Suomen luonnonsuojeluliitto
The Finnish Association for Nature conservation

POLICY BRIEF
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Stumbling on a Stump?

How to Ensure Sustainability of Forest Use in EU Climate and Bioenergy Policies. Including: Case Study From Finland.

Intro

A sustainable bioeconomy must be based on the prudent use of resources, which prevents overconsumption and decreases emissions of greenhouse gases. It must also protect biodiversity, water bodies, food security and a safe environment.

The fulfillment of European commitments under the Paris treaty and the European biodiversity targets urgently require policymakers to reconsider current proposed climate and renewable energy regulations. Without a reorientation the European forest bioeconomy is poised to be based on increased logging, short-lived wood products and bioenergy. The good news is that measures to improve climate integrity and sustainability criteria could go a long way to improve the situation.

Based on a case study from Finland, this policy paper shows how weak sustainability up to the year 2030 will endanger climate targets and the well-being of forest ecosystems. A sustainable bioeconomy in Finland would safeguard the forest ecosystem and its multiple uses, which produce several ecological, social and economic benefits.

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Climate Impact of Forest Bioeconomy

Globally, ecosystems absorb over half of the annual fossil fuel emissions. They function as an important buffer against climate change.

In the land use sector [land use, land use change and forestry, or LULUCF] carbon flows between ecosystems and atmosphere are measured on an annual basis. Part of the flow is natural and part of it is caused by human impact.

Currently 60 % of Europe's renewable energy is based on forest biomass. Bioenergy is supported politically and financially. Logging of trees for the use of bioenergy transfers greenhouse gases from the forest to the atmosphere. If logging is increased from present levels, the ability of forest ecosystems to buffer climate change is reduced, leading to an increased concentration of CO^2 and other greenhouse gases in the atmosphere – and more climate disruption in the upcoming decades.

The stocks of carbon in forests and soils are decreased when bioenergy is utilised. Different sources of forest bioenergy have different climate impacts. The emissions from stumps and roundwood remain on the level of fossil fuels or higher for the time frame relevant for combatting climate change.

While the CO^2 released when a tree is removed is temporary, fossil fuel emissions are moved for thousands of years from the ground to the atmosphere. If EU Member States are allowed to offset their emissions with LULUCF, it could reduce the EU's emissions reduction target by more than 10 per cent and lead to increased warming.

Forests as part of European Climate Policy

The forest area of EU member states have been restrictedly part of European decision making, but forests are relevant for climate and bioenergy policies. Particularly the fair and transparent accounting of the climate impact of forests is important to ensure the integrity of EU climate policy.

The Land-use sector is being included in EU emissions reduction targets from 2020 onwards. The European Commissions proposal for LULUCF (Land-Use, Land-Use-Change and Forestry) regulation aims to include all sources of emissions, including those of bioenergy. The increase of sinks must be accounted for, as must that of their increase.

For forests the Commissions LULUCF regulation proposal is based on forest reference levels, which the carbon balance is compared to. Each country defines a reference level by the year 2018 and it is to be based on the quality and intensity of forestry between the years 1990-2009, assuming that forest policy is unchanged and no additional logging takes place. This means that changes in logging levels after 2009 would have to be accounted for and it would be hard to hide the emissions of forest bioenergy. Several forested countries with ambitious bioenergy plans are lobbying intensely to alter the content of the proposal.

Finland is Cutting its Carbon Sinks

If the amount of forest cuttings decreases the sink will increase.

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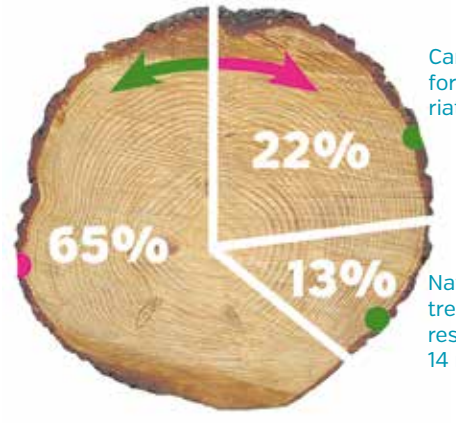


Carbon sink: uncut managed forests, conservation and recriational areas 23 million m³

Forest cuttings 68 million m³

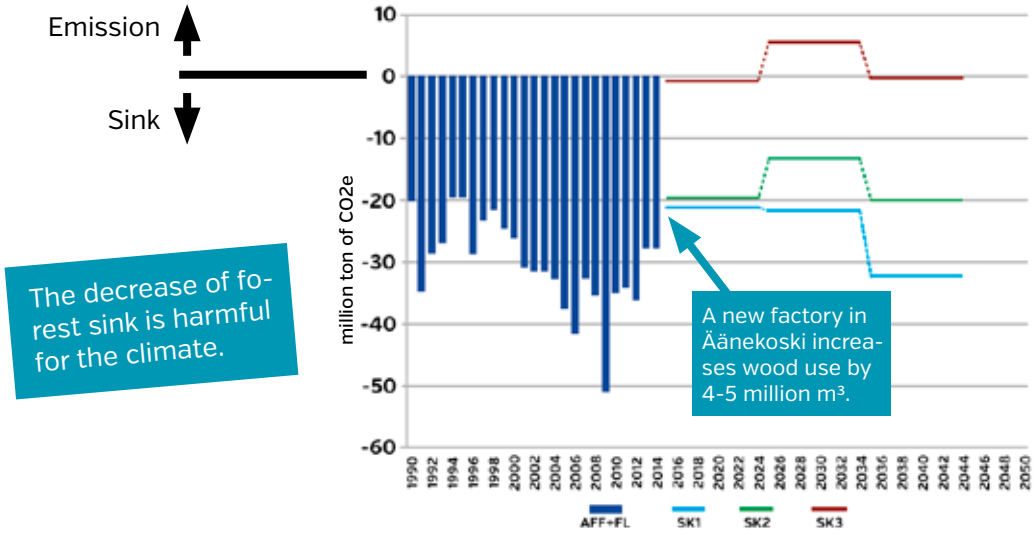
Natural loss and decaying trees that remain in the forest land after clear cutting 14 million m³

In year 2015 the growth of round wood in Finland was 105 million cubic meters. The estimates of cutting potential in the future vary. Forests will act as carbon sinks as long as the yearly growth is larger than forest cuttings and natural losses. If forest cuttings and the gathering of forest residues increase, the amount of usable round wood as well as the carbon stocks of forest soils decrease.

Source: Natural Resources Institute Finland, 2016.

Political Decisions Drive Climate Impact of Forests

The Finnish forest carbon balance between 1990–2014 in baseline (SK1), politically driven (SK2) and maximum wood production potential (SK3) scenarios between 2015-2044 (million CO^2e tons/annum). A negative value implies removal of CO^2e (sink) and a positive one implies a net emission. As can be seen from years with decreased logging (2009) the Finnish forests have a large potential to mitigate climate change in the short and medium term.



In the basic scenario (SK1) the use of wood in the industry increases by the investments already decided (Äänekoski), being 61 million m³.

In the politics scenario (SK2) wood use increases by further 7 million m³ by 2035.

In the largest sustainable wood production scenario (SK3) the wood use increases by 19 million m³ compared to SK1. The amount of wood used for bioenergy is not included.

Source: LUKE, 2016

Case Study: Finland

The boreal forests of northern Europe store more carbon annually than they release. This has during recent decades lead to an increased stock of carbon in the trees and forest soils.

The Finnish Climate and Energy Strategy (2016) is based on increasing logging by 15 million cubic meters or almost 25 percent annually compared to present levels. More wood use is planned on four fronts: firstly, in the plans for forestry industry investments; secondly, replacing hard coal with bioenergy; thirdly, increasing the use of wood-based fuels, and fourthly, in other wood-based industries. Supplying wood to all planned investments in Finland would require increasing logging by considerably more than the government has announced.

The aim is to increase logging to 80 million m³ annually. A target to increase wood chip supply to 14,5 million m³ annually has been set which implies doubling present levels. Forest bioenergy is set to increase from 93 TWh to 120-130 TWh. Analyses of availability of sustainable sources of wood by the National Resources Institute suggest that the high demand for woody biomass would lead to increased use of stumps and roundwood for bioenergy.

The Finnish forest sector has been an important carbon sink during recent decades, and almost a third of Finnish annual emissions have been stored in the forests. An environmental impact analysis of the energy and climate strategy by leading researchers concluded that after increased logging “Finnish forests will remain a carbon sink, but the carbon sink will be reduce[d] to half of the current levels”.1

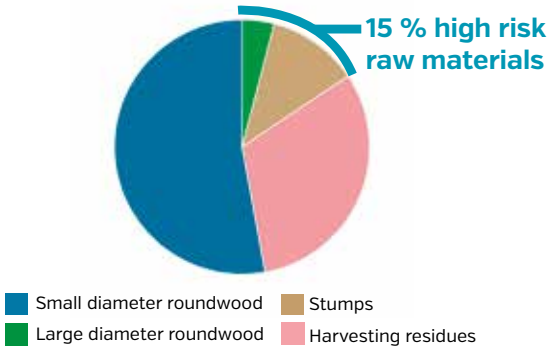
The estimated impacts on the annual forest sink is summarized in table 1 below. As can be seen from the figures, the total emissions in Finland increase or remain the same between 2014-2030 at roughly 38 million tons of CO^2. The emissions stay flat even though Finnish industry is set for considerable emissions reductions through Emissions Trading (ETS sector), and even though Finland also has the second highest target for the non-ETS sector including agriculture and transport (39 %). If a country such as Finland produces no net emission reductions by 2030, we can ask what remains of the climate integrity of European policies?

WEM (With Existing Measures, although previously announced increased logging is included), WAM (With Additional Measures). Million tons of CO2 equivalent per year.

Sector	2014	2030 WEM	2030 WAM
ETS-sector (inc. industry and electricity production)	29	21	21
ESR-sector (non-ETS, including agriculture and transport)	30	26	21
Land-use sector (LULUCF)	-21	-6	-4...-7
Managed forest land	-28	-13	-10...-13
Wood products (HWP)	-4	-4	-5
Other land use	11	12	11
Total	**38**	**41**	**36...39**

Table 1: Translated from Summary of Impact Analysis by The Governments Office (VNK) published 2 February 2017.

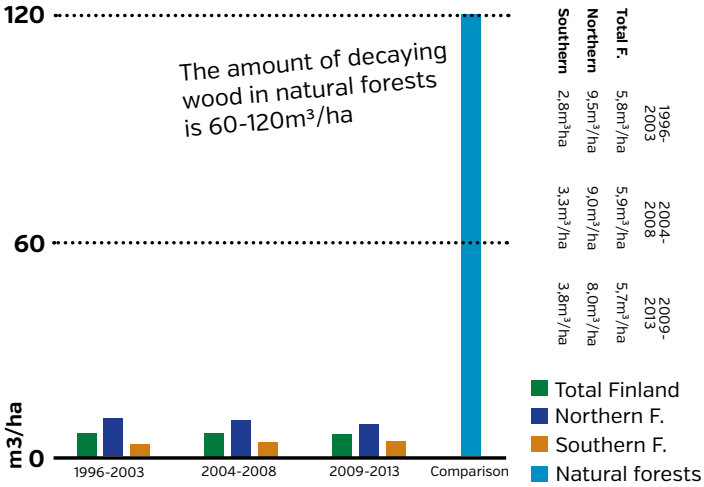
The Use of Wood Chips was 7,3 million m³ in 2015



The share of high risk biomass sources (stumps and large diameter round wood) was 15 %. Their energy use also receives government subsidies.

Source: Natural Resources Institute Finland, 2016.

The Amount of Decaying Wood Diminishes



Source: Forest statistical yearbook 1996-2013; Siitonen 2001; Ranius et al. 2004.

Forest Biodiversity Hinges on Deadwood

Finnish forest ecosystems are under pressure. Currently 814 species are endangered and 776 species more are on the verge of being endangered. Of all endangered species 36 per cent live primarily in forests. The situation is particularly weak in Southern Finland where only 2,6 per cent of forests are protected.

The lack of deadwood in forests is one of the primary reasons for the deterioration. The harvesting of stumps for bioenergy further aggravates the lack of deadwood in Finland, and also negatively impacts water quality and reduces the cover of blueberry in forests. This has profound impacts on insects and the whole food-chain of forest species.

According to a recent study 89 % of Finns thought that forest biodiversity is more important than the increase of logging. The recreational value of forests and their multiple social, ecological and economic benefits are thoroughly appreciated, but safeguarding them would require renewing forestry practices thoroughly.

The European Commission has proposed sustainability criteria for biomass as part of the new renewable energy directive. The proposed criteria are not fit to guarantee climate benefits and biodiversity in Finland, as they only function as a check-list for forest legislation and emission monitoring. Environmentally problematic high-emissions raw materials such as stumps and roundwood are not excluded from the energy mix nor from renewable energy subsidies.

How to Put Sustainability First:

- Loss of biodiversity in the EU must be halted by 2020 in line with EU Biodiversity targets, and any new demands for bioenergy or woody biomass must not endanger the targets
- Bioenergy needs to account for its real impact on climate change and biodiversity in the energy sector, to ensure that demand is driven towards low-emissions and low-risk bioenergy
- Risky raw materials such as stumps, roundwood (over 10 cm in diameter) and biomass from protected areas should be excluded
- In the land-use sector (LULUCF), counting of emissions and sinks must be based on the climate impact and its change
- The land-use sector should have an ambitious independent target and quality monitoring, and emissions in other sectors should not be offset by emissions savings in the LULUCF sector
- A minimum level of energy efficiency is needed to prevent the wasteful use of bioenergy and biofuels

Sources:
Government report on the National Energy and Climate Strategy for 2030; Finnish Climate Panel report (2015): Metsien hyödyntämisen ilmastovaikutukset ja hiilinielujen kehittyminen; European Commission legislative proposals on LULUCF and RED II (2016); The Finnish Museum of Natural History; Ministry of The Environment (2010): The 2010 Red List of Finnish Species; Prime Minister's Office (2017): Impact assessments of the Energy and Climate strategy: The summary report