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THE REVISION OF THE LULUCF REGULATION: MAKING EUROPE'S COUNTRYSIDE 'FIT FOR 55'

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On 28 March 2023, revisions to two major climate regulations were adopted, keeping the Union on track to reducing its greenhouse gas (GHG) emissions to 55% of 1990 levels by 2030. In a [previous post](#), I explored one of these reforms, that of the [Effort Sharing Regulation \(EU\) 2018/842](#). However, it is worth shedding light on that of its less-known 'sister' [Regulation \(EU\) 2018/841 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework](#), known as the LULUCF Regulation (an acronym of Land Use, Land Use Change and Forestry). Here we can see what the LULUCF regime does, what has changed, and how it supports (and is supported by) other environmental laws and policies of the Union.

The LULUCF Regulation has two main aims: promoting nature-based solutions to mitigating GHG emissions, and reducing the impact of land management and forestry practices on climate change ([Böttcher et al, 2019](#)).

As for the first, nature-based solutions are increasingly seen as the best way to help keep global warming well under 2°C, in line with the 2015 Paris Agreement. These are solutions that make nature our ally in the fight against climate change ([IUCN, 2020](#)). Indeed, while carbon capture

and storage (CCS) technology is at best decades away from being deployed at scale ([IPCC](#), 2022), nature already offers us an unbelievable diversity of ways to absorb carbon dioxide at relatively low cost: planting trees, of course, but also restoring wetlands ([Dinneen](#), 2022), preserving desert ecosystems ([Boyd](#), 2022), even protecting biodiversity like whales ([Chami et al](#), 2019). Healthy soils, for example, can store a vast amount of carbon ([Chabbi et al](#), 2022).

As for the second, just as nature can offer us climate solutions, so too can our use of nature worsen the climate crisis. Deforestation is an obvious example, even if it is relatively rare in Europe today. More generally, the conversion of natural or semi-natural areas to pasture, agriculture, infrastructure (i.e. 'land use change') can have long-term climate impacts. Instead, preventing land use change is one of the most cost-effective ways to reduce greenhouse gas emissions ([IPCC](#), 2022, p. 38).

Emissions in Europe's LULUCF sector have been increasing in recent times; indeed, it has become a GHG source instead of a carbon sink ([Gensien et al](#), 2023). European soils have also been degraded, absorbing less carbon over the last decade ([EEA](#), 2022).

The LULUCF Regulation seeks to reverse these trends by instituting both monitoring and reporting requirements and substantive obligations.

Under the regulation, Member States must account for their GHG emissions and removals attributed to natural and managed land. Due to the complexities and natural variations in this area, states report their net GHG totals in five-year cycles, not annually, as they do for their ESR and Emissions Trading System (ETS) emissions. The first LULUCF reporting period – 2021 to 2025 – had only just begun when the proposed revision was published, so the Commission opted to leave the rules for this first cycle unchanged. More substantial changes will enter into force in the second reporting cycle from 2026 to 2030.

In addition, the 2018 LULUCF Regulation sets out a substantive obligation: the 'no-debit rule'. This requires states to ensure that any extra emissions from land use, land use change or forestry practises are offset by additional CO₂ sequestration. In short, if a state's territory is altered in a way that emits extra GHG or reduces its normal capacity to absorb carbon

(like draining a swamp or clear-cutting a forest), this should be compensated by increasing the rate of carbon absorption elsewhere.

The complexity of this system lies in the fact that, in simple terms, it is concerned with 'extra' emissions and sinks, those that deviate from what would 'normally' be expected for land of a certain category. This requires using modelling to establish a baseline rate of GHG emissions/sinks in relation to each category of land in each state. For forested land, this baseline— called the 'Forest Reference Level' — is based on harvesting and regrowth rates under sustainable forest management practises adopted in a state between 2005 and 2009 ([ISPRA](#), 2019). Other baselines are set for other land categories. However, this system has been criticised for leading to 'hidden deforestation' ([Böttcher et al](#), 2022) and being too opaque.

Although the revision of the LULUCF leaves the no-debit rule and accounting methods in place for 2021-2025, from 2026 it raises the bar. For one, instead of no-debit, the revision sets a Union-wide target of making the LULUCF sector a net carbon sink, removing 310 Mt of CO₂ by 2030. Exactly how much each Member State must contribute to reaching this target will be determined by the Commission in a delegated regulation after the June 2024 European Parliament elections.

While this new target is noteworthy, equally important are the new provisions on how GHG emissions and removals will be calculated.

As mentioned, measuring GHG emissions for the LULUCF sector is far more difficult than for other emitting activities, such as industrial facilities or vehicles ([Petrescu et al](#), 2020). These technical barriers are the reason use of baseline models and accounting methods, such as the Forest Reference Model, has been necessary. This is also why agricultural GHG emissions are split between the ESR and LULUCF sectors. Methane (CH₄) and nitrous oxide (NO₂) emissions from livestock, fertiliser use and rice cultivation, which account for about two-thirds of total GHG emissions from agriculture in Europe ([EEA](#), 2022), are relatively easy to measure and are therefore reported under the 'agricultural activities' category in the ESR. However, about one third of agricultural GHG emissions are more elusive. Primarily in the form of CO₂, they are produced by conversion of

natural lands to cropland or pasture, disturbance of soils (tillage), decay of organic soils and agricultural burning. At the same time, agricultural soils can serve as carbon sinks ([Commission](#), 2021). This fact has made it necessary to use LULUCF accounting methods and models to assess the net GHG emissions/sinks of croplands, which are thus accounted for separately under the category of 'land use' or 'land use change'.

Thankfully, technological progress has significantly expanded the possibilities for accurately measuring GHG emissions from land. The revision of the LULUCF Regulation takes advantage of these developments to simplify reporting requirements. From 2026, Member States will report their actual GHG emissions and removals from LULUCF directly based on remote (satellite) and in-field data.

These technological advances have lessened the need to split agricultural emissions between the ESR and LULUCF accounts. At the international level, the IPPC and UNFCCC have adopted a single category of Agriculture, Forestry and Land Use (AFOLU) for both non-CO₂ and CO₂ agricultural sources ([Verschuuren](#), 2022; [IPPC](#), 2022). Some have suggested that the EU should follow suit ([Verschuuren](#), 2022). In fact, the Commission's initial proposal ([COM\(2021\) 554 final](#) of 14 July 2021) would have done this from 2031, setting a net zero target for AFOLU for 2031 - 2035 and a negative emissions target thereafter. This would have meant that all agricultural emissions needed to be offset or eliminated (e.g., conversion of manure to biogas with carbon capture and storage). However, there is a delicate balance to be struck between addressing AFOLU emissions and safeguarding the security and affordability of the food supply in Europe. The idea of creating a single AFOLU regime was rejected in inter-institutional negotiations, so the division of agricultural emissions between the ESR and LULUCF remains in place, at least for the time being. It is possible that proven success in making LULUCF a net carbon sink by 2030 will make the creation of a single AFOLU regime more feasible in the future.

The achievement of the Union's LULUCF targets is supported by other initiatives to make the countryside of Europe cleaner, healthier and more sustainable.

'Climate-friendly farming', for one, is promoted in the 2023-2027 [Common Agricultural Policy](#) (CAP). With the monitoring required under the revised LULUCF, farmers will have more accurate data on the actual impacts of their 'climate-friendly' farms, in line with the Commission's aspirations for 2028 ([COM\(2021\) 800 final](#)). This will also enable the next CAP to better target its environmental incentives. In addition, improving carbon sequestration in agricultural soils is one objective of an upcoming [proposal for a soils directive](#). This directive, which follows on the 2021 Soils Strategy ([COM/2021/699 final](#)), could set targets for improving the quality of agricultural soils, which would also help States reach their new LULUCF targets.

The revised LULUCF Regulation is also linked to the proposed Nature Restoration Regulation ([COM\(2022\) 304 final](#)). This innovative law would set targets for Member States to restore at least 30% of terrestrial and marine habitats that are not in good condition by 2030. The potential benefits for the LULUCF sector are considerable: the same practices that promote biodiversity also make natural lands better carbon sinks, such as leaving dead wood in forested areas, restoring biodiversity on agricultural lands, and rewetting organic soils (croplands on drained wetlands).

Thus, even if the most ambitious elements in the Commission's proposal were rejected, this should not overshadow the significant progress that has been made. Together with these and other initiatives, the LULUCF Regulation has the potential to make the Union's farms, fields, and forests more resilient and climate-friendly, keeping us on track to reach carbon neutrality by 2050.