



Federal Ministry  
of Finance

# Green bond allocation report 2021

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May 2022



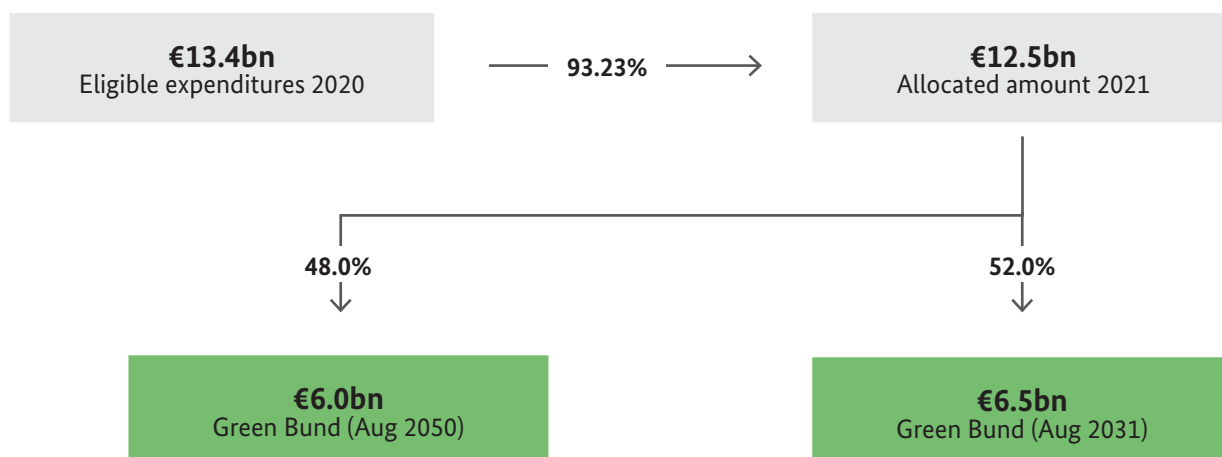
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# Overview – Green bond allocation report 2021

This allocation report provides an overview of how an amount equal to the proceeds from the Green German Federal securities newly issued or tapped in 2021 has been fully allocated to “eligible green expenditures” from the 2020 federal budget as defined in the Green Bond Framework of 24 August 2020. These eligible expenditures (i.e. expenditures that qualify as green) amount to around €13.4bn, of which €12.5bn were taken into account for the federal government’s green issuances in 2021 and proportionately allocated to the two securities.



## Overview of the 2021 allocation

**Table 1: 2021 allocation**

Sector (as listed in the Green Bond Framework)	Eligible expenditures (2020)	Allocated amount	Green Bund (Aug 2050)	Green Bund (Aug 2031)
in € million				
Transport	7,387.3	6,887.1	3,305.8	3,581.3
International cooperation	3,278.3	3,056.3	1,467.0	1,589.3
Research, innovation and awareness raising	1,085.0	1,011.5	485.5	526.0
Energy and industry	1,093.2	1,019.2	489.2	530.0
Agriculture, forestry, natural landscapes and biodiversity	564.0	525.8	252.4	273.4
<b>Total</b>	<b>13,407.8</b>	<b>12,500.0</b>	<b>6,000.0</b>	<b>6,500.0</b>

Figures are rounded

<b>55%</b>	More than half of the 2021 issuance volume is earmarked for the maintenance and development of the transport sector, particularly for Germany's <b>high-quality rail network</b> , underscoring the government's efforts to make passenger and freight transport greener and more environmentally friendly.
<b>24%</b>	Germany supports emerging and developing countries in their efforts to achieve more environmentally sustainable economies. This is reflected in the fact that <b>international cooperation</b> makes up a large proportion of the allocated green spending.
<b>8%</b>	To support the transition to a sustainable economy, green expenditures on <b>research, innovation and awareness raising</b> make up an important part of the federal budget. These expenditures are found partly in this sector (8% of the eligible expenditures) and partly in the other four sectors (if there is clear connection to the respective sector). Taken together, the share of eligible expenditures in this area is 13% (about €1.8bn).
<b>8%</b>	Germany is steadily and reliably expanding the use of renewable energy to achieve the objectives of the Federal Climate Change Act. <b>Energy efficiency</b> is to be increased in the energy industry itself as well as in the buildings sector and energy-intensive industries.
<b>4%</b>	The German government supports <b>sustainable agriculture, forestry, coastal protection and flood prevention</b> as well as the conservation of natural habitats and <b>biodiversity</b> .



# 1. Overview of the 2021 issuances

In 2021, the Federal Republic of Germany issued two Green German Federal securities with a total volume €12.5bn.<sup>1</sup>

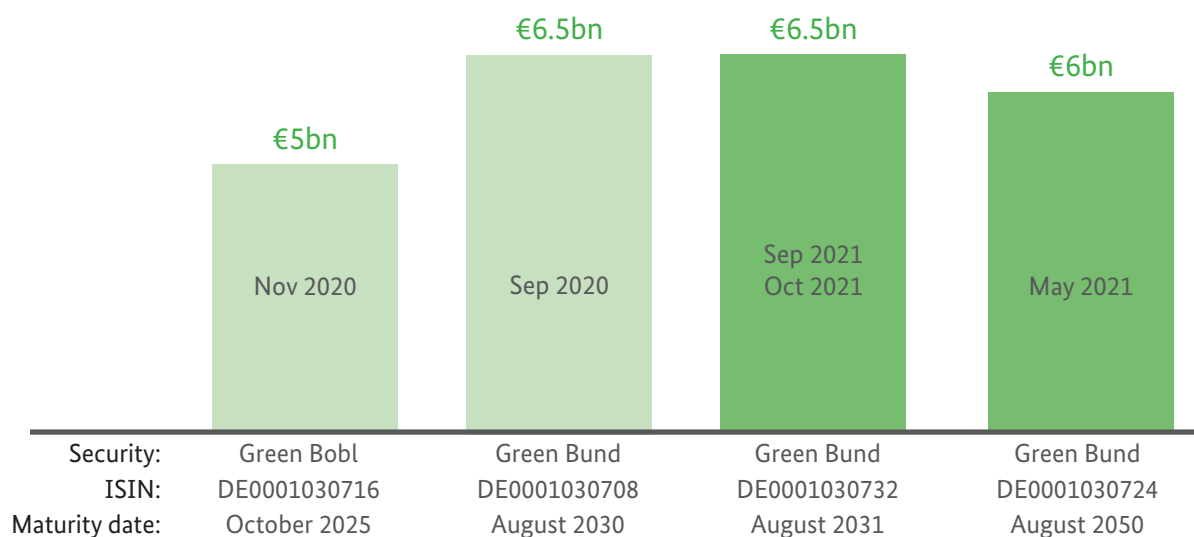
## 30-year Green Federal Bond maturing on 15 August 2050 (ISIN: DE0001030724)

The 30-year Green Federal Bond, which was successfully issued by syndication on 11 May 2021, was at that point the longest-dated green bond of any sovereign issuer on the Eurozone capital markets. The issuance volume was €6bn. The yield spread compared with its conventional twin<sup>2</sup> (“greenium”) as fixed in the syndication process was two basis points.

## 10-year Green Federal Bond maturing on 15 August 2031 (ISIN: DE0001030732)

Another 10-year Green Federal Bond was issued on 8 September 2021 with an issuance volume of €3.5bn and a “greenium” of around 4.3 basis points. On 20 October 2021 the volume of the bond was tapped by €3bn to €6.5bn. In this auction the “greenium” was around 3.6 basis points.

**Figure 1: Issuance dates and outstanding volume of Green German Federal securities at the end of 2021 (The two darker green columns are the securities that were newly issued or tapped in 2021)**



1 Information on the 2021 issuances can also be found at [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

2 The Federal Republic of Germany always issues its green bonds with an identical maturity and identical coupon to an existing conventional federal security. Further information on this twin bond approach can be found on the website [www.deutsche-finanzagentur.de](http://www.deutsche-finanzagentur.de)

## 2. Green expenditures

The innovative concept of Green German Federal securities supports the development of the green bonds market and increases the transparency of green spending by the German government. The twin bond approach is explained in detail in the Green Bond Framework.<sup>3</sup>

### 2.1 Certainty and regularity

In accordance with the German government's approach, the proceeds from the issuance of bonds in any given year are always exclusively allocated to expenditures in the previous year. The proceeds from the Green German Federal securities issued in 2021 are allocated entirely to eligible expenditures from the 2020 federal budget (including the Energy and Climate Fund).

Allocating proceeds exclusively to already incurred expenditures guarantees the budgetary sovereignty of the German Bundestag and at the same time provides investors with transparency at an early stage and gives them assurance that the funds are being used appropriately.

The independent Bundesrechnungshof (Germany's supreme federal audit institution)<sup>4</sup> audited the 2020 federal budget and did not find any discrepancies between the revenues and expenditures stated in the accounts and those in the underlying records. The Bundesrechnungshof used a mathematical-statistical method to verify to what extent the revenues and expenditures in the federal budget had been accurately recorded. In its 2021 annual report,

the Bundesrechnungshof did not address whether or not expenditures can be defined as "green".<sup>5</sup>

### 2.2 Selection of eligible green expenditures

Eligible green expenditures – hereafter referred to as "eligible expenditures" – are expenditures from all areas of the federal budget that support the overall climate and sustainability targets set out in the Green Bond Framework. The expenditures can relate to tangible assets such as infrastructure, buildings, landscapes and forests, but also to intangible assets such as individual and institutional competencies, research, innovation and scientific findings. In cases in which the federal government supports *Länder* and local authority programmes (co-financing), only the federal government's share is taken into account and allocated.

The selection of eligible expenditures is made in accordance with the key objectives of Germany's climate action policies. The eligible expenditures are also mapped to the six environmental objectives of the EU taxonomy for environmentally sustainable economic activities.<sup>6</sup> The mapping of eligible expenditures with the United Nations' 17 Sustainable Development Goals (SDGs) is set out in the Green Bond Framework. Furthermore, a Second Party Opinion (SPO)<sup>7</sup> validated the alignment with the market best practices and the significant contribution being made to the relevant UN Sustainable Development Goals.

<sup>3</sup> [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/GreenBondFramework.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/GreenBondFramework.pdf)

<sup>4</sup> The Bundesrechnungshof audits the accounts and determines whether public finances have been properly and efficiently administered by the Federation (Article 114 of the Basic Law). The Bundesrechnungshof is a supreme federal authority. As an independent financial control body it is subject only to the law.

<sup>5</sup> <https://www.bundesrechnungshof.de/de/veroeffentlichungen/produkte/bemerkungen-jahresberichte/jahresberichte/2021-hauptband>

<sup>6</sup> See Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088. The mapping was made in accordance with the objectives set out in Article 9 of the above-mentioned Regulation.

<sup>7</sup> [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/SPO.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/SPO.pdf)

The eligible expenditures were selected from the 2020 federal budget by the Core Green Bond Team chaired by the Federal Ministry of Finance in cooperation with the responsible federal ministries. The Green Bond Principles of the International Capital Market Association (ICMA) served as the basis for the selection of eligible expenditures.<sup>8</sup> The selection was made on the basis of currently available information in particular with regard to the objectives of the spending programmes. An overview of federal expenditures is publicly available online.<sup>9</sup> Possible impacts will be transparently presented in the separate 2021 impact report. In accordance with the Green Bond Framework, impact reports are generally available one to three years after the respective issuance.

Control mechanisms and safeguards have been set up for every category of expenditure in accordance with European and national legislation and standards, e.g. the Federal Government Directive Concerning the Prevention of Corruption in the Federal Administration.<sup>10</sup> In the area of economic cooperation and development, these safeguards are supplemented by the Federal Ministry for Economic Cooperation and Development's binding Strategy Paper on Anti-Corruption and Integrity in German Development Policy.<sup>11</sup> In order to mitigate the risk of modern slavery and child labour and to strengthen human rights in developing countries, social safeguards in accordance with European and national legislation and standards apply to every expenditure category. These include the Federal Ministry for Economic Cooperation and Development's Guidelines on Incorporating Human Rights Standards and Principles, Including Gender, in

Programme Proposals for Bilateral German Technical and Financial Cooperation.<sup>12</sup>

The Core Green Bond Team identified approximately €13.4bn of eligible expenditures in the 2020 federal budget. The expenditures were examined in detail within the remits of the following federal ministries:

- Federal Ministry for Economic Affairs and Energy (BMWi),
- Federal Ministry of Food and Agriculture (BMEL),
- Federal Ministry of Transport and Digital Infrastructure (BMVI),
- Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU),
- Federal Ministry of Education and Research (BMBF) and
- Federal Ministry for Economic Cooperation and Development (BMZ).

The names and responsibilities of the ministries correspond to the budget year 2020.<sup>13</sup> An interministerial working group under the direction of the Federal Ministry of Finance confirmed the selection of eligible expenditures.

The eligible expenditures also include measures that are financed by the Energy and Climate Fund (EKF). This special fund makes a significant contribution to implementing Germany's energy transition, or *Energiewende*. Many of Germany's climate action activities are anchored in the Energy and Climate Fund through measures by various ministries.

Measures earmarked in Germany's Recovery and Resilience Plan for the European Commission's European recovery instrument Next Generation EU were excluded as eligible expenditures for Green German Federal securities.

8 <https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/>

9 <https://www.bundeshaushalt.de>

10 Federal Government Directive Concerning the Prevention of Corruption in the Federal Administration (Richtlinie der Bundesregierung zur Korruptionsprävention in der Bundesverwaltung), [http://www.verwaltungsvorschriften-im-internet.de/bsvwwbund\\_30072004\\_O4634140151.htm](http://www.verwaltungsvorschriften-im-internet.de/bsvwwbund_30072004_O4634140151.htm)

11 [https://www.bmz.de/resource/blob/23714/1a753885143c47998751f02d702e188c/Strategiepapier323\\_Anti-Corruption%20and%20Integrity%20in%20German%20Development%20Policy](https://www.bmz.de/resource/blob/23714/1a753885143c47998751f02d702e188c/Strategiepapier323_Anti-Corruption%20and%20Integrity%20in%20German%20Development%20Policy)

12 <https://www.bmz.de/resource/blob/70448/14b3b6b3fe59eab4dcc05efe266e57b4/guidelines-human-rights-bilateral-cooperation>

13 Official order of the ministries pursuant to the announcement of the formation of the government on 14 March 2018 in the Federal Gazette of 16 March 2018: <https://www.bundesanzeiger.de/pub/publication/OfWcxTATaMQbtpse55z?0>. Under the new government, the names and responsibilities of some of the ministries have changed.

### 3. Allocation of proceeds from the 2021 issuances

Eligible expenditures 2020	€13,407,800,000.00
Issuance volume 2021	€12,500,000,000.00

The issuance volume of Green German Federal securities in 2021 amounts to €12.5bn. The overall allocation as well as the allocation at the individual budget item level is proportionate to the volume of eligible expenditures in 2020.

The eligible expenditures in 2020 amount to €13.407,8bn. As illustrated below, they can be divided into the five sectors of the Green Bond Framework and mapped to the six environmental objectives of the EU taxonomy for environmentally sustainable economic activities.<sup>14</sup>

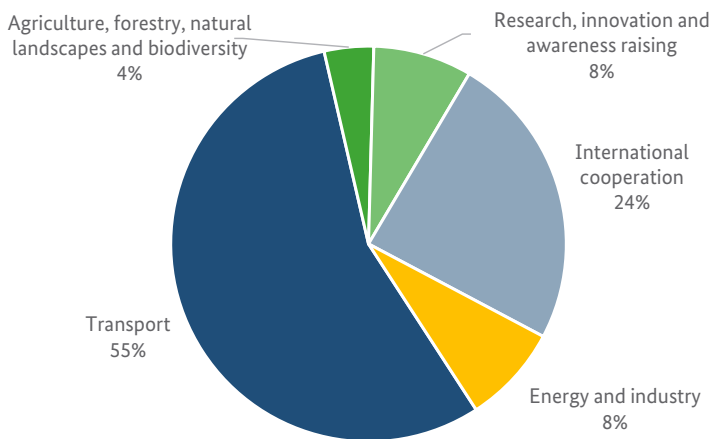


Figure 2: Breakdown by sector

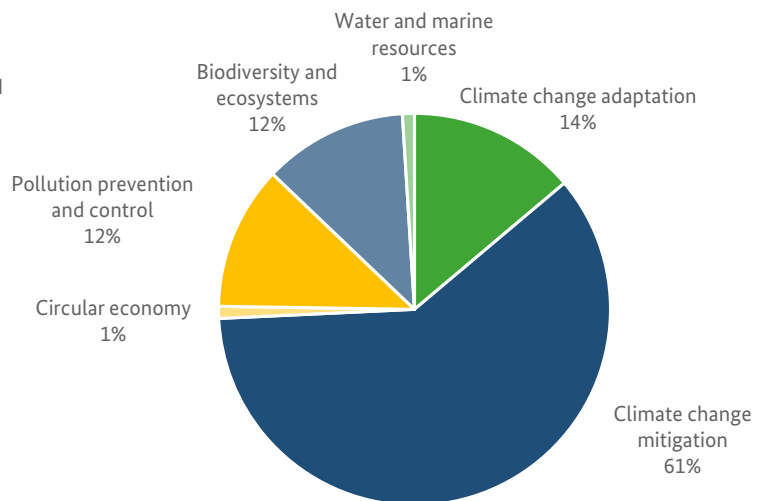


Figure 3: Breakdown in accordance with the EU's environmental objectives

<sup>14</sup> See footnote 6

In 2021, around 93% of the 2020 eligible expenditures were used for the allocation. Table 2 shows the allocated amounts by sector, in the order they are presented in the Green Bond Framework. The following sub-chapters describe the sectors more closely and provide detailed overviews of all 77 budget items in the 2020 federal budget in which eligible expenditures were identified. In tables 2 to 12 the eligible expenditures are given as exact amounts, while the allocated amounts are rounded. The allocation is made on the basis of the above-mentioned proportional distribution.

The distribution of funds is identical for the issuance volumes of all Green German Federal securities issued in 2021. The expenditures are allocated proportionately to the two securities, taking into account their issuance volume in 2021; of the total allocated amount of €12.5bn, €6bn are assigned to the 30-year Green Federal Bond and €6.5bn to the 10-year Green Federal Bond.

The allocation set out in this report completes the allocation of the eligible expenditures from the 2020 budget. The non-allocated 7% of eligible expenditures in each budget item will not be used for issuances of Green German Federal securities in other years.<sup>15</sup>

**Table 2: Breakdown of 2020 eligible expenditures by sector**

Sectors	Eligible expenditures	Allocated amount	Number of budget items
	in € million		
Transport	7,387.3	6,887.1	20
International cooperation	3,278.3	3,056.3	13
Research, innovation and awareness raising	1,085.0	1,011.5	16
Energy and industry	1,093.2	1,019.2	9
Agriculture, forestry, natural landscapes and biodiversity	564.0	525.8	19
<b>Total</b>	<b>13,407.8</b>	<b>12,500.0</b>	<b>77</b>

<sup>15</sup> The eligible expenditures from the 2021 budget are the basis for the issuance volumes of the tapped Green German Federal securities in 2022 – regardless of the year in which the respective security was first issued. In accordance with section 4.3 of the Green Bond Framework, a tapped bond is treated as a new issuance in terms of allocation of the proceeds and reporting.

### 3.1 Transport

In 2020, the transport sector was responsible for 20% of Germany's greenhouse gas emissions, 98% of which resulted from road transport.<sup>16</sup> It is therefore essential that the transport sector contributes to achieving Germany's climate action targets. To this end, the German government has adopted extensive measures to decarbonise passenger and freight transport and to make it more environmentally friendly. The proceeds from the Green German Federal securities issued in 2021 were allocated to 2020 expenditures in the following areas of the transport sector:

As an example, in 2015 a project was launched in Baden-Württemberg to upgrade and electrify an important rail route for commuters and leisure travellers between Ulm and Lindau. The project was completed at the end of 2021.<sup>17</sup>

The federal government is also reducing track access charges for rail freight and supporting investments in construction and expansion projects, the reactivation and maintenance of sidings, industrial railway and feeder lines, as well as multifunctional road/rail transloading facilities. The aim of the measures is to improve the efficiency of rail freight transport and to reduce costs (e.g. by reducing processing and waiting times and optimising resource

**Table 3: Breakdown of 2020 eligible expenditures in the transport sector by category**

Transport Category	Eligible expenditures in € million	Allocated amount	Share of the allocation within the sector	Number of budget items
Rail transport	6,656.5	6,205.8	90.1%	7
Alternative drive systems and fuels	74.1	69.1	1.0%	2
Public transport	362.2	337.7	4.9%	3
Waterways	200.2	186.6	2.7%	2
Cycling	94.3	87.9	1.3%	6
<b>Transport – Total</b>	<b>7,387.3</b>	<b>6,887.1</b>	<b>100.0%</b>	<b>20</b>

#### ■ Rail transport

Rail transport and rail infrastructure have a crucial part to play in achieving Germany's climate targets. In particular, this involves shifting transport from road to rail and expanding the electrification of drive systems and rail routes to achieve decarbonisation.

To this end, the federal government is providing investment subsidies for rail construction and expansion projects and for the maintenance of the high-quality rail infrastructure throughout the country. In 2020, federal subsidies for rail infrastructure totalled over €6bn (see budget items 1 to 3 in table 4).

utilisation). The federal government also supports combined transport<sup>18</sup>. The government funding contributes to more shipments being made with multiple modes of transport and thereby to a reduction in road transport.

16 The German government's 2021 Climate Action Report: [https://www.bmuv.de/fileadmin/Daten\\_BMU/Download\\_PDF/Klimaschutz/klimaschutzbericht\\_2021\\_bf.pdf](https://www.bmuv.de/fileadmin/Daten_BMU/Download_PDF/Klimaschutz/klimaschutzbericht_2021_bf.pdf)

17 Case study 1 in the 2021 Green Bond Investor Presentation, slide 35: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

18 Combined transport is a special form of freight transport whereby loading units (containers, swap bodies or semi-trailers) are transported over longer distances by rail or via waterways. Heavy goods vehicles are used only for the shortest possible legs of the journey, to transport loading units to a combined transport transloading site or to pick them up from a transloading site and deliver them to the final destination.

## ■ Alternative drive systems and fuels

The electrification of road transport, in particular, is essential for reaching the climate targets. Funding is being provided for the development and use of alternative fuels and drive systems, as well as their infrastructures, so that all modes of transport can contribute to achieving this goal. Alongside direct funding for refuelling and charging infrastructures for alternative fuels<sup>19</sup>, market activation subsidies support the retrofitting and conversion of vehicles for alternative fuel use. Within the framework of a programme to promote research, development and pilot projects, existing projects are being continued and new measures driven forward.

Hydrogen and fuel cell vehicles are a valuable addition to battery powered vehicles in the transport sector. With the National Innovation Programme on Hydrogen and Fuel Cell Technology (NIP), the Federal Ministry for Transport and Digital Infrastructure funds research and development (R&D) measures and, through investment subsidies, supports the market activation of these technologies in the transport sector. The use of green hydrogen in fuel cell vehicles would enable all modes of transport to become completely carbon-free. The NIP measures encompass the use of fuel cells and hydrogen in road, rail, water and air transport as well as in specialist applications.

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<sup>19</sup> Pursuant to the EU Directive 2014/94/EU on the deployment of alternative fuels infrastructure, alternative fuels serve, at least partly, as a substitute for fossil oil sources in the energy supply to transport and contribute to decarbonisation. Besides electricity and hydrogen, alternative fuels can include LNG/CNG, ideally from renewable sources. Expenditures in the area of electric vehicles were financed through the DARF and hence were not reflected in the 2021 issuances.

## ■ Public transport

Due to its energy efficiency and high degree of electrification, public transport produces significantly less greenhouse gas emissions per passenger kilometre than private motorised transport. A modal shift could therefore reduce the greenhouse gas emissions produced by the transport sector. This calls for an attractive and user-friendly public transport system. However, a modal shift from private motorised transport to public transport not only has the aim of reducing greenhouse gas emissions, it also has an important role to play in making cities and communities more eco-friendly. Between 2018 and 2021, a series of pilot projects in the area of public transport – particularly with regard to fare structures and infrastructure and material investment – were carried out in the five cities of Bonn, Essen, Herrenberg, Mannheim and Reutlingen, which were chosen because of their high levels of nitrogen-dioxide pollution. The scientifically researched projects complemented the measures of the Immediate Action Programme for Clean Air 2017–2020. The use of alternative drive systems in public transport will also accelerate decarbonisation. Since regional and local public transport falls within the scope of responsibility of the *Länder* and local authorities, the federal government provides indirect support in the form of financial assistance.

## ■ Waterways

By funding replacement, extension and construction projects on Germany's waterways as well as measures to maintain the existing transport infrastructure, the federal government is laying the foundation for the use of waterways for transportation and supporting sustainable inland navigation. As an efficient and effective alternative to heavy goods vehicles, the port-ship-waterway system could contribute to more goods being transported by inland waterway and at the same time take the pressure off roads, thereby reducing the emission of greenhouse gases, NO<sub>x</sub> and particulate matter.

## Cycling

The federal government supports cycling with measures to implement the 2020 National Cycling Plan, with investment funding for pilot projects in the area of cycling, and with grants for the expansion of Germany's network of cycling routes. Furthermore, the federal government finances the construction and maintenance of cycle lanes on federal highways and provides financial assistance to the *Länder* for investments in cycling infrastructure.<sup>20</sup> The federal government also funds cycle highways for whose construction the *Länder*, local authorities and associations of local authorities are responsible.

**Table 4: Breakdown of eligible expenditures in the transport sector by category and budget item and by allocation of expenditures to proceeds of the green bond issuances**

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bund (Aug 2050)	Allocated to Green Bund (Aug 2031)
					in € million	
<b>1. Rail transport</b>						
BMVI	1202	891 11	Construction cost subsidies for maintaining the federal rail infrastructure	4,642.5	2,077.5	2,250.6
BMVI	1202	891 01	Construction cost subsidies for investments in the federal rail infrastructure	1,385.0	619.8	671.4
BMVI	1210	891 01	Construction cost subsidies for investments in the non-federal rail infrastructure	30.9	13.8	15.0
BMVI	1210	682 05	Reduction in track access charges for rail freight transport	350.5	156.8	169.9
BMVI	1202	891 05	Measures to reduce noise pollution from existing federal railways	190.4	85.2	92.3
BMVI	1210	892 41	Subsidies to private companies for investments in combined transport	48.1	21.5	23.3
BMVI	1210	892 42	Investment subsidies to private companies for the construction, expansion and reactivation of railway sidings	9.1	4.1	4.4
				<b>6,656.5</b>	<b>2,978.8</b>	<b>3,227.0</b>
<b>2. Alternative drive systems and fuels</b>						
BMVI	1210	892 03	National Hydrogen and Fuel Cell Technology Innovation Programme (NIP) 2016–2026	67.0	30.0	32.5

<sup>20</sup> Case study 3 in the 2021 Green Bond Investor Presentation, slide 37: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)



Table 4: continued

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bund (Aug 2050)	Allocated to Green Bund (Aug 2031)
					in € million	
BMVI	1210	686 61	Subsidies for research, development and pilot projects for the market activation of alternative fuel use and the establishment of a corresponding filling and charging infrastructure	7.1	3.2	3.4
				<b>74.1</b>	<b>33.2</b>	<b>35.9</b>
<b>3. Public transport</b>						
BMVI	1206	882 02	Financial assistance to the <i>Länder</i> for rail-bound local public transport infrastructure	166.0	74.3	80.5
BMVI	1206	891 01	Investment subsidies for public transport projects to Deutsche Bahn AG and companies majority-owned by the federal government	146.8	65.7	71.2
BMVI (EKF)	6092	633 01	Local-authority public transport pilot projects from 2018 to 2020 to complement the Immediate Action Programme for Clean Air	49.4	22.1	23.9
				<b>362.2</b>	<b>162.1</b>	<b>175.6</b>
<b>4. Waterways</b>						
BMVI	1203	780 02	Replacement, extension and construction projects relating to federal waterways	138.7	62.1	67.2
BMVI	1203	780 01	Maintenance of transport infrastructure	61.5	27.5	29.8
				<b>200.2</b>	<b>89.6</b>	<b>97.1</b>
<b>5. Cycling</b>						
BMVI	1201	746 22	Construction of bike lanes including maintenance (federal highways)	83.0	37.1	40.2
BMVI	1210	632 91	Implementation of the National Cycling Plan – grants to <i>Länder</i> and other public-law entities	11.3	5.1	5.5
		686 91	Implementation of the National Cycling Plan – subsidies to companies under private law			
		882 91	Grants to <i>Länder</i> for the construction of cycle highways			
		891 92	Subsidies for the expansion of Germany’s network of cycle routes (“Radnetz Deutschland”)			
		891 91	Funding of pilot projects in the area of cycling – subsidies to <i>Länder</i> and other public-law entities			
				<b>94.3</b>	<b>42.2</b>	<b>45.7</b>
<b>Transport – Total</b>				<b>7,387.3</b>	<b>3,305.8</b>	<b>3,581.3</b>

### 3.2 International cooperation for environmentally sustainable economies

Global challenges such as climate change require global solutions. Germany is highly committed to sustainable development in the context of international cooperation, and assists emerging and developing countries in their transition towards more environmentally sustainable economies and societies. Germany acts in accordance with the United Nations' Sustainable Development Goals, the Paris Agreement and other relevant international agreements and initiatives. Key areas of focus are:

- Mitigating and adapting to climate change
- Transitioning to low-emission, sustainable energy systems
- Improving energy efficiency in production and buildings
- Protecting natural habitats and biodiversity
- The sustainable use of natural resources and energy, including the development of installations for producing renewable energy, and sustainable agriculture

Germany also works together with other industrialised countries to jointly accelerate the pace of the energy transition and leverage the potential for innovation and sustainable growth. Examples include energy partnerships and energy dialogues between the German government and countries such as Australia, Japan and the USA which focus on discussions and cooperation on energy issues.

Germany supports 60 partner countries in the area of bilateral development cooperation (see the BMZ 2030 reform strategy<sup>21</sup>). The selection of partner countries for future bilateral cooperation is based on global indicators such as good governance, anti-corruption measures and level of need. The selection and approval of specific projects is subject, among other things, to German law, the "Guidelines for bilateral financial and technical cooperation with cooperation partners of German development cooperation"<sup>22</sup> and the relevant international agreements and treaties signed by Germany.

International assistance is reported in accordance with internationally agreed guidelines, criteria and reporting cycles, either as official development assistance (ODA) to the OECD Development Assistance Committee (DAC<sup>23</sup>) and/or as climate finance under the United Nations Framework Convention on Climate Change (UNFCCC) and to the EU.

21 The reform strategy BMZ 2030 was published in April 2020 and is available online (in German only) at: <https://www.bmz.de/de/entwicklungspolitik/reformkonzept-bmz-2030>. The list of 60 partner countries can be found on p. 7. The countries with which official bilateral development cooperation is coming to an end can be found on p. 8. The list of countries is regularly updated on the website of the Federal Ministry for Economic Cooperation and Development under <https://www.bmz.de/de/laender>

22 <https://www.bundesregierung.de/breg-en/service/information-material-issued-by-the-federal-government/guidelines-1960428>

23 The objective of the Development Assistance Committee (DAC) of the Organisation for Economic Cooperation and Development (OECD) is to improve development cooperation qualitatively and quantitatively. See also: <https://www.oecd.org/dac/>

**Table 5: Breakdown of 2020 eligible expenditures in the international cooperation sector by category**

International cooperation	Eligible expenditures	Allocated amount	Share of allocation within the sector	Number of budget items
Category	in € million			
Bilateral financial cooperation	917.6	855.5	28.0%	3
Bilateral technical cooperation	683.0	636.8	20.8%	1
International climate and environmental protection	684.3	638.0	20.9%	3
Multilateral cooperation	737.5	687.6	22.5%	2
Specific funding	255.9	238.6	7.8%	4
<b>International cooperation – Total</b>	<b>3,278.3</b>	<b>3,056.3</b>	<b>100.0%</b>	<b>13</b>

## ■ Bilateral financial cooperation

The main aim of bilateral financial cooperation is to support medium- and long-term investments in partner countries with which Germany engages in development cooperation. The financial cooperation projects are implemented by the Kreditanstalt für Wiederaufbau (KfW).<sup>24</sup>

Disbursements in the context of bilateral financial cooperation are deemed to be eligible expenditures if they contribute to climate change adaptation, climate change mitigation, aid to environment and/or to supporting biodiversity. The methodology used to allocate projects is based on the methodology of the OECD Development Assistance Committee (DAC). Supported projects include renewable energy plants<sup>25</sup>, energy-efficient buildings, access to green energy for households and for micro-, small and medium-sized enterprises<sup>26</sup>, the creation of protected areas for biodiversity, and clean urban infrastructure. Financial cooperation projects are generally carried out in collaboration with the governments of the partner countries.

<sup>24</sup> Financing is provided from the federal budget, so that green bonds issued by KfW are not taken into account.

<sup>25</sup> Case study 4 in the 2021 Green Bond Investor Presentation, Renewable Power Plant – India, slide 38: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

<sup>26</sup> Case study 5 in the 2021 Green Bond Investor Presentation, Energising Development (EnDev), slide 39: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

## ■ Bilateral technical cooperation

In the context of bilateral technical cooperation projects, Germany helps people and organisations in partner countries to improve their technical, economic and organisational skills and knowledge and supports them in achieving their national climate and environmental objectives through a more effective, efficient and sustainable use of resources. Bilateral technical cooperation consists mainly of expert advice and assistance (e.g. at government agencies or other organisations in the partner countries), financing and consultation services and the limited provision and financing of materials and equipment. Most technical cooperation projects are implemented by the government-owned Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

In some cases, bilateral technical cooperation projects are carried out directly by the German government or government agencies, in particular the Federal Institute for Geosciences and Natural Resources (Bundesanstalt für Geowissenschaften und Rohstoffe) and the National Metrology Institute (Physikalisch-Technische Bundesanstalt).

As is the case for bilateral financial cooperation, disbursements in this area are deemed to be eligible expenditures if they contribute to climate change adaptation, climate change mitigation, aid to environment and/or to supporting biodiversity. The allocation of projects is – as described above – based on the methodology of the OECD Development Assistance Committee (DAC). Funded technical

cooperation projects include, for example, supporting climate adaptation in rural areas, sustainable water infrastructure and favourable framework conditions for the development of renewable energy<sup>27</sup>. For example, a project implemented by GIZ advises the national electricity supplier and municipal distribution companies in South Africa on integrating renewable energy into the grid and supports selected municipalities in implementing measures to increase energy efficiency.

## International climate and environmental protection

The International Climate Initiative (Internationale Klimaschutzinitiative (IKI)) is an instrument used by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety to provide international support for climate action and biodiversity. It is used to fund a wide range of projects that help developing and emerging countries to reduce greenhouse gas emissions across different sectors, to adapt to the consequences of climate change, to maintain or establish natural reduction of carbon emissions with the help of forests, swamps and grasslands, and to protect and restore ecosystems and biodiversity.<sup>28</sup> The aim is to help individual signatories to the Paris Agreement achieve their nationally determined contributions (NDCs) to the climate targets and at the same time to encourage them to formulate these more ambitiously. This involves not only knowledge transfer but also supporting the development of analytical tools (e.g. PACTA).

The funded projects to export technologies for tackling marine litter are intended to help prevent waste generation on land, directly at source where possible. Plastic waste should be prevented from leaking into rivers and oceans in the first place. This is why support is given to cooperation projects that use proven methods to reduce plastic waste in the medium term, or that establish waste management systems and circular economy solutions. Key funding criteria are that the chosen approaches can be multiplied, incorporated into existing systems and continued beyond the project duration.<sup>29</sup>

The Federal Ministry for Economic Cooperation and Development's budget item for international climate and environmental action finances new and especially innovative approaches in the area of climate change mitigation and adaptation to climate change in developing and emerging countries that contribute to implementing the Paris Agreement. The budget item is not limited to specific instruments. Funding can be provided to projects carried out by GIZ and KfW, private institutions, churches, political foundations and municipalities or research projects.

## Multilateral cooperation

Multilateral organisations implement major programmes with considerable scope in developing and emerging countries and coordinate the financial contributions from different donors. They play an important role in supporting transformation processes in the partner countries. That's why Germany contributes, through the Federal Ministry for Economic Cooperation and Development, to multilateral funds such as climate and environment funds. Most of the funds in this area are allocated to

27 Case study 7 in the 2021 Green Bond Investor Presentation, SAGEN, slide 41: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

28 For further information on the projects, financing and investments that are supported by the International Climate Initiative: [https://www.international-climate-initiative.com/en/?iki\\_lang=en](https://www.international-climate-initiative.com/en/?iki_lang=en). For information on the selection procedures: [https://www.international-climate-initiative.com/en/project-funding/information-for-recipients-of-project-funding/thematic-and-country-specific-selection?iki\\_lang=en](https://www.international-climate-initiative.com/en/project-funding/information-for-recipients-of-project-funding/thematic-and-country-specific-selection?iki_lang=en)

29 Case study 13 in the 2021 Green Bond Investor Presentation, slide 47, [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

the Green Climate Fund (€195m),<sup>30</sup> the Global Environmental Facility (approx. €87.5m), the Global Agriculture and Food Security Program (€100m) and the Global Energy Storage Program (€80m).

## ■ Specific funding

The special initiative ONE WORLD – No Hunger finances projects that contribute to reducing hunger and malnutrition and that support rural development as an important precondition for food security. The eligible expenditures include projects aimed at environmentally sustainable use of natural resources and land, and that contribute to climate change adaptation.

The activities funded in the context of international energy partnerships include Germany's contribution to multilateral efforts as well as more than 20 bilateral energy partnerships between Germany and countries around the world. These combine regular high-level political dialogue with ongoing technical cooperation aimed at jointly accelerating the transition to sustainable, decarbonised energy systems.<sup>31</sup>

In addition, since 2016, the Environment Ministry's Export Initiative for Green Technologies has been supporting projects by German companies and institutions that promote environmental awareness and that share environmental knowledge and technical know-how, particularly in emerging and developing countries. Support is provided in particular to small and medium-sized enterprises in the field of public services (especially in the areas of circular economy solutions, water and sewage treatment).<sup>32</sup>

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<sup>30</sup> Case study 6 in the 2021 Green Bond Investor Presentation, slide 40: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

<sup>31</sup> Further information on international energy partnerships can be found online at <https://www.bmwi.de/Redaktion/EN/Publikationen/Europe/energy-partnerships-and-energy-dialogues-2020.html>

<sup>32</sup> [www.exportinitiative-umweltschutz.de](http://www.exportinitiative-umweltschutz.de)

**Table 6: Breakdown of 2020 eligible expenditures in the international cooperation sector by category and budget item and by allocation of expenditures to proceeds of the green bond issuances**

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bund (Aug 2050)	Allocated to Green Bund (Aug 2031)
<b>1. Bilateral financial cooperation</b>						
BMZ	2301	896 11	Bilateral financial cooperation – grants	504.4	225.7	244.5
BMZ	2301	896 01	Financial cooperation with regions	264.2	118.2	128.1
BMZ	2301	866 11	Bilateral financial cooperation – loans	149.0	66.7	72.2
				<b>917.6</b>	<b>410.6</b>	<b>444.8</b>
<b>2. Bilateral technical cooperation</b>						
BMZ	2301	896 03	Bilateral technical cooperation	683.0	305.6	331.1
				<b>683.0</b>	<b>305.6</b>	<b>331.1</b>
<b>3. International climate and environmental protection</b>						
BMU	1602	896 05	Investments to protect the climate and biodiversity abroad	592.5	265.1	287.2
BMU	1601	687 06	International climate and environmental protection – export of technologies to tackle marine litter	12.4	5.5	6.0
BMZ	2310	687 01	International climate and environmental protection	79.4	35.5	38.5
				<b>684.3</b>	<b>306.2</b>	<b>331.7</b>
<b>4. Multilateral cooperation</b>						
BMZ	2303	896 09	Developmentally important multilateral aid for global environmental protection, biodiversity conservation and climate protection	714.4	319.7	346.3
BMU	1601	687 01	Contributions to international organisations	23.1	10.3	11.2
				<b>737.5</b>	<b>330.0</b>	<b>357.5</b>
<b>5. Specific funding</b>						
BMZ	2310	896 31	Special initiative ONE WORLD – No Hunger	204.0	91.3	98.9
BMWi (EKF)	6092	687 02	International energy cooperation, commodity partnerships and technological cooperation	23.1	10.3	11.2
BMU	1602	532 05	International cooperation [in the area of climate action]	21.6	9.7	10.5
BMU	1601	687 04	Export of green and sustainable (environmental) infrastructure	7.2	3.2	3.5
				<b>255.9</b>	<b>114.5</b>	<b>124.1</b>
<b>International cooperation – Total</b>				<b>3,278.3</b>	<b>1,467.0</b>	<b>1,589.3</b>

### 3.3 Research, innovation and awareness raising

This sector encompasses federal spending on basic and applied research and on fostering innovation in the area of climate and environmental action. In accordance with the Green Bond Framework, research programmes were also assigned to other sectors, especially if there is a strong connection to a specific sector. Eligible expenditures on research and awareness raising across all sectors amount to €1.8bn (13% of eligible expenditures overall). This sector's eligible expenditures of €1.1bn are used in particular to develop solutions for combating climate change, for the preservation of ecosystems and biodiversity, and to protect natural resources. This includes projects to develop innovations for the sustainable conversion of energy systems (e.g. the Kopernikus project SynErgie, which is researching ways of compensating for fluctuations in power grids due to the increasing use of renewable energy sources to generate electricity<sup>33</sup>) and to promote sustainable mobility, the sustainable development of cities and regions and a circular economy.

When it comes to fundamental developments of this kind, strong public-sector engagement in the area of research and innovation is essential for finding concrete, science-based solutions and for a far-reaching knowledge and technology transfer.

#### ■ Research for sustainability

Research funding is based, among other things, on the implementation of the Research for Sustainability Strategy FONA<sup>34</sup>, with which the Federal Ministry of Education and Research funds over 5,000 projects:

- Every aspect of climate research is covered, from the development of effective models and databases to concrete risk prevention measures for regions, cities and local authorities, to new technologies and instruments for climate adaptation as well as for a climate-neutral economy and society – in Germany but also worldwide in the context of cooperation projects.

**Table 7: Breakdown of 2020 eligible expenditures in the research, innovation and awareness raising sector by category**

Research, innovation and awareness raising	Eligible expenditures	Allocated amount	Share of allocation within the sector	Number of budget items
Category	in € million			
Research for sustainability	534.3	498.1	49.2%	7
Environmental protection, nature conservation and climate change adaptation	96.2	89.7	8.9%	5
Aerospace, energy, transport and digitalisation	454.5	423.7	41.9%	4
<b>Research, innovation and awareness raising – Total</b>	<b>1,085.0</b>	<b>1,011.5</b>	<b>100.0%</b>	<b>16</b>

<sup>33</sup> Case study 9 in the 2021 Green Bond Investor Presentation, slide 43: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

<sup>34</sup> <https://www.fona.de/en/about-fona/research-for-sustainable-development.php>

- Research projects into the preservation of biodiversity and sustainable land usage are developing solutions to address conflicts between e.g. nature conservation, food and energy supply, demographic change and intensive land usage through settlement, transport and business.
- A variety of projects are funded in the area of bioeconomic research. These deal, for example, with sustainable agricultural systems of the future, innovative plant cultivation systems, and the transition to a circular economy, in particular to enable a more efficient use of biogenic resources for all application areas and sectors of the economy.
- Energy research, which is funded partly through the German government's Energy Research Programme, is focused on developing sustainable energy systems in Germany. Here, key areas of focus are energy technologies, efficient energy use, green hydrogen, electricity grids and storage systems, industrial processes and sector coupling.
- Under the umbrella of the research programme MARE:N – Coastal, Marine and Polar Research for Sustainability, research is being carried out into the role of the ocean in climate processes, the effects of climate change on ocean currents and ocean resources, the environmental impact of microplastics in our oceans, and the conservation and use of our coastal regions against the background of society's usage requirements, rising sea levels and extreme weather events.
- FONA also implements the funding priority "resource efficient circular economy", the programme Wasser:N and specific research and development activities related to sustainable land management, geological processes, natural hazards and Earth system science. New technologies such as digital applications for sustainable cities, the circular economy and energy supplies are also funded. Expert advice and appropriate measures in the key

areas of environmental technology and energy efficiency are helping to make small and medium-sized businesses stronger.<sup>35</sup>

- Research into a resource-efficient circular economy also has the aim of reducing the use of valuable natural resources. Social transformation processes, and transformations geared towards sustainable development are a key element of socio-ecological research projects.

## Environmental protection, nature conservation and climate change adaptation

The Environmental Innovation Programme<sup>36</sup> funds pilot projects focused on technologies and processes for preventing and mitigating pollution, and on the production and use of environmentally friendly products and substitute materials. Initiatives and organisations focusing on environmental protection and nature conservation are also supported with federal subsidies. With its funding programme Measures to adapt to climate change (Maßnahmen zur Anpassung an den Klimawandel), the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety funds projects that develop measures to tackle heat waves, flooding, extreme rainfall and other effects of global warming, and that support climate change adaptation. The funding programme was initiated as part of the German Strategy for Adaptation to Climate Change.<sup>37</sup>

35 Case study 8 in the 2021 Green Bond Investor Presentation, slide 42: [https://www.bmbf.de/bmbf/de/forschung/innovativer-mittelstand/kmu-innovativ/kmu-innovativ\\_node.html](https://www.bmbf.de/bmbf/de/forschung/innovativer-mittelstand/kmu-innovativ/kmu-innovativ_node.html)

36 <https://www.umweltinnovationsprogramm.de/?en=1>

37 <https://www.bmuv.de/en/topics/climate-adaptation>



## Aerospace, energy, transport and digitalisation

Developing an environmentally friendly and effective aviation system is a central goal of the German government's aviation strategy. In view of Germany's ambitious climate goals, technological solutions are urgently needed to further advance technologies that enable low-emission flying in the short term and emission-free aviation in the medium-term. The aviation industry is pursuing the ambitious long-term goal of making flying carbon neutral. Currently, hybrid electric technologies offer the greatest and most realistic potential to reduce harmful emissions on short- and medium-haul flights. Hybrid electric onboard energy supply systems for aircraft (such as cabin power supply including avionics and emergency power supply) are being further developed through a more rigorous implementation of the More Electric Aircraft strategy. These systems reduce the overall amount of energy required on board aircraft. There are also many ways in which hydrogen can be used in aircraft, for example when burned directly in gas turbines to produce carbon-free thrust. As well as for direct combustion, hydrogen can be used as a source of energy in fuel cells to cover additional electricity requirements, and contribute to low-emission thrust generation in hybrid fuel cell systems in drive trains.

In its research fields of aerospace, energy, transport and digitalisation, the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt)<sup>38</sup> conducts research into a range of topics that contribute to the German government's climate goals. Examples include:

- Aviation: Climate research with impact assessments; eco-efficient production methods with circular economy methods; climate-efficient and climate-neutral fuels and propulsion systems; climate-optimised air traffic routing; designing ultra-efficient

aircrafts; noise reduction through optimised flight procedures, aircraft designs and technologies

- Space: Earth observation satellites to quantify biomass and emissions (e.g. CO<sub>2</sub>, methane); closing material cycles; emission prevention in space travel; green/novel fuels: future fuels; battery development in the DLReps project; solar panels with supercapacitors (HySeS); hydrogen handling, storage, tanks
- Energy: Solar and wind energy generation; green hydrogen and other synthetic sustainable fuels; energy storage and transportation<sup>39</sup>; decarbonising industry<sup>40</sup>; system analyses and sector coupling to optimise energy systems
- Transport and digitalisation: Development of new mobility strategies focused on climate action and resource protection; decarbonising transport through the integration of new drive systems and renewable energy in vehicles and the transport system; digitalisation of mobility through automation and "mobility as a service" concepts to protect resources and reduce land use

The Maritime Research Programme<sup>41</sup> provides strategic support to Germany's maritime industry to help secure its technological leadership position and international competitiveness, and to increase its ability to contribute to achieving Germany's environmental policy goals. Parts of the research programme are eligible expenditures: for example, under the funding priority MARITIME.green, innovative technologies are being developed in the areas of alternative fuels, energy systems, emission reduction and increased efficiency. The goal of the

39 Case study 11 in the 2021 Green Bond Investor Presentation, slide 45: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

40 Case study 10 in the 2021 Green Bond Investor Presentation, slide 44: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

41 Funding announcement of 1 January 2018: <https://www.bmw.de/Redaktion/DE/Downloads/B/bekanntmachung-zur-foerderung-von-forschung-entwicklung-und-innovation.html>

38 <https://www.dlr.de>

MariData<sup>42</sup> project is to develop holistic technology solutions for the energy management of ships. The focus here is on reducing the fuel consumption of ship propulsion systems, since on merchant ships the propulsion system is usually responsible for most of the energy consumption.

This funding priority also covers research on ammonia, methanol and hydrogen as future maritime fuels, innovative energy management systems, and battery and fuel-cell-based energy systems.

**Table 8: Breakdown of 2020 eligible expenditures in the research, innovation and awareness raising sector by budget item and by allocation of expenditures to proceeds of the green bond issuances**

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bund (Aug 2020)	Allocated to Green Bund (Aug 2021)
					in € million	
<b>1. Research for sustainability</b>						
BMBF	3004	683 30	Bioeconomy	133.7	59.8	64.8
BMBF	3004	685 41	Energy technologies and efficient energy usage – research and development projects	111.7	50.0	54.2
BMBF	3004	685 42	Environmental technologies, resources and geological research	110.1	49.3	53.4
BMBF	3004	685 40	Climate research, biodiversity and globalised living spaces – R&D project	97.0	43.4	47.0
BMBF	3004	685 44	Ocean, coastal and polar research – R&D project	43.0	19.2	20.8
BMBF	3004	683 10	Knowledge and technology transfer tools as part of the High-Tech strategy.	2.7	1.2	1.3
BMBF	3004	685 43	Social sciences for sustainability	36.1	16.2	17.5
				<b>534.3</b>	<b>239.1</b>	<b>259.0</b>
<b>2. Environmental protection, nature conservation and climate change adaptation</b>						
BMU	1601	544 01	Research, studies, etc. [in the area of climate and environmental protection]	52.1	23.3	25.3
BMU	1601	892 01	Investments to reduce pollution [environmental innovation programme, Germany]	14.8	6.6	7.2
BMU	1604	544 01	Research, studies, etc. [in the area of nature conservation]	13.1	5.9	6.4
BMU	1601	685 04	Subsidies for organisations in the areas of environmental protection and nature conservation	10.4	4.7	5.0
BMU	1602	685 05	Funding of climate change adaptation measures	5.8	2.6	2.8
				<b>96.2</b>	<b>43.0</b>	<b>46.6</b>
<b>3. Aerospace, energy, transport and digitalisation</b>						
BMWi (EKF)	6092	683 05	Hybrid electric aviation	4.7	2.1	2.3
BMWi	0901	685 31 894 31	German Aerospace Center (DLR) – operation and investments	439.9	196.9	213.3

42 Case study 2 in the 2021 Green Bond Investor Presentation, slide 36: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

**Table 8: continued**

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bund (Aug 2050)	Allocated to Green Bund (Aug 2031)
				in € million		
BMWi	0901	683 12	Maritime technologies - research, development and innovation	9.9	4.4	4.8
				<b>454.5</b>	<b>203.4</b>	<b>220.3</b>
<b>Research, innovation and awareness raising – Total</b>				<b>1,085.0</b>	<b>485.5</b>	<b>526.0</b>

### 3.4 Energy and industry (including the National Climate Initiative)

In order to achieve its climate targets, Germany is fully committed to the energy transition. The energy and industry sector covers measures designed to accelerate the transition to an economy based largely on renewable energy and to an eco-efficient use of energy and resources. The energy and manufacturing industries are responsible for most of Germany's greenhouse gas emissions.

Renewable energy sources are being continuously and reliably expanded. Energy efficiency is being improved in the energy industry itself as well as in the buildings sector and energy-intensive industries. Energy generation with nuclear energy and coal are being gradually phased out.

The main financing instrument in this area is the Energy and Climate Fund. The programmes funded by the Energy and Climate Fund play a central role in implementing the energy transition and in achieving national and international climate action targets.

#### ■ Energy research

Energy research plays a strategic role in energy and economic policies aimed at shaping the energy transition. Funding is focused on technologies and approaches that can significantly improve efficiency, that support the transition to renewable energy sources and that guarantee the security of supply. Research and development into specific technologies is being increased to take account of systemic and cross-system factors (digitalisation of the energy transition, sector coupling).

#### ■ Renewable energy

Funding programmes for the implementation of the energy transition include SINTEG (Smart Energy Showcases – Digital Agenda for the Energy Transition), which aims to develop model solutions for smart interplay in the production of renewable energy, the use of existing grids, energy consumption and energy storage.<sup>43</sup>

<sup>43</sup> Case study 12 in the 2021 Green Bond Investor Presentation, slide 46: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

**Table 9: Breakdown of 2020 eligible expenditures in the energy and industry sector by category**

Energy and industry	Eligible expenditures	Allocated amount	Share of allocation within the sector	Number of budget items
Category	in € million			
Energy research	528.1	492.3	48.3%	1
Renewable energy	44.2	41.2	4.0%	1
Energy efficiency	373.6	348.3	34.2%	5
National Climate Initiative and national climate action measures	147.3	137.3	13.5%	2
<b>Energy and industry – Total</b>	<b>1,093.2</b>	<b>1,019.2</b>	<b>100.0%</b>	<b>9</b>

## ■ Energy efficiency

The German government also funds measures to increase energy efficiency and reduce carbon emissions in industry and businesses. Among other things this involves the use of waste heat, switching processes and procedures to efficient technologies, and highly efficient facilities for producing process heat from solar collectors, heat pumps and biomass. In addition, the German government finances advisory services on energy consumption and corresponding measures for all end users such as private households, small and medium-sized businesses and authorities. Advice is provided on subjects such as increasing energy efficiency and the use of renewable energy (e.g. ways of saving energy, insulation, modern heating technology) and optimising heating systems. Funding for this purpose is also provided under the programmes “Energy efficiency incentive” and “Optimisation of heat pumps and heating systems”.

Funding of battery cell production (industrial production of mobile and stationary energy storage units) supports the development of innovative and sustainable processes for the industrial production of batteries for electric vehicles and other applications, as well as the development of re-use and recycling systems. The projects funded within the scope of two “Important Projects of Common European Interest” will result in battery cells with lower carbon footprints being produced in Germany in the future, and create the conditions for the large-scale recycling of the raw materials used in the manufacturing of batteries.

## ■ National Climate Initiative and national climate action measures

The National Climate Initiative was established in 2008 to actively develop and implement innovative approaches together with citizens and stakeholders from civil society, the business community and the research community. The project encompasses a broad range of climate action activities, from the development of long-term strategies to specific support and financing measures in the areas of energy, transport and business/industry, which will contribute to the reduction of greenhouse gas emissions.

**Table 10: Breakdown of 2020 eligible expenditures in the energy and industry sector by category and budget item and by allocation of expenditures to proceeds of the green bond issuances**

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bund (Aug 2050)	Allocated to Green Bund (Aug 2031)
					in € million	
<b>1. Energy research</b>						
BMWi	0903	683 01	Energy research	528.1	236.3	256.0
				<b>528.1</b>	<b>236.3</b>	<b>256.0</b>
<b>2. Renewable energy</b>						
BMWi (EKF)	6092	686 13	Energy transition programmes and measures in the areas of renewable energy sources, electricity and power grids, digitalisation and energy infrastructure	44.2	19.8	21.4
				<b>44.2</b>	<b>19.8</b>	<b>21.4</b>
<b>3. Energy efficiency</b>						
BMWi (EKF)	6092	686 08	Energy efficiency in industry and businesses	250.5	112.1	121.4
BMWi (EKF)	6092	686 14	Providing advice on energy efficiency	60.7	27.2	29.4
BMWi (EKF)	6092	686 10	Heating Optimisation Programme	34.8	15.6	16.9
BMWi (EKF)	6092	686 11	Energy efficiency incentive programme	12.8	5.7	6.2
BMWi (EKF)	6092	893 04	Industrial production of mobile and stationary energy storage units	14.8	6.6	7.2
				<b>373.6</b>	<b>167.2</b>	<b>181.1</b>
<b>4. National Climate Initiative</b>						
BMU (EKF)	6092	686 05	National Climate Initiative	138.6	62.0	67.2
BMU (EKF)	6092	686 23	National climate action measures	8.7	3.9	4.2
				<b>147.3</b>	<b>65.9</b>	<b>71.4</b>
<b>Energy and industry – Total</b>				<b>1,093.2</b>	<b>489.2</b>	<b>530.0</b>

### 3.5 Agriculture, forestry, natural landscapes and biodiversity

The agricultural and forestry sector, more than any other area of the economy, is under direct pressure to adapt to the effects of climate change and to protect natural resources, ecosystems and biodiversity. The sector also plays a key role in climate protection. In 2020, the agricultural sector was responsible for 9% of Germany's total greenhouse gas emissions (CO<sub>2</sub> equivalents).<sup>44</sup> As an important economic sector throughout the country, the agricultural and forestry sector plays a crucial role in achieving Germany's sustainability and climate goals.

#### ■ Agriculture

The objective of the federal programme BÖLN (Federal Scheme for Organic Farming and Other Forms of Sustainable Agriculture – Bundesprogramm Ökologischer Landbau und andere Formen nachhaltiger Landwirtschaft) is to improve the conditions for sustainable and organic farming and the organic food industry, and to create the conditions for a balanced growth of supply and demand. Priorities of the BÖLN programme are funding research projects in the area of organic farming and disseminating the findings in practice. Besides implementing research and development projects, the BÖLN programme also funds training and information

**Table 11: Breakdown of 2020 eligible expenditures in the agriculture, forestry, natural landscapes and biodiversity sector by category**

Agriculture, forestry, natural landscapes and biodiversity	Eligible expenditures	Allocated amount	Share of allocation within the sector	Number of budget items
Category	in € million			
Agriculture	81.6	76.1	14.5%	5
Land use, land-use change and forestry (LULUCF)	182.5	170.1	32.4%	7
Biodiversity and natural landscapes	54.2	50.5	9.6%	3
Coastal defences and flood protection	245.7	229.1	43.6%	4
<b>Agriculture, forestry, natural landscapes and biodiversity – Total</b>	<b>564.0</b>	<b>525.8</b>	<b>100.0%</b>	<b>19</b>

measures for producers and consumers. Research and development projects as well as technology and knowledge transfer measures for the sustainable production, processing and marketing of agricultural products have also been funded since 2011.

Since 2019, the federal programme to enhance energy efficiency and reduce carbon emissions in agriculture and horticulture (Bundesprogramm zur Steigerung der Energieeffizienz und CO<sub>2</sub>-Einsparung in Landwirtschaft und Gartenbau) has been part of the Federal Ministry of Food and Agriculture's climate action package to support the federal government's 2030 Climate Action Plan. The goal is to significantly reduce carbon emissions from

<sup>44</sup> The German government's 2021 Climate Action Report: [https://www.bmuv.de/fileadmin/Daten\\_BMU/Download\\_PDF/Klimaschutz/klimaschutzbericht\\_2021\\_bf.pdf](https://www.bmuv.de/fileadmin/Daten_BMU/Download_PDF/Klimaschutz/klimaschutzbericht_2021_bf.pdf)

stationary and mobile energy use in agriculture and horticulture. Therefore, alongside funding advisory services and energy saving investments, the programme also encompasses the funding of renewable energy production and the use of waste heat in agricultural companies and in the area of mobile agricultural machinery and equipment.

## Land use, land-use change and forestry (LULUCF)

The German government's funding programmes as well as the joint task of the Federation and *Länder* to improve agricultural structures and coastal protection (Gemeinschaftsaufgabe Verbesserung der Agrarstruktur und des Küstenschutzes (GAK)) are aimed at supporting sustainable and resource-conserving agriculture and forestry and taking environmental and climate needs, such as the protection of natural habitats, into even greater account.

The federation and *Länder* support the development of sustainable close-to-nature forest management, e.g. to mitigate the effects of extreme weather events caused by climate change, as well as appropriate preventive measures (especially the development of resilient forests). The Forest Climate Fund supports research and development measures that help forests to adapt to climate change and safeguard the vital contribution made by close-to-nature, multi-storied and species-rich forests to the long-term preservation of natural resources and ecosystems. The aim is also to increase the positive effects of forests and wood to reduce carbon emissions and as sources of energy.<sup>45</sup>

The Federal Ministry of Food and Agriculture's Renewable Resources funding programme supports research, development and demonstration measures in the area of renewable resources. The objectives of the programme include the efficient and

environmentally friendly use of resources including emissions avoidance or sequestration of greenhouse gases and protecting biodiversity.

An example of a measure being funded within the context of the programme is the project InsHab-Net, which develops strategies to protect endangered insect populations against the fragmentation of their habitats.<sup>46</sup>

## Biodiversity and natural landscapes

The federal government provides funding for various programmes dedicated to the conservation of biodiversity and the protection of endangered species. The programme *chance.natur* promotes the establishment and protection of areas of nature and landscapes of national importance. It makes an important contribution to protecting Germany's biodiversity and natural heritage.

Through the Wilderness Fund (Wildnisfonds), suitable areas of land such as forests and moors, as well as their usage rights, are purchased and placed under protection. In this way the government aims to reach its goal of maintaining 2% of Germany's total area as wilderness.

The federal programme Biodiversity (Biologische Vielfalt) is the Environment Ministry's central funding programme to improve biodiversity and at the same time its most important funding instrument to tackle insect decline. The funded measures include insect conservation projects particularly in the areas of insect conservation in cities (Masterplan Stadtnatur), insect conservation in protected areas (especially biosphere reserves) and supporting projects to increase and transfer knowledge about insects.

45 Case study 15 in the 2021 Green Bond Investor Presentation, slide 49: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

46 Case study 14 in the 2021 Green Bond Investor Presentation, slide 48: [https://www.deutsche-finanzagentur.de/fileadmin/user\\_upload/institutionelle-investoren/pdf/Green\\_Bond\\_Investor\\_Presentation\\_2021\\_II.pdf](https://www.deutsche-finanzagentur.de/fileadmin/user_upload/institutionelle-investoren/pdf/Green_Bond_Investor_Presentation_2021_II.pdf)

## Coastal defences and flood protection

The main purpose of coastal defences and flood protection measures is to protect the population. Following the IPCC's Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC), higher wind speeds and an increase in extreme waves, combined with the rise in sea levels, are exacerbating extreme weather conditions and dangers in coastal regions. Besides being a threat to humans, floods cause the destruction of natural landscapes, agricultural land and wildlife. As a joint initiative between the federal government and the *Länder*, the GAK includes numerous funding options to implement a wide range of coastal defence and flood protection measures. These will help to reduce or completely prevent large-scale flooding in the future. The GAK funding measures are implemented by the *Länder*. The federal government provides 70% of the financing for coastal defences and 60% of the financing for flood protection measures.

**Table 12: Breakdown of 2020 eligible expenditures in the agriculture, forestry, natural landscapes and biodiversity sector by category and budget item and by allocation of expenditures to proceeds of the green bond issuances**

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bund (Aug 2050)	Allocated to Green Bund (Aug 2031)
					in € million	
<b>1. Agriculture</b>						
BMEL	1005	686 43	Subsidies to fund organic farming and other sustainable forms of agriculture (BÖLN)	13.8	6.2	6.7
BMEL	1005	686 31 893 31	Funding of innovation in the area of food, agriculture and health-related consumer protection	42.1	18.8	20.4
BMEL (EKF)	6092	686 22 893 07	Subsidies to fund measures for improving energy efficiency in agriculture and horticulture	25.7	11.5	12.5
				<b>81.6</b>	<b>36.5</b>	<b>39.6</b>
<b>2. Land use, land-use change and forestry (LULUCF)</b>						
BMEL	Annex 1 to 1003 (1095)	632 41 882 41	Grants to fund forestry measures (excluding investments) Grants to fund forestry measures (investments)	19.6	8.8	9.5
BMEL	Annex 1 to 1003 (1095)	632 42 882 42	Grants to fund measures that combat the effects of extreme weather events in forests (excluding investments) Grants to fund measures that combat the effects of extreme weather events in forests (investments)	104.7	46.9	50.8



Table 12: continued

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bund (Aug 2050)	Allocated to Green Bund (Aug 2031)
					in € million	
BMEL+ BMU (EKF)	6092	686 06	Forest Climate Fund	15.8	7.1	7.7
BMEL	1005	686 11 893 11	Subsidies to fund research, development and demonstration projects in the area of renewable resources and to fund national sustainable forestry projects	42.4	19.0	20.6
				<b>182.5</b>	<b>81.7</b>	<b>88.5</b>
<b>3. Biodiversity and natural landscapes</b>						
BMU	1604	893 02	Wilderness fund	10.0	4.5	4.8
BMU	1604	882 01	Grants for the establishment and long-term protection of areas of nature and landscapes of national importance (chance.natur)	13.2	5.9	6.4
BMU	1604	685 01	Grants to fund measures within the federal programme for biodiversity	31.0	13.9	15.0
				<b>54.2</b>	<b>24.3</b>	<b>26.3</b>
<b>4. Coastal defences and flood protection</b>						
BMEL	Annex 1 to 1003 (1095)	882 15	Grants to fund flood protection facilities, the renaturation of dykes, torrent control and the renaturation of water bodies	75.5	33.8	36.6
BMEL	Annex 1 to 1003 (1095)	882 61	Grants for funding coastal defence measures	83.6	37.4	40.5
BMEL	Annex 1 to 1003 (1095)	882 82	Federal share for funding the special framework programme for preventative flood protection measures	59.8	26.8	29.0
BMEL	Annex 1 to 1003 (1095)	882 81	Grants to fund coastal defence measures to counter the effects of climate change	26.8	12.0	13.0
				<b>245.7</b>	<b>110.0</b>	<b>119.1</b>
<b>Agriculture, forestry, natural landscapes and biodiversity – Total</b>				<b>564.0</b>	<b>252.4</b>	<b>273.4</b>

# Annex

# Third-party verification

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## **INDEPENDENT PRACTITIONER'S REPORT ON A LIMITED ASSURANCE ENGAGEMENT REGARDING GERMANY'S GREEN BOND ALLOCATION REPORT 2021**

To the Federal Ministry of Finance (Bundesministerium der Finanzen), Berlin/Germany, representing the Federal Government of Germany

### **Engagement**

We have performed a limited assurance engagement on the Green Bond Allocation Report 2021 (hereinafter: "Green Bond Allocation Report") for Germany's 30-year Green Federal Bond (hereinafter "Green Bund (Aug 2050)"), issued on May 11, 2021, and Germany's 10-year Green Federal Bond (hereinafter „Green Bund (Aug 2031) “), issued on September 8 and tapped on October 20, 2021.

The Green Bond Allocation Report was prepared on the basis of the Federal budget of the fiscal year 2020 and a list of hereof positions of Eligible Green Expenditures as defined in Germany's Green Bond Framework and validated by the Inter-Ministerial Working Group for the period from January 1, 2020 to December 31, 2020. Our assurance engagement was limited to assessing the accuracy of the Green Bond Allocation Report with regard to the proportional allocation of the proceeds from the Green Bund (Aug 2050) and the Green Bund (Aug 2031) to the Eligible Green Expenditures from the previous year in accordance with the process for expenditure evaluation and selection as well as requirements for allocation reporting set out in Germany's Green Bond Framework.

Our engagement has not covered whether Germany's Green Bond Framework has met the criteria of the Green Bond Principles as issued by the International Capital Markets Association (ICMA). Moreover, our engagement did not include any checks of compliance of Germany's Green Bond Framework with important elements of the draft EU Green Bond Standard. We did not validate whether the expenditures used for the allocation of proceeds in the Green Bond Allocation Report are Eligible Green Expenditures, either. Our Engagement did not cover any other aspect than the proportional allocation and whether the Eligible Green Expenditures selected by the Core Green Bond Team were listed in the Federal budget of the fiscal year 2020.



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### **Specific purpose**

The Green Bond Allocation Report was prepared to report on the allocation of Eligible Green Expenditures to the Green Bund (Aug 2050), issued on May 11, 2021, and the Green Bund (Aug 2031), issued on September 8, 2021. Therefore, the Green Bond Allocation Report may not be suitable for another purpose.

### **Responsibilities of the Federal Republic of Germany**

The Federal Ministry of Finance, Division VII C 2, is responsible for preparing the Green Bond Allocation Report in accordance with the Federal budget of the fiscal year 2020 and a list of hereof positions of Eligible Green Expenditures for the period from January 1, 2020 to December 31, 2020 and in accordance with Germany's Green Bond Framework. The report was compiled by the Federal Government's Core Green Bond Team, comprising the Federal Ministry of Finance (lead), the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and Consumer Protection (formerly Federal Ministry for the Environment, Nature Conservation and Nuclear Safety) and the Bundesrepublik Deutschland - Finanzagentur GmbH ("German Finance Agency"), on the basis of information provided and validated by the Inter-Ministerial Working Group.

The responsibilities of the Core Green Bond Team include the selection and application of appropriate methods for preparing the Green Bond Allocation Report as well as making assumptions and estimates related to individual disclosures, which are reasonable in the circumstances. In addition, the Core Green Bond Team is responsible for such arrangement and measures determined necessary to enable the preparation of the Green Bond Allocation Report that is free from material misstatement, whether due to fraud or error.

The Core Green Bond Team and the Inter-Ministerial Working Group act on behalf of the Federal Government of Germany and were set up by the Federal Minister of Finance based on the Cabinet decision to adopt the Climate Protection Program 2030.

### **Responsibilities of the Independent Practitioner**

Our responsibility is to express a conclusion on the Green Bond Allocation Report, based on our work performed within our limited assurance engagement.

Our audit firm applies the Quality Assurance Standard: Quality Assurance Requirements in Audit Practices (IDW QS 1) promulgated by the Institut der Wirtschaftsprüfer (IDW). We have fulfilled the professional responsibilities in accordance with the German Public Auditor Act (WPO) and the Professional Code of Conduct for German Public Auditors and Sworn Auditors (BS WP/vBP) including the requirements on independence.



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We are independent of the Federal Government of Germany in accordance with the provisions under German commercial law and professional requirements, and we have fulfilled our other ethical responsibilities in accordance with the relevant provisions within these requirements.

We conducted our work in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): “Assurance Engagements other than Audits or Reviews of Historical Financial Information” developed and approved by the IAASB. This standard requires that we plan and perform the assurance engagement so that we can conclude with limited assurance whether matters have come to our attention to cause us to believe that the Green Bond Allocation Report as a whole has not been prepared, in all material respects, in accordance with the Federal budget of the fiscal year 2020 and a list of hereof positions of Eligible Green Expenditures as well as that the allocation has not been done on a proportional basis or that it has not been done in accordance with the process for expenditure evaluation and selection as well as the requirements on allocation reporting set out in Germany’s Green Bond Framework.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement; consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. The choice of assurance work is subject to the practitioner’s professional judgment.

Within the scope of our limited assurance engagement, we notably performed the following work:

- Interviews of relevant responsible members of the Core Green Bond Team, notably staff of the BMF and the German Finance Agency
- Reconciliation of the allocated amounts and the Eligible Green Expenditures of the Federal budget 2020 for each category and each budget item prepared in the Green Bond Allocation Report 2021
- Plausibility and consistency checks on quantitative information on allocated amounts for each category and each budget item of the Federal budget 2020 prepared in the Green Bond Allocation Report 2021
- Assessing whether the Green Bund (Aug 2050) and the Green Bund (Aug 2031) received proportional allocation of the 2020 final Eligible Green Expenditures in accordance with the Federal budget of the fiscal year 2020 and a list of hereof positions of Eligible Green Expenditures



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### **Practitioner's conclusion**

Based on the work performed and evidence obtained, nothing has come to our attention that causes us to believe that the Green Bond Allocation Report 2021, for the Green Bund (Aug 2050) and the Green Bund (Aug 2031) as a whole is not in accordance, in all material respects, with the Federal budget of the fiscal year 2020 and a list of hereof positions of Eligible Green Expenditures as well as that the allocation has not been done on a proportional basis or that it has not been done in accordance with the process for expenditure evaluation and selection as well as the requirements for allocation reporting set out in Germany's Green Bond Framework.

Our opinion does not include the aspects excluded in the second paragraph in section "Engagement".

### **Restriction of Use and Reference to Limitation of Liability**

This report is addressed to the Federal Ministry of Finance representing the Federal Government of Germany, only. This report is not intended to be used by third parties as a basis for making (financial) decisions. We issue this report based on the terms and conditions of the framework agreement agreed with the Federal Government, represented by the BMF, on 18 March 2021, wherein the liability is limited. We are liable solely to the Federal Government of Germany. We assume no responsibility with regard to any third parties.

Düsseldorf/Germany, May 5, 2022

### **Deloitte GmbH**

Wirtschaftsprüfungsgesellschaft

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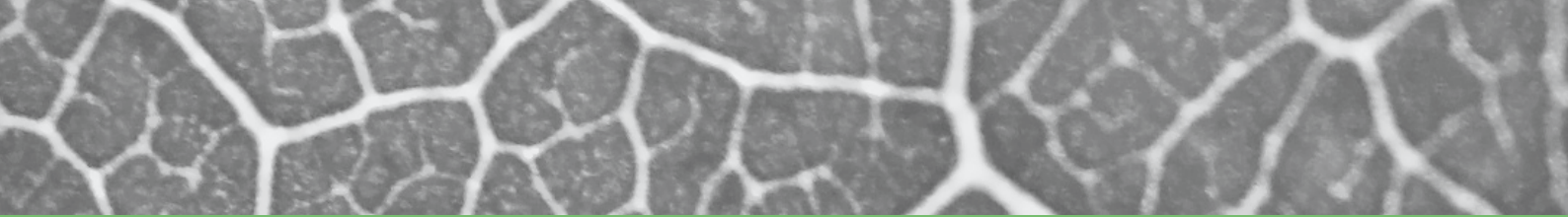
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