

European climate targets: land-use and forestry contributions

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EXECUTIVE SUMMARY

As of 2020, the land-use, land-use change and forestry sector (LULUCF) will be fully included in the European climate targets for 2030. Following an almost two years long consultation and negotiation process, the European Council and Parliament adopted on May 30, 2018 the Regulation (UE) 841/2018, laying down the rules to account for greenhouse gases (GHG) emissions and removals from this sector. This regulation reinforces the European Union's nationally determined contribution (NDC) to the Paris Agreement and could influence how the land sector is to be taken into account in the future international climate framework from 2020 onwards.

This Climate Brief meets two main objectives:

1. Describe and explain the content of the Regulation, which will determine how the contributions of the land sector – and in particular forests – to the European climate targets will be accounted for;
2. Decipher the various debate topics and the political and technical issues underlying the proposed rules.

The LULUCF Regulation provides an accounting framework for this sector's emissions and removals by laying down three key elements:

1. **A no debit climate target:** emissions resulting from some land categories (e.g. deforested land or managed cropland) must be offset by at least equivalent removals in the same sector (via grasslands, woodlands, or managed forest land).
2. **Clear accounting rules for the different land categories.** The proposed rules are similar to those implemented under the 2nd commitment period of the Kyoto Protocol¹. In addition to some minor changes aimed mainly at updating reference periods and strengthening the accuracy and coverage of accounting, a modification is also made on how to develop the "Forest Reference Levels" (FRLs), which will now be based on the continuation of historical forest management practices. The double reporting, previously differentiated between the Kyoto Protocol and the UNFCCC, is also abandoned: only the UNFCCC reporting by land categories is maintained.
3. **Flexibility mechanisms** to help Member States achieve their climate targets, which can be presented in three broad categories:
 - *General flexibilities within the LULUCF sector:* between different land categories, between different States, or

between the two commitment periods (2021-2025 and 2026-2030).

- *A reciprocal flexibility option with the ESR* (Effort Sharing Regulation) sectors, which brings together the diffuse sectors (agriculture², building, transport, waste). If the LULUCF sector balance is debtor, i.e. total emissions exceed total removals from an accounting point of view, ESR allowances can be used for LULUCF compliance; if the LULUCF sector balance is positive, a part of these credits can conversely be used for ESR sectors compliance within the limit of 280 MtCO₂e at European level. This total amount of flexibility is then shared between European countries, in proportion to the relative weight of their agricultural sector within their ESR emissions over the 2008-2012 period.
- *A new internal flexibility mechanism for the managed forest lands.* Provided that the land sector in the EU as a whole remains a net carbon sink, each Member State is allowed a small debit for this land category.
- The cumulative envelope for these tolerated debits is 360 MtCO₂e at the EU level over a 10 years period. It is distributed to each Member State in proportion to its average sink between 2000 and 2009 and to the share of its forest area in its total area.

While the options mentioned in the first bullet point were considered classic and did not give rise to particular concerns from the different stakeholders, the two other forms of flexibility were not consensual.

The flexibility between the LULUCF and ESR sectors does indeed assume a form of equivalence between avoided and sequestered emissions, which is not unanimously accepted. Opponents to this option argue that sequestered emissions from forests should not help ESR sectors achieve their targets, while its proponents put forward the limited mitigation potential of the agricultural sector.

The second point of debate relates to the accounting of managed forest lands and the "forest reference level" (FRL), which crystallizes technical and political issues. In particular, where previous FRLs anticipated the projected effects of forest policies, the new FRLs are only based on the continuation of historical forest management practices as documented over

1 Decision 529/2013 clarifying the voluntary accounting for the land sector under the 2nd commitment period.

2 The term "agriculture" refers here to the agriculture inventory category, which takes into account the sector's non-CO₂ emissions (mainly methane and nitrous oxide) and thus excludes emissions related to land use and energy consumption.

a reference period. The choice of the reference period is crucial, as it determines the “business as usual” harvest rate that will be used. Based on the continuation of sustainable forest management practices as documented between 2000 and 2009, the new FRLs will not include any harvest increase policies that have been implemented post-2009 in some countries, especially in relation to the European Directive on Renewable Energies. This option allows for emissions linked to policy-driven increased harvests to be visible from an accounting point of view. The flexibility mechanism for managed forest land is added to allow Member States to

temporarily increase their harvests intensity and thus avoid discouraging any increased use of wood products.

These different rules and compromises reflect the ambiguities of the forest sector’s contribution to climate change mitigation; on the one hand, it allows the removal of CO₂ through the conservation and enhancement of carbon sinks, but it also generates emissions reductions in other sectors through the use of wood products as a substitute for fossil fuels and more energy-intensive materials.

Introduction

Until 2020, the land-use and forest sector (LULUCF for Land Use, Land Use Change and Forestry) is accounted for under the Kyoto Protocol but is not taken into account in the achievement of European climate change mitigation commitments (Decision (EU) 529/2013¹). However, the European Climate and Energy policy framework specifies that this sector will fully contribute to the 2030 climate targets³. After a first proposal from the Commission in July 2016⁴ and almost two years of debates⁵, the European Parliament and the Council adopted in May 2018 the Regulation EU/2018/841 for the integration of the LULUCF sector⁶ into the 2030 European climate targets. This new framework, published in the European Official Journal on June 19, 2018, gives the sector a net emissions reduction and removals target while setting accounting and flexibility rules. It is adopted at the same time as the Effort Sharing Regulation (ESR)⁷, which sets emission reduction targets for diffuse sectors not covered by the EU ETS, such as transport, building or agriculture².

I. LULUCF and ESR sectors: a separate accounting treatment but preserved interactions

A. A specific target for the land sector to guaranty sink conservation

1. The no-debit rule

In line with the Commission proposal 2016/2030, the Regulation addresses the LULUCF sector independently from other sectors by giving it a specific target. In theory, this distinction allows to better take into account the sector’s characteristics: non-permanence risk, long-term horizons, uncertainties, etc. Therefore, the sector does not directly contribute to the global emissions reduction target of -30% for non-ETS sectors. The LULUCF mitigation target for 2021-2030 follows the “no debit rule”: accounting debits from land use must be offset by at least equivalent accounting credits in the same sector. For example, emissions from deforested land or managed cropland must be offset by removals from grasslands, afforested lands or managed forest lands.

This no-debit rule applies at both Community and national levels and is accompanied by different forms of flexibility:

- **Intra-sectoral flexibility:** accounting debits from one land-use category (e.g. agricultural soil) can be offset by accounting credits of another land-use category (e.g. forests). However, as under the Kyoto Protocol, offsetting from a surplus removal of the “managed forest land” category is limited to 3.5% of the country’s emissions⁸, (except for dead wood and harvested wood products other than paper compartments).
- **Inter-state transfer:** if a Member State is in an accounting credit position on the LULUCF sector, i.e., total removals exceed total emissions of the sector from an accounting perspective, it may transfer its credit to another Member State that is in an *accounting debit* position. The transfer would help the latter State to achieve the no-debit target.
- **Postponement:** if a Member State is in an accounting credit position on the LULUCF sector over the 2021-2025 period, it may set aside this excess amount for the second compliance period: 2026-2030. If it is in an accounting debit position for 2026-2030, it will then be able to mobilize this reserve to achieve the no-debit target.

3 The policy framework for climate and energy in the period from 2020 to 2030 (2014) specifies: “To ensure that all sectors contribute in a cost-effective way to the mitigation efforts, agriculture, landuse, land-use change and forestry should be included in the GHG reduction target for 2030”.

4 https://eur-lex.europa.eu/resource.html?uri=cellar:9901f171-5017-11e6-89bd-01aa75ed71a1.0001.02/DOC_1&format=PDF

5 https://eur-lex.europa.eu/procedure/EN/2016_230

6 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.

7 Regulation (EU) 2018/842 [...] 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.

8 Credits from managed forests may not exceed 3.5% of emissions of Member States of their year or reference period specified in Appendix 3, multiplied by 5 (Article 8.2).

2. Accounting and reporting rules standardization: between Kyoto and the Convention

For the sake of administrative simplification, double reporting for the LULUCF sector - land-based notification for the United Nations Framework Convention on Climate Change (UNFCCC) and activity-based notification for the Kyoto Protocol – is eliminated from 2020 onwards⁹. Only the UNFCCC land-based reporting is maintained.

However, the Kyoto Protocol legacy is maintained through broadly similar accounting rules. The proposed accounting rules incorporate the principles of European Decision 529/2013/EU, which transposed the rules applicable to the second period of the Kyoto Protocol into European law. Accounting for managed cropland and grassland becomes mandatory and some minor changes are made, primarily aimed at updating the reference periods (Table 1). For managed forest land, a difference is introduced with the transition from a FRL anticipating the effects of forest policies, to a FRL extending historical management practices. New rules are also specified on the harvested wood products compartment, encouraging increased material use of forest biomass at the expense of energy use. Finally, wetlands emissions accounting is mandatory from 2026 onwards.

B. Supervised flexibility to support agriculture

1. Using forest to help agriculture achieve its target?

Regulations (EU) 2018/841 and 2018/842 provide for supervised and reciprocal flexibility between the LULUCF and ESR sectors: if the LULUCF sector is an accounting credit position, part of these credits may be used for ESR compliance; and if the LULUCF sector is an accounting debit position, ESR quotas may be used for LULUCF compliance, therefore implying a greater effort in these sectors. The net accounting balance resulting from afforested land, deforested land, managed cropland and managed grassland can thus be used to contribute to the achievement of the ESR sector targets, and especially the agriculture targets. Managed forest land may also be included

⁹ Until 2020, countries must produce double reporting for the LULUCF sector: land-based reporting as part of UNFCCC national inventories (e.g. forests converted to crops, forests remaining forests, etc.) and activity-based reporting within the framework of the Kyoto Protocol (e.g. afforestation, deforestation, forest management, etc.). The covered scope and the reporting format differ slightly.

in this flexibility mechanism once the forest reference levels have been adopted by delegated acts (Article 7, ESR Regulation).

The maximum flexibility amount allowed is specific to each Member State: it depends on the weight of its agricultural sector in its ESR emissions. The need for flexibility is justified by the limited mitigation potential of the agricultural sector. 2014 European Council conclusions (EUCO 169/14) pointed out a lower economic efficiency of non-CO₂ emission reductions in the agricultural sector compared to other sectors such as building, transport or waste, and the need to ensure sustainable intensification of agriculture with a view to food security. Flexibility with the LULUCF sector is therefore seen as a way to alleviate the burden on the agricultural sector, if of course LULUCF generates an accounting credit.

2. A maximum amount of flexibility that divides by three the effort of the agricultural sector

The Commission's impact assessment¹⁰ recommends limiting flexibility between ESR and LULUCF according to the effort required in the agricultural sector. It is based on a 20% agricultural emissions reduction target – or 425 MtCO₂e – over 2021-2030 compared to 2005 levels. A “mean flexibility” representing two-thirds of this target is retained in the proposal, i.e., a flexibility from LULUCF to the ESR sectors of 280 MtCO₂e in total at the European Union level.

This total flexibility is then distributed by country. Member States are divided into three groups, according to the relative weight of the agricultural sector in the ESR emissions over the 2008-2012 period; the most agricultural States can cover up to 15% of their average annual non-CO₂ agricultural emissions over the 2008-2012 period with LULUCF flexibility (Figure 1).

The main beneficiary countries of the LULUCF flexibility as a percentage of their emissions in 2005 will be Ireland (5.6%), Lithuania (5%), Denmark (4%), and Latvia (3.8%). These are the four European countries for which the agricultural sector accounts for the largest share of ESR emissions. In absolute terms, France will have the greatest flexibility (58,2 MtCO₂e), followed by Spain (29,1 MtCO₂e), Ireland (26,8 MtCO₂e), Germany (22,3 MtCO₂e), and Poland (21,7 MtCO₂e).

¹⁰ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016SC0249&from=EN>

TABLE 1. ACCOUNTING RULES CHANGES

LULUCF accounting categories	KP2 / Decision 529/2013/EU	REGULATION (UE) 2018/841	DESCRIPTION
Afforested and deforested land	Reference 0: any land reforested or deforested after 1990 is accounted for in this category permanently	Reference 0: Any reforested land continues to be accounted for in this category for a period of 20 or 30 years from the land-use change date	The “gross/net” approach is maintained: all emissions and removals for the period are accounted for (reference zero).
Managed cropland and grassland (+ wetland option)	Reference: 1990 <i>Optional accounting</i>	Reference: average 2005 – 2007 <i>Mandatory accounting</i>	The “net/net” approach is maintained: the average of 2021-2025 emissions (then 2026-2030) must be less than or equal to the 2005-2007 average.
Managed forest lands and harvested wood products	Projected reference: including policies effects	Projected reference: based on historical management practices	The projected reference level is maintained: on this land category, to ensure an accounting credit, removals must be greater than a projected forest reference level (FRL).

C. ESR flexibility at the heart of debates

1. Avoided or sequestered emissions?

The principle of flexibility from LULUCF to ESR sectors is debated by some stakeholders, who point out the non-equivalence between avoided and sequestered emissions. Indeed, an avoided emission in the ESR sectors is final from the atmospheric point of view, whereas a sequestered emission in biomass and soils can be re-emitted at any time. Carbon stocks are thus systematically prone to non-permanence risk, linked to anthropogenic (harvests) or most often natural causes (wildfire, storm, dieback, ...).

Meeting mitigation targets is therefore linked to ensuring that sequestered carbon will remain sequestered at least as long as the CO₂ emissions – or N₂O or CH₄, in the case of ESR – it “offsets”.

2. Unsecured forest credits

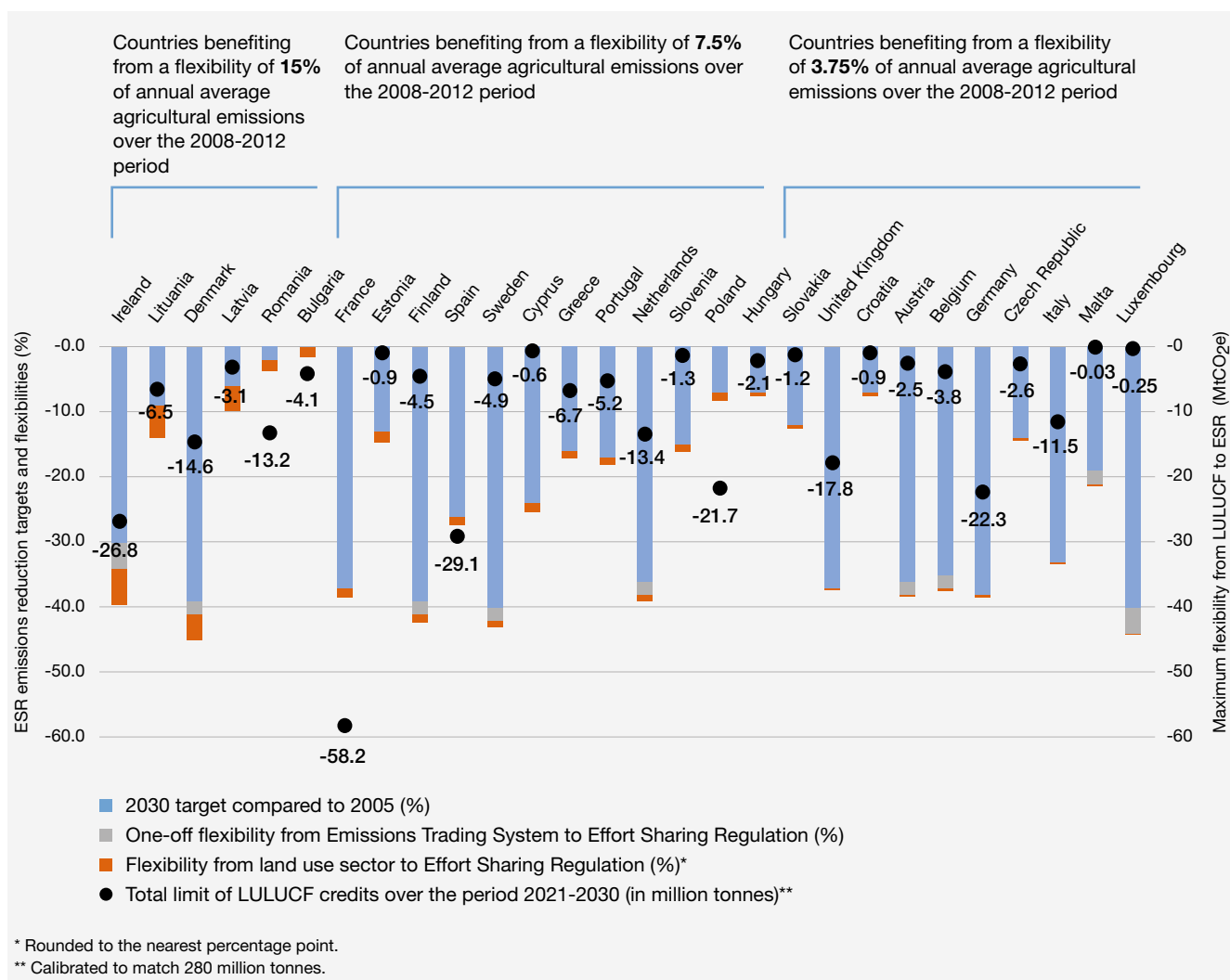
The potential for flexibility from LULUCF to ESR sectors is limited to 280 MtCO₂e, but depends most of all on the LULUCF sector's ability to generate a positive accounting balance.

According to the Commission's impact assessment, most of the land-use categories tend to reduce their emissions or increase sequestration (Figure 2), except for managed forest

lands for which the sink decreases by 30% over the period. This drop in sink is explained in particular by the aging of European forests – with more stands reaching harvesting diameter – and the increase in harvests for energy wood in order to achieve renewable energy targets. Yet, the sink decrease does not mean an accounting debit: the accounting balance will depend on the projected reference level constructed by each country.

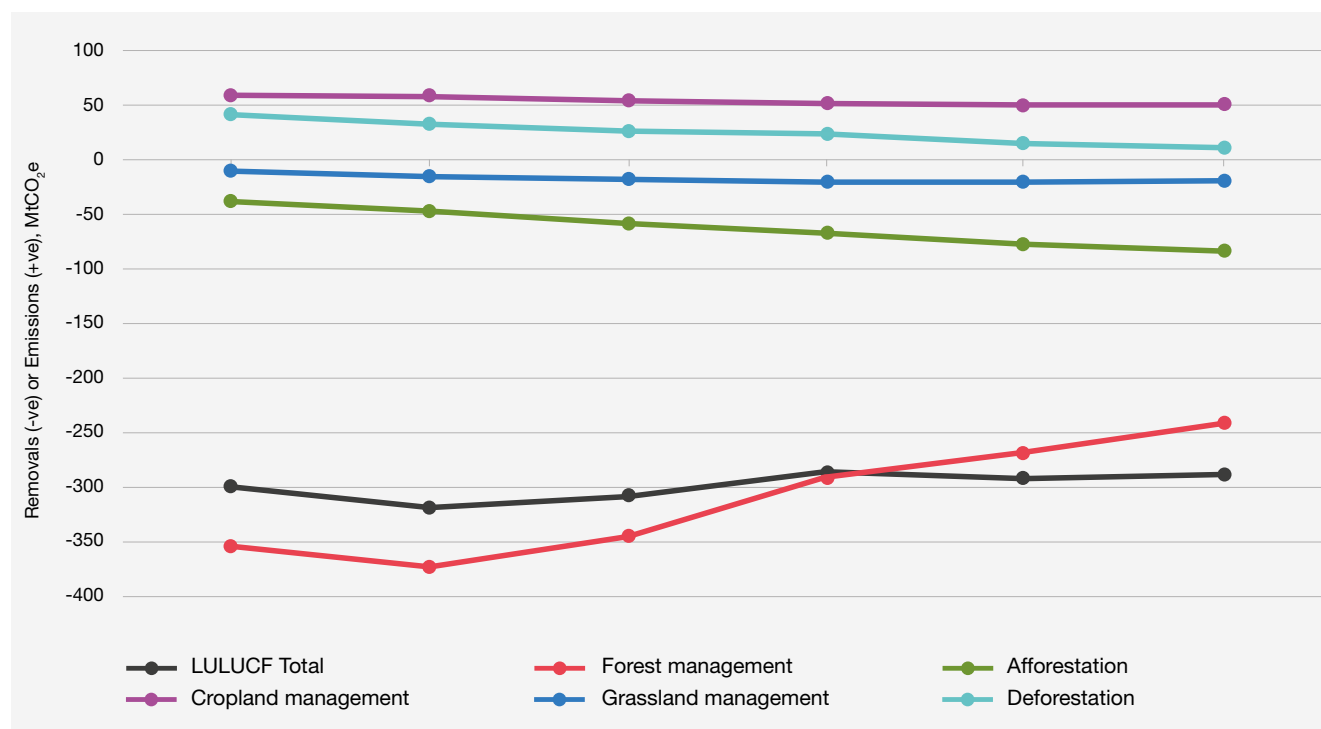
The Commission considers the potential for credits generated by afforestation and agricultural land would amount to nearly 900 MtCO₂e over the 2021-2030 period (corresponding to the net balance of afforestation/deforestation and agricultural land, independently of managed forests), i.e., more than three times the flexibility allowed by the Regulation. However, because of the unknowns and uncertainties on the projected reference levels, the impact of an integration of managed forest land in the flexibility mechanism is difficult to estimate. While this category may improve the sector's accounting balance in some countries, due to additional and effective actions to enhance the carbon sink or due to information asymmetry between Member States and the experts in charge of validating the reference levels (see section II.A.1), it is not certain that the “managed forest land” category will generate credits in all countries.

FIGURE 1. ESR EMISSIONS REDUCTIONS TARGETS AND MAXIMUM ANNUAL FLEXIBILITIES WITH THE EU ETS AND LULUCF PER EUROPEAN COUNTRY (AS A % OF 2005 EMISSIONS)



Source: I4CE based on European Commission data and graph.

FIGURE 2. PROJECTIONS OF EMISSIONS AND REMOVALS OF THE MAIN LULUCF ACTIVITIES BY 2030 FOR THE EU 28 (MtCO₂e)



Source: EUCLIMIT Reference 2016 model projections. Projections according to a trend-based scenario including the impact of policies existing before 2014.*
 * Impact assessment - European Commission, 2016.

The accounting balance of this category thus crystallizes the contradictory fears of all stakeholders: some consider that too much flexibility and non-additional credits would lower climate ambition, while others identify a significant risk of accounting debit, seen as a barrier to sustainable forest management, to the use of wood products and to the achievement of energy targets.

II. Managed forest lands crystallize technical and political issues

A. The “Forest Reference Level”¹¹ as the core issue

1. An accounting method questioned by nature

Managed forest lands, corresponding to “forests remaining forests” in the national inventory, refers to forest land that does not undergo any change in use. The Regulation provides for these forests to be accounted for using the “projected reference level” method. Under this method, the evolution of the forest sink over the accounting period (2021-2025 then 2026-2030) is modelled and the average sink is defined as a “reference level”: an actual forest sink larger than the reference implies an “accounting credit”, while a forest sink smaller than the

reference gives rise to an “accounting debit”. Under the Kyoto Protocol, the “forest reference level” was based in particular on an extrapolation of expected effects of forest management practices and intensity observed. The abundance of forest credits over the 2nd commitment period has led to questions about the validity of the assumptions used by countries in the construction of their FRLs. In order to improve the transparency and credibility of the new FRLs, they are now based on the projection of historical forest management practices as implemented over a reference period.

According to the Commission, the accounting choice of the projected reference level makes it possible to exclude legacy effects, — which depend, for example, on natural variations in age and diameter classes associated with forest ageing — the effects of natural and country-specific characteristics, or the impact of climate change on forest growth speed. The projected reference level thus aims to guarantee that the mere presence of carbon stock is not accounted for, and that only additional removals to the reference are accounted for as an “accounting credit”, therefore resulting in principle from specific efforts of countries. In theory, if the projected reference level is properly constructed, the amount of LULUCF credits linked to managed forest land is thus estimated to be negligible, in the absence of effective and additional actions, i.e., a real mitigation effort in the LULUCF sector.

However, from a practical point of view, the concrete additionality of the “accounting credit” actually reported through this method is questioned:

- many countries mention the difficulties encountered in modelling the evolution of the forest sink and the significance of the uncertainties in this area;

¹¹ The “forest reference level” is “an estimate, expressed in tonnes of CO₂ equivalent per year, of the average annual net emissions or removals resulting from managed forest land within the territory of a Member State in the periods from 2021 to 2025 and from 2026 to 2030, based on the criteria set out in this Regulation”.

- the data and the operations of the models used to establish the reference levels are not always transparent, and the countries submitting them benefit from strong information asymmetry in relation to the auditors who assess them.

Yet, the choices made to determine the reference level can have a very significant impact on the sector's accounting balance. The Commission's sensitivity analysis¹² in the impact assessment underlines the high variability of the managed forest lands accounting balance, on the basis of chosen reference level and harvest estimates. Thus, the choice of a higher or lower reference level may affect the accounting balance of the category by a magnitude order of 400 MtCO₂e at the EU level, while a variation of around 10% in the harvest levels compared to those provided for in the reference levels may imply an accounting balance variation of 400 to 600 MtCO₂e.

2. Policy question: what reference period for the reference level?

The exclusion of the anticipated effects of forest policies in the FRLs led to discussions focusing on the choice of the reference period that would be used to characterize the historical management practices that would then be projected. According to the period chosen, more or less intense harvest policies are considered business as usual. For example, increased harvests due to energy policies such as Renewable Energy Directive 2009/28/CE may imply an accounting debit on "managed forest lands", if this increase has not been taken into account in the construction of the reference level.

Thus, the Regulation specifies that the reference level must be based on the continuation of sustainable forest management practices as documented in the period from 2000 to 2009, and consequently does not take into account the impact of energy policies implemented after 2009. The forest reference level must also be constructed on the basis of a constant ratio between material and energy use of forest biomass, implying that the relative increase in material use should lead to accounting credits where the relative increase in energy use leads to accounting debits. At the level of the LULUCF sector alone, this reference encourages, on the one hand, the conservation and enhancement of the forest sink, while on the other hand it discourages any harvests increase linked to the use of energy wood. On a global scale, an increase in forest harvests leads to accounting debits in the LULUCF sector but can also generate accounting credits in other sectors (energy, tertiary) via substitution effects.

Conversely, including increased harvests objectives within the projected reference level actually makes them invisible from an accounting point of view. Thus, in June 2017, about forty scientists signed an editorial¹³ to alert against the dangers of including the impact of policies encouraging increased removals within the forest reference level. According to them, making the impact of increased harvests on the European carbon sink invisible from an accounting point of view would entail many risks:

- Compromise the coherence between the European climate targets and the IPCC trajectories. The EU target to reduce

GHG emissions by 40% by 2030 compared to 1990 level derives from the IPCC 2°C trajectory for developed countries. This trajectory is based on emissions reductions but also on the role of carbon sinks. If the European sink were to be reduced, additional emission reductions would be required in the other sectors to stay consistent with IPCC objectives. It is therefore necessary that this decline in sink be visible.

- Contradict the spirit of the Paris Agreement, which requires Parties to ensure transparency in accounting and NDC¹⁴ achievements without masking the impacts of national policies.
- Set an international precedent, which could lead other countries to do the same, for example on reference levels accounting for deforestation, and would compromise the expected contribution of forests to the Paris Agreement.
- Decrease the credibility of European bioenergy accounting: indeed, energy wood combustion is considered carbon neutral from an accounting point of view, only because emissions linked to wood harvesting are accounted for in the LULUCF sector, in order to avoid double counting. However, if an increase in removals is included in the reference level and is therefore invisible from an accounting point of view, it becomes difficult to justify the carbon neutrality of energy wood combustion.

B. Accounting rules to take forest specificities into consideration

1. A new flexibility mechanism for managed forest lands

Highlighting a situation of inequity between States due to the heterogeneity of historical forest management practices, and in order to temporarily increase harvesting intensities, the Regulation proposes an additional flexibility mechanism: a compensation for countries that would be in an accounting debit position both on the LULUCF sector and on the "managed forest land" category. The amount of flexibility for managed forest land is limited to a maximum of 360 MtCO₂e at the EU level over a 10 years period.

This mechanism should allow to keep emissions linked to harvests increase visible, without discouraging countries wanting to temporarily increase harvesting intensities as part of sustainable forest management. According to the Council, it specifically aims to better take forests age structure into account and to avoid penalizing forest countries where the age structure implies an increase in removals in the decades to come. However, the compensation available to Member States may not exceed the level at which their forests cease to constitute an absolute net sink (excluding comparison with the FRL).

Each Member State is therefore allowed an accounting debit in managed forests for the period 2021-2030. The maximum amount of this debit is proportional to its average sink over the period 2000-2009 and to its share of forest area in its total area. This would be to the advantage of the most forested countries. Indeed, according to the Council, forest countries, and in particular small forest countries, are more dependent on managed forest land to offset emissions from other accounting categories and have limited potential for afforestation. Thus, the most favoured countries are Austria, Estonia, Latvia and Slovenia, with a compensation covering about 32% of their sinks. France

¹² European Commission, Impact Assessment (page 20).

¹³ <http://www.euractiv.com/section/climate-environment/opinion/forest-accounting-rules-put-eus-climate-credibility-at-risk/>

¹⁴ Nationally Determined Contribution.

would have a total compensation potential of 61.5 MtCO₂e over the entire period, corresponding to approximately 12% of its sink. Finland would also be granted a compensation corresponding to 12% of its sink, plus a bonus of 10 MtCO₂e due to particular national circumstances.

However, this compensation would come with several conditions:

- The country must report an accounting debit on the “managed forest land” category.
- The country must report an accounting debit on LULUCF for all categories.
- The forests of this country must still constitute a carbon sink.
- The European Union as a whole must have an accounting credit position in the LULUCF sector (total emissions do not exceed total removals).
- The Member State must be in a position to present a long-term emissions reduction strategy, in which it has included concrete measures to maintain or enhance forest sinks by 2050 at the latest.

This compensation system simply makes it possible to prevent an accounting debit on the managed forest land category. Under no circumstances it may offset emissions beyond this category. In other words, any state that uses that flexibility mechanism on managed forest land loses LULUCF flexibility to the ESR.

2. Other accounting specificities of managed forest lands

a) Natural disturbances

Natural disturbances¹⁵, such as storms, wildfires, pest attacks, or droughts can induce short-term emissions related to the release of the carbon stored in biomass and soils. If these disturbances cannot be controlled by countries and are not due to forest management decisions, the emissions they generate can be excluded from accounting for the afforested and managed forest land categories. Member States can thus exclude emissions exceeding the average emissions from natural disturbances between 2001 and 2020. A few conditions must be met, such as demonstrating that no deforestation has taken place afterwards on lands affected by natural disturbances and for which emissions have not been accounted for.

b) Harvested wood products inclusion

The Regulation states that “*the increased sustainable use of harvested wood products can substantially limit emissions by the substitution effect*”. Accounting rules should thus be able to reflect changes in stocks of wood products “*when such changes take place, in order to recognize and incentivize the enhanced use of harvested wood products with long life-cycles*”.

¹⁵ Natural disturbance is defined as “any non-anthropogenic events or circumstances that cause significant emissions in forests and the occurrence of which is beyond the control of the relevant Member State, and the effects of which the Member State is objectively unable to significantly limit, even after their occurrence, on emissions.”

Member States must therefore account for emissions and removals resulting from variations in the carbon pool of the following harvested wood products: paper, wood panels, sawnwood. Other product categories may subsequently be added by the Commission, in line with the IPCC guidelines. This pool is estimated through the first-order decay function and half-life values¹⁶ and incorporated into the forest reference level estimates for managed forest lands¹⁷. In order to encourage the use of wood products, net removals generated by wood panels, sawn wood and dead wood are not subject to the 3.5% accounting credit limit that managed forest land have to comply with. This incentive reinforces the one linked to the use of a ratio between energy use and material use of forest biomass in the construction of FRLs.

Finally, energy wood and products in solid waste disposal sites are both accounted for according to the principle of instantaneous oxidation¹⁸.

c) Forestry accounting plans expected by the end of the year

The “*national forestry accounting plan*” is tied to the forest reference level for managed forest lands, and combines all the elements to justify it: methods, models and quantitative information used to establish the reference level, justification for the exclusion of some carbon pools, information on expected changes in harvest rates, forest characteristics, etc.

Each country must submit its forestry accounting plan and forest reference level before December 31, 2018 for the 2021–2025 period and before 30 June 2023 for the 2026–2030 period. These documents must be public.

In order to promote a common understanding between Member States when drawing up their FRL in 2018, and then to facilitate the review of FRLs in 2019, DG Clima commissioned a consortium of European consulting firms to prepare technical guidelines. Numerous exchange workshops between Europeans throughout the first half of 2018 allowed to publish a technical document at the end of July 2018 entitled “*Guidelines on the development and reporting of forest reference levels covered by Regulation (EU) 2018/841*” (Forsell et al. 2018¹⁹). Without replacing the official rules, this document provides many clarifications and recommendations for good practice in the development of FRLs. In particular, it takes up the step-by-step approach to the development of FRLs that was initially proposed by the Joint Research Centre (Grassi and Pili 2017).

¹⁶ Half-life value corresponds to the number of years it takes for the quantity of carbon stored in a category of harvested wood products to decrease to one half of its initial value.

¹⁷ “If it is not possible to differentiate between harvested wood products in the land accounting categories of afforested land and managed forest land, a Member State may choose to account for harvested wood products assuming that all emissions and removals occurred on managed forest land”.

¹⁸ Instantaneous oxidation is an accounting method that assumes that the release into the atmosphere of the entire quantity of carbon stored in harvested wood products occurs at the time of harvest.

¹⁹ <https://publications.europa.eu/en/publication-detail/-/publication/5ef89b70-8fba-11e8-8bc1-01aa75ed71a1/language-en>

Conclusion: dealing with a sector at the crossroads of multiple stakes

This Regulation on the inclusion of greenhouse gas emissions and removals from LULUCF in the 2030 climate and energy framework is the culmination of a multi-year process to finally include this sector in the European climate objectives. Arising from several steps of consultations and dialogues, it provides the necessary elements for the inclusion of the land-use sector: a climate target, accounting rules and flexibility mechanisms. These elements feed European positions in international climate negotiations and will influence the definition of how the land-use sector will be taken into account under the implementation rules of the Paris Agreement, which are to be adopted at COP24 in Katowice in December 2018.

In particular, the specific rules and trade-offs adopted for the consideration of managed forest lands reflect the ambiguities in the contribution of the land-use sector – and especially the forestry sector, to climate change mitigation. On the one hand, this sector contributes to CO₂ removals by conserving and enhancing carbon sinks, but on the other hand it also contributes to reducing emissions in other sectors through the production of wood products, which are renewable and generally less energy-consuming than their fossil equivalents. However, the simultaneous maximization of carbon sinks and wood product production is not possible in the short term, and a balance must be found between these two mitigation options. Climate policies short commitment periods (5 to 10 years) thus constitute an important difficulty for taking forests into account; their management and sequestration potential happen indeed over several decades. The various accounting rules and specific features proposed by this Regulation are intended to meet these various challenges.

References

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- **European Commission (2018):** Regulation (EU) 2018/842 of the European Parliament and of the Council of May 30, 2018 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 and amending Regulation (EU) No 525/2013.
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