zero-carbon society (February 2017)", could be used in a sustainable way.

Global deforestation and the current status of palm oil production

According to "Global Forest Resources Assessment 2015" by the UN Food and Agriculture Organization (FAO), the world's forested area declined from 4.128 billion hectares in 1990 to 3.999 billion hectares in 2015, and carbon stock in forest biomass decreased by approximately 11 billion t-c in the last 25 years due to deforestation and forest degradation.

Internationally traded forest commodities such as timber, palm oil, paper, soybeans and beef as well as the production of agricultural and livestock products are mainly to blame for the deforestation.

According to Global Forest Resources Assessment (2015), the forest area primarily used for timber production accounts for 31% of the world's forested area (2015) and although it decreased slightly compared to 1990, the impact of the wood industry on forests remains significant.

The oil palm, the raw material for palm oil, is native to West Africa and therefore needs to be grown around the equator and requires a certain minimum amount of rainfall. As a result, plantations have developed in Southeast Asia, Africa and Central and South America. The emergence of large-scale oil palm plantations in Malaysia and Indonesia

in particular, and the accompanying change in land use, has led to the burning and deforestation of large tracts of rainforests and peat swamp forests, resulting in serious greenhouse gas emissions.

Japanese corporations' efforts to procure timber and palm oil in a sustainable way

The supply chain for internationally-traded, primary forest products and agricultural products has a significant impact on global deforestation, particularly in developing countries. For this reason, an increasing number of companies have established internal guidelines for the sustainable procurement of timber and palm oil.

Growing criticism towards companies using raw materials that may contribute to deforestation is encouraging the procurement of products produced in a manner not accompanied by deforestation. The “New York Declaration on Forests” adopted at the 2014 UN Climate Summit aims to halve the rate of natural forest loss globally by 2020 and end natural forest loss by 2030. The Japanese government signed the declaration on September 23, 2014.

WWF Japan's Proposal

Scope of application

WWF Japan proposes focusing only on woody biomass and oil palm, as well as their byproducts such as timber waste and palm kernel shells (PKS). Among woody biomass, post-consumer wastes such as construction waste materials and bioenergy derived from agricultural products other than oil palm are excluded. Also, WWF Japan's proposal currently applies primarily to power plant operators of 10MW or more, as well as to operators procuring or utilizing an equivalent amount of bioenergy. Even smaller-scale operators are expected to procure bioenergy in a manner conforming to the purpose of our proposal. The intended use of bioenergy is not limited to power generation, but also to heating and transportation.

Standards

WWF Japan's proposal incorporates the following five standards (1-5):

1. Traceability

Bioenergy use should be traced with a level of precision that allows confirmation of whether standards 2-5 are being met.

2. Legality

The legality of bioenergy raw material production and supply chain should be confirmed in the light of forestry, environment and social laws.

3. Prevention of deforestation and preservation of biodiversity

Plantations for woody biomass developed in November 1994 or earlier, and plantations for biomass derived from oil palm developed in November 2005 earlier are excluded from this standard.

3-1. If the production of raw material for bioenergy is derived from high conservation value (HCV)¹ lands, it should be confirmed that the status of such habitats has been maintained or improved.

3-2. Certify that the raw material for bioenergy is not derived from peatlands.

3-3. If the production of raw material for bioenergy is accompanied by the conversion of natural forest in a tropical region, identify the high carbon stock (HCS)² land and certify that the material is not derived from such area.

4. Establishment of a standard for greenhouse gas reduction rate and evaluation

This standard does not require emission rate evaluation as a result of changes in land use for woody biomass from plantations developed in November 1994 or earlier, and biomass from oil palm plantations developed in November 2005 or earlier.

4.1. Identify a fossil fuel to be used for comparison during each life-cycle from production of raw material for bioenergy (including emissions resulting from a change in land use) to processing and transportation. Establish and publish a

¹ Abbreviation for High Conservation Value. High conservation value areas are natural forests and habitats significant for their endangered species, delicate ecosystems and unique local communities. HCV is an important concept in maintaining the natural environment of production sites and enhancing important environmental and social values. For more details, refer to HCV Resource Network's website (<https://hcvnetwork.org/>).

² Similar consideration should be given to lands that are not tropical areas but have a notably high carbon stock amount. The tools for identifying HCS can be found in the High Carbon Stock Approach website (<http://highcarbonstock.org/the-hcs-approach-toolkit/>), where young regenerating forests and older forests are considered High Carbon Stock forests.

voluntary standard³ for a reduction rate that allows for a sufficient drop in greenhouse gases, along with a calculation method⁴. The voluntary standard for greenhouse gas reduction rate should conform to the zero-carbon society goal of the Framework Convention on Climate Change's Paris Agreement and be gradually increased as necessary.

4.2 Assess the greenhouse gas reduction effect of each bioenergy, confirm using actual values that the voluntary standard established based on 4-1 above has been achieved, and publish the information regularly.

5. Other considerations

5.1 Competition against food crops and non-fuels uses should be avoided in the procurement of raw material for bioenergy and cascading use⁵ should be thoroughly enforced by taking into consideration the existing purpose. While raw materials such as timber waste and forest scraps are sometimes regarded as residue, they are within the scope of application of our proposal. Therefore, efforts should be made to avoid competition against non-fuels uses and priority should be given to the current use.

5-2. The appropriate amount of woody biomass to be left in the forest should be considered from the standpoint of forest material circulation.

³ Our proposal does not currently set a threshold value for the greenhouse gas reduction rate, but may do so in the future.

⁴ Ensure third-party verifiability of the voluntary standard and its calculation method.

⁵ Cascading use is a multi-step approach, whereby biomass resources such as wood or oil palm are used repeatedly in a descending order of priority according to the product's value and only finally used as energy.

Other/reference

FSC®-certified bioenergy is considered to generally meet the standards under our proposal. Standards 4 and 5 (Thorough implementation of cascading use), however, require voluntary verification.

Even RSPO-certified bioenergy is not considered to meet Standards 3 and 4 completely and requires additional verification.

For reference, Japan's liquid fuel greenhouse gas reduction rate was increased to 55% in 2018.

EU Revised Renewable Energy Directive (2018) requires that the greenhouse gas reduction rate for fuels used in power generation and cooling/heating meet the following standards:

- Liquid fuels only: Reduction rate of 50% or more (Fuels produced in a facility established in October 2015 or earlier)
- Liquid fuels only: Reduction rate of 60% or more (Fuels produced in a facility established from October 2015 through 2020)
- All fuels: Reduction rate of 70% or more (Fuels used in a facility established from 2021 through 2025)
- All fuels: Reduction rate of 80% or more (Fuels used in a facility established from 2026 onward)

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