

S2Biom Project Grant Agreement n°608622

D10.17c

**Policy Brief: Long term strategies for lignocellulosic
biomass in Europe**

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About S2Biom project

The S2Biom project - Delivery of sustainable supply of non-food biomass to support a “resource-efficient” Bioeconomy in Europe - supports the sustainable delivery of non-food biomass feedstock at local, regional and pan European level through developing strategies, and roadmaps that will be informed by a “computerized and easy to use” toolset (and respective databases) with updated harmonized datasets at local, regional, national and pan European level for EU28, western Balkans, Turkey and Ukraine. Further information about the project and the partners involved are available under www.s2biom.eu.

Project coordinator



Scientific coordinator



Project partners



About this document

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Table of contents

About S2Biom.....	4
Consistent policy framework & long term vision.....	4
Sustainable biomass production systems	4
Support sustainable mobilisation of biomass	5
Biomass quality and commodities.....	5
Value chain assessment & resource efficiency	5
Consistent focus to reduce the consumption of fossil fuels	6
Inform the public debate	6
Project financing & investment models	7

About S2Biom

S2Biom (www.s2biom.eu) is a European funded project aiming to improve evidence on the availability, cost supply, technologies and framework conditions (sustainability, policy, financing) for lignocellulosic non-food biomass in Europe¹ by 2030.

The work planned includes also a series of dedicated policy briefs to ensure effective dissemination of the project results to policy and decision makers at European, national and regional level. These are regarded as important since the project intends to provide support for the development and implementation of future policies on sustainable supply of non-food biomass.

The information presented in this policy brief outlines long term strategies relevant for developing further the biobased economy in Europe.

Consistent policy framework & long term vision

A positive investment climate is crucial for further developments and growth of the sector. This implies long term perspectives and a consistent policy framework. Uncertainties and stop & go policies are detrimental for investments. This does not mean that nothing can be changed. Policy needs to be consistent, but also dynamic to be effective (e.g. in case of price fluctuations). It is very important to have a long term policy vision.

Timeframe for a vision can be 20 years and more (e.g. 2050); a policy framework needs to be clear for the next 10 to 20 years, as this is also the timeframe for investments.

Biomass and developments in the biobased economy link to different policy fields (agriculture, forestry, environment, climate, energy, trade, economy ...). It is important that there is consistency between these policy fields.

Sustainable biomass production systems

One of the basic principles for the mobilization of biomass is that biomass production and harvests (in forests, agriculture or in nature management) should fit in the frame of long-term sustainability. A sustainability frame is to be applied to the management of forest or agriculture overall, independent of the end use of its products. The sustainability frame includes environmental, social and economic aspects (see GBEP sustainability indicators for bioenergy and UN Sustainable Development Goals).

Sustainability performance should be demonstrated; transparency and controllability of the value chain are key. Sustainability requirements are important and necessary to get acceptance from society ('social license to operate'), but it should also be kept in mind that such requirements need to be workable in practice. If overly strict measures are taken, this creates additional barriers. People should realize there is also a 'cost of doing nothing'.

¹ EU28, Western Balkans, Moldova, Ukraine, Turkey

Support sustainable mobilisation of biomass

Mobilisation of biomass is the key for further deployment of the biobased economy. Various assessments have shown that there is ample biomass potential in different fields (forestry, agriculture, waste), but the mobilization of these potentials is not straightforward. Biomass is typically a disperse resource (opposed to fossil fuels), sometimes at remote and difficult to reach locations. Most biomass potential is in low-quality material; for higher quality material there is more demand, often also in other markets, which creates a risk for competition. Logistic systems for these low-quality materials have not been optimized. Dedicated support and assistance in sustainable mobilization of biomass will be crucial.

Biomass quality and commodities

Variability of biomass quality is an issue, particularly for residues or herbaceous material. Most biomass potential is in low-quality material.

A major step to mobilize lignocellulosic materials is to turn them into real commodities. Technical standards would be needed and preferably agreed at international level (ISO), including trade codes (CN codes) to monitor trade. For wood based materials such standards already exist, although they can still not be considered as real commodities. Low quality material would need to be converted to an intermediate product, e.g. pyrolysis oil or pellets (potentially torrefied or steam explosion treated material). Commodities are fully tradable and compatible with storage facilities, shipping and conversion processes. This facilitates contracting, opens markets and provides easier access to finance. Governments can stimulate this process.

Value chain assessment & resource efficiency

When assessing the performance of biomass value chains, the full chain (from production of biomass, over logistics, conversion, up to the end use) needs to be taken into account.

In terms of greenhouse gas emissions, this is included in the sustainability criteria for biofuels, and this could be extended to other applications of solid and gaseous biomass for electricity and heat.

Overall energy efficiency over the full value chain is another parameter which fits in the concept of resource efficiency. Improved energy efficiency means that more can be done with the same amount of biomass. Energy use over the value chain can be a basis for calculating greenhouse gas emissions; however, currently the combustion of biomass over the value chain is not included as it is considered carbon neutral. So a dedicated monitoring of energy use over the full value chain is needed.

Of course the energy discussion also fits in the principle of the 'trias energetica', which defines the following priorities of energy policies: (1) reduce energy demand, (2) improve efficiencies, (3) replace the remaining energy demand by renewable resources. It should not be the aim to substitute fossil energy with bioenergy one on one; the first step is always to increase efficiency and reduce demand. Energy policy per se goes beyond the scope of this study.

In the discussion about resource efficiency, also cascading use of biomass is often mentioned. Cascading defines a certain priority of use (materials, energy) of biomass, depending on its quality. In a biorefinery approach synergies between energy and (new) material markets can be explored. The question is how and if policy should interfere and impose a priority list in terms of cascading use, or that this should be left to markets. A more thorough analysis of resource efficiency was done in the sister project Biomass Policies.

Consistent focus to reduce the consumption of fossil fuels

A serious and urgent reduction of fossil fuels is needed in the frame of climate change mitigation. Current markets and systems are designed for fossil fuels, these are still the standard; so the alternative of acting is always 'to do nothing and continue to use fossil fuels'. The use of biomass has different sides and conditions to it (carbon storage, land use, biodiversity, water, emissions ...), and this complexity is frequently used as an excuse for not acting.

Fossil fuels are by definition unsustainable and currently they don't have to demonstrate their sustainability performance, e.g. in terms of GHG emissions, land use, ... This creates an unlevel playing field with the alternatives on biomass which have to put efforts in chain of custody reporting and certification.

There may be ways to deal with the phasing out of fossil fuels, e.g. through the introduction of a carbon tax, potentially in combination with ETS/carbon pricing, specific phasing out policies for fossil fuels, or potential sustainability requirements for fossil fuels. This issue requires dedicated analysis and study work, which goes beyond the scope of this study.

Inform the public debate

Overall the public image of biofuels and bioenergy has worsened in the past years, which also extends to other applications of biomass. The fact that the public, media and policy makers are not very well informed about possibilities and opportunities of biomass, bioenergy and the biobased economy are considered some of the most important barriers of further deployment.

Independent answers should be given to some of the concerns to provide clarity for policy makers and the public and also demonstrate opportunities. Assessments should preferably be based on monitoring; one should be careful with model results, or anecdotal information.

A typical debate at the moment is about carbon accounting principles. There are diverging opinions, slogans and methodologies and clarity also needs to be provided in this debate. The comparison with fossil value chains and other counterfactuals always needs to be highlighted. It is also important to relate biomass and land use for energy to other applications, e.g. food, feed and materials.

Carbon accounting as established in the Paris Climate Agreement (COP21) treats imports more favourable than domestic production (carbon footprint of imports is not accounted).

This can be counterproductive. Such system boundaries lead to 'exports of environmental impacts' because they are accounted in the sourcing country.

Carbon accounting may not be the first concern of the public, which may focus more on local effects, e.g. number of trucks passing by, emission impacts, deforestation, land ownership, etc.

Project financing & investment models

Risk perception is high in the biobased economy and access to finance is an issue. Governments can use tools to reduce financing risks, e.g. through providing guarantees, low-interest loans.

Government support can also be about developing knowledge (through research projects) and spreading knowledge through the support of demonstrators and cooperation platforms. This also helps reduce risk perception, which improves the investment climate.