



OPINION

European Economic and Social Committee

Sustainable Carbon Cycles

Communication from the Commission to the European Parliament and the Council
Sustainable Carbon Cycles
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1. **Conclusions and recommendations**

- 1.1 The EESC thinks that finding a solution to the carbon neutrality equation in Europe requires mitigating greenhouse gas (GHG) emissions, increasing carbon sinks and finding alternatives to fossil carbon in our economy. The EESC therefore agrees with the European Commission's communication that all resources and solutions will have to be combined to achieve this objective.
- 1.2 The EESC supports the Commission's communication, which proposes two solutions for removing and sequestering carbon: nature-based solutions (known as "carbon sequestration") and industrial technological solutions.
- 1.3 The EESC believes that the land sector (e.g. agriculture, forestry, peatland areas) can be actively involved in combating global warming while contributing to an overall equilibrium in the food supply, providing enough food of sufficient quality and at affordable prices for everyone and ensuring that producers make a profit.
- 1.4 The EESC stresses that the topic of sustainable carbon cycles must be considered in a holistic manner. Increasing carbon sinks and replacing fossil carbon as much as possible will require more biomass to be produced, which will affect the land sector.
- 1.5 As the agricultural sector is a natural emitter, the EESC believes that implementing practices that produce fewer emissions will be directly correlated with the successful development of a sustainable carbon cycle. Finally, meeting the growing demand for food and deploying the sustainable carbon cycle of the future will require the agricultural sector to adapt to climate change.
- 1.6 The EESC therefore believes that carbon sequestration should not only be seen as a commercial opportunity, but also as a key component of European agriculture and forestry in the future and as a tool for climate action, contributing to more resilient rural areas, in line with the long-term vision for EU rural areas¹.
- 1.7 In the EESC's view, the common agricultural policy (CAP) will not be able to achieve the carbon neutrality objectives on its own: it must provide the policy framework paving the way for the low-carbon transition in agriculture, whereby the sector will emit less and sequester more; the investment support in the CAP can and should reward carbon storage financially as an eco-service and income support for farmers, but carbon storage should not be a general condition of the CAP; even more important, the EESC is of the opinion that the development of the carbon market must be further promoted.
- 1.8 Carbon credits must remunerate a service rendered, namely that of atmospheric carbon sequestration, but must also support the agricultural sector's carbon transition. It is therefore necessary to invest in carbon credits through a transparent and trusted system that can meet the

¹ See in particular the action "Climate action in peatland through carbon farming" under the flagship "Resilient rural areas" (https://ec.europa.eu/info/strategy/priorities-2019-2024/new-push-european-democracy/long-term-vision-rural-areas_en).

sector's GHG emission sequestration and mitigation needs. Trust in the system will be based on certification that takes national circumstances into account and is tailored to the territorial approach of each country.

- 1.9 The development of carbon sequestration will require a clear legal framework that is shared by the Member States, taking into account the challenges for certified carbon sequestration projects identified in the EC communication.
- 1.10 The EESC warns that there are differences in the level of investment and support that the Member States can provide when it comes to carbon sequestration and that they have different financial and managerial capacities.
- 1.11 As the carbon border adjustment measures are not adequately protecting the agricultural sector, the EESC recommends to also consider the imported products and to ensure that trade deals, both new and existing, compel exporting countries to engage in sustainable carbon cycles.
- 1.12 The EESC thinks that industrial solutions, such as permanent CO₂ storage in geological formations or mineralisation of carbon in innovative aggregates, will have to be sustainable and prevent negative impacts on biodiversity, ecosystems and communities.
- 1.13 The carbon sequestration proposal must be part of a broader transition to a sustainable food system.
- 1.14 The well-being of workers, predictability of careers and working conditions in the agricultural sector, as well as the need for fair remuneration, should be taken into account so that farmers and workers will commit to and make a success of the transition to a low-carbon economy.

2. **General comments**

Carbon neutrality by 2050: the solution for complying with the Paris Agreement

- 2.1 The exponential increase in the atmospheric concentration of GHG since the Industrial Revolution has led to an overall increase in the global temperature. Scientists agree on the urgent need to reach net zero global emissions by 2050 and that global emissions must peak by 2025 to limit global warming to 1.5°C².
- 2.2 The Intergovernmental Panel on Climate Change (IPCC) believes that a rise of 2°C could pose a very high risk to the food supply in some parts of the world. The demand for food is expected to increase by 70% between 2009 and 2050, with 9 billion people to feed, according to the United Nations Food and Agriculture Organization (FAO).
- 2.3 As our food production is by nature climate-dependent, the joint climate and food emergency means that we must adapt.

² Second part of the Sixth Assessment Report on Climate Change by the Intergovernmental Panel on Climate Change (IPCC), published 28 February 2022: <https://www.ipcc.ch/report/sixth-assessment-report-cycle/>.

2.4 The Paris Agreement aims to limit global warming to 1.5°C or, at most, 2°C. The European Union therefore adopted the Green Deal and enshrined the objective of achieving carbon neutrality by 2050 in the Climate Law. To this end, it has taken two key initiatives:

- reducing GHG emissions by at least 55% by 2030 through the proposal for the Fit for 55 legislative package;
- recycling carbon from waste streams, sustainable biomass sources and the atmosphere (circular economy, sustainable bioeconomy, carbon capture and utilisation (CCU) technologies).

The need to increase carbon removals

2.5 In light of this situation, the EESC agrees with the European Commission's communication, which proposes two ways of removing and sequestering carbon: nature-based solutions (called "carbon sequestration") on the one hand, and industrial technology solutions on the other (capturing and storing of carbon from the atmosphere through techniques such as "direct air carbon capture and storage" (DACCS) and "bio-energy carbon capture and storage" (BECCS)).

2.6 Since agriculture naturally emits 11% of European emissions, it contributes to emissions, but it also contributes to GHG mitigation by acting as a carbon sink and contributes to the bioeconomy by supplying non fossil carbon.

2.7 It is therefore clear that the objectives of the land sector are to be involved in combating global warming and to contribute to an overall equilibrium in the food supply by providing, at affordable prices, enough food of sufficient quality for everyone, generating stable and high quality jobs, while ensuring that producers make a profit (see in particular the opinions on *Food security and sustainable food systems*³ and on *Towards a Fair Food Supply Chain*⁴).

2.8 Tackling climate change will therefore require transition tools that are just and accessible to all Member States and farmers.

3. Specific comments

Objectives of the land sector: mitigation, sequestration and food

3.1 Finding a solution to the carbon neutrality equation in Europe requires mitigating GHG emissions and increasing carbon sinks, as well as finding alternatives to fossil carbon in our economy. The EESC therefore agrees with the European Commission's communication that all resources and solutions will have to be combined to achieve this objective.

3.2 As set out in the proposal to amend the LULUCF Regulation as part of the Fit for 55 package, carbon farming should help to achieve the proposed net removal target for 2030 of 310 million

³ [OJ C 194, 12.5.2022, p. 72.](#)

⁴ EESC opinion on *Towards a Fair Food Supply Chain*, [OJ C 517, 22.12.2021, p.38.](#)

tonnes of CO₂ equivalent in the land sector. The EESC points out that there are various ways to increase carbon sequestration, including land management, forest regeneration and the restoration of natural ecosystems (see its opinion on this subject⁵).

Nature-based solutions

- 3.3 There is more carbon stored in soils than there is carbon stored in plants or in the atmosphere. However, emissions from fossil fuel combustion, industrial processes and land use change are cumulating in the oceans and are dramatically increasing the concentration of CO₂ in the atmosphere, which is a main problem.
- 3.4 Through the fixation of carbon from the air in plant material, the bioaccumulation of organic matter in soil, biomaterials and by using energy from locally grown biomass, agricultural activities recycle part of the carbon emitted.
- 3.5 Carbon farming focuses on the reduction of CO₂ in the atmosphere, but there are other GHG emissions linked to agriculture that must be dealt with (e.g. methane and N₂O emissions, which generate relatively (per kg) more heat than CO₂). Livestock farming enables organic fertilisers to be provided for crop production, and, so far cattle is fed with locally grown grass, it contributes to the food system in a circular way, as detailed in the opinion on *Benefits of extensive livestock farming and organic fertilisers in the context of the European Green Deal*⁶.
- 3.6 In view of these challenges and the diverse solutions provided by the land sector, it seems that the subject of sustainable carbon cycles needs to be considered in a holistic manner, taking into account the diversity of ecosystem services provided by agricultural soils, in addition to carbon sequestration, and varying carbon sequestration capacities depending on pedoclimatic and biological parameters. Increasing the carbon sink and replacing fossil carbon as much as possible requires more biomass to be produced.
- 3.7 As the agricultural sector is a natural emitter, implementing practices that produce fewer emissions will contribute to mitigation and a sustainable carbon cycle. Also, reducing emissions, enhancing carbon sequestration, and replying to the growing demand for food while adapting to climate change (e.g. negative impact of climate change on harvests) pose several challenges that require innovation and support to the sector.
- 3.8 The EESC therefore believes that the proposal to amend the LULUCF Regulation will be vital for long-term climate balance and that the role of carbon sequestration should not only be seen as a commercial opportunity, but also as a key component of European agriculture in the future.

⁵ EESC opinion on *The inclusion of greenhouse gas emissions and removals from LULUCF*, [OJ C 152, 6.4.2022, p. 192](#).

⁶ [EESC information report on the *Benefits of extensive livestock farming and organic fertilisers in the context of the European Green Deal*](#).

3.9 While ensuring global food security, attributing a value to carbon entails three different challenges:

- sequestration of atmospheric carbon in soil;
- mitigation of GHG emissions;
- adaptation of the agricultural sector to climate change.

3.10 A number of land management practices improve carbon sequestration, including:

- afforestation and reforestation;
- agroforestry and other forms of mixed farming combining woody vegetation with crop and/or animal production systems;
- use of catch crops, cover crops and conservation tillage;
- conversion of cropland to fallow or permanent grassland;
- restoration of peatlands and wetlands.

3.11 The potential is important, for example as part of the "4 per 1000" initiative, the French National Research Institute for Agriculture, Food and Environment (INRAE) found that the maximum potential of the additional agricultural stock in France was 8.43 million tonnes of carbon per year in the first 30 centimetres of soil.

3.12 In conjunction with the objective of net zero land take by 2050 set out in the EU Soil Strategy⁷, and to ensure that it can act as a carbon sink and produce biomass, the EESC recommends that arable land be adequately protected, and is pleased to note that some Member States are already working on this (e.g. land legislation is being drafted in Estonia).

3.13 The Communication identifies some challenges for certified carbon sequestration projects, but does not provide an answer on how to:

- address the issue of non-permanence: carbon that is sequestered and stored in soil and biomass can be released into the atmosphere, cancelling out the benefits of climate change mitigation;
- accurately quantify the actual additional costs since monitoring, reporting on and verifying captured carbon remains a challenge;
- take into account the costs of practices to sequester carbon and mitigate agricultural GHG emissions.

3.14 Finally, the reduction of emissions from the agricultural sector through adapted practices or new technologies should not be forgotten, with energy sobriety and reducing GHG emissions being the priority.

⁷ [EESC opinion on the New EU Soil Strategy](#), not yet published in the Official Journal.

Solutions based on industrial carbon capture, utilisation and storage

- 3.15 The communication proposes the objectives that by 2028 any ton of CO₂ captured, transported, used and stored by industries should be reported and accounted by its fossil, biogenic or atmospheric origin, that at least 20% of the carbon used in the chemical and plastic products should be from sustainable non-fossil sources by 2030, and that 5Mt of CO₂ should be annually removed from the atmosphere and permanently stored through frontrunner projects by 2030.
- 3.16 Fossil carbon will have to be replaced by more sustainable streams of carbon recycled from waste, from sustainable biomass or directly from the atmosphere.
- 3.17 According to the sixth IPCC report⁸, 100-1000 Gt of CO₂ must be removed by the end of the 21st century. Most current and potential carbon removal measures could significantly affect land, energy, water and nutrients if deployed on a large scale. The EESC believes that effective governance is needed to avoid competition in land use that could significantly affect farming and food systems, biodiversity and other ecosystem functions and services.
- 3.18 Various technologies exist for industrial carbon capture, utilisation and storage (the use of biomass in buildings, BECCS, DACCS, carbon capture and utilisation (CCU), etc.), but they each have advantages and disadvantages. Moreover, the EESC notes that no single solution stands out⁹.
- 3.19 BECCS technology, for example, removes carbon from the atmosphere while providing heat and energy. However, we need to take into account the sustainability boundaries of the biomass used. Direct air capture projects in Iceland and Scotland are expensive and still very energy-intensive at the moment.
- 3.20 **Agriculture and forestry are the main players in the bioeconomy.** This "photosynthesis economy" directly reflects the unique ability of plants to produce non fossil carbon from atmospheric dioxide.
- 3.21 These carbon removal technologies will have to reduce in cost and ensure permanent carbon storage and removal. Carbon capture technologies can be highly energy-intensive processes. They will need to use renewable energy, be sustainable and prevent negative impacts on biodiversity, ecosystems and land availability.

⁸ <https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/>.

⁹ For more information on this topic, see own-initiative opinion CCMI/190 on [the Role of carbon removal technologies in decarbonising the European industry](#), not yet published in the Official Journal.

4. Tools for developing carbon sequestration in Europe

European Union: determining a baseline for low-carbon farming

- 4.1 The Commission communication states that using national CAP instruments (national strategic plans) and meeting the objectives set out in the LULUCF Regulation can only be beneficial. The challenge and objectives of this Regulation are such that all solutions need to be deployed.
- 4.2 As such, the CAP can make it possible to determine at the appropriate territorial level the baseline for mitigating emissions, sequestering carbon and adapting the sector, for example by protecting permanent grassland and agro-ecological infrastructure. The 2023 CAP reform will also enable climate action to be stepped up via eco-schemes, as it has protected social conditionality.
- 4.3 However, given these multiple objectives, the EESC believes that the CAP will not be able to achieve the carbon neutrality objectives just on its own. It should provide the policy framework paving the way for the low-carbon transition in agriculture, whereby the sector will emit less and sequester more. The EESC thinks that the investment support in the CAP can and should reward carbon storage financially as an eco-service and income support for farmers, but carbon storage should not be a general condition of the CAP; even more important, the EESC is of the opinion that the development of the carbon market must further be promoted.

Carbon credits: a necessary investment in order exploit the potential of agricultural soils

- 4.4 There are solutions to the issue of adaptation and mitigation in the agriculture sector, but they have a price, risks and sometimes an impact on long-term profitability.
- 4.5 The EESC believes that farmers and agricultural workers need fair remuneration and long-term access to land ownership or leases so that they will commit to and make a success of the low carbon transition.
- 4.6 In the EESC's view, **quantifying the positive externalities brought about by climate-friendly farming practices** can make it possible to attribute value through private contracts on a voluntary market and by issuing carbon credits that have value on the market.
- 4.7 Issuing carbon credits will require greater cooperation with farmers and will have to take into account the international context. Other countries have already created their carbon credit systems: the price of recently issued Chinese carbon allowances was set at EUR 5.20/tonne in 2021 and could reach EUR 20.5/tonne in 2030 (compared to plans for an average of EUR 30/tonne or even EUR 40/tonne from carbon sequestration in Europe)¹⁰.
- 4.8 It will therefore be necessary to make these European carbon credits attractive in a competitive market, while guaranteeing environmental integrity. Without an economic and political tool, the EU will have difficulties in financing and selling more expensive local sequestered and avoided

¹⁰ https://www.citepa.org/fr/2021_07_b05/.

carbon. It will be necessary to attribute an economic value to positive externalities, such as those of France's low-carbon label¹¹.

- 4.9 France's low-carbon label remunerates both sequestered carbon and avoided carbon emissions (CO₂, CH₄ and N₂O agricultural emissions given in carbon equivalent), enabling all farmers to work towards a low-carbon and agro-ecological transition. Under France's low-carbon label, switching to practices that significantly reduce the use of mineral nitrogen fertilisers is thus rewarded by a certified carbon credit. This is effective because it means that the credit can be used to remunerate activities mitigating N₂O emissions too.
- 4.10 The EESC believes that carbon credits must remunerate a service rendered, namely that of atmospheric carbon sequestration, but they must also support the agricultural sector's low-carbon transition and guarantee the well-being of workers, predictability of careers, and working conditions in this sector.
- 4.11 The EESC therefore recommends investing in carbon credits through a transparent and trusted system that can meet the sector's GHG emission sequestration and mitigation needs. Consolidation of the role of civil society and the social partners, particularly in assessing the social impact of carbon credits, must be taken into account.
- 4.12 As the carbon border adjustment measures are not adequately protecting the agricultural sector, the EESC recommends to also consider the imported products and to ensure that trade deals, both new and existing, compel exporting countries to engage in sustainable carbon cycles.

A socially just low-carbon transition

- 4.13 The EESC warns that there are differences in the level of investment and support that the Member States and farmers can provide when it comes to carbon sequestration. In addition, some Member States are severely affected by the war in Ukraine, which will affect their ability to support future investments in carbon sequestration.
- 4.14 The EESC calls for companies to be given support and guidance in training their staff so that they can make the transition towards the new, low-carbon models of the future. It would therefore be a good idea to include social conditions in State aid for carbon investments so as to avoid poorly paid, unprotected and precarious working conditions in line with ILO conventions. Access to innovation and transfer of best practices must be taken into account.
- 4.15 The EESC emphasises the importance of training and supporting farmers and agricultural workers.

¹¹ <https://www.ecologie.gouv.fr/label-bas-carbone>.

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