



Briefing

Ignored biomass emissions worth 12 billion euros

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A new report commissioned by Birdlife Europe shows that CO2 emissions from burning biomass that are currently ignored under the European Emissions Trading System (ETS) are worth 12 billion euros in subsidies.

This money would be enough to triple the budget of the European Union's LIFE funding programme for the environment and climate action *and* restore all of Europe's peatlands.

Introduction

The European Union, through the European Green Deal proposed in 2019, is aiming to become the first carbon-neutral continent by 2050. This includes increasing the EU's greenhouse gas emissions reduction target for 2030 from 40 per cent to at least 55 per cent (compared to 1990 levels). In turn, this requires the revision of a wide range of EU climate and energy laws and targets, including the Emissions Trading System (ETS) Directive, which regulates the EU ETS, the system of allowances and trading for major emitters of greenhouse gas emissions, including power stations and large industrial installations.

In July 2021 the European Commission published its proposals for the revision of the ETS framework, and many others, in the 'Fit for 55' package of interconnected measures.

The ETS treats biomass as zero-carbon at the point of combustion, so emissions from bioenergy are omitted from the ETS. Installations exclusively using biomass are not covered by the ETS at all, while for installations using biomass alongside fossil fuels, emissions from biomass are 'zero-rated' as long as they meet minimal sustainability criteria included in the Renewable Energy Directive. However, these criteria are near meaningless as

- a) they are primarily based on the legality of the biomass burned and it is almost impossible to fail the criteria¹ and
- b) they fail to take account of the impacts of the feedstock on carbon stocks in the source forests.

But burning biomass demonstrably produces more CO2 per unit of energy than even fossil fuels. The classification of biomass as zero-carbon at the point of combustion derives from the assumption that biomass emissions are part of a natural cycle in which forest or plant growth absorbs the carbon emitted by burning biomass for energy. But harvesting and burning trees (the main form of solid biomass) for power or heat results in a large initial increase in carbon emissions, creating a 'carbon debt'. While regrowing trees and the displacement of the fossil fuels that would have been used instead might eventually pay off this carbon debt, this regrowth takes time; as studies have shown, this burning of wood will increase global warming for decades to centuries – the 'carbon payback period'.

This means that over climate-relevant timescales burning biomass increases atmospheric CO2 emissions, even when replacing fossil fuels.

International scientists have sent a stark warning about this in a letter to the EU, pointing out: "The burning of wood will increase warming for decades to centuries. That is true even when the wood replaces coal, oil or natural gas."

¹ <https://www.fern.org/publications-insight/unsustainable-and-ineffective-why-eu-forest-biomass-standards-wont-stop-destruction-2348/>

“To avoid these harms, governments must end subsidies and other incentives that today exist for the burning of wood whether from their forests or others. The European Union needs to stop treating the burning of biomass as carbon neutral in its renewable energy standards and in its emissions trading system”.²

What is the European Emissions Trading System (ETS)?

The ETS is a market mechanism created by the European Union that gives CO₂ a price and is meant to create incentives to reduce emissions in the most cost-effective manner. Under the system, companies have to hold allowances corresponding to their CO₂ emissions, making power production from burning fossil fuels more expensive. The total volume of emissions allocated goes down each year, increasing the price of CO₂ emissions and therefore the incentive to reduce them. The value of the permits goes up and down depending on supply and demand and is measured as the ETS carbon price in € per tonne of CO₂ equivalent.

Quantifying biomass emissions under the ETS

Biomass emissions from installations using biomass alongside fossil fuels are included in the national reports which each member state is required to submit to the European Commission annually. The Commission is required to publish an annual analysis of the national emission reports, and it also publishes an annual report on the functioning of the European carbon market. A report by Duncan Brack³ has quantified biomass emissions from these national reports.

Table 2.2 presents non-biomass and biomass emissions for electricity and heat production and for industrial processes. (see the full report for methodology)

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Total ETS | | | | | | | |
| Without biomass | 1,875 | 1,783 | 1,772 | 1,720 | 1,725 | 1,653 | 1,504 |
| Biomass adjusted | 191 | 186 | 190 | 189 | 191 | 218 | 234 |
| Total including biomass | 2,066 | 1,969 | 1,962 | 1,909 | 1,916 | 1,871 | 1,737 |
| <i>Biomass as %</i> | <i>10.2%</i> | <i>10.4%</i> | <i>10.7%</i> | <i>11.0%</i> | <i>11.1%</i> | <i>13.2%</i> | <i>15.5%</i> |

Total CO₂ emissions from burning biomass reported in the ETS were 234 million tonnes of CO₂ equivalent in 2019.

The value of ignored emissions

As mentioned, under the ETS emissions from biomass are ‘zero-rated’, i.e. *counted* as being zero, despite being *reported* to be 234 million tonnes of CO₂ in 2019.

The value of these ignored emissions is equivalent to the value of the ETS allowances that companies burning biomass save = the ETS carbon price.

² <https://www.wwf.eu/?2128466%2F500-scientists-tell-EU-to-end-tree-burning-for-energy>

³ [Quantifying the loophole and sustainability impacts of bioenergy being rated zero emissions in the EU Emissions Trading System and Effort Sharing Regulation; Duncan Brack 2022](#)

The average EU-ETS futures carbon price in 2021 was €53/tCO₂e ⁴

That means the total value of ignored emissions from biomass would have been at least 234 million tonnes of CO₂ multiplied by €53/tCO₂e = approx. €12.4 billion in 2021⁵.

These are more than €12 billion in lost revenues for member states because of ignored biomass emissions.

What €12 billion could have been used for

€12 billion would be enough to triple the budget of the European Union's LIFE funding programme for the environment and climate action (currently €5.4 billion for 2021-2027)

AND restore all of Europe's 1 million hectares of degraded peatland, a vital contribution to natural climate change mitigation⁶.

Conclusion

Ignoring emissions from biomass burning in the ETS is unscientific, damages the EU's climate ambitions and means member states lose billions in revenues. Instead, biomass emissions must be counted under the ETS and the additional revenues should be used to increase Europe's spending on real climate solutions, such as renewable energy and the restoration and protection of natural carbon sinks.

Birdlife's policy recommendations

The EU must stop treating solid biomass as a "zero carbon" fuel in the EU Emissions Trading System (ETS). Instead, the emission factors for solid biomass & biofuels should be as recognised by the IPCC for stationary combustion in the energy industries.⁷

⁴ 2021 daily average closing price based on <https://www.theice.com/products/197/EUA-Futures>

⁵ Assuming that biomass burning in the EU did not go down after 2019

⁶ The cost of peatland restoration is estimated to be approx. £995 per hectare <https://soils.environment.gov.scot/news/the-cost-of-peatland-restoration-in-scotland-a-case-study/> and there are about 1 million hectares of degraded peatland in Europe

⁷ Intergovernmental Panel on Climate Change (2006), Guidelines for National Greenhouse Gas Inventories, Vol. 2 (Energy), Table 2.2, "Solid biofuels", pp. 2.16–2.17.

See https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf

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