Deutsches Biomasseforschungszentrum

Recommendations

Setting a Renewable Energy Framework for the decade ahead

About the DBFZ

The Deutsches Biomasseforschungszentrum gemeinnützige GmbH (DBFZ) is a German federal institution established in 2008. It carries out applied research on the energetic and integrated material use of biomass. The DBFZ regularly provides policy advice to German federal ministries as well as other national and international policymakers.

Note

This policy advice focuses on the role of biomass in a future EU Renewable Energy Framework. It does not address other sources of renewable energy.

General recommendations

- **How can bioenergy contribute to energy and climate targets in a cost-effective and environmentally sustainable way?** Policy support for bioenergy should be shifted away from mature technologies and focus on innovative solutions for hard-to-abate and hard-to-electrify-sectors (e.g. aviation, maritime, long distance heavy duty transport, industrial process heat)[1]. Another area for cost-effective policy support is capacity markets for flexible power generation, which are hindered by market failures. To avoid distorting competition with other renewable energy sources, established bioenergy pathways, such as baseload-electricity from biogas or low-temperature heat from woody biomass, should not receive financial support, regardless of whether they meet sustainability criteria of the EU Renewable Energy Directive (RED) or not.[2] Instead, support for established forest bioenergy solutions should be provided in a non-financial and technology-neutral manner, for example, through general renewable energy quotas.

- **How can investments in bioenergy be improved, how can the market-uptake of innovative bioenergy solutions be accelerated?** While private capital often plays a crucial role in leveraging public investments, governments bear a key responsibility for investing in innovative technologies. To increase the availability of public funding, the EU should reduce inefficient and distorting financial support for established bioenergy pathways (as mentioned above). In areas where market uptake is too costly to be accelerated through public budgets, renewable energy quotas or greenhouse gas emission limits can provide alternative, budget-neutral solutions. Sub-quotas or special provisions, such as multipliers, can be used to account for the additional support needed for innovative technologies compared to established energy solutions. These sub-quotas or multipliers should be phased out over time as innovative technologies mature and become self-sustaining.

[1] Lehmann, Paul; Gawel, Erik (2013): Why should support schemes for renewable electricity complement the EU emissions trading scheme? In: Energy Policy 52, 597-607, https://doi.org/10.1016/j.enpol.2012.10.018.

[2] Schindler, H.; Majer, S.; Thrän, D.; Lenz, V. (2024). Sustainable forest bioenergy: Discussion paper. Leipzig: DBFZ. III, 4-33 S. DOI: 10.48480/65HV-A187, https://www.dbfz.de/fileadmin/user_upload/Referenzen/Statements/Discussion_paper_sustainable_forest_bioenergy.pdf.

- **How can bioenergy support be aligned with the need to strengthen the EU's carbon removal sink?** As mentioned above, policy support for bioenergy should be focused on innovative solutions and applications in sectors with high abatement costs, such as maritime and aviation transport. With regard to forest bioenergy, this is a crucial condition for protecting and enhancing the carbon sink of EU forests. It is also a necessary step toward promoting efficient wood cascading.[3] Selective (i.e., non-technology-neutral) and financial support for mature forest bioenergy pathways should be phased out or limited to applications that are highly relevant for energy security reasons or other objectives that justify higher costs associated with inefficient forest bioenergy. The phase-out of financial support should also encompass indirect forms of support, including the zero-rating of biomass emissions in the EU Emissions Trading System (see next point).

- **How to streamline and improve the current energy policy framework?** For bioenergy, a first major policy inconsistency is financial support for mature forest bioenergy in the form of zero-rating its GHG emissions in the EU Emissions Trading System (ETS). Excluding these emissions from carbon pricing distorts energy and wood markets.[4] This leads to higher costs for RES expansion and undermines carbon storage in the LULUCF sector as well as wood cascading.[5] These distorting effects occur regardless of whether biomass fuels meet RED sustainability criteria or not. Moreover, this distortion will intensify in the future as prices in the EU ETS continue to rise. A second significant policy inconsistency relates to the sustainability framework for bioenergy. This framework, comprising sustainability criteria and certification rules, should be applied where relevant to material uses as well (e.g., no-go areas). Failure to do so risks simply shifting the harmful environmental impacts of biomass cultivation and harvesting from energy to material applications. This is particularly important for multifunctional products, such as methane,

[3] Schindler, H.; Lintunen, J.; Assmuth, A.; Wedekind, W. A. (2026): Wood cascading in the Renewable Energy Directive: Designing efficient exceptions for bioenergy, https://www.dbfz.de/fileadmin/user_upload/Referenzen/Statements/DBFZ_LUKE_Policy_brief_-_Wood_Cascading_in_the_EU.pdf.

[4] Van Kooten, G. Cornelis; Binkley, Clark S.; Delcourt, Gregg (1995): Effect of Carbon Taxes and Subsidies on Optimal Forest Rotation Age and Supply of Carbon Services. In: American Journal of Agricultural Economics 77 (2), 365–374, https://doi.org/10.2307/1243546; Lundgren, Tommy (2008): The Economics of Biofuels. In: IRERE 2 (3), S. 237–280, https://doi.org/10.2307/1243546; Lintunen, Jussi; Uusivuori, Jussi (2016): On the economics of forests and climate change: Deriving optimal policies, in: Journal of Forest Economics 24, S. 130–156, https://doi.org/10.1016/j.jfe.2016.05.001.

[5] Miettinen, Jenni; Ollikainen, Markku (2024): The impacts of climate and energy policy instruments on forest bioeconomy, Forest Policy and Economics 169 (2024) 103338, https://doi.org/10.1016/j.forpol.2024.103338.

hydrogen, syngases, alcohols, and other hydrocarbons, which can be used for both energy and material purposes. Notably, the underlying supply chains for these products are often identical, regardless of their final use. To mitigate the high administrative burdens associated with sustainability criteria, environmental regulations should focus on the production of biomass (e.g., forestry, agriculture) rather than its use (e.g., biofuels, biomaterials). For instance, instead of excluding emissions-intensive biomass fuels from policy support through life-cycle emission thresholds in the Renewable Energy Directive (Article 29), the EU could promote fertilizer taxes and use the EU Emissions Trading System to discourage the use of emissions-intensive fertilizers, long transportation distances, and other factors that contribute to high life-cycle emissions from bioenergy.

Specific recommendations

- An updated EU Renewable Energy Framework could investigate options to reduce the European Union's dependence on imports of oil-rich biomass residues and wastes listed in Annex IX A, thereby enhancing the EU's energy security as recommended in the new EU bioeconomy strategy. Unlike most other feedstocks used for energy production in EU member states, these specific feedstocks and associated biofuels often originate from countries outside the EU.

- Similar to sustainability criteria, provisions for circularity and avoiding indirect Land Use Change (iLUC) should not be limited to bioenergy. It should be explored whether and how such provisions from the RED can be integrated into a general framework for using land use and biomass consumption, that include other significant biomass uses such as animal feed (animal-based foods).

- The clarity of the Renewable Energy Framework could be enhanced by providing explicit guidance on the role of specific key feedstock categories in Annex IX. These include non-food crops cultivated on marginal land, paludicultures derived from rewetted lands, and biomass produced through agroforestry practices.

- Monitoring of bioenergy and related information provision to the public should be improved by disaggregating data on energy use into subsectors such as low vs. high temperature heat, base-load vs. flexible electricity or different industrial sectors.

List of abbreviations

ETS	Emissions Trading System
iLUC	indirect Land Use Change
LULUCF	Land Use, Land Use Change and Forestry
RED	EU Renewable Energy Directive
RES	Renewable Energy Sources