Federal Ministry
for the Environment, Nature Conservation,
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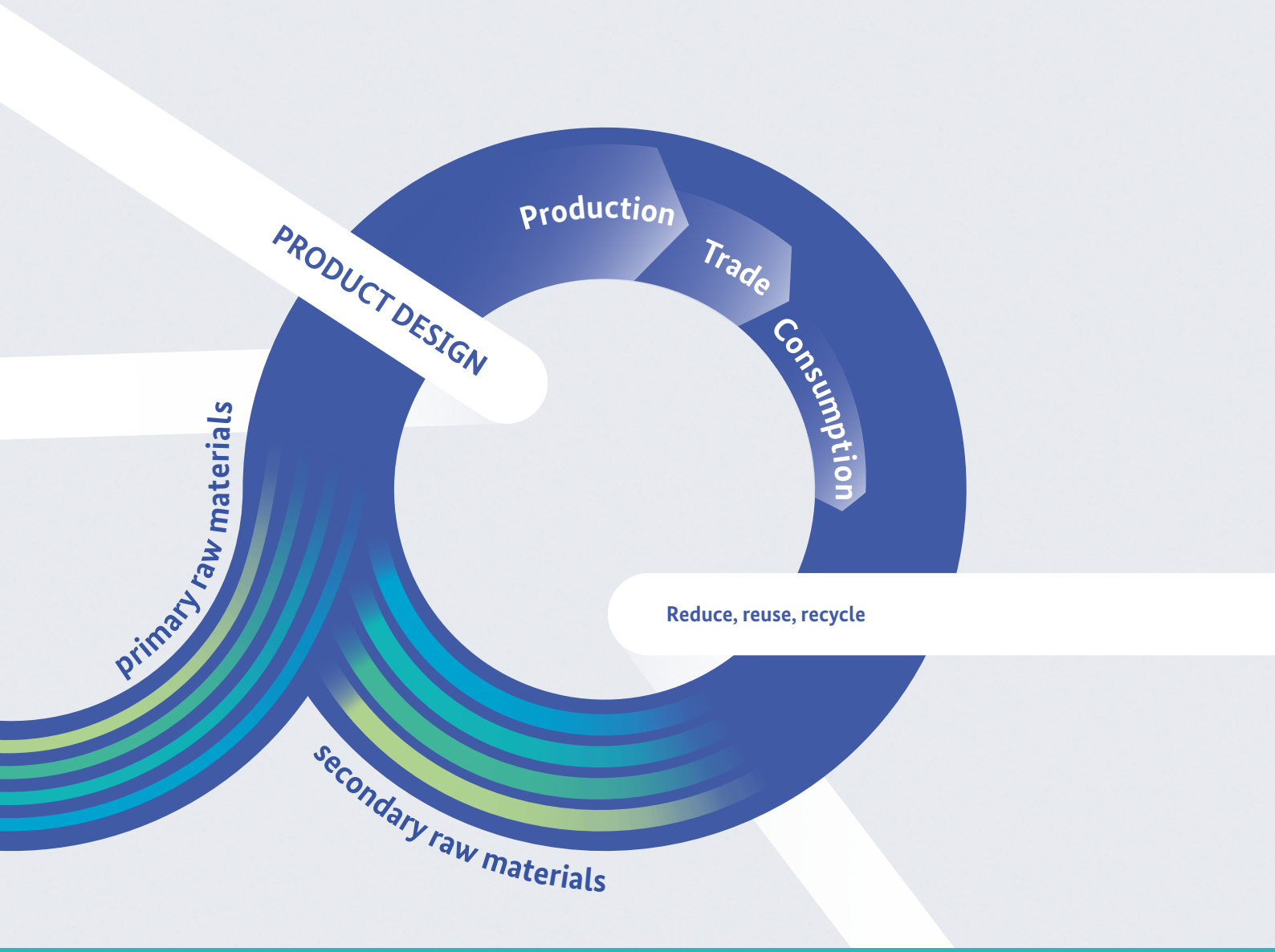
Kreislaufwirtschafts-strategie Deutschland



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The National Circular Economy Strategy – Summary

1. The vision for circular economy

Circular economy[i] is not only essential to achieving our climate and environmental policy goals, it also creates tremendous opportunities for growth, employment and competitiveness. The transition to a circular economy has an important role to play in securing the supply of raw materials. It increases the resilience of supply chains and the economy by making greater use of secondary raw materials and improving resource efficiency. And it lowers the demand for primary raw materials. Circular economy also offers considerable additional and low-cost opportunities to decarbonise industry with technologies that are already available today. It has the potential to encourage the development of new technologies and business models, thereby creating more added value and boosting productivity throughout the economy. This gives rise to tremendous opportunities, particularly when combined with the rapid deployment of digital technologies. Circular economy can become a key factor driving the success of the German economy in international competition. We want to harness Germany's innovative strength to modernise the economy so that value is mainly created in circular processes and far fewer new resources are needed. The German government has therefore undertaken to make economic processes more circular and resource efficient. The National Circular Economy Strategy (NCES) aims to drive this process forward.

According to the coalition agreement, the overarching goal is to reduce the consumption of primary raw materials and close material cycles. The strategy establishes the necessary medium- to long-term environmental and industrial policy framework to advance circular economy, in particular by defining core goals and specific measures. This charts the course and creates incentives for the development of the necessary technological innovations and new business models.

The NCES is guided by the principle of preserving the value of raw materials and products for as long as possible, using materials efficiently and keeping them in circulation for as long as possible. This will ultimately strengthen the resilience and innovative power of Germany as a centre for industry. A life cycle approach is essential to upholding these principles – starting with product design, production, consumption and logistics through to recycling, repairability and reuse. All stages of value creation are geared towards circularity in the process. This guiding principle is in line with the EU Circular Economy Action Plan and supports the goals of the German Sustainable Development Strategy. The NCES was developed in an extensive participatory process to create a broad basis for the transition to a circular economy. The strategy will also be implemented together with stakeholders from industry and civil society.

2. Tackling climate change, protecting the environment and capitalising on opportunities for value creation and competitiveness

Germany has committed to achieving net greenhouse gas neutrality by 2045. Circular economy is a key factor in achieving this goal, as well as in protecting the environment and biodiversity and thus our natural resources. This is particularly true when it comes to decarbonising industry. Almost a quarter of Germany's greenhouse gas emissions come from the industrial sector. Most of these emissions stem from key indus-

trial sectors during raw material extraction and the production and conversion of intermediate products. In the chemical industry and in machine and vehicle manufacturing, this figure lies between 60 and 80 percent[ii]. Circular economy in industry has the potential to reduce greenhouse gas emissions by around 30 to 50 percent by the year 2050 and to simultaneously increase added value[iii]. An integrated approach to climate change mitigation and circular economy can reduce the avoidance costs per tonne of CO_2 for steel, concrete, cement and plastics by 45 percent[iv] by 2045.

By closing material cycles for all types of raw materials – from building materials to critical industrial metals – circular economy makes a significant contribution to securing the supply of raw materials for our economy, can significantly lower Germany's reliance on imports in future and makes it possible to reduce critical dependencies on certain raw material suppliers. In a time marked by crises and wars, this will be crucial in making value and supply chains more resilient and strengthening Germany's competitiveness as a place to do business.

A stronger focus on circular economy can help industry achieve its climate targets faster, more effectively and cost-efficiently. Apart from conserving primary raw materials, carbon cycles, which capture carbon dioxide from industrial processes or from the atmosphere as a raw material, also contribute to reducing the use of fossil resources. A Carbon Management Strategy was developed for this purpose. Our NCES thus establishes circular economy as a central pillar of climate change mitigation. In future, its contribution to reducing greenhouse gas emissions will be systematically integrated into national goals, models and action plans to fight climate change.

Circular economy presents tremendous economic opportunities. Economic and scientific studies impressively demonstrate its potential for innovation, value creation, new circular business models and security of supply. The Federation of German Industries (BDI) and the consulting firm Deloitte forecast an annual increase in gross added value in the German economy of 12 billion euros and the creation of 117,000 new jobs by 2030. McKinsey estimates the global market potential for circular consumer goods at 650 billion euros per year in the medium term (2030).

To tap this potential, producers must include the costs for future waste and recycling, as well as the costs for recovering the raw materials this waste contains, in their business calculations.

The NCES builds on Germany's industrial strength. „Made in Germany", a product label that traditionally stands for intrinsic value and durability, will gain new appeal as „Circularity made in Germany". Circular economy not only changes the nature of production and paves the way for new business segments, it also enables new forms of value creation and creates viable jobs for the future. The key to a successful economic policy lies in a clear and reliable framework that accelerates the necessary investments and innovations. By adopting the NCES, the German government is creating this framework to ensure an economically successful, fair and socially just transition. Germany, as a hub for industry and technology and with its leading role in circular economy technologies, is well-positioned to further expand its technological leadership and become a global leader in circular economy. This also presents an opportunity to ensure that new jobs are safe and humane from the outset and to set international standards with good labour practices.

Since key decisions are made at EU level, we are working in Brussels to ensure the successful implementation of the Circular Economy Action Plan. Product sustainability requirements should be defined throughout the EU in dialogue with manufacturers. However, we also want to leverage the NCES to drive the global transition to a circular economy with the aim of protecting our natural resources, helping to keep temperatures within the 1.5 degree limit and expanding the markets for innovative technologies and business models in our industries. Circular economy must always be framed in the context of international trade relations and rules. It is important, though, to ensure that extra paperwork is kept to a minimum for all measures and, in particular, to speed up market penetration of innovative, climate-friendly technologies.

3. Transformation goals and indicators

The NCES aims to make Germany climate-neutral, more competitive and economically resilient by 2045 and to achieve the goals of the German Sustainable Development Strategy. The NCES contains one guiding principle, three strategic goals to formalise this principle and indicators that are used to measure whether the central levers for circular economy are being effectively harnessed. These form the basis for NCES implementation, monitoring and evaluation.

Guiding principle: Reduce primary raw material consumption

In line with the goals of the Germany Sustainable Development Strategy, the German government's aim with the NCES is to create the framework for significantly reducing the quantity of primary raw materials used for consumption and investment in Germany, including the necessary upstream supply chains abroad, by the year 2045. To achieve this goal, the proposal of the UNEP International Resource Panel for a target under the UN SDGs to achieve an average intensity of raw material consumption of 6–8 tonnes per capita per year worldwide by 2050 serves as guidance. The guiding principle will be reviewed every five years, starting in 2030, with the involvement of industry, and adapted if necessary. The following will be considered in particular in the review:

- Changes in raw material demand, raw material costs and raw material availability
- General material-specific conditions
- Environmental, economic and social impacts of key measures
- Raw material consumption resulting from necessary investments

Primary raw material consumption will be quantified at national level using the raw material consumption (RMC) indicator. This will not entail any extra paperwork for companies or private households.

Goal 1: Close material cycles

The EU target of doubling the percentage of secondary raw materials in the total quantity of all raw materials used by 2030 will be addressed at national level and supported by measures in all major material flows (circular material use rate (CMUR) indicator). The prerequisites for this are sufficient availability of recycled materials, their quality and consumer acceptance, as well as a supporting market analysis.

Goal 2: Increase the security of raw material supply and raw material sovereignty

In line with the EU targets set out in the Critical Raw Materials Act, the aim is for the EU's production capacities to be able to meet 10 percent of the demand for strategic raw materials in the EU and 40 percent of the demand for processed raw material products. The goal for the EU's recycling capacity is to meet 25 percent of the demand for strategic raw materials by 2030. The aim is for no more than 65 percent of any raw material to be sourced from a single third country. Germany supports these goals nationally with the NCES through effective measures. Our focus in particular is on raw materials that are strategically relevant for German industry.

Goal 3: Prevent waste

The aim is to lower the per capita volume of municipal waste by 10 percent by 2030 and by 20 percent by 2045 from 2020 levels. As part of a comprehensive circular economy, the NCES focuses on reducing waste volumes at the first waste hierarchy level. Reducing municipal waste by closing cycles can help tap valuable resources.

4. Introducing new technologies, facilitating investments and strengthening the economy

The transition to a circular economy requires technological innovations and investments that are initiated, quickly launched and scaled up by the measures in the NCES. Research and development programmes will be designed to support ecosystems for innovations and test, pilot and scale up technologies and business models. The start-up community, which is becoming increasingly important in the circular economy, will also play a major role. The focus will be on efficient product design, the use of digital technologies and biotechnology for circular economy, lightweight construction, resource efficiency in production and the various types of reuse and further use (reuse, repair, recycle). Rebound effects will also be considered. The potential of digital technologies, artificial intelligence (AI) and biotechnology will also be systematically leveraged in the process. This will be achieved through the following measures and initiatives:

- Application-oriented funding programmes for investments and research and development (R&D) to advance (leap) innovations and boost the competitiveness of German companies in circular economy.
- A policy framework that provides planning security and the conditions for the necessary investments and long-term competitiveness.
- Initiative to train specialists in circular technologies, innovations and business models.
- Targeted measures to accelerate investments in circular economy, including reducing regulatory barriers to these investments.
- Push for investment and innovation together with the private sector: the government will establish a platform for circular battery design in collaboration with industry and scientists.

A law to improve the framework for testing innovations in regulatory sandboxes and to promote regulatory learning (ReallaboreG) will also be used to stimulate investment in circular economy and unlock the

potential for new technologies. Circular economy is already incorporated into many R&D and funding programmes. In addition to the further development of existing programmes, the NCES aims to strengthen and deepen interministerial dialogue and cooperation between the federal government, the federal states, companies and civil society to optimise the programmes, thereby significantly increasing the impact of the available funds for circular economy.

5. Fully leveraging the potential of digital technologies

Digital technologies are a central factor in the success of the transition to a circular economy. They increase transparency, improve process optimisation and enable new forms of collaboration between companies. In a circular economy, physical material flows must be represented by digital data streams. Companies will become part of dataspaces that support circular economy. Industrial competitiveness and technological leadership will be increasingly defined by the ability to organise and coordinate data relationships. Digital technologies can contribute to closing cycles and increasing resource efficiency. They enable new circular economy business models, such as platforms and product-as-a-service solutions. The broad portfolio of Industry 4.0 solutions creates new opportunities for optimising industrial processes at all stages of production, but also for waste management, collection logistics and sorting and remanufacturing systems. To tap the potential of digital technologies, targeted measures are needed:

- Promotion of the Digital Product Passport (DPP) as a central tool: work at EU level to ensure that the DPP is enshrined in all important EU product regulations by 2030 and that the conditions for its practical use are created.
- The Digital Product Passport initiative is designed to promote DPP lighthouse projects in key sectors with particularly high relevance in terms of environmental protection and occupational safety. Sectors of particular importance to the circular economy that are predominantly made up of small- and medium-sized enterprises are set to benefit.
- Work at EU level to provide targeted information to consumers on all aspects of the circular economy – from product attributes through to repair options and shared use.
- New digital services promote, facilitate and strengthen consumption of durable products, repair (for example by providing instructions) and second-hand use (for example on user-friendly platforms). This will provide a wide range of affordable products and services for consumers.

6. Realigning product and system design

The course for durability and recyclability will be set early on in the product development and design stage. This is where the promise of quality and the intrinsic value of „Made in Germany“ can come into play. The principles of design for circularity are the minimal use of raw materials, modularity, durability and repairability. The targeted use of digital technologies can also contribute here. One example is product-as-a-service solutions, which are based on product rental and offer maintenance, repair and upgrade services as part of their business model.

Specific measures and initiatives – with a view to the internal market in large parts of the EU – include:

- Ambitious and rapid further development of EU product regulations as part of the Ecodesign Directive and the new Ecodesign for Sustainable Products Regulation. The focus is on quality, longevity, material efficiency, non-toxic substances wherever possible, durability, modular design, repairability, remanufacturing and recycling.
- Rapid adoption by the European Commission of suitable circular economy provisions for all product groups covered by the Ecodesign Regulation, as well as support for the European Commission's work programme, which is currently being developed.

This will be accompanied by targeted research to improve knowledge about recyclable and durable products.

7. Significantly increasing the use of recycled materials for key material flows and product groups

Closing material cycles using recycled materials that contain as few contaminants as possible is an important component of circular economy. The European Union increasingly relies on minimum requirements for recycled content, for example in the construction, automotive and packaging sectors. For example, the new European Battery Regulation (EU) 2023/1542, which entered into force in mid-August 2023, stipulates minimum shares of recycled content for certain metals. Similarly, the proposed EU Packaging Regulation (procedure (2022/0396)) sets mandatory targets for minimum recycled content in plastic packaging[v]. The aim is to establish and expand well-functioning markets for secondary raw materials. The German government is striving to create a level playing field with primary raw materials, stable sales markets for secondary materials and cost-efficient solutions in the EU. To this end, dynamic and reliable material- or product-specific requirements for minimum recycled content are an important framework for investments and new technologies.

In the medium to long term, minimum targets for recycled material content at EU level will be further developed and supported with the involvement of industry. Minimum requirements for recycled materials must be market-oriented, reliable and not overly bureaucratic, they must send clear market signals and ensure a safe return on investment. The prerequisites for this are sufficient availability of recycled materials, their quality and consumer acceptance, as well as an accompanying market analysis that also evaluates possible impacts of minimum targets for recycled content on competitiveness.

Examples include:

- Other minimum EU requirements for the recycled content in plastic products in addition to the existing regulations (Packaging Regulation, Single-Use Plastics Directive) with the aim of gradually increasing the share of post-consumer recycled content[vi] coupled with an increase in sorting and recycling capacities.
- Minimum EU requirements for the use of recycled materials in plastics production, broken down by material type (polymer-specific requirements).
- Material-specific EU targets for the use of recycled content in components with technology metals (similar to the EU Battery Regulation).

To achieve circular material use rates efficiently, it must be determined whether to introduce an EU certificate trading system in the interest of cost efficiency. This would allow companies that exceed their targets to sell certificates to companies where switching to secondary materials would involve higher costs.

In parallel to this kind of legal framework, we also want to improve the general supply-side conditions for increasing sorting and recycling capacities, for example by eliminating barriers to the use of recycled materials through standardisation. The existing EU targets to increase the use of recycled materials in Europe are the benchmarks here, in particular the target of doubling the circular material use rate or the target of the EU Critical Raw Materials Act (CRMA) to cover 25 percent of strategic materials with recycling capacities in the EU.

8. Setting standards and norms for the circular economy

Standards and norms make methods, processes, products and services reliable and comparable and define basic requirements for them. They are essential to the quality and consumer acceptance of circular products – both nationally and internationally. This is particularly true for secondary raw materials. Setting standards also creates better opportunities on international markets and boosts competitiveness. Given their relevance to industrial policy, the global integration of value chains and the German industry's reliance on exports, it is therefore extremely important that standards are set at European and international level and that national stakeholders participate in standardisation processes. An important foundation was laid with the Standardization Roadmap Circular Economy, which DIN, DKE and VDI developed together with experts from the realms of business, science, politics and civil society.

The following measures, in particular, will be taken to improve standardisation for circular economy:

- Ensuring that circular economy is prioritised for standardisation. This applies to the German Strategy Forum and the European Forum for Standardisation. The goal is to complete the work identified in the Standardization Roadmap Circular Economy and subsequent standardisation activities within the next two to five years.
- Driving forward important action areas, including: standardisation for the DPP and Industry 4.0 to integrate circular economy; maintenance of products and necessary information; product-specific support for horizontal standards in functional stability, repairability, reusability, remanufacturing and recyclability of the DIN EN 4555x series for electrical products; increasing the use of reusable systems through standardisation; quality standards for the scalable use of high-quality secondary raw materials, especially for plastics; standards for determining the durability of textiles; requirements for the product properties of reused components.
- Supporting strategic participation of German experts in European and international standardisation processes, ensuring links to existing standardisation bodies. Support will be given for incorporating the perspectives of our partners in the Global South, and those of SMEs and NGOs. International standards will be developed in the newly established industry-independent committees, including CEN/TC 473 Circular Economy or CEN/CLC/JTC 24 Digital Product Pass, as well as the existing ISO/TC 323 Circular Economy.

9. Developing circular economy legislation

The NECS will also contribute to the further development of the instruments of circular economy legislation to increase waste prevention and recycling. To this end, the German government is pursuing a range of legislative projects at national and European level. Important projects include:

- More high-quality recycling of used electrical appliances to keep valuable resources in circulation: an amendment to the German Electrical and Electronic Equipment Act (ElektroG) will make it easier for consumers to return their used appliances to retailers. This also includes providing much better information to consumers.
- Better use of the recycling potential of commercial waste: an amendment to the German Commercial Waste Ordinance (GewAbfV) will make the regulation even stricter and easier to enforce, improve official monitoring of the separate collection of commercial municipal waste, as well as construction and demolition waste, and ensure that the minimum requirements for recycled content are met during preprocessing.
- Avoiding packaging, establishing uniform criteria for the recyclability of packaging and setting minimum requirements for recycled content: this will take place as part of the final regulation on packaging and packaging waste to be adopted in the autumn of this year.
- Keeping mineral substitute building materials in circulation more effectively and promoting their use as high-quality, quality-assured recycled building materials: an End-of-Waste Ordinance for Mineral Substitute Building Materials will contribute to the goal of increasing the use of secondary raw materials. This will regulate the prerequisites for mineral substitute building materials to lose their status as waste. This product status increases marketability and supports the broader use of substitute construction materials, for example in building construction. It must be ensured that people and the environment are protected in the process.
- Increasing the quantity and quality of separately collected organic waste: biowaste recycling makes an important contribution to climate change mitigation and resource efficiency. A review is being performed for the new version of the Biowaste Ordinance to determine whether specifications and criteria for the separate collection of biowaste can be defined with the aim of increasing the quantity and quality of separately collected biowaste.
- Prioritising recycling of untreated or slightly treated wood as a material: the planned new version of the Waste Wood Ordinance (AltholzV) will prioritise the reuse of untreated or slightly treated wood for material purposes.
- Ensuring that the European Emissions Trading System (ETS) also explicitly includes recycling, thus creating an incentive for the economically viable use of carbon dioxide.

In future, the plan is to further develop the instrument of extended producer responsibility (EPR), which emerged from the polluter-pays principle and is established for the waste streams of packaging, used electrical/electronic devices, end-of-life vehicles, used batteries and single-use plastic products. To this end, existing EPR regulations will be further developed with a view to creating incentives for recycling-friendly

design. This approach will be pursued primarily at European level due to the EU internal market.

10. Using public procurement as a lever

Public procurement is a key demand-side lever for the federal, state and local governments to promote the circular economy. The cheapest option in the short term is not always the most economical in the long run. Taking into account the results of the public procurement reform package, the concept of circular procurement will be formalised to fulfil the public sector's function as a role model and to leverage the market potential. This will be tackled together with the federal states for all government procurement processes at federal, state and local level. By 2030, all legal requirements will be consistently and effectively geared towards circular procurement. The following measures in particular will contribute to these aims:

- Taking into account the results of the public procurement reform package, preparations are under way to issue a new General Administrative Regulation on the procurement of climate- and environmentally friendly services (AVV Klima and Umwelt): it will replace the AVV Klima and the timber procurement decree and bring together requirements that have not yet been defined or have been defined elsewhere. This will involve a review of how the requirement to take account of life cycle costs as an award criterion for determining the most cost-effective tender, which is already included in the AVV Klima, can be better reflected in procurement practice.
- Drafting of binding guidelines for resource efficiency and circularity for planning and construction services procured by the German government as part of construction projects: publicly procured construction services will take resource efficiency, durability and reuse or repurposing into account as early as the needs assessment stage and incorporate them into the planning process.

11. Designing resource-efficient and circular buildings and building materials

The construction and building sector accounts for by far the highest resource consumption in Germany in quantitative terms. The construction sector is therefore of central importance for the circular economy. The guiding principle is the continued use, conversion and expansion of buildings and structures, provided this makes good economic sense. It is necessary to increase building refurbishment and conversion with the aim of preserving buildings as a whole. Construction waste and components must be collected and recycled separately for high-quality recycling. Where possible and economically viable, material recycling will take priority over backfilling. New buildings must be designed from the outset to be durable, easy to renovate, low in harmful substances and their components easy to recycle. In addition, climate-friendly, resource-efficient building materials, including renewable raw materials and recycled building materials, will be used to a much greater extent. Cost increases for building and housing will be avoided. To this end, inefficient standards will be eliminated and possibilities for reducing costs will be rigorously leveraged, for example by using local, environmentally friendly building materials, innovative technologies, digital technologies and efficient planning strategies.

The German government must pursue the following measures to implement these guidelines:

- Continued dialogue with the federal states on how to facilitate the expansion and renovation of existing buildings and how demolition can be taken into account in the planning stage.
- Maximisation of the potential of digital technologies. The introduction of a digital resource passport for buildings will help achieve this aim. It will document the materials and products used and show which natural resources were used as primary and secondary raw materials. It will serve as a basis for efficient resource use and recycling management in the construction and building sector in future. It will provide information on which components can be reused and how demolition can be carried out without causing damage. The data on existing structures will also be used to enable more urban mining.
- Greater use of innovative and low-emission building materials such as recycled concrete, cement substitutes or building materials made from plant material such as paludiculture plants or hemp.
- Increased use of wood for building as part of the German government's timber construction initiative.
- Development of material-efficient and recyclable building materials by implementing the German government's lightweight construction strategy.
- More research funding for climate- and environmentally friendly and modular construction, as well as for sorting and recycling technologies.

12. Promoting consumption of durable goods

Many goods, such as small electronic devices, furniture and clothing, are currently only used for a short time and then quickly replaced. This requires resources and results in a high volume of packaging and transport. For this reason, a framework must be created that favours the long-term use of high-quality products. The NCES supports the goal of the German Sustainable Development Strategy to continuously reduce the use of raw materials for private household consumption by 2030 (compared to 2010). Important measures include:

- Reduction in the amount of packaging material for shipping products bought online by improving environmentally friendly reusable shipment systems.
- Suitable incentives to reduce returns in online retail without restricting the right of withdrawal.
- The EU directive on a „right to repair" is an important new EU framework that will be effectively implemented together with our European partners in the interest of the environment and consumers.
- Support for sharing and rentals: this includes business models such as tool hire, furniture for temporary housing, rental shops, clothing hire, etc. Support will also be given for creating financial incentives for the implementation of circular product-as-a-service models that reduce resource consumption.

13. Creating economic incentives, improving financing

The aim is for economic and market-based instruments to create incentives that favour closed cycles in production and consumption. Investments will be stimulated and the capital markets mobilised for the transition to a circular economy. The following measures, among others, are intended to contribute:

- The German government has tasked KfW with setting up a raw materials fund to support innovative and sustainable raw materials projects both abroad and in Germany. This can involve the extraction, processing and recycling of critical raw materials. The German government wants to lower its dependence on critical raw materials. These are of particular importance for the technologies and uses required for the green and digital transitions, as well as for the aerospace, security and defence industries. The raw materials fund is intended to ensure diversified financing for projects along the entire value chain of critical mineral raw materials.
- Government start-up funding for research and development, as well as for pilot systems and processes for the recovery of critical raw materials and technology metals.
- The KfW Development Bank will increasingly act in future as an innovation and investment bank as well as a co-venture capitalist for companies in all areas of the circular economy.
- If there is insufficient collateral for loans for circular business models, a review will determine whether to use transformation guarantees to bridge any remaining gaps in collateral.
- Financing of investments and start-ups needs a clear basis for evaluation. To this end, sustainable evaluation and rating methods for investments in circular economy should be developed or improved.

14. Promoting circular economy in Europe

With an extensive set of rules and overarching strategies for the extraction and use of raw materials, production and waste flows, the EU sets a framework for the actions of the Member States. In addition to the EU Circular Economy Package, the EU Circular Economy Action Plan (CEAP) should be mentioned here, as well as the Critical Raw Materials Act (CRMA), which aims to secure critical raw materials in Europe through new recycling requirements, for example. All initiatives contribute to achieving the goals of the European Green Deal.

With the NCES, the German government supports the goals of the CEAP, such as the legally binding targets for waste recycling with specific targets for certain materials. The goal of doubling the share of materials that are recycled in the EU and returned to the economy by 2030 will be adopted and enshrined as an overarching national goal by the NCES. European processes will not be duplicated, but national scope for action used instead. At the same time, the NCES describes Germany's central positions for strategic measures to further develop the circular economy at European level.

The NCES aims to make Germany a pioneer in circular economy and provide impetus for the further development of the EU-wide framework. At EU level, the introduction and further development of the following measures in particular are essential:

- Ecodesign product standards on circularity and a European Commission work programme with this aim.
- Improved access to financing for the transition to circular economy at EU level. This applies in particular to technologies that address the beginning of the value chain (resource efficiency, product design).
- Definition of standards for circularity in the relevant standardisation bodies at EU level.
- Review of the introduction of separation requirements for strategic metals (e.g. rare earth metals) from waste.
- Targeted further development of product responsibility schemes.
- An end to landfilling of untreated municipal waste throughout Europe.
- Providing practical information on occupational safety and health for activities involving critical raw materials that must be designed to be safe due to their carcinogenic effects, including information on technical rules for hazardous substances, information from the German Social Accident Insurance (DGUV) and at the European level on initiatives such as the Roadmap on Carcinogens.

15. Fostering global cooperation

For many years, the German government has successfully advocated for resource efficiency and the circular economy to be leveraged internationally to solve the global environmental crises, both at the G7 level with the G7 Alliance for Resource Efficiency (ARE) and at the G20 level with the G20 Resource Efficiency Dialogue. In the international climate negotiations, Germany is committed to ensuring that the considerable, but as yet largely untapped, climate change mitigation potential of resource efficiency and circular economy is given greater consideration. These processes are being further advanced. The following measures are also important at international level:

- Establishment of circular economy as a lever for international climate action and biodiversity conservation, adequate integration into climate and environmental negotiations and global advancement of the measures necessary for its practical implementation.
- Progress in raw materials and recycling partnerships in all parts of the world.
- Implementation of the goals of the G7 Berlin Roadmap with specific steps and formats.
- Promotion of the process of the G20 Resource Efficiency Dialogue (RED) work plan initiated under the Indian presidency in 2022.
- Strengthening of bilateral cooperation with key stakeholders, for example in circular economy dialogue with the People's Republic of China, Brazil, Japan, Indonesia and India.
- Support for the German government's partner countries in the Global South as much as necessary and appropriate to help shape a global circular economy and, in this context, develop their own economies in

the interest of a socially equitable and environmentally friendly transition in order to enable sustainable jobs and economic development.

- Support to ensure the negotiations on the UN plastics agreement come to an ambitious conclusion.
- More financing for circular economy, including through Multilateral Development Banks (MDBs) and the private sector, as necessary and appropriate.

16. Implementation of the NCES: Platform for circular economy, Roadmap 2030, monitoring, financing

The NCES formulates goals and measures for a resource-efficient circular economy and describes a path for transformation. The following steps are planned for implementation of the NCES:

- Establishment of a circular economy platform where the specific implementation of the NCES will be jointly planned with and supported by stakeholders and experts.
- Development of a Roadmap 2030 to specify in detail the projects and timetables outlined in the NCES.
- Establishment of a monitoring and evaluation system that reports on the implementation status of the goals and measures.
- Decisions on financing as a basis for the implementation of measures.

Implementation of the NCES requires a joint, regular dialogue between the federal, state and local governments, industry, civil society, cultural and scientific organisations on the progress made in achieving goals and implementing measures, but also on further necessary steps or the adaptation of specific instruments. The circular economy platform is intended to provide a forum for this dialogue.

When implementing the NCES, the German government's budgetary and financial policy requirements as well as the available funds must be considered.

i The term „circular economy" is used in the NCES as defined in the EU Circular Economy Action Plan and covers all phases of value creation – from product design and production to consumption, repair, waste management and secondary raw materials returned to the economy. In Germany, the Circular Economy Act provides a legal definition: „Circular economy within the meaning of the present Act shall constitute the prevention and recovery of waste", Circular Economy Act (KrWG) Section 3 (19). This more narrowly defined term is included in the concept of the NCES, but is only one part of the comprehensive approach.

ii The VDI Centre for Resource Efficiency (2022): Entwicklung einer standardisierten Vorgehensweise zur Ermittlung der eingesparten Treibhausgasemissionen aus Maßnahmen zur Materialeffizienz (ESTEM), https://www.ressource-deutschland.de/fileadmin/user_upload/2_Service/f_ESTEM/Abschlussbericht_ESTEM.pdf

iii Agora Industry (2022): Mobilising the circular economy for energy-intensive materials. How Europe can accelerate its transition to fossil-free, energy-efficient and independent industrial production, https://www.agora-industry.org/fileadmin/Projekte/2021/2021_02_EU_CEAP/A-EW_254_Mobilising-circular-economy_study_WEB.pdf

iv According to calculations of Agora Industrie and Systemiq (2023) in the study „Resilienter Klimaschutz durch eine zirkuläre Wirtschaft", https://www.systemiq.earth/wp-content/uploads/2023/11/A-EW_309_Kreislaufwirtschaft_WEB.pdf, Figure p.15

v The negotiations on the EU Packaging Regulation have been concluded. The EP and COREPER approved the trilogue agreement of 4 March 2024. The regulation is expected to be officially adopted by the European Parliament and the Council of of the European Union in autumn 2024.

vi Post-consumer recycled content (PCR) must be distinguished from post-industrial recycled content (PIR)).

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