

## PRESS RELEASE

# ENERGY TRANSITIONS COMMISSION WARNS DEMAND FOR BIOMASS LIKELY TO EXCEED SUSTAINABLE SUPPLY

*NEW REPORT FROM GLOBAL PRIVATE-SECTOR COALITION URGES INDUSTRY AND POLICY MAKERS TO PRIORITISE BIORESOURCES FOR MATERIALS, AVIATION AND NICHE ENERGY APPLICATIONS*

**UNDER STRICT EMBARGO:  
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**LONDON, 06 July 2021** - The Energy Transitions Commission (ETC)'s latest report sets out how rapidly increasing demand for bioresources could outstrip sustainable supply, undermining climate mitigation efforts and harming biodiversity, unless alternative zero-carbon options are rapidly scaled-up and use of bioresources carefully prioritised.

The report, ***Bioresources Within a Net-Zero Emissions Economy: Making a Sustainable Approach Possible***, makes plain that, while bioresources are in principle renewable, not all forms of biomass use are beneficial from an environmental perspective: not all biomass is 'good' biomass. To be sustainable, biomass production should have low lifecycle GHG emissions. Its production should take into account the 'opportunity cost' related to carbon that could be sequestered without intervention, and must not:

- compete with use of land for food production
- trigger any land use change that could release carbon stocks into the atmosphere (especially deforestation),
- negatively impact biodiversity and ecosystem health.

Thus, biomass sources for use as energy should be limited to waste & residues, dedicated energy crop production on degraded / marginal lands, or where current crop / pastureland can be released.

The ETC is a coalition of more than 45 leaders from global energy companies, energy-intensive industries, financial institutions and environmental advocates – including ArcelorMittal, Bank of America, BP, Development Research Center of the State Council of China, EBRD, Heathrow, HSBC, Iberdrola, Ørsted, Tata Group, Volvo Group and the World Resources Institute among others.

### Report Highlights

On the basis of strict sustainability criteria, the ETC estimates that a prudent scenario for the quantity of clearly sustainable biomass available by mid-century without major changes in land use, technology, and consumer behaviour is **c.40-60 EJ/year**. **There is a potential upside of up to c.60 EJ/ year** if, and only if, i), productive land is freed up by a major shift to plant-based diets or synthetic meat, improved agricultural productivity and reduced food waste; ii), the production of seaweed-for-energy significantly scales up; and iii), organic waste collection and management is improved. This prudent scenario is much lower than many climate mitigation scenarios assume, including IEA and IRENA scenarios.

As countries and companies endeavour to reduce their GHG emissions, the use of biomass as an alternative lower-carbon fuel has grown dramatically due to its easy substitution as a “drop-in” substitute for fossil fuels for industrial combustion and feedstock purposes. Many sectors and applications across the mobility, industry and buildings sectors currently plan to use biomass as a key decarbonisation route. But potential demands far exceed sustainable supply. Left unchecked, these trends would heighten the risks of unsustainable management of the bio resource, including deforestation, biodiversity loss and soil depletion. The report reveals that current policies often fail to consider claims on bioresources holistically, incentivising uses in sectors where alternatives exist, and jeopardising a sustainable management of the resource.

Alternative zero-carbon solutions, such as clean electrification or hydrogen, must be developed rapidly to lessen the need for bio-based solutions. Dramatic cost reductions have already been seen and further reductions are expected in renewable power generation, clean hydrogen production, and grid stability management. Industry and policymakers should therefore limit the use of bioresources in applications where cheaper alternatives exist or are within reach. These include road transport, bulk power generation without CCS, residential heating and shipping – with the exception of select specialised niches (e.g. local waste-to-energy district heat networks), especially in those locations where bioresources are locally abundant.

Adair Turner, Chair of the Energy Transitions Commission, said: “Biomass can make a really valuable contribution to the world's decarbonisation. But truly sustainable biomass is limited in volume; so its use must be restricted to priority sectors where alternative decarbonisation options don't exist. The good news is that clean electrification and hydrogen often provide a cheaper solution. The challenge for policymakers is to develop those alternatives fast, while supporting targeted use of biomass where it is most needed – in materials, aviation and for carbon removals – with a constant attention to ensuring supply of biomass is truly sustainable.”

The ETC encourages a prioritisation of biomass for use in a few sectors where there is limited to no alternative:

- It argues that biomass is best used for materials rather than as an energy source, taking advantage of its inherent characteristics and avoiding unnecessary air pollution from combustion. Key uses include as timber, pulp and paper and other wood products or as a bio-feedstock for the plastics industry. Few uses in the form of energy stand the test of resource efficiency and expected long term cost-competitiveness. Aviation is the one exception: biofuels could play a major role in the next decades as synthetic fuels made from power-to-liquids may not reach cost-competitiveness and scale fast enough to meet the needs of the sector.
- In addition, applications will be appropriate where bioenergy use plus CCS (known as BECCS or BiCRS) can deliver carbon removals, which will be needed in addition to rapid in-sector decarbonisation to limit the global temperature to 1.5°C. Effective carbon pricing to make this economic is therefore required.

Nigel Topping, UK High Level Climate Action Champion, COP26, said: “The ETC’s latest report illustrates the need to reprioritise sustainable biomass use to those sectors with limited decarbonisation options. Current trends are leading us to unsustainable levels of bioresource use, putting climate mitigation goals and biodiversity at risk. Alternative zero-carbon solutions, such as clean electrification or hydrogen, can and must be developed rapidly to lessen the need for bio-based solutions”.

## Recommendations

The report sets out four priorities for industry and governments to ensure an optimal use of bioresources:

- **Defining and enforcing clear sustainability standards for biomass supply:** Adopting comprehensive and specific biomass sourcing standards, banning conversion of preserved natural ecosystems to commercial biomass exploitation; creating mechanisms to allow transparency and traceability of biomass supply chains; improved data analysis and monitoring to inform land use policies.
- **Pursuing opportunities to further increase sustainable supply:** improving waste collection; innovations in seaweed-for-energy production; encouraging massive dietary change and technological developments to reduce land needed for animal meat and food production.
- **Creating the conditions for a prioritised use of bioresources:** use of carbon pricing to allocate scarce, sustainable supply, alongside policies to discourage suboptimal and encourage priority uses; developing explicit national and local strategies taking into account local land-use.
- **Supporting key technologies enabling efficient, sustainable supply and use of bioresources:** improving efficiency of existing land use; increasing waste collection; targeting funding towards emerging bioenergy and biomaterial technologies.

"A renewable energy future – built on cheap, abundant zero-carbon electricity – is within our grasp. In this timely report, the Energy Transitions Commission reviews the role of low carbon, sustainable bio-energy across the economy. The world has a fixed quantity of land, while demand for food, fiber, carbon storage and biodiversity continues to grow. We can't have an 'all of the above' strategy; there are real trade-offs in play, requiring informed decisions. This analysis helps open that dialogue," said Manish Bapna, WRI Interim President and CEO.

To read the full ***Bioresources Within a Net-Zero Emissions Economy: Making a Sustainable Approach Possible*** report, please visit: <https://www.energy-transitions.org/publications/bioresources-within-a-net-zero-emissions-economy/>

***Bioresources Within a Net-Zero Emissions Economy: Making a Sustainable Approach Possible*** was developed by the Commissioners with the support of the ETC Secretariat, provided by SYSTEMIQ. They bring together and build on past ETC publications, developed in close consultation with hundreds of experts from companies, industry initiatives, international organisations, non-governmental organisations and academia.

The report draws upon analyses carried out by ETC knowledge partners SYSTEMIQ and BloombergNEF, and elements of this report were developed in close collaboration with Material Economics. This report draws heavily on work developed by the Food and Land Use Coalition in partnership with IIASA and the World Resource Institute. We also reference analyses from the International Energy Agency and IRENA. We warmly thank our knowledge partners and contributors for their inputs.

This report constitutes a collective view of the Energy Transitions Commission. Members of the ETC endorse the general thrust of the arguments made in this report but should not be taken as agreeing with every finding or recommendation. The institutions with which the Commissioners are affiliated have not been asked to formally endorse the report. For further information please visit the ETC website at [www.energy-transitions.org](http://www.energy-transitions.org)

[The list of ETC Commissioners can be found here.](#)

**Quotes from our Commissioners:**

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**Notes for Editors:**

**About the Energy Transitions Commission**

The Energy Transitions Commission (ETC) is a global coalition of leaders from across the energy landscape committed to achieving net-zero emissions by mid-century, in line with the Paris climate objective of limiting global warming to well below 2°C and ideally to 1.5°C. Our Commissioners come from a range of organisations – energy producers, energy-intensive industries, technology providers, finance players and environmental NGOs – which operate across developed and developing countries and play different roles in the energy transition. This diversity of viewpoints informs our work: our analyses are developed with a systems perspective through extensive exchanges with experts and practitioners.

**The Mission Possible Series**

[The Mission Possible Series](#) – In 2020 the ETC published *Making Mission Possible*, which showed that a net-zero global economy is technically and economically possible by mid-century and will require a profound transformation of the global energy system. This was followed by further analytical deep-dives exploring what is required to scale-up zero-carbon energy systems by mid-century – [Making Clean Electrification Possible](#) and [Making the Hydrogen Economy Possible](#) (2021) set out a path to electrify the economy and highlighted a complementary role for clean hydrogen. *Bioresources Within a Net-Zero Emissions Economy: Making a Sustainable Approach Possible*, is the third report in the Mission Possible Series.

**Material Economics EU Bio report**

["EU biomass use in a net-zero economy – A course correction for EU biomass"](#) - The ETC is proud to have partnered with Material Economics, and their partners Climate-KIC, European Climate Foundation and Sitra Fund, to produce their latest EU Biomass report (June 2021). The ETC developed parts of the analytical work alongside Material Economics, together refining global and European perspectives on the role of bioresources in a net-zero economy.

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