Future climate policy: A new approach to the LULUCF Regulation

To reach the climate goals, Europe needs a new approach to the LULUCF sector. The new EU 2040 climate framework needs to focus on battling the core problem of global warming through reducing emissions and cutting use of fossil resources. To this end, the EU LULUCF Framework needs to be aligned to support a growing bioeconomy, increased competitiveness and European resilience.

The European Union has adopted ambitious climate targets for 2030 and 2050. A new climate framework for 2040 is underway. Meeting these goals requires our continent to cut emissions and make a rapid shift from fossil to renewable resources. Europe faces a large material and energy gap, and sustainable and renewable bio-based materials are essential in filling this gap.

A key vehicle towards meeting the climate targets is the Land Use, Land Use Change and Forestry Regulation (LULUCF). According to the Regulation, the EU land use sector needs to increase its net carbon removals by 15 percent by 2030; to 310 million tonnes of carbon dioxide equivalents ($MtCO_2e$). To achieve the target, the Regulation allocates national targets for each Member State. Of all EU countries, Sweden is the one expected to deliver the largest carbon sink, increasing the net carbon removals from forests and land by 4 $MtCO_2e$ by 2030 compared with a historical reference period.

Today, carbon sinks from forests and land are declining around Europe. According to European Environment Agency (EEA), LULUCF carbon removals are in decline in heavily forested Member States, as well as in the EU as a whole. With existing measures, land use sector's average annual net carbon removals are expected to amount to 206 $MtCO_2e$ for the 2022-2050 period, well below the 310 Mt target.

These LULUCF carbon removals are almost entirely composed of increasing carbon stocks in forests. The current geopolitical situation with expectations for self-sufficiency in energy and material supply, high demand for wood, combined with import restrictions as well as the climate change impact on forests and a reduced net growth due to maturing forest stands widen the gap between current net carbon removals and the LULUCF targets.

LULUCF needs to be aligned to support a growing bioeconomy, increased competitiveness and European resilience

A successful revision of the LULUCF Framework – SFIF policy recommendations:

1. Measure and report the substitution benefits of biobased products

Forests provide three types of climate benefits: 1) substitution of fossil alternatives with bio-based products, 2) carbon removals in products and permanent storage, and 3) carbon removals in forests.

To make the total benefits visible, LULUCF should require Member States to quantify and report the substitution benefits of biobased products, including an analysis of the relationship between net carbon removals and substitution benefits. In practice, the substitution effect can be quantified through a new internationally recognized ISO-13391 Greenhouse Gas Dynamics standard[1].

Why? At the EU level the contributions of bio-based products in reducing or preventing fossil emissions has been quantified at 400 $MtCO_2e$/yr by

[1]ISO/DIS 13391-Wood and wood-based products — Greenhouse gas dynamics

Swedish Forest Industries

two independent reports[2], or about 15% of total EU emissions. With investment in production and even more efficient use of biobased materials, this may increase considerably to 2050. However, incentives for maintaining or increasing this contribution is largely absent, as there is no reporting of substitution effects in other sectors. This risks leading to to a one-sided focus on reducing domestic production of renewable raw materials in favour of short-term, uncertain carbon storage in forests.

2. Long-term approach to support substitution, bioeconomy and forest carbon sinks

A well-functioning circular bioeconomy built on domestic, easy-available raw material is key for not only European competitiveness but also its security. LULUCF needs to ensure a holistic and realistic approach that can accommodate long term carbon sinks for 2050 and beyond in a growing bioeconomy. In that regard it is crucial that short-term LULUCF sink targets don't undermine the availability of renewable raw materials.

Why? Actively managed, healthy forests provide long-term net carbon removals and renewable raw materials. This requires a policy framework – particularly under LULUCF – that provides flexibility and enables sustainable forest management and increased forest growth over a century-scale horizon. This approach maximizes climate benefits over time. In contrast, reduced harvesting leads to aging forests with lower sequestration capacity and greater vulnerability to fire, wind, and pests[3]. The Swedish Forest Agency's 2022 scenario analysis show that short-term increases in net carbon removals result in lower long-term net removals. Moreover, limiting harvests in the EU risks carbon leakage – shifting emissions abroad – while weakening the bioeconomy, employment, and strategic autonomy in wood supply.

3. Bottom-up approach building on national assessments as a basis for an EU-level ambition

To be applicable, fixed targets should give way to a bottom-up approach where Member States assess and provide a prognosis for net carbon removals to 2040 and 2050. This can then serve as a basis for an overall indicative EU-level ambition for the sector.

Why? To work and to be measurable, it is important that expectations on LULUCF net carbon removals are realistic and based on actual potential to sequester carbon. There sector is characterized by inherent uncontrollable biological factors, methodological uncertainties and variations in natural conditions in regions around Europe. The efficiency and capacity of a forest to sequester carbon depends on factors like forest type, climate, soil type, hydrology, weather, land-use history and forest management practices.

4. Analyze long-term carbon sink development

Grasping the impact of LULUCF to long-term climate mitigation requires thorough analyses and assessments. This can be carried out by using a forest resource model or a dynamic global vegetation model. Changes in forest management impact long-term carbon sequestration; simulations should therefore include an assessment of long-term consequences after 2050 and towards 2100.

Why? Any new policy needs to support the long-term targets of the EU Climate Law and the Paris Agreement. Achieving climate-neutrality in 2050 and negative emissions thereafter means that carbon sinks are needed beyond 2050. Long-term forest carbon sinks are best achieved with a healthy and growing, actively managed forest.

5. Expand the current list of harvested wood products

to a list of carbon storage products and solutions to comprehensively cover all types of forest-based products. The expanded scope should include products resulting from pulping, including by-products and residues; structural wood applications such as cross-laminated timber, laminated veneer lumber and glue-laminated timber; and permanent removals via bio-CCUS.

Why? This will ensure greater accuracy and transparency of real climate impacts of products and enable the substitution of fossil-intensive materials in industries like construction, packaging and energy storage. Structural wood products are engineered for strength, stability, and long-term durability, meaning that the default half-life values of mass timber products will substantially exceed default 35-year half-life of the sawn wood category. In the absence of IPCC data for this product category, the half-life values can be modelled after the new ISO 13391 Greenhouse Gas Dynamics standard.

[2] Substitution potential and climate impact in the EU forest value chain_AFRY 2024 and Climate effects of the forest-based sector in the EU_Holmgren 2020

[3] See e.g.: On the role of forests and the forest sector for climate change mitigation in Sweden - Petersson - 2022 - GCB Bioenergy - Wiley Online Library, Managing existing forests can mitigate climate change - ScienceDirect, 2021-11 Sustainable boreal forest management – challenges and opportunities for climate change mitigation

Changes in methodology and climate-induced draught takes Sweden further from its target

Like majority of EU countries, Sweden is far from its 2030 target. The gap towards the target has increased significantly compared to last years' national climate report. The main reason is not changes in forest management or industrial roundwood use, but changes made in national calculation methods for forest carbon removals. Alongside the fact that forest growth in Sweden has been declining for some time, primarily due to drought and insect infestations[4], the country now must increase annual carbon removals by 19 $MtCO_2e$, as opposed to the intended target of 4 $MtCO_2e$.

When the current LULUCF Regulation was adopted, the national target was challenging but not unreasonable. At the time, the assessment was that the commitment would be achievable through active forestry and an extra effort to increase forest growth. However, changes in calculation methods have multiplied this commitment.

Reaching an increase of 19 $MtCO_2e$ to 2030 by reducing harvesting levels would imply a decrease in roundwood availability of 14 million cubic meters. This volume of wood corresponds to a loss of 2,2 billion EUR in added value and over 20 000 jobs.

The Swedish case is an example of how LULUCF methodologies are constantly revised and further developed, meaning that both current and historical data are continuously changing. This means that LULUF targets are constantly shifting, leading to an unpredictability that is difficult for policy makers to respond to. Furthermore, there are no common methodologies at the EU level, so the results of the individual Member States' carbon accounting are not comparable.

FACT BOX

Forests provide three types of climate benefits:

1) substitution of fossil alternatives with bio-based products,
2) carbon removals in products and permanent storage, and
3) carbon removals in forests.

Active sustainable forest management that provides high growth, i.e. carbon sequestration, and increased availability of renewable materials gives the highest long-term climate benefit from the forest.

Already today, the amount of carbon stored in Swedish forests is very large. This is the result of a stable political framework and long-term investments in active forest management. During the last one hundred years, both the volume of timber and the growth in Sweden's forests have doubled. This increase equates to 2 billion tons of CO_2, equalling two thirds of EU's total emissions at today's level. And during the same time, we have taken out four times that amount of wood from the forests, creating welfare and renewable products and energy.

This is a case example of how it is possible to find synergies of investments into active sustainable forest management and forest growth, enabling both a large carbon sink in the forest as well as harvesting that generates renewable products and welfare.

[4] Perspectives: Swedish forest growth decline: A consequence of climate warming? - ScienceDirect

THE SWEDISH FOREST INDUSTRY is an essential contributor in the green transition to a more circular and biobased economy. The industry refines wood resources to bio-based products, such as pulp, paper, board, packaging material, sawn timber, refined wood products, biobased electricity and heat and advanced biofuels. The core business is industrial activities based on wood sourced from sustainably managed forests, but among the industry are also some of the largest private forest holdings in Europe. Any forest, climate, environmental, energy and product related European Union policy is of high importance.

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