To: Secretariat of the UNFC,
COP30 Presidency,
attn. Mr. André Corrêa do Largo, COP30 President

Date: 31 March 2026

Subject: Invitation to submit contributions to the Roadmaps on: i) the transition away from fossil fuels in a just, orderly and equitable manner, and ii) halting and reversing deforestation and forest degradation by 2030.

Dear Mr. Corrêa do Largo,

As IEA Bioenergy Technology Collaboration Programme (TCP) we welcome the open invitation by the COP30 to submit a contribution for the Roadmaps on the transition away from fossil fuels in a just, orderly and equitable manner, and ii) halting and reversing deforestation and forest degradation by 2030.

The submissions by IEA Bioenergy TCP have been drafted by two of our Working Groups (so called 'Tasks') and are provided as two separate documents to this letter:

- A contribution by IEA Bioenergy Task 39 (Biofuels to decarbonise transport), specifically for the Roadmap on the Transition away from fossil fuels, focusing on sustainable fuels for the transport sector, with integrations perspective with biofuels used in the (chemical) industry.
  IEA Bioenergy Task 39's contribution is a Cooperative Climate Initiative, as Task 39 was invited to contribute as an Action Agenda Partner, given the heaviliy involvement of the Task 39 Task Leader. Prof. Glaucia Mendes Souza from Brazil.
- A contribution from Task 32 (Biomass combustion) which has provided a contribtuion to both the Roadmaps for the Transition away from fossil fuels as well as for Halting and reversing deforestation and forest degradation.

Vision of IEA Bioenergy TCP

Originally established in 1978, under the auspices of the IEA International Energy Agency and as part of a wider network of Technology Collaboration Programmes, the IEA Bioenergy TCP is the leading global network on research and implementation of bioenergy, with currently 26 members across five continents. The work programme of the IEA Bioenergy TCP is delivered through Tasks - working in three-year periods - which are well-established networks of world-leading experts (see Task overview at annex

IEA Bioenergy's vision is that modern bioenergy is, and will continue to be, an essential source of renewable energy, making an important contribution to energy security and achieving international climate goals. Bioenergy is an integral part of developments towards a clean energy system and a circular biobased economy. By accelerating the sustainable production and efficient use of biomass, the contribution to the Sustainable Development Goals will be optimized. This will result in more

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cost-competitive bioenergy and other bio-based applications; and reduced, or even net-negative, greenhouse gas emissions; while respecting planetary boundaries. As an authoritative voice on sustainable bioenergy, IEA Bioenergy supports the fulfilment of this vision by providing scientific facts and analysis backed by experts and scientists from all over the globe.

Strategic context of bioenergy

Modern bioenergy is the main source of renewable energy today, and it is one of the main pillars of the energy transition, playing a key role in all sectors (heat, power, industry and transport). In the IEA Net Zero Emissions by 2050 Roadmap (NZE), bioenergy meets between 15% and 20% of total energy needs. This implies that modern bioenergy would need to triple from now to 2050, while at the same time traditional (inefficient and high-polluting) uses of biomass are phased out.

The importance of bioenergy can be explained by the following key features of this energy source: it is readily available and applicable in all energy sectors (electricity, direct heat, transport). Solid, gaseous and liquid bioenergy carriers can be easily integrated with existing infrastructure; they are storable and dispatchable and can therefore support the expansion of intermittent renewables. Moreover, bioenergy combined with CO2 capture and storage (BECCS) can enable carbon dioxide removal (CDR) from the atmosphere. The captured CO2 could also be utilized, e.g., in the production of food, e-fuels and chemicals.

Bioenergy is also an integral part of a circular biobased economy, often valorising the waste or residues of other biobased production processes and of agricultural and environmental practices.

If good governance is in place, modern, sustainable bioenergy can contribute significantly to a number of Sustainable Development Goals and Targets in addition to climate change mitigation / climate action (SDG13), e.g., the provision of good health and well-being (SDG3), clean water and sanitation (SDG6), affordable and sustainable energy (SDG 7), economic development and growth (SDG 8), technological progress and promoting sustainable industries (SDG 9), resource-use efficiency (SDG 12) and life on land (SDG15).

To enable the necessary acceleration in the deployment of modern bioenergy technologies across all sectors, a number of barriers (technology, economic, logistics and policy-related) need to be removed. This needs to be coupled with stronger demand policies, diversifying supply chains and expanding advanced biofuels.

Strategic plan of IEA Bioenergy TCP

The Strategic Objectives of the IEA Bioenergy TCP for the 2025-2030 Term are to realize our vision by:

1. Providing science-based information to support technology innovation, policy development and deployment.
2. Improving understanding of key features of sustainability in bioenergy systems, including biomass resources, biodiversity linkages, climate effects, and socio-economic impacts, such as contribution to local energy security.
3. Exploring synergies of sustainable bioenergy systems with other clean energy technologies and bio-based sectors.
4. Demonstrating how sustainable bioenergy, within the broader circular economy, can contribute to international climate targets and other Sustainable Development Goals.

Priority Research Areas:

Under the four Strategic Objectives listed above, a set of Priority Research Areas has been identified, namely:

1. **Biomass Supply**: we will be working on sustainable biomass availability and its link to sustainable landscape management, restoration of degraded and contaminated lands, biomass mobilisation and setting up supply chains. Relevant actors are in the fields of waste management, agriculture and forestry, aquaculture, environmental protection, etc.
2. **Conversion Technologies**: we will focus on advanced technologies that are capable of using a broader range of feedstocks; in terms of conversion technologies, we aim for a further reduction of the carbon footprint and emissions of pollutants, as well as an increase of the cost-efficiency, through efficiency improvements, biorefining technologies, carbon capture, integration with renewable hydrogen, hybrid concepts with wind and solar, etc. Relevant actors are biofuel producers, bioenergy industries and research institutions.
3. **Markets and Deployment**: in order to stimulate the deployment of sustainable bioenergy options in the energy transition, we aim to: analyse barriers/problems faced by industrial actors and how these can be mitigated; show opportunities of bioenergy solutions in different markets (heat, power, gas, transport fuel markets, but also biobased chemicals and products); and support the deployment of (close to) market-ready technologies. We will also consider how sustainability can be safeguarded through market mechanisms. Relevant actors are biofuel/bioenergy industries, energy suppliers and end-use sectors, policy makers, financing institutions, etc.
4. **System aspects**: we will consider methods and quantify impacts of bioenergy at the system level, such as GHG emissions, carbon management and climate impact, land and water use, biodiversity, socio-economics or the resilience of the energy system, including energy system integration and flexibility. This will show conditions for bioenergy to provide a sustainable solution, and to maximize its system-level positive impacts. Relevant actors are policy makers, research institutions, civil society, the general public, biofuel/bioenergy industries, energy suppliers and end-use sectors, etc.

We do hope that our input does provide relevant insights to shaping both roadmaps and that they help generatin new perspectives and actions.

We welcome further dialogue as are open to further explore the role of sustainable biofuels (liquid, gaseous and/or solid) by tapping into the collective intelligence of our global network of experts. For further information we also recommendat to explore the website www.ieabioenergy.com and www.ieabioenergyreview.org .

Kind regards,

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Annex: Overview of Tasks