POSITION PAPER

The European bioeconomy and the

Fit for 55 Package

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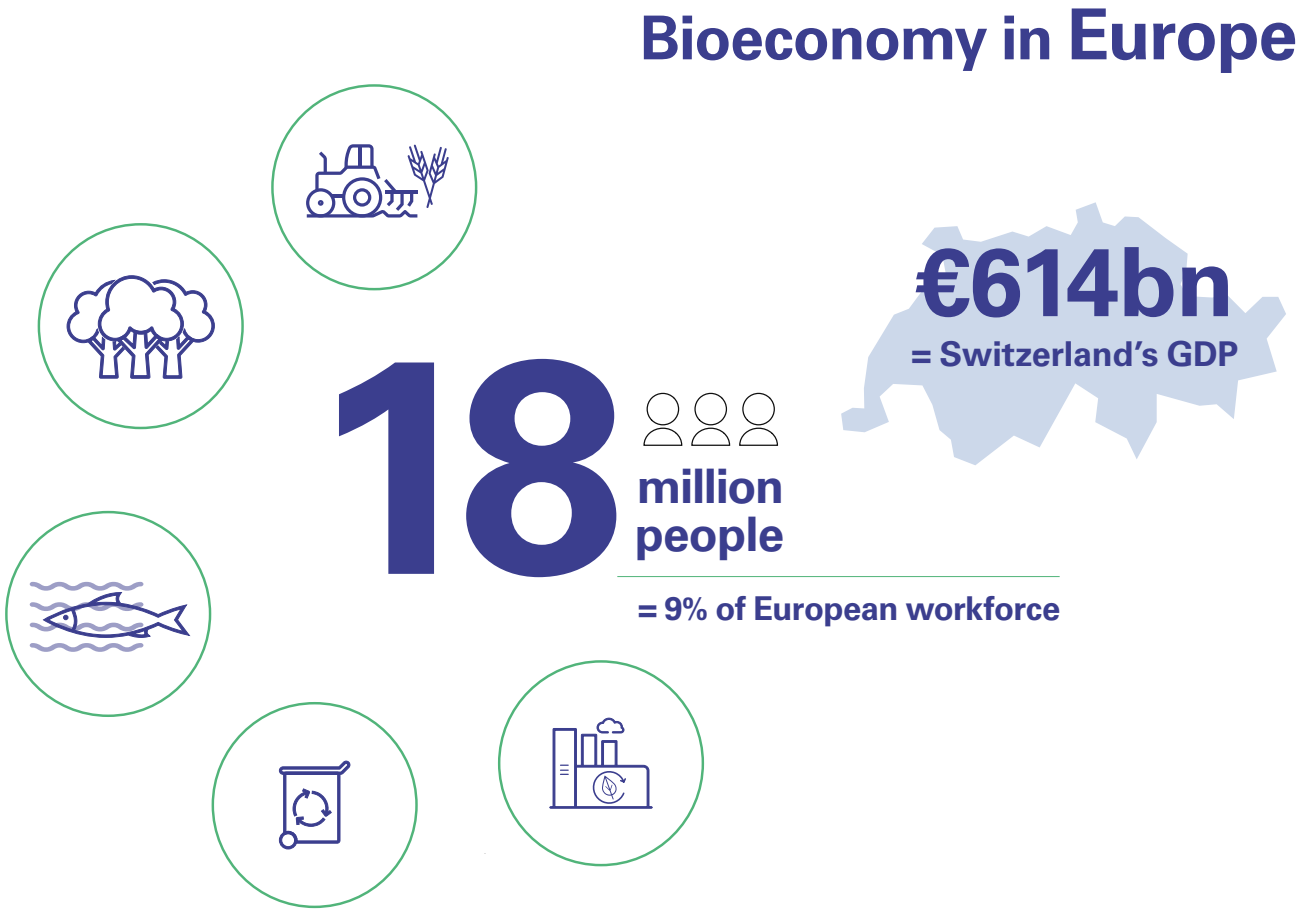
Unleashing the potential of the bioeconomy

The bioeconomy is an important sector for Europe. It employs nearly 18 million people in the EU-27, around 9% of the total workforce,[1] and adds €614 billion of economic value,[2] similar to the GDP of Switzerland.[3] It spans agriculture, aquaculture, forestry, and all the products and waste streams that arise from these activities, including food and feed, forest and crop residues, sewage and manure, bioenergy, biofuels, and bio-based chemicals and materials.

The bioeconomy has enormous potential to help achieve the goals of the European Green Deal, by reducing emissions and reversing biodiversity loss, boosting jobs and innovation, and supporting Europe in its recovery from Covid-19.

BioAdvantage Europe is a coalition founded by leading businesses across the bioeconomy value chain, including Lantmännen, Yara, Avril, Shell, Scania and DB Schenker, in support of these goals. By identifying and building awareness of solutions that are ready today, incubating new demonstration projects, and supporting EU policymakers to create the right policy conditions, our mission is to unleash the full potential of Europe's bioeconomy.



The potential of the European bioeconomy to support rapid decarbonisation

As a sector defined by its relationship with the natural world, the bioeconomy holds enormous potential to reduce emissions at source and dictate the transition to a sustainable, low-carbon economy both in Europe and abroad. Four ways in which it can do this are:

Grow more with less

With increasing pressure to meet the needs of a growing population, Europe's agricultural sector is employing regenerative farming techniques and innovative technologies to increase food and feedstock production on existing land, while reducing its carbon footprint. *In the case of wheat, precision agriculture and sustainable fertilisation can increase productivity by 48% per ha while achieving a 69% reduction in GHG emissions.*[4]

Support a biogenic carbon cycle

Transitioning away from fossil-based materials and increasing the availability and use of sustainable, bio-based feedstocks, especially those grown on contaminated and underutilised land or derived from waste and residues, will help reduce and displace fossil GHG emissions. *Bioethanol produced with European sourced feedstock provides audited, on-average emission reductions of 72% compared to fossil fuels*[6] *and produces animal protein feed as a by-product, reducing the need to import.*

Expand carbon sinks and wood supply

Sustainable silviculture, afforestation and reforestation techniques that protect and restore indigenous species and promote long-term forest regeneration can help achieve an increase in both carbon sink capacity and the supply of wood products. *With a more nuanced, geography-specific approach, Europe has the potential to nearly double its carbon sink by 2050 while supporting a productive forest sector.*[5]

Create innovative bio-based solutions

Harnessing the power and creativity of nature with cutting-edge research and innovative biorefinery concepts can help discover new ways to transform bio-based feedstocks, waste and residues into high value-added materials. *The production of car tires using the perennial crop guayule, a natural source of rubber, can generate up to 30% lower emissions compared to conventional tires.*[7]

Many of the solutions are ready, but the bioeconomy needs greater support to achieve its full potential. In the next section we highlight how the Fit for 55 Package can enable the bioeconomy to contribute even more to Europe's decarbonisation goals.

Making the Fit for 55 Package work for the bioeconomy

In 2020, the European Commission proposed to raise the target for greenhouse gas (GHG) emission reduction from 40% to 55% (compared to 1990 levels) in the next decade. It also pledged to be the first climate-neutral continent by mid-century. 2021 is the year to establish the roadmap to a 55% GHG emission reduction by 2030, helping steady the impact of global warming and to achieve a stable climate below 1.5C.

This coalition believes the bioeconomy must be placed, with other solutions, at the centre of this roadmap and forthcoming revisions in the Fit for 55 Package. While there are still remaining sustainability concerns to be addressed, the bioeconomy is vital if we are to displace fossil fuels and scale solutions that work not just for GHG emission savings, but also for biodiversity, jobs, innovation, trade, the economy, and Europe's citizens.

According to the Commission, delivering on the 55% target would make European industry and businesses 'trailblazers.' This coalition advocates the following recommendations to ensure the European bioeconomy and bio-based industries are similarly pioneering and can play their role in both accelerating decarbonisation and meeting the broader ambitions of the European Green Deal.

1 Incentivise supply and demand with updated renewable energy targets and by strengthening sustainability criteria

The Renewable Energy Directive (REDII) and the Fuel Quality Directive (FQD) are the main pieces of legislation driving the production and supply of sustainable biofuels to decarbonise road transport. With increased investments into EU biorefineries, the aviation and maritime sectors could benefit from greater shares too.

Renewable Energy Directive (REDII)

We recommend the following:

- To increase overall renewable energy targets, including targets for transport, and for advanced biofuels and biogases in line with the revised 2030 climate targets and impact assessment. Specifically, to:
  - increase overall renewable energy targets from 32% to a minimum of 38%[8]
  - increase targets for transport from 14% to a minimum of 24% and support Member States to go higher[9]
  - increase targets for advanced biofuels and biogases from 3.5% target
- To consider sustainable biofuels and biogases based on GHG reduction performance targets using a 'well-to-wheel' approach (thus matching requirements in the Fuel Quality Directive).
- To provide clear instruction and mechanisms that guarantee end-to-end transparency of sustainability impacts (GHG emissions, biodiversity impact, origin, socio-economic etc.) across the entire biofuel value chain. If implemented correctly – and accompanied by incentives for sustainable crop and fuel production – the sustainability footprint of the biofuel value chain will improve and, in doing so, create benefits for farmers as feedstock producers. The Coalition fully supports the Commission's intention to provide mechanisms to further harmonise the verification and certification of existing sustainability criteria in Member States.
- To exempt biofuels that deliver over 70% GHG savings and comply with sustainability criteria from the cap applied to crop-based biofuels. This will enable immediate emission reduction and a faster substitution of fossil fuels.
- If the cap is kept, to maintain it at current levels while high-ILUC risk feedstocks including imported palm oil are phased out from 2023 and overall biofuel use temporarily decreases as a result. Lowering the cap would create further uncertainty for the market, hamper investments in sustainable biofuels and increase the climate impact from transport.

Fuel Quality Directive (FQD)

We recommend the following:

- To align the FQD and the REDII. Currently, FQD targets are calculated by the life cycle GHG emission reduction of transport fuels, whereas REDII targets are energy-based and defined as a percentage supply of renewable fuels in the total energy mix for transport. While REDII targets can be transposed into GHG emission targets, only the renewable fuels that fall under the REDII can contribute to its targets, meaning some of the best performing fuels, from the point of view of the FQD, are not fairly considered. The main objective should be to drive the reduction of GHG emissions of all available transport fuels throughout their life cycle, thus the REDII should not undermine the requirements under the FQD.
- To substantially increase the CO_2 emission intensity reduction target of FQD Article 7a, which currently mandates 6% CO_2 emission intensity reduction for fuels, and to implement a 'well-to-wheel' approach. The FQD is one of the best tools the EU has to reduce GHG emissions without having to make huge investments in new infrastructure, and raising ambition here could support stronger demand for sustainable biofuels.
- To implement measures that avoid so-called "blend walls" and incentivise OEMs to introduce, well in advance, the hardware (engines/vehicles) compatible with higher biofuel grades (e.g. E20). This will help accelerate future demand for sustainable biofuels.

2 Ensure investment into the bioeconomy and build a level playing field

The upcoming revision of the Energy Taxation Directive and EU ETS / CBAM, alongside ongoing discussions concerning the EU taxonomy, provide an opportunity to set an appropriate price on carbon that aims for cost parity between sustainable biofuels and fossil fuels, and to create the right conditions for bio-based solutions to compete with other technologies and products.

Energy Taxation Directive

We recommend the following:

- To implement a minimum taxation per unit of energy (i.e. emission intensity), as opposed to per litre of fuel (volume). As it stands, given most biofuels have lower energy density than fossil fuels (e.g. 66% energy density ratio between ethanol and petrol), a minimum tax per litre of fuel means that the tax per unit of energy is higher for biofuels, making them less competitive.

EU Taxonomy

We recommend the following:

- To ensure the EU taxonomy is aligned with the REDII. REDII is the primary legislation for renewable energy targets and criteria, entering into force in 2018. The EU taxonomy must therefore be implemented in a way that prevents it from setting new barriers and standards to the production of sustainable biofuels.
- To ensure all technologies and feedstocks (including bio-based, electrification and hydrogen) are considered with neutrality across all sectors, including transportation. This will enable immediate, cost-effective decarbonisation through existing bio-based solutions.
- To fully recognise the climate benefits of sustainable forestry products from both the perspective of carbon sequestration and their displacement of carbon-intensive, fossil-based products. This will support a quicker transition to bio-based solutions, particularly in industries including construction, pulp and paper, and biofuels.

EU Emission Trading System (EU ETS) / Carbon Border Adjustment Mechanism (CBAM)

We recommend the following:

- To ensure that the sustainability criteria applied to European products and solutions are applied with the same rigour to imported products and solutions. For example, the EU-Mercosur pact only asks for signatories to 'strive' to improve their environmental impact. As such, EU trade agreements could be more explicit about matters such as required sustainability standards, and mechanisms could be developed to support customs to implement such standards.
- To appropriately address the risk of carbon and investment leakage in line with relevant international obligations such as WTO rules, trade agreements and treaties. This will help increase the competitiveness of European sustainable bio-based solutions.

3 Guarantee future demand for bio-based products

Revisions to CO_2 Performance Standards, for cars/vans and commercial vehicles, the Energy and Environment State Aid Guidelines (EEAG) and the Directive on Alternative Fuels Infrastructure can help ensure future demand for bio-based products, while giving customers confidence in their future availability and sustainability.

CO_2 Performance Standards

We recommend the following:

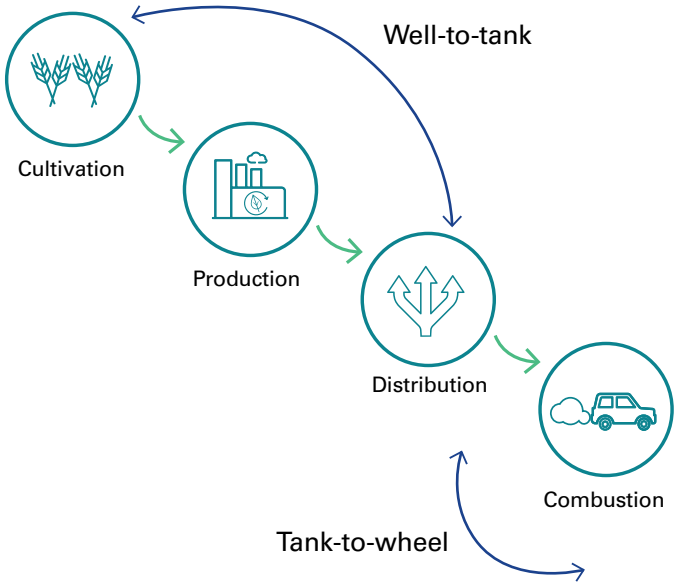
- To acknowledge the benefits of using sustainable biofuels when revising CO_2 standards for vehicles, basing the emission reductions on a 'well-to-wheel' approach, rather than 'tank-to-wheel'. A 'well-to-wheel' approach provides consumers and policymakers with accurate information on vehicles' real climate impacts and allows for deeper GHG emission reductions compared to fuel consumption or efficiency-based regulation.
- To use a GHG-reduction based bonus scheme to incentivise OEMs that plan for future compatibility with higher blends of biofuel, thus accelerating the introduction of more sustainable vehicles.

Energy and Environmental State Aid Guidelines (EEAG)

We recommend the following:

- In order to improve consistency with the REDII and help achieve renewable energy targets in transport, the new EEAG should provide the possibility for Member States to provide support to all sustainable high-blend biofuel solutions, including crop-based biofuels classed as sustainable within the REDII, as was the case until December 2020. This support, aligned with REDII, should not be given to high-ILUC risk feedstock where a significant expansion of production area into land with high carbon stock is observed.

Using a well-to-wheel approach



Directive on Alternative Fuels Infrastructure

We recommend the following:

- To ensure the development of green corridors and an increase in dedicated infrastructure to support sustainable biofuels and biogas across the EU by 2025, and that their availability increases significantly by 2030. This would enable refuelling of heavy-duty transport anywhere in Europe regardless of Member State legislation.

Existing partner solutions

Lantmännen

- **Reducing transport emissions:** Scania and Lantmännen are collaborating to promote climate-smart heavy transport solutions using ethanol as a biofuel (ED95), which can reduce carbon emissions by 90% compared with diesel. The ethanol is produced from local feedstock, such as wheat and residues from the food industry. With the right incentives this can compete with fossil diesel and contribute to REDII transport fuel targets.
- **Using CO_2 for fizz:** Lantmännen's biorefinery, Agroetanol, is using carbon capture and utilisation technology in its biorefining process to capture much of the CO_2 produced during the ethanol fermentation process. The CO_2 is then purified, cleaned and sold as renewable carbonic acid to the manufacturing industry, primarily beverages, replacing the imported fossil version.

Avril

- **Outcompeting fossil diesel:** Avril produces sustainable biodiesel (Oleo100) made entirely from French rapeseed, which reduces CO_2 emissions by at least 60% compared to fossil diesel, and fine particle emissions by up to 80%. Oleo100 is compatible with all B100 approved diesel vehicles, enabling rapid deployment with existing fleets. With the right incentives this can compete with fossil diesel and contribute to REDII transport fuel targets.
- **Improving agricultural practices:** Avril has created OleoZE, a digital marketplace that certifies and traces sustainably cultivated sunflower and rapeseeds, rewarding farmers with above-market-prices for efforts to reduce greenhouse gas emissions and store carbon in the soil on their farms. The right policies can help level the playing-field by nudging market prices up to support higher standards.

YARA

- **Reducing the climate impact from agriculture:** By combining Yara's low-carbon nitrate fertilisers and precision application tools, the carbon footprint of crop production can be decreased by more than 50% while saving land and maintaining yields. Yara has reduced its own emissions from its fertiliser production with 45% compared to 2005 and works with the Cool Farm Alliance to help farmers manage emissions in the field. By offering the right form of fertilisers, produced with reduced carbon footprint, in combination with digital solutions that allow efficient and precision use, Yara enables farmers and forest owners to maintain or increase productivity, while becoming more sustainability.
- **Extracting value from waste:** YYara and Veolia are developing new circular agriculture models by recycling nutrients – from urban, agricultural and industrial waste – into high quality fertilisers. Their goal is to showcase how nutrient and chemical flows can be optimised through cross-sector industrial symbiosis and around cities.

SCANIA

- **A circular transport economy:** Scania provides the largest portfolio of engines on the market that can run on alternatives fuels, ranging from ethanol trucks and buses to vehicles using liquefied or compressed biogas. In Sweden, following a long-term strategy of both CO2 taxation for energy and fuels, whilst actively phasing out landfills and instead turning all organic waste into biogas, the circular economy has been successfully combined with commercial sustainable transport. The results? 95% of all vehicle gas in Sweden today is renewable biomethane, replacing fossil natural gas in bus and truck fleets, and no landfills remains.
- **A decade of reductions:** Scania's Science Based Targets suggest that between 2015 and 2025, they will cut CO_2 emissions from their own operations by 50% and reduce CO_2 emissions from their customers' vehicles by 20% per km (for vehicles produced in 2025 compared to those produced in 2015).

- **First carbon-neutral cargo flights:** DB Schenker has collaborated with Lufthansa Cargo and customers to power the first commercial freight flights with sustainable aviation fuel (SAF) between Frankfurt and Shanghai. Each return flight typically requires 174 metric tonnes of conventional kerosene, the equivalent of which is now being displaced with SAF, subject to engine compatability. Cutting emissions in aviation will be crucial in meeting new EU targets, and the fastest way to do this is with SAF, which can reduce CO_2 emissions by up to 80% in comparison with fossil jet fuel.

Coalition demonstration projects

- **Reclaiming contaminated and underutilised land in CEE coal regions**

  Coalition partners, Scania and Yara, are exploring the feasibility of reclaiming contaminated and underutilised European land, which is not suitable for the production of food or feed, and cultivating feedstocks for biofuels. By focusing primarily on former coal mining regions in Central and Eastern Europe, the project's aim is to explore the full range of benefits biofuels production could bring as part of the low carbon energy transition in such areas.

- **Connecting Europe for sustainable heavy duty transport**

  Coalition partners, Scania and Avril, alongside IKEA, are aiming to provide a highly credible proof-point that sustainable biofuels for heavy duty transport can deliver - here and now - deep and proven cuts in CO_2 emissions at scale, while also delivering other benefits for rural growth, jobs, innovation, and biodiversity. The ambition is to create heavy duty transport flows betweeen at least 3 member states across the EU using B100, a 100% plant-based and renewable biodiesel.

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9 European Commission (2020). Stepping up Europe's 2030 climate ambition

A cross-sector coalition working alongside policymakers

The BioAdvantage Europe coalition has been launched to identify opportunities for unleashing growth in the bioeconomy in Europe. We represent many different sectors relevant to the bioeconomy and with business activities in a range of geographies across Europe.

Our work has shown that there is significant potential for the bioeconomy to contribute to more sustainable and inclusive growth in Europe, and that it can play a crucial role in meeting the goals of the European Green Deal. But we also recognise that the bioeconomy needs an integrated, effective and fact-based policy framework to meet this potential.

At this important moment in Europe's transition, we are: raising awareness of the potential of the bioeconomy; demonstrating bio-based solutions in action across Europe; and supporting policymakers to develop bioeconomy-related policies at the regional, national and EU level that deliver rapid decarbonisation, biodiversity restoration, rural growth, green jobs and innovation.

We welcome the opportunity to work beside policymakers to create a policy framework that enables this.

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