

Backgrounder: The use of forest biomass for energy in the EU, and significance of the RED III biomass votes on Sept. 13th

The vote on September 13th that will influence the future of forests

The rules governing the EU's treatment of wood-burning for renewable energy, and its eligibility for subsidies, are set out in the Renewable Energy Directive (RED II). On September 13th, the European Parliament will be voting on a package that includes proposed reforms to the biomass provisions in the RED ("RED III"). The biomass provisions concern whether heat and electricity generated from burning forest biomass should continue to be counted toward renewable energy targets. Since technologies classified as "renewable" under the RED are eligible for subsidies, removal from the RED would also end subsidies that constitute a significant portion of the approximately €17 billion allocated to bioenergy each year in the EU. An amendment to largely (but not completely) remove primary woody biomass from the RED was approved by the [Environment Committee](#) in May, and will be considered by the Parliament as a whole on September 13th. Other proposed changes include [proposals from the European Commission](#) to prohibit wood from certain types of forests from qualifying under the RED, and to end subsidies for electricity-only biomass power plants, with certain exceptions.

The following background material covers the main impacts of burning forest wood for energy to climate, forest ecosystems, and air quality, as well as its costs in terms of renewable energy subsidies.

1. The renewable energy that increases greenhouse gas emissions

Very few people are aware that the [majority](#) of the EU's renewable energy is generated by burning wood and other biomass for heat and power, and that energy from burning wood receives [billions](#) in publicly funded renewable energy subsidies each year under the EU's Renewable Energy Directive (RED). The wood burned for energy in the EU is about half "primary woody biomass", meaning wood sourced directly from forests (also called "forest biomass"), and about half "secondary woody biomass," meaning sawdust and other residual materials from wood-using industries, plus post-consumer waste wood. Bioenergy as a whole (including liquid biofuels) provides around 60% of the EU's renewable energy, while burning forest wood provides around 20%.

More than half of the wood harvested in Europe is burned for energy, and this is mostly counted toward renewable energy targets – even the most polluting residential wood-burning. Burning forest biomass emits [more CO₂](#) than burning coal per unit energy generated, adding [hundreds of millions of tonnes](#) of CO₂ into the atmosphere per year. Because trees cut and burned for energy don't regrow right away, the European Commission's own scientists [have acknowledged](#) that burning forest biomass increases net emissions compared to fossil fuels, and that this increase in atmospheric CO₂ loading can persist [decades to centuries](#). Further contributing to CO₂ buildup in the atmosphere, overlogging of the EU's forests, in part driven by biomass harvesting, is weakening and even eliminating the land carbon sink in the EU and its member states, most recently [Estonia and Finland](#). Scientists worldwide have repeatedly warned policymakers [against continuing to incentivize burning forest wood](#).

The scale of CO₂ emissions from burning wood in the EU are particularly highlighted by the current [forest fires](#) that have already burned some [6,600 square kilometers of land](#) and are emitting [millions of tons of carbon](#). [Some media coverage](#) has emphasized the role of the fires in increasing greenhouse gas emissions and air pollution, and the length of time it takes for forests to recover, but less noted is that wood-burning counted as renewable energy emits more than 300 million tonnes of CO₂ per year, [20 times the amount](#) that has been emitted by fires in key countries as of mid-August.

2. The Taxonomy challenge

The EP vote on September 13th will determine whether heat and electricity from burning forest biomass continues to be counted toward the EU's renewable energy targets. Meanwhile, the treatment of burning forest biomass as climate-friendly is also being challenged in EU General Court. The EU's "Taxonomy for sustainable activities", which sets criteria for investments in certain sectors to be considered "green," includes criteria for forest biomass that are essentially identical to the forest biomass [sustainability criteria](#) in the RED II. Two [legal cases](#) are being filed (filing deadline September 19) challenging the inclusion of forest biomass in the Taxonomy and arguing that the "sustainability" and greenhouse gas criteria are incapable of ensuring that biomass mitigates CO₂ emissions. Additionally, one of the cases will also challenge the Taxonomy's criteria for forestry projects.

3. How biomass endangers forest ecosystems and biodiversity

The EU has recently enacted the Biodiversity Strategy and the Forest Strategy, both of which emphasise the importance of protecting and restoring nature in the EU. Overlogging, which is driven in part by biomass harvesting, is a major driver of biodiversity loss in the EU's forests, and the crisis is acute, with [only about 14%](#) of even the EU's protected areas enjoying adequate ecosystem status.

As use of biomass has increased, this has put increasing pressure on forests. While the biomass and wood pellet industry often claim that they primarily utilize mill wastes and "forestry residues", wood fuel is [increasingly sourced](#) from intensive logging in Europe, and also in countries that import biomass into Europe, including the [United States](#) and [Canada](#).

Industrial forestry is highly damaging to forest ecosystems. Logging forests for fuel degrades [ecosystems and biodiversity](#) not just by increasing harvesting of trees, but also by incentivizing harvesting of forestry residues (tops and limbs) that are left over after logging. The European Commission's Joint Research Centre's 2021 report on biomass [identified](#) removal of "coarse woody debris" – including high-diameter logging residues – as "high risk" for [both forest ecosystems and the climate](#). In particular, stripping forests of logging slash and stumps following harvest contributes to major losses in biodiversity. Replacing natural forests with plantations that contain one or very few species also degrades biodiversity and ecosystem function. As bioenergy use increases, pressure on forests to provide more fuel, faster, will lead to more intensive management and loss of natural function. This runs counter to the re-naturalization of the EU's forests that will be required to meet the nature restoration goals of the [Biodiversity Strategy](#).

4. Health impacts of burning biomass for renewable energy

The EU counts wood burned for heat and power toward renewable energy targets, including even the most polluting forms of residential wood-burning for heating. Eurostat, the EU's statistical service, reports that about 24% of energy input from heating is derived from burning "solid biofuels", meaning mostly wood. Certain member states are far more dependent on wood heating than others. Wood-burning is the [largest source of particulate matter emissions in the EU](#), outstripping even transport as a source of deadly particulate matter. More than 1,000 people die prematurely every day in Europe as a result of air pollution from wood burning. [Doctors and medical associations warn](#) about the consequences of this type of energy production. Air pollution is now one of the key risk factors for the increase in cardiovascular and respiratory diseases, as well as many types of cancer, such as lung, breast and colon cancer, in addition to alcohol and tobacco consumption, poor nutrition, and insufficient exercise. Furthermore, new studies indicate that particulate matter is linked to diabetes, obesity, and neurodegenerative diseases including Alzheimer's and Parkinson's. These so-called diseases of civilization cause not only untold suffering, but also enormous costs to the health care system.

5. Burning forests as fuel comes at a high cost to taxpayers

Although the European Commission's own scientists have [warned](#) that logging and burning forest biomass increases emissions compared to fossil fuels for decades to centuries, EU policy on biomass nonetheless ensures that EU citizens subsidize biomass energy at about [€17 billion](#) per year, with a large share of this supporting wood-burning power plants. These subsidies, as well as the exemption of wood burning power plants from carbon trading fees, provide an incentive for coal plants to convert to burning wood, as well as construction of new wood-burning plants.

6. Wood use and energy security

Analysis reveals that [replacing](#) just 10% of Russian fossil fuels imported to the EU with wood would require increasing wood-burning by 60%. This would overwhelmingly be sourced directly from forests, given that supplies of secondary woody biomass such as mill residues are already allocated. Given that the EU's forests are already under significant stress, any such increase in harvesting would have a disastrous effect on forests and the climate.

Wood-burning for heating is likely to increase in any case due to rising fossil fuel prices, and there are reports of panic-buying of wood as the year turns toward winter. Home heating with wood as a response to energy poverty is a reality in the EU that will not change quickly, even if wood-burning were removed from the RED III. However, because people who burn wood for heating generally do not receive subsidies for doing so (other than certain tax rebates such as for purchasing new pellet boilers, as occurs for instance in Italy), the chief impact on removing forest wood from the RED III could be to eliminate subsidies for wood-burning plants that may be competing for limited supplies of wood. A typical 50 MW biomass electricity plant burns around 570,000 tonnes of wood per year, [equivalent](#) to average wood consumption of around 180,000 households. Such a plant could be receiving more than €16 million per year in subsidies at a typical subsidy rate of €40 per megawatt-hour, money that could be allocated to truly clean energy technologies.

7. Calls for reform

NGOs and scientists are calling on the EU to stop counting forest biomass toward renewable energy targets. A [petition](#) to remove forest biomass from the RED has been endorsed by more than 100 NGOs, and a coalition of NGOs is actively campaigning on the issue. Scientists have repeatedly warned policymakers [against continuing to incentivize bioenergy](#).

NGOs recognize that energy poverty is a serious problem in the EU, and that many people rely on burning wood for heating. If successful, reform of the EU's biomass policies will not prohibit people from heating with wood. It will however permit reallocation of billions in renewable energy subsidies currently granted to wood-burning power plants to truly clean energy such as solar thermal, geothermal, and air-source heat pumps.

The campaign has provoked an intense reaction by the biomass industry, both European-led groups like the World Bioenergy Association, which has published a variety of [paid advertising](#), and the US [Industrial Pellet Association](#) and [wood-pellet companies](#) in the United States who are weighing in directly with policymakers on changes they want made in the proposed legislation.

8. Media coverage

While media coverage has been steady, there is a real deficit of understanding about what is at stake in the Sept 13 vote.

Selection of recent reporting:

Die Zeit. [Klimaneutrale Energie? Von wegen](#)

ARD/German National TV. ["PlusMinus"](#)

Financial Times. [Biomass industry lobbies to weaken proposed EU woodland protection](#)

New York Times. [Europe Rethinks Its Reliance on Burning Wood for Electricity](#)

CNN. [How marginalized communities in the South are paying the price for "green energy" in Europe](#)

Guardian. ['Carbon-neutrality is a fairy tale': how the race for renewables is burning Europe's forests](#)
