Making the most of Europe's limited biomass resources

Press Release

The share of biomass used for materials could nearly double by 2050 as it shifts from energy towards higher-value material uses, a new Agora study finds. This transition, alongside electrification and sustainable land use, is crucial to strengthening innovation and resilience, while cutting emissions. The analysis shows how the EU's post-2030 framework can accelerate this shift.

Brussels, 13 July 2026. Biomass is becoming an increasingly strategic resource, yet today in Europe, it is still used predominantly for energy applications, despite the availability of alternatives in many sectors. A new analysis by Agora Energiewende and Agora Industry finds that the share of biomass used for materials could increase from 38 percent today to 56 percent by 2050 as its use moves away from energy applications towards higher-value material uses. This growth would be driven by solid and fibre-based products such as construction and furniture, pulp and paper, and textiles, alongside a nine-fold increase in bio-based chemicals, from 47 terawatt-hours to 428 terawatt-hours. Moreover, biomass use for energy would become more targeted, shifting away from heating and road transport towards back-up power and hard-to-electrify sectors like aviation, within strict limits, until alternative solutions become available.

A notable increase in domestic biomass supply can support this shift. The analysis demonstrates that additional sustainable biomass could come from agricultural sources, including fast-growing trees, grasses and residues, alongside resilient forest management practices that enhance carbon sinks and ecosystem health. In addition, biogas and biomethane production would remain broadly stable and increasingly rely on manure, biowaste and sewage sludge.

As the European Union prepares its post-2030 energy and climate framework, the study highlights the need for stronger electrification and a reorientation of policy incentives to shift biomass use towards higher-value applications.

Frauke Thies, Director Europe at Agora Energiewende, said:

"Competitiveness, resilience and climate neutrality are complementary objectives, and biomass can play a crucial role in achieving them. The EU's post-2030 framework offers a unique opportunity to chart a more strategic path for biomass allocation, ensuring that this limited resource is used where it delivers the greatest benefit for Europe."

The analysis is based on the 'Agora biomass scenario' developed together with the Institute for Energy and Environmental Research (ifeu) and the Finnish Environment Institute (Syke). The scenario builds on Agora Energiewende's EU gas phase-out pathway and Agora Agriculture's scenario outlining the potential contribution of agriculture and forestry to the EU's sustainability and climate objectives. Together, these perspectives provide an integrated view of optimised biomass flows across energy systems and the wider bioeconomy.

A practical guide to inform strategic climate and energy policy

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To support decision-making, the report proposes a Biomass Allocation Guide, including practical allocation ladders that help steer biomass use under constraints on sustainable supply. The guide builds on four principles: fostering material use over combustion in line with the cascading principle; considering resource efficiency and environmental impacts; accounting for technological alternatives such as electrification; and promoting efficient land use while supporting EU climate and sustainability objectives. Together with forecasts on sustainable feedstock supply, these principles provide a practical framework for allocating biomass across sectors and value chains.

Current EU policies continue to incentivise bioenergy over material uses, despite growing competition for limited biomass resources. A coherent policy approach will be needed to combine electrification in transport and heating with the phase-out of fossil fuel subsidies and stronger coordination across energy, industrial and land-use policies. Such an approach could include, for example, developing common sustainability standards that would enable a comparison of use across energy and materials. It would help create the conditions for biomass to move away from lower-value energy uses and support the development of new industrial value chains, the authors underline.

Julia Metz, Director of Agora Industry, said:

"Building a strong bioeconomy is central to Europe's industrial transformation. Sustainable biomass can enable innovative technologies, new applications and markets, along with more resource-efficient value chains. By making greater use of this resource, the EU can drive innovation and reduce fossil import dependence – provided the right incentives, particularly lead markets, are in place."

As biomass supply remains constrained, Europe will need to use this limited resource in its most beneficial applications. A dedicated biomass roadmap could align action across sectors and governance levels, guide investment towards higher-value applications and support the development of innovative bio-based value chains that strengthen competitiveness and resilience on the path to climate neutrality, the analysis concludes.

The 56-page impulse paper Harnessing biomass for a resilient Europe: An optimised path for energy and materials in the post-2030 framework was published by Agora Energiewende and Agora Industry. The publication is complemented by the study Biomass for Energy and Materials in the EU: Guidance for Allocation in a Biomass-Constrained World, prepared by the Institut für Energie- und Umweltforschung Heidelberg GmbH (ifeu) and Syke (Finnish Environment Institute). They are available for free download at www.agora-energiewende.org.

About Agora Energiewende and Agora Industry

Agora Energiewende and Agora Industry develop scientifically sound and politically feasible strategies for a successful pathway to climate neutrality – in Germany, Europe and internationally. The organisations which are part of the Agora Think Tanks work independently of economic and partisan interests. Their only commitment is to climate action.

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