

*BIKE is a Horizon 2020 project whose objective is to support uptake of the low ILUC-risk concept for biofuel feedstocks. This series of Briefing Notes seeks to explore issues in the EU policy sphere which may impact low ILUC-risk value chains, and identify opportunities for fostering an enabling policy environment.*

## Soil carbon crediting and the low ILUC-risk system



The EU's Renewable Energy Directive ('RED II')<sup>i</sup> recognises the potential for biofuel feedstock production to enhance the carbon stock of agricultural soils as a measure for mitigating greenhouse gas emissions. Specifically, the RED II's formula for calculating biofuels' lifecycle emissions includes an ' $e_{sco}$ ' term for "emission savings from soil carbon accumulation via improved agricultural management"<sup>ii</sup>. These improved agricultural management practices include<sup>iii</sup>:

*"Shifting to reduced or zero-tillage, improved crop/rotation, the use of cover crops, including crop residue management, and the use of organic soil improver (e.g. compost, manure fermentation, digestate, biochar, etc.)"*

Each of the practices in this list also corresponds to a low ILUC-risk 'additionality measure' which could qualify biofuel feedstock for low ILUC-risk certification<sup>iv</sup>. This Briefing Note explores the linkages between

low ILUC-risk and carbon farming practices, and suggests ways in which these linkages can be leveraged to maximise impact for project developers.

## Land-based carbon in EU policy

The  $e_{sca}$  term allows producers of crop-based biofuels to reduce their reported carbon intensity; under the existing RED II, this can be a way to meet increasingly stringent greenhouse gas reduction thresholds. Going forward, the proposed 'Fit for 55' amendments to RED II would further elevate the importance of  $e_{sca}$  by replacing current obligations to supply a certain fraction of transport energy from renewable sources with obligations to deliver reductions in greenhouse gas intensity. If adopted, demonstrating soil carbon increases would bring further compliance value to fuel suppliers.

However, the  $e_{sca}$  term has no impact beyond the RED II's renewable energy mandates, as it doesn't feature in national-level emissions inventories. Land-based greenhouse gas emissions are instead the domain of the LULUCF (Land Use, Land Use Change, and Forestry) Regulation<sup>v</sup>, which establishes carbon removal targets for Member States, and provides a framework for reporting progress towards these targets. But this national-level accounting is insensitive to the farm-scale soil management practices captured by  $e_{sca}$ ; or, in the words of the Sustainable Carbon Cycles Communication (henceforth 'Carbon Communication')<sup>vi</sup>,

*"the LULUCF Regulation does not establish direct incentives at the level of land managers to increase carbon removals and protect carbon stocks"*

This creates a disconnect whereby soil carbon improvement is not equally valued across the policy landscape.

## Building soil carbon value

The Carbon Communication proposes to fill this gap by formally establishing support for 'carbon farming' practices, including "catch crops, cover crops, conservation tillage, reducing soil erosion and enhancing soil organic carbon on degraded arable land". These are strongly aligned with the  $e_{sca}$  practices noted by RED II, and are a key element of many low ILUC-risk practices aimed at productivity improvement and land rehabilitation.

More recently, the Commission has proposed a Carbon Removal Regulation<sup>vii</sup>, seeking to establish a robust certification system for carbon removals. This will now be discussed by the European Parliament and the Council before being finalised; in parallel, the Commission's expert groups will develop more specific certification methodologies. The proposed regulation identifies three pathways for delivering value to carbon farmers<sup>viii</sup>:

*"Farming practices that remove CO<sub>2</sub> from the atmosphere should be rewarded, either via the Common Agricultural Policy (CAP) or other public or private initiatives."*

Here, the CAP is offered as a support pathway for "covering upfront investments and promoting relevant practices at farm level" – where 'relevant practices' can be read as 'additionality measures' in the low ILUC-risk context. Different project types will require a different balance of CapEx and OpEx support, and both may be covered by this wording (though it would help to clarify the types of OpEx support which might be made available). In future, promotion of soil carbon farming could be achieved through integration of credits from carbon removals into mandatory or voluntary carbon markets: this has proved to be an effective mechanism to push decarbonisation in other sectors (e.g. through the Emissions Trading Scheme), and would allow inflows of funding from polluting sectors into the carbon farming space.

The Carbon Removal Regulation is focussed on the certification framework and methodological principles, but not on explicitly establishing support mechanisms to bring value to carbon removal activities. Instead, this is identified as a 'key action' for a later date, along with a suggestion that support could initially be provided through the common agricultural policy, LIFE programme and/or cohesion funds. For now, any valorisation of soil carbon would rely on Member State action and on the sale of credits in the voluntary carbon markets.

An advantage of an EU-recognised carbon removals system is that it could allow Member States to leverage carbon farming in their national emissions inventories – notably in the LULUCF Regulation. Under such a system, the carbon farming credits generated by project operators would not only bring value to those projects, but would simultaneously be counted towards national targets. Member States would then be incentivised to support domestic carbon farming projects through their CAP strategic plans and other national programmes.

However, the eligibility conditions for counting carbon removals under the LULUCF Regulation would have to be thought through carefully, as introducing a potentially large new source of credits into the system could swamp existing targets and undermine incentives for participation. Two possible solutions would be: (i) to simultaneously strengthen LULUCF targets to account for the new compliance options; and/or (ii) significantly expand the scope of the proposed regulation by balancing the new source of credits against carbon *emissions* from land areas with poor soil management.

Other implementation details to consider include how to account for the long-term stability of soil carbon sinks, and how cross-border trade and investment in carbon farming projects may create ambiguities in who 'owns' the emissions reductions. The LULUCF Regulation addresses both of these issues, making it an attractive framework for integrating carbon farming legislation.

## Credits and baselines

The Carbon Removal Regulation imposes on the Commission an "objective of minimising administrative burden for operators, particularly for small-scale carbon farming operators"<sup>ix</sup>. Notably, it seeks to avoid duplication of auditing effort by building on procedures developed under RED II. This includes two components of the  $e_{sca}$  calculation: (i) measurement / modelling protocols for determining soil carbon stocks; and (ii) rules for constructing the counterfactual 'baseline' – i.e., the change in soil carbon arising from background trends which is not eligible to earn credits.

RED II treats baseline soil carbon as a static quantity under business-as-usual management practices, with a value to be determined from "measurements of soil carbon stocks at farm level before management practices change" to an 'improved' regime<sup>x</sup>. The Carbon Removal Regulation diverges from the RED II by adopting a *dynamic* baseline: a resting background *rate* of carbon removals (or emissions), rather than a steady-state soil carbon content. Such background rates are practically impossible to measure on the short time-scales required for a useful certification system; the Carbon Removal Regulation avoids this issue by specifying that<sup>xi</sup>:

*"The baseline shall correspond to the standard carbon removal performance of comparable activities in similar social, economic, environmental and technological circumstances and take into account the geographical context."*

Elaboration of what this entails is expected in future Commission delegated acts<sup>xii</sup>, but the implication is that a carbon farming project will have to use some authoritative source in order to establish the baseline<sup>xiii</sup>.

Such a framing will inevitably raise issues of fairness, since geographical and weather variability means that some projects will fall below the baseline in spite of genuine improvements, while others will be able to win credit for business-as-usual performance. One way to reduce the role of these natural fluctuations, and more accurately target incentives towards genuinely beneficial projects, would be to specify the standard baselines with the maximum possible geographical resolution. For economic operators, this would mean that the default expectation is to employ local or even project-specific baselines rather than broad standards. In parallel, the Commission could work alongside official land surveys (such as the Farm Sustainability Data Network<sup>xiv</sup>) to gather relevant data at the farm level, and to facilitate its access and use by stakeholders applying for carbon credits.

There are also issues of carbon stability to be considered when certifying changes in soil carbon stocks – effective crediting systems will need to consider how to treat potentially transient changes in soil carbon levels as compared to more persistently stable carbon stock changes such as can be provided by application of biochar.

These and other practical realities arising from the nature of the baseline, and from the local conditions which influence credit generation, will hopefully be taken into account as the Commission develops its soil carbon framework. Ideally, these rules and those of RED II will be developed in tandem to establish a maximally coherent set of auditing requirements for biofuel feedstock producers.



Former abandoned field in Italy, where digestate was used to improve fertility and soil quality.

## Conclusion

The European Union is looking to make carbon removals, including those delivered by sustainable nature-based solutions, an important policy goal. If expansion of the carbon farming sector is to be achieved on a timescale relevant to the Union's targets for 2030 and beyond, it will require initiatives that can be promptly implemented and that will deliver predictable value to farmers and other economic operators.

Many agricultural models intended to deliver additional low ILUC-risk biomass create parallel benefits for soil carbon stocks. This Briefing Note calls on EU institutions to support this complementarity in the future development of the Carbon Removal Regulation and the RED II. National governments and feedstock producers could then derive a three-fold benefit from upgrading their land management practices, as they would be able to stack incentives from: (i) low ILUC-risk certification, (ii) RED II's  $e_{sca}$  factor, and (iii) whatever



carbon farming incentives ultimately arise alongside the Carbon Removal Regulation framework.

Explicit recognition by the Commission of the conceptual overlaps between these three points, and conscious alignment of their legal rules and terminology, would considerably streamline administration and monitoring, and present a more coherent set of requirements to farmers. In particular, there is an opportunity for the Commission to develop forthcoming protocols for carbon removal audits with reference to those already developed in RED II, and, for the sake of practicality, allow bioenergy projects to seek carbon removal certification using a single audit process. This may help to maximise the number of projects delivering soil carbon sequestration.

<sup>i</sup> Directive (EU) 2018/2001 (henceforth 'RED II').

<sup>ii</sup> RED II, Annex V, Part C, Point 1(a).

<sup>iii</sup> Commission Implementing Regulation (EU) 2022/996 (henceforth 'Implementing Regulation'), Annex V.

<sup>iv</sup> Implementing Regulation, Annex VIII, Part A, Point 2, Table 1.

<sup>v</sup> Regulation (EU) 2018/841 (henceforth 'LULUCF Regulation').

<sup>vi</sup> Commission Communication COM 2021/800 (henceforth 'Carbon Communication'), §2.1. Some quotations in this document have been lightly edited for flow, e.g., abbreviated without ellipses, or changing the tense of a verb.

<sup>vii</sup> Commission Proposal for a Regulation COM 2022/672 (henceforth 'Carbon Removal Regulation').

<sup>viii</sup> Carbon Removal Regulation, Recital 16. See also Carbon Removal Regulation, Recital 20, on extension services.

<sup>ix</sup> Carbon Removal Regulation, Article 8, Paragraph 3.

<sup>x</sup> Implementing Regulation, Annex V.

<sup>xi</sup> Carbon Removal Regulation, Article 4, Paragraph 5. See also Recital 7.

<sup>xii</sup> Carbon Removal Regulation, Recitals 18 and 19.

<sup>xiii</sup> An exception to this rule is that, where "duly justified", a project may submit its own carbon removal baseline. Nevertheless, the implication of the text is that most projects will be subject to (and indeed are incentivised to use) standardised performance baselines.

<sup>xiv</sup> <https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/conversion-farm-sustainability-data-network-fsdn>

