

Integrating agricultural emissions into the EU ETS: legal design considerations

Written by Jonathan Verschuuren, Floor Fleurke and Mike Leach. This policy brief builds on the article 'Integrating agricultural emissions into the EU ETS: legal design considerations' (to be submitted January 2024).

Headlines

Introducing stricter legal instruments to reduce agricultural GHG emissions and to increase carbon removal on agricultural land seems inevitable for the EU to achieve its commitments under the Paris Agreement. We assessed whether, and under what conditions, the EU ETS has a role to play in forcing the agricultural sector to reduce their GHG emissions. We did an ex-post assessment of three of the very few instances in the world of regulatory and market-based approaches to integrating agriculture into emissions reduction schemes in Canada, California and Australia, followed by an ex-ante assessment of inclusion of agricultural emissions under the EU ETS, either indirectly, through allowing on farm offsets for example for increased sequestration, or directly, through requiring farmers and/or other actors in the agricultural sector to surrender allowances for their direct emissions. We mainly focused on legal considerations.

Bringing methane and nitrous oxide emissions from livestock keeping and synthetic fertilizer use respectively under the EU ETS, through requiring meat and dairy processors and synthetic fertilizer producers to surrender allowances for the on-farm emissions associated with their products is the most viable option. In addition, a voluntary, but highly regulated, carbon credits scheme could be introduced to stimulate farmers to reduce their own emissions and transition to a net zero and overall more climate resilient and environmentally friendly farm. Such credits can be offered to the private carbon market and be bought up by Member States governments and the European Commission.

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Key messages and recommendations

- Problem: agricultural GHG emissions are largely unregulated and need to be reduced in order to achieve the Paris Agreement climate goals
- Recommendation 1: Bring methane emissions from livestock and nitrous oxide emissions from fertilizers under the EU ETS
- Recommendation 2: Introduce a voluntary, highly regulated, carbon credits scheme farmers to reduce their own emissions and transition to a net zero and overall more climate resilient and environmentally friendly farm.
- Recommendation 3: Embed this in a broader policy approach to help farmers transition to sustainable agriculture

Background

In the EU, the reduction of agricultural greenhouse gas (GHG) emissions is primarily targeted by Regulation 2018/842/EU on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement Effort Sharing Regulation (ESR) and Regulation 2018/841/EU on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework (LULUCF Regulation), as well as by the Common Agricultural Policy (CAP). So far, these have not been successful, or even a complete failure. A European Environment Agency (EEA) [report](#) of agricultural GHG emissions in the EU shows that emissions only show a slight decreasing trend and that national targets for 2030 will not be met without either much greater reductions in other sectors, or greater reductions in agriculture. A European Court of Auditors (ECA) [report](#) from

2021 showed that the CAP, between 2014 and 2020, provided €100 billion to farmers to reduce their emissions. These subsidies, however, led to zero percent decrease of emissions, leading the ECA to conclude that the polluter pays principle is not applied to agricultural emissions.

With ambitious overall mitigation targets adopted, and codified in the EU Climate Law, and a fitness check of the polluter pays principle by the European Commission following the ECA 2021 report on the polluter pays principle, attention is now gravitating towards the EU Emissions Trading System (ETS). The EU ETS is the EU's most important mitigation instrument currently covering 37 percent of the EU's GHG emissions, mostly from industry and power generation. According to the EEA's projections, ETS emissions are expected to decrease by between 41 and 48 percent by 2030, and by between 55 and 62 percent by 2040, relative to 2005.

So far, agricultural GHG emissions were not included in the EU ETS, primarily because the European Commission considered agriculture to be a unique economic sector in that it is simultaneously both a victim of climate change as well as a contributor to it through its GHG emissions. As a consequence of this unique position, the Commission deemed the CAP to be more appropriate than the ETS. That position seems no longer attainable given the developments just described and the question arises whether, and under what conditions, the EU ETS has a role to play in forcing the agricultural sector to reduce their GHG emissions.

Learning from experiences around the world

No pricing of direct agricultural GHG emissions

Agricultural GHG emissions currently are not part of an ETS or similar mechanism in the countries we researched, nor in other countries that have an ETS, at least not as a pricing mechanism under which agricultural producers have to pay for their emissions. China had announced that it would include agricultural GHG emissions into its nationwide ETS, but this plan was abandoned. In New Zealand, agricultural GHG emissions formally are included in the ETS, but the requirement for farmers to surrender allowances equal to their emissions was suspended. In 2022 it was announced that it would not be until 2025 that agricultural GHG emissions would be priced, either under the ETS or under a separate pricing system. With the exception of New Zealand, where more than half of all GHG emissions are from agriculture, integrating agricultural emissions into an ETS has not been seriously considered because emissions trading emerged as a policy option from the Kyoto Protocol and the Kyoto Protocol did not focus on agricultural emissions. Put differently, the agricultural sector was never intentionally excluded from the EU ETS's original design for any explicit political or scientific rationale, since it was never seen as an aspect of its Kyoto obligations to begin with. Although one should anticipate and address both the political pushback as well as several technical design issues that any integration of agricultural emissions with the ETS would produce, we concluded that in the end, on its face, doing so poses no challenge or obstacle to the regulatory design logic of the ETS.

Voluntary carbon credits for national and global carbon markets

All countries we researched have an offset system only which mainly aims at rewarding farmers for carbon removals through increased sequestration and to some extent, for example in California, also for emission reductions. These offset systems are either linked to the ETS (USA, Canada) or to a system where regulated industries have to achieve a legislative baseline (Australia). In both types of systems, regulated entities, such as industries and energy producers, can buy carbon credits generated by farmers to partly offset their own emissions. In Australia, farmers can sell their credits directly to the government. In the countries with an ETS, farmers can choose to sell their credits directly to the regulated entities within the ETS. In all countries, farmers can also choose to sell their credits on the voluntary carbon market. The private carbon market, on which a range of business corporations and other private entities, such as airlines, seek to buy carbon credits to compensate for their GHG emissions is a rapidly growing market, also for carbon credits from agriculture. In the words of one of our interviewees: 'for credits from the ag sector, the sky is the limit'. In California, for example, only 8% of the credits are sold within the ETS. Hence, it is the private carbon market that provides the most profitable opportunities for farmers. Even though these systems are voluntary in nature, in the sense that farmers can opt to participate, government monitoring, reporting and verification (MRV) rules apply to ensure that the removed carbon emissions are additional and real and can be verified. That is why these are called regulated carbon markets, even though they are voluntary systems that lead to carbon credits offered to private

entities. We found that regulated carbon markets are strongly favoured over completely voluntary markets, without any government MRV regulation or oversight in place, since the latter are thought to often provide unreliable credits. As a consequence, the price offered to credits from regulated offset systems is much higher than those from unregulated systems. In an attempt to stimulate the generation of high quality carbon credits, the European Commission recently published a legislative proposal for an EU carbon removal certification framework.

Regulated carbon markets for farmers: additionality, permanence and MRV

Key elements in the laws and regulations in the researched countries, as well as the EU proposal, are 'additionality', 'permanence' and 'measuring, reporting and verification' (MRV). In principle, carbon credits should only be granted to activities or projects that lead to carbon removals that are additional to those that would take place anyway without incentives (legal or otherwise). In other words, farmers seeking to generate carbon credits will need to implement technologies or new production practices that reduce or sequester emissions beyond 'business as usual'. Removals also need to be long lasting, i.e., rules have to avoid that carbon sequestered is released again into the atmosphere. This includes, for example, rules to mitigate for the release of carbon through wildfires. The science underlying measuring carbon removals is highly technical and complex, thus the majority of rules in the systems studied deal with MRV procedures and methods. In order to be certified, removals need to be measured (and measurable) using specified methodologies, then these measurements must be reported and then verified by independent bodies. The EU proposal to regulate the voluntary carbon market adds an additional element: sustainability. Any activity or project seeking recognition as a fungible carbon credit must have a neutral impact on or generate co-benefits for a range of sustainability objectives (such as climate change adaptation, protection of water and marine resources, protection and restoration of biodiversity and ecosystems).

All of these rules are in part generic and in part specific for various types of activities. In the countries we researched several methodologies or protocols were developed for specific types of agricultural activities to ensure compliance with the above rules. Examples of methodologies or protocols are those on soil carbon sequestration and beef cattle herd management in Australia, conservation cropping, nitrogen fertilizer efficiency, and beef feedlot operations in Alberta, and capturing and destroying methane from manure management system in California. Once a carbon removal activity specified in a protocol is recognized as 'business as usual' (in the sense that a practice or technology becomes commonplace in the sector, measured by a certain percentage threshold), then a protocol is terminated, as for example happened in the case of conservation cropping in Alberta (in 2021) and in the case of destruction of methane from piggeries using engineered biodigesters (in 2020). The logic for doing so is that once practices cease to be 'additional,' then rewarding them can no longer be justified.

Stakeholder experiences with regulated carbon markets for the agricultural sector

Despite the recent bad publicity on bogus carbon offsets (most famously in connection to avoided deforestation), the agricultural stakeholders we engaged with, generally, were positive about the robustness of the regulated carbon credit schemes for agriculture, both in terms of additionality, permanence and MRV. They all saw potential for upscaling carbon farming activities, especially with a view to the high demand of credible carbon credits on the private market. However, many also voiced considerable constraints and risks in converting farms to carbon farming uses, especially when prices for carbon credits is relatively low. California in particular is an outlier as here the regulatory constraints are considered too high for farmers to engage in carbon farming activities. This shows that regulators need to strike a balance between assuring credibility and robustness and encouraging farmer participation. In Canada and Australia, where farmers are much more active on the carbon market than in California, aggregators or carbon agents have, for a large part, taken up the administrative obligations, especially with regard to MRV, and with regard to the actual trading of the credits. By relieving the farmers from the labour intensive, time consuming and often complicated administrative tasks involved in the carbon farming scheme, these carbon consultants play a very important middleman role in making the scheme work, and finance themselves by taking a significant percentage of the proceeds as payment for their services (up to one third of the income generated through selling carbon credits in some cases). As a consequence of the administrative hurdles presented by highly complex and technical regulatory requirements, farms often need to hire a consultant in order to deal with economies of scale. For farmers, the economics have

to make sense: the additional income per hectare has to be higher than the costs involved in taking the carbon removal measures. In Australia, recent efforts to simplify methodologies (especially through introducing less labour and cost intensive measuring methods) coupled with the rising carbon price on the private market seems to lead to greater uptake of the carbon farming scheme by small family farms. At the same time, such carbon agents also have the capacity to bundle together creditable actions and activities of dispersed farms into single credits that are more easily sold to emitters in need of them (1 credit for 10 tons of CO₂e is easier to buy than 100 credits of 0.10 tons of CO₂e).

A limitation that was raised, both in Canada and Australia, is how protocols for creditable activities almost always focus on a specific activity, such as conservation cropping, or soil carbon sequestration, or rotational grazing. This does not allow a farmer to develop an integrated approach aimed at reducing carbon emissions throughout all operations on the entire farm. Several interviewees advocated for governments adopting ‘whole of farm’ approaches instead, which would allow for a broader and deeper transition into sustainable agriculture. This would be more efficient than looking only into one source of potential carbon removals and could also increase the number of carbon credits generated per farm.

Finally, we found that co-benefits connected to emissions reductions or sequestration are often important for participating farmers. Activities that remove carbon from the atmosphere (and thus generate income), can also be beneficial to their farm operations by making them more resilient (healthier soils as a consequence of soil carbon sequestration for example) and for fostering biodiversity conservation. When recognized, this can make the prospect of switching to farming carbon more attractive to farmers. The European Commission seems keen on stimulating this focus on sustainability co-benefits in their proposal for an EU carbon removal certification framework, as mentioned above.

Design options

Rewarding farmers for on farm offsets/carbon removals under the EU ETS

First and foremost, we found that there is not much political appetite for allowing ‘carbon offsets’ under EU law. Officials of the European Commission even told us it was best to avoid using the word ‘offsets’ at all, largely because of the many scandals that have surfaced in the past that have given the impression that offsetting carbon emissions (like through tree planting projects) is unreliable and do not, in fact, really remove promised amounts of carbon from the atmosphere. For most on-farm techniques and practices of carbon sequestration, the permanence of any carbon sequestered is extremely difficult to guarantee, and therefore presents an immediate challenge for integration into the ETS. Sequestered carbon in agricultural soils, for example, can be easily released into the atmosphere when a farmer changes tillage methods at some later point in the future. Our comparative research, however, showed that by embedding legal requirements in protocols or methodologies that aim at achieving permanence, for example for a fixed period of 25 or 100 years as is the case in Australia, such backsliding can be reduced. In addition, rules can also adopt safe margins for additional sequestration that is not rewarded so as to compensate for unavoidable future losses that might occur (for example through wild fires).

These are important findings, especially because they exist in contrast to the apparently wide political support for the alternative approach of simply paying farmers and other landowners to compensate for their sequestration efforts. In brief, the political algorithm in its simplest form is: offsetting is bad, but rewarding is good. At the same time, however, direct payments mechanisms to reward climate-friendly investments on farms already have a less than illustrious record under the CAP, achieving a net zero impact on reducing GHG emissions as the ECA has shown. One of the shortcomings of using the CAP for this purpose is that this instrument is an income support instrument *au fond*, and not a specially designed climate change mitigation instrument. As such, when adjusted to suit this new purpose, it lacked sufficient focus on the necessary concerns of additionality, permanence, and MRV that all purpose-built climate law instruments contain.

In our view, rather than tailoring the CAP to do this work poorly, it would make more sense to incorporate an offsets element (or ‘rewards’ element if one prefers that terminology) in the EU ETS instead. Doing this could make it possible to swap certain kinds of carbon credits produced through agricultural processes that meet stringent and specific regulatory criteria for emissions allowances under the EU ETS. A precedent for this can be

found in how Clean Development Mechanism credits could be swapped for allowances in the past, although in this case there would be far more scrutiny and control to guarantee the quality of these credits. Most of the generic criteria that need to be established in the specified protocols for these kinds of credits (such as: additionality, permanence and MRV) are already present in the current proposal for an EU carbon removal certification framework. Thus, from a regulatory perspective this is not a complicated matter, although it is certainly true that there would be substantial additional administrative requirements involved for participating farmers. Because of this complexity, it would be important to offer this as a voluntary option to interested farmers only. Stimulating carbon offsets on farms has as a complementary benefit that it can be designed so as to also achieve adaptation, food security and biodiversity benefits. Protocols containing rules for specified types of activities that would be allowed under a new voluntary certified on-farm credits mechanism in the EU ETS have been designed and adopted in the countries we researched, especially in Canada and Australia. These could serve as models and points of departure to be adapted to the European context.

Pricing agricultural GHG emissions under the EU ETS

Several of the above considerations would also be relevant should agricultural GHG emissions ever be brought under the ETS directly, in the sense of not just rewarding farmers for carbon removals, but also pricing GHG emissions associated to agricultural production. Measuring, reporting and verifying emissions would also be needed for the pricing component of bringing agricultural GHG emissions under the ETS. There are, however, also many profound differences between MRV used for verifying carbon credits and those used for verifying compliance with the ETS. First and foremost, in this case pricing emissions would not be voluntary: allowances would have to be surrendered for measured emissions from regulated farming activities. For large livestock farms with high levels of methane emissions, the prospect of having to buy allowances on the European carbon market would be very costly, and can be expected to drive up the price of animal sourced food products like meat, dairy and eggs for consumers. Such an impact, while painful for those seeking to maintain current consumption patterns, would generate a positive incentive to transition such patterns away from the current over-concentration on animal sourced food products. However, minimizing the negative impact of this would require it to be supported by a wider food transition policy. For example, some form of border tax adjustment, similar to that of the CBAM Regulation, would also be required to prevent the substitution of expensive European meat and dairy products with cheaper imported products.

Which agricultural entities would be the most optimal for inclusion in the EU ETS: individual farms, or upstream or downstream producers?

Bringing any installation under the ETS brings many consequences for its parent company. As a newly regulated entity, only will the company have to acquire the required number of allowances to stay in compliance, it will also have to comply with a wide range of often complex administrative requirements. Complying with such requirements can be very difficult for some agricultural entities, especially small to medium sized family farms, simply for lack of capacity. Also from the perspective of the competent authority, it seems unlikely that the national emissions authorities in the member states would be able to monitor and enforce the implementation of the rules for extremely large numbers of farms. Consider, for instance, at this moment there are approximately 6.2 million livestock farms in operation in the EU. Compared to the 11,000 installations currently covered by the ETS, this number alone already shows that bringing all farms under the ETS would be mission impossible. Furthermore, since the large majority of the total number EU farms are small in size, doing so would be quite inefficient as well. Despite this, however, there are also advantages to targeting farms as regulated entities, most importantly for the impetus it would provide to farmers to convert their holdings into more sustainable farming businesses. An alternative option that has been proposed by some experts to achieve a similar effect would be to simplify farm level carbon pricing by basing it on metrics like the amount of fertilizers purchased and the number of livestock they hold.

Overall, however, there seems to be wide support for not targeting farms but downstream food processors, especially meat and dairy processors (slaughterhouses, meat and dairy industry). In contrast to farms, these installations are typically owned by large multinational corporations that are active throughout the EU and that have business structures that are much more similar to the industries that are already regulated under the EU ETS. If regulated by the ETS, these corporations would then be charged for the on-farm methane emissions associated with the products that they process and later sell. At this more generic level away from the individual

farm, it would make sense to adopt default emission data based on the number and species of livestock products processed. While such a default approach would not incentivize individual farmers to switch to low-emitting feed, it would produce a price incentive to consumers to switch preferences to non-animal sourced products. As noted earlier, in order for such an approach to work, it would need to be encased within a broader food transition policy package.

For tackling nitrous oxide emissions resulting from cropping systems, upstream agricultural input suppliers could be targeted instead, such as producers and suppliers of synthetic fertilizers. Industries that produce ammonia and nitric acid already fall under the EU ETS, but not as far as on-farm emissions are concerned (tier 3 emissions). It could also be possible to make fertilizer producers responsible for emissions associated with the downstream use of their products. In either case, this would make using fertilizers more expensive and could thereby indirectly incentivize individual farmers to alter their production methods to reduce their dependence on fertilizer inputs.

What would be the relationship with the other instruments: CAP, LULUCF, and ESR?

Regulating agricultural GHG emissions under the ETS would impact other instruments that are currently used to address agricultural GHG emissions. Currently, agricultural emissions either fall under the ESR or the LULUCF Regulation. The ESR distinguishes the emissions it covers from those that fall under the ETS by setting a strict boundary between the two, meaning that in practice the emissions of certain economic sectors are either regulated under the ETS or under the ESR. Currently, agricultural emissions as a whole fall under the ESR's general Member State targets for emissions reductions. As such, if a legislative change brings certain agricultural GHG emissions under the ETS instead, they would then no longer be considered part of those Member States targets.

In contrast to the ESR, the LULUCF Regulation is constructed around collective targets for the land use sector and currently excludes almost all livestock emissions. In 2022, the European Commission proposed to include these emissions in a revised version of the regulation, but this was later dropped. As such, if livestock emissions were ever brought directly under the ETS, then it would no longer be necessary to also try to regulate them under a revised version of the LULUCF Regulation. Furthermore, introducing a voluntary carbon credit system as described earlier would also not have a negative impact on the LULUCF Regulation because it would actually help Member States to achieve the regulation's collective goals.

Finally, in the event of agricultural emissions coming under the ETS, the CAP would be able to remain in place as it is, since the instrument is not linked by law to the obligatory climate targets of the EU. However, the presence of the CAP could present some risk of double payments that could have the effect of neutralizing the incentives that the ETS would be hoping to produce. In order to avoid double payments, it would therefore be useful to stop using the CAP to fund agricultural carbon removal projects would also receive funding under a carbon removal credits mechanism. More in general, there was broad support among stakeholders and experts to recycle the money raised through the ETS to farmers to help them transition to a sustainable farm.

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