

The Biomass Ladder: Framework for Discussing the German Regulatory Incentives for Energetic and Material Use of Biomass for GHG Abatement

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Extended Abstract

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Abstract Summary

This paper presents the *Biomass Ladder*, a framework to prioritize energetic and material uses of biomass in Germany based on their contribution to greenhouse gas (GHG) abatement. Given limited sustainable biomass availability and rising competition across sectors, the approach aims to make existing but often implicit prioritization decisions transparent and evidence based. Using a structured meta-study, biomass application cases are grouped by substrate type and evaluated according to sustainability, availability of alternatives, and regulatory and technical feasibility. Based on this multi-criteria assessment, applications are ranked into five priority levels (A–E) and compared with current market prices and policy-driven willingness to pay. The results reveal recurring mismatches between societally optimal biomass uses and existing economic incentives. The Biomass Ladder provides a transparent basis for adjusting policy instruments to better steer scarce biomass resources toward applications with the highest climate and societal value, in Germany and beyond.