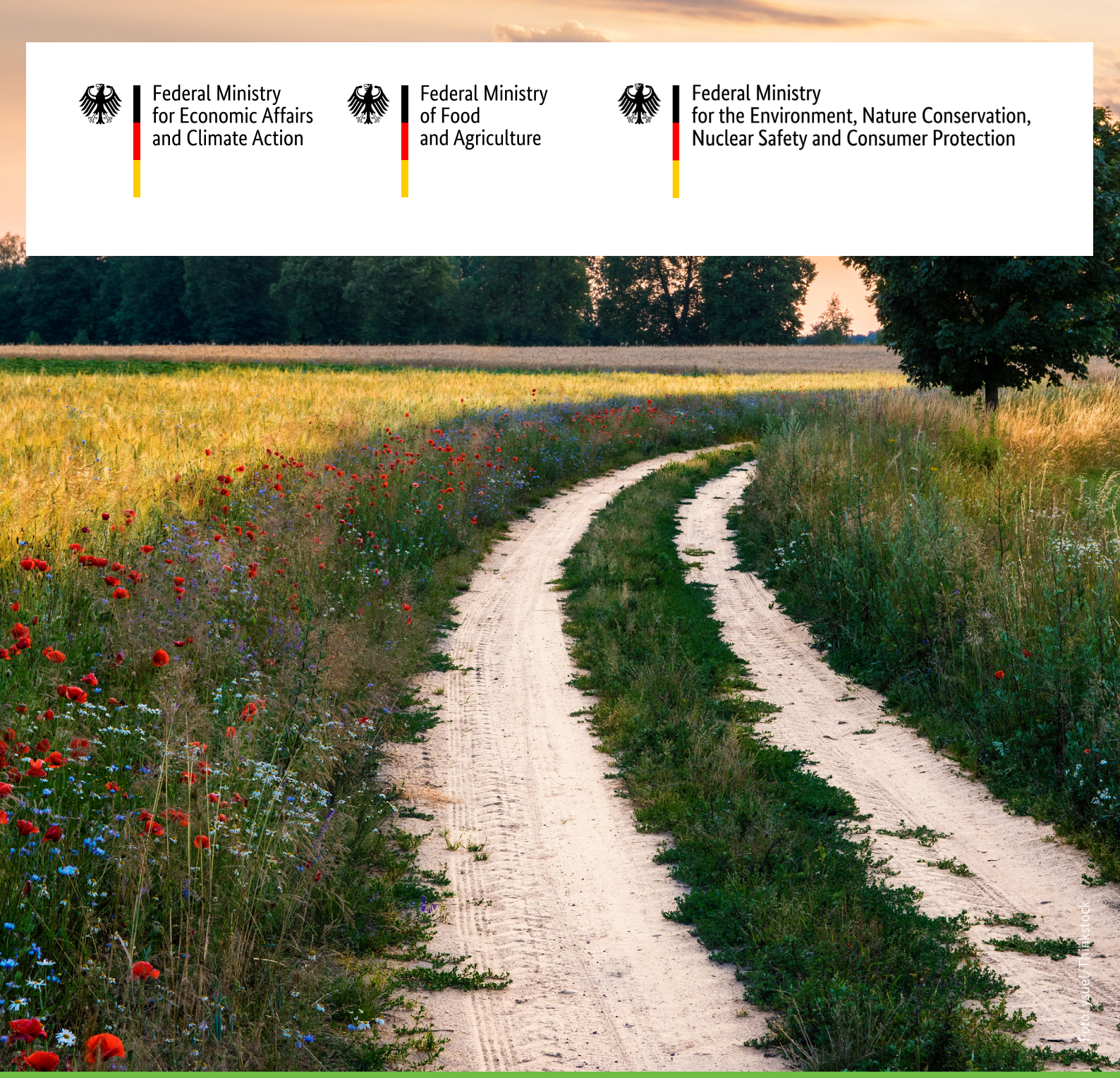
Federal Ministry
for Economic Affairs
and Climate Action

Federal Ministry
of Food
and Agriculture

Federal Ministry
for the Environment, Nature Conservation,
Nuclear Safety and Consumer Protection



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Key points of a National Biomass Strategy (NABIS)

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Key points of a National Biomass Strategy (NABIS)

In the coalition agreement, the Federal Government set itself the goal of elaborating a National Biomass Strategy. This is done under the joint leadership of the Federal Ministry for Economic Affairs and Climate Action, the Federal Ministry of Food and Agriculture as well as the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, and in collaboration with other federal ministries, federal states and stakeholders. In the following, initial key points on the content and elaboration process of the strategy will be presented.

The sustainable production and use of biomass can contribute to the necessary transformation of our economic system and make a long-term contribution towards achieving climate and biodiversity goals as well as the energy transition. Biomass is already used for materials and energy applications across different sectors, but there are no superordinate governance mechanisms steering this finite resource. The current use of biomass often competes with the strengthening of the climate change mitigation performance of natural ecosystems anchored in the Federal Climate Change Act, the goals relating to environmental protection, the necessary agro-ecological transformation as well as food production. In compliance with the guidelines for food security (*food first*), the sustainably available biomass potential is limited in Germany and also globally, and depends on the extent to which land is

used for feed cultivation, the further expansion of renewable energies as well as for settlements, transport infrastructure and industrial activities. For instance, cultivated areas and marine ecosystems are already globally over-exploited.

Biomass should therefore be used within the limits of its sustainable potential, in the most efficient scope of application and in line with cascading use and multiple use, prioritising material use over energy production and – wherever possible – significantly increasing the efficiency of the use of biomass.

1. Initial Situation

The necessity of a biomass strategy arises from the imbalance between a high and rapidly growing demand for raw materials of plant and animal origin and a limited supply of biogenic waste material and residual matter as well as a limited availability of land for the sustainable production of renewable raw materials. This leads to land use competition, e.g. for food production (especially in the face of the consequences of Russia's war of aggression against Ukraine) but also with regard to the measures relating to natural climate change mitigation, environmental protection, the energy transition or soil sealing through construction measures. At the moment, stakeholders from all sectors are using biomass – mainly driven by financial reasons and often not in a sustainable way. In some of those cases, support programmes as well as other conditions incentivise such use of biomass. In practice, there is largely a lack of an optimised hierarchy of use that is oriented towards efficient multiple use and cascading use as well as towards defining prioritized use options against the background of asset protections. Concerted and superordinate incentive mechanisms for a sustainable and efficient use of biomass have barely been established.

2. Goals

a. Overarching goal

The goal of the biomass strategy is to contribute towards the medium and long-term sustainable use of resources as well as towards climate change mitigation and biodiversity conservation, and to create the necessary framework in Germany. The focus is not on a possible short-term mobilisation of the use of biomass for energy purposes to secure energy supply in the face of the current geopolitical situation shaped by Russia's war of aggression against Ukraine. However, this goal should not be jeopardised by short-term measures.

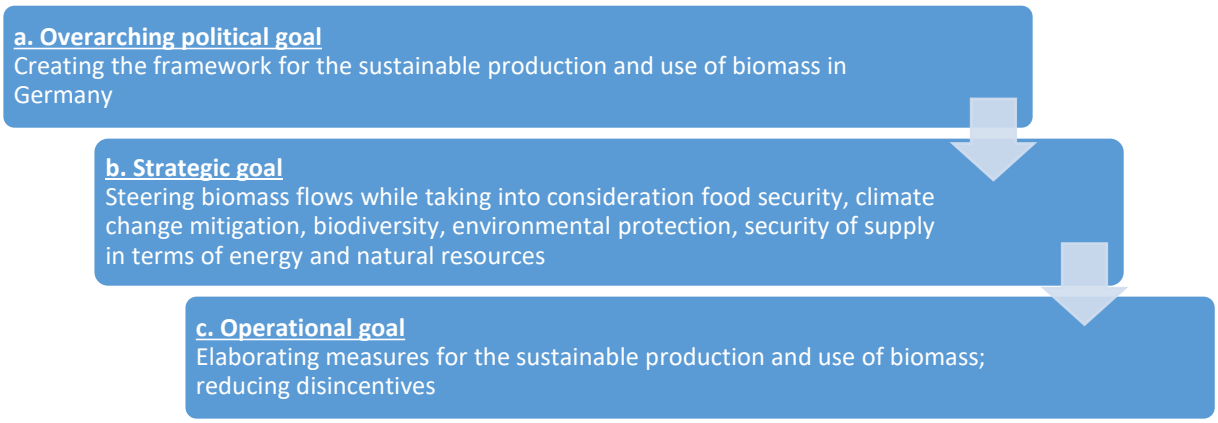
b. Strategic goal

The biomass strategy is aimed at establishing a mix of instruments with practical steering effects, which ensures the sustainable, climate-effective and resource-efficient production and use of biomass. This also creates reliable conditions for the policies of the federal states

as well as for investments by economic stakeholders. The aim is to show to which extent and in which areas and sectors sustainably produced biomass or biomass originating from waste material and residual matter can be efficiently used. In this context, aspects relating to the security of supply in terms of energy and natural resources, the energy transition, the industry's transformation towards climate neutrality, global food security as well as biodiversity conservation, climate change mitigation and environmental protection must be considered. In addition, the effects of using biomass as a basis for the technical carbon dioxide removal should be taken into account, also with regard to the planned long-term strategy for negative emissions.

c. Operational goal

At instrumental level, the aim is to identify and adapt or further develop existing disincentives and regulations relating to the production and use of biomass through suitable measures. In addition, the strategy should include new measures and instruments to create thus far missing incentives and compulsory requirements for the sustainable use of biomass. Taking into account the obligation laid down in the Federal Climate Change Act, according to which Germany must reduce its greenhouse gas emissions by at least 65 % until 2030 and achieve greenhouse gas neutrality by 2045, the strategy should focus on the implementation period up to 2030.



3. Scope of the Strategy

This strategy is geared exclusively to the use of biomass in Germany. At the same time, the international context is also taken into account with regard to aspects of production and origin because imports of biogenic energy carriers and raw materials currently play an important role and because import incentives also have an impact on the countries of origin, which possibly conflicts with the goals of the biomass strategy. Exports from Germany are also considered. Interdependencies with European strategic and legal frameworks such as the Fit for 55 package, the Farm to Fork Strategy, the Green Deal and the EU Biodiversity

Strategy are taken into account. The strategy is not focused on promoting innovative biotechnologies. This is the subject of the Federal Government's National Bioeconomy Strategy. In the context of the increased material use of biomass, the National Biomass Strategy will also contribute towards implementing the bioeconomy strategy.

4. Content of the Strategy

The strategy aims to serve as a substantial basis for the Federal Government's future biomass policies. The focus will be on developing guiding principles for the sustainable management of biomass, creating policy tools as well as elaborating specific measures with due regard to their ability to fit in with the overarching EU framework.

a. Guiding principles

The guiding principles will be based on the idea of a hierarchy of use by respecting the possibilities of multiple uses and cascading uses in order to be able to increasingly use the potential of the circular economy. The purpose of this is to ensure that biomass is used as sustainably as possible and to ensure high quality usage of biomass. In this context, it is envisaged to dovetail the strategy with the planned National Circular Economy Strategy, which is meant to pool and beneficially complement the strategies relating to resources. In addition, before using biomass, it must always be carefully weighed up whether measures relating to nature-based solutions for climate and biodiversity and environmental protection would be more reasonable.

Against this background, the strategy should take into account the following guiding principles in its recommendations:

- Prioritisation of material use

The use of biomass mainly contributes to climate protection when it is possible to store the carbon contained in the biomass in the long term. This especially holds true for material use, e.g. as a renewable raw material for durable industrial goods or as a building material. On the other hand, biomass can also be used for producing energy, e.g. in the heat sector or to generate electricity. Hereby, the carbon that was previously stored in the biomass is released into the atmosphere after a short storage time. Material use should therefore be prioritised over energetic use, wherever technically and economically feasible. At the same time, certain high-quality energetic uses of biomass continue to play an important role for the energy transition. When it comes to generating energy from biomass, policy tools should focus on the use of waste materials and residual matter. The strategy therefore aims to clarify the following issues:

- In which long-term material areas of application does the use of biomass have the largest positive effects on climate and environmental protection and biodiversity conservation, taking into account the entire value chain, and should therefore be strengthened? Is the biomass that is required for this scope of application sustainably available?
- Which applications of the energy sector include suitable renewable alternatives to the use of biomass and where should it therefore be reduced? Which energetic uses of biomass will in future be necessary for the energy transition and the industry's transformation towards climate neutrality?

- Prioritisation of multiple use

The material use allows for the recirculation of biogenic materials and thereby of the carbon contained therein, e.g. when bio-based industrial products are transferred into recycling processes at the end of their life cycle. The following question is therefore of great importance:

- How can the recirculation of biogenic materials for which no further material use is possible be strengthened; how can the valorising components and characteristics be used to promote the long-term carbon sequestration in products?

- Prioritisation of the use of biomass share in biogenic waste materials

Agricultural biomass and forest wood are high-quality raw materials and should therefore be used predominantly to produce higher-value materials that cannot be applied more efficiently to accomplish other environmental goals. The use for energy purposes comes at the end of biomass cascading; therefore, biomass use for energy purposes should focus on waste materials and residual matter resulting from cascading use and multiple use. The biomass strategy should therefore answer, among others, the following questions:

- How can we ensure that mainly residual matter and waste materials are used for the production of energy from biomass?
- What could a suitable mechanism look like, ensuring that the use of biogenic residual matter and waste materials for energy purposes does not conflict with achieving other environmental protection goals?

b. Analysis

In order to allow for the strategy to develop steering effects toward a sustainable production and use of biomass, the first step will be to take into account all biogenic material flows in production and use (i.e., all sectors included in the Federal Climate Change Act) along the

entire cascade of use. Particular attention will be given to the production and use of land-based biomass (raw materials, intermediate and end products from the agricultural and forestry sectors including biogenic residual matter and waste materials from all economic sectors and from private households), but the strategy will also take into account biomass from marine ecosystems and inland waters. In addition, the role of biomass as a natural and technical carbon sink and storage whose conservation and expansion are necessary for achieving the climate change goals will also be considered.

The starting point for developing strategic guidelines for the management of biomass should be a quantitative and qualitative analysis of the production and use of biomass. To this end, the strategy aims to clarify a number of issues, such as:

- Analysis of the sustainably available biomass potential
    - What are the criteria according to which biomass can be referred to as "sustainable"?
    - How much biomass will be sustainably available in Germany in the long-term (including after 2045)? How will this potential develop within the next years, also with regard to
        - crises, such as climate change, extreme weather events,
        - different scenarios of the use of feed and food,
        - biodiversity,
        - land and soil quality and availability?
    - Which uses are suitable for the sustainably available potentials? Which substitution relations exist between the different uses?
    - Is biomass needed beyond the national sustainably available biomass potential in order to achieve the relevant goals? Is it possible, or how is it possible, to cover this demand through sustainable imports, with due regard to the social, economic and environmental impact in the countries of origin as well as fair global distribution?
- Analysis of the different areas of application
    - In which areas, or for which technologies, is biomass currently used, and in which quantities?
    - Which trends and long-term scenarios are becoming apparent?
    - Which greenhouse gas emissions, emission reductions and impacts on the environment/biodiversity are linked to the respective areas of biomass use? Which usage pattern of sustainably available quantities is expected to create the most synergies? How could the cross-sectoral accounting of emissions caused by the use of biomass be improved?

- In which areas are other decarbonisation technologies available, in addition to the use of biomass? How efficient and sustainable are they in comparison to biomass technologies? How efficient and sustainable are the different biomass technologies in comparison to each other (possibly being integrated into a system of technical negative emissions in the context of the planned long-term strategy for negative emissions)?

- Analysis of the current political framework
  - Which policy tools at national level or at EU level have an impact on the sustainable production and use of biomass, and in which way? Which approaches for further policy tools regarding the sustainable management of biomass can be derived therefrom?

c. Positioning

In addition, the strategy must offer a clear position on the following aspects:

- Weighing between the use of biomass and electrification/alternative technologies

In areas of application where electrification is difficult, biomass can play an important role, e.g. in sub-sectors of the industry that cannot be decarbonised in any other way or for balancing out peak loads in the context of heat supply, e.g. for listed buildings. However, many of these and other potential areas of biomass use can also transition to renewable energy through the direct or indirect use of renewable electricity (e.g. green hydrogen), or through alternative technologies in electricity generation. The decarbonisation option that is most efficient in the long term should always be chosen. In general, these are technologies that are electrical or based on electricity. Biomass should therefore mainly be used when no technical alternatives are available. Positions on the following issues, among others, should be established:

- In which areas is the use of biomass a particularly efficient decarbonisation option that is technologically and economically sustainable in the long term and should therefore be prioritised and promoted? Which frameworks need to be created to this end, and which time horizon should they be based on in order to establish long-term investment incentives?
- In which areas should electricity-based technologies be prioritised over technologies that are based on biomass, and in which areas should the use of biomass be reduced or terminated in the long term?
- How can economic or technical path dependencies relating to technologies that are not sensible in the long term be avoided within the scope of the sustainable use of biomass?

- Assessment of the contribution toward security of supply in terms of energy and natural resources in the context of the recommendations

Biomass cannot replace fossil energy sources and primary raw materials across the board. Nonetheless, the strategy should also address the future role of biomass for long-term security of supply concerning energy and natural resources in Germany within the scope of the above-mentioned guiding principles, and respond to the following questions in this context:

  - In which areas and in which way can biomass make an efficient and long-term sustainable contribution to securing energy and resource supply in Germany?
  - How can economic or technological path dependencies as well as conflicts of interest with regard to food security, biodiversity conservation, climate and environmental protection be avoided in this context?

- Assessment of the contribution toward achieving the goals of natural climate protection, biodiversity conservation and environmental protection
  - Which tools exist to limit the demand for biogenic raw materials to a level that ensures achieving the biodiversity and climate goals (including achieving the goals concerning greenhouse gases within the LULUCF sector) and other environmental goals (e.g. air pollution control, drinking water protection, reduction of nitrogen surpluses, soil health)?
  - Which amplifying strategies exist for achieving the greatest possible synergistic effects between climate protection, biodiversity conservation and food security, avoiding disincentives, and resolving land-use competition?

d. Measures

In order to achieve the above-mentioned goals, the objective is to back up the biomass strategy with specific measures at instrumental level, based on the guiding principles, in the form of an action programme. The action programme will be divided into two parts:

- the consistent adaptation of existing policy tools (e.g. support programmes, regulatory laws, reducing subsidies that are impairing the climate and biodiversity) as well as
- the introduction of new measures for steering biomass streams (e.g. regulatory laws or new economic incentives).

5. Implementation

The National Biomass Strategy is planned to be adopted and published next year. An inter-ministerial working group will be appointed under the leadership of the BMWK, BMEL and BMUV. This working group will meet on a regular basis in order to advance the elaboration of the strategy and discuss measures for its implementation.

This strategy process is accompanied by a stakeholder participatory process aimed at involving relevant stakeholders (from economy, research, civil society, the federal states, parliament, subordinate authorities) in the development of the strategy, incorporating technical aspects and thereby increasing acceptance of the strategy.

Once the strategy is adopted, the inter-ministerial working group should convene at least once a year at State Secretary level and with high-level participation of the federal states in order to discuss the status of the strategy's implementation. In accordance with the respective themes, economic operators, NGOs and researchers as well as other stakeholders should also be invited.

In order to create synergies with the National Bioeconomy Strategy and ensure the exchange of experiences, the objective is to establish liaison between the different governance structures, e.g. through the participation of representatives from the Bioeconomy Council in selected working meetings or, for selected topics and aspects, in joint meetings of the Inter-ministerial Biomass Strategy Working Group (IMAG) with the Inter-ministerial Bioeconomy Working Group.

The strategy will be regularly reviewed. In addition to a detailed assessment of the status of implementation, the reviews will show whether the strategy needs to be adjusted with regard to its goals and measures.

6. Relation to the National Bioeconomy Strategy

At the beginning of 2020, the Federal Government adopted the National Bioeconomy Strategy (coordinated by the BMBF and BMEL). The National Biomass Strategy will be developed on a complementary basis. In the opinion of the Federal Government, the bioeconomy encompasses the production, development and use of biological resources, processes and systems in order to provide all sectors with products, processes and services within the scope of a viable economic system. The aim of the National Bioeconomy Strategy is to develop bioeconomic solutions for the sustainability agenda, recognise and harness the potentials of the bioeconomy within ecological limits, expand biological knowledge and turn Germany into a leading location for research and innovation of the bioeconomy. The Federal Government is currently drafting an implementation plan for the National Bioeconomy

Strategy, involving the expertise of the Bioeconomy Council. The Bioeconomy Council is an independent advisory body of the Federal Government made up of experts from different areas of the bioeconomy.

The goal is for the two strategies to beneficially complement each other. The National Biomass Strategy, as an autonomous strategy, relates to a sub-area of the bioeconomy. The main task of the National Biomass Strategy will be to develop clear political guiding principles and specific policy tools for the management of biogenic material streams against the background of climate protection, biodiversity conservation and food security, as well as to provide assistance to producers and users of biomass with regard to the sustainable, efficient and climate-friendly production and use of biomass. In contrast, the National Bioeconomy Strategy with its comprehensive biogenic resource approach for all types of use and a sustainability concept for a bio-based economy that is rooted in the principles of a circular economy has a much broader foundation. The respective implementation plan that is currently being developed therefore also focuses on the exploitation of new raw material potentials, research and innovation funding, unlocking markets for innovative bio-based products and services, the establishment and further development of bioeconomic value chains, the use of the bioeconomic potential for the development of rural areas as well as the digitisation of the bioeconomy.