

Addressing greenhouse gas emissions from agriculture and LULUCF in the context of the 2030 EU climate and energy framework

Fields marked with * are mandatory.

Consultation on the integration of agriculture, forestry and other land use into the 2030 EU climate and energy policy framework

The European Commission has prepared this document as the basis for a public consultation. It is addressed to citizens, stakeholders and experts in the field of agriculture and forestry. Its purpose is to collect experiences, suggestions and opinions related to the role of these areas in the 2030 EU climate and energy policy framework. The consultation seeks input on questions concerning policy alternatives to be discussed in the light of the European Council conclusions in October 2014.

This consultation is launched in parallel with the "Consultation on the preparation of a legislative proposal on the effort of Member States to reduce their greenhouse gas emissions to meet the European Union's greenhouse gas emission reduction commitment in a 2030 perspective."[\[link\]](#)

0. Registration

*0.1 What is your profile?

- Business/Farmer
- A small and medium-sized enterprise
- Trade association representing businesses/farmers
- SME business organisation
- Government institution/regulatory authority
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- Other

***0.2 Please enter the name of your business/organisation/association/etc.:**

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***0.4 If relevant, please state what sector you represent:**

- Agriculture
- Forestry
- Other

0.5 If you chose "Other", please specify:

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*0.6 Please indicate your country of residence or activity:

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*0.7 The results of this stakeholder consultation will be published unless stated otherwise. Can we include your replies in the publication?

- Yes
- No
- Yes, except (please specify below)

If you chose "Yes, except", please specify:

0.8 Register ID number (if you/your organisation is registered in the Transparency Register):

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1. INTRODUCTION

In October 2014, EU leaders agreed upon a greenhouse gas emissions reduction target of at least 40 % by 2030 compared with 1990 together with other building blocks of the 2030 policy framework for climate and energy, as proposed by the European Commission in January 2014. [\[link\]](#)

This 2030 framework aims to make the EU's economy and energy system more competitive, secure and sustainable and also sets a target of at least 27 % for renewable energy and energy efficiency savings by 2030, respectively.

This paper aims at consulting EU citizens and stakeholders on the main policy options for including agriculture, forestry and other land use into the 2030 greenhouse gas mitigation framework, taking into account the multiple objectives of this sector:

- the need to ensure coherence between the EU's food security, climate change and energy objectives;
- and the need to examine the best means of encouraging the sustainable intensification of food production, while optimising the sector's contribution to greenhouse gas mitigation and sequestration, including through afforestation.

At present, the EU is on track to fulfil its international and EU level commitments to reduce greenhouse gas emissions by 2020 by 20 % compared with 1990 levels. Since 1990, emissions in the energy, agriculture, industrial processes and waste sectors have decreased. Throughout the same period, land use, land use-change and forestry (LULUCF) have remained a net sink [1], having absorbed more carbon dioxide (CO₂) from the atmosphere than they emitted.

[1] The activity, process or agent that removes a greenhouse gas from the atmosphere is called "sink".

2. MEETING MULTIPLE OBJECTIVES OF AGRICULTURE, FORESTRY AND OTHER LAND USE

Agriculture, forestry and other land use serve multiple objectives, such as the production of food, feed, raw materials and energy, raising environmental quality and contributing to climate mitigation and adaptation. Counterbalancing some of the EU's emissions, these sectors can absorb carbon dioxide from the atmosphere through photosynthesis; the carbon dioxide is then stored as carbon in vegetation and subsequently also in soils.

The sectors contain two very important carbon stocks: forest biomass and soil organic carbon. Different land uses and management practices in forestry and agriculture can significantly raise or limit emissions, enhance removals, and/or increase climate resilience. For example, livestock production, fertiliser use and deforestation produce greenhouse gas emissions, while the maintenance of permanent grasslands, afforestation or agroforestry measures can remove CO₂ from the atmosphere or reduce emissions.

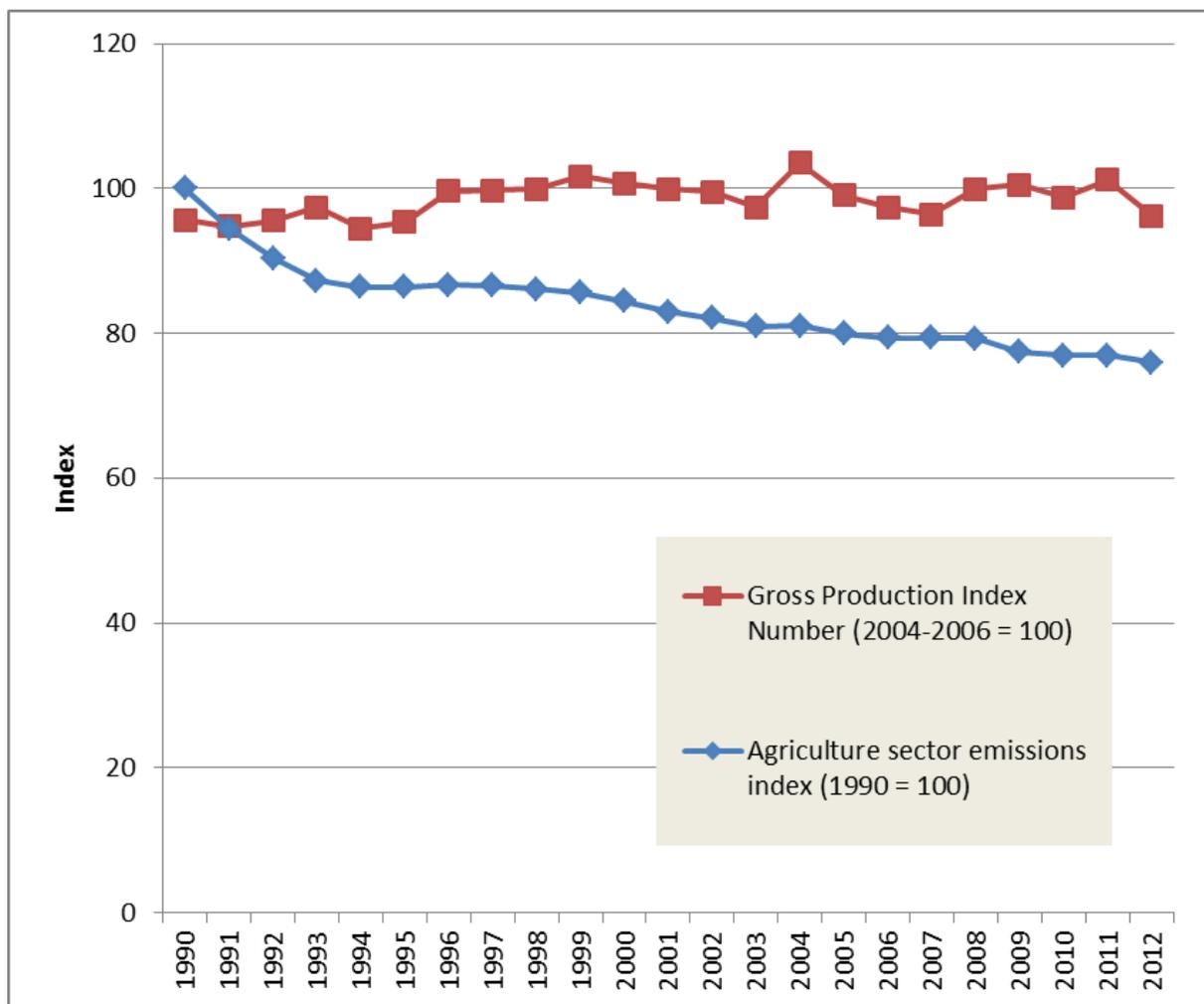
Land is a scarce resource. Different land uses can be seen as a set of competing but potentially compatible interests:

- permanence and resilience: the long-term stability of carbon pools (for the purposes of carbon sequestration, biodiversity protection and ecosystem preservation and thereby conservation of natural resource production potential);
- security of food production: a key factor given that the world population is expected to grow by 30 % by 2050; and
- enhancement of the provision of renewable biomass for energy or material substitution.

In order to successfully balance these competing interests, it is important to develop an integrated approach to the management of land use in climate policy. The overarching objective should be to optimise actions on land, i.e. to maintain food security while fully exploiting the mitigation potential of different land uses, optimising the protection of nature and biodiversity and providing a basis for green growth and rural development. There is also an external dimension: emissions from land use change, such as deforestation in third countries, could be reduced through more efficient and integrated land use management inside the EU, thereby reducing the dependence on imports.

Increasing agricultural productivity can happen with reduced emissions and can contribute to sustainable agricultural policies. For instance, between 1990 and 2014, while agricultural production was maintained or even slightly increased, the sector's emissions of non-CO₂ greenhouse gases (methane (CH₄) and nitrous oxide N₂O)) declined.

Figure 2.1: Non-CO₂ emissions and the volume of production in the agriculture sector, 1990-2012



Source: Food and Agriculture Organisation and European Environment Agency (EEA)

Increased use of biomass and wood products can also lower emissions in other sectors through energy and material substitution, for instance of fossil fuels in energy production, and of steel and cement in construction. Advancing the bio-economy is therefore a promising avenue from a climate point of view. However, the increased use of biomass for the production of renewable energy and for material substitution shifts emissions from the energy sector to the land use sector, in particular to forest management. While emissions savings from the bio-economy produce visible emissions reductions in certain areas of the EU's climate policy, they can be associated with increases in forestry emissions. The future climate framework needs to be constructed in such a way that the overall climate benefit is assessed in an integrated manner. A proper accounting framework at the level of Member States is therefore essential to adequately reflect changes in land use and management, especially in forests. Furthermore, increased burning of biomass can also affect air quality.

1. In your view, which of the multiple objectives of agriculture, forestry and other land use will gain most in relative importance by 2030?

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The long-term stability of carbon pools for carbon storage, biodiversity protection and ecosystem preservation is key. Forest biomass and soil organic carbon are vital carbon stocks and should be maintained and enhanced. Yet emissions from forests look likely to rise and pools fall due to more harvesting for biomass energy - as do emissions from agriculture for bioenergy crops. Far better sustainability criteria and accounting rules will be needed to prevent this. Forests should not be seen as just a source of biomass. In line with the REDD+ goals increasing forest cover will deliver even greater CO2 savings. Mitigation is particularly needed in the agricultural sector, cost effective and feasible options do exist. This requires a shift of policy focus from agricultural production to food consumption, including measures to limit food waste, reduce animal protein consumption etc. The increasing & competing multiple requirements for land services need to be addressed on the demand side

2. How can the contribution of agriculture, forestry and other land use to the production of renewable energy and raw materials be optimised, while fully exploiting the mitigation potential in these sectors?

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In agriculture, the priority should be sustainable, low input, food production whilst maintaining biodiversity and ecosystems. In forestry, the aim should be to attain long term stability of carbon pools, especially in the EU's few remaining natural and semi-natural forests. Harvesting of plantations should be largely for long lived wood products, such as for building and material substitution. Forest management accountancy rules should be changed. The use of bioenergy should be capped at a level based on an estimation of the sustainable potential of EU domestic resources, taking into account both competing uses (e.g. material substitution) and the impacts on biodiversity and ecosystems. More sustainable technologies are already available (PV and wind). Support should be given only to bioenergy pathways demonstrating effective emission savings, taking into account indirect land use change and carbon debt, whilst competing neither with food production nor impacting biodiversity.

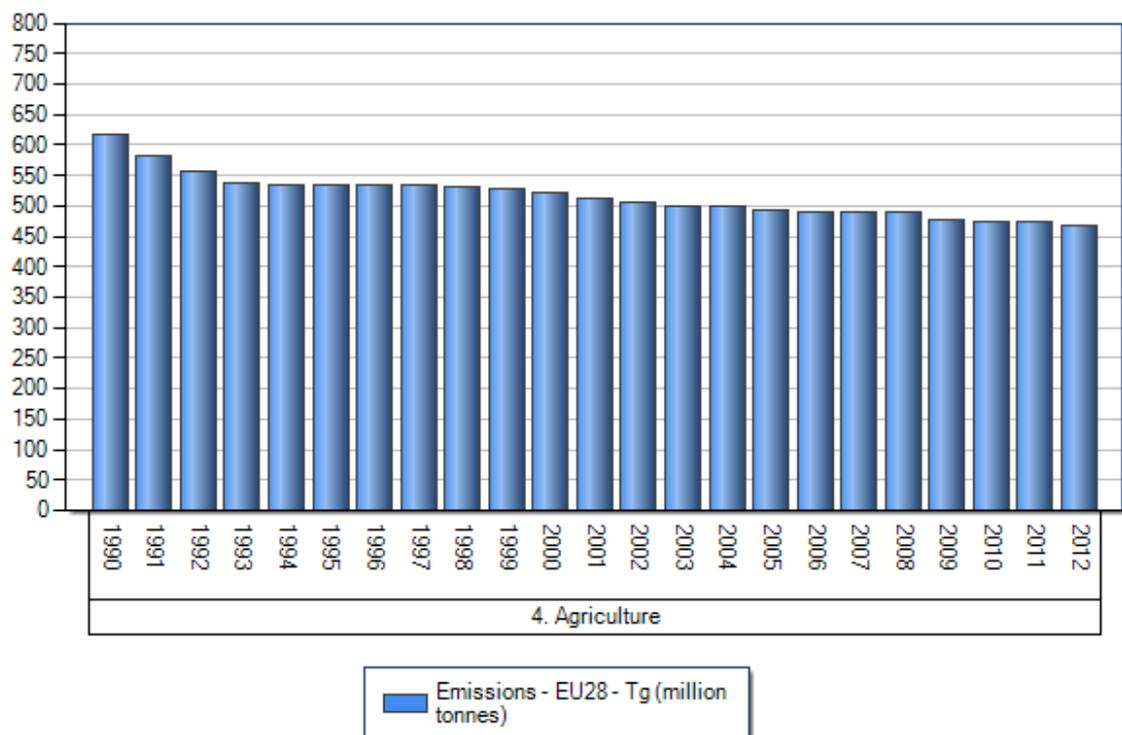
3. EVOLUTION OF GREENHOUSE GAS EMISSIONS FROM AGRICULTURE, FORESTRY AND OTHER LAND USE IN THE EU

Agriculture non-CO2 emissions

In 2012, agriculture non-CO2 emissions amounted to 10.3 % of total emissions in the EU. Since 1990, the sector's emissions have declined by nearly 150 Mt CO2eq, to 76 % of the 1990 base year emissions for the sector (Fig. 3.1).

Half of the agriculture-related emissions came from agricultural soils (mostly N2O), roughly one third from enteric fermentation in animals, primarily cattle (mostly CH4), and the remainder from manure management (N2O and CH4) and other activities. Since 1990, each of these three major sources has shown declines in emissions of more than 20 %. [\[link\]](#)

Figure 3.1: The development of agricultural non-CO2 emissions in the EU since 1990



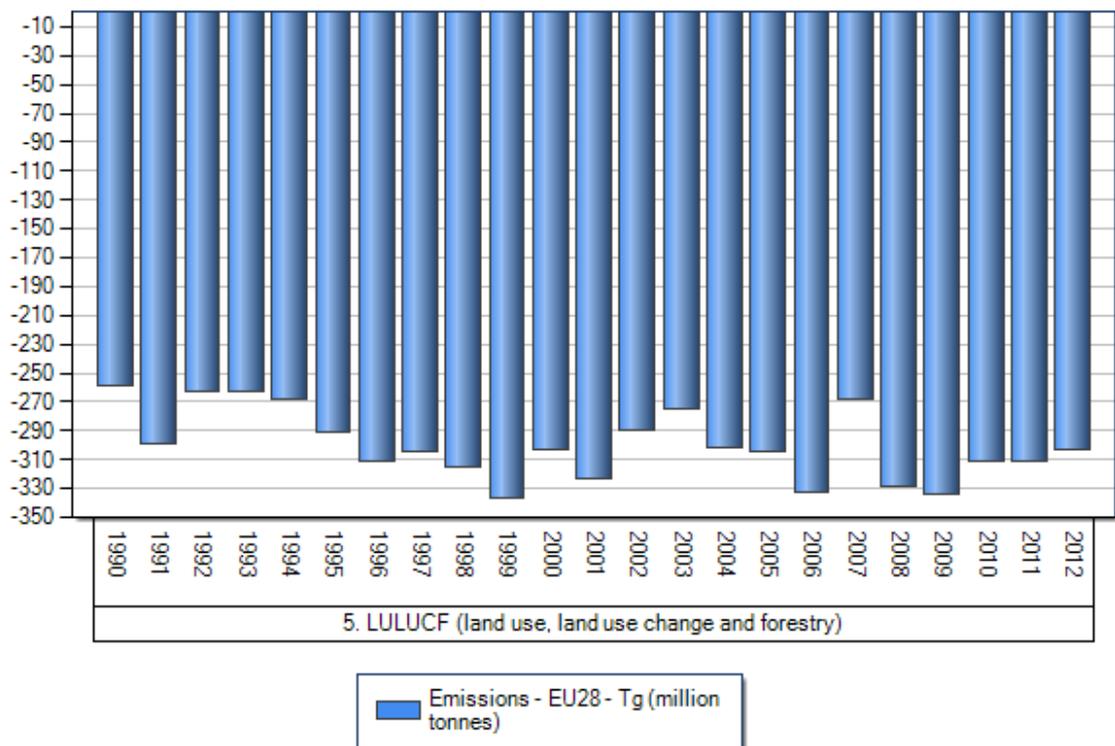
Source: EEA 2015

Significant differences in this trend exist across Member States, particularly those joining the EU after 2004, due to structural changes in the sector. Moreover, while the year-on-year trend at EU level is relatively stable, the interannual fluctuation of emissions at Member State level can be higher. Generally, the emissions of methane from agricultural sources are relatively stable over time, while agricultural N2O emissions are much more variable and can fluctuate by as much as 15 % of N2O base year emissions from one year to the next (see Annex). In the current climate policy framework, this kind of variability has been successfully accommodated through a degree of flexibility in annual compliance cycles (e.g. carry forward, carry-over, transfers to/by other Member States - see the Effort Sharing Decision in section 5).

CO2 emissions and removals from land use, land use change and forestry

Since 1990, the sink attributable to land use, land use change and forestry in the EU has essentially remained stable at around 300 Mt CO₂ per year, although with considerable interannual variability even at the aggregate EU level (Figure 3.2). As a proportion of total EU emissions, LULUCF net removals have increased from around 4.6 % in 1990 to over 6.6 % on average during the first commitment period (2008-12) of the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC).

Figure 3.2: Removals by the LULUCF sector reported under UNFCCC since 1990 for the EU-28. The graph below shows the simple balance of land emissions and sinks from all land categories, without application of Kyoto Protocol accounting rules.



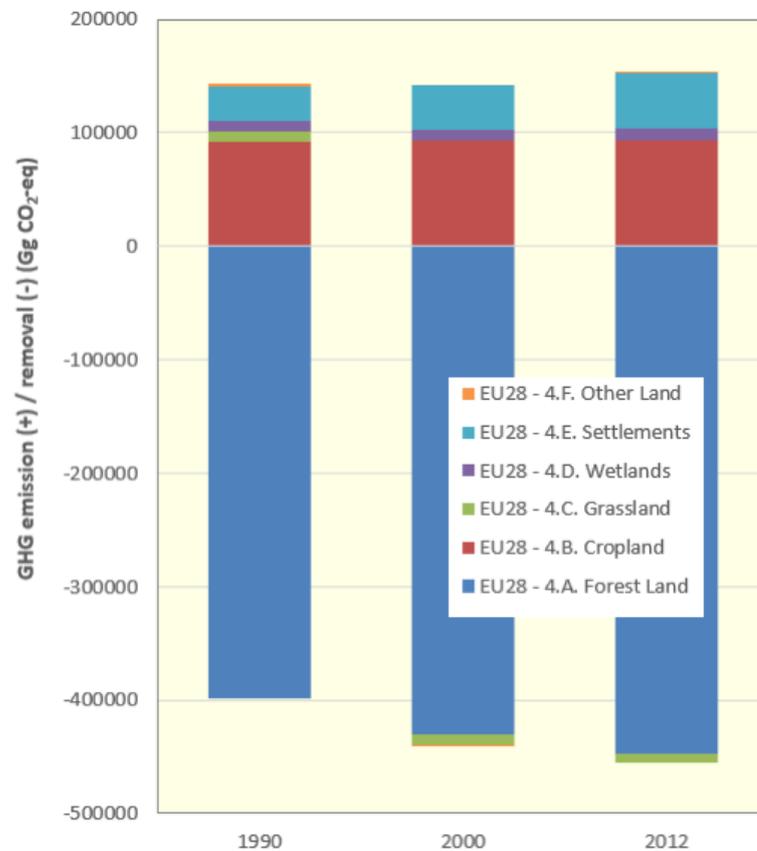
Source: EEA 2015

Moreover, the interannual fluctuation in a given Member State may be as much as 25 % between years. This is due to the nature of a biophysical system: droughts, floods, forest fires and other weather extremes can all disturb long-term trends.

International climate policy under the Kyoto Protocol has taken a cautious approach in order to ensure overall environmental integrity. CO₂ emissions and removals from the land use sector are accounted for differently from the way they are reported, owing to interannual fluctuations, measurement uncertainties, and the need to identify additional action with forest and soil sinks (see also section 5).

Figure 3.3 illustrates how CO₂ removals are balanced by CO₂ emissions from the reported land use categories. Emissions are mostly related to conversions from land categories with high storage of carbon to categories with low storage, for instance from forest to non-forest, pasture land to cropland, and cropland to settlements. LULUCF emissions in the EU-28 amounted to approximately 150 Mt CO₂eq in 2012 — considerably less than the sink from standing forests, which by 2012 amounted to over 400 Mt CO₂eq.

Figure 3.3: EU-28 aggregate values for land categories in the LULUCF sector



Source: Data submitted to the UNFCCC

Under the application of Kyoto Protocol rules, cropland and grazing land emissions are accounted for against a historical baseline, currently the reported emissions in 1990. As can be seen from Figure 3.3, at EU level, the relative change between 2012 and 1990 is small, and the accounted values would also be relatively small. Likewise, the accounted values for standing forest try to capture the change in sink due to direct action, and would also be smaller than the values reported in greenhouse gas inventories. The accounting rules, therefore, attempt to ensure that additional mitigation activities are appropriately reflected, and to exclude changes in carbon stocks that are not due to policy.

The relatively simple overall picture presented in Figures 3.2 and 3.3 at EU level is more complex when viewed by Member State:

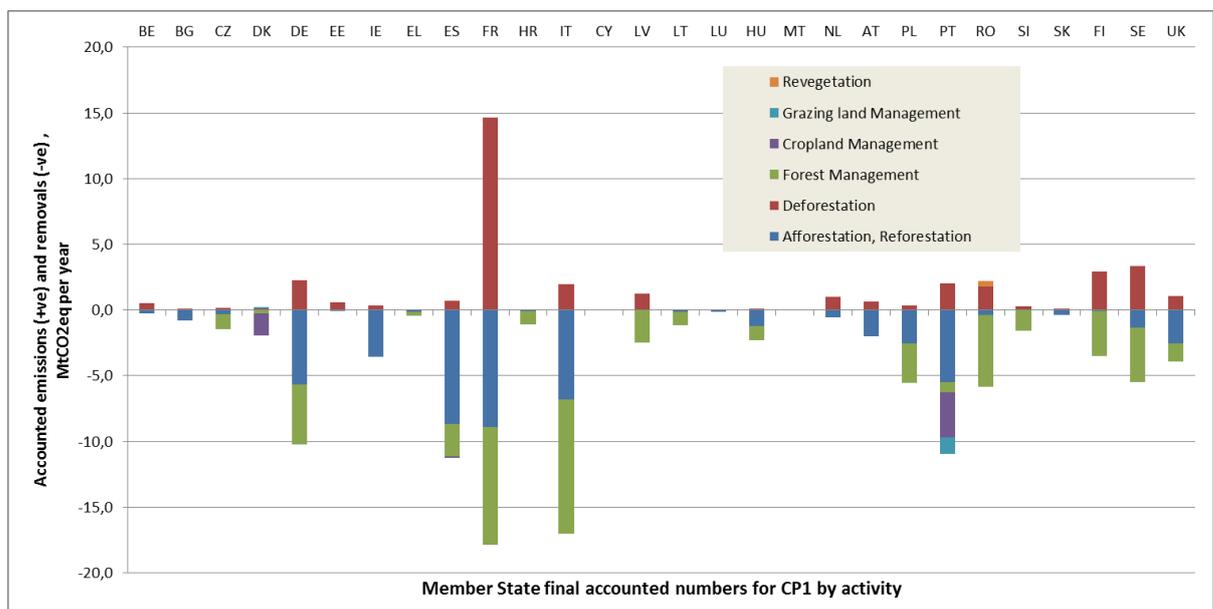
Some Member States, like Finland, Sweden and Slovenia, have relatively large forests with a corresponding large sink and comparatively small agricultural sectors. Some Member States with large forest areas also tend to show relatively high levels of land use change, especially deforestation. The potential for afforestation is limited in densely populated Member States. Organic soils, generally found in northern Europe, can result in high emissions when drained or when permanent pasture on organic soils is converted to cropland. Corresponding land use change on mineral soils has a lower impact. The hotter, drier climates of southern Europe offer a lower potential for sequestration of carbon through soil management or for increasing biomass levels, which tend also to be prone to natural disturbances such as fire.

Figure 3.4 gives an overview of the accounted LULUCF activities in various Member States in the period 2008-12.[1] These accounts, prepared under the Kyoto Protocol first commitment period, illustrate variations of credits and debits generated by Member State, even if they do not cover all the activities that are required under the Kyoto Protocol or EU legislation today.[2] As to be expected considering their geographical size and level of forestry, Germany, Spain, France and Italy all report significant exchanges of carbon, while smaller countries show smaller flows. However, these patterns will change, with accounted forest sink becoming more focused on additional action from 2013 due to rule changes, and the coverage of activities widening under Decision No 529/2013/EU on accounting rules on greenhouse gas emissions and removals resulting from activities relating to land use, land use change and forestry (the LULUCF Decision).

[1] It should be noted that the sum of emissions and removals reported in the LULUCF sector is not equal to the sum of emissions and removals accounted for LULUCF activities (see section 5).

[2] Only 18 Member States elected forest management as activity in the first commitment period; it became mandatory in the second commitment period. The EU LULUCF Decision also requires that Member States provide estimates for cropland management and grazing land management activities.

Figure 3.4: Member State accounts of emissions debits and removal credits for the LULUCF sector under the first commitment period (2008-12) — annual average



Source: Joint Research Centre (to be published)

3. How can the new framework ensure a fair and equitable distribution among Member States of action for mitigation in agriculture, forestry and other land use and reflect biophysical, geographical, and socio-economic variability and differences among Member States?

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Countries should account for what the atmosphere sees in terms of anthropogenic emissions and removals, from all sectors. The accounting rules should not allow countries to pick and choose activities or otherwise hide real emissions, as the forest management rules currently do. Excluding sectors must never be an option.

We support a legally binding EU-wide target for LULUCF combined with 10 year compliance period sector to provide flexibility for the Member States accompanied with ambitious policy measures to drive down emissions.

When assessing the distribution of efforts, the guiding principle should be how to achieve the greatest amount of CO2 savings from the agriculture and forestry sectors from each MS; not the cheapest way.

4. MITIGATION POTENTIAL IN THE LULUCF AND AGRICULTURAL SECTORS

Mitigation potential and technical mitigation opportunities in the agricultural sector

The results of an earlier impact assessment for 2030 and 2050 firmly underline the growing importance over time of mitigation in the agriculture sector and on land. By 2050, in the case of an overall reduction of greenhouse gas emissions of 80 % in the EU, the proportion of agricultural emissions is estimated to rise to about one third of all EU greenhouse gas emissions, thereby tripling its current share in the EU's emission budget.[\[link\]](#)

The impact assessment accompanying the proposed 2030 climate policy framework [\[link\]](#) also considers more limited cost-efficient mitigation potential in agriculture than in other sectors. In the scenarios that achieve a 40 % greenhouse gas emission reductions target by 2030, the reduction of agricultural non-CO2 emissions (CH4 and N2O) ranges from 19 % to 28 % in 2030 compared with 2005. As the overall reduction target for sectors not covered by the EU Emissions Trading System has been set at 30 %, other sectors (such as buildings, transport, and waste) would therefore have to deliver relatively higher emission reductions to achieve the EU reduction objectives. A cost-effective contribution by agricultural sector depends on a number of factors, including the further development of reliable and practicable mitigation technologies. As highlighted in the impact assessment, mitigation options and their practical implementation in policy terms still need to be further analysed.

Though cost-effective mitigation potential in agriculture is considered more limited when compared with other economic sectors included in the Effort Sharing Decision (see section 5), there are already some examples available that effectively are win-win measures:

- better manure management, in particular through biogas production;
- improvements to fertiliser efficiency and greater use of natural sources of fertiliser;
- increased livestock efficiency, including health improvements; synergies from agricultural land measures (e.g. the use of cover crops or catch crops) mentioned below; and
- farm carbon audits and climate advisory services that can inform farmers about mitigation options available at farm level.[\[link\]](#)

These practices, requiring different levels of upfront investment, help to improve the resource efficiency and greenhouse gas balance of farms. A range of other measures could become available in the near future, including optimisation of feeding of livestock (e.g. feed additives), nitrification inhibitors, and operationalisation of current experimental breeding in order to reduce livestock emissions per unit.

In addition to the reduction of direct emissions from agriculture, the better use of residues and agricultural waste for bioenergy or biomaterial production may have significant potential to contribute to climate change mitigation.

Mitigation potential and technical mitigation opportunities in the LULUCF sector

LULUCF is at present a net sink in the EU. However, without additional measures, projections show that the volume of removals will gradually decline by more than 10 % in the period 2005-30. [\[link\]](#) This is the result of various trends, the most important ones being the development of timber and energy wood demand and the skewed age structure of European forests.

The technical opportunities for climate action in the LULUCF sector vary between Member States, both in terms of the biophysical and economic potential. Mitigation options vary from region to region, and generalisations on an overall EU level are therefore uncertain. Differences are largely linked to the extent of forest cover and, to a smaller degree, soils with high carbon content. Estimates of additional mitigation potential in the LULUCF sector are still under development by Member States, and the magnitude of the additional potential will have to be further analysed by the Commission.

Nevertheless, recent information on LULUCF mitigation options obtained from Member States and other studies seem to suggest that there is significant additional mitigation potential related to a number of operations and activities:

- Cropland currently emits around 100 Mt CO₂eq each year in the EU; this could be reduced significantly by 2030 by addressing some of the hotspots. The cultivation and draining of peatland in northern European countries stands out as a key category.
- Cropland emissions can be further reduced by the use of cover or catch crops and by retaining crop residues in order to improve soil carbon and soil organic matter.
- Significant potential is also provided by the establishment of agroforestry systems; depending on the previous land use, they can provide carbon sequestration benefits while maintaining a high level of agricultural productivity.
- Afforestation, particularly in Member States with marginal agricultural land, and better constraints on deforestation.
- Forest management activities could be made more efficient, for instance by enhancing forest productivity, improving forest protection against fire and other disturbances, improving soil-conserving harvesting techniques, and making better use of the incremental growth of existing forests.

Costs of potential mitigation measures

Information on the cost-effectiveness of measures in agriculture, forestry and other land uses is still patchy, and cost estimates vary significantly between Member States.

In agriculture, some methods for reducing the need for nitrogen fertilisation — such as the use of cover or catch crops, improved crop rotation, and farm-scale anaerobic digestion plants — are often considered low-cost or even financially beneficial to farm businesses, depending on the structural changes required. Solutions of a more technical nature, such as the use of nitrification inhibitors, precision farming and the restoration of wetlands on drained organic soils, may entail variable, higher costs, depending upon the opportunities available.

With respect to agricultural land management under LULUCF, improved cropland and grazing land management (e.g. agroforestry, prohibition of residue burning, or reduced tillage) are often considered as low to medium-cost mitigation options. Implementing land use change — which may imply changes to farm structures — is usually more complex and may lead to higher costs, while nevertheless constituting compelling opportunities for potential mitigation.

On the forestry side, longer-term afforestation measures can produce significant carbon sequestration per hectare with variable upfront costs depending on location. Much depends on the type of land and existing vegetation being converted to forest, and on the type of forest created. In some Member States, reducing deforestation is reported to be a relatively cheap mitigation alternative. Certain forest management measures (see above) and optimised silvicultural techniques [\[link\]](#) could also be listed among the low to medium-cost options for enhanced removals.[\[link\]](#)

4. What are the most promising and cost-effective greenhouse gas reduction measures related to agriculture, forestry and other land use? Are there any technologies that would deserve special attention in research and technology development?

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Maintaining carbon stocks and addressing demand from other sectors are key. Ensuring that all emissions are accounted in an accurate manner will facilitate addressing them.

Reform of bioenergy policies could reduce real emissions significantly. Currently, indirect land use change and carbon debt are not taken into account. Forest management accounting rules hide emissions and emissions from large amounts of imported biomass are not accounted for anywhere. There are significant, low cost emission savings to be achieved through soil conservation and restoration, notably of peatland and grassland. Conserving natural forests and restoring degraded ones would both save emissions and increase sequestration. Using waste, rather than crops, for anaerobic digestion has the potential to save emissions provided that the waste hierarchy is respected.

5. What are the main obstacles and barriers to the implementation of emission reduction measures in agriculture, forestry and other land use?

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EU agriculture policy, predominantly the CAP, does not incentivise mitigation and often supports actions that can increase emissions. Similarly, incentives for bioenergy have not helped cut emissions. As energy policies are the driver of increased bioenergy use, policy incentives need to be corrected in the energy sector, so that only the use of low carbon bioenergy sources is supported.

Forest management accounting rules were long optional and so some member states did not account for any emissions at all. Now that accounting is mandatory, it is against a business as usual projection in which many states include emissions from harvesting for bioenergy, thereby ensuring that they are not accounted for.

The EU's land-sector does not have a mid- or a long-term strategy for decarbonisation. The EC should urgently develop a 2050 roadmap for agriculture, forestry and other land-use that takes into account the EU's 2050 objectives as well as the IPCC's 2°C compliant carbon budgets.

5. AGRICULTURE, FORESTRY AND OTHER LAND USE IN THE CURRENT EU CLIMATE POLICY FRAMEWORK

The current overall climate policy framework until 2020

The current EU climate policy framework, including the commitments under the Kyoto Protocol, is economy-wide and covers all sectors and greenhouse gases. It consists of three main elements:

1. Approximately 45% of the EU's emissions are covered by the EU Emissions Trading System (EU ETS), directly involving more than 11 000 large installations in power generation and manufacturing industries.
2. A large part of the emissions from sectors outside the EU ETS (e.g. CO₂ emissions from transport, heating of buildings, non-CO₂ emissions from agriculture and waste — more than 50% of the EU's total emissions) are addressed by the Effort Sharing Decision.[\[link\]](#)
3. The remaining CO₂ emissions and removals from land use, land use change and forestry were not included in the EU's domestic reduction target for 2020, but are covered by international obligations under the second commitment period of the Kyoto Protocol. This difference is because, at the time of agreeing the 2020 targets in 2008, the international rules for LULUCF accounting were at an early stage and not fully agreed internationally.

Agriculture, forestry and other land use are at present regulated in two separate pillars of the overall EU climate policy framework. Non-CO₂ emissions from agriculture are covered under the Effort Sharing Decision and CO₂ emissions and removals from land use, land use change and forestry [1] are covered under the Kyoto Protocol.

The Effort Sharing Decision establishes binding annual greenhouse gas emission reduction targets for Member States for the period 2013–20. These national targets are differentiated according to the relative wealth of each Member State. In contrast to sectors in the EU ETS, which are regulated at EU level, it is the responsibility of Member States to define and implement national policies and measures to limit emissions from the sectors covered by the Effort Sharing Decision.

Current regulatory framework for CO₂ emissions from land use, land use change and forestry

Three aspects of the current regulatory framework are of key importance: reporting and accounting; target; and flexibility.

Reporting and accounting

Accounting rules under the Kyoto Protocol are designed to ensure that only those actions that are considered 'additional' to the status quo can count towards reduction targets. As a result, the sum of emissions and removals in the LULUCF sector is not equal to the amount of removals recognised for reporting purposes under the UNFCCC.

Rules for measuring and reporting emissions and removals under LULUCF for the purposes of the first commitment period (2008-12) of the Kyoto Protocol were finalised among international partners in 2005. These, however, were patchy and not comprehensive. Based upon this experience, improved methodologies were negotiated, and adopted at the Durban climate conference in 2011.[\[link\]](#) Certain key challenges — like the broader coverage of relevant activities and pools, the impact of natural disturbances, permanence and the accuracy of data — have been better addressed through this amended set of rules, applicable under the second commitment period (2013-20).

Though the net sink of LULUCF in the EU in the first commitment period remained relatively stable at around 300 Mt CO₂ a year, the average annual level that could be used for accounting purposes was only 75.1 Mt CO₂.^[2] As rules have changed for the second commitment period, notably for forest management, this figure is expected to decrease further — in the absence of additional action — to around 25 Mt CO₂ a year.^[3]

The international LULUCF rules adopted in Durban have been laid down in the current EU accounting system, as set out in the LULUCF Decision No 529/2013/EU.[\[link\]](#) This Decision goes beyond the minimum international standards, and Member States are required to report for a wider range of agricultural land use activities, including cropland and grazing land management. In addition to producing accounts on their removals and emissions, Member States are also expected to submit information on current and future measures in the LULUCF sector. These reports, received by the European Commission, provide a good overview of land use and forestry-related mitigation activities for each Member State.

Target: Member States have signed up to the international obligations. In order to comply with these obligations for the second commitment period, each Member State needs to ensure that their LULUCF sector does not generate net debits when accounting for all emissions and removals in the sector.[\[link\]](#) If net debits were to arise, these would have to be compensated.

Flexibility: Flexibility to use credits from the LULUCF sector is currently restricted. However, if any Member State incurs a net emission debit between 2013 and 2020 under the Kyoto Protocol's second commitment period, the debit would have to be covered by additional emission reductions produced in other sectors of the economy in the EU, or in third countries. With respect to Member State obligations under the EU's internal 2020 emissions reduction target, any credits generated by LULUCF cannot currently be taken into consideration as LULUCF is not included among the sectors in the EU's Effort Sharing Decision.

[1] LULUCF also includes small amounts of non-CO2 emissions.

[2] Source: JRC (to be published).

[3] Under the assumption that accounting rules for forest management showed no significant deviations from the business as usual reference levels for the commitment period.

6. On the basis of experience with the present set of rules on accounting, targets and flexibility, how could the present rules be improved, and which aspects could be maintained and which should be rejected in future?

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Countries should comprehensively account for all anthropogenic emissions and removals from a historical base year or period. All sectors do so except for LULUCF where the Kyoto rules allow countries to pick and choose which activities to account for - except for deforestation, afforestation and reforestation and, from 2012, forest management. So far, the EU has maintained a cautionary approach towards including LULUCF in its GHG emission reduction commitments due to its uncertainty, inter-annual variations, and its potential to avoid reductions in other sectors such as transport. This approach should be maintained.

We would keep the EU rules for cropland and grazing land management and make accounting for the other non-forest LULUCF activities mandatory from 2020, especially wetland drainage and rewetting. Forest management rules should change so that countries account net-net from a base year or period, after 2020.

6. AGRICULTURE, FORESTRY AND OTHER LAND USE IN THE 2030 POLICY FRAMEWORK

The 2030 climate policy framework, agreed by EU leaders in October 2014, provides guidance on EU targets, policies and measures to reduce greenhouse gas emissions by at least 40 % by 2030 compared with 1990. To achieve this target, greenhouse gas emissions under the EU ETS will need to be reduced by 43 % compared with 2005. Emissions from sectors outside the EU ETS will have to be cut by 30 % below the 2005 level.

As regards CO₂ emissions and removals from LULUCF, it is clearly recognised that this sector will form part of the EU's 2030 efforts. The European Commission is preparing to establish a policy on how to include LULUCF in the 2030 greenhouse gas mitigation framework. This presents the opportunity to reflect on how best to deal with emissions from agriculture, forestry and other land use.

The 2030 Communication and its impact assessment[\[link\]](#) identified three principal options for future policy design:

- Option 1 — LULUCF pillar: Maintain non-CO₂ agriculture sector emissions in a potential future Effort Sharing Decision, and further develop a LULUCF sector policy approach separately;
- Option 2 — Land use sector pillar: Merging the LULUCF and agriculture sector non-CO₂ emissions into one new and independent pillar of the EU's climate policy;
- Option 3 — Effort Sharing: Include the LULUCF sector in a potential future Effort Sharing Decision.

Option 1, the LULUCF pillar, would continue the status quo, i.e. separate treatment of LULUCF. Accounting rules, targets and appropriate measures could be further developed. Flexibilities with regard to other sectors could be considered. The major disadvantage of this option is that agricultural and LULUCF emissions (including those of agricultural soils) would continue to be addressed by different policy tools, reducing policy coherence and rendering the design of incentives for action more complex.

Option 2 ("Land use sector pillar"): Under this option a separate pillar in the EU's climate policy, the Land Use Sector, would be created by merging LULUCF and non-CO₂ emissions from the agriculture sector into one new and independent pillar of the EU's climate policy. Such a sector would include all emissions and removals related to agriculture and LULUCF. It could lack the advantage of flexibility between sectors within the overall Effort Sharing Decision, but give an opportunity for a policy approach that reflects the sector's specific particularities (e.g. permanence, long time-cycles, high natural interannual variability).

Option 3 ("Effort sharing") would increase the number of sectors in the ESD and thus increase flexibility for Member States to achieve a given overall target. It would also enable an integrated approach. However, it would increase complexity and raise methodological issues, including concerns related to environmental integrity and technical compliance issues, which would have to be specifically addressed (e.g. potentially large annual fluctuations in removals and emissions).

Three crosscutting issues will have to be assessed in view of all three options: the underlying accounting rules, target setting and the flexibility rules between LULUCF and other sectors:

Accounting: With respect to accounting approaches, the rules defined under the existing legislative framework (the LULUCF Decision) provide a useful starting point. However, a number of issues are still under consideration. One important discussion in the international climate negotiations is whether to continue with the activity-based accounting system for LULUCF (e.g. for forest management, cropland and grazing land management) or to shift to a land-based approach.[\[link\]](#)

Furthermore, under current rules, forest management is accounted for on the basis of projected forest management reference levels, grazing land and cropland management are measured against a base year level (e.g. 1990), and afforestation, reforestation and deforestation are accounted for in total. A cap limits the extent to which credits from forest management can be used to compensate debits from other activities.

Rules need to be established to ensure that additional mitigation effort is measured correctly, respecting high levels of environmental integrity; the contribution of LULUCF activities could be made dependent on certain technical conditions relating to these needs. The LULUCF Decision provides for the review of these rules and reference levels, which may need to be adapted to the changing circumstances and demands of the period between 2020 and 2030.

Target setting: Accounting rules will be decisive for the extent to which emissions and removals can be counted against a target. Today's target framework (under the Kyoto Protocol) ensures that the overall sum of LULUCF activities either does not produce debits, or that any debits generated are compensated for. The target under the 2030 framework would need to build further on that principle, thereby protecting carbon stocks and ensuring the environmental integrity of LULUCF activities.

It should be noted that the European Council conclusions already provide some guidance as to how targets should be set for different Member States under the Effort Sharing Decision, mainly on the basis of GDP per capita.

Flexibility: Flexibility determines the possible exchange of credits between different pillars of the 2030 climate policy framework, or possibly even between sectors within a single pillar. The choices made define which credits from LULUCF activities, after application of accounting rules, can contribute to meeting which non-ETS target.

While recognising the possible cost reductions offered by increased flexibility, the mechanism that allows flexibility between LULUCF and agriculture — or LULUCF and other sectors — would also need to ensure that only those actions are rewarded that result in additional, measurable and sustainable increases in carbon sinks.

The range of policy options will be further analysed in the context of an impact assessment, also building upon the information received from stakeholder consultations. The impact assessment will assess mitigation options for each Member State, taking into account the geographic distribution of biophysical potential. It will also assess environmental impacts (contribution to the 40 % target, bioenergy, biodiversity, resilience and other co-benefits) and economic and social impacts, and compare the options in view of all relevant parameters.

7. How could an element of flexibility in terms of using credits from LULUCF activities in the 2030 climate policy framework be introduced in a way that fully ensures the environmental integrity of the system?

1000 character(s) maximum

The obvious way of introducing flexibility is to include LULUCF in the ESD. However, because LULUCF is a net sink and was not included in the package to 2020, the 2030 target would be relatively reduced.

LULUCF sector should be covered by a separate reduction target with comprehensive accounting of all GHG emissions and removals from land use and forestry activities, including full accounting for emissions from bioenergy. It should be ensured that accounting rules are clear, honest and transparent, allowing real emission reductions, avoiding “hidden emissions”.

Environmental integrity needs to be defined beyond integrity of emission savings. Effective safeguards are needed to ensure that credits from LULUCF activities as a minimum respect EU environmental legislation and have a net positive impact on biodiversity and ecosystems, demonstrated through an environmental impact assessment.

8. What could be the main advantages and disadvantages of the three policy options outlined above, and which option(s) should be further developed or modified?

1000 character(s) maximum

Option 1 (LULUCF pillar with a reduction target): the most potential for maintaining environmental integrity and ensuring reductions occur in all sectors. It reflects the particularities of the LULUCF sector (non-permanence, high natural annual variability, etc). Non-CO2 emissions from agriculture remain under the ESD where they are sufficiently accounted for.

Option 2 (land sector pillar): The two emission sources have very different characteristics and there is no advantage to merging them. It results in undermining the mitigation potential in agriculture. The EU has competence over agriculture policy but not forest policy. Forest management accounting rules are perverse and agriculture rules are not.

Option 3 (all in ESD): least desirable option because it allows LULUCF sinks being used to offset emissions in other ESD sectors and reduce the level of ambition in sectors such as transport. The current accounting rules for forest management do not reflect real emissions and removals.

9. Which is your preferred option? Why?

- Option 1 — LULUCF pillar
- Option 2 — land use sector pillar
- Option 3 — effort sharing
- A combination of options
- No preference

Please, provide an explanation for your choice in Question 9

1000 character(s) maximum

Forestry activities in LULUCF constitute a net sink. It potentially threatens environmental integrity and its unreliable accounting rules make it unsuitable for interchanging credits or debits from other emission sectors. Countries should fully account for all emissions and removals. We find it important that emissions and removals on LULUCF are addressed and this is best done by creating a separate LULUCF pillar with target of its own and rules particularly suitable for this sector. Non-CO2 emissions from agriculture should be kept within the ESD. LULUCF should not be used to offset emissions in other ESD sectors neither to reduce the ambition of other sectors such as transport. If option 2 (land use sector pillar) is created, it would be important to ensure that reduction ambition is not reduced for all other sectors. It is key to ensure that sectors such as transport and buildings reduce their emissions by 30% by 2030 in order to put us in track for decarbonisation towards 2050.

Annex

[Annex.pdf](#)

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