



**UiT** The Arctic University of Norway

Faculty of Law

## **Accounting for the greenhouse gas emissions from forest-based bioenergy in EU legislation**

A critical analysis of the presumption of carbon neutrality in the Renewable Energy Directive and the Land-Use, Land-Use Change and Forestry Regulation with Finland as example of implementation at the national level

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## **Abstract**

As largest source of renewable energy, forest-based bioenergy is an important source of energy for the EU. In the Renewable Energy Directive, the EU instrument that promotes the use of renewable energy, forest-based bioenergy is considered to be a carbon neutral source of renewable energy. This presumption is connected to the condition that the emissions from the harvesting of trees as a result of the production of forest-based bioenergy are accounted for under the Land-Use, Land-Use Change and Forestry Regulation. However, this system of carbon neutrality shows inconsistencies with science and gaps in the associated accounting system. In Finland forest-based bioenergy plays an important role in the energy production and consumption. The question rises if Finland has the opportunity to fill in the gaps from the EU framework when implementing the EU framework in its national legislation and to ensure that the use of forest-based bioenergy can be aligned with the emission reduction target of the country.

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## Abbreviations

CO <sub>2</sub>	Carbon dioxide
ETS	Emissions Trading System
EU	European Union
FRL	Forest reference level
GHG	Greenhouse gas
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
JRC	Joint Research Centre on Bioeconomy of the European Commission
LULUCF	Land-Use, Land-Use Change and Forestry
MTCO <sub>2e</sub>	Metric tons of carbon dioxide equivalent
NDC	Nationally Determined Contribution
NFAP	National Forestry Accounting Plan
NGO	Non-governmental organisation
RED I	Renewable Energy Directive (2009/28/EC)
RED II	Recast Renewable Energy Directive (2018/2001/EU)
SDG	Sustainable Development Goal
TFEU	Treaty on the Functioning of the European Union
UNFCCC	United Nations Framework Convention on Climate Change

## Foreword

This thesis about the use and promotion of forest-based bioenergy and the possible implications it has on the reduction of greenhouse gasses is a perfect example of the sometimes difficult balancing act that policy-makers face, both at the EU and national level, when finding a solution for the replacement of fossil fuels. This energy issue of how to replace fossil fuels is a highly complex issue whereby many different interests are at stake. How this balancing act is done at the EU level and the complex regulations that it leads to, is an issue that interested me greatly. I hope that with this thesis, I can contribute to a better understanding of the legal framework and whilst doing this spark the interests in this issue.

I believe that the regulation of forest-based bioenergy comprises all the different aspects of law that I learned over the last two years. This makes this thesis the end product where I can show what I have learned. But before I start, I want to use this foreword to thank the many people that assisted me during these last two years of my study.

First and foremost, I want to express sincere thanks to my supervisor Julia Gaunce. Even though the circumstances of this time did not allow us to meet in person, you managed to make the supervision process as effective and comfortable as possible. The many discussions we had over zoom as well as your comments and words of encouragement have been my guideline in times where I sometimes felt lost in the process. I am very grateful for this supervision and I learned a lot from your approach, so thank you very much.

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I would also like to thank my classmates of the NOMPEL programme. Our time together was unexpectedly interrupted on a certain day in March 2020, due to COVID-19. However, even from a distance I could always approach you with all my questions. I feel very luck to have met you all and to have shared this unique experience together. I am confident that you will all achieve great things in life and hope that our paths will cross again some day, wherever that may be.

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# 1 Introduction

## 1.1 Background

Bioenergy, derived from different biological sources such as animal waste, feed crops and wood, is an important source of renewable energy within the European Union (EU): in 2016 more than 59% of EU's renewable energy came from bioenergy and in the gross final energy consumption of the EU, forest-based bioenergy had a share of 10%.<sup>1</sup> The main source of bioenergy is wood: more than 60% of the bioenergy produced within the EU is wood based. A significant amount of wood required for the production of this forest-based bioenergy is coming from European forests since the EU imports only 4% of its bioenergy.<sup>2</sup> This number of 60% is expected to increase in the future since the EU has increased its climate change ambitions: in December 2019 the EU Commission introduced the ambition of becoming the first climate-neutral continent by 2050 in the so-called European Green Deal.<sup>3</sup> In concrete terms, this entails that by 2050 there are to be no net emissions of greenhouse gases (GHGs). The energy sector, responsible for more than 75% of EU's GHG emissions, inevitably will play an important role in the accomplishment of this goal.<sup>4</sup> Fossil fuels will have to be phased out and a transition towards renewable energy will have to be made.

The use of bioenergy comes with different benefits: the improvement of EU's energy security and the potential to decrease EU's GHG emissions by the replacement of fossil fuels. However at the same time, depending on the source or used technology, bioenergy can also have adverse effects on the environment. For instance, bioenergy can be responsible for soil degradation, biodiversity loss and even increases in GHG emissions through the combustion and impairment of carbon sinks.<sup>5</sup> This is especially the case in regard to forest-based bioenergy in which trees are combusted with the aim of energy production.

To address the possible adverse effects the EU has established a system of sustainability and greenhouse gas emissions saving criteria, which (forest-based) bioenergy must meet in order to contribute towards the achievement of the energy target set out in the EU Renewable

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<sup>1</sup> JRC (2019), p. 2.

<sup>2</sup> Ibid, p. 2-3.

<sup>3</sup> COM(2019) 640 final, p.1

<sup>4</sup> JRC "Facts and figures on bioenergy in the EU" (28 January 2019). <<https://ec.europa.eu/jrc/en/science-update/facts-and-figures-bioenergy-eu>> (last accessed 18 May 2021).

<sup>5</sup> FAO (2010), p. V.

Energy Directive (RED) and in order to receive financial support.<sup>6</sup> In this context of the sustainability and GHG emissions saving criteria, the concept of carbon neutrality of forest-based bioenergy emerges: even though forest-based bioenergy can have adverse effects for the environment, the EU Renewable Energy Directive regards forest-based bioenergy, and more specifically the combustion of trees, as carbon neutral. This presumption is connected to the condition that the emissions from the harvest of trees are accounted for under the Land-Use, Land-Use Change and Forestry Regulation (LULUCF Regulation). However, scientists have expressed their concerns about the possible adverse effects that this legal construction of carbon neutrality could have on the actual emissions of greenhouse gasses. These concerns also led to the application of a case before the Court of Justice of the European Union in 2020, but the case was found to be inadmissible on the ground of a lack of standing of the plaintiffs (see section 6.3.3.2). Regardless the outcome, the case demonstrates the relevancy of this issue and raises questions about the motives of the EU behind the legal construction that considers forest-based bioenergy a carbon neutral source of energy.

This thesis includes a critical assessment of the concept of carbon neutrality in regard to the use of forest-based bioenergy and the accounting system that it is connected to. Finland is used as an example of how the accounting for emissions from forest-based bioenergy can affect the policy in Finland. This choice is grounded on the fact that Finland is a member state of the EU where forest-based bioenergy plays an important role in the energy policy (see section 3.1). Moreover, at the time of writing, Finland is in the process of revising its current legislation to implement the Renewable Energy Directive. By June 30 2021 Finland needs to transpose this Directive into its national law.<sup>7</sup> As a regulation, the Land-Use, Land-Use Change and Forestry Regulation does not need to be transposed in national law. The first accounting period started in January 2021.<sup>8</sup> In this context, Finland needs to rethink how it wants to regulate the use of forest-based bioenergy.

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<sup>6</sup> Art.29.1 Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources [2018] OJ L 328/82. (RED II) Art. 3.1 of this Directive sets out the target for the EU to achieve by 2030 the situation where renewable energy is responsible for at least 32% of the gross total energy consumption of the EU. This will be discussed in section 5.1.1.

<sup>7</sup> Art. 36.1 RED II.

<sup>8</sup> Recital 34 Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU [2018] OJ L 156.

Also, the EU is, at the time of writing, preparing revisions of its Renewable Energy Directive and Land-Use, Land-Use Change and Forestry Regulation in order to make it align with the objectives of the Green Deal. These planned revisions make it relevant to make a critical assessment of the current legal framework governing forest-based bioenergy and to identify possible weaknesses in the system.

This thesis starts with a short overview of why the use and production of forest-based energy is a challenging activity to regulate (chapter 2), before the use of forest-based bioenergy in Finland is discussed (chapter 3). The fourth chapter sets out the emission reduction targets of the EU. Thereafter the EU's legal framework regulating forest-based bioenergy is explained (chapter 5). The focus in this chapter is on the Renewable Energy Directive and the Land-Use, Land-Use Change and Forestry Regulation. Afterwards the accounting system that these two EU instruments create is discussed in more detail (chapter 6). This is where the concept of carbon neutrality of forest-based bioenergy is discussed and where the implications of this concept are critically analysed. Finally, in chapter 7 an assessment is made of the legal impediments that Finland faces when implementing the EU instruments regulating the use of forest-based bioenergy, and more specifically when the accounting system is implemented in its national legislation and the possibilities it has to strengthen the accounting system. This is based on the critical analysis of chapter 6 and the weaknesses that are identified in chapter 6. The thesis is finalised with some conclusions.

## **1.2 Research questions and research objective**

This thesis aims to answer the following legal research question: how do the concept of carbon neutrality, included in the Renewable Energy Directive, and the corresponding accounting system of the Land-Use, Land-Use Change and Forestry Regulation affect the greenhouse gas emission targets of the EU and its member states?

Finland is used as an example of implementation to identify possible legal impediments that could arise when implementing the concept of carbon neutrality of forest-based bioenergy and the associated accounting system in its national legal system. It is assessed if there are possibilities at the national level to fill in the gaps from the EU instruments.

To answer the central question several sub-questions need to be answered first:

- To which legal obligations is the EU bound to reduce greenhouse gas emissions?

- How does the current EU framework account for the GHG emissions from forest-based bioenergy?
- Does the presumption of carbon neutrality in the Renewable Energy Directive and the corresponding accounting system of the Land-Use, Land-Use Change and Forestry Regulation come with shortcomings?
- What legal issues arise when Finland implements the accounting mechanisms of the Renewable Energy Directive and the Land-Use, Land-Use Change and Forestry Regulation in its national legislation?
- If it is shown that the use of forest-based bioenergy contradicts/hampers the EU climate change mitigation targets, how can the EU improve the legal framework?
- If it is shown that the use of forest-based bioenergy contradicts/hampers the EU climate change mitigation targets, what measures can Finland take to improve the legal framework?

The objective of this research is to critically assess whether there are possible weaknesses in the legal framework in regard to accounting for greenhouse gas emissions coming from the production of forest-based bioenergy. The findings of this research can be relevant for potential improvements of the legal framework and ultimately in increasing the effectiveness of the instruments that are part of the legal climate change mitigation regime.

### **1.3 Delimitation of the scope**

The use of bioenergy in the EU is a broad topic that gives rise to many different possible legal questions. Due to limited time and space certain delimitations of the subject were made. First, only issues related to forest-based bioenergy are discussed, opposed to other sources of bioenergy. The reason behind this choice is the controversy surrounding this source and more specifically, its inclusion in the Renewable Energy Directive as a carbon neutral source of energy. The planned revision of the Directive makes this a relevant issue.

The scope of this thesis is limited to the effects that the EU instruments regulating the use of forest-based bioenergy have on the possibility to reduce GHG emissions and consequently achieve the emissions reduction targets of the EU. Although other environmental and human

rights issues, such as biodiversity protection and the rights of the Sami people, are very strongly connected to this issue, these will not be addressed in this thesis.

Moreover, only the use of forest-based bioenergy in electricity and heating and cooling will be discussed. The use of forest-based bioenergy in the transport sector and the specific rules that apply in this sector fall outside the scope of this research.

Lastly, a delimitation of the sources relied on is also required. At the EU level, the review of the Renewable Energy Directive and Land-Use, Land-Use Change and Forestry Regulation are analysed, as they are the main legal instruments that regulate the use and promotion of forest-based bioenergy within the EU. Besides those two instruments, the EU Climate and Energy Framework includes two other ‘pillars’: the EU Emissions Trading System and the Effort Sharing Regulation, but those fall outside the scope of this research.

At the national level, Finland is used as an example of implementation. The choice of Finland is justified by the role that forest-based bioenergy plays in Finland (see chapter 3). When analysing the Finnish situation solely sources in English are used.

## **1.4 Methodology**

The research of this thesis is conducted by using legal doctrinal research as methodology. Hereby I aim to “give a systematic exposition of the principles, rules and concepts governing a particular legal field (...)” and supplement this with an analysis of “the relationship between these principles, rules and concepts with a view to solving unclarities and gaps in the existing law”.<sup>9</sup>

In order to be able to answer my central research question, I look at law from the inside. This means that internal standards of law are used to make an analysis of how the concept of carbon neutrality included in the Renewable Energy Directive and the corresponding accounting system of the Land-Use, Land-Use Change and Forestry Regulation affect the greenhouse gas emission targets of the EU and its member states. More concretely, I focus on the Renewable Energy Directive and the Land-Use, Land-Use Change and Forestry Regulation, since these two instruments are the key components of the greenhouse gas

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<sup>9</sup> Smiths, 2015, p. 5.

accounting system. Apart from the EU legislative instruments, EU documents and secondary literature in the form of research articles are used as source of information.

When analysing the implementation of the EU instruments in Finland, the main sources that are used are documents/reports that Finland provided to the EU in regard to the implementation of the instruments and official translations of national legislation ([www.finlex.be](http://www.finlex.be)) and information provided by the Finnish government.

Finally, it is noteworthy to mention that since the use of forest-based bioenergy must be situated within the context of climate change, reliance on natural science is necessary to set out the problem: it provides the background against which legal challenges can be identified. Since I am not trained to do this research myself, I rely on data already collected by other researchers to set out the environmental issues connected to the use of forest-based bioenergy.<sup>10</sup> More specifically, authoritative sources are used such as the reports provided by the Intergovernmental Panel on Climate Change and the International Energy Agency.

## **1.5 Literature review**

The use of forest-based bioenergy in the EU is not a new topic in the literature. In 2014 Schmeichel made an extensive legal assessment of the EU Renewable Energy Directive in regard to the sustainability of the biomass that is imported from outside the EU (Schmeichel, 2014). This work provides an explanation of basic terminology in a clear manner and sets out systematically the different environmental benefits and disadvantages connected to the use of bioenergy. Moreover, the balancing between different interests when designing a bioenergy policy is explained, whilst being applied to the sustainability criteria of RED. However, this work dates from before the 2018 revision of the Renewable Energy Directive and has a focus on bioenergy in general, not forest-based bioenergy. This gives rise to the question whether the same conclusions still apply to the reviewed Renewable Energy Directive.

Furthermore, multiple authors are pointing out the ineffectiveness of the current sustainability criteria of the Renewable Energy Directive. Some make the connection between the use of forest-based bioenergy and the goal of biodiversity protection and the climate change

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<sup>10</sup> Taekema and van Klink 2011, p. 24.

mitigation goals of the Paris Agreement and point out the difference between sustainability and carbon neutrality (Searchinger et al., 2018). Other authors focus only on the accounting system of the Land-Use, Land-Use Change and Forestry Regulation (Romppanen, 2020, LULUCF Regulation, Savaresi, Grassi).

However, less is written about the connection of the concept of carbon neutrality contained in the Renewable Energy Directive and the accounting system of the Land-Use, Land-Use Change and Forestry Regulation. Romppanen did make an analysis of how the ability of forest-based bioenergy to reduce greenhouse gases is treated under the Renewable Energy Directive and Land-Use, Land-Use Change and Forestry Regulation (Romppanen, 2020). Herein, she came to the conclusion that these two instruments show weaknesses and are not capable of taking the emission of forest-based bioenergy fully into account. However, due to the page limitation, this article cannot comprehensively discuss all the aspects of this relationship. Furthermore, this article focuses on the European instruments and does not elaborate on the implementation of these instruments at the national level and the possibilities that this implementation provide.

## **2 Bioenergy: a problem, as well as a solution for climate change mitigation**

### **2.1 What is forest-based bioenergy?**

Bioenergy is the energy produced from biomass, using different techniques including combustion. Biomass is biological material that is derived from living or recently living organisms.<sup>11</sup> Examples are agricultural crops such as maize and palm oil, agricultural waste and trees. When the latter are transformed into energy, one can speak of bioenergy produced from forest biomass or forest-based bioenergy.

Forest-based bioenergy can be produced from different parts of trees. For example residual materials from trees such as branches, stumps, bark and even sawdust which are by-products from logging operations or by-products of industrial wood processing operations, can be used to produce energy.<sup>12</sup> But not only by-products are used, also whole trees are harvested for energy production.

### **2.2 Forest-based bioenergy as source of renewable energy**

Within the EU, bioenergy is the largest source of renewable energy. In 2016, 59% of the EU's renewable energy came from bioenergy (a share of 10% in the EU gross final energy consumption), of which almost 57% was produced within the EU.<sup>13</sup> Of that 57% bioenergy produced within the EU, 34% was the result of forest biomass.<sup>14</sup> Forest biomass can thus be considered an important source for the production of renewable energy for the EU. Moreover, the share of forest-based bioenergy is only expected to increase overtime as a result of the increasing overall demand for energy and the increased renewable energy ambitions and climate change mitigation ambitions of the EU.<sup>15</sup>

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<sup>11</sup> Schmeichel 2014, p. 11-12.

<sup>12</sup> JRC (2021), p. 9 and Romppanen 2020, The Bioenergy 'Blind Spots' in EU Climate and Energy Law, p. 153.

<sup>13</sup> JRC (2019), p. 2.

<sup>14</sup> Ibid, p. 2-3 and JRC, "Facts and figures on bioenergy in the EU" (28 January 2019). <<https://ec.europa.eu/jrc/en/science-update/facts-and-figures-bioenergy-eu>> (last accessed 18 May 2021).

<sup>15</sup> Searchinger et al. 2018, p. 2.



Forest-based bioenergy entails many advantages for the EU. First of all, as a source of renewable energy, forest-based bioenergy is looked at as a replacement of fossil fuels. This should lead to a decrease in GHG emissions and thus mitigate climate change.<sup>16</sup> Moreover, in this transition from fossil fuels to renewable energy, the energy security of the EU could be enhanced through the use of forest-based bioenergy because forest-based bioenergy can be produced within the EU, which means the EU is not dependent on other countries for the production of energy. Also the problem of intermittency that solar and wind energy face, is not an issue for forest-based bioenergy because it is not dependent on natural circumstances (the presence of sun and wind for the production of solar and wind energy) to be produced and it can easily be stored. These aspects make forest-based bioenergy overall a very flexible and reliable source of energy for the EU and therefore it is no coincidence that forest-based bioenergy is responsible for such a large share of the energy consumption in the EU.<sup>17</sup>

## **2.3 Forest-based bioenergy as source of emissions**

The production of bioenergy does not only entail advantages. There is another side to the story since, depending on the source and technology used, the production of bioenergy can have adverse effects on the environment. For instance, bioenergy can be responsible for soil degradation, biodiversity loss, impairment of carbon sinks and even an increase in GHG emissions through the release of emissions during the combustion of biomass.<sup>18</sup> This is especially the case in regard to forest-based bioenergy: when trees are harvested, CO<sub>2</sub> is being released in the atmosphere.

However, generally forests function as a carbon sink. A sink can be defined as: “(...) any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere”.<sup>19</sup> This is exactly what forests do: through the process of photosynthesis, forests remove CO<sub>2</sub>, a greenhouse gas, from the atmosphere and absorb it

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<sup>16</sup> Schmeichel 2014., p. 14.

<sup>17</sup> Ibid.

<sup>18</sup> FAO (2010), p. V.

<sup>19</sup> Art. 1.8 United Nations Framework Convention on Climate Change (adopted 9 May 1992, in force 21 March 1994) (1992) 1771 U.N.T.S 107. (UNFCCC).

in the biomass of trees (branches, stem etc.). The CO<sub>2</sub> is stored there until the trees release CO<sub>2</sub> naturally (respiration or decomposing) or through human action (harvest or forest fire).<sup>20</sup>

Forests do not only function as a sink, but they can also be considered a source of emissions. These emissions can be the result of anthropogenic activities (e.g. harvesting), natural factors and changes in forest character (e.g. age of forest, temperature, photosynthesis) or natural disturbances (e.g. forest fires).<sup>21</sup>

Overall, scientists are of the opinion that the use of forest-based bioenergy can lead to GHG emission reductions, but only over a long period of time.<sup>22</sup> The science behind this is the fact that it can take decades, even centuries, before the carbon released during the combustion is stocked again through the regrowth of the forest and carbon neutrality is achieved.<sup>23</sup> In this context it is also relevant to know that re-growing forests have a more limited capacity to absorb carbon than mature forests.<sup>24</sup> This effect is amplified by the fact that for the same amount of energy, CO<sub>2</sub> emissions are higher for forest-based bioenergy than for coal, due to the fact that forest biomass contains less energy than coal.<sup>25</sup> The combination of the long carbon payback period and the low energy rate of wood is problematic in the context of climate change and the corresponding urgent reduction in GHG emissions that needs to take place.

The remark has to be made that the release of emissions depends on what type of forest the bioenergy is produced from (residual materials, or stumps and roundwood<sup>26</sup>), the harvest rotation period, the harvesting method and the way it is burnt.<sup>27</sup> For example, when residual forestry materials are used for energy production a beneficial effect on the emission release compared to fossil fuels can be measured. The reason for this is that, if these residual materials (that cannot sequester carbon anymore) would be left, they would decompose and

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<sup>20</sup> UNECE, “Carbon sinks and sequestration”. <<https://unece.org/forests/carbon-sinks-and-sequestration>> (last accessed 20 May 2021).

<sup>21</sup> Grassi et al. 2018, Science-based approach for credible accounting of mitigation in managed forests, p. 2-3.

<sup>22</sup> Searchinger et al. 2018, p. 2.

<sup>23</sup> Beddington et al. 2018, p. 1 and Norton et al. 2019, p. 1259.

<sup>24</sup> Searchinger et al. 2018, p. 2.

<sup>25</sup> Ibid.

<sup>26</sup> Roundwood is wood, which is left as small logs, not sawn into planks or chopped for fuel, typically taken from near the tops of trees ([www.lexico.com](http://www.lexico.com)).

<sup>27</sup> Fern (2016), p. 3-4. The rotation period is the number of years between the establishment of the stand and the final harvesting at the end of the regeneration period (Posavec et al., “Calculation of Economic Rotation Period for Even-Aged stand in Croatia” (2011) 2(2) *South-east European Forestry* p.109).

during this process carbon is inevitably gradually released.<sup>28</sup> On the other hand, if whole trees are used for the production of energy, more carbon can be released than when coal is used, since these trees would otherwise still be capable of sequestering carbon.<sup>29</sup> If a natural, biodiverse forest is harvested and replaced by a monoculture that is characterised by a shorter rotation period, a negative effect on the carbon savings will take place. This is because the new plantation can absorb less carbon during the short(er) rotation period than an old forest.<sup>30</sup>

Moreover, the effect of carbon emissions is amplified by the decline of the carbon sink that comes automatically with the degradation of forests through harvesting. It is estimated that worldwide forests have the capacity to sequester 2.6 billion metric tons of CO<sub>2</sub> annually, which is comparable to one-third of the CO<sub>2</sub> emitted through the use of fossil fuels.<sup>31</sup> Projections by scientists point towards large increases of harvest rates in Europe, but also in the rest of the world, if forest-based bioenergy becomes responsible for the increased share of renewable energy in the energy consumption patterns.<sup>32</sup> In 2013 the EU Commission indicated in its new EU forest strategy that the National Renewable Energy Action Plans of the EU member states showed that the wood supply that is necessary to meet the planned increases in forest-based bioenergy, is the equivalent of the total amount of wood that was harvested in 2013. In 2013 this amount was sufficient to meet all the demands of wood. Now it would only be enough to meet the energy demand.<sup>33</sup> And yet, forests are a key asset for biodiversity protection and climate change mitigation.<sup>34</sup>

## **2.4 Balancing of competing interests: energy v. emission reduction**

There is the general acknowledgement that fossil fuels need to be phased out in order to halt climate change, whilst at the same time the energy demand is increasing. The potential of forest-based bioenergy to reduce emissions by substituting fossil fuels, combined with the

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<sup>28</sup> Zanchi et al. 2012, p. 766-767.

<sup>29</sup> Ibid.

<sup>30</sup> Fern (2016), p. 3-4 and Schulze et al. 2012, p. 613-614.

<sup>31</sup> CIFOR, "Forests and Climate Change". <[www2.cifor.org/forests-and-climate-change/](http://www2.cifor.org/forests-and-climate-change/)> (last accessed 20 May 2021) and IUCN, "Forests and Climate Change" (February 2021). <[www.iucn.org/resources/issues-briefs/forests-and-climate-change](http://www.iucn.org/resources/issues-briefs/forests-and-climate-change)> (last accessed 23 May 2021).

<sup>32</sup> Searchinger et al. 2018, p. 2.

<sup>33</sup> SWD(2013) 659 final.

<sup>34</sup> Ceccherini et al. 2020, p. 72.

benefits of reliability, energy security and job opportunity, give forest-based bioenergy a favourable position in the debate surrounding the topic of energy transition. But policy-makers also need to take into account when regulating forest-based bioenergy that the use and promotion of this energy source can also lead to an increase in emissions due to the carbon emitted during the process of harvesting and combustion.

As a result of all of these factors, forest-based bioenergy can be seen both as a problem and a solution to climate change mitigation. Forest-based bioenergy fulfils a unique and key position in the discussions related to climate change mitigation. Consequently, the regulators of the use of this energy source and whether it should be promoted are contested subjects. The regulator needs to take into account all the competing/conflicting interests -needing energy, needing emission reductions and protecting and enhancing carbon sinks- which entails a difficult balancing act for EU legislators.

The balancing act in the EU is done in the Renewable Energy Directive (RED) and the Land-Use, Land-Use Change and Forestry (LULUCF) Regulation. These two instruments are the main instruments at the EU level that regulate the use and promotion of forest-based bioenergy. The use of those two instruments is already a reflection of the competing interests associated with the use of forest-based bioenergy: a source of renewable energy on the one hand and the preservation of forests as carbon sink on the other.<sup>35</sup> Both instruments are strongly connected to each other and will be discussed in detail in chapter 5.

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<sup>35</sup> Romppanen 2020, The bioenergy 'Blind Spots' in EU Climate and Energy Law, p. 155.

## 3 The use of forest-based bioenergy in Finland

### 3.1 Forest-based bioenergy to lead Finland towards climate neutrality

Within the EU, Finland can be seen as one of the climate change mitigation leaders amongst the member states. For instance, Finland was one of the driving forces behind the EU's carbon neutrality objective by 2050 and during Finland's presidency of the Council of the EU in 2019, it focused on environmental issues and increasing the EU's global climate change mitigation leadership.<sup>36</sup> This ambitious approach was also translated to the national level: in 2015 Finland's climate change act entered into force and in 2019 Finland presented its ambition to achieve climate neutrality by 2035 which would make it the first climate neutral country.

Finland's ambition to achieve climate neutrality by 2035 is a part of the country's Integrated National Energy and Climate Plan for the period 2021-2030. The plan also entails the ambition to have 51% of the total final energy consumption coming from renewable energy by 2030.<sup>37</sup> Moreover, Finland adopted an act in April 2019 that puts a ban in place on the use of coal in energy production starting from 1 May 2029.<sup>38</sup> The share of coal will have to be substituted by another source that emits no or less GHGs. In this context many power plants based on (forest-based) bioenergy have been launched.<sup>39</sup> It is clear that Finland counts on forest-based bioenergy to fill in the energy gap that is associated with the phasing out of coal.

Bioenergy and especially forest-based bioenergy, plays a key role in achieving the target of climate neutrality since the production of renewable energy in Finland largely comes from forests.<sup>40</sup> At the moment, almost 25% of Finland's total energy consumption comes from wood.<sup>41</sup> This gives Finland the second largest share of wood and wood products in gross

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<sup>36</sup> EU2019.FI, "Promoting climate issues during Finland's presidency". <<https://eu2019.fi/en/priorities/climate-leadership/promoting-climate-issues>> (last accessed 20 May 2020) and Climate Home News, "Finland puts new climate target top of EU leadership agenda" (1 July 2019). <[www.climatechangenews.com/2019/07/01/finland-puts-climate-target-top-eu-leadership-agenda/](http://www.climatechangenews.com/2019/07/01/finland-puts-climate-target-top-eu-leadership-agenda/)> (last accessed 20 May 2020).

<sup>37</sup> Ministry of Economic Affairs and Employment (2019), p. 47-48.

<sup>38</sup> Ibid, p. 53.

<sup>39</sup> Ministry of Employment and the Economy (2020), p. 15.

<sup>40</sup> Ministry of Economic Affairs and Employment (2019), p. 51.

<sup>41</sup> Ministry of Economic Affairs and Employment of Finland (2019) 66, p. 51.

inland consumption of energy in Europe.<sup>42</sup> In 2019 Finland even reached a record in terms of use of forest-based energy.<sup>43</sup> The prediction is that this number will only increase over time as Finland works towards its target of carbon neutrality.<sup>44</sup> A reason for the choice of forest-based bioenergy is connected to the fact that Finland does not have many other options to produce renewable energy because of the natural endowments. For instance, Finland's hydropower capacity is extremely low, compared to countries such as Norway.<sup>45</sup>

## 3.2 The forest industry at the centre of Finnish legislation

It is not surprising that forest-based bioenergy is such an important source of energy for Finland since 73,7% of the Finnish land area is covered by forest.<sup>46</sup> Almost 61% of this area is privately owned, by approximately 350 000 families.<sup>47</sup> In 2013, the Finnish Forest Act<sup>48</sup> was amended to give these private forest owners more freedom of management. Some of them are choosing to manage their forests for recreational or natural values objectives, but many of them also pursue the objective of wood production. This is reflected in the fact that privately owned forests are responsible for circa 80% of the wood that is used by Finnish companies.<sup>49</sup>

The objective of production is strongly reflected in Finland's Forestry Act. The purpose of the Act is to “promote economically, ecologically and socially sustainable management and utilisation of forests in order that the forests produce a good output in a sustainable way while their biological diversity is being preserved”.<sup>50</sup> A “good output” can be considered as the

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<sup>42</sup> Gross inland energy consumption represents the quantity of energy necessary to satisfy inland consumption and covers the consumption by the energy sector itself, the distribution and transformation losses, and the final energy consumption by end users. It is defined as primary production plus imports, recovered products and stock changes, minus exports and fuel supply to maritime bunkers (Eurostat, “Wood as a source of energy: Statistics Explained” (June 2019). <<https://ec.europa.eu/eurostat/statistics-explained/pdfscache/52478.pdf>> (last accessed 20 May 2021).

<sup>43</sup> National Resources Institute Finland, “Forest bioenergy could be used even more: new information package will benefit industry players” (24 March 2021). <[www.luke.fi/en/news/forest-bioenergy-could-be-used-even-more-new-information-package-will-benefit-industry-players/](http://www.luke.fi/en/news/forest-bioenergy-could-be-used-even-more-new-information-package-will-benefit-industry-players/)> (last accessed 20 May 2021).

<sup>44</sup> Ranta et al. 2020, p. 93 and Ministry of Economic Affairs and Employment of Finland (2019) 66, p. 46, JRC (2021), p. 6 and Tapio et al. 2020, p. 93.

<sup>45</sup> Albrecht et al. 2018, p. 78.

<sup>46</sup> Our World in Data, “Forest area”. <<https://ourworldindata.org/forest-area>> (last accesses 23 February 2021).

<sup>47</sup> Ministry of Agriculture and Forestry and National Resources Institute Finland (2019), p. 12-13.

<sup>48</sup> Forest Act 1093(1996), [www.finlex.fi](http://www.finlex.fi).

<sup>49</sup> *Ibid.* p. 13.

<sup>50</sup> Section 1 Forest Act.

overarching objective of this act. The Finnish forestry industry and economy have always been the centre of forest regulations in Finland. However, with the amendments made in 2013 more attention is given to safeguarding biodiversity, but this is still subordinate to the economic objective of the Forest Act. For instance, only biodiversity and habitats of special importance enjoy protection. These are sites that can be “clearly distinguished from the surrounding forest nature”.<sup>51</sup> Moreover, these sites “are small in area or have little significance for forestry purposes”.<sup>52</sup> In other words, forest areas are not protected under this section and moreover, the areas that are protected are either small areas or areas that are of limited interest for the forestry industry. Furthermore, one of the main rationales behind the amendments made to the Forest Act was to deregulate forest management more and provide more freedom of choice for the forest owners. This, together with improvements in the profitability of forestry and the operating conditions for the industry, shows where the focus lies in the Forestry Act: production.<sup>53</sup>

The forest industry and its economic value are also at the centre of other Finnish legislative instruments. For instance, in the Finnish National Forest Strategy, which was updated in December 2019, the competitiveness of the forestry industry is set out as the main objective.<sup>54</sup> Therein it is recognised that the production of forest-based bioenergy will continue to increase further as its significance for the Finnish energy consumption keeps growing.<sup>55</sup> Furthermore, in its national strategy, Finland only discusses the climate change mitigation benefits of forest-based bioenergy. Possible adverse impacts are not addressed.

However, the fact that between 2016-2018 the annual forest area harvested in the EU increased by 49% compared to 2011-2015 is concerning. Finland, together with Sweden is considered to be the main contributor to this increase.<sup>56</sup> In 2010 Finland decided to more than double its use of energy from wood. To make this target achievable, Finland foresees a support package consisting of production support (financial support for the purchase of woodchips) and a system of feed-in tariffs.<sup>57</sup> In 2016 Finland announced new plans to

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<sup>51</sup> Chapter 3, section 10(1) Forest Act.

<sup>52</sup> Chapter 3, section 10(3) Forest Act.

<sup>53</sup> Kröger and Raitio 2017, p. 12 and Ministry of Agriculture and Forestry in Finland, “Forest legislation in Finland”. <<https://mmm.fi/en/forests/legislation>> (last accessed: 15 May 2021).

<sup>54</sup> Ministry of Agriculture and Forestry of Finland (2019), p. 45.

<sup>55</sup> Ibid., p. 9 and 17.

<sup>56</sup> Ceccherini et al. 2020, p. 73-74.

<sup>57</sup> Ministry of Employment and the Economy (2011), p. 2-3. A Feed-in tariff is a market-based instrument whereby a government sets a price at which a producer of renewable energy can sell the electricity generated

increase the harvest rate with another 23% by 2030.<sup>58</sup> This increase has been connected to the recent boost of the bioeconomy in the EU, which included a boost in forest-based bioenergy.<sup>59</sup> According to the Sami community in Northern Finland, this increase in logging is a reflection of the economic crisis of 2008 that had a large impact on the forestry industry that can still be felt. Therefore the government promoted the increase in harvest to help and save the forestry industry of Finland, instead of safeguarding the climate.<sup>60</sup>

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during a set period of time. The price is independent from the market price. (Yoshihiro Yamamoto, *Feed-in Tariffs in Comparison with the Renewables Portfolio Standard*. Springer 2018, p.11).

<sup>58</sup> Fern (2017), p. 12.

<sup>59</sup> Ceccherini et al. 2020, p. 73.

<sup>60</sup> Fern (2017), p. 11.



## **4 The climate change ambitions of the EU: an implementation of international obligations**

### **4.1 The Paris Agreement: creating obligations of the EU to limit the increase in temperature**

#### **4.1.1 Determining Nationally Determined Contributions**

The adoption of the Paris Agreement<sup>61</sup> under the United Nations Framework of Climate Change (UNFCCC)<sup>62</sup> in 2015 creates binding obligations for the 191 parties to this Agreement, including the EU, which must limit the increase in global temperature and halt the process of climate change. The Agreement itself sets out that the overall purpose of the Paris Agreement is to strengthen the global response to the threat of climate change by enhancing the implementation of the UNFCCC by:

“(…) holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels (…)”.<sup>63</sup>

In order to achieve this long-term temperature goal the Agreement sets out that the parties should:

“(…) reach global peaking of the greenhouse gas emissions as soon as possible (…) and to undertake rapid reduction thereafter (…) so as to achieve a balance between anthropogenic emissions by source and removals by sinks of greenhouse gases in the second half of this century (…)”.<sup>64</sup>

Especially with regard to the objective of reaching a balance between emissions and removals, forests are considered to play an important role since they absorb annually

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<sup>61</sup> Paris Agreement (adopted 12 December 2015, in force 4 November 2016) (2016) OJ L282/4. (Paris Agreement).

<sup>62</sup> United Nations Framework Convention on Climate Change (adopted 9 May 1992, in force 21 March 1994) (1992) 1771 U.N.T.S 107. (UNFCCC).

<sup>63</sup> Art. 2.1(a) Paris Agreement.

<sup>64</sup> Art. 4.1 Paris Agreement.

approximately 2.6 billion metric tons of CO<sub>2</sub>.<sup>65</sup> This is one-third of the CO<sub>2</sub> emitted through the use of fossil fuels.<sup>66</sup>

Concretely, this means that the EU, as one of the 191 parties to this agreement, has endorsed a legal commitment to aim to reach its peaking of GHG emissions as soon as possible and thereafter reach net-zero emissions. The wording “to aim” however does soften the legal commitment made. Nevertheless, in the context of climate change, the EU inevitably has to reduce its emissions as fast as possible, which includes the emissions coming from the production of energy.

One of the obligations that the EU has committed itself to is to deliver a so-called nationally determined contribution (NDC).<sup>67</sup> This NDC entails the contribution that a party, in this case the EU, intends to deliver on by implementing domestic mitigation measures.<sup>68</sup> It is important to note that all the parties to the Paris Agreement are obliged to submit an NDC, but the achievement of it is an obligation of conduct instead of result. The parties are thus not bound to achieve their pre-established commitment, they are only bound to “prepare, communicate and maintain” and to “intend to achieve”.<sup>69</sup>

In 2015 the EU had to submit an Intended Nationally Determined Contribution (INDC) to the UNFCCC. This is the reduction target that the parties to the Paris Agreement are intending to submit in 2020. For the EU this was a reduction in GHG emissions of at least 40% by 2030 compared to 1990.<sup>70</sup> When the EU submitted its NDC five years later in 2020 this number was updated to 55%.<sup>71</sup> The Agreement prescribes that the parties must update their NDC every five years.<sup>72</sup> Moreover the updated NDC has to represent a progression and must be a reflection of the highest possible ambition of the state.<sup>73</sup> However, what exactly falls under

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<sup>65</sup> CIFOR, “Forests and Climate Change”. <[www2.cifor.org/forests-and-climate-change/](http://www2.cifor.org/forests-and-climate-change/)> (last accessed 20 May 2021).

<sup>66</sup> Ibid.

<sup>67</sup> Art. 4.2 Paris Agreement and Bodansky et al. 2017, p. 231.

<sup>68</sup> Art. 4.2 Paris Agreement.

<sup>69</sup> Art. 4.2 Paris Agreement and Bodansky et al. 2017, p. 231.

<sup>70</sup> Submission by Latvia and the European Commission on behalf of the European Union and its Member States, Intended Nationally Determined Contribution of the EU and its Member States, Riga 6 March 2015.

<sup>71</sup> Council of the European Union 14222/1/20 REV 1, 2020.

<sup>72</sup> Art. 4.9 Paris Agreement.

<sup>73</sup> Art. 4.3 Paris Agreement.

“progression” is not defined. This means in practice that it will be up to the parties themselves to fill in this notion.<sup>74</sup>

For the EU it is also relevant that the Paris Agreement foresees that developed states should take the lead in the achievement of the commitments set out in the Agreement by undertaking economy-wide absolute emission reduction targets.<sup>75</sup> However, it is not mandatory to include the land-use, land-use change and forestry sector in a NDC. Nevertheless, many parties did include this sector, which makes it responsible for almost 25% of the planned emission reductions by the parties.<sup>76</sup> The emissions from this sector thus play an important role in the climate change mitigation policies of the member states.

#### **4.1.2 Article 5: enhancement and conservation of forests**

The Paris Agreement is not only considered to be a historic agreement because of the multilateral diplomatic success, but also because it recognises and anchors the importance of forests in a separate provision for the first time.<sup>77</sup> This is done in article 5 of the Agreement, which covers the enhancement and protection of sinks, including forests.

More specific, article 5 set outs the obligation that “[p]arties should take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases as referred to in Article 4, paragraph 1 (d), of the Convention [UNFCCC], including forests”.<sup>78</sup> Forests are thus explicitly mentioned in article 5 of the Paris Agreement as a sink that needs to be conserved and enhanced. This is a legally binding obligation for all the parties, including the EU and therefore the EU has to take this obligation into account when setting out its policy with regard to the use of forest-based bioenergy: on the one hand the EU wants to safeguard the harvest of trees for renewable energy production, on the other hand the EU is legally bound to conserve and enhance forests as appropriate.

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<sup>74</sup> Bodansky et al. 2017, p. 234. Even though parties decide by themselves how their NDC will reflect progression and the highest level of ambition, other parties and civil social organizations have the opportunity to comment and critique these NDCs through the stock takes foreseen in the Agreement. (Bodansky et al. 2017, p. 234).

<sup>75</sup> Art. 4.4 Paris Agreement.

<sup>76</sup> Grassi et al. 2017, p. 220 and 225.

<sup>77</sup> Bodansky et al. 2017, p. 209.

<sup>78</sup> Art. 5.1 Paris Agreement. Article 4, paragraph 1 (d) states that “all Parties, (...), shall: (...) Promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases (...), including biomass, forests (...).”

## 4.2 Sustainable Development Goals: protecting v. exploiting forests

At the international level, the importance of climate change action is also reflected in soft law instruments, such as the United Nations 2030 Agenda for Sustainable Development.<sup>79</sup> The EU signed this resolution that sets out 17 Sustainable Development Goals (SDGs) and 169 more specific targets that must be achieved by 2030. The overarching aim is to end poverty and hunger worldwide, protecting the planet by ensuring the lasting protection of the planet and its natural resources and ensuring that all people can enjoy peace and prosperity.<sup>80</sup>

The SDGs can have an impact on the EU's regulation of the use of forest-based bioenergy. Several targets are closely related to either the fight against climate change (and thus the reduction of GHG emissions) or the conservation of forests. For instance, goal 13 of the SDGs sets out the goal to take urgent action to combat climate change and its impacts.<sup>81</sup> If too much GHGs would be emitted by the use of forest-based bioenergy or if the forest sinks decline rapidly, the achievement of this goal could be hampered.

The same reasoning is true for the conservation and protection of forests. The forests, and the ecosystems they provide, are relevant for the achievement of different goals and targets. For example, forests are important to reach the second target of goal 15: to promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally by 2020.<sup>82</sup> The use of forest-based bioenergy implies that forests are harvested for energy ends. This does not halt deforestation and contribute to afforestation and reforestation.

At the same time, forest-based bioenergy can contribute to the achievement of the SDGs. It can for instance play a role in the achievement of goal 7, the goal of affordable and clean energy, since forests are important to ensure the supply for energy worldwide.<sup>83</sup> In low and middle-income countries wood is often the main source for cooking and heating and higher-

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<sup>79</sup> UNGA Res. 70/1, 25 September 2015. Transforming our world: the 2030 Agenda for Sustainable Development.

<sup>80</sup> *Ibid.*, p. 3.

<sup>81</sup> *Ibid.*, p. 23.

<sup>82</sup> UNGA Res. 70/1, p. 24.

<sup>83</sup> *Ibid.* p. 19.

income countries often on wood for diversifying their energy portfolio.<sup>84</sup>

Forests and the achievement of the SDGs by 2030 are thus closely related; in order to reach the goals, forests must be effectively protected and restored. At the same time, for reaching some of the goals the forests must be used and exploited, for example for the production of energy. The balancing of these competing interests is a task for policymakers, when creating a regulatory framework.

### **4.3 The implementation of international climate change mitigation obligations into the EU legal framework**

#### **4.3.1 The 2030 EU Climate and Energy Framework**

As a party to the United Nations Framework Convention on Climate Change, the Kyoto Protocol<sup>85</sup> and now the Paris Agreement, the EU has shown its commitment to take climate change action.<sup>86</sup> To implement these international climate change mitigation obligations, especially the ones of the Paris Agreement, the EU decided through the adoption of the 2030 Climate and Energy Policy Framework to set out an EU target of an overall emission reduction of at least 40% by 2030.<sup>87</sup> The reduction target of 40% of the EU corresponds with the intended nationally determined contribution that the EU had submitted to the UNFCCC in 2015.<sup>88</sup>

The achievement of the overall GHG emissions reduction target is implemented through the use of different instruments that are considered to be the three pillars of the 2030 Climate and Energy Policy Framework: (1) the EU Emissions Trading System<sup>89</sup> (ETS-sector), which

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<sup>84</sup> Jagger et al. 2019, p. 206-207.

<sup>85</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change (adopted 11 December 1997, in force 16 February 2005) (1998) 2303 U.N.T.S 162.

<sup>86</sup> Langlet and Mahmoudi 2016, p. 253.

<sup>87</sup> EUCO SN 79/14 (2014).

<sup>88</sup> See nr. 67. In 2020 the EU submitted an NDC of 55% emissions reductions by 2030 to the UNFCCC (see 4.3.2).

<sup>89</sup> Directive 2003/87/EC of the European Parliament and of the Council Establishing a Scheme for Greenhouse Gas Emission Allowances Trading within the Community and Amending Council Directive 96/61/EC [2003] OJ L 275/32. (EU ETS Directive).

covers the emissions from the energy-intensive industries (2) the effort sharing regulation<sup>90</sup> (non-ETS sector/effort sharing sector), which covers the emissions from the non-ETS sectors: road transport, buildings, agriculture and waste and (3) the land use, land use-change and forestry sector (LULUCF sector) through the LULUCF Regulation. In the LULUCF sector emissions and removals of GHGs as consequence of land use, land use change and forestry are covered. The tree-pillar system must ensure that all sectors contribute to the set out emissions reduction target of the EU.<sup>91</sup> This thesis covers only the third pillar of the LULUCF sector. The other two pillars fall outside the scope of this thesis.

Apart from an emissions reduction target, the 2030 EU Climate and Energy Framework also sets out the key targets for renewable energy and energy efficiency: a share of at least 32% for renewable energy and an improvement of at least 32,5% in energy efficiency by 2030.<sup>92</sup>

### 4.3.2 The European Green Deal

In order to achieve the objectives of the Paris Agreement, the targets that the EU had set out in its 2030 Climate and Energy Framework are considered to be insufficient. Emissions need to be reduced faster and thus emission reduction targets need to be increased. In this context the EU presented in 2019 its ‘European Green Deal’.<sup>93</sup> This instrument is seen as a reflection of the EU’s ambition to be a leader in climate change mitigation and realise the objectives set out in the Paris Agreement.<sup>94</sup>

The overarching aim of the Green Deal is “to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from

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<sup>90</sup> Regulation (EU) 2018/842 of the European Parliament and of the Council in 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 [2018] OJ L 156/26.

<sup>91</sup> European Commission, “2030 climate & energy framework”, <[https://ec.europa.eu/clima/policies/strategies/2030\\_en](https://ec.europa.eu/clima/policies/strategies/2030_en)> (last accessed: 6 April 2021) and Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 262.

<sup>92</sup> EUCO SN 79/14 (2014), p. 3 and 5-8. The renewable energy and energy efficiency targets were set at 27%. In 2018 it was agreed to increase these targets to respectively 32% and 32,5%.

<sup>93</sup> COM(2019) 640 final.

<sup>94</sup> Ibid., p. 20.

resource use”.<sup>95</sup> If this would be realised, it would make the EU the first climate neutral continent in the world.<sup>96</sup>

The climate neutrality objective was endorsed in 2019 by the EU Parliament and by the European Council.<sup>97</sup> This was followed by a proposal of the EU Commission in March 2020 of the first European Climate Law, which legally anchors the climate neutrality objective.<sup>98</sup> This EU Climate Law must help with the establishment of a new framework for the achievement of the objective of climate neutrality and to ensure that all EU policies will contribute in this story.<sup>99</sup>

To achieve climate neutrality by 2050, one of the elements that needs to be reviewed is the 2030 emissions reduction target. In the Communication from the EU Commission on the European Green Deal and in the proposal for the European climate law, a reduction target of at least 50% and towards 55% by 2030 was proposed.<sup>100</sup> On 17 September 2020, the original proposal of the climate law was amended to include a reduction target of 55% by 2030 in the new European Climate Law. This is in line with the NDC that the EU has submitted in 2020 to the UNFCCC.<sup>101</sup> At the moment of writing, a EU Climate Law, including the revision of the reduction targets for 2030 is still not adopted. However, in April 2021, the Council and the Parliament reached a provisional political agreement.<sup>102</sup> The Council and the Parliament must now approve the text and then it is ready to go through the steps of the formal adoption procedure.<sup>103</sup>

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<sup>95</sup> COM(2019) 640 final, p. 2, para. 2.

<sup>96</sup> European Commission, “A European Green Deal: Striving to be the first climate-neutral continent”. <[https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en)> (last accessed 20 May 2021).

<sup>97</sup> European Parliament, P8\_TA (2019) 0217, para.1.

<sup>98</sup> COM(2020) 80 final.

<sup>99</sup> Proposal EU Climate Law, p.3.

<sup>100</sup> COM(2019) 640 final, p. 4 and Recital 17, COM(2020) 80 final.

<sup>101</sup> Nr. 68.

<sup>102</sup> European Council and Council of the European Union, “European climate law: Council and Parliament reach provisional agreement” (5 May 2021). <[www.consilium.europa.eu/en/press/press-releases/2021/04/21/european-climate-law-council-and-parliament-reach-provisional-agreement/](http://www.consilium.europa.eu/en/press/press-releases/2021/04/21/european-climate-law-council-and-parliament-reach-provisional-agreement/)> (last accesses 20 May 2021).

<sup>103</sup> Ibid.

Apart from revised GHG emission reduction targets, other EU policies will also need to be revised in order to align them with the increased climate change mitigation ambition. This includes the Renewable Energy Directive<sup>104</sup> and the LULUCF Regulation<sup>105</sup>. Those two instruments are the main EU instruments regulating the use for the regulation of forest-based bioenergy (see further) and it is thus likely that the revision of those instruments will have implications for the use of forest-based energy. This is reflected in the feedback that the EU received in the context of revision of the Renewable Energy Directive. Many comments related to the use of forest-based bioenergy.<sup>106</sup> The revisions of both the Renewable Energy Directive and the LULUCF Regulation are planned to be done by June 2021.<sup>107</sup>

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<sup>104</sup> Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources [2018] OJ L 328.

<sup>105</sup> Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU [2018] OJ L 156.

<sup>106</sup> European Commission, ” EU Renewable Energy Rules – Review”. <[https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12553-EU-renewable-energy-rules-review\\_en](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12553-EU-renewable-energy-rules-review_en)> (last accessed 20 May 2021).

<sup>107</sup> Annex COM(2019) 640 final.



# 5 The EU legal framework governing forest-based bioenergy

## 5.1 The Renewable Energy Directive

### 5.1.1 The promotion of renewable energy

The first Renewable Energy Directive<sup>108</sup> (RED I) entered into force in 2009. This Directive for the promotion of renewable energy translated the renewable energy target of the so-called 20-20-20 targets<sup>109</sup> into a binding target whereby at least 20% of the total energy consumption must come from renewable energy by 2020.<sup>110</sup> The collective target of 20% was further divided into individual binding national targets, taking into account the starting point of each member state and its renewable energy potential.<sup>111</sup> In this context, every member state had to adopt a national renewable energy action plan, which sets out how they plan to meet this individual target.<sup>112</sup>

Later on, with the adoption of the Paris Agreement, the EU updated its binding renewable energy target to a share of at least 32% of renewable energy in the energy consumption by 2030.<sup>113</sup> This recast of the Directive entered into force in 2018 (RED II).<sup>114</sup> Also under this instrument, member states have to set out their binding national contributions towards this collective target.<sup>115</sup> Since this is the current Directive that is in force, only the provisions of RED II will be further discussed in this thesis. However, another revision of the Directive is

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<sup>108</sup> Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC [2009] OJ L 140. (RED I).

<sup>109</sup> 20% reduction of GHG, 20% energy from renewable sources and 20% energy saving by 2020. These targets had been previously set out by the EU Commission with the aim to implementation the binding provisions of Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC).

<sup>110</sup> Art. 3.1 RED I.

<sup>111</sup> Art. 3.1 RED I.

<sup>112</sup> Art 4.1 RED I.

<sup>113</sup> Art. 3.1 RED II.

<sup>114</sup> Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources [2018] OJ L 328. (RED II).

<sup>115</sup> Art 3.2 RED II.

planned: in light of the ambition set out in the Green Deal, the Directive will be revised in 2021 to ensure that it is aligned with the increased ambitions set out in the Green Deal.<sup>116</sup>

The overarching aim of the Renewable Energy Directive is to promote the use of renewable energy in the EU and by doing this reducing the emissions of the energy sector.<sup>117</sup> Therefore, several measures are established that must promote the use of renewable energy. One of those measures is a system of financial support through the mechanism of support schemes.<sup>118</sup> These schemes incentivize the use of renewable energy by reducing the cost of renewable energy, increasing the selling price, or increasing the volume of the amount of renewable energy that must be purchased.<sup>119</sup> Examples of possible support schemes are investment aid, tax exemptions or reductions, tax refunds, systems of green certificates, feed-in tariffs and premium payments.<sup>120</sup>

### **5.1.2 The scope of the Renewable Energy Directive: forest-based bioenergy as source of renewable energy**

The subject matter of RED II is the “establishment of a common framework for the promotion of energy from renewable sources”.<sup>121</sup> But what exactly is considered to be ‘energy from renewable sources’? The Directive itself defines this as:

“(…) energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, *biomass*, landfill gas, sewage treatment plant gas and biogases”(emphasis added).<sup>122</sup>

Just as solar energy is energy produced from the sun, bioenergy is energy produced from biomass. Hereby biomass is defined as:

“(…) the biodegradable fraction of products, waste and residues from biological origin from agriculture (including vegetal and animal substances), *forestry* and related industries including

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<sup>116</sup> European Commission, “Renewable Energy Directive” (4 March 2021). <[https://ec.europa.eu/energy/topics/renewable-energy/renewable-energy-directive/overview\\_en](https://ec.europa.eu/energy/topics/renewable-energy/renewable-energy-directive/overview_en)> (last accessed 15 March 2021).

<sup>117</sup> Recital 2 and art. 1 RED II.

<sup>118</sup> Art. 4 RED II.

<sup>119</sup> Art. 2(5) RED II.

<sup>120</sup> Ibid.

<sup>121</sup> Art. 1 RED II.

<sup>122</sup> Art. 2(a) RED I and art.2(1) RED II.

fisheries and aquaculture, as well as the biodegradable fraction of industrial and municipal waste” (emphasis added).<sup>123</sup>

Forestry is here thus explicitly mentioned as a source of biomass and by extension as source of renewable energy. The reasoning for the inclusion of forest-based bioenergy in the list of renewable energy sources is based on the fact that the biomass, - trees- have the ability to regrow relatively fast (compared to fossil fuels). This is an essential element to be distinguished from fossil fuels.<sup>124</sup> In other words, forest-based bioenergy falls under the scope of the Renewable Energy Directive and is considered to be a source of renewable energy.

### **5.1.3 Regulating forest-based bioenergy through sustainability and greenhouse gas emissions saving criteria**

#### **5.1.3.1 To address the possible adverse effect of forest-based bioenergy**

When promoting the use of renewable energy, the EU has to address the possible adverse effects that are connected to an increase in the production of bioenergy. In 2009 at the time of RED I, the adverse effects of forest-based bioenergy were considered to be low, since most of the forest biomass was coming from by-products and there were strong forest management structures in place.<sup>125</sup> Moreover, it was considered difficult to install a harmonised system that would address the negative effects of forest-based bioenergy, since national circumstances differ greatly between the member states.<sup>126</sup> The result was that the first Renewable Energy Directive only included a system of sustainability criteria for biofuels in the transport sector and bioliquids for electricity, heating and cooling.<sup>127</sup> The European Commission did recommend that the member states implemented the criteria laid down in RED I also in the context of forest-based bioenergy, but this was not a binding obligation. Ultimately, it was left to the member states to decide to implement national sustainability schemes.<sup>128</sup>

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<sup>123</sup> Art. 2(e) RED I and art.2(24) RED II.

<sup>124</sup> Schmeichel 2014, p. 12.

<sup>125</sup> COM(2010) 11 final, para. 2.1.

<sup>126</sup> Ibid., para. 3.1.

<sup>127</sup> Biofuels, bioliquids and biomass fuels are all made from biomass, but a distinction is made in RED I and II based on their physical nature (gaseous, liquid or solid) and usage (transport, electricity production, heating or cooling). (Romppanen 2020, The bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 155).

<sup>128</sup> COM(2010) 11 final, para. 3.1-2.

Since RED II, the system of sustainability criteria and GHG emissions saving criteria is extended to the use of forest-based bioenergy. This was a consequence of a report of the EU Commission in 2010 on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling.<sup>129</sup> In that report the EU Commission did acknowledge that the risk assessment of forest-based bioenergy (sustainability risks, including decrease of the carbon stock) could change in the future as the demand was expected to increase over time.<sup>130</sup> This change in risk, together with a trade barrier as a result of different national sustainability criteria in different member states, was the incentive for the EU to extend the scope of the binding sustainability criteria to gaseous and solid biomass in the recast of RED in 2018.<sup>131</sup>

From now on the sustainability and GHG emissions saving criteria of RED II are thus applicable to all sources of bioenergy, even those that the EU imports from outside the EU.<sup>132</sup> However, a limitation exist for the use of solid biomass: only biomass that is used in installations producing electricity, heat and cooling with a capacity of 20 MW or more has to meet the sustainability criteria.<sup>133</sup> The rationale behind this limitation is to avoid excessive administrative burden for small operators.<sup>134</sup>

It is important for states to fulfil these sustainability and GHG emissions saving criteria: only when the criteria are fulfilled the forest-based bioenergy can contribute towards the overall EU renewable energy target of 32% of the total energy consumption coming from renewable energy by 2030. Furthermore, meeting the criteria is also a requirement for bioenergy to be taken into account when measuring compliance with the renewable energy obligations and to be eligible for financial support through the support schemes.<sup>135</sup>

For the use of forest-based bioenergy three different sets of criteria are relevant. First, there are criteria that must minimise the risk of using forest biomass that is the result of unsustainable production.<sup>136</sup> The second set of criteria are the criteria to ensure that the

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<sup>129</sup> COM(2010) 11 final.

<sup>130</sup> Ibid., para. 3.1-2.

<sup>131</sup> Mai-Moulin et al. 2021, p. 3.

<sup>132</sup> Art. 29.1, last paragraph RED II.

<sup>133</sup> Art. 29.1, forth paragraph RED II and Romppanen 2020, The bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 156.

<sup>134</sup> COM (2016) 767 final, para. 5.18 and recital 104 RED II.

<sup>135</sup> Art. 17.1 (a)-(c) RED I and art. 29. 1 (a)-(c) RED II.

<sup>136</sup> Art. 29.6 RED II.

changes in the carbon stock are accounted for.<sup>137</sup> The last set of criteria are criteria to ensure that the use of forest-based bioenergy saves emissions compared to the use of fossil fuels.<sup>138</sup>

### **5.1.3.2 The first set of criteria: avoid unsustainable production**

The criteria that must minimise the risk of using forest biomass that is the result of unsustainable production prescribe first that member states that harvest forest biomass must have national or sub-national legislation in place that is applicable in the area of harvest and ensures the following aspects: (1) the legality of harvesting operations, (2) forest regeneration of harvested areas, (3) that areas designated by international or national law or by the relevant competent authority for nature protection purposes are protected, (4) that harvesting is carried out considering maintenance of soil quality and biodiversity with the aim of minimising negative impacts and (5) that harvesting maintains or improves the long-term production capacity of the forests.<sup>139</sup> Member states must have a monitoring and enforcement system in place that ensures that the list of criteria is respected when harvesting wood.<sup>140</sup>

Another option for a member state, when it has no legislation in place, is to foresee a management system at forest sourcing area level that ensure those same five points.<sup>141</sup>

### **5.1.3.3 The second set of criteria: account for changes in carbon stock**

Second, bioenergy from forest biomass must also meet certain LULUCF criteria. These criteria must be met by the country where the biomass is coming from.<sup>142</sup> This means for example when the EU imports wood pellets from Brazil, Brazil has to meet the prescribed criteria. With these LULUCF criteria, RED II aims to ensure that the changes in the carbon stock as a result of cutting forests for the production of forest-based bioenergy are actually accounted for.

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<sup>137</sup> Art. 29.7 RED II. The carbon stock is the total amount of carbon that is absorbed by forests and now stored within the ecosystem (Forest Research, “Forest carbon stock” (2021). <[www.forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/forestry-statistics-2018/uk-forests-and-climate-change/forest-carbon-stock/](http://www.forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/forestry-statistics-2018/uk-forests-and-climate-change/forest-carbon-stock/)> (last accessed 21 May 2021).

<sup>138</sup> Art. 29.10 RED II.

<sup>139</sup> Art. 29.6(a) RED II.

<sup>140</sup> Ibid.

<sup>141</sup> Art. 29.6(b) RED II.

<sup>142</sup> Art. 29.7 RED II.

If the state of origin of the forest biomass is a party to the Paris Agreement, there are two options for the state to comply with this set of criteria. The first option is to submit a NDC to the UNFCCC that includes emissions and removals from the LULUCF sector and ensures that the changes in the carbon stock related to the biomass harvest are accounted towards the national commitments. The second option is to foresee (sub-)national laws to conserve and enhance carbon stocks and sinks according to article 5 of the Paris Agreement, the member state then provides evidence that the reported LULUCF-sector emissions do not exceed removals.<sup>143</sup>

If the country of origin of forest biomass is not a party to the Paris Agreement it can also fulfil the criteria if it has a management system in place to ensure that the carbon stocks and sink levels in the forest are maintained or strengthened over the long term.<sup>144</sup>

#### **5.1.3.4 The third set of criteria: saving emissions**

Third, the biomass used for electricity, heating and cooling production must have a GHG emissions saving of at least 70% compared to fossil fuels when it concerns an installation with operation between 1 January 2021 and 31 December 2025, and 80% for installations starting their operations after this date.<sup>145</sup> To calculate the amount of GHG emissions that are saved compared to fossil fuels alternatives, accounting rules are set out in article 31 of RED II. In this article, different methods are set out of how the GHG can be calculated. Remarkable however is that in the calculation the emissions from the combustion of the trees can be accounted as zero.

One of the methods used here is to use a default value. The default values are set out in part A of annex VI for different production systems of biomass fuels.<sup>146</sup> These estimated GHG emissions saving values allow economic operators to demonstrate compliance with the GHG emissions saving criteria, without having to make a calculation themselves.<sup>147</sup>

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<sup>143</sup> Art. 29.7(a) RED II.

<sup>144</sup> Art. 29.7(b) RED II.

<sup>145</sup> Art. 29.10 (d) RED II and recital 101 RED II.

<sup>146</sup> Art. 2.47 RED II gives a definition of default value: "means a value derived from a typical value by the application of pre-determined factors and that may, in circumstances specified in this Directive, be used in place of an actual value".

<sup>147</sup> Art.31.1 (a) and annex VI, A RED II.

Apart from the default value, the operator also has the option to calculate the actual value.<sup>148</sup> Here for, part B sets out the formula that needs to be followed when calculating the lifecycle emissions from the production and use of biomass.<sup>149</sup> One of the components of this formula is the emissions from the fuel in use (combustion). The Directive determines that this number is zero.<sup>150</sup> Concretely, this entails that the emissions for burning wood to produce energy are zero-rated.<sup>151</sup>

The emissions from the fuel in use is not the only zero rating that the use of forest-based biomass receives. When calculating the annualised emissions from the carbon stock changes caused by land-use change, a zero rating is used as well.<sup>152</sup> The methods for calculating this number are set out in paragraph 7 of part B, annex VI. However, Annex VIII of RED II is also relevant here since part B of this annex makes it clear that under this factor only the direct land-use changes are accounted for: changes from one land category to another.<sup>153</sup> However, applied to forest-based bioenergy, this calculation will also be zero: no land-use change will happen if trees are harvested and regrow or if highly biodiverse forests are replaced by monocultures, which have a smaller capacity to absorb carbon.<sup>154</sup>

What the rationale for this zero-ratings is and what the consequences of this approach are, will be further explained in chapter 6. Other components such as emissions from processing, transport and distribution and geological storage still need to be calculated by the operators to make an assessment of the total lifecycle emissions. Nevertheless, it is reasonable to say that the emissions from those factors are not considered to be extensive.

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<sup>148</sup> Art. 2.45 gives a definition of the actual value: “means the greenhouse gas emissions savings for some or all of the steps of a specified biofuel, bioliquid or biomass fuel production process, calculated in accordance with the methodology laid down in part C of annex V or Part B of annex VI”.

<sup>149</sup> Art. 31.1 (b) and annex VI, B RED II.

<sup>150</sup> Annex VI, B, para. 13 RED II.

<sup>151</sup> Romppanen 2020, The Bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p.158.

<sup>152</sup> Annex VI, B, para. 1 RED II.

<sup>153</sup> Annex VII, B, (2) RED II.

<sup>154</sup> CJEU, *Sabo and others v The European Parliament and the European Council*, Application for annulment pursuant article 263 TFEU (2019), para. 85.

### **5.1.3.5 Verification and compliance through voluntary schemes**

To ensure that the criteria are actually complied with, RED II sets out some rules on verification and compliance.<sup>155</sup> For instance, article 30 RED II lays out rules and requirements for economic operators when they consign raw materials for the purpose of bioenergy. In this regard the focus is on reliable information from the operator on the compliance with the sustainability and GHG emissions saving criteria.<sup>156</sup> Apart from that, also national or international voluntary schemes play a role in the compliance mechanism. By following the standards of a scheme, one can prove compliance with the sustainability and GHG emissions saving criteria. It is the EU Commission that recognises the schemes based on certain criteria laid out in article 30.4 RED II.

At the moment there are 14 voluntary and one national (Austria) scheme that have been recognised.<sup>157</sup> Ultimately a member state has also the possibility to request the EU Commission to examine whether the criteria have been met.<sup>158</sup> The EU Commission decides within 6 months if the bioenergy can be taken into account for the purposes set out in article 29.1 (a)-(c) or if the supplier of sources needs to show further evidence.<sup>159</sup>

## **5.2 The Land-use, Land-Use Change and Forestry Regulation**

### **5.2.1 The third pillar of the 2030 Climate and Energy Framework**

In 2014 it was agreed by EU Leaders that the land-use, land-use change and forestry sector should also contribute to the EU emissions reduction target, just like the ETS sector and the non-ETS sector.<sup>160</sup> The reason for the inclusion of the LULUCF sector is the fact that the activities in this sector are responsible for 23% of the global anthropogenic GHG

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<sup>155</sup> Art. 30 RED II.

<sup>156</sup> Art. 30.1-3 RED II.

<sup>157</sup> European Commission, "Voluntary schemes" (17 August 2020). <[https://ec.europa.eu/energy/topics/renewable-energy/biofuels/voluntary-schemes\\_en](https://ec.europa.eu/energy/topics/renewable-energy/biofuels/voluntary-schemes_en)> (last accessed 16 March 2021).

<sup>158</sup> Art. 30.10 RED II.

<sup>159</sup> Art.30.10 (a) and (b) RED II.

<sup>160</sup> European Commission, "Land use and forestry regulation for 2021-2030". <[https://ec.europa.eu/clima/policies/forests/lulucf\\_en#tab-0-0](https://ec.europa.eu/clima/policies/forests/lulucf_en#tab-0-0)> (last accessed 22 May 2021).



emissions.<sup>161</sup> However, if you look at the emissions from the LULUCF sector in total, this sector can also function as a net-carbon sink. This is the case for the EU: in 2018 the whole LULUCF sector was responsible for a total net sink of -288.470 kt CO<sub>2</sub>, which corresponds with an offset of almost 7% of the total GHG emissions.<sup>162</sup> This is because the emissions from, for example, agriculture are compensated through the absorption of carbon by forests. This results in the fact that the LULUCF sector has a significant role to play in climate change mitigation, either in a positive or negative way.

Despite the significance of the emissions from the LULUCF sector, the emissions are not easy to regulate. The methodological challenges that arise when assessing the GHG emissions and removals from this sector are the main reason for this: it is difficult to show that emissions are the result of human activities instead of natural forest carbon fluxes and that these emissions are additional – going beyond the business-as-usual scenario.<sup>163</sup> This could lead to a situation in which states could receive credits solely for the occurrence of a natural process such as forest growth.<sup>164</sup> This practice can impair climate change mitigation action and undermines the accounting credibility.<sup>165</sup> Moreover, it is also difficult to regulate the LULUCF sector on an international or European level due to the fact the character of forests vary greatly between countries. Because of this, states can have different views on how forests should be managed, exploited and/or protected. For instance, some forests have an important economic value, such as in Finland. Other forests are strongly protected.<sup>166</sup> Moreover, the LULUCF sector is closely connected to other regulated – and often politically sensitive areas- such as forestry and forest-based bioenergy.<sup>167</sup>

Eventually in 2015, the EU indicated in its INDC that it would include the emissions from the LULUCF sector in its accounting system.<sup>168</sup> This was necessary in order to properly implement the provisions of the Paris Agreement since it required ‘economy-wide absolute

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<sup>161</sup> IPCC (2019). *Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems: Summary for Policy Makers*. www.ipcc.ch, p. 10.

<sup>162</sup> European Union (2020), p. Viii and 666 and Savaresi et al 2020. p. 212.

<sup>163</sup> Savaresi et al, p.213 and Romppanen 2020, *The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework*, p. 262. Carbon fluxes are the movements of carbon from one carbon pool to another. For example the movement from carbon from a land reservoir, to the atmosphere, to the ocean.

<sup>164</sup> Stephenson et al. 2014, p. 90.

<sup>165</sup> Savaresi et al. 2020, p. 213.

<sup>166</sup> Savaresi et al. 2020, p. 213 and Romppanen, p. 263.

<sup>167</sup> Savaresi et al 2020, p. 213.

<sup>168</sup> Submission by Latvia and the European Commission on behalf of the European Union and its Member States, *Intended Nationally Determined Contribution of the EU and its Member States*, Riga 6 March 2015., p.2.

emission reduction targets' for developed states such as the member states of EU.<sup>169</sup> Moreover, accounting for the LULUCF emissions in a comprehensive and reliable manner is a necessary precondition for being able to monitor the progress towards the achievement of the set out targets.<sup>170</sup>

Even though the EU decided to include the emissions from the LULUCF sector into the EU's accounting system, it was not straightforward how exactly this would be done. After two years of negotiations, it was eventually decided to establish an accounting system through the adoption of a new regulation, which forms the third and separate pillar of the 2030 Climate and Energy Framework: the Land Use, Land Use Change and Forestry Regulation (LULUCF Regulation) for 2021-2030.<sup>171</sup> Although the Regulation officially entered into force on the 9<sup>th</sup> of July 2018, the accounting period only starts in January 2021. At the time of writing, the EU member states are implementing the provisions of the Regulation.<sup>172</sup> Nonetheless, in order to make the Regulation compatible with the goals of the EU Green Deal, a revision of the Regulation is already planned for the second quarter of 2021.<sup>173</sup>

### 5.2.2 The no-debit rule

Opposed to the ETS sector and the Effort Sharing Regulation, the LULUCF Regulation does not include a specific emission reduction target.<sup>174</sup> Instead, the so-called 'no debit rule' contained in article 4 is the key commitment of the LULUCF Regulation. This article entails the obligation for the EU member states to ensure that the emissions from the LULUCF sector do not exceed the removals within the sector. The LULUCF sector cannot become a net source of GHG emissions.<sup>175</sup>

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<sup>169</sup> Art. 4(4) Paris Agreement and Saveresi et al. 2020, p. 213.

<sup>170</sup> Recital, 14, LULUCF Regulation and Grassi et al. 2018 8, p. 921.

<sup>171</sup> European Commission, "Land use and forestry regulation for 2021-2030". <[https://ec.europa.eu/clima/policies/forests/lulucf\\_en#tab-0-3](https://ec.europa.eu/clima/policies/forests/lulucf_en#tab-0-3)> (last accessed 22 May 2021) and Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 262.

<sup>172</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 263.

<sup>173</sup> COM(2020) 690 final, annex I, A, 1, f).

<sup>174</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 272.

<sup>175</sup> Ibid.

To measure compliance with the no-debit rule emissions and removals must be accounted for.<sup>176</sup> Therefore, different accounting rules are set out in the LULUCF Regulation for the different types of land categories: afforested land, deforested land, managed cropland, managed grassland, managed forest land and managed wetlands (the latter only from 2026 on).<sup>177</sup> Depending on the category, different rules are used for accounting emissions and removals. The emissions coming from forest-based bioenergy fall under the category of managed forest land (see 5.2.4). Under this category, the emissions and removals coming from land use where forests remain forests are accounted for.<sup>178</sup> This category is the largest one and impacts to a significant extent the overall trend of the whole LULUCF sector.<sup>179</sup>

From an environmental perspective the no-debit rule cannot be seen as a very strong legally binding obligation, since it is limited to finding a balance between emissions and removals instead of ensuring a real reduction. However, the negotiators of the Regulation are of the opinion that the no-debit rule was the best result that could be achieved keeping in mind the many different and conflicting views and interests of the member states.<sup>180</sup>

### **5.2.3 Flexibility mechanisms under the Land-Use, Land-Use Change and Forestry Regulation**

The LULUCF Regulation does foresee certain flexibility mechanisms to make it easier and more cost-effective for states to comply with the no-debit rule. Through these mechanisms, member states can transfer emission credits from one pillar to another to compensate for their debits. The first mechanism in this context is the possibility for states to use the annual emission allocations determined under the Effort Sharing Regulation in the case where emissions exceed removals in the LULUCF sector.<sup>181</sup> The other way around is also possible: credits from the LULUCF sector can contribute to the compliance of the targets under the

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<sup>176</sup> Kulovesi and Oberthür 2020, p. 158.

<sup>177</sup> Ibid.

<sup>178</sup> art.2.1(a)(v) LULUCF Regulation.

<sup>179</sup> European Union (2020), p. 667 and Kulovesi and Oberthür 2020, p. 158.

<sup>180</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 271.

<sup>181</sup> Art12.1 LULUCF Regulation.

Effort Sharing Regulation. However, a limit is set here at a maximum of 280 net removals.<sup>182</sup> Another option to still comply with the no-debit rule, even when emissions exceed removals, is to transfer credits from the LULUCF sector from one member state that has a surplus to another member state that cannot achieve the no-debit rule.<sup>183</sup> A fourth option is for a member state to bank its surplus of credits from the first compliance period 2021-2025 and to use it during the second compliance period of 2026-2030.<sup>184</sup>

The flexibility mechanisms do not come without any risks. For instance, when a member state's emission reduction target under the Effort Sharing Regulation is set low, which equals a high number of annual emission allocations, these allocations can be used to compensate for debits in the managed forest land category. It could be seen by that member states as an allowance to increase the harvest.<sup>185</sup>

## **5.2.4 Accounting for forest-based bioenergy emissions under the managed forest land category**

### **5.2.4.1 Accounting methods: the use of a forest reference level**

As set out in 5.2.2, the emissions from forest-based bioenergy are accounted for under the category of managed forest land. Accounting for emissions coming from managed forest land comes with some challenges. The main challenge is to distinguish the emissions from anthropogenic activities from those naturally occurring and to make sure that credits (emission reductions) reflect real change in forest management.<sup>186</sup> This is important for the comparability with the accounting of other sectors, to create genuine incentives/disincentives and to determine the effectiveness of policy measures.<sup>187</sup>

However, it is not an easy task to link emissions or removals to a certain activity or point in time. The current structure and management of forests are partly the result of policy and management choices made in the past. Management actions can show their effects years

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<sup>182</sup> Art. 7 Regulation Effort Sharing Regulation.

<sup>183</sup> Art. 12.2 LULUCF Regulation.

<sup>184</sup> Art. 12.3 LULUCF Regulation.

<sup>185</sup> Fern (2018), p. 5.

<sup>186</sup> Grassi and Pilli 2017, p. 5.

<sup>187</sup> Cowie et al. 2007, p. 308.

later.<sup>188</sup> This means that action taken during the reference period can have effects in the compliance period. For instance, when the reference period is a period where the forests were at an age to harvest, there are repercussions on the accounting: due to the harvesting, the forest sink declines. The declined forest sink is then used as measuring rod. In the subsequent period, the trees will regrow again and the sink will automatically increase without any active mitigation measures taken.<sup>189</sup> If a member state would get credits for the increase of the sink, these credits would not reflect a real change in the forest management practices of the state.

It was decided that the distinction between anthropogenic and natural emissions could best be made by accounting for the emissions and removals from managed forest land against a forest reference level (FRL). The FRL is defined in the LULUCF Regulation as:

“(…) an estimate, expressed in tonnes of CO<sub>2</sub> 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”.<sup>190</sup>

Thus, to account emissions and removals from managed forest land, the forest carbon sink of a member state in the compliance period is compared to a reference level that is an estimation of what is expected to be the sink of a member state during the compliance period.<sup>191</sup> If the assessment results in a decrease of the forest sink due to an increased use (harvest) of the forest, debits are created and these are accounted for as emissions.<sup>192</sup> In order to achieve a balance between emissions and removals, these debits must be compensated by emission reductions in other sectors.<sup>193</sup> By using this method, anthropogenic effects are distinguished from natural effects and at the same time country-specific characteristics of forests can be taken into account.<sup>194</sup>

By 31 December 2018, every EU member state had to submit a national forestry accounting plan that included a proposal of its FRL for the first compliance period of 2021-2025.<sup>195</sup>

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<sup>188</sup> Directorate-General for Climate Action (2018), p. 16.

<sup>189</sup> Savaresi et al. 2020, p. 215.

<sup>190</sup> Art. 3.1(7) LULUCF Regulation.

<sup>191</sup> Romppanen 2020, The bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 156-157.

<sup>192</sup> Recital 23 LULUCF Regulation.

<sup>193</sup> Romppanen 2020, The bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 157.

<sup>194</sup> Grassi and Pilli 2017, p. 6.

<sup>195</sup> Art.8.3 LULUCF Regulation.

Thereafter the EU Commission, together with experts, reviewed these proposals and consulted stakeholders and the civil society.<sup>196</sup> The final deadline for the member states to communicate their revised FRL, based on technical recommendations that the EU Commission made, was on 31 December 2019.<sup>197</sup> On 28 October 2020 the EU Commission eventually adopted the FRLs, through a Delegated Regulation, as part of annex IV.<sup>198</sup>

#### **5.2.4.2 Determination of the forest reference level**

The determination of a forest reference level is based on the historical forest management practice of member states between the period of 2000-2009, combined with the future forest age characteristics.<sup>199</sup> The current paragraph in the Regulation reads as follows:

“(t)he forest reference level shall be based on the continuation of sustainable forest management practice, as documented in the period from 2000 to 2009 with regard to dynamic age-related forest characteristics in national forests, using the best available data”.<sup>200</sup>

Article 8.5 continues:

“(f)orest reference levels as determined in accordance with the first subparagraph shall take account of the future impact of dynamic age-related forest characteristics in order not to unduly constrain forest management intensity as a core element of sustainable forest management practice, with the aim of maintaining or strengthening long-term carbon sinks”.<sup>201</sup>

The member states must use the criteria and guidance for determining a forest reference level laid out in part A of Annex IV of the LULUCF Regulation.<sup>202</sup> However, these criteria and guidance are generally formulated.<sup>203</sup> The criteria, for instances, prescribe that the FRL shall be consistent with the goal of the Paris Agreement to achieve a balance between the emissions

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<sup>196</sup> Art.8.6 LULUCF Regulation.

<sup>197</sup> Art.8.7 LULUCF Regulation.

<sup>198</sup> Commission Delegated Regulation (EU) 2021/268 of 28 October 2020 amending Annex IV to Regulation (EU) 2018/841 of the European Parliament and of the Council as regards the forest reference levels to be applied by the Member States for the period 2021-2025 [2021] OJ L60/21.

<sup>199</sup> COM(2016) 479 final, art 8.3.

<sup>200</sup> Art. 8.5, paragraph 1 LULUCF Regulation.

<sup>201</sup> Art.8.5 paragraph 2 LULUCF Regulation.

<sup>202</sup> Art. 8.4 LULUCF Regulation.

<sup>203</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 274.

and removals by the second half of this century and shall ensure robust and credible accounting.<sup>204</sup> Real concrete elements to determine the FRL are missing. Apart from the criteria in annex IV, the EU Commission also published in 2018 a non-legally binding technical guidance document.<sup>205</sup> This document has the aim to give the best possible advice on the interpretation of the provisions of the LULUCF Regulation in regard to establishing a FRL and a National Forestry Accounting Plan. However, the interpretation provided in this document is not legally binding for the member states.<sup>206</sup> In other words, the LULUCF Regulation does not give many concrete guidelines on how to set a FRL.

However, several relevant elements can be identified from the text in article 8.5. The first element is that a FRL shall be based on the ‘continuation of sustainable forest management practice’. This means that a documentation and assessment is made of the sustainable forest management practice of a state during the period of 2000-2009 and these are projected in time, based on the assumption that the practice remains the same.<sup>207</sup> But what exactly falls under the concept ‘forest management practice’ is not entirely clear when reading the Regulation, since there is no definition provided. In the guidance document of the Directorate-General for Climate Action of the EU forest management practice refers to “a set of activities carried out and aimed at fulfilling specific functions assigned to a forest (production, protection, etc.)”<sup>208</sup>, although this is not a definition that is officially recognised by the EU. The reason for the absence of an official definition is to allow the FRL to reflect national characteristics of forests and give wide margin of appreciation to the member states.<sup>209</sup>

One thing that is clear is that forest management practice cannot include assumptions of the future impacts of policies. This is a lesson learned from the implementation of the Kyoto protocol: a FRL was also used in this instrument to account for emissions and removals. In this case, the assumption of future impacts of policies were allowed to be included, which led

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<sup>204</sup> Annex A (a) and (c) LULUCF Regulation.

<sup>205</sup> Directorate-General for Climate Action (2018). Guidance on developing and reporting forest reference levels in accordance with Regulation (EU) 2018/841. Luxembourg. Publications Office of the European Union.

<sup>206</sup> Ibid., p.14.

<sup>207</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p.275.

<sup>208</sup> Directorate-General for Climate Action (2018), p. 9.

<sup>209</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 275.

to significant increases in the rate of harvest to be included in the FRL of member states.<sup>210</sup> The emissions that are associated with the increase in harvest are in this case no longer accounted for because they are already included in the reference period and use as measuring rod.<sup>211</sup>

In the LULUCF Regulation the EU wanted to avoid that certain emissions would not be accounted for because they are already included in the FRL. Therefore, the EU decided not to include the future impacts on forest management of planned policies. For forest-based bioenergy this means that the future planned use of this energy source cannot be included in the reference level.<sup>212</sup> However, it is allowed to include the observed impacts of current policies that are already being implemented.<sup>213</sup> Hereby it is considered to be a good practice that the forest management practice that are being documented, are those that actually took place. Practices that were expected or that were legally allowed, but did not take place in practice should not be used as a basis for the continuation of forest management practice since this would undermine the accuracy of the FRL of a member state.<sup>214</sup>

The original proposal of the LULUCF Regulation also included, apart from the continuation of forest management practice, the intensity of the management practice as basis for the determination of the FRL. With the intensity of the forest management, the ratio between the amount of trees that are actually harvested and the amount that is ready to harvest, but not yet harvested, is meant.<sup>215</sup> This concept of intensity did not make it to the final version of the regulation due to protest from some heavily forested countries, including Finland, because those countries had planned to increase the harvest rate in the following years.<sup>216</sup> The inclusion of ‘intensity’ would evidently make it more difficult for them to reach the emission-removal balance. Nonetheless, the intensity of the harvest is still relevant for the determination of the FRL of a member state. For instance, article 8.5 refers to the forest management intensity as a core element of sustainable forest management practice.<sup>217</sup> Also in

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<sup>210</sup> Grassi and Pilli 2017, p. 5.

<sup>211</sup> Ibid.

<sup>212</sup> Directorate-General for Climate Action (2018), p. 28.

<sup>213</sup> Ibid., p. 5-6 and Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 275.

<sup>214</sup> Directorate-General for Climate Action (2018), p. 40-41.

<sup>215</sup> Grassi and Pilli 2017, p. 6.

<sup>216</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 276.

<sup>217</sup> Art.8.5, para 2 LULUCF Regulation.



recital 23 the intensity is mentioned as element to take into account when determining the FRL. Moreover, it is mentioned that “(s)pecific national circumstances and practices, such as a lower harvest intensity than usual (...) during the reference period, should be taken into account”.<sup>218</sup>

A second element is the aspect of sustainability. Article 8.5 includes the continuation of ‘sustainable’ forest management practice as a basis for the determination of member states’ FRL. This is not meant as a sustainability benchmark for the quality of a member state’s management practice.<sup>219</sup> Instead, member states are encouraged to provide information on how sustainable forest management has evolved and how these have been taken into account when setting the FRL.<sup>220</sup> In recital 16, a reference is made to the principles of sustainable forest management as adopted in the Ministerial Conference on the Protection of Forests in Europe (Forest Europe)<sup>221</sup>. They define sustainable management as:

“the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems”.<sup>222</sup>

The criteria in annex IV also mention that the FRL “should be consistent with the objective of contributing to the conservation of biodiversity and the sustainable use of natural resources, as set out in the EU forest strategy (...)”.<sup>223</sup> In the original proposal of the LULUCF Regulation, it is clarified that this criteria is connected to the concept of sustainable forest management and that member states must document how this is reflected in their FRL.<sup>224</sup> How member states should do this exactly, is not clear.<sup>225</sup>

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<sup>218</sup> Recital 23 LULUCF Regulation.

<sup>219</sup> Directorate-General for Climate Action (2018), p. 50.

<sup>220</sup> Ibid.

<sup>221</sup> As the website of this Ministerial Conference on the Protection of Forests in Europe describes, this is “a Pan-European voluntary high-level political process for intergovernmental dialogue and cooperation on forest policies in Europe” that “develops common strategies for its 47 signatories (46 European countries and the European Union) on how to protect and sustainably manage their forests”. (Forest Europe, “What is Forest Europe?”. <<https://foresteurope.org/foresteurope/>> (last accessed 25 May 2021)).

<sup>222</sup> Second Ministerial Conference on the Protection of Forests in Europe (1993).

<sup>223</sup> Annex IV, A (f) LULUCF Regulation.

<sup>224</sup> SWD(2019) 213 final, para. 3.2, criteria (f).

<sup>225</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 276.

A third element is the ‘dynamic age-related characteristics’ of forests. With this the state of maturity of a forest and how this changes over time is incorporated in the determination of the FRL.<sup>226</sup> For example, this can be assessed based on the average age of the trees in a forest, the density or the diameter of the trees in the forests.<sup>227</sup> The elements are often used as a criteria for deciding when the trees can be harvested and the volume that can be harvested.<sup>228</sup> This is important for the determination of the FRL of a member state since article 8.5 prescribes that the future impact of these dynamic age-related forest characteristics must be taken into account “in order not to unduly constrain forest management intensity”.<sup>229</sup> In other words, this means that when member states project an increase in the harvest rate when determining their FRL, they must be able to demonstrate that this is a reflection of the dynamic age-related characteristics of the forest.<sup>230</sup>

Finally, when determining the FRL, the key commitments of the Paris Agreement are also relevant. Article 8.5 clearly sets out the aim of maintaining or strengthening long-term carbon sinks when taking account of the future impact of dynamic age-related forest characteristics. Moreover, the first criteria listed in annex IV is that the FRL of a member state must be consistent with the goal of the Paris Agreement to reach a balance between emissions and removals by the second half of this century, which also includes “enhancing the potential removals by ageing forest stocks that may otherwise show progressively declining sinks”.<sup>231</sup>

In 2018 member states submitted their National Forestry Accounting Plan, which includes a proposal for a FRL. From the technical assessment of the EU Commission, in consultation with experts, it is shown that it is not an easy task for the member states to determine the FRL. Almost all of the submissions required a revision of the calculation: the original FRLs included in the draft NFAPs were almost always higher than the FRLs that eventually were adopted by the EU Commission.<sup>232</sup> Although there are the criteria from annex IV, section A and the guidelines from the EU Commission, member states do not have much to lean on: the criteria are very generally formulated and states do not have to follow the advice on the

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<sup>226</sup> Directorate-General for Climate Action (2018), p. 40.

<sup>227</sup> Ibid., p. 30.

<sup>228</sup> National Research Institute Finland (2017), p. 9 and Romppanen 2020, The bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 159.

<sup>229</sup> Art. 8.5 para. 2 LULUCF Regulation.

<sup>230</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 277.

<sup>231</sup> Annex IV, A (a) LULUCF Regulation.

<sup>232</sup> SWD(2020) 236 final, p. 10.

interpretation of the provisions from the non-binding Guidance Document. Moreover, much discretion is left to the member states in taking account of the different elements from the relevant provisions, such as what sustainable management practice are and how the objective of contributing to the conservation of biodiversity and the sustainable use of natural resources, as set out in the EU forest strategy, must be taken into account. This wide margin of appreciation was necessary in order to reach a compromise between the strong and conflicting interests involved. The consequence of this is that member states decided themselves how ambitious they want to be.<sup>233</sup>

### **5.2.4.3 Specific flexibility mechanisms for managed forest land**

Apart from the general flexibility mechanisms in article 12, the LULUCF Regulation also foresees a flexibility mechanism for managed forest land, which must provide the member states some more flexibility to compensate debits.<sup>234</sup> The rationale behind the introduction of a separate mechanism dedicated to manage forest land is an attempt to reduce the reluctance of countries with large forest cover, such as Finland. Those countries were concerned that their harvest rate would be affected to a large extent by the LULUCF Regulation.<sup>235</sup> Through the flexibility mechanism of article 13 member states are now allowed to temporarily increase their harvest rate, and, as a consequence, they are allowed to have debits in the managed forest land accounting category. Other sectors must compensate for these debits.<sup>236</sup>

The managed forest land flexibility mechanism is connected to certain conditions. First of all, if a member state wants to make use of this flexibility mechanism they should have “ongoing or planned specific measures to ensure the conservation or enhancement, as appropriate, of forest sinks and reservoirs” included in their submitted low-carbon development strategy as

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<sup>233</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 278 and CAP Reform, “Accounting for the LULUCF sector in the EU’s 2030 climate targets” (29 July 2019). <<http://capreform.eu/accounting-for-the-lulucf-sector-in-the-eus-2030-climate-targets/>> (last accessed 22 May 2021).

<sup>234</sup> Art. 13 LULUCF Regulation.

<sup>235</sup> Kulovesi and Oberthür 2020, p. 159.

<sup>236</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 282.

required by regulation no. 525/2013.<sup>237</sup> Second, the total emissions from the EU cannot exceed the total removals for the period for which the member state wants to use the compensation.<sup>238</sup> This means that the EU as a whole must still comply with the no-debit rule from article 4 of the Regulation.<sup>239</sup> The rationale behind this criteria is to counter the critique that this flexibility mechanism removes incentives for the member states to maintain forest sinks.<sup>240</sup> Third, member states are only allowed to compensate “sinks accounted for as emissions against its forest reference level”.<sup>241</sup> This entails that the compensation can only happen to the extent that the forests of a member state are no longer sinks.<sup>242</sup> Ultimately this mechanism thus benefits member states that have a large forest sink.<sup>243</sup>

Moreover, the amount of debits that can be compensated through this mechanism is also constrained.<sup>244</sup> In annex VII of the Regulation a list is set out of the maximum amount of emissions from the managed forest land category that a member state can compensate in the period from 2021 to 2030. This number is the result of a percentage of the reported sink of the member state in the period from 2000-2009.<sup>245</sup> The total amount of compensation for the whole EU is capped at 360 MTCO<sub>2</sub>e.<sup>246</sup> In the preamble of the LULUCF Regulation, it is mentioned when determining the compensation factor, the share of forest coverage and the land area of a member state has to be taken into account. This is because smaller member states with high forest coverage are more dependent on managed forest land to balance their emissions and they have a more limited potential to increase the forest land coverage within their territory. Therefore those member states should be granted the highest compensation factor.<sup>247</sup>

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<sup>237</sup> Art.13.2 (a) LULUCF Regulation. Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change is since 31 December 2020 no longer in force. This Regulation is repealed by Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action. Measures to ensure the conservation or enhancement of forest sinks and reservoirs are now included in a long-term strategy (article 15).

<sup>238</sup> Art.13.2(b) LULUCF Regulation.

<sup>239</sup> Fern (2018), p. 6.

<sup>240</sup> Ibid.

<sup>241</sup> Art.13.3 (a) LULUCF Regulation.

<sup>242</sup> Recital 24 LULUCF Regulation.

<sup>243</sup> Kulovesi and Oberthür 2020, p. 159.

<sup>244</sup> Art.13.3 (b) LULUCF Regulation.

<sup>245</sup> Recital 24 LULUCF Regulation.

<sup>246</sup> Kulovesi and Oberthür 2020, p. 159.

<sup>247</sup> Rectal 25 LULUCF Regulation.

It is noteworthy that Finland enjoys a unique, extra flexibility in the LULUCF Regulation: it is the only member state it is allowed to compensate up to 10 million tonnes of CO<sub>2</sub> equivalent.<sup>248</sup> This is additional to the standard flexibility that Finland enjoys, where it is allowed to compensate 44,1 million tonnes of CO<sub>2</sub> equivalent.<sup>249</sup> This flexibility mechanism will be further discussed in section 7.2.2.

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<sup>248</sup> Art.13.4 LULUCF Regulation.

<sup>249</sup> Annex VII LULUCF Regulation and Kulovesi and Oberthür 2020, p. 159.

## **6 Critical analysis of the accounting system for GHG emissions from forest-bioenergy: the concept of carbon neutrality**

### **6.1 Why should emissions from forest-based bioenergy be accounted for?**

The overarching purpose of accounting for emissions is to create incentives to take actions that reduce GHG emissions or disincentives for actions that have adverse effects on the GHG emissions. The process of accounting can be defined as:

“[r]ule-based assessment of the impact on GHG emissions and removals that take place under a compliance period. The impact is accounted through comparison of actual GHG emissions and removals from GHG (inventory) categories during a compliance period with the counterfactual value, following the accounting rules set for the given category.”<sup>250</sup>

This process must be situated within the context of emission reduction targets: emissions and removals are compared to a certain target that is expressed as a progression compared to a certain base year/line. This comparison results in credits or debits that count towards the mitigation target. The outcome of this accounting is supposed to be a reflection of a genuine deviation from the business-as-usual scenario. This can only be the case if the accounting system is robust and reliable: all emissions are accounted for. This is important, because only then true incentives or disincentives can be created for reducing GHGs and achieving the set out emission reduction targets.<sup>251</sup>

Specifically for forest-based bioenergy, the question arises if the decrease of the forest sink, that is a consequence of harvesting trees for the production of forest-based bioenergy, should be reflected in the accounting process. Some member states are of the opinion that they should be allowed to increase harvest of forests without creating debits in the accounting system, when this is part of their sustainable forest management practice. The rationale behind this idea is that the forest growth is a result of the management system that was in

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<sup>250</sup> Directorate-General for Climate Action (2018), p. 2.

<sup>251</sup> Grassi et al. 2018, Science-based approach for credible accounting of mitigation in managed forests, p. 2.

place. Hereby a state should be able to enjoy the results of its management by harvesting the growth, without reducing the overall stock.<sup>252</sup> This was what happened before the LULUCF Regulation was adopted: the emissions from forest-based bioenergy were not accounted for under any EU instruments.<sup>253</sup> The Good Practice Guidance of the IPCC solely provided that the GHG emissions coming from biomass used for energy should be noted, but not necessarily included in the accounting for the energy sector.<sup>254</sup> This led to a situation where the accounting system did not reflect the reality, for instance, when comparing the GHG emissions from forest-based bioenergy with the emissions from fossil fuels. GHG emissions from bioenergy were hid and the wrong incentives were created.<sup>255</sup>

## **6.2 Accounting for GHG emissions before the Land-Use, Land-Use Change and Forestry Regulation**

Before the accounting system of the LULUCF Regulation was in place, emissions and removals from forest-based bioenergy were accounted for under the Kyoto Protocol. During the second commitment period of the Kyoto Protocol (2013-2020) a FRL was used as accounting method. However, this system was criticised because member states were granted a lot of discretion when calculating their reference level. There were no detailed criteria in place to guide the member states, which led to a variety of approaches used to calculate the FRLs.<sup>256</sup> But more importantly member states were allowed to take into account assumed future implementations of domestic policies, such as the planning of a new biomass power plant.<sup>257</sup> Under this scenario emissions due to the increase in harvest were not accounted for when they were already included in the FRL as expected future implementation of a certain domestic policy.<sup>258</sup> Because of this practice the Kyoto Protocol accounting system cannot be

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<sup>252</sup> Grassi et al. 2018, Science-based approach for credible accounting of mitigation in managed forests, p. 4.

<sup>253</sup> SWD(2012) 41 final, para 2.1.1.

<sup>254</sup> SWD(2012) 41 final, para 2.1.1. and IPCC (2003), p. 3.261.

<sup>255</sup> Ibid.

<sup>256</sup> Directorate-General for Climate Action (2018), p. 20.

<sup>257</sup> Grassi et al. 2018, Science-based approach for credible accounting of mitigation in managed forests, p. 3.

<sup>258</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 267.

seen as a robust and reliable system that reflects the real emissions and removals and thus real change.<sup>259</sup>

In 2020 the second commitment period of the Kyoto protocol ended and it was decided not to extend this protocol, but instead substitute this by a new legally binding instrument (the Paris Agreement).<sup>260</sup> However, the Paris Agreement does not contain any rules on the accounting for emissions.<sup>261</sup> In the absence of an accounting mechanism in the Paris Agreement, the EU had to establish its own accounting mechanism. This is done in the Land-Use, Land-Use Change and Forestry Regulation, wherein the emissions from forest-based bioenergy are accounted for under the managed forest land category.<sup>262</sup>

## **6.3 The concept of carbon neutrality under the Renewable Energy Directive**

### **6.3.1 The carbon-neutral character of forest-based bioenergy**

EU law considers forest-based bioenergy to be a carbon neutral source of renewable energy.<sup>263</sup> Hereby ‘carbon neutral’ refers to the presumption that the emissions that are emitted when harvesting the trees necessary for energy production will be reabsorbed at a later point in time by the regrowth of the forest. This way the initial emissions are compensated and at the end, the result from the calculation is zero emissions.<sup>264</sup>

Because forest-based bioenergy is considered to be carbon neutral, the emissions from forest-based bioenergy are considered to be zero under the Renewable Energy Directive. This is reflected in the assessment of the GHG emission saving character of this energy source. As set out previously in section 5.1.3.4, one of the criteria contained in RED II that forest-based bioenergy needs to meet is the GHG emissions saving criteria from article 29(10). When

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<sup>259</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 268.

<sup>260</sup> European Commission ”Kyoto 2nd commitment period (2013-20). <[https://ec.europa.eu/clima/policies/strategies/progress/kyoto\\_2\\_en](https://ec.europa.eu/clima/policies/strategies/progress/kyoto_2_en)> (last accessed 22 May 2021).

<sup>261</sup> Ibid. p. 220-221.

<sup>262</sup> Romppanen 2020, The Bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 159.

<sup>263</sup> Ibid., p.152., RED annex VI, B, 13. LULUCF, recital 15.

<sup>264</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 284.



calculating the lifecycle emissions to meet this criteria, the emissions from burning the biomass are counted as zero emissions, since they will be reabsorbed overtime.<sup>265</sup> In other words, when comparing the GHG emissions between fossil fuels and forest-based bioenergy GHGs emitted when burning trees are not taken into account for forest-based bioenergy. There is a condition for this zero-rating of emissions from the combustion: the emissions from the change in carbon stock must be accounted for under the LULUCF Regulation.<sup>266</sup> This is recognised in the preamble of the LULUCF Regulation:

“(t)he internationally agreed IPCC Guideline state that emissions from the combustion of biomass can be accounted for as zero in the energy sector on condition that such emissions are accounted for in the LULUCF sector. (...), consistency with the IPCC Guidelines would only be ensured if such emissions were reflected accurately in this Regulation”.<sup>267</sup>

This approach means that the emissions from forest-based bioenergy are accounted for under the LULUCF Regulation, even if in practice these emissions take place in the energy sector.<sup>268</sup> The responsibility to account the emissions from forest-based bioenergy is thus entirely shifted from the Renewable Energy Directive to the Land-Use, Land-Use Change and Forestry Regulation.<sup>269</sup>

The basis of this approach can be found in the framework of the UNFCCC and its guideline on national greenhouse gas inventories. Hereby, the IPCC points out that it is not automatically assumed that the use of biomass is carbon neutral, even if it is sustainably produced. The reporting approach of the IPCC for biomass is no reflection of the sustainability or carbon neutral character of forest-based bioenergy.<sup>270</sup> However, at the same time this system is acknowledged to be a reflection of the assumption that the emissions from the combustion are balanced over time by the carbon uptake prior to the harvest.<sup>271</sup>

The remark has to be made that the concept of carbon neutrality is not clearly incorporated in the Renewable Energy Directive. Nowhere it is explicitly stated that forest-based bioenergy is

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<sup>265</sup> See section 5.1.3.4

<sup>266</sup> Recital 15 LULUCF Regulation.

<sup>267</sup> Ibid.

<sup>268</sup> Ibid and IPCC (2019), p. 2.4.

<sup>269</sup> Romppanen 2020, The Bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 158.

<sup>270</sup> IPCC, ”Frequently Asked Questions” (2021). <[www.ipcc-nggip.iges.or.jp/faq/faq.html](http://www.ipcc-nggip.iges.or.jp/faq/faq.html)> (last accessed 22 May 2021), Q2-10.

<sup>271</sup> Ibid.

considered to be a carbon neutral source of energy. Instead, this concept is incorporated in the details of the Directive and LULUCF Regulation and one has to read between the lines to fully comprehend the scope and impact of this concept.<sup>272</sup>

### **6.3.2 The rationale behind the concept of carbon neutrality**

The rationale behind the concept of carbon neutrality can be found in the importance of forest-based bioenergy for the EU. With the growing demand for renewable energy, forest-based bioenergy, as largest source of renewable energy in the EU, is inevitably looked at to meet the increasing energy demand.<sup>273</sup> Moreover, the inclusion of forest-based bioenergy in the Renewable Energy Directive makes it easier for the EU to reach its predetermined targets for renewable energy, without facing the challenges of energy security. This is because energy from forest-based bioenergy does not face an intermittency challenge, opposed to, for instance, solar and wind energy (the second and third largest source of renewable energy in the EU). This makes forest-based bioenergy a reliable source of energy, which is very valuable in the challenging energy-climate policy debate. Therefore, it can be considered that the EU wanted to include forest-based bioenergy in the Renewable Energy Directive to make it more achievable and realistic to actually achieve the emission reduction target, by phasing out the use of fossil fuels.

### **6.3.3 Critique on the concept of carbon neutrality**

#### **6.3.3.1 Scientific reality mismatches the concept of carbon neutrality**

The presumption that forest-based bioenergy is considered to be carbon neutral faces a lot of restraint from different corners. First of all, scientists have warned policymakers for the consequences of this construction. In February 2021 a letter signed by more than 500 scientists was published wherein global leaders were asked to stop supporting the use of

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<sup>272</sup> Romppanen 2020, The Bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 161.

<sup>273</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 283-284.

forest-based bioenergy. More specifically, they urge the EU to stop treating forest-based bioenergy as a carbon neutral source of energy in the Renewable Energy Directive.<sup>274</sup>

They argue that the increase in wood harvest to meet the increasing energy demand leads to cutting down whole trees or using large part of the stems of trees for energy production, which leads to an increase in CO<sub>2</sub> emissions. These emissions can be reabsorbed, but it takes decades, even centuries before the emissions can be compensated through the regrowth of trees. According to the scientists, this is time we do not have in the fight against climate change.<sup>275</sup>

By treating forest-based bioenergy as a carbon neutral source of renewable energy, the EU encourages the production of this source. This incentive cannot be altered through an accounting system that holds the member states responsible for their emissions from the LULUCF sector. In their letter, the scientists use the example of a law that would consider diesel as a carbon neutral source of energy and because of that it should be promoted. In this case, a law making countries responsible for the emissions of this source by accounting for them would not change the practice of using diesel. Instead legal instruments “should accurately recognise the climate change effects of the activities they encourage”.<sup>276</sup> Moreover, the support from governments must be tackled since “subsidies for burning wood create a double climate change problem because this practice is endangering real carbon reductions”: fossil fuels are substituted by forest-based bioenergy, instead of real carbon reducing renewable energy sources such as solar and wind energy.<sup>277</sup>

This was not the first time scientists have expressed their concerns: before the adoption of the RED II in 2018, 796 scientists signed a letter addressed to the EU Parliament with similar arguments.<sup>278</sup> They urged the Parliament to amend the Directive in a way that only wood in the form of residual materials and waste would be eligible for energy production, instead of full stem trees.<sup>279</sup>

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<sup>274</sup> Raven 2021, p. 2.

<sup>275</sup> Ibid. p. 1

<sup>276</sup> Ibid. p. 2

<sup>277</sup> Ibid. p. 1.

<sup>278</sup> Beddington 2018.

<sup>279</sup> Ibid, para. 1 and 5.

Apart from scientists, also civilians and non-governmental organisations (NGOs) have expressed their concerns. Almost 100.000 European citizens have signed a petition that urges the EU to protect forests, exclude forest-based bioenergy from counting towards the renewable energy targets and end the subsidies for this energy source.<sup>280</sup> This, together with the concerns expressed by scientists, is a reflection of the sensitivity of this issue within the wider society.

### 6.3.3.2 Concerns taken to the Court

A group of civilians and NGOs decided to bring this issue before the Court of Justice of the European Union (CJEU). In March 2019 they filled a case before the Court wherein they seek for the annulment of the inclusion of forest-based bioenergy in the Renewable Energy Directive.<sup>281</sup> They are of the opinion that the inclusion of forest-based bioenergy in the Directive forms a violation of (1) the environmental objectives contained in article 191 of the Treaty in the Functioning of the European Union (TFEU) and (2) of the applicants' human rights under the Charter of Fundamental Rights.<sup>282</sup> Since this thesis has an environmental focus, only the first ground will be assessed. However, it is needless to say that the protection of human rights is an equally important ground.

For the argumentation of the violation of article 191 TFEU, the different paragraphs of this article are separately discussed. Hereby, the applicants recognise that separately, the individual elements from this article are not enforceable. However they are of the opinion that the promotion of forest-based bioenergy forms such a flagrant breach of this article in general, that the Court should have the power to annul the provisions relating to forest-based bioenergy.<sup>283</sup>

Article 191 TFEU sets out the different objectives that the environmental policy of the EU shall contribute to. These can be (1) preserving, protecting and improving the quality of the

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<sup>280</sup> YouMoveEurope, ” The EU must protect forests, not burn them for energy”. <<https://you.wemove.eu/campaigns/the-eu-must-protect-forests-not-burn-them-for-energy>> (last accessed 22 May 2021).

<sup>281</sup> CJEU, *Sabo and others v The European Parliament and the European Council*, Application for annulment pursuant article 263 TFEU (2019).

<sup>282</sup> *Ibid.*, para.153.

<sup>283</sup> *Ibid.* para. 186.

environment (2) protecting human health (3) prudent and rational utilisation of natural resources and (4) promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change.<sup>284</sup> The first argument of the plaintiffs is that the promotion of forest-based bioenergy does not pursue any of the objectives from article 191.1 and even opposes these objectives.<sup>285</sup>

Furthermore, the plaintiffs argue that forest-based bioenergy does not align with the high level of environmental protection that the second paragraph of article 191 prescribes. The protection should be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.<sup>286</sup> The plaintiffs are of the opinion that these principles are not respected in the Renewable Energy Directive since the Directive does not consider the possibility of adverse effects on GHG emissions and does not contain any limitations or real safeguards for the use of forest-based bioenergy.<sup>287</sup> Nevertheless, from the EU point of view, this approach can be justified since it starts from the assumption that forest-based bioenergy is a carbon neutral source of renewable energy where the end calculation of emitted GHGs is eventually zero. Hereby the emissions from the change in carbon stock are accounted for under the LULUCF. On the other hand, there are the sustainability and GHG emissions saving criteria to address other environmental concerns. However, for bioenergy produced from cereal and other starch-rich crops, sugars and oil crops, it is recognised in the Directive that a limitation on the amount produced could be necessary, but this limitation is in the context of the perpetration of a move towards advanced biofuels and to minimise the impacts from direct and indirect land use.<sup>288</sup>

The Directive also fails to rectify the damage at its source according to the plaintiffs. They argue that the Directive tries to solve the harm it creates by accounting for the emissions from forest-based bioenergy under the LULUCF Regulation, but this is an inadequate approach and the damage should not happen in the first place. Instead, the harvesting of trees is only promoted by this approach. If the EU would rectify the damage (here: emissions of GHGs

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<sup>284</sup> Art.191.1 TFEU.

<sup>285</sup> CJEU, *Sabo and others v The European Parliament and the European Council*, Application for annulment pursuant article 263 TFEU (2019), para. 158.

<sup>286</sup> Art.191.2 TFEU.

<sup>287</sup> CJEU, *Sabo and others v The European Parliament and the European Council*, Application for annulment pursuant article 263 TFEU (2019), para. 181-183.

<sup>288</sup> Recital 80 RED II.

which leads to climate change) at its source, the emissions from burning forests would simply be reduced or not taking place at all.<sup>289</sup> Here again, the argumentation from the plaintiffs shows that the EU has a different view on the issue, which justifies their policy: there is no damage happening since emissions are reabsorbed again through the re-growth of trees and the sustainability and GHG emissions saving criteria are in place to avoid further environmental damage.

Lastly, it is argued that the polluter-pays principle is ignored since the operator of a power plant does not carry any responsibilities under the Directive for the emitted emissions. Instead, the countries from where the biomass is harvested are carrying the consequences by a decreased carbon sink and undermining of their climate change mitigation efforts.<sup>290</sup> It could also be argued that the society in general is paying for the damage in terms of climate change.

Third, the applicants argue that article 191 is violated because the Directive does not take into account the scientific and technical data, as prescribed in paragraph 3. As set out in section 6.3.3.1, on different occasions scientists warned the policymakers for the consequences of including forest-based bioenergy as a source of renewable energy.

It is not known whether the Court follows the argumentation of the plaintiffs. On the 6<sup>th</sup> of May 2020 the CJEU dismissed the action for annulment as inadmissible on the grounds of a lack of standing.<sup>291</sup> This decision was confirmed in appeal on the 14<sup>th</sup> of January 2021.<sup>292</sup> This decision is a consequence of the so-called ‘Plaumann doctrine’ that arose overtime from the case law of the CJEU. Under this doctrine the access to justice for natural persons and NGOs in environmental cases is restricted as a consequence of the interpretation of ‘individual concern’. However, the issue of legal standing of natural and legal persons in environmental cases does not fall under the scope of this thesis and will not be discussed. Even though the Court could not review the merits of the case, at least the case points out the challenges regarding forest-based bioenergy.<sup>293</sup>

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<sup>289</sup> CJEU, *Sabo and others v The European Parliament and the European Council*, Application for annulment pursuant article 263 TFEU (2019), para. 176 and 179.

<sup>290</sup> *Ibid.*, para. 180.

<sup>291</sup> CJEU T-141/19 *Sabo and others v The European Parliament and the European Council* (2020) ECLI:EU:T:2020:179, para. 46-47.

<sup>292</sup> CJEU C-297/20 P *Sabo and others v The European Parliament and the European Council* (2021) ECLI:EU:C:2021:24, para.42

<sup>293</sup> Romppanen 2020, The bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 161.

### 6.3.3.3 Can the criteria from RED or LULUCF Regulation counter the critique?

From what has previously been set out, it is clear that the EU considers forest-based bioenergy a carbon neutral source of renewable energy. This rests on the assumption that carbon emitted by combustion will be re-absorbed by the re-growth of forests. The sustainability and GHG emissions criteria from RED II, together with the accounting mechanism contained in the LULUCF Regulation are there to address any further environmental concerns. Still some weaknesses and gaps can be identified in these mechanisms, which leaves the door open for a debate about the EU's approach on this source of energy.

On the one hand, there is the problem that emissions from combustion are not taken into account when comparing its emissions performance to those of fossil fuels for the compliance with the GHG emissions saving criteria. The method for calculating the lifetime emissions from forest-based bioenergy only takes into account the direct land use change. However, the harvesting of trees for energy production does not necessarily lead to this change (see section 5.1.3.4) Instead, this method catches the risks coming from the practices of agricultural biomass, where there is a risk that land-uses are changed to grow more crops to produce energy. It is noticeable that in this case, the calculation method takes into account the emissions from the last 20 years.<sup>294</sup> This long-term vision is an aspect that is missing when regulating forest-based bioenergy: nowhere in the Renewable Energy Directive is there a possibility to take into account the long-term effects of forest-based bioenergy and specifically the emissions/absorption balance in the long run.<sup>295</sup> Furthermore, it must also be noticed that the GHG emissions saving criteria are only applicable to installations with a total rated thermal input equal to or exceeding 20 MW. This means that only the large-scale plants are affected by the criteria. However, member states have an option to lower this standard.<sup>296</sup>

The consequence of the lack of inclusion of the emissions from the combustion is that forest-based bioenergy enjoys a more favourable starting point when comparing it to the emissions from fossil fuels. The result of the comparison presents forest-based bioenergy as a source that can reduce the GHG emissions, based on the assumption that the carbon emitted by

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<sup>294</sup> Annex VI, B, 7 RED II.

<sup>295</sup> CJEU, *Sabo and others v The European Parliament and the European Council*, Application for annulment pursuant article 263 TFEU (2019), para. 85.

<sup>296</sup> Art.29.1 RED II.

combustion is reabsorbed. This gives operators and states a proper incentive to produce forest-based bioenergy.<sup>297</sup> The reality in the meantime can be completely different because of the fact that it can take decades, even centuries, before the carbon released in the burning process is sequestered again through the regrowth of the forest and carbon neutrality is achieved.<sup>298</sup> This end result is the reverse of what the Directive tries to achieve: mitigating climate change.<sup>299</sup>

The sustainability criteria contained in RED II cannot change this practice since sustainability is not a synonym for low carbon.<sup>300</sup> Criteria such as ensuring the legality of the harvesting operations, forest regeneration of harvested areas, protected areas, ensuring soil quality and biodiversity and long-term production capacity of the forest, will not impact the emissions emitted when burning wood.<sup>301</sup> Even if sustainability would be seen as the situation where the harvest of trees does not exceed the incremental growth of the forests, a positive effect is not created in terms of emission reductions. This is because the incremental growth would be limited to the minimum by this approach, which would mean a smaller carbon sink. Moreover, harvesting would increase until this balancing point is achieved and therefore the carbon sink would decline.<sup>302</sup>

On the other hand, there is the problem that the emissions from harvesting trees are accounted for under the LULUCF Regulation. As set out above, it is a precondition for emissions for the fuel in use (combustion) to be able to be considered as zero under the Renewable Energy Directive. If this would be a robust system where the emissions from forest-based bioenergy would completely be taken into account, this could compensate for the carbon neutral treatment of this energy source in the Directive.<sup>303</sup> However, there are several gaps and weaknesses that can be identified in this system. First of all, this system does not fully reflect the emissions from forest-based bioenergy and therefore it does not create proper incentives for the member states. With the LULUCF accounting system, solely the changes in the carbon stock are taken into account. It makes a comparison from the carbon stock during the reference period of 2000-2009 and the carbon stock during the compliance period (2021-

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<sup>297</sup> Romppanen 2020, , The bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 158.

<sup>298</sup> Beddington et al. 2018, p. 1, Norton et al. 2019, p. 1259, Searchinger et al. 2018, p. 1.

<sup>299</sup> Norton et al. 2018, p. 1258.

<sup>300</sup> Searchinger et al 2018, p. 2.

<sup>301</sup> Art. 29.6 RED II.

<sup>302</sup> Searchinger et al. 2018, p. 2.

<sup>303</sup> Romppanen 2020, , The bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 160.



2026). In this context the harvest of trees can be increased for the production of bioenergy, whilst at the same time the overall forest still functions a sink and no debits are created.<sup>304</sup> Research shows that following the continuation of sustainable management practice the harvest in the EU would increase from 420 million m<sup>3</sup> in the period between 2000 and 2009 to 560 million m<sup>3</sup> by 2050.<sup>305</sup> An increase in the harvest rate means an increase in the carbon emitted, but this is not reflected in the debits of member states, since the increase follows the continuation of sustainable management practice.

Moreover, there are the flexibility mechanisms, especially the one for managed forest land, that allow the harvest in forests to be temporarily increased, whilst shifting the responsibility to compensate for this to other sectors (see section 5.2.4.3). Closely connected to this, is the fact that the method for calculating the emissions from managed forest land through a FRL, leaves lots of discretion for the member states and cannot ensure that the emissions are accounted for “comprehensively, honestly and transparently” (see section 5.2.4.2).<sup>306</sup> For instance, member states are free to a certain extent to fill in the concepts of sustainable forest management practice and age-dynamic characteristics. Yet, setting the FRL correctly is the starting point of the whole system. The effectiveness of comparing the differences in carbon stock from the reference period and the compliance period will be highly dependent on how strict the member states decided to set their FRL. Even though experts have the opportunity to assess the FRL of member states, it must be acknowledged that these are experts appointed by the member states that are there solely for advising the European Commission. They do not have any decisive powers. Moreover the recommendations that the European Commission makes, in consultation with the experts, is not binding for the member states.

A third element is that the trees can also be harvested outside the EU and then be imported. It is the country where the harvesting takes place that must account for the emissions and the Renewable Energy Directive expressly dictates that “the sustainability and greenhouse gas emissions saving criteria (...) shall apply irrespective of the geological origin of the biomass”.<sup>307</sup> However, there are no requirements about the quality of the accounting system in place. In this context it must also be kept in mind that even when the emissions are accounted for in the country of origin, this does not create an incentive for the country that is

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<sup>304</sup> Nabuurs et al. 2018, p. 5-6.

<sup>305</sup> Ibid.

<sup>306</sup> Romppanen 2020, The Bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 160-161.

<sup>307</sup> Art. 29.1, last sentence and 7 RED II.

operating the power plant to reduce emissions. The incentive to produce biomass from forest stays, as long as the RED II creates this incentive.<sup>308</sup>

All of this can raise the question of the motives of the EU behind the regulation of forest-based bioenergy. The complexity of how this concept is incorporated in the legal framework, can be regarded almost as a tactic of hiding the real impact of this concept. Keeping in mind that it is currently the largest source of renewable energy in the EU and it provides the benefits of independence and reliability (because there are no intermittency issues here, opposed to solar and wind energy for example), it is in the interest of the EU to keep forest-based bioenergy within the scope of the Renewable Energy Directive. This would make it less complex for the EU to meet the increased climate change mitigation ambitions. Therefore, one can think that by considering forest-based bioenergy as a carbon neutral source of renewable energy and shifting the responsibility of counting the emission away to another sector, the EU wants to protect forest-based bioenergy as source of renewable energy, so it can meet its targets. Hereby, it is also important to keep in mind that the responsibility is shifted to a sector where there is no emission reduction target set out, solely a legal requirement to stay in balance.

### **6.3.4 The future of forest-based bioenergy**

#### **6.3.4.1 An opportunity to revise the EU legislation**

If the CJEU upholds the Plaumann doctrine and does not come to decide on the merits of the case, the only option to recognize the flaws in the current regulatory framework is through action by the policymakers themselves. There is an opportunity to do this through the review of the Renewable Energy Directive that is planned for the second quarter of 2021 in the context of the adoption of the Green Deal. The rationale behind this review is “to assess how far EU renewable energy rules can contribute to a higher EU climate change mitigation ambition”.<sup>309</sup> In this context, it would be fitted to closely assess the approach of the EU on

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<sup>308</sup> European Commission, “Feedback from: Timothy Searchinger” ((21 September 2021). <[https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12553-EU-renewable-energy-rules-review/F554225\\_en](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12553-EU-renewable-energy-rules-review/F554225_en)> (last accessed 25 May 2021).

<sup>309</sup> European Commission, “EU renewable energy rules –review”. <<https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12553-EU-renewable-energy-rules-review>> (last accessed 25 May 2021).

forest-based bioenergy and the provisions reflecting this approach. The need to do this is also highlighted by the 374 feedbacks received during the feedback period from Augustus 2020 until September 2020 and the 37.750 reactions on the public consultation that ran from November 2020 until February 2021.<sup>310</sup> A lot of those are addressing the EU's approach on forest-based bioenergy: either they urge the EU to change its approach or they defend the approach. This shows that this issue is controversial not only on the regulatory level, but also at the wider level of the society.

At the same time, the LULUCF Regulation is also in the process of being amended. This is the result of a review clause that is incorporated in the Regulation.<sup>311</sup> Under this article the Regulation is kept under review with the aim that the EU Commission can make proposals to ensure “the integrity of the Union’s overall 2030 greenhouse gas emission reduction target and its contribution to the goals of the Paris Agreement”.<sup>312</sup> This gives the LULUCF Regulation a dynamic character that is beneficial to respond to changed circumstances and gaps.<sup>313</sup> The amendment of the LULUCF Regulation aims to address the fact that the EU will need to step up its action if it wants to achieve its increased climate change mitigation ambitions. In the impact assessment of the European Commission it is acknowledged that in this context the EU is projected to double the capacity of its sinks in order to stay in line for the achievement of the targets, but at this moment its largest sink, forests, is only declining due to, amongst other things, an increase in the harvest due to energy production.<sup>314</sup> By amending the Regulation, the EU aims to address this issue and make it better reflect the polluter-pays principle.<sup>315</sup>

In the context of the planned revisions, it is noticeable that Finland, together with 9 other countries, blocked the decision-making process for a delegate act that aimed to list the activities considered to be sustainable on the EU taxonomy for sustainable activities.<sup>316</sup> This

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<sup>310</sup> European Commission, “EU renewable energy rules –review”. <<https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12553-EU-renewable-energy-rules-review>> (last accessed 25 May 2021).

<sup>311</sup> Art. 17 LULUCF Regulation.

<sup>312</sup> Art.17.1 para. 2 LULUCF Regulation.

<sup>313</sup> Romppanen 2020, The LULUCF Regulation: the new role of land and forests in the EU climate and policy framework, p. 279-280.

<sup>314</sup> ARES(2020) 6081753, p. 2.

<sup>315</sup> Ibid.

<sup>316</sup> Reuters, “EU countries pile pressure on Brussels to change green finance rules on bioenergy” (11 March 2021). <[www.reuters.com/article/us-europe-regulations-finance/eu-countries-pile-pressure-on-brussels-to-change-green-finance-rules-on-bioenergy-idUSKBN2B32RM](http://www.reuters.com/article/us-europe-regulations-finance/eu-countries-pile-pressure-on-brussels-to-change-green-finance-rules-on-bioenergy-idUSKBN2B32RM)> (last accessed 25 May 2021).

taxonomy is a classification system wherein the sustainable activities are listed.<sup>317</sup> These activities can be considered as ‘green investments’ and receive financial support. However, Finland was of the opinion that bioenergy should be classified as a sustainable investment on the long term under the taxonomy since the Renewable Energy Directive considers it also sustainable if the criteria of the Directive are met.<sup>318</sup> Finland was thus opposed to the idea of stricter criteria for bioenergy, which can be telling for the future revisions of RED II and the LUULCF Regulation.

The question rises which pathway the EU is going to follow for the coming (crucial) years. It has an opportunity to fix the assumption of carbon neutrality and/or the gaps in the accounting system and by doing this showing the world that the EU policy is determined by science and not by member states’ best interests. Only then the EU can be seen as a world leader in the fight against climate change.

#### **6.3.4.2 Phasing out the use of forest-based bioenergy?**

If the EU would come to a decision that the use of forest-based bioenergy causes too much environmental damage and hampers achieving the GHG emission reduction targets, it is an option for the EU to decide to phase out the use of forest-based bioenergy completely, or to put stronger restrictions in place. This is what happened already for the use of palm oil as biofuel: when adopting RED II in 2018, the EU took the decision to phase out the use of palm oil by 2030 as a source of bioenergy. Article 26.2 of RED II prescribes that share of biofuels connected to a high risk of indirect land use change can not increase compared to the share that was used in 2019, except if the biofuel is certified as low indirect land-use change risk.<sup>319</sup> Thereafter, from 2023-2030 the share of these fuels must be gradually phased out.<sup>320</sup> In a Delegated Regulation, the European Commission identified palm oil as the only biofuel with

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<sup>317</sup> European Commission, ”EU taxonomy for sustainable activities: What the EU is doing to create an EU-wide classification system for sustainable activities”. <[https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities\\_en#preparatory](https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en#preparatory)> (last accessed 25 May 2021).

<sup>318</sup> Reuters, “EU countries pile pressure on Brussels to change green finance rules on bioenergy” (11 March 2021). <[www.reuters.com/article/us-europe-regulations-finance/eu-countries-pile-pressure-on-brussels-to-change-green-finance-rules-on-bioenergy-idUSKBN2B32RM](http://www.reuters.com/article/us-europe-regulations-finance/eu-countries-pile-pressure-on-brussels-to-change-green-finance-rules-on-bioenergy-idUSKBN2B32RM)> (last accessed 25 May 2021).

<sup>319</sup> Art. 26.3, para. 1 RED II

<sup>320</sup> Art. 26.3, para. 2 RED II

a high risk to indirect land change.<sup>321</sup> Concretely, this means that member states are limited in the possibility to count the use of palm oil in their calculation of the renewable energy targets and eventually they will not count towards the achievement of the targets at all. The member states adopt supporting schemes and legislation in this context to exclude biofuels from palm oil from measures taken to meet the renewable energy targets.<sup>322</sup>

The decision to phase out palm oil for energy production creates the impression that even though the sustainability and GHG emissions saving criteria from the Renewable Energy Directive are complied with, the use of palm oil still causes unacceptable environmental harm, more specifically deforestation.<sup>323</sup> This argumentation could be extended to the use of forest-based bioenergy: even with sustainability and GHG emissions saving criteria in place, the adverse environmental effects of the use of forest-based bioenergy can not be avoided and therefore, the use of it should be phased out.

However, it is important to notice that this can lead to a case before the WTO dispute settlement body. Indonesia, the largest exporter of palm oil, is of the opinion that the EU measures constitutes a discrimination of palm oil in favour of like products that are of EU origin or imported.<sup>324</sup> Although the argumentation of this case does not belong within the scope of this thesis, the case can function as a warning for the EU in the context of forest-based bioenergy. If the EU would phase out, or even put restrictions in place on the use of forest-based bioenergy, the rules on international trade will have to be taken into account. However, exceptions for environmental reasons can be used to justify limitations on international trade. Therefore it will be interesting to see what the dispute settlement body eventually decides. The outcome can potentially have an impact on the use of forest-based bioenergy within the EU.

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<sup>321</sup> Article 3 and annex Commission Delegated Regulation (EU) 2019/807 of 13 March 2019 supplementing Directive (EU) 2018/2001 of the European Parliament and of the Council as regards the determination of high indirect land-use change-risk feedstock for which a significant expansion of the production area into land with high carbon stock is observed and the certification of low indirect land-use change-risk biofuels, bioliquids and biomass fuels [2019] OJ L 133/1.

<sup>322</sup> WTO Request for Consultation by Indonesia, *European Union – Certain measures concerning palm oil and oil palm crop-based biofuels*, WT/DS593/1, G/L/1348, G/TBT/D/52, G/SCM/D128/1, (16 December 2019), para.16-17.

<sup>323</sup> Stattman et al. 2018, p. 1 and Russell 2020, p. 1-2.

<sup>324</sup> WTO Request for Consultation by Indonesia, *European Union – Certain measures concerning palm oil and oil palm crop-based biofuels*, WT/DS593/1, G/L/1348, G/TBT/D/52, G/SCM/D128/1, (16 December 2019), para. 29.

## 7 Implementing EU legislation in Finland

### 7.1 Finland in the process of revising its legislation

Finland is in the process of revising its legislation in order to align it with its objective of achieving carbon neutrality by 2035 and other binding international and EU targets (e.g. the Paris Agreement, RED). At the same time Finland is transposing the Renewable Energy Directive into its national legislation, including the sustainability and GHG emissions saving criteria. The deadline for the transposition is 30 June 2021.<sup>325</sup> Moreover, in 2021 Finland started to account for the emissions from the managed forest land category under the LULUCF Regulation.

First, Finland will amend its Climate Change Act, which entered into force in 2015.<sup>326</sup> The main instrument that this Act introduces is a planning system for climate change mitigation policies, which must guide Finland towards the achievement of its emission reduction targets.<sup>327</sup> At the moment of writing, the overarching target that is included in the Climate Change Act is to reduce Finland's GHG emissions with at least 80% by 2050 compared to 1990.<sup>328</sup> The Act will need to be revised in order to incorporate the new target of carbon neutrality by 2050. The revision is planned for summer 2021.<sup>329</sup>

Finland is also preparing an update of its new National Climate and Energy Strategy for the summer of 2021.<sup>330</sup> Therein, concrete actions and objectives are set out that are necessary to achieving carbon neutrality in 2035. The idea behind this strategy is to establish a holistic approach towards the energy and climate change mitigation policies in Finland throughout all the different sectors.<sup>331</sup> Finland's current strategy (when the target was still a 80-95% emission reduction by 2050) is all about increasing the share of renewable energy and then

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<sup>325</sup> Art. 36 RED II.

<sup>326</sup> Sustainable Development Goals: Partnership Platform, "Finland will achieve carbon neutrality by 2035". <<https://sustainabledevelopment.un.org/partnership/?p=33186>> (last accessed 24 May 2021).

<sup>327</sup> Section 6.1 Climate Change Act 609(2015), [www.finlex.fi](http://www.finlex.fi).

<sup>328</sup> *Ibid.*, section 6.3.

<sup>329</sup> Ministry of the Environment, "Reform of the Climate Change Act". <<https://ym.fi/en/the-reform-of-the-climate-change-act>> (last accessed 24 May 2021).

<sup>330</sup> Ministry of Economic Affairs and Employment of Finland, "Climate and Energy Strategy". <<https://tem.fi/ilmasto-ja-energiastrategia>> (last accessed 24 May 2021).

<sup>331</sup> Ministry of Economic Affairs and Employment of Finland (2019), p. 46, JRC (2021), p. 6 and Ranta et al. 2020, p.13.

mainly, the use of forest-based bioenergy since this is the main source of renewable energy for Finland.<sup>332</sup>

Furthermore, Finland's National Bioeconomy Strategy will also be updated by the end of summer 2021.<sup>333</sup> Herby the Finnish government plans to create economic growth in the bioeconomy sector, whilst working towards the target of climate neutrality by 2035.<sup>334</sup>

In the context of transposing, implementing and revising its legislation, the question rises of how Finland will create a robust and credible accounting system for the use of forest-based bioenergy by transposing and implementing the provisions of the EU instruments concerning forest-based bioenergy in its national legislation. More specifically: what can Finland do to take into account the weaknesses of the EU regulatory framework identified in chapter 6. Different options are possible depending on what pathway Finland decides to follow. First, and most likely because of the importance of forestry in Finland, Finland can choose to continue to use forest-based bioenergy as energy source (section 7.2). Moreover, it is also likely that Finland will continue with the use of forest-based bioenergy due to Finland's strong forestry lobbying groups who have a great influence in the decision-making procedures. In permit and innovation and investment decisions the lobby groups have already proven to have a lot of power in the past, but the same goes for policy decisions such as translating energy directives into national legislation.<sup>335</sup>

When Finland chooses the option to continue with forest-based bioenergy, it has to decide how it sets its forest reference level, how it uses its flexibility mechanisms, how it could provide extra guarantees that must safeguard the emissions saving character of forest-based bioenergy and lastly how it can ensure effective compliance with the system. The other option is that Finland chooses to completely phase out the use and production of forest-based bioenergy (section 7.3). The policy of the Netherlands could function as a guideline for Finland.

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<sup>332</sup> Ministry of Economic Affairs and Employment (2017) 12, p. 29.

<sup>333</sup> Ministry of Agriculture and Forestry, "The update of Finland's national bioeconomy strategy will be ready shortly". <<https://valtioneuvosto.fi/sv/-/1410837/uppdateringen-av-finlands-nationella-bioekonomistrategi-strax-klar>> (last accessed: 15 May 2021).

<sup>334</sup> Ibid.

<sup>335</sup> Albrecht et al. 2017, p. 78.

## 7.2 Continuing with forest-based bioenergy

### 7.2.1 Setting a forest reference level

The first step of implementing the LULUCF Regulation for Finland is to adopt a forest reference level. How this FRL is determined, has important implications for the reliability of the whole emissions accounting system. As set out previously, this is the reference point to which future changes in the carbon stock are compared. If Finland uses its discretionary powers in a wide manner, it can set a lower reference level than what corresponds with the reality of the carbon stock. For example, if Finland fills in the concept of forest management practice in a wide manner, which results in a large projection of the carbon stock changes, the FRL is set lower and Finland can continue and even increase its harvest.

On the 20<sup>th</sup> of December 2019 Finland submitted its revised FRL to the EU Commission for the period 2021-2025.<sup>336</sup> The FRL was set at 27 640 000 t CO<sub>2</sub>-EQ/year.<sup>337</sup> Therein Finland assured that the FRL ensures a robust and credible accounting system in which all the use of biomass is taken into account.<sup>338</sup> Since the setting of a FRL is mostly scientific task, it is difficult to judge the process in a legal thesis. However, it can be noticed that the carbon stock is projected to decline over time: from 27.64 in the period 2021-2025 to 26.07 in the period 2026-2030.<sup>339</sup>

### 7.2.2 Finland's extra flexibility mechanism

As set out above (section 5.2.4.3), Finland, as most richly forested member state, enjoys a unique, extra allowance under the LULUCF Regulation: as the only member state, it is allowed to compensate up to an additional 10 million tonnes of CO<sub>2</sub> equivalent.<sup>340</sup> This is justified by the argumentation that Finland is the most richly forested member state and it has limited possibilities to balance its emissions and removals.<sup>341</sup>

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<sup>336</sup> Ministry of Agriculture and Forestry Natural Resources Institute Finland (2019).

<sup>337</sup> Ibid., p. 4.

<sup>338</sup> Ibid., p. 4-6.

<sup>339</sup> Ibid. p. 49.

<sup>340</sup> Art.13.4 LULUCF Regulation.

<sup>341</sup> Recital 26 LULUCF Regulation.



Finland faced some critique because of this extra flexibility mechanism. Opponents mainly argued that Finland negotiated a safeguard for the continuation of the harvesting of its forests and thus emitting GHGs. This is in contradiction with Finland's reputation as a climate change mitigation leader within the EU.<sup>342</sup>

However, Finland is of the opinion that this mechanism is justified because even if it increases its harvest rates, the Finnish forests will remain an overall sink for GHG emissions.<sup>343</sup>

### **7.2.3 Finland's opportunity to strengthen the system governing the use of forest-based bioenergy through the implementation at the national level**

In 2019, 37% of the wood used for energy production in Finland was coming from forest chips. Of those forest chips, 10% was the result of the harvest of stumps and large-sized roundwood. This number is also expected to increase over time.<sup>344</sup> This follows the general trend of the EU where 37% of the wood for forest-based bioenergy comes from primary wood such as stems (20%), treetops and branches harvested from forests.<sup>345</sup> Probably this number must be increased by another 14%, because of the unclassified biomass that is expected to be most likely coming from primary biomass.<sup>346</sup>

As set out above (section 2.3) there is a difference in the emissions impacts according to the resources used. For example, the use of residual materials has a more positive impact on the release of GHG emissions than the use of whole trees. However, the criteria do not make a distinction between the different sources of bioenergy. They promote all sources, as long as the source is sustainability harvested and meets the set out criteria. The Joint Research

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<sup>342</sup> EU Observer, "Finland fights to keep control of forests away from EU" (30 October 2019), <https://euobserver.com/environment/146457> (last accessed 15 May 2021).

<sup>343</sup> Finnish government, "Unanimous support from EU Member States to Finland's special allowance in LULUCF" (19 February 2021). <<https://valtioneuvosto.fi/en/-/1410837/unanimous-support-from-eu-member-states-to-finland-s-special-allowance-in-lulucf>> (last accessed 24 May 2021).

<sup>344</sup> Natural Resources Institute Finland, "Forest bioenergy could be used even more: new information package will benefit industry players" (24 March 2021). <[www.luke.fi/en/news/forest-bioenergy-could-be-used-even-more-new-information-package-will-benefit-industry-players/](http://www.luke.fi/en/news/forest-bioenergy-could-be-used-even-more-new-information-package-will-benefit-industry-players/)> (last accessed: 24 May 2021).

<sup>345</sup> JRC (2021), p. 7.

<sup>346</sup> Ibid.

Centre of the European Commission has proposed to change this by including restrictions in the Renewable Energy Directive in regard to certain sources, for example wood from primary forests or highly biodiverse forests.<sup>347</sup> Hereby the Joint Research Centre pointed out a restriction is already included in RED II for agricultural biomass.<sup>348</sup> Maybe the EU will include extra safeguards in the next revision of the Renewable Energy Directive, but Finland also has a possibility to include a restriction in its national framework when transposing the Directive in its national legislation. Concretely, safeguards could be built into the national framework for the use of residual materials and for the avoidance of the harvesting of whole trees for purposes of energy production.<sup>349</sup> For example, a possibility is to implement a restriction through the national conditions for the support schemes.<sup>350</sup> Such a restriction would align with the concept of the waste hierarchy that is included in RED II, whereby the prevention of waste and re-use and recycling are chosen over the unnecessary use of raw materials such as wood.<sup>351</sup>

Furthermore, Finland can also think about strengthening the scope of the sustainability and GHG emissions saving criteria. For now, the criteria from RED II only apply to new large installations with a capacity over 20 MW.<sup>352</sup> It is possible for Finland to expand the scope and include more installations in the regulatory framework.

#### **7.2.4 Ensuring compliance through private certification schemes**

As set out in section 5.1.3.5, national and international voluntary schemes play a prominent role in the compliance mechanism of the sustainability and GHG emissions criteria, since an operator can prove compliance with the sustainability and GHG emissions saving criteria. Although article 30.7 of RED II prescribes that the European Commission can only recognise a voluntary scheme if it meets “adequate standards of reliability, transparency and independent auditing”, the method of voluntary schemes does give rise to critique.<sup>353</sup> The

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<sup>347</sup> JRC (2021), p. 11.

<sup>348</sup> Art. 29.3 RED II

<sup>349</sup> Romppanen 2020, The bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p. 162.

<sup>350</sup> Art.3.3 RED II

<sup>351</sup> Recital 22 and 37 RED II and Romppanen 2020, The bioenergy ‘Blind Spots’ in EU Climate and Energy Law, p.162.

<sup>352</sup> Art. 29.1 and 10 RED II.

<sup>353</sup> Art. 30.7 RED II and Stattman 2018, p. 3.

main critique is that a system of voluntary schemes creates weak standards that are strongly industry driven instead of environmentally driven.<sup>354</sup> Moreover, it leaves the power to ensure compliance complete at the responsibility of private actors.<sup>355</sup>

At the moment, there are 14 voluntary and one national (Austria) scheme that have been recognised.<sup>356</sup> Depending on the scheme, practices can differ. For example in certain schemes there are NGOs such as WWF and Friends of the Earth involved (ICCS), and others are seen as collaborations between actors within the industry (2BSVs).<sup>357</sup> However, a study pointed out in 2013 that the more NGOs are involved in the setting up of the scheme, the stronger the criteria are.<sup>358</sup> Moreover, the actors of the voluntary schemes tend to apply only the minimum standards that the EU Commission requires in order to get recognised. This creates a so-called race to the bottom between the different schemes.<sup>359</sup> Not all schemes are thus equally strong and the question could be asked whether the compliance should be left to private actors. This is something Finland can take into account when transposing the Renewable Energy Directive into its national law.

In the context of compliance, it must be acknowledged that Finland has the possibility to request the EU Commission to examine whether the criteria have been met.<sup>360</sup> This can be at the request of an operator, but this is not necessary.<sup>361</sup> In that case, the EU Commission decides within 6 months whether the bioenergy can be taken into account for the purposes set out in article 29.1 (a)-(c) or if the supplier of sources needs to show further evidence.<sup>362</sup> However, it is uncertain whether Finland will use this procedure. The problem rises that if forests would be better protected, the increasing demand of wood could not be met by Finland itself.<sup>363</sup> In this case, Finland shall have to import wood which is disadvantageous for its energy security on the one hand, and on the other hand possibly has an adverse impact on the

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<sup>354</sup> Stattman 2018, p. 3.

<sup>355</sup> Stattman 2018, p. 5. There is a rationale behind the idea of making compliance largely the responsibility of private actors: states are only under certain circumstances allowed to impose regulations and product requirements on other states according to the rules on trade from the World Trade Organisation (WTO).

<sup>356</sup> European Commission, “Voluntary schemes” (17 August 2020). <[https://ec.europa.eu/energy/topics/renewable-energy/biofuels/voluntary-schemes\\_en](https://ec.europa.eu/energy/topics/renewable-energy/biofuels/voluntary-schemes_en)> (last accessed 16 March 2021).

<sup>357</sup> Stattman 2018, p. 7.

<sup>358</sup> WWF (2018), p. 20.

<sup>359</sup> Schmeichel 2014, p. 192.

<sup>360</sup> Art. 30.10 RED II.

<sup>361</sup> Ibid., para 1.

<sup>362</sup> Art.30.10 (a) and (b) RED II.

<sup>363</sup> Kärkkäinen et al. 2021, p. 2.

forests and emissions of countries that may not have a proper LULUCF accounting system in place.

It is clear that compliance with the sustainability and GHG emissions saving criteria depends strongly on the strength of the national legislation and the management systems in place.<sup>364</sup> In other words, Finland has a large responsibility to make its forest-based bioenergy regulation effective in practice.

### **7.3 Phasing out the use of forest-based bioenergy at national level**

If the EU does not come to the conclusion that the use of forest-based bioenergy is not a carbon neutral source of energy and the environmental impacts are no longer acceptable, Finland can also make that decision itself. They can do this by enhancing the criteria for the production of bioenergy or by phasing out the support mechanisms for forest-based bioenergy.

If Finland wants to follow this road, an example already exists in the Netherlands. In the Netherlands, there is a plan to phase out the subsidies for the burning of wood for energy production. Or at least, this is the advise of the most important advisory body of the Dutch Government.<sup>365</sup> The reasoning behind the advice is the scarcity of resources. Instead of burning wood for energy production, other affordable renewable sources exists that are less or non-emitting such as solar and wind energy. In that case, wood could be used for other and more efficient purposes, such as in the chemical industry.<sup>366</sup> A concrete decision on this issue from the Dutch government is expected in the summer of 2021. However, it has to be kept in mind that the national endowments of Finland differ from those of the Netherlands. This could mean that Finland does not have the natural conditions to substitute the use of forest-based bioenergy by, for example, solar energy.

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<sup>364</sup> JRC (2021), p. 10.

<sup>365</sup> SER (2020), p. 14-15.

<sup>366</sup> Ibid.

## 8 Conclusion

As largest source of renewable energy, forest-based bioenergy plays an important role in the energy production and consumption of the EU. The benefit of increasing energy security, whilst replacing the use of fossil fuels, is a clear reason of why the EU wants to promote this source of energy. However, the EU cannot ignore the adverse effects on the GHG emissions and the scientific inconsistencies that are raised by scientists regarding the current EU instruments governing the use of forest-based bioenergy.

This research showed that the legal impediments are twofold. On the one hand there is the presumption of the carbon neutral character of forest-based bioenergy. This presumption, that is hidden in the text of the Renewable Energy Directive, does not match the scientific reality whereby carbon is only re-absorbed after decades, even centuries. However, the presumption of carbon neutrality places forest-based bioenergy in a favourable and artificial position when comparing it with the emissions from the use of fossil fuels. Even though the EU foresees in emissions saving criteria that must ensure that the use of forest-based bioenergy emits less emissions compared to fossil fuels, these criteria are not an honest reflection of the reality. The rationale behind this presumption is that the EU wants forest-based bioenergy to still be included in the scope of the Renewable Energy Directive, since without it, it might be (more) difficult to achieve the emission reduction targets of the EU.

On the other hand the accounting system of the Land-Use, Land-Use Change and Forestry Regulation shows clear weaknesses in the accounting method for the emissions from forest-based bioenergy due to the harvesting of trees. The emissions from forest-based bioenergy are not fully accounted for under the LULUCF accounting system as a result of the vague concepts and criteria for the determination of the forest reference levels, that provide a lot of discretion to the member states, and the possibility to use flexibly mechanisms, which undermines the incentive to reduce emissions from forest-based bioenergy. However, this accounting system is established to fulfil the responsibilities of accounting for the emissions from forest-based bioenergy instead of the Renewable Energy Directive and to create genuine incentives for the member states to reduce emissions.

The EU has the opportunity to review its approach towards the use of forest-based bioenergy through the upcoming revisions of the Renewable Energy Directive and the Land-Use, Land-Use Change and forestry Regulation in the context of the European Green Deal. Also Finland

has the opportunity to strengthen the framework when implementing the EU instruments into its national legislation. In this context, the EU and Finland can choose to implement stricter criteria that provide limitations in regard to the kind of forest resources that can be used for the production of forest-based bioenergy or that ensure the proper accounting for emissions from this energy source. An other option is, when the conclusion is made that the use of forest-based bioenergy contradicts the achievement of the GHG reduction targets of the EU and Finland, is to phase out the use of forest-based bioenergy completely. In this context, the rules of the World Trade Organisation will have to be taken into account.

As last conclusion, one can question the reputation of the EU and Finland as leaders in the fight against climate change, based on their approach towards the use of forest-based bioenergy. Dismissing the concerns of scientists, the EU and Finland avoid their responsibilities by accepting the assumption of carbon neutrality, which can be seen as an artificial construction to meet the interests of the EU, Finland and the forestry industry. If the EU and Finland really want to be a climate change leader, it has to honestly rethink the approach they want to follow in regard to the use of forest-based bioenergy. The planned revisions and implementation of the EU instruments at the national level will make clear if the EU and Finland will follow and respect science or admit to the pressure of the industry?

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