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Option Critical: Meeting UK/EU Net Zero with Biomass

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AJW: Over 20 Years of Navigating the Energy Transition

AJW has partnered with clients at the intersection of energy innovation and government policy to accelerate new technologies, navigate regulatory and policy challenges, drive sustainability, and maximize bottom-line results.

AJW is the go-to partner to navigate the energy transition for:

- Global Fortune 100 companies
- Start-ups
- NGOs
- Government agencies

20+ years of exceptional results by maximizing our unique expertise in

- Government Policy
- Energy and Environmental Markets
- Government as a Financial Partner
- Strategic Consulting

A team of 30+ professionals

Offices in Washington, DC, Sacramento, and New York, with a dedicated presence in London

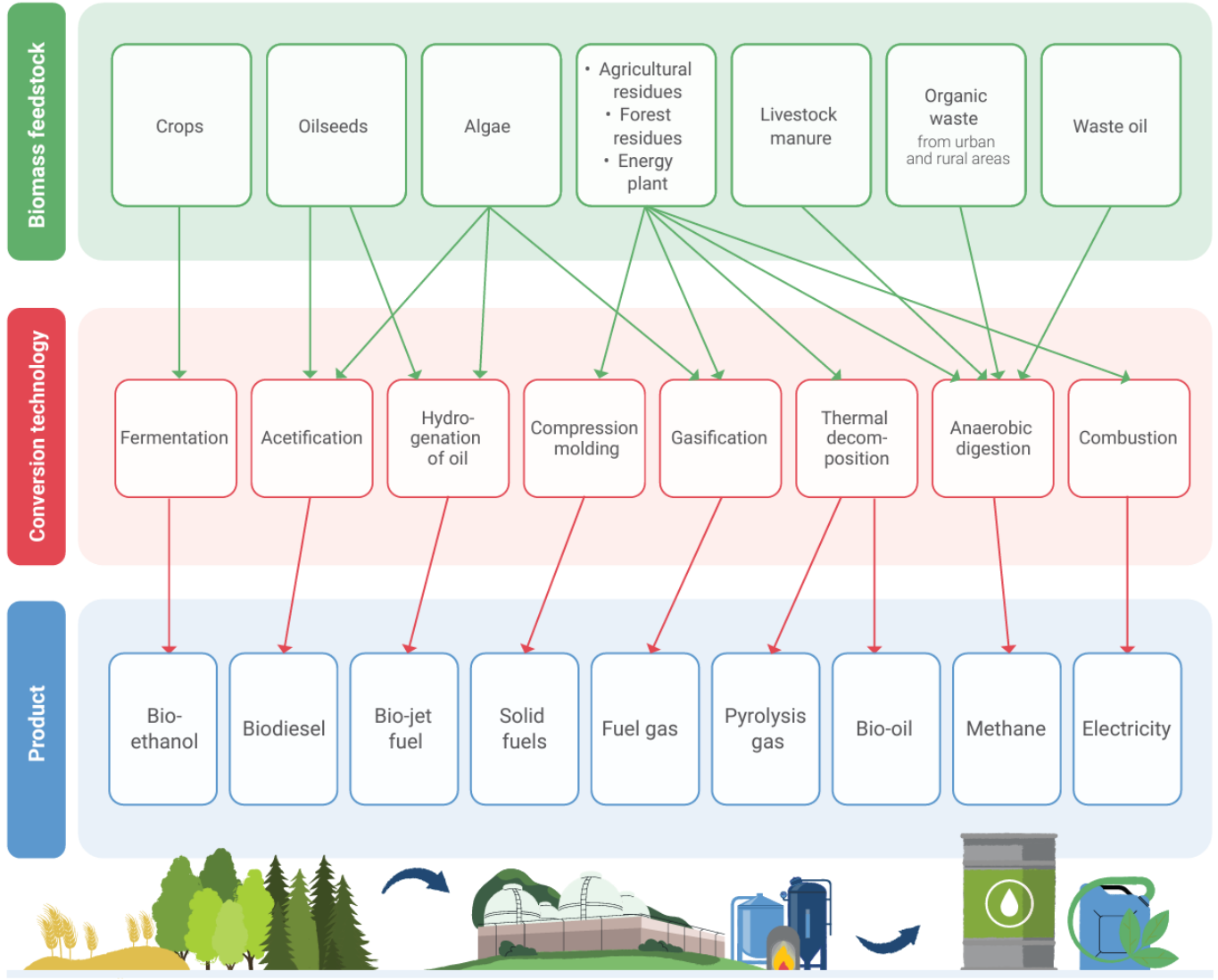
An Active Global Landscape for the Bioeconomy

The bioeconomy represents:

- Economic competitiveness
- Energy security
- Climate resilience
- Sustainability
- Innovation

50+ bioeconomy strategies globally

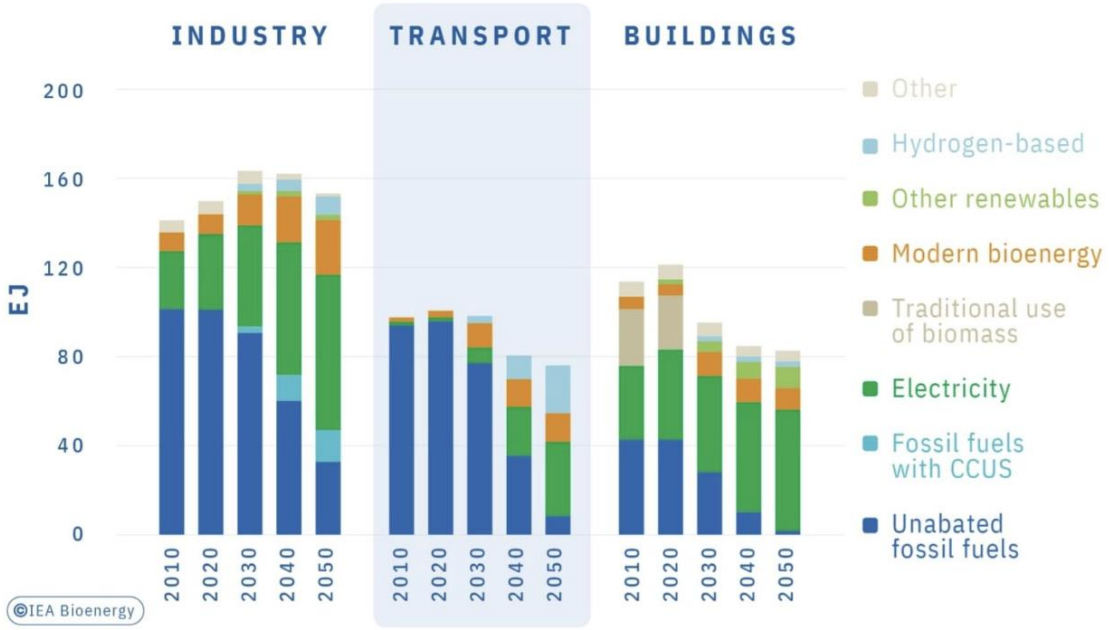
2024: G20 Initiative on Bioeconomy's High-Level Principles



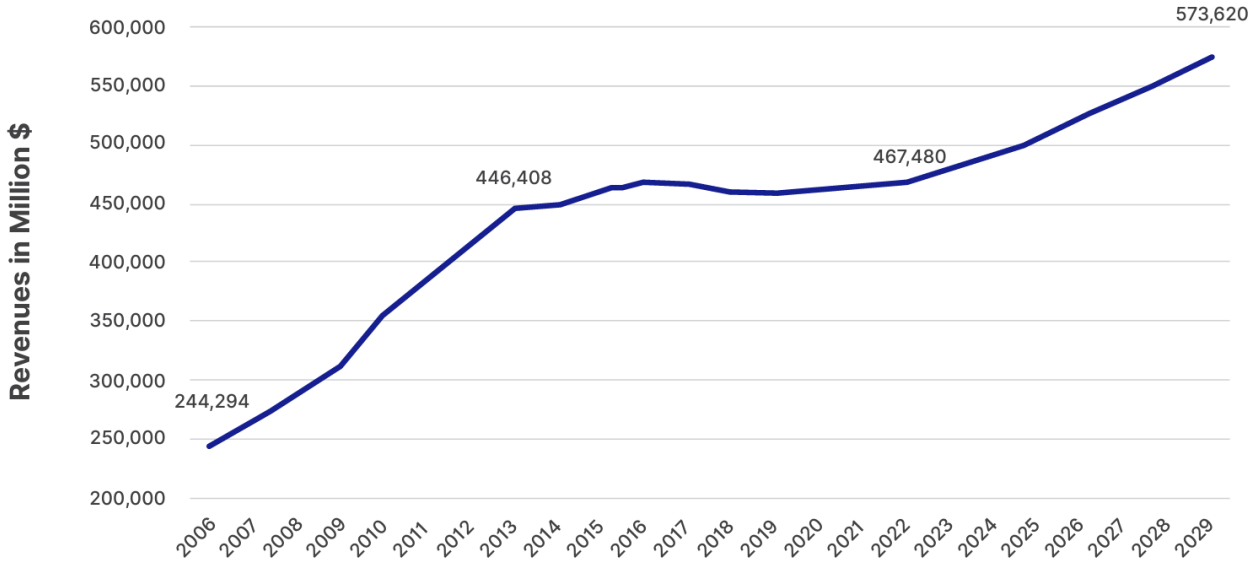
The Growing Global Biomass Opportunity

- Estimates value the bioeconomy at $4 trillion today (World Economic Forum)
- Potential to grow to $7 trillion by 2030 with supportive policies

IEA Global Bioenergy Demand by Sector (Net-Zero Scenario)



Global Actual and Projected Biotechnology Revenues (2006-2029)



EU and UK Policies Create Biomass Demand Signals

European Union

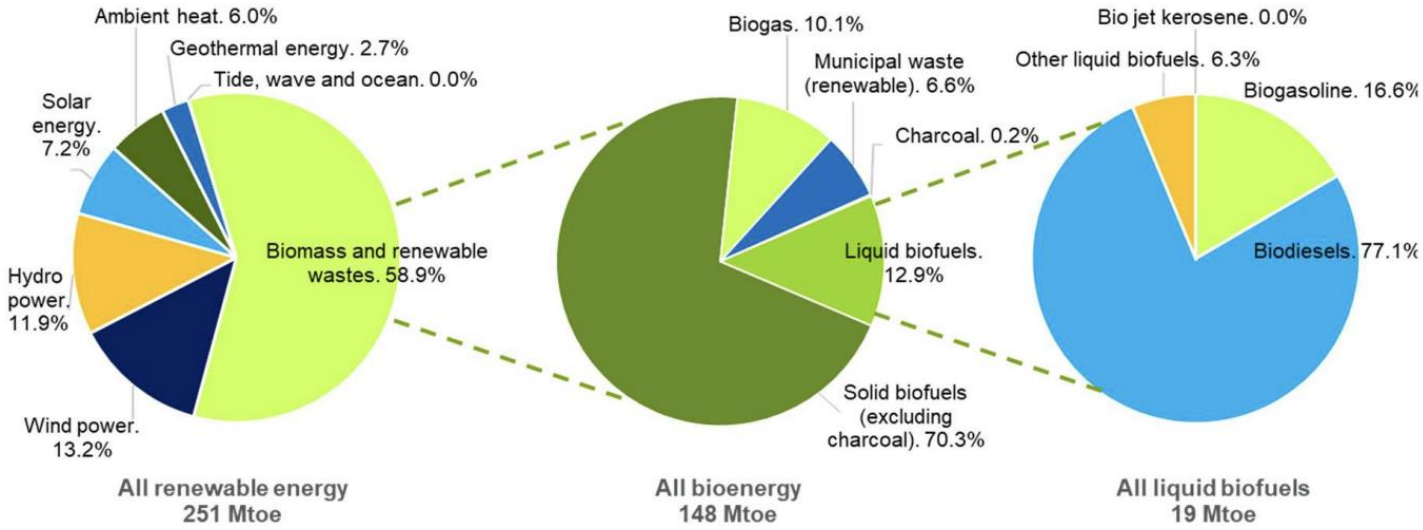
- Bioeconomy Strategy (updated 2018)
- Common Agricultural Policy (CAP)
- EU Climate Law
- Renewable Energy Directive (RED III)
- ReFuelEU Aviation
- FuelEU Maritime
- Circular Economy Action Plan
- Horizon Europe
- Innovation Fund

United Kingdom

- Labour government's "Make Britain a Clean Energy Superpower" plan
- Bioeconomy Strategy (2018-2030)
- Biomass Strategy (2023)
- Net Zero Strategy
- Environment Act of 2021
- SAF Mandate
- Renewable Transport Fuel Obligation (RTFO)
- Research and Innovation Funding

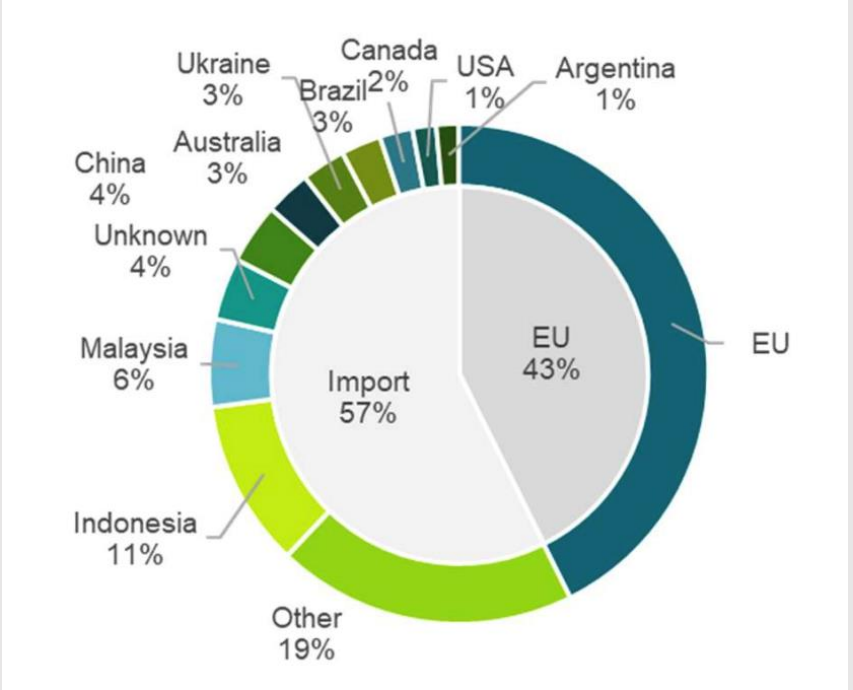
Robust EU Market On Track to Require Feedstock Replacements and Innovation

Gross EU Consumption of Renewable Energy per Type (2021)



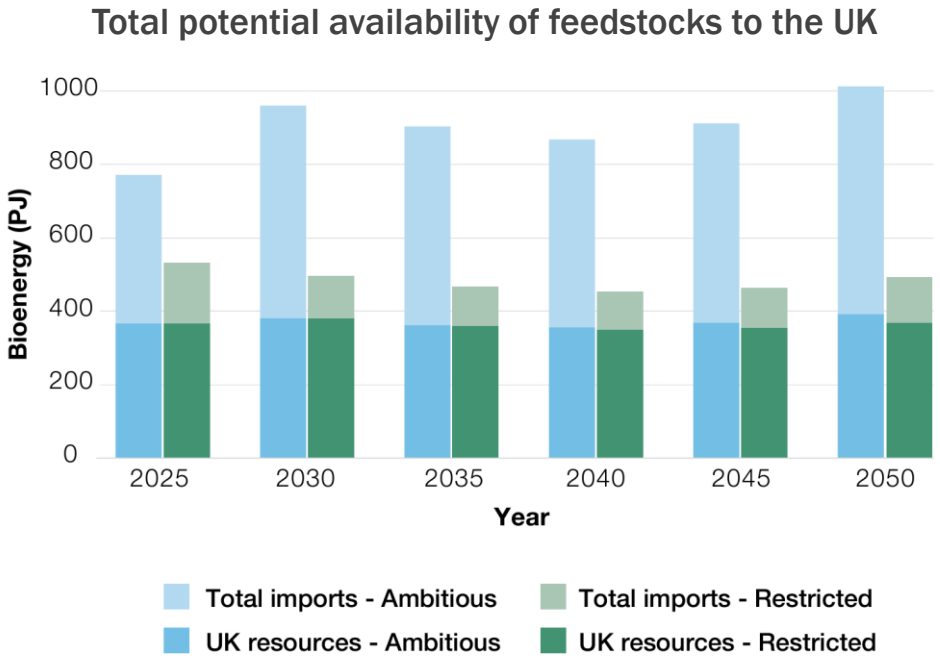
- 59% of renewable energy consumption was biomass
- 148 Mtoe of bioenergy consumed
- 70% of all bioenergy was solid biofuels
- 19 Mtoe of liquid biofuels consumed
- 77% of liquid biofuels were biodiesels

Biodiesel Feedstock Origin (2021)



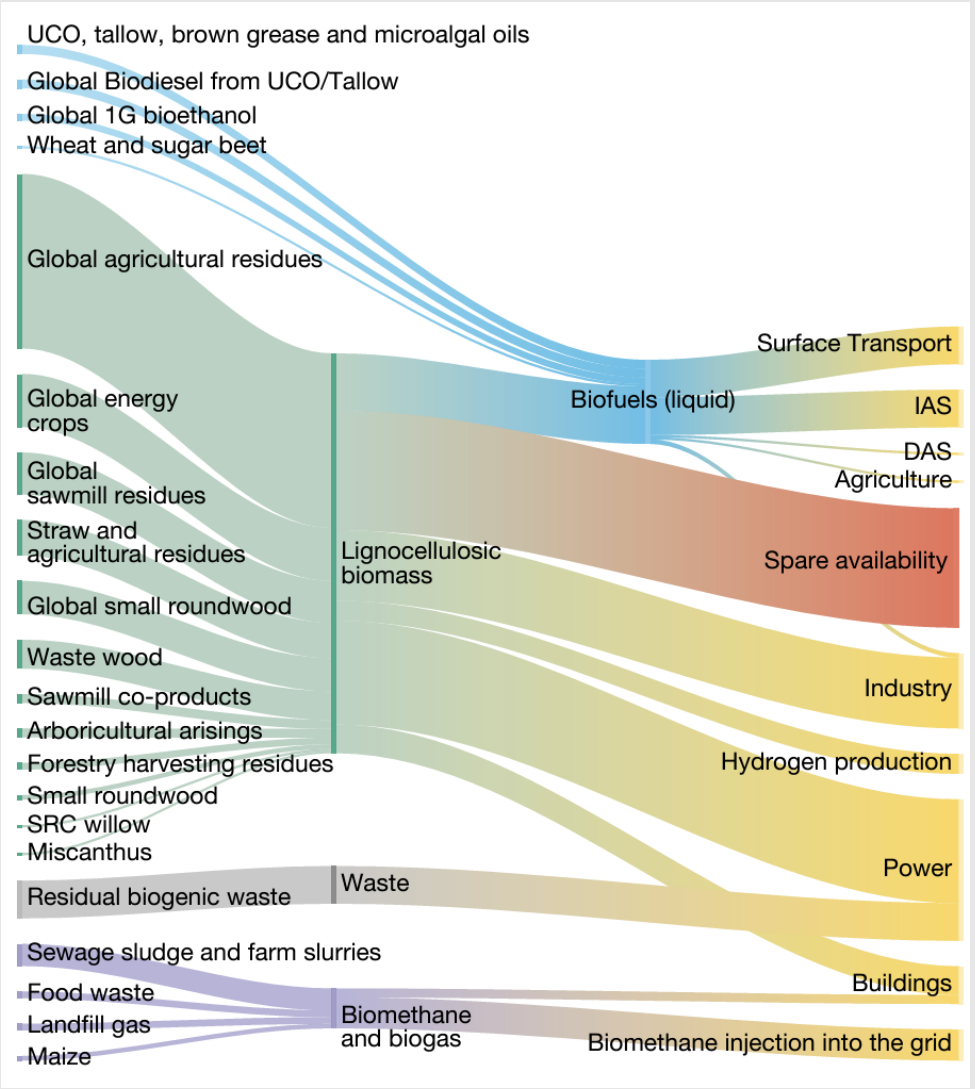
- 14,287 ktoe total feedstock for biodiesel
- 57% imported
- 11% from Indonesia (palm oil)
- 2% from Canada (rapeseed, soybean)
- 1% from USA (soybean)

Limited by Domestic Supply, UK Feedstock Imports Must Grow to Meet Policy Mandates



- 8.6% of energy supply from biomass in 2022
- 35% imported feedstock
- 66% for electricity; 34% for heat
- Goal to grow bioeconomy economic impact to £440 billion by 2030
- Supports SAF, hydrogen, energy security, and climate mandates

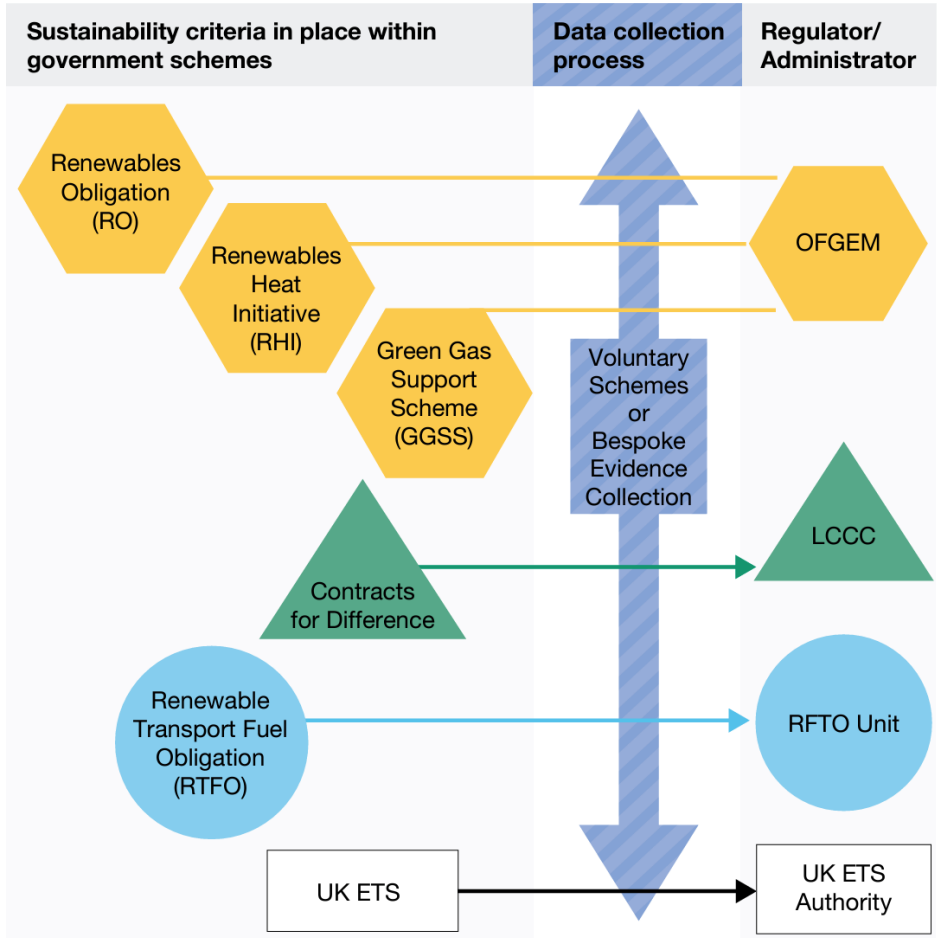
Projected Feedstocks and End-users (2035)



Streamlined Policies: Necessary for Supply to Match Demand

Challenge	Potential Solution	Potential Policy
Complicated policy framework	Streamline regulatory framework	**Clean Fuel Standard**
Sustainability criteria variations	Streamline regulatory framework	**Clean Fuel Standard**
Resource competition	Harmonize cross-border regs; Diversity supply	**Global standards and transparent certifications**
Infrastructure limitations	Streamline permitting	**Expedited processes for projects**
Scaling high-risk innovations	Tech-neutral funding for R&D; Risk-sharing policy for investors	**Grants, Contracts for Difference, Offtake agreements**

Current UK Web of Biomass Criteria and Regulators



Broad Political Support Creates Opportunity for Policy Improvements and Market Growth

In Favor...

"Sustainable biomass is a crucial component of our plan to decarbonize the energy sector and ensure a reliable energy supply.

Ed Miliband, UK Secretary of State for Energy Security and Net Zero

"By supporting the biomass industry, we can create thousands of green jobs and stimulate economic growth in regions across the UK.

Rachel Reeves, Chancellor of the Exchequer

"It is an opportunity to create resilient jobs across Europe, especially in rural areas.

MEP Dario Nardella

"Through biomass, we can achieve both low carbon energy sources and some of the negative emissions necessary to reach net zero.

Prof. Paul Monks, Chief Scientific Advisor, Dept. for Energy Security & Net Zero

"The bioeconomy is essential for the transition to a circular economy and for achieving climate neutrality by 2050.

Frans Timmermans, Former Executive VP for the European Green Deal

Limited Criticism and Concerns

"We cannot continue to support energy solutions that are both environmentally harmful and economically burdensome. It's time to reassess our reliance on biomass.

Claire Coutinho, UK Shadow Net Zero Secretary

"Using biomass in the production of food and materials and exploiting biomass side streams for energy can strengthen the competitiveness of the EU and combat many challenges, such as climate change, fossil fuel dependency, raw materials and food security.

MEP Elsi Kaitenen

"We must ensure that our bioenergy policies do not lead to deforestation or increased greenhouse gas emissions. Current practices are not sustainable and require urgent revision.

MEP Jytte Guteland

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Thank you!

Haley Armstrong

Partner

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Resources

- EU Bioeconomy Strategy (2018), European Union
- Union Bioenergy Sustainability Report (2023), European Commission
- UK Biomass Strategy (2023), UK Department of Energy Security and Net Zero
- Financing a Sustainable Bioeconomy (2024), World Bioeconomy Forum
- IEA Bioenergy Review (2023), International Energy Agency
- Global Bioeconomy Assessment (2024), UN Environment Programme