

Written evidence from Wildlife and Countryside Link, RSPB, The Wildlife Trusts, Soil Association, Sustain, MCS Charitable Foundation, NRDC (Natural Resources Defense Council), Dogwood Alliance, and Southern Environmental Law Center

ENGO joint response to EAC regarding Bioenergy with Carbon Capture and Storage (BECCS)

Key messages

- Reliance on costly bioenergy with carbon capture and storage (BECCS) for negative emissions threatens climate, biodiversity, food security, land and water.
- Emissions reductions are needed at a rate that is historically unparalleled. BECCS is a highly speculative technology which risks worsening climate change, displacing billions in climate investment and significantly damaging the environment.
- The government should instead drive forward genuine climate solutions including energy efficiency, low carbon renewables and nature restoration.

With correct carbon accounting, BECCS cannot be assumed to be carbon negative.

The case for BECCS achieving negative emissions at scale relies on the [debunked](#) assumption that burning woody biomass for energy is 'carbon neutral.' Bioenergy is treated as zero-emitting in the UK energy sector only because UN Framework Convention on Climate Change (UNFCCC) accounting rules assume CO₂ emissions associated with harvesting biomass from forests will be properly accounted for in the land use sector of the country where it is sourced. However, many countries do not account fully, or at all, for their land use emissions. As a result, large quantities of emissions associated with bioenergy are simply "missing" from international ledgers. Even if biomass emissions were to be correctly reflected in countries' land use emissions, the misleading 'zero-carbon' status of biomass in the energy sector in the UK creates a [significant policy incentive](#) to subsidise biomass or BECCS as a climate solution even [when it is not](#).

[Recent analysis](#) by Chatham House highlights the extensive CO₂ emissions of biomass electricity, which go unaccounted in the UK. If they were fully accounted, the study concludes this would have added between 22 and 27% to the emissions from total UK electricity generation in 2019.

Proponents of forest bioenergy with carbon capture and storage argue that BECCS can produce "negative emissions" because (i) power plant emissions at the smokestack can be captured and stored while (ii) regrowing forests can further sequester carbon.

However, policymakers have so far not acknowledged the true climate impact of BECCS. Another [new analysis](#) quantifies the full lifecycle emissions in a BECCS scenario representative of the most common supply chain for UK biomass electricity: pellets made of wood from pine plantations in the southeastern U.S. The results reveal that far from being carbon negative, emissions from BECCS relying on typical UK biomass supply chains would be almost equivalent to those of a coal power station, even after accounting for subsequent forest regrowth and on-site carbon capture at the power plant. This is because such a large proportion of the emissions associated with a biomass power station occur offsite and are thus "uncapturable." This includes:

1. Large supply chain emissions in processing and transporting wood pellets;
2. Biomass harvest via the collection of logging residues in forests releases [carbon from the soil](#);
3. The loss of carbon storage and sequestration in the forest after it is logged ([foregone sequestration](#)). This results from [replacing an older tree with a younger tree](#), even accounting

for regrowth of the new forest. Foregone sequestration results in a net increase of CO₂ in the atmosphere.

To date, both UK and corporate carbon accounting rules ignore '[foregone sequestration](#).' If it were included, forest bioenergy, even with CCS, will often be a carbon source rather than a carbon sink and lead to more emissions than other renewable energy technologies. This [holds true](#) even under the industry's definition of "sustainable" biomass.

In the case of bioenergy crops, [indirect land use change](#) could also be significant, and are likewise 'uncapturable' in a BECCS system.

Biomass "sustainability" standards are not a proxy for climate benefits and often do not protect forests.

Proponents argue that so long as biomass is "sustainably sourced," policymakers can assume it to be no-or low-carbon. Yet biomass [sustainability claims are misleading](#) and do not account for climate impacts. The new report from Chatham House, referenced above, underscores this problem, stating that UK sustainability criteria "do not take account of the real impacts of different biomass feedstocks on the climate," and thus cannot limit the impact of bioenergy on the climate, and are "also defective in other ways." UK sustainability criteria should no longer be used to legitimise billions in biomass electricity subsidies intended to help deliver the UK's climate targets.

Additionally, wood sourced using damaging logging practices, including clear-felling of mature and highly biodiverse hardwood forests, [routinely enters](#) the UK energy market. This biomass is high-carbon and its sourcing contributes to [forest degradation](#), yet it takes place under existing governmental and corporate sustainability standards. Recent [Channel 4 News](#) and [CNN](#) investigations both found wood sourced from clearcuts of old and biodiverse forests supply the wood pellet industry under current sustainability regimes.

BECCS has serious implications in the UK and overseas for land use, agriculture and biodiversity, and comes at the expense of nature-based climate solutions.

Under the Climate Change Committee's [Balanced Net Zero pathway](#), meeting biomass demand for BECCS would require converting up to 700,000 hectares of UK land (more than four times the size of Greater London) to grow energy crops, in addition to imports. Reducing the land available for food production risks either greater intensification of agriculture or a reduction in food security. Further, once the carbon costs of pesticide use, fertiliser use, harvesting and transportation are factored in, any climate mitigation [may be lower](#) than if the same land was used for another carbon-absorbing activity, such as native woodland expansion.

Tens of billions in BECCS subsidies would be better spent on proven climate solutions.

The Government must not rely on speculative and damaging BECCS to deliver on its 'net zero' climate commitment, or commit to a new round of subsidies for bioenergy. Industrial scale bioenergy is already in receipt of significant government subsidy. From 2012-2019 Drax alone received over [£4 billion](#) in subsidy, with a further £5.8 billion expected until 2027. [New economic research](#) shows that a switch from wood pellet biomass power generation to additional generation from renewable technologies has the potential to create between £1.93bn and £2.49bn of additional economic value and more genuine clean energy jobs in the UK.

The subsidy required from UK energy bills for a new BECCS plant could be [£31.7 billion](#). Rather than subsidise BECCS, billions in public resources should be directed towards protecting and restoring

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biodiverse ecosystems and carbon sinks in the UK and overseas; energy saving measures, such as retrofitting homes; and genuinely clean and low-carbon energy, such as wind and solar power projects built in harmony with nature.

A reliance on BECCS could lead to a deceleration of the fossil fuel phase out, and investment in BECCS risks [detering emission mitigation](#) as well as locking workers into unsustainable jobs.

Ensuring a safe climate requires rapidly eliminating emissions and protecting and restoring natural ecosystems.

Large scale biomass-burning sacrifices genuine opportunities to remove CO₂ because it requires harvesting trees, whereas the greatest CO₂ capture is achieved by [letting forests grow](#). Protecting and restoring natural carbon sinks, including forests, peatlands, grasslands, the seabed, and wetlands are the most effective and proven ways of sequestering carbon and are thus critical. In addition to pulling CO₂ out of the atmosphere and storing it in organic materials, [these approaches](#) can secure food supplies, improve the resilience of ecosystems and communities, and enhance biodiversity.

We call on the UK Government to:

- Embed the target of eliminating or significantly shrinking the role of BECCS technology in any new policy, by implementing rapid economy-wide decarbonisation, restoration of natural ecosystems, and deployment of genuinely low-carbon renewables.
- Conduct a full and transparent lifecycle assessment of the impacts of scaling up BECCS on greenhouse gas emissions, resource use and the environment, including impacts missed by current biomass sustainability criteria.
- Adjust UK energy policy to reflect all biomass emissions and avoid perverse outcomes, including removing the 'zero carbon' rating for biomass energy in the UK Emissions Trading Scheme.
- Avoid any subsidies to support BECCS until these criteria are in place.

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