

Bioenergy: a roadmap to forest destruction

At the closing of COP30 in Belém, the COP President announced an intention to develop two roadmaps during the presidency: the roadmap for Transitioning Away from Fossil Fuels in a Just, Orderly and Equitable Manner (TAFF Roadmap) and the Roadmap to Halting and Reversing Deforestation and Forest Degradation by 2030 (Forests Roadmap).

The Biomass Action Network stresses the importance of ensuring that these roadmaps are both complementary and strategically aligned. This briefing summarises how forest bioenergy undermines the objectives of both Roadmaps and sets out criteria to safeguard against this risk.

1) Transitioning Away from Fossil Fuels: Bioenergy will cause the energy transition to fail

Burning forest bioenergy has no place in the energy transition: it releases [more carbon dioxide](#) than fossil fuels. Carbon accounting must require rigorous [life-cycle analysis](#) (LCA) for all fuels, including bioenergy, rather than assuming carbon neutrality at the point of combustion. It should include upstream and indirect emissions (land-use change and foregone sequestration, cultivation and fertilizer use, harvesting, processing energy, transport, and market leakage), apply conservative counterfactual baselines, and rely on transparent, verifiable traceability to feedstock origin. Tightening these rules is a practical lever to drive a real transition away from not just fossil fuels but *all carbon fuels*.

In fact, bioenergy often prolongs fossil fuel use. This is exemplified by the practice of co-firing, where biomass is burned with coal in power stations. Co-firing with biomass has proliferated in part because it is considered a form of “[abatement](#)”; however, this relies on the misapprehension that burning biomass is carbon neutral. Instead, it serves to extend the life of dirty coal-fired power stations, while continuing to release just as much carbon into the atmosphere, and directs investment toward fossil-based infrastructure rather than toward low-emission energy systems and infrastructure.

Emerging biomass-based technologies - including the use of charcoal in steel production, e-fuels, industrial biochar and BECCS - risk increasing pressure on forests while reinforcing dependence on carbon-based fuels. BECCS remains unproven at scale and is still largely in the testing phase. The IPCC projects that deploying BECCS at 12 GtCO₂e per year could require up to 0.8 billion hectares of land - more than twice the size of India - competing with food production and natural ecosystems. Rather than pursuing these false solutions, efforts should prioritize energy efficiency and a full transition to renewable energy, alongside consumption reduction.

A TAFF Roadmap should ensure that a transition away from fossil fuels does not mean a transition towards harmful large-scale forest bioenergy.

2) Halting deforestation and forest degradation: Bioenergy expansion harms forests and communities

The substitution of fossil fuels with forest bioenergy poses a profound and escalating risk to forests, climate, and communities. Global wood consumption already exceeds sustainable supply, and increasing demand for high-volume, low-value wood products has intensified harvesting rates to the point where carbon stocks and sinks capacity are declining. In regions such as [Finland](#), [Latvia](#), and [Estonia](#), forests have become net carbon sources.

Bioenergy now [dominates OECD renewable energy](#). From 2010 to 2021, burning wood for energy rose 50%; between 2000 and 2022 electricity generation from solid biomass rose fivefold, and wood pellet production jumped 250% to 47.5 million tonnes. Under the IEA Net Zero Scenario, impacts on forests will be exacerbated as bioenergy electricity capacity is expected to grow by 90% by 2030, with supply for forest bioenergy tripling.

The claim that forest bioenergy is carbon neutral ignores the decades-long carbon debt from harvesting trees and the uncertain prospects for regrowth, especially amid rising climate risks, logging, erosion, fire, pests, and disease. Natural forests store far more carbon than managed plantations or converted land, and once lost, their stocks may never recover. As a result, burning wood [increases atmospheric carbon dioxide](#) during the critical period to 2100, worsening climate change rather than mitigating it.

Forests are both vital carbon sinks and stores and biodiversity havens, essential for climate adaptation. To address the ecological *and* climate crises, protecting and restoring forests is imperative. Burning biomass undermines climate mitigation, biodiversity protection and carbon-sink stability, and as such, should not be treated as a renewable energy source. Large-scale bioenergy must be excluded from climate targets, as it drives deforestation, monoculture plantation expansion, land dispossession, and ecological degradation - not real decarbonisation.

Concerns about the adverse [human rights impacts](#) of bioenergy throughout the global supply chain are increasingly coming to light as the industry expands at a rapid rate. Bioenergy harms communities by increasing land and resource conflicts, often leading to land grabbing that threatens the rights, livelihoods, and cultural values of Indigenous peoples and local populations, while also risking long-term food security. It negatively affects human health, as bioenergy facilities - often located in disadvantaged areas - emit pollution that increases rates of respiratory and other diseases.

A Forest Roadmap provides a key opportunity to exclude and protect against the harms caused by large-scale forest bioenergy.

3) Background: The root causes of the proliferation of biomass energy

A flawed carbon accounting framework. Emissions from bioenergy [are not accounted](#) for in the energy sector to avoid double-counting, as frameworks assume the carbon is tracked under Agriculture, Forestry, and Other Land Use (AFOLU). In contrast, fossil fuel emissions are accounted for in the energy sector of the consuming country. This separate treatment gives the false impression that

bioenergy has zero emissions. The IPCC states in its Guidelines that they “*do not automatically consider or assume biomass used for energy as carbon neutral*”, even in cases where the biomass is thought to be produced sustainably. Scientists have recently highlighted this carbon accounting loophole in an [open letter to the IPCC](#).

Misleading definitions of forests. The UNFCCC defines forests mainly by area, tree cover, and potential height - ignoring ecological condition, integrity, and carbon stock. Areas cleared for logging but expected to regenerate are still classified as forests. As a result, converting natural forests to plantations (often for bioenergy) is not counted as deforestation, even though it harms forest structure, function, and carbon stocks. Plantations are thus misleadingly counted as forests. Industrial logging of primary forests for production or conversion to plantations should be recognized as forest degradation, given the resulting emissions and loss of biodiversity and ecological integrity. The UNFCCC still lacks a definition of forest degradation, so its impacts - [often as severe as deforestation](#) - are overlooked, especially in the Global North. ‘Sustainable forest management’ does not solve this: it refers to wood production on lands with 30–70% less carbon stock than primary forests, along with depleted biodiversity, weaker ecological integrity, and greater vulnerability to climate change and fire.

A subsidies-dependent industry. In its 2022 Global Biodiversity Framework (GBF), the Convention on Biological Diversity (CBD) identifies the need to tackle the impacts of subsidies in Target 18: “Identify by 2025, and eliminate, phase out or reform incentives, including subsidies, harmful for biodiversity, in a proportionate, just, fair, effective and equitable way, while substantially and progressively reducing them by at least \$500 billion per year by 2030, starting with the most harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.”

Financial support for bioenergy is the textbook case of subsidies harmful for biodiversity. Billions of dollars globally have been misdirected to support burning wood for energy, resulting in the expansion of the forest bioenergy industry. In fact, [nearly half a trillion dollars](#) have been spent by just five major economies on bioenergy subsidies since 2002. The bioenergy industry continues to be propped up by public incentives that distort markets and without which it simply cannot compete in global power markets. These subsidies should be subject to a substantial and rapid phase-out.

4) Solutions: Transition away from all carbon fuels while safeguarding forests

Reducing emissions requires a shift to truly low-emission renewables, such as wind and solar energy. Boosting energy efficiency and curbing consumption are equally vital. Investing in renewables is not only essential but also [more cost-effective](#) than subsidizing bioenergy. Community-led experiences show that forest protection must be rooted in an [energy transition](#) that reduces overall energy demand and rejects false climate solutions. Indigenous Peoples and local communities consistently highlight that carbon markets and the financialisation of nature - often linked to energy transition policies - fail to reduce emissions and instead deepen pressures on forests.

Climate action must be based on the realities of indigenous territories and local communities, centering human rights, gender justice, collective governance, and sustainable livelihoods, rather than expanding markets for biomass or other extractive energy forms. Sustainable, community-driven land use systems, such as agroecology and Indigenous agroforestry, offer real alternatives to bioenergy-based energy

models. These practices maintain healthy forest ecosystems while enhancing carbon sequestration and supporting climate resilience and food sovereignty. Around the world, communities are actively rejecting industrial logging and polluting energy generation, instead advancing localised renewable solutions grounded in ecological integrity.

Recommendations

1. Exclude large-scale forest bioenergy from TAFF and Forest Roadmaps, national, and international climate targets. Burning wood for energy is incompatible with climate mitigation, biodiversity protection and carbon-sink stability, and should not be treated as a renewable energy source. Forest bioenergy use at scale contributes to monoculture plantation expansion, land dispossession, and ecological degradation rather than genuine decarbonisation.

2. Provide clear guidelines for carbon accounting. Governments and policy-makers need comprehensive guidelines on carbon accounting for woody biomass. The UNFCCC Supervisory Body of Article 6 of the Paris Agreement should invite the IPCC to clarify that burning wood for energy emits net CO₂ and should not be assumed 'carbon neutral' or 'low carbon'. The net emissions of bioenergy projects must be fully accounted for, and the overall effects on atmospheric concentrations of carbon dioxide must be transparent.

3. Fix the definition of forests. Develop biome-based definitions such that: plantations are distinguished from natural forests, the various stages of degradation are identified (for example, by adopting the FAO sub-categories of forests in the interim: primary forests, naturally regenerating forests, planted forests, and plantations), and changes in carbon stocks are identified along this continuum.

4. Develop regulations to prevent logging of primary and old-growth forests.

Binding regulation is necessary on international, regional, and national levels to prevent the exploitation of remaining primary, old-growth, and intact natural forests. It is necessary to establish frameworks for forest monitoring and close loopholes that currently allow destructive operations to continue under the guise of "sustainable forest management".

5. Eliminate subsidies for bioenergy. Subsidies for bioenergy should be eliminated throughout the supply chains according to Target 18 of the Global Biodiversity Framework and under Paris Agreement Article 2(1)(c) "*making finance flows consistent with a pathway towards low greenhouse gas emissions*". All public and private sources of finance should exclude biomass energy from green finance criteria.