LB≡BW

Breaking new ground

Sustainable transformation. Our path to net zero.

As of April 2023

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G 01 LBBW's ambition.

The topic of sustainability has been at the top of the agenda for Landesbank Baden-Württemberg (LBBW) for many years now. It set its first concrete sustainability goals in 2006 and consistently uses them to guide its actions. Since then, change processes have been initiated, sustainable product ranges have been developed and environmental and social standards have been established.

In the 2022 financial year, LBBW further developed its strategic focus and tailored its own ambitions to the upcoming requirements. LBBW is using the guiding principles of **growth** and **relevance** to expand its market position in the business segments and to position itself as a strategic partner and competent provider of solutions as well as a transformation facilitator for its customers.

The acquisition of the commercial real estate financier Berlin Hyp should also be viewed in this context. The economic and legal transfer to LBBW took place effective 1 July 2022.

"Berlin Hyp¹ contributes significantly to the product portfolio of the LBBW Group."

You can find additional information on Berlin Hyp's activities and products here: <u>Sustainability-Linked Bonds – Berlin Hyp AG</u>

Growth



and relevance



are our guiding principles. The new strategic focus is supported by five strategic levers ("Innovative Solutions", "Enhanced Resilience", "Inspire Employees", "Social Contribution" and "Sustainable Transformation"). The levers of "Social Contribution" and "Sustainable Transformation" particularly underscore LBBW's ambitions in the context of ESG.



Sustainable Transformation.

The focus thus far of *"sustainability"* in the narrower sense encompassed central initiatives already in place – from a sustainable product range to Sustainability Advisory, LBBW's own CO₂ emissions and sustainability ratings. In addition to this, support will also be provided for the planned transformation of the credit portfolio. In doing so, LBBW will help companies with the transformation to sustainable business models, the digital transformation and the long-term reconfiguration of value chains (e.g. for relocalization).

The transformation to a climate-neutral economy as a fundamental step to limiting global warming requires not only innovations and joint action, but also considerable investment. Financial institutions have a key role to play here in financing. LBBW is conscious of its responsibility as a strong universal bank with regional roots. It has thus been actively helping to shape the transformation of companies, the economy and society.



Sustainable Transformation LBBW reported a sustainable business volume of EUR 220 billion in 2022. It comprised the following key figures:

- Sustainable financing volume²: EUR 57 billion as of 2022 year-end
- Sustainable customer issues³: managed volume of EUR 147 billion as of 2022 year-end

As a target, LBBW intends to raise its sustainable business volume to EUR 300 billion by 2025, EUR 75 billion of which as sustainable financing².

This significant expansion of its sustainable business volume will enable it to make a considerable contribution to transforming the economy as a whole within a very short time.

By signing the voluntary commitment to climate protection in the German financial sector. LBBW has also bindingly established that it will align its lending and investment portfolios with the objectives of the Paris Agreement. It is also committing to finance the transformation to a low-emission and climate-resilient economy and society and to thus limit global warming to well below 2° C. LBBW is explicitly aiming for the 1.5° C target here.

In order to fulfill our responsibility, we are reporting our individual progress in implementing methods and targets based on the voluntary commitment to climate protection as part of this sector pathway brochure. The sector pathways are an important instrument for LBBW to make the transformation of the companies and thus its own lending portfolio transparent in terms of specific sectors. The bank is thus not simply reducing its own emissions. It is also playing an active role in helping its customers to lower their CO₂ emissions⁵, in particular by offering them sustainable financial products and corresponding consulting expertise.

"All-encompassing cooperation between business, society and government is what is required to achieve the objectives of the Paris Agreement."



- 2 Including Berlin Hyp; on-balance-sheet sustainable financing volume (cumulative; including irrevocable loan commitments). Includes sustainability-linked development loans, sustainable project finance, finance for energy-efficient properties, social bond-eligible financing in the corporate customer segment and green finance or ESG-linked finance.

 - 3 Include, for example, sustainable bonds, Schuldscheins and syndicated loans. 4 Include assets set out in Article 8 and/or Article 9 of the Disclosure Regulation and sustainable certificates. 5 To improve legibility, this document uses " CO_2 " as a synonym for " CO_2 equivalent (CO_2 e)", and this includes all the relevant greenhouse gases stipulated under the Kyoto Protocol.

Climate change is the greatest challenge of our times.

LBBW is a founder, partner and member of various sustainability organizations and initiatives with a view to facilitating this exchange and the joint development of practicable solutions.

LBBW participation in sustainability organizations and initiatives



Social Contribution.

LBBW not only considers itself a responsible market participant, but also understands the importance for society. With the lever of *"Social Contribution"*, LBBW is raising its contribution in the area of commitment on the part of employees and the bank itself, as well as by actively contributing to social developments, discourse and initiatives.

The bank was founded 200 years ago to allow society to save money and to thus contribute to the population's growth and prosperity. By directing cash flows and purposefully promoting economic activities, LBBW plays a key role in this as a bank. For instance, the bank provides support for social bond issues.



Social Contribution



02 An integrated climate strategy.





Reduce impact on Alig the environment lending

Align our lending portfolio



Assist our customers with the transformation

On the way to becoming a Paris-compliant bank.

LBBW is striving to make its business operations Paris compliant, which is why it is systematically lowering its own emissions. In 2022, the bank's own CO_2 emissions totaled around 9,500 metric tons, which was below the set target of 11,000 metric tons of CO_2 . This was made possible through organizational and technical optimizations. For 2023, LBBW committed to further reduce CO_2 emissions by LBBW (bank) to a maximum of 10,500 metric tons. This is an ambitious goal that LBBW has deliberately set for itself. The bank is also mindful that the number of business trips could increase after the coronavirus restrictions are lifted – and travel emissions along with them.

You will find more information about the objectives and measures we have already achieved as well as the positive contributions they made in the <u>"Sustainable banking operations</u>" section and in the <u>LBBW Sustainability Report 2022</u>.

Reduction of CO₂ emissions

for the year **2023**

to a maximum of **10,500** metric tons





Our portfolio.

As part of its sustainability reporting, since 2019 LBBW has published annual information on greenhouse gas emissions (GHG emissions) generated by the projects and loans it finances. In it, the bank's positive performance is plain to see: The average emissions intensity⁶ fell from 48 metric tons of CO_2 /EUR million in 2021 to 44 metric tons of CO_2 /EUR million in 2022. On the reporting date of 31 December 2022, LBBW's GHG footprint was 11.8 million metric tons of CO_2 equivalents (million metric tons of CO_2 e). Financed emissions⁷ were thus 1.5 million metric tons of CO_2 e lower than the previous year. This decline in financed emissions is greater than the slight dip in relevant exposure (EUR 277 billion as of 31 December 2022).

To achieve its objectives as quickly as possible and systematically make its portfolio sustainable, LBBW is already working extensively with lending guidelines in the relevant economic sectors. They transparently and comprehensively define whether the bank participates in certain transactions or not. You will find detailed information on the lending guidelines for the relevant sectors in the document entitled <u>Sustainability practices at LBBW</u>.



- 6 Average emissions intensity is the ratio of financed emissions and the lending portfolio's exposure (financed emissions in metric tons of CO₂e/exposure in EUR million).
- 7 To calculate the **financed emissions**, LBBW's financing is determined as a percentage of the customer's overall financing (including equity). The GHG emissions of LBBW's customers count towards this percentage as our Scope 3 emissions. The reported financed emissions are the total of these Scope 3 emissions. The amount of the financed emissions is thus influenced first by GHG efficiency and second by portfolio changes.

Pathway to achieving what was set out in the Paris Agreement.

By signing the voluntary commitment to climate protection in the German financial sector, LBBW has pledged to formulate and publish sector-specific and scenario-based climate targets for the LBBW portfolio.

LBBW already conducted an intensive analysis of four sectors in the first half of 2022. It adopted a number of dedicated interim targets for 2030 for three sectors and outlined a set of guidelines:

Strict and transparent guidelines were drawn up for new transactions in the upstream (i) oil and gas segment. The aim is to lower the emissions intensity (ii) of energy generation by 50%⁸ and the emissions intensity (iii) of automotive manufacturing by nearly 40% compared with 2021. The average share of sales that (iv) automotive suppliers generate from combustion components needs to be lowered by 30%.

Additional sectors were analyzed by the end of 2022 for their GHG emissions and their relevance for the LBBW portfolio; sector pathways were developed for cement, aircraft financing, steel and commercial real estate; and sector targets were established for 2030.

LBBW is also planning ambitious reductions of emissions intensity for these sectors as well: a 15% reduction for (v) cement, 25% for (vi) aircraft financing, 20% for (vii) steel and 57% for (viii) commercial real estate.

Performing a detailed analysis of the portfolio and deriving sector-specific transformation pathways and objectives are the deciding factors that will enable the bank to achieve its net zero target for emissions by 2050. The sectors that are being analyzed are responsible for the majority of global emissions. The sectors make up 12% (EUR 38.3 billion) of LBBW's total lending volume and around 20% of the corporates portfolio⁹. A detailed overview of each sector can be found on \rightarrow page 17.



In addition to aligning the LBBW portfolio to make it fit for the future, LBBW is also undertaking to establish Paris-compliant banking operations (Scope 1 and 2) by 2050 at the latest (see <u>"Sustainable banking operations"</u> section).



 ⁸ The current chaos in the energy markets has consequences for supply security. Increased coal use for electricity generation will result in a significant rise in emissions for 2023 and 2024 in particular. This will have a notable impact on the energy sector pathway.
9 As of 31 December 2022.

Structures and responsibility.

Governance

Stringent anchoring of the issue within the existing Group structure is supporting systematic sustainability management at LBBW. Responsibility lies with the entire Board of Managing Directors.

In addition, the Board of Managing Directors Sustainability Committee assumes the role of central decision-making and steering body within LBBW. At the same time, it provides momentum for the strategic further development of sustainability. Five of the seven members of the Board of Managing Directors are permanent members of the Board of Managing Directors Sustainability Committee. This underscores the importance of the issue for LBBW. The LBBW Sustainability Committee assumes a coordinating and advisory function. It directs relevant projects with a signaling effect and ensures that sustainability is promoted in a transparent and connected manner across business units. The responsibilities for managing and implementing sustainability are shown below.

Board of Managing Directors



Strategic thrust

Board of Management Sustainability Committee SW/

Decision-making and steering body as well as initiator for the implementation of LBBW's sustainability ambitions

Chair: Chairman of the Board

Participants:

Executive Board members from the divisions

- Real Estate and Project Finance
- Risk Management and Compliance
- **Corporate Customers**
- Finance and Operations

Head of Sustainability and other participants according to the rules of procedure

Sustainability Committee



Implementation of sustainability ambitions: Steering committee for relevant projects

Chair: Head of Sustainability Participants:

Department heads of all Executive Board departments, significant subsidiaries as well as other participants according to the rules of procedure

Steering committees

Department ESG Group Transformation

Central unit

Remuneration

The strategic levers at the business segment level are monitored by incentive systems (balanced scorecard), which include sustainability goals. The results of the balanced scorecard have an impact on remuneration for those responsible. LBBW thus underscores the high importance of its sustainability goals.

Performance-based variable remuneration is paid for LBBW's sustained success as well as for an above-average contribution towards this by individual employees. For the Board of Managing Directors and employees entitled to bonuses alike, performance is evaluated on the basis of growth and relevance objectives using the five strategic levers. The topic of sustainability is thus particularly reflected in the goals for Sustainable Transformation as well as for Social Contribution.

Risk management

Sustainability does not just present opportunities. Banks also need to factor it into the risk strategy and risk management as a key integrative topic. After all, it is to be expected that many successful business models need to come under pressure and be transformed, for example due to rising CO₂ prices. That is why established risk assessment methods need to be expanded to account for these transitory risks. At the same time, the effects of global warming are becoming ever more apparent in Germany as well, often taking the form of more extreme weather events such as droughts or floods. Banks need to assess and allow for these physical risks as well. LBBW benefits from the fact that it has been firmly anchoring sustainability in its business strategy for guite some time and has been committed to the issue for years. Climate and environmental risks are thus already integrated into all aspects of risk management and are continuously being further developed. A central issue this year is improved dovetailing of ESG risk management, including within the context of the Group-wide sustainability project.





Sustainability or *ESG risks* are associated with specific risk drivers that could have a negative impact on LBBW. LBBW considers ESG risks material overall since they have a particular impact on counterparty default/credit risk and reputation risk. LBBW has developed different methods to assess these risks. It is able to use these to analyze key physical climate risks such as flooding, heavy rain events and storms. These methods allow for a qualitative assessment in the form of a transparent traffic light system. The bank has also implemented a means of measuring financed emissions – the greenhouse gas emissions of our customers – and included it in the monitoring system. This enables LBBW to simulate long-term adverse developments ("climate stress test"). The results are then included in discussions with the bank's management and banking supervisors via established reports and committees.

Generalized by the second state of the sec

Actual emissions.

LBBW bases its measurement of financed emissions on the PCAF method (Partnership for Carbon Accounting Financials). Despite ongoing methodological challenges, something of an industry standard is now being developed in the form of the PCAF¹⁰ initiative. PCAF expands on and clarifies the Greenhouse Gas Protocol (GHG Protocol¹¹) specifically for the financial sector.

The essential requirement for calculating financed GHG emissions is information. LBBW has significantly improved its internal data basis and has systematically collected real emissions data from its corporate customers. Wherever no company information is available, LBBW follows the PCAF guidelines and uses estimates such as industry averages. They allow LBBW to identify and monitor material risk drivers, simulate the effects of climate change and climate policies and track future changes at sector level.



10 PCAF (2020). The Global GHG Accounting and Reporting Standard for the Financial Industry. First edition. 18 November 2020.

¹¹ World Resources Institute und World Business Council on Sustainable Development (Hrsg.): Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. 2011.

Calculations of financed GHG emissions are based on the Scope 1 and Scope 2 emissions of customers in conjunction with LBBW's exposure (differentiated both by geography and sector). Exposure is defined as the total of all outstanding receivables from and commitments to borrowers as at 31 December 2022.



Focus on the footprint: Greenhouse gases are subdivided into three different scopes



Indirect emissions

- 1. Related goods and services
- 2. Capital goods
- 3. Fuel and energy supply chains
- 4. Upstream transportation
- 5. Waste generated by business operations
- 6. Business travel
- 7. Employee commuter traffic
- 8. Upstream leasing





Reporting financial institutions

Downstream value creation

LBBW's financed emissions for 2022 totaled 11.8 million metric tons of CO_2e – the previous year's figure was 13.3 million metric tons of CO_2e . This translates to an average emissions intensity of 44 metric tons of CO_2 /EUR million¹². Loans and projects that LBBW financed in Germany account for 70% of emissions. This finding forms the starting point for further analyses and the basis for a comprehensive portfolio management approach using CO_2 emissions as the central input parameter.

$\begin{array}{c} \textbf{11.8 million} \\ \text{metric tons of } CO_2 e \\ \textbf{2022} \end{array}$



Emissions intensity for LBBW over time (metric tons of CO₂/EUR million)





LBBW's pathway to net zero emissions.

LBBW's portfolio includes various industries, which are systematized into different sectors. Each of these sectors requires a specific decarbonization strategy. This depends on a number of factors including the availability and maturity of carbon-neutral technology.

In the energy sector, transformation occurs through direct investment in existing low-GHG technology and, primarily, in renewable energies. In the automotive sector, a technological transformation toward electrified powertrains is also underway. On the other hand, companies in other sectors, such as cement and steel production, are much more reliant on future innovations in low-carbon technology. For LBBW, it is crucial to promote innovation through investment as part of this process because goods are an indispensable part of central value chains.

Performing a structured analysis of the GHG-relevant sectors identifies the challenges and opportunities of the individual sectors. Based on this, LBBW engages in close strategic dialogue with its customers, helps companies develop a climate strategy and supports them with implementation. LBBW is thus able to measure the alignment of individual sector portfolios against the objectives of the Paris Agreement. This involves comparing the GHG intensity of the sector portfolios with the decarbonization pathway derived from scientific climate models (known as a benchmark pathway). Scenario providers – such as the International Energy Agency (IEA) or the Wuppertal Institute for Climate, Environment and Energy¹³ – have calculated the climate models and sector-specific benchmark pathways.



For fossil fuels, such as oil and gas, transitional solutions are needed until alternative fuels have reached market maturity and are sufficiently available.

Improving efficiency in the areas of generation, processing and transportation is already allowing us to reduce CO_2 emissions today. In the medium to long term, however, the aim has to be a total phase-out of fossil fuels. LBBW is pressing ahead with this gradual phase-out strategy and supporting its customers in the process.



13 Climate model: Towards a Climate-Neutral Germany by 2045 commissioned by the Climate Neutrality Foundation, Agora Energiewende and Agora Verkehrswende, compiled in conjunction with Prognos and the Öko-Institut (2021).

Selecting benchmark pathways.

Following analysis of the various climate models, LBBW decided to use the IEA's Net Zero Emissions Scenario (NZE) as a benchmark pathway for decarbonizing the economy¹⁴. The model aligns with the Paris Agreement and its scenario limits global warming to a maximum of 1.5° C by 2100 as compared to pre-industrial levels. This corresponds, at the same time, to the requirements of international initiatives, like the Net Zero Banking Alliance (NZBA), and is both widely recognized and adopted on the market.

By contrast, LBBW uses the Carbon Risk Real Estate Monitors (CRREM) benchmark pathway for commercial real estate financing. As with the IEA's NZE mentioned above, the target for the CRREM pathway is to limit warming to no higher than 1.5° C by 2100. It is also accepted and commonplace in the market.

Selecting relevant sectors.

Over the course of 2022, the bank already published sector pathways and targets for three sectors: (i) energy generation, (ii) automotive manufacturing and (iii) automotive supply. An in-depth analysis was also performed for the (iv) oil and gas sector. The bank has opted for another approach here: potential new transactions are governed by clear guidelines in the upstream segment. For example, clear guidelines limiting company financing with companies that generate more than 10% of their revenue through upstream activities or that hope to increase their production volume are effective immediately. In addition, export financing covered by the German federal government is approved under narrowly defined conditions. LBBW drew up a corresponding set of guidelines and published them in the document entitled <u>"Sustainability practices at LBBW"</u>.

LBBW prioritized these four sectors based on their relevance for GHG emissions and their size with respect to the LBBW portfolio.

Four additional sectors were analyzed by the end of 2022 for their GHG emissions and their relevance for the LBBW portfolio; sector pathways were developed for (v) cement, (vi) aircraft financing, (vii) steel and (viii) commercial real estate, and sector targets were established for 2030.

The table below gives an initial overview of the selected sectors, the selected KPIs and the objective and reduction values:



Sector	Relevant KPI	Actual	Target 2030	Reduction (vs. 2021)
Oil and gas	Definition of clear guidelines for new transactions in the upstream segment through new lending guidelines			
Energy generation	Scope 1	224 kg CO ₂ /MWh	110 kg CO ₂ /MWh	~50%
Automotive manufacturing	Scope 3	153 g CO₂/km	95 g CO₂/km	~40%
Automotive supply	Share of sales generated from combustion components	25%	17% share of sales	30% reduction in the share of sales that automotive suppliers generate from combustion components
Cement	Scope 1 + Scope 2	565 kg CO ₂ /metric ton of cement	480 kg CO ₂ /metric ton of cement	~15%
Aircraft financing	Scope 1	88 g CO ₂ /pkm	66 g CO ₂ /pkm	~25%
کی Steel	Scope 1 + Scope 2	1,074 kg CO ₂ /met- ric ton of steel	860 kg CO ₂ /metric ton of steel	~20%
Commercial real estate	Scope 1 + Scope 2	51 kg CO ₂ /m ²	22 kg CO ₂ /m²*a	~57%

Selecting metrics.

Sector-specific metrics make it possible to manage the financed emissions in the individual sectors and provide the best possible picture of the transformation and decarbonization pathway of the sectors. LBBW uses specific output-related CO₂ intensities as metrics (KPIs) whenever appropriate.

The economy and society will continue to need products like steel, cement and electricity in the future as well – but the GHG emissions associated with them need to be lowered. LBBW uses output-related CO₂ intensity to trace this path. This metric (KPI) give companies guidelines for producing and selling products more efficiently in terms of GHG emissions. LBBW's general aim in doing so is always to provide a sound and reliable tool for making key decisions. As a result, LBBW implemented a different system for automotive supply. This is because GHG emissions generated by transport are already captured entirely within the automotive manufacturing sector pathway. The bank thus gears the sector pathway for automotive supply directly towards the technological change in the powertrain segment.

Since no target is generally applicable for all sectors, all the KPIs vary. LBBW tailored the metrics to the benchmark pathway for the sector. What the sectors have in common is that they are all based on ambitious interim targets for 2030.

We have selected the sector-specific metrics we are using for the sectors. They are as follows:

- Oil and gas: Total exposure reduction for companies with upstream activities
- Energy generation: kg CO₂/MWh
- Automotive manufacturing: g CO₂/km
- Automotive supply: Share of sales generated from combustion components
- Cement: kg CO₂/metric ton of cement
- Aircraft financing: g CO₂/pkm (passenger kilometer)
- Steel: kg CO₂/metric ton of steel
- Commercial real estate: kg $CO_2/m^{2*}a$ (square meter per year)

Detailed information on the corresponding metrics can be found in the individual sector illustrations.



Data

Publication of comparable sustainability-related data is still uncommon for many companies. It is often the case that small and medium-sized companies in particular are still not publishing any non-financial performance indicators. LBBW uses sector-specific procedures in this regard. For the sector pathway of commercial real estate, for instance, it focuses on the sustainability-related data of the financed properties. This data can largely be obtained from the corresponding energy performance certificates (in the United Kingdom and the EU).





It must be noted that there are many challenges in gathering information. Wherever possible, LBBW uses real data. If this is not available, it uses estimates. At the same time, LBBW is continuously working with its customers to improve data quality over the coming years.

The continuous improvement and refinement of the data basis/data availability and methodology is turning the process of analyzing the LBBW portfolio into an iterative process. LBBW reserves the right – in the interests of the reader and on account of continuous improvement in the data – to make adjustments to its analysis and findings, where necessary.

LBBW's transformation.

As a strong universal bank with regional roots, LBBW actively helps to shape the transformation of business, economy and society. The bank believes it has a duty to adopt this transformation in its portfolios as well as its own banking operations (see <u>"Sustainable banking operations"</u> section). The progress of decarbonization of the lending portfolio is measured using sector-specific transformation pathways, which are presented in the following section ("Sustainable portfolio") and aimed at clear, ambitious sector targets.



Sustainable portfolio. Oil and gas sector.

The use of fossil fuels is the main source of global greenhouse gas emissions. Companies in the oil and gas sector are currently still benefiting from the high demand for fossil fuels. At the same time, they face the challenge of making their business models fit for a sustainable future. This will be marked by considerably lower demand for fossil fuels. Estimates by the Intergovernmental Panel on Climate Change (IPCC) suggest that fossil fuel use accounted for 89% of the world's GHG emissions in 2018¹⁵. Since achieving the global 1.5° C target will require a significant reduction of emissions, fossil fuel use needs to decline significantly. Ensuring a transition to low-carbon energy sources at the same time is the only way of making this a reality.

Until energy requirements can be fully covered by alternative energy sources, fossil fuels are projected to continue to play a pivotal role in ensuring security of supply, and this is particularly true for gas. Key transitional solutions include a technical reduction in the release of methane gas in production and a reduction of GHG emissions through developing and introducing carbon capture utilization and storage (CCUS). Oil and gas have a comparatively low exposure share of around 1% of the corporate customer portfolio at LBBW. This is due to the fact that the bank took a clear position early on and entered into business relationships on a selective basis only with selected customers within the oil and gas value chain.

Value chain					
Upstream	Midstream	Downstream			
Oil and gas exploration/ production	Transport and storage	Product processing and selling			
Exploration, development and production of oil and gas fields (onshore and offshore)	Transportation, storage and distribution (including LNG terminals, oil and gas pipelines)	Refining and selling (in- cluding refineries, filling stations, etc.)			
PAG					

LBBW carefully examined the preparation and calculation of the sector pathways and the management of its portfolio based on production intensity (g CO_2/MJ). This allows the bank to precisely measure GHG reduction measures in the production and transportation of oil and gas. However, reducing GHG emissions in the end consumption of oil and gas is either exceptionally difficult to achieve (CCUS technology) or only possible through substitution.

For this reason and in order to fulfill its sustainability ambitions, LBBW has set its own clear guidelines for any potential new transactions in the upstream segment. These apply for companies that specialize in the exploration and extraction of petroleum or natural gas or that generate a high share of sales through the extraction of fossil fuels. In addition to this, LBBW generally excludes company financing for new and existing customers that use controversial extraction methods (e.g. extraction in protected areas such as the Amazon or the Arctic). The bank has already drawn up a corresponding set of guidelines and published them in the document entitled <u>"Sustainability practices at LBBW"</u>.





Energy generation sector pathway.

Nearly 250 million metric tons of CO₂ were emitted by the energy generation sector alone in Germany in 2021¹⁶. This means it made up more than 30% of Germany's total CO₂ emissions¹⁷. With this share of CO₂ emissions and their significance for practically every other sector, energy providers hold a key role in the sustainable transformation. This special status is evident in the fact that, without any investment in renewable energies, climate initiatives in all downstream – and particularly in energy-intensive – economic sectors would come to nothing. LBBW is serious about contributing to limiting global warming to 1.5° C, and will thus consistently increase its share of renewable energies. This is the only way to lower the current mean value of 420 kg CO₂/ MWh in Germany's energy mix¹⁸.

LBBW's energy generation portfolio has grown steadily in recent years and today accounts for a share of roughly 10% in terms of exposure in EUR of LBBW's corporate customer portfolio. More than half of this is attributable to the financing of renewable energies. LBBW includes only electricity producers – in other words, companies that generate electricity in their own plants – in this sector pathway.

The relevant metric in this sector is kg CO_2/MWh and it records direct CO_2 emissions (Scope 1). A CO_2 intensity of 0 kg CO_2/MWh is therefore used for renewable energies. In 2021, LBBW's energy generation portfolio has a CO_2 intensity of 224 kg CO_2 per megawatt hour (MWh) of electricity produced. The CO_2 intensity of LBBW's portfolio is thus much better than the IEA's NZE benchmark pathway. **This shows that LBBW is already in a very good position in the energy generation sector – thanks, in particular, to the high share of financed renewable energies.**



LBBW is already in a very good position in the energy generation sector – thanks, in particular, to the high share of financed renewable energies.

17 German Environmental Agency: <u>https://www.umweltbundesamt.de/daten/klima/treibhausgas-emis-</u> sionen-in-deutschland#nationale-und-europaische-klimaziele (umweltbundesamt.de).

 ¹⁶ German Environmental Agency: https://www.umweltbundesamt.de/daten/klima/treibhausgas-emis-sionen-in-deutschland#emissionsentwicklung (umweltbundesamt.de).

¹⁸ German Environmental Agency: <u>https://www.umweltbundesamt.de/themen/klima-energie/energieversorgung/</u> <u>strom-waermeversorgung-in-zahlen#Strommix</u> (umweltbundesamt.de).

LBBW intends to build on this excellent starting point and to lower the GHG intensity of its portfolio to 110 kg CO₂/MWh by 2030. This means the bank will take this already good figure and lower it by more than half again in less than seven years¹⁹. LBBW is using various means to tackle this ambitious target. On the one hand, it must systematically expand its own renewable energy portfolio. On the other, the target can only be achieved if the bank actively helps to shape the transformation of its customers as well.





- 19 LBBW's long-term reduction target is clear: to lower emissions to 110 kg CO₂/MWh by 2030. Despite this, certain emissions will temporarily go up in 2022 and 2023 because supply security requires increased coal use for electricity generation.
 - 20 Emission and exposure figures as of 31 December 2021; Based on data from International Energy Agency (2021) Net Zero by 2050: Net Zero by 2050 Scenario – Data product – IEA; as modified by LBBW.

Automotive manufacturing sector pathway.

The transport sector accounts for 20% of global CO₂ emissions. It is estimated that around 50% of these are attributable to passenger cars²¹. This makes the automotive industry a key industry that is crucial in deciding the success of the transformation. It is currently undergoing a fundamental process of transformation. A swift and widespread transition to electrified powertrains is required to ensure the sustainable transformation of the automotive manufacturing industry.

Combination of battery electric vehicles (BEV) and emissions intensity in the IEA's NZE 2050 climate model²²



The measures to combat climate change present major challenges for the automotive industry's business models. E-mobility is the main cause of this.

Over the past few years, a number of new vehicle models (battery electric vehicles, plug-in hybrids) have been brought to market and e-vehicles have seen a successive rise in market share.

↑ 21 IEA. (2021). Net Zero by 2050 A Roadmap for the Global Energy Sector.

22 Emissions intensity and share of electric vehicles based on the International Energy Agency's Net Zero Emissions 2050 Scenario (benchmark pathway for automotive OEMs).



Regarding the automotive industry, it should be noted that emissions are released predominantly when the vehicle is driven, not when it is manufactured. The emissions generated by vehicle use form part of OEM Scope 3 emissions. The type of powertrain and the CO_2 emissions values recorded during official vehicle registration are important factors in determining these emissions. These are measured by independent bodies using standardized test procedures for individual vehicle models and drive types. They are included in the calculation of OEM CO_2 emissions. For the analysis of this sector pathway, LBBW focuses on vehicle manufacturer Scope 3 emissions and uses the metric g CO_2 per vehicle kilometer. The figures given relate to new vehicle registrations in the relevant year. CO_2 emissions from production (Scope 1 and 2) are so low comparatively speaking (1%) that they are negligible.

The automotive sector is one of the largest and most important sectors in LBBW's corporate customer portfolio with a share of approximately 10%. The average CO_2 intensity of LBBW's automotive manufacturer portfolio was 153 g CO_2 /km in 2021. This is considerably better than is indicated by the IEA benchmark path. With this good starting point, the bank's ambition is clear. LBBW wishes to use the longstanding and detailed industry knowledge that it has cultivated to make a substantial contribution to the successful further development of the sector.

When it set itself a target, the bank used the statutory fleet targets of key sales markets as a guide. It also considered the OEMs' published transformation plans. On this basis, LBBW set a target of 95 g $\rm CO_2/km$ for 2030. Specifically, this means it wants to reduce the $\rm CO_2$ intensity of its customer portfolio around 40% by 2030. LBBW will achieve this target by helping its customers to systematically expand their ratios of electrified vehicles and implement innovative solutions.





23 Emission and exposure figures as of 31 December 2021; Based on data from International Energy Agency (2021) Net Zero by 2050: Net Zero by 2050 Scenario – Data product – IEA; as modified by LBBW.

Automotive supply sector pathway.

The automotive industry is particularly important for the south German economic region. The industry as a whole – particularly automotive suppliers – plays a key role for LBBW as a bank with regional roots.

The CO₂ emissions generated by vehicle use are already fully accounted for in the analysis of OEMs. However, suppliers too are affected by the transformation in automotive manufacturing since the transition to electrified powertrains is fueling technological change throughout the entire sector. That is why suppliers need to adjust their business models. This is particularly true for companies that generate a significant share of their sales from components that are primarily used in traditional combustion engines, e.g. gearboxes, engines and exhaust systems.

LBBW recognized the impact of this technological change early on. It has thus already been keeping its dependence on combustion components under very precise control in its risk management since 2018. Since there is high degree of data transparency in this area and since the bank already has in-depth knowledge of the industry, it is capable of expanding its current monitoring system in a targeted way. By doing so, it lays the groundwork to provide suppliers with even more efficient support in the future. LBBW has defined the share of sales generated from combustion components as its KPI.

LBBW uses this data to determine the dependence of the supplier portfolio on traditional powertrains. To do so, it calculates a mean value based on the individual values of each supplier weighted by loan exposure. In 2021, the mean value for LBBW's supplier portfolio was 25%. The bank has set a goal of lowering this value 30% by 2030. In concrete terms, this means reducing the share of sales generated from combustion components in its supplier portfolio to 17% by 2030.





24 Emission and exposure figures as of 31 December 2021.

Cement sector pathway.

The cement industry creates around 20 million metric tons of CO_2 in Germany and is thus one of the most CO_2 -intensive industrial sectors²⁵. This material is very difficult to replace given the global availability of its raw materials as well as the stability and moldability of cement. This is also evident in the fact that cement use has been nearly constant in Germany since 2010.

The CO_2 emissions released in cement production come from two sources: process emissions and energy emissions. LBBW measures both types of emissions specifically for the sector in kg CO_2 per metric ton of cement. Energy emissions make up around two-thirds of these emissions. Process emissions account for the remainder. CO_2 emissions can be reduced over the short term through the energy used. This is already being done using alternative fuels or electricity from renewable energies. Up to 200 kg of CO_2 per metric ton of cement can be saved by continuing to increase the share of renewable energy.

The situation is much more challenging for process emissions. New technologies and production processes are required to significantly reduce these. Although they are already in development, they are not yet mature for the market or scalable. A significant reduction in process emissions is thus not expected until these new technologies are used in the industry after 2030.



LBBW is aware of these challenges and has developed realistic targets in terms of the potential level of ambitions in its portfolio for 2030. The bank helps companies in this sector with their systematic transformation and with developing the necessary technologies. LBBW does so without losing sight of its own climate targets. Based on the lowest CO_2 level technologically achievable without extensive use of new technologies (e.g. carbon capture and storage) of 400 kg CO_2 /metric ton of cement, LBBW has set the goal of reaching 480 kg CO_2 /metric ton of cement by 2030.



 25 German Environmental Agency: <u>https://www.umweltbundesamt.de/daten/klima/treibhausgas-emis-sionen-in-deutschland#nationale-und-europaische-klimaziele</u> (umweltbundesamt.de).
26 Emissions and exposure figures as of 31 December 2021; Based on data from International Energy Agency (2021) Net Zero by 2050: Net Zero by 2050 Scenario – Data product – IEA; as modified by LBBW.



Aircraft financing sector pathway.

Air travel is globally responsible for around 3% of CO₂ emissions and is thus an important sector on the path to a climate-neutral economy. At the same time, it links people and markets around the world and allows for quick and uncomplicated transport and travel. Air travel is thus a basic requirement for today's globalization and can be substituted only to a limited degree.

Decarbonizing air travel is associated with greater challenges than in other sectors. This is because there is no competitive green alternative right now that matches the long life cycle and development period of aircraft types. In the foreseeable future, this will lead air travel's share in global CO₂ emissions to trend up.

While the use of sustainable aviation fuels (SAF) can counteract this development, they still are not sufficiently available right now and cannot compete with kerosene. The EU anticipates that SAF will make up at least 5% of aviation fuels as a whole by 2030. That is why it is so important for LBBW to take on these challenges and for it as an aircraft financing lender to place emphasis on funding the most CO_2 -efficient aircraft in each class.



In developing this sector pathway, LBBW collected manufacturer data and industry information on average flight times and CO_2 emissions for each aircraft type. It then correlated this information with the sustainability reports from the airlines and calculated CO_2 intensity in the form of g CO_2 /pkm. In addition to the manufacturer data, the bank also used the Aviation Working Group (AWG) CO_2 calculator. Sector pathway development focused on financing for passenger aircrafts since they make up most of LBBW's exposure.

Despite the challenges described and the as yet scarce availability of sustainable aviation fuels, LBBW has set the target of reducing the CO_2 intensity of its aircraft financing portfolio by 25% and thus not exceeding a value of 66 g CO_2 /pkm with its portfolio in 2030.



Aircraft financing sector pathway in g CO₂/pkm²⁸



27 Also known as revenue passenger kilometer (RPK).

28 Weighting with exposure as of 31 December 2022; Based on data from International Energy Agency (2021) Net Zero by 2050: Net Zero by 2050 Scenario – Data product – IEA; as modified by LBBW.

Steel sector pathway.

Germany plays a leading role in the EU's steel production and is the eighth largest raw steel producer globally. However, steel production generates large CO₂ emissions. For instance, Germany's steel industry creates around 35 million metric tons of CO₂ per year and is thus responsible for a significant portion of industrial emissions overall²⁹. The importance of steel as a material is evident in the fact that steel makes up at least 10% of the intermediate goods for around 50% of Germany's manufacturing industry. This means more than 50% of German goods exports can be classified as having "high steel content". On top of this, roughly 4 million employees work in steel-intensive sectors in Germany.

Steel is also an important component for developing a low-CO₂ economy. After all, steel is indispensable for manufacturing sustainable infrastructures (e.g. for renewable energies), among other things. Another big advantage of this material is that it can be recycled with virtually no losses: stainless steel production already has very high recycling rates.

The relevance of steel is also evidenced in the efforts that manufacturers make to reduce emissions by using more efficient production methods and scrap steel. In addition to this, technologies for the manufacture of "green" steel are already in use today, albeit to a limited extent right now.

In particular, hydrogen-based direct reduction could result in up to a 95% reduction in CO_2 emissions. This replaces the traditional blast furnace route with a zero- CO_2 process. However, this requires universal availability of hydrogen and the establishment of a corresponding infrastructure.



The steel sector thus faces challenges similar to those of cement manufacturers: both involve essential materials that currently create large CO_2 emissions in production. However, these can be reduced only through innovation and technological progress. Environmentally friendly production processes still need to be paired with scalability and competitiveness as well, though.

Regarding the intensity of the steel sector, the KPI of kg CO_2 per metric ton of steel was used for the corresponding sector pathway. When setting the sector target, it was important to LBBW to be a trailblazer with its ambition despite the major challenges. Against this backdrop, it is a goal of LBBW to lower the intensity in the steel sector 20% by 2030 to 880 kg CO_2 per metric ton of steel.

Steel sector pathway in kg CO₃/t³⁰ 1,400 1,200 1.000 800 600 400 200 0 2025 2021 2030 2035 2040 Baseline LBBW LBBW's target 2030 IEA's NZE benchmark pathway

↑ 30 Emission and exposure figures as of 31 December 2021; Based on data from International Energy Agency (2021) Net Zero by 2050: Net Zero by 2050 Scenario – Data product – IEA; as modified by LBBW.





Commercial real estate sector pathway.

In the European Union, buildings create about 36% of the energy-related CO_2 emissions³¹. Most (approximately 70%) of these emissions can be attributed to heating with fossil fuels. By the time that energy prices surged, the general public became aware of the strong reliance on oil and gas in the building sector. The public has also now realized the need to considerably improve energy efficiency in buildings.

"With roughly a 12% share in exposure, commercial real estate financing is one of the most important sectors for the LBBW Group"

(excluding Berlin Hyp) (as of 31 December 2022).

This area will continue to increase due to the acquisition of Berlin Hyp in summer 2022. Making up roughly 3% of the total emissions financed by the bank, this is a relatively low-emission sector (as of 31 December 2022).

Regardless of this, LBBW has recognized the special significance of the building sector for the transformation of the economy as a whole. It thus set an ambitious reduction target for CO_2 intensity in the commercial real estate financing portfolio. The aim is to lower CO_2 intensity from today's 51 kg $CO_2/m^{2*}a$ to 22 kg $CO_2/m^{2*}a$ within seven years. That means a 57% reduction.

Note:

LBBW acquired Berlin Hyp in summer 2022. The sector pathway refers only to LBBW's commercial real estate financing. Berlin Hyp's holdings may also be listed here separately or together with LBBW's holdings in the future. This may result in adjustments to methodology.



31 European Union (2021): Making our homes and buildings fit for a greener future; (<u>https://ec.europa.eu/commission/presscorner/api/files/attachment/869476/Buildings_Factsheet_EN_final.pdf.pdf</u>).
32 Emission and exposure figures as of 31 December 2021; Based on data from Carbon Risk Real Estate Monitor (CR-

REM); https://www.crrem.eu/; as modified by LBBW.

Sustainable banking operations.

LBBW is systematically cutting its own emissions to bring its business operations in line with the Paris Agreement. The bank is also dedicated to the cause of climate protection, one example being its investment in long-term reforestation projects in Latin America, in the Caribbean and in Africa via the forestation fund Arbaro Fund. In addition to the positive effect on the climate, the investments create fair working conditions in the local areas where the projects are taking place. Even the United Nations' Green Climate Fund (GCF), the central and biggest multilateral international tool for funding environmental protection, is invested in the Arbaro Fund.

"The target of LBBW (the bank) for 2023 is to limit CO₂ emissions in its own business operations to 10,500 metric tons or less."

Most of the emissions in business operations are generated through heating buildings and in business travel. All LBBW and BW Bank office buildings have been powered by hydropower since 2009. Electricity thus makes up a relatively low percentage of LBBW's CO_2 emissions. Nevertheless, LBBW is also using organizational and technical measures here to work on continuously lowering consumption. Paper, waste and water make up a small percentage of CO_2 emissions.









LBBW has already reduced its own GHG footprint significantly in recent years by replacing or upgrading its equipment and cooling technology as well as by cutting down on the use of air conditioning systems in buildings in the summer and reducing its default room temperature in the winter. In terms of 2022 and the energy crisis, the energy KPIs reflect the extensive energy-saving measures. These measures included:

- Raising awareness of energy conservation among employees,
- Reducing heating (heating later and lowering the room temperature earlier),
- Generally lowering room temperatures around 3 degrees to 19 $^{\circ}$ C,
- Shutting down some water heating in restrooms
- Limiting lighting and limiting the use of illuminated advertising structures,

Other examples include the use of waste heat from the neighboring FI/FI-TS data center through heat pumps and projects aimed at more efficient use/reduction of space and IT efficiency programs. These include:

- Digitalization of processes and paper reduction.
- Reduction of servers and optimization of infrastructure.
- Development of collaboration tools.
- Adjustments to workstation equipment, such as switching to wireless softphones.



You will find more information about the CO₂ reduction objectives and measures we have already achieved in the "Environment" section of the LBBW Sustainability Report 2022. LBBW will also use its own experience and expertise to help its customers to achieve their climate targets – for example, in areas such as meeting regulatory obligations, developing portfolios and formulating climate strategies. G 05 Outlook

Whereas the focus in 2022 was on establishing the methodology and outlining the analysis for the first sectors, LBBW is immediately providing transparency with seven sector pathways so far and the guidelines for the oil and gas sector. It has set clear targets it will use to meet its responsibility. These are important steps toward a carbon-neutral economy. LBBW is thus also meeting the requirement to publish sector-specific targets under the voluntary commitment to climate protection in the German financial sector that it signed. Building on the sectors already examined, LBBW will also analyze its portfolio and consider additional sectors (e.g. the chemicals sector) as needed in the future.

The sector pathways are an important instrument for LBBW to make the transformation of the companies and its own lending portfolio transparent in terms of specific sectors. At the same time, the sector pathways are the basis for strategic dialogue with companies. Based on this, LBBW supports its customers as they work toward climate neutrality.

The sector pathways have a significant role at various levels here, e.g. in the sales process, risk management and in managing their own climate and environmental risks. Through the implementation of the sector-specific targets in the bank's business strategy and of the resulting management options, the sector pathways achieve their full potential. Over the medium term, they thus significantly help allow LBBW to honor its commitments to achieving the climate targets. From LBBW's perspective, combating climate change and making the economy and society sustainable for the future is the greatest challenge of our times. However, this insight alone is not enough.

^{Concerted,} swift and resolute action

must be taken.

LBBW is doing its part to ensure that the economy and society navigate this path successfully together.



Disclaimer

The transformation to a climate-neutral economy is a long-term process. At present, climate-related data is available only on a limited scale. For this reason, the statements made in this report will unavoidably be based on the use of estimates and models for the time being. The lack of uniform criteria for the measurement of carbon dioxide emissions means that the results of the estimates may be inconsistent and unreliable and may produce a distorted picture. We wish to point out that this report does not apply the calculation methods promulgated in the draft Regulatory Technical Standards (RTS) under Regulation (EU) 2019/2088 of 27 November 2019 on sustainability-related disclosures in the financial services sector (SFDR).

This report contains metrics that are subject to uncertainty resulting from the underlying data and the methods used to calculate those metrics. The metrics outlined in this report may naturally be affected by this. We have tried to minimize this uncertainty. Unless otherwise noted, the information given corresponds to the situation as at December 2022. We expressly reserve the right to update measurement systems and methods in the future.

Past data and metrics provide only a very limited basis for future forecasts and metrics.

The carbon footprint of our corporate customer portfolio was calculated as we have described in this report. In some cases, we made use of information from third-party sources that we consider reliable but did not independently verify. We assume no liability for this information being correct or complete. The inclusion of information in this report says nothing about the materiality or possible financial impact of this information.

This report makes statements regarding future developments. They are based on current information, assumptions, forecasts and expectations. Statements on future developments are, by their very nature, subject to significant risk and uncertainty. Many factors, such as wrongly estimated or unforeseen developments, may render them incorrect and meaningless. We accept no liability for statements on future developments and do not undertake to update or correct any statements we have made on future developments or to issue new statements on future developments.



Breaking new ground

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