Combined management report

of the EnBW Group and EnBW AG

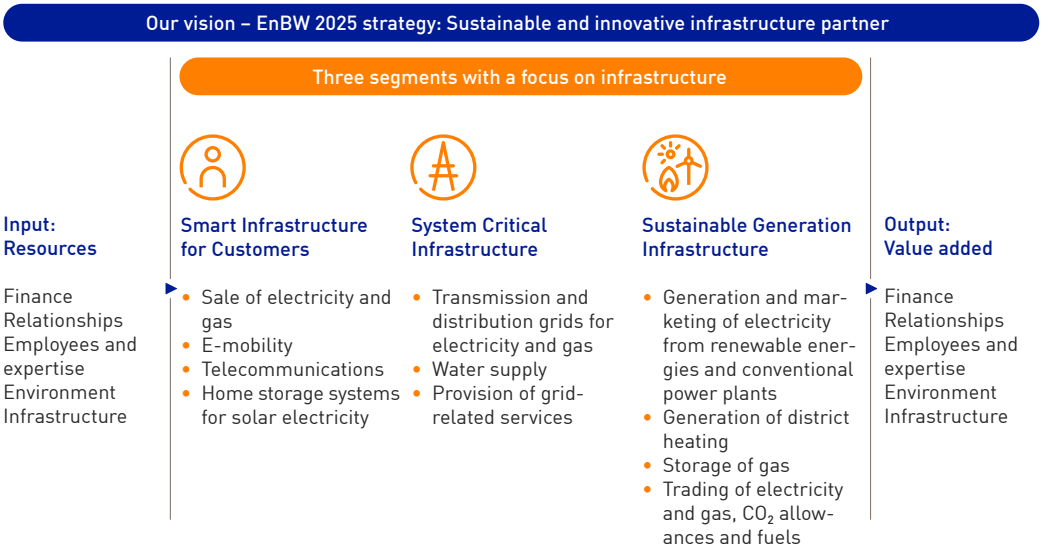
Business report

Fundamentals of the Group

Business model

Business principles

Business model



Our company is transforming itself from an energy supply company into a sustainable and innovative infrastructure partner, also outside of the energy sector. Sustainability is an important element of our business model and acts as a compass for our strategic alignment. We draw on a variety of resources – from finances through to infrastructure – for our corporate activities. As a result of the efficient use of these resources, we create value for ourselves and our stakeholders.

Since 2021, our business portfolio has been split into **three segments** that encompass the **following activities:**

- The **Smart Infrastructure for Customers** segment comprises the sale of electricity and gas, the provision and expansion of quick-charging infrastructure and digital solutions for electromobility, activities in the telecommunications sector and static storage systems in conjunction with photovoltaics.
- The transmission and distribution of electricity and gas are the main components of the **System Critical Infrastructure segment.** Our activities in this segment are designed to guarantee the security of supply and system stability. The provision of grid-related services and the supply of water are other activities in this segment.
- The **Sustainable Generation Infrastructure** segment encompasses our activities in the areas of renewable energies and conventional generation, district heating, waste management and energy services. In order to guarantee the security of supply, we maintain the power plants that have been transferred to the grid reserve. In addition, this segment includes the storage of gas and trading of electricity, gas, CO_2 allowances and fuels, as well as the direct distribution of renewable energy power plants.

The main goal of our **EnBW 2025 strategy** is to develop a balanced and diversified business portfolio along the entire value added chain via these three growth fields. Our portfolio is also characterized by a high proportion of stable, regulated business and an attractive risk-return profile. In addition, we are using our core expertise to exploit new business areas – also outside of the energy sector and in selected markets abroad. You can find more about the EnBW 2025 strategy in the chapter “Strategy, goals and performance management system” from p. 33↗.

The themes of **sustainability and climate protection** continue to be issues of intense public interest and will also influence social acceptance for our business activities to a greater extent in future. We have set ourselves the goal of continuing to develop our business model in line with the economic, ecological and social dimensions of sustainability. As an energy company, we can make a particularly effective contribution to climate protection. In the Group, we aspire to reduce our greenhouse gas emissions by 70% by 2030 and become climate neutral with respect to our own emissions (Scope 1 and 2) (p. 36 f.↗) by the end of 2035 at the latest.

We believe that **digitalization** is an important basis for sustainable growth, profitability and competitiveness. In our digitalization agenda 2030, we are intensifying our activities in this area and developing other initiatives, some of which reach across the whole Group. Our focus lies on the digital evolution of the business, developing skills and supporting our sustainability activities (examples can be found on p. 46↗, 54 f.↗, 57↗, 69↗, 79↗, 91 f.↗, 94 ff.↗ and 104 ff.↗).

Our company's **business model** has proved itself to be **robust and flexible** during the current crises. The reliable supply of electricity, gas, water and heating to our customers was not at risk at any time. Furthermore, reliable infrastructure has become an increasingly important issue in the social consciousness.

Our **portfolio** has also proved itself to be fundamentally **stable** in crisis situations. Our integrated approach thus enabled us to compensate for varying developments in different business fields in the 2022 financial year. Further information on the impact of the economic situation on our business can be found in the chapter "General conditions" from p. 62↗ onwards.

Assessment of the robustness of our business model against the background of climate change

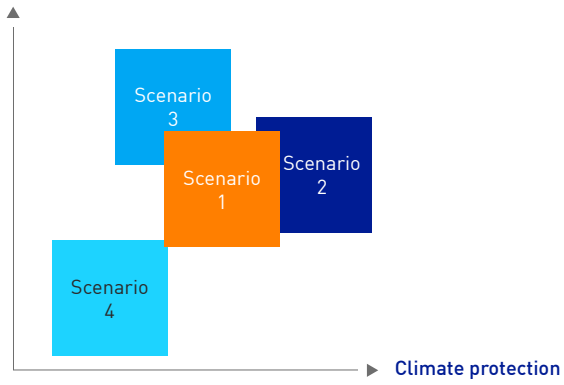
We analyze the robustness of our business model now with an increasing focus on climate change due to the growing importance of climate-related risks and the recommendations issued by the Task Force on Climate-related Financial Disclosures (TCFD). Our strategic considerations take into account the requirements of the energy transition and the profound changes that will take place due to the transformation towards climate neutrality with the effects they will have on all business sectors and private households. We place a particular focus on the expansion of renewable energies, electricity consumption, the expansion of the grids, grid stability and the security of supply. In this context, we examine the requirements with respect to climate protection, possible implementation paths and the implications for the EnBW business. Accordingly, a main component of our analyses of energy industry conditions is **evaluating the different ways in which the energy transition and the transformation to climate neutrality** could possibly develop. This acts as an important basis for assessing the opportunities and risks for our business (p. 137 f.↗) that will arise due to climate change and the dynamic regulatory environment associated with it.

In order to evaluate these opportunities and risks, we use real developments to derive **realistic future scenarios that take into account all of the different aspects of the energy transition.** These scenarios are primarily characterized by two dimensions. The **first dimension** is climate protection and encompasses our transformation to a climate-neutral company with its impact on all of the variables influencing the energy industry. It is thus of crucial importance for our business, as well as for the opportunities and risks along the entire value added chain. The sustainable economic growth that is achievable in the long term is the **second dimension.** The level of growth that can be achieved in the long term will also have an impact on key variables such as the demand for electricity or commodity prices.

In the space defined by these dimensions, we describe **four scenarios that are particularly relevant to EnBW.** We fundamentally believe that we will achieve our goal of becoming a climate-neutral company. However, the speed at which this transformation can be implemented differs in the various scenarios. Two scenarios assume "normal" economic growth within the scope of so-called potential growth (scenarios 1 and 2). In scenario 2, the climate targets defined in the EU Green Deal will be largely achieved within the defined time span up to the middle of the century. In scenario 1, there will be a slight delay in achieving the goal of climate neutrality because it will not be possible to comprehensively solve the practical challenges associated with the implementation of the energy

transition. In addition, we describe two other scenarios in which there is a long-term, permanent deviation in economic development that lies outside the scope of potential growth. In scenario 3, it is assumed that a higher priority will be assigned by society and politics to short and medium-term economic growth than to the quick implementation of a transformation towards climate change mitigation. Greater growth will thus be achieved during the period under consideration. In contrast, a period characterized by ongoing crises and weaker economic growth is assumed in scenario 4. In this scenario, the transformation to climate neutrality will be achieved at the slowest pace because the opportunities to secure the required investment in a timely manner will be significantly restricted.

Energy industry scenarios for EnBW



Within the scenarios, **variables** that have different characteristics depending on the scenario in question determine how the energy market develops. These include assumptions on the development of demand, the restructuring of the power plants as part of the phaseout of coal and the full decarbonization of electricity generation (scenario 1), the development of the transmission grids, and the prices and pricing structures for fuels. In addition, estimates about relevant market trends, such as in the area of renewable energies, electromobility or the development of a hydrogen market, play an important role. Based on the assumptions made for specific variables, possible paths for how the energy markets (especially electricity and gas) will develop in the long term are derived for the four scenarios. In the process, we predict the wholesale market prices for electricity in simulated calculations using computer models. These simulations also take into account physical risks, such as the influence meteorological fluctuations may have on the electricity market due to the availability of wind and sunlight, and thus make it possible to incorporate possible changes to the physical environment due to climate change into the calculations. The scenarios produced in this way can provide us with quantitative descriptions that serve as the basis for assessing our business and, in particular, also allow us to evaluate the opportunities and risks associated with climate change.

Value added

Value added for EnBW and its stakeholders

The aim of our corporate activities is to add value in the short, medium and long term. This reflects corporate success, as well as competitiveness and future viability, and does not only depend on the company itself but also on the business environment, relationships with stakeholders (p. 47 ff.↗) and the application of a variety of different resources. As a result of the efficient usage of these resources, we create value for ourselves and our stakeholders. We associate the concept of sustainable economic development with our aspiration to conduct all of our business activities in a responsible way. In the 2022 financial year, we revised the presentation of value added to make it more meaningful and have added further information at the end of the diagram.

Value added 2022 for EnBW and its stakeholders

Input: Resources

Finance	Relationships	Employees and expertise	Environment	Infrastructure
Solid financial structure Non-current assets €33.6 billion Equity €12.7 billion	Stakeholders as the central focus Procurement volume around €6.5 billion	People as the main focus Employees at the Group 26,980	Use of natural resources Total investment / of which RE €3,162.8 million / €631.7 million Total final energy consumption / of which RE 1,072 GWh / 20.2%	Sustainable infrastructure partner Grid lengths [1] Electricity 147,000 km Gas 27,000 km Installed output / of which RE 13,066 MW / 41.7%

Business model

Smart Infrastructure for Customers

System Critical Infrastructure

Sustainable Generation Infrastructure

Output: Value added

Finance	Relationships	Employees and expertise	Environment	Infrastructure
TOP Adjusted EBITDA €3.3 billion TOP Debt repayment potential 23.4% TOP Value spread 1.1%	TOP Customer Satisfaction Index 139 / 166 TOP Reputation Index 58	TOP People Engagement Index 81 TOP LTIF for companies controlled by the Group / overall 2.6 / 4.1	TOP Installed output of RE and share of generation capacity accounted for by RE 5.4 GW / 41.7% TOP CO_2 intensity 491 g / kWh	TOP SAIDI Electricity 16.6 min. / a Transmission volumes [1] Electricity 59,100 GWh Gas 29,400 GWh Own generation / of which RE 42,084 GWh / 27.9%

Contribution to sustainability

Economy

- Securing **profitability,** managing the **financial profile** and increasing **Group value**
- Developing **sustainable, innovative services**
- Integrating sustainability criteria into the **investment approval process**

Ecology

- Expansion of **renewable energies, grids and charging infrastructure**
- Planned **gradual phaseout of coal by 2028**
- **Climate neutral** with respect to Scope 1 and 2 by 2035
- Testing and certification of the Paris-aligned climate protection targets in all Scopes (1–3) by the **Science Based Targets initiative (SBTi)**
- Transformation of the natural gas business towards **climate-neutral gases** (biogas, hydrogen)

Society and social

- Guaranteeing the **security of supply**
- **Sustainable purchasing** and **responsible raw materials procurement**
- **People as the main focus** – diversity, qualifications, leadership and skills
- Assuming our **social responsibility**

1 In System Critical Infrastructure segment.

As of the 2022 financial year, we present how EnBW adds value and how we use our resources to this end by means of our key performance indicators (p. 39 ff.↗) and other selected performance indicators.

With respect to the resource **finances,** it is critically important that we maintain a solid financial structure at all times so that we can finance our business activities. Sustainable financing instruments are playing an increasingly important role in this area (p. 38↗). The value we generate for ourselves and our main stakeholders is presented in our value added statement (p. 28↗).

An important factor for the resource **relationships** is building customer loyalty to strengthen trust in EnBW as a partner and supplier. Active dialog with stakeholders builds trust and social acceptance (p. 47↗). We generate value in this area by engaging in social issues relevant to our various target groups.

Always having the right **employees** with the right **expertise** in the right place is a key focus of the HR policy. Expertise, experience and diversity contribute to the success of the company (p. 105 ff.↗). We also engage in a range of research and development activities to identify market opportunities and trends and develop innovative products (p. 51 ff.↗). We also create room for personal development, offer apprenticeships and courses for students, run a multi-stage career integration program for refugees and migrants and are active in the area of diversity (p. 106↗).

With respect to the **environment,** we generate energy using the natural resources wind, water, sun, biomass and geothermal energy. We generate value in this area by improving our carbon footprint, expanding our renewable energy power plants and connecting them to the grid, developing energy efficient products and ensuring that we engage in sustainable and responsible procurement (p. 96 ff.↗).

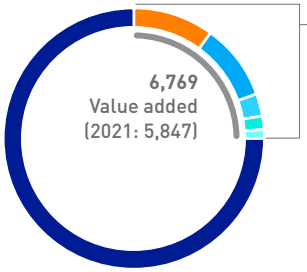
Our resources related to **infrastructure** comprise the expansion and operation of power plants, grids and gas storage facilities. Furthermore, we are continuing to expand our quick-charging infrastructure and the telecommunications and broadband business (p. 93 f.↗). EnBW mainly generates value here by pushing forward the energy and mobility transition.

Value added statement

The value added statement indicates the degree to which we contribute to the continuing economic development of the company and our stakeholders using our financial resources. Further information on the dialog with our stakeholders is summarized in the chapter "In dialog with our stakeholders" (p. 47 ff.↗).

Value added of the EnBW Group

Output: value
in € million[1]



55,859 Suppliers and service providers: material and other operational expenditure[2]
(2021: 28,962)

62,627 Cash-relevant business performance
(2021: 34,809)

Use of value added

	2022	2021
Active and former employees: primarily wages and salaries	39%	42%
EnBW Group: retained cash flow	37%	31%
State: taxes	11%	13%
Shareholders: dividends	8%	9%
Outside investors: interest	5%	5%

1 The figures for the previous year have been restated.
2 Includes interest and dividends received, as well as the dedicated financial assets contribution.

We define value added as our cash-relevant business performance in the past financial year less cash-relevant expenses (suppliers and service providers). The value added is derived from the cash flow statement and corrected based on the use of funds. In the reporting year, we generated value added of 10.8% (previous year: 16.8%). This decrease was mainly due to the fact that the increase in cash-relevant cost of materials exceeded the increase in cash-relevant business performance. As well as being used in the form of wages, salaries and pension payments for active and former employees, a further share is dedicated to payments to the state in the form of income taxes and electricity and energy taxes. After consideration of other stakeholder groups, the retained cash flow is available to the company for future investments without the need to raise additional debt (p. 87↗).

Our operating segments

Using the materiality analysis process that we describe in detail on p. 47 f.↗, we identified the material events of the 2022 financial year. These are shown in the following diagram allocated to our three segments.

Overview of the segments

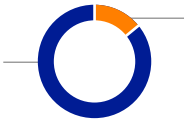
Smart Infrastructure for Customers

Significant events in 2022

- E-mobility growth strategy continued with the construction of additional quick-charging parks, new cooperations for the expansion of the charging infrastructure and the EnBW HyperNetwork (p. 93↗)
- Various test results, including the magazine Stiftung Warentest, confirm EnBW's leading position in the area of e-mobility (p. 93↗)
- Resolute ongoing expansion of the fiber-optic network (p. 94 f.↗)

Sales in 2022

163,100 GWh gas (B2C / B2B)



36,700 GWh electricity (B2C / B2B)

Number of B2C and B2B customers in 2022

Around **5.5** million

Key figures in 2022

5,401 employees (as of 31/12/2022)	**€510.2 million** adjusted EBITDA
€340.7 million investment	**15.5%** share of adjusted EBITDA

Development of adjusted EBITDA
in € billion

2022	Target for 2025
0.5	0.6

System Critical Infrastructure

Significant events in 2022

- Triggered discussions on the market about capital partnership in the transmission grid operator TransnetBW (p. 33↗)
- Progress made in the approval processes for the ULTRANET and SuedLink projects (p. 69↗)
- Start of a comprehensive expansion and renewal program for the distribution grids at Netze BW (p. 96↗)
- Growth in the area of grid-related services (p. 94↗)
- Expansion of the gas transport capacities in Baden-Württemberg through the commissioning of the Neckar-Enz Valley pipeline (p. 69↗)

Grid lengths in 2022

147,000 km Electricity transmission and distribution grid

27,000 km Gas transmission and distribution grid

Transmission volumes in 2022

Electricity	59,100 GWh
Gas	29,400 GWh

Key figures in 2022

11,485 employees (as of 31/12/2022)	**€1,046.0 million** adjusted EBITDA
€1,898.7 million investment	**31.8%** share of adjusted EBITDA

Development of adjusted EBITDA
in € billion

2022	Target for 2025
1.0	1.3

Sustainable Generation Infrastructure

Significant events in 2022

- Bid accepted for the rights to build an offshore wind farm together with bp (p. 34 and 71↗)
- Conclusion of long-term power purchase agreements for the He Dreiht offshore wind farm
- Commissioning of the two solar parks Gottesgabe and Alttrebbin (p. 97↗)
- Award of contracts for hydrogen-ready gas and steam turbine power plants for the implementation of the fuel switch projects (p. 37↗)
- Conclusion of various agreements and supply contracts for liquefied natural gas (LNG) (p. 61↗)
- Preparations for the continued operation of the GKN II nuclear power plant until it is decommissioned on 15 April 2023 (p. 73↗)

Installed output in 2022

42% share accounted for by renewable energies

Generation portfolio in 2022 [1]

Electricity generation	42,000 GWh
Installed output	13,048 MW

Key figures in 2022

7,151 employees (as of 31/12/2022)	**€1,934.8 million** adjusted EBITDA
€859.6 million investment	**58.9%** share of adjusted EBITDA

Development of adjusted EBITDA
in € billion

2022	Target for 2025
1.9	1.3

Important cross-segment events in 2022

- Successful stabilization at VNG: capital increase and agreement with the German government on the risks associated with replacement procurement for lost Russian gas deliveries (p. 64↗)

1 The values stated for electricity generation and installed output are not identical to the totals for the EnBW Group. Several power plants are allocated to the other two segments. The total generation of the EnBW Group is 42,084 GWh (excluding positive redispatch volumes), of which 11,744 GWh is generated from renewable energy sources. The total installed output of the EnBW Group is 13,066 MW, of which 5,444 MW is from renewable energy power plants. The totals for generation and installed output for the Group are shown in detail on p. 97↗.

Group structure and business radius

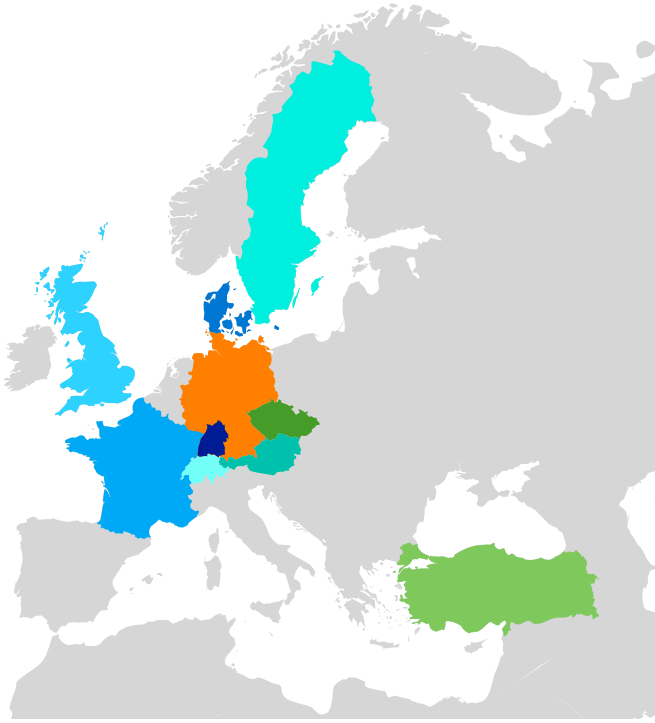
EnBW is organized according to the model of an integrated company. EnBW AG is managed through business units and functional units: Core operating activities along the entire energy industry value chain are concentrated in the business units. The functional units carry out Group-wide support and governance tasks. The EnBW Group consists of EnBW AG as the parent company and 235 fully consolidated companies, 26 companies accounted for using the equity method and 3 joint operations. Further information on the organizational structure can be found in the chapter "Corporate governance" under "Management and supervision" on p. 43 ff.↗.

Baden-Württemberg, Germany and Europe

Further information on **selected companies of EnBW AG** can be found under the following link.

Online ↗

Selected EnBW companies



Baden-Württemberg
EnBW Energie Baden-Württemberg AG, Karlsruhe
EnBW mobility+ AG & Co. KG, Karlsruhe
EnBW Ostwürttemberg DonauRies AG, Ellwangen
Erdgas Südwest GmbH, Karlsruhe
GasVersorgung Süddeutschland GmbH, Stuttgart
NetCom BW GmbH, Ellwangen
Netze BW GmbH, Stuttgart
terranets bw GmbH, Stuttgart
TransnetBW GmbH, Stuttgart
ZEAG Energie AG, Heilbronn

Germany
ONTRAS Gastransport GmbH, Leipzig
Plusnet GmbH, Cologne
SENEC GmbH, Leipzig
Stadtwerke Düsseldorf AG, Düsseldorf
VNG AG, Leipzig
Yello Strom GmbH, Cologne

Denmark
Connected Wind Services A/S, Balle

France
Valeco SAS, Montpellier

Great Britain
Mona Offshore Wind Holdings Limited, Sunbury-on-Thames[1]
Morgan Offshore Wind Holdings Limited, Sunbury-on-Thames[1]
Morven Offshore Wind Holdings Limited, Sunbury-on-Thames[1]

Austria
SMATRICS EnBW GmbH, Vienna

Sweden
EnBW Sverige AB, Falkenberg

Switzerland
Energiedienst Holding AG, Laufenburg

Czech Republic
Pražská energetika a.s., Prague

Turkey
Borusan EnBW Enerji yatırımları ve Üretim A.S., Istanbul[1]

1 Not fully consolidated, accounted for using the equity method.

The full list of shareholdings can be found in the notes to the consolidated financial statements under (38) "Additional disclosures."

Our roots lie in Baden-Württemberg, where we are positioned as a market leader. We rely here on EnBW AG, Netze BW and a series of other important subsidiaries.

We also operate throughout the rest of Germany and in selected markets abroad via our various subsidiaries. We are pushing forward the **expansion of renewable energies** through Valeco, the French project developer and operator of wind farms and solar parks. We are represented by our subsidiaries Connected Wind Services (CWS) in Denmark and EnBW Sverige in Sweden. In Turkey, we work together in the renewable energies sector with our partner Borusan. In Great Britain, we have secured the rights to build several offshore wind farms together with our partner bp. Following our success in the auction for offshore wind rights off the coast of New York at the end of February 2022, we sold our offshore activities in the USA to our former partner TotalEnergies. Our main focus will now be placed on growth opportunities in Europe. Future engagement in this area will be regularly examined and evaluated against this background.

The companies Energiedienst (ED) in Switzerland and Pražská energetika (PRE) in the Czech Republic, in both of which EnBW has held participating interests for many years, also have a strong focus on renewable energies. We are actively engaged in **the operation of the charging infrastructure and provide a range of products and services necessary for electromobility** in many European countries through our subsidiary EnBW mobility+. We are the market leader for quick charging in Germany and are now also expanding onto the Austrian market with SMATRICS EnBW. Our subsidiary SENEC, based in Leipzig, offers holistic energy solutions for customers to meet their own energy needs using solar electricity and home storage. We further expanded our portfolio in the **broadband business** across Germany with the telecommunications company Plusnet based in Cologne. Our subsidiary NetCom BW has its main focus in this sector in Baden-Württemberg.

Click on the respective logos to access the websites of our **most important subsidiaries.**

Our **most important participating interests** in relation to the value added chain include the following groups of companies:

Energiedienst (ED), based in Laufenberg, Switzerland, has around 1,100 employees and is an ecologically oriented German-Swiss listed company with various subsidiaries that is active in South Baden and Switzerland. ED exclusively generates green electricity, primarily using hydropower, and has already been climate neutral since 2020. Alongside the production, sale and supply of electricity, this group of companies offers its customers smart, networked products and services, including photovoltaic plants, heat pumps, electricity storage systems, electromobility and e-car sharing.

Pražská energetika (PRE), based in Prague, Czech Republic, has around 1,700 employees and its core business activities include the sale of electricity and gas, the distribution of electricity in Prague and Roztoky, the generation of electricity from renewable energies, the operation and expansion of fiber-optic infrastructure, the expansion of the charging infrastructure for electromobility and the provision of energy services. PRE is the third-largest electricity supplier in the Czech Republic. As part of its activities, PRE promotes the use of modern technological solutions and advises on the implementation of innovative technologies and achieving energy savings.

Stadtwerke Düsseldorf (SWD) is one of the largest municipal energy supply companies in Germany. It has around 3,200 employees and SWD and the companies in which it holds a majority shareholding supply customers in Düsseldorf and the surrounding region with electricity, natural gas, district heating and drinking water, as well as being responsible for waste disposal and street cleaning services in the metropolitan area of Düsseldorf. In addition, the company's focus is placed on the needs-based development of networked urban infrastructures in the areas of energy, mobility, the circular economy and real estate. SWD is supporting the state capital of North-Rhine Westphalia to achieve its target of becoming climate neutral by 2035.

VNG is based in Leipzig and has around 1,500 employees. It is a corporate group with more than 20 companies in Germany and Europe and has a broad portfolio of services in the gas and infrastructure sectors. VNG concentrates on its four business areas of Trading and Sales, Transport, Storage and Biogas. Using this core expertise as a basis, VNG is increasingly placing its focus on new business fields, such as green gases and digital infrastructures. The VNG subsidiary ONTRAS operates and markets the second-largest German gas transmission grid as an independent transmission system operator, while VNG Gasspeicher is Germany's third-largest gas storage operator.

Customers and sales brands

We supply **around 5.5 million customers** with energy and differentiate between two customer groups: The B2C customer group includes retail customers, small commercial enterprises, the housing industry and agriculture. The B2B customer group encompasses major commercial enterprises and industrial companies, as well as redistributors, municipal utilities, local authorities and public entities.

We use our sales brands to orient ourselves to the needs of our customers. In the B2C sector, we sell green electricity, electricity, gas, district heating, energy industry services, energy solutions and drinking water under the **EnBW brand.** These products and services focus on Baden-Württemberg. We sell green electricity and gas products, as well as solutions and digital services related to energy, to retail and commercial customers throughout Germany through the **Yello brand.**

We are also represented in the B2B sector via our subsidiaries through the **GVS brand** and in the B2C and B2B sectors through the **Erdgas Südwest, ODR** and **ZEAG brands.**

Under the **NaturEnergie brand,** Energiedienst (ED) sells green electricity across Germany and gas to retail customers in South Baden. In addition, ED also offers many other sustainable products and services through this brand in the areas of heating, living, photovoltaics and mobility – from solar power plants and e-car sharing services through to heating concepts for districts. In Switzerland, the ED Group provides electricity to business customers. PRE sells electricity, gas and energy services to retail and commercial customers in Prague and the surrounding region under the **PRE brand.** PRE also supplies electricity, gas and energy services to industrial customers across the Czech Republic under the PRE brand. Electricity and gas are sold in the Czech Republic under the **Yello brand,** primarily via online channels to households and commercial customers. SWD supplies retail and commercial customers in the B2C sector and business and industrial customers in the B2B sector with electricity, gas, heating, energy solutions and drinking water under the **Stadtwerke Düsseldorf brand.** The sales focus is placed here on Düsseldorf and the local region. VNG supplies domestic and foreign trading companies, redistributors, public utilities and large industrial customers with gas under the **VNG brand.** Via its subsidiaries in Germany and Austria, VNG sells gas and electricity – especially to private households, commercial customers and property management companies – under the **goldgas brand.**

Strategy, goals and performance management system

Strategy

Sustainable and innovative infrastructure partner

Our **EnBW 2025 strategy** has the motto "Making and shaping the infrastructure world of tomorrow" and is based on a holistic approach to stakeholders. It defines specific financial and non-financial targets in the dimensions of finance, strategy, customers and society, environment and employees. We have made sustainability an integral part of our corporate strategy because we want to ensure that we create economic, ecological and social added value for our stakeholders.

Our EnBW 2025 strategy increasingly places the company's focus onto the infrastructure aspects of existing energy-related business fields and utilizing our core expertise to exploit new growth opportunities above and beyond the energy sector. Our core expertise – what we do well and do better than many others – lies in the safe and reliable construction, operation and management of critical infrastructure in the energy sector, such as the generation of energy or the distribution of energy by our grid subsidiaries. This can also be transferred to other **business fields related to infrastructure.** One example of this type of business field is our broadband business in which we have made major progress by winning various large contracts. We are also involved in the expansion of urban infrastructure. As we understand it, urban infrastructure concerns, for example, the smart networking of energy and heating supplies, telecommunications and mobility. Another new business field is the development of passive mobile phone infrastructure (such as radio towers), whereby we are actively working to improve mobile phone coverage in Baden-Württemberg using, for example, 5G technology.

Our strategy and its diversified approach along the value added chain has demonstrated its resilience in times of crisis. The war between Russia and Ukraine, high volatility on the markets and the possibility of further regulatory interventions on the market increase the level of uncertainty with which predictions about the future development of the company can be made. Therefore, we continuously monitor and evaluate conditions with respect to their possible impact on our business. We remain committed to our overarching strategic alignment as an infrastructure provider, even more so because of its robustness in times of crisis, and are currently working on a continuation of the corporate strategy with a focus on the period up to 2030.

We are following these **strategic goals** in our three segments:

In the **Smart Infrastructure for Customers** segment, we are transferring our core skills to new, often digital business models. In the next few years, we will mainly focus on the growth areas of electromobility, telecommunications and broadband, as well as on photovoltaics and energy storage systems. Our aim is to further expand our quick-charging infrastructure to at least 2,500 sites by 2025, in order to promote electromobility and thus maintain our position as the market leader in this sector. In the telecommunications and broadband business, we are expanding our infrastructure, increasing our range of services and striving to secure a strong position on our market. We also want our subsidiary SENEC to be one of the leading suppliers on the German home electricity storage market for solar electricity. And in the area of B2C sales for electricity and gas, we will continue to rely on digitalization and make improvements in our cost efficiency.

In the **System Critical Infrastructure** segment, our grid subsidiaries for electricity and gas will further expand the transmission grids into an important cornerstone of our earnings alongside the distribution grids. At TransnetBW, our aim is to secure two long-term financial partners with minority shareholdings of 24.95% each. In addition, our grid companies will upgrade the electricity distribution grids so that they are ready to meet the challenges of the future and ensure they are prepared for the demands that will be placed on them by electromobility and the decentralized feed-in of energy. The "EnBW connects" participation model gives local authorities the opportunity to invest in our distribution grids. As part of the decarbonization of the gas sector, our grid companies are preparing their grid infrastructure for the use of climate-neutral gases in the future, such as green hydrogen.

Renewable energies and flexible power plants will dominate the **Sustainable Generation Infrastructure** segment. The expansion of renewable energies will cover further selective internationalization and the realization of projects without state funding. The generation capacity of our wind power plants is due to increase to 4.0 GW by 2025 and our portfolio of photovoltaic projects to 1.2 GW. In addition, EnBW and bp plan to build three offshore wind farms through joint ventures that will have a total capacity of 5.9 GW and lie off the coast of Great Britain. They will be placed into operation from 2028. In the gas business, we want to further strengthen our strong position, especially in the area of climate-neutral gases. In the area of coal-based conventional generation, we have defined a plan to phase out coal by 2028 that is based on the assumption that renewable energies will be ramped up as forecast in the plans announced by the German government. As a replacement for our coal power plants and to secure our portfolio of renewable energies, we decided in 2022 to construct gas power plants that could also be operated using hydrogen in the future (H_2-ready). After the amended German Atomic Power Act came into force in December 2022, we carried out preparations at Block II of the Neckarwestheim nuclear power plant so that it can continue to generate electricity until 15 April 2023. We are adapting our trading activities to the changes in our generation portfolio and the energy markets and further strengthening our market position with a focus on Europe.

We planned to use this portfolio to increase our **adjusted EBITDA** to €3.2 billion by 2025 in accordance with our EnBW 2025 strategy. It was already possible to achieve this target in the 2022 financial year and in our current plans we now also expect to exceed this earnings target (p. 128↗).

As part of our EnBW 2025 strategy, we planned **net investment** of around €12 billion in total between 2021 and 2025, of which 80% is intended for growth projects. Based on our current plans, we are expecting that our investment will be higher at around €14 billion. This is due to, amongst other things, a faster energy transition and the rise in inflation (p. 127 f.↗). The main focus of this investment will be the expansion of the grids, especially the central SuedLink and ULTRANET projects of our grid subsidiary TransnetBW for the future energy supply in Germany, the expansion of renewable energies, such as the planned realization of the EnBW He Dreiht offshore wind farm and the construction of H2-ready gas power plants in Altbach/Deizisau, Stuttgart-Münster and Heilbronn, and further developments in the Smart Infrastructure for Customers segment: for example, in the areas of broadband, telecommunications and electromobility. Since the 2021 financial year, we now also take sustainability aspects into account, alongside economic and strategic factors, when assessing our investment projects (p. 41 f.↗). In the future, we will align our investment decisions even more consistently to sustainability criteria and align our growth accordingly (p. 85 f.↗).

EnBW Sustainability Agenda

More detailed information on the **Sustainability Agenda** can be found on our website.

Online ↗

Sustainability is closely linked to the core business at EnBW and has thus been consistently taken into account in the development of the company for many years. Our long-term business success is oriented towards achieving economic, ecological and social goals. In 2022, we began the **implementation of the EnBW Sustainability Agenda.** This was developed in a multistage process that incorporated both our stakeholder groups and also our corporate values. The **15 measures** developed as part of the EnBW Sustainability Agenda will make an important contribution to the long-term success of our business and anchor sustainability in our activities and solutions. They will thus make a noticeable contribution to value added and help to minimize the risks facing our company. We have classified these measures according to **four strategic themes:**

Strategic themes and measures for the EnBW Sustainability Agenda

New energy and climate neutrality

1. **Expansion of renewable energies, taking biodiversity criteria** into account in major projects
2. **Climate-neutrality road map** and **socially responsible coal phaseout**
3. Further development towards becoming a **system partner for hydrogen provision and infrastructure**

Infrastructure transition

4. **Eco-efficient quick-charging parks** and **climate-neutral corporate mobility**
5. Strengthening the **grid infrastructure for the energy and mobility transitions**
6. **Sustainable districts** and **real estate**
7. Promoting forms of working and mobility that are ready for the future by **laying new fiber-optic cables in rural areas**

Culture of sustainability

8. **Board of Management** and **management remuneration** aligned to **sustainability criteria**
9. **Expanding** the area of **sustainable finance, financing** via **green bonds**
10. Holistic **consideration** of **sustainability in the investment process**
11. **Expanding our evaluation of risks and opportunities** to include **climate risks**
12. Expanding the **sustainable HR strategy**

Protecting the natural environment

13. Anchoring **sustainability criteria in purchasing**
14. Increasing the **use of green materials and the efficient use of resources,** reducing **harmful emissions** and **water consumption**
15. **Protection** of **employees** and **local residents**

We made some important progress in the implementation of these 15 measures in the 2022 financial year. Here are some **selected examples for each of the strategic themes:**

- **New energy and climate neutrality:** EnBW is rethinking and redesigning energy generation to forge the path to climate neutrality, which is the focus of **measure 2** (p. 36 ff.↗). As part of **measure 3,** we are strengthening various aspects of EnBW en route to it becoming a pioneer in all market segments for climate-neutral gases. EnBW, including its subsidiaries such as Netze BW and VNG, is engaged in several hydrogen projects along the entire value added chain. EnBW is realizing fuel switch projects, including the planned fuel switch at the EnBW combined heat and power plant in Stuttgart-Münster. Instead of coal, this power plant will use natural gas as a bridging technology to generate electricity in the future. The current plans for the power plant already envisage the use of hydrogen instead of natural gas at a later date (p. 37↗). In addition, VNG is using an integrated approach to investigate the generation, storage, distribution and use of green hydrogen in the "Energy Park Bad Lauchstädt" innovation project in Central Germany (p. 52↗).
- **Infrastructure transition:** Strengthening grid infrastructure for the energy and mobility transition is the main focus of **measure 5** and thus also of the activities of our grid subsidiaries TransnetBW and Netze BW. The decentralization of electricity generation and the ramping up of electromobility have posed challenges for us that we are addressing with forward-looking planning and investment in the development of smart technical solutions. **Measure 6** addresses both EnBW's own real estate and also the development of sustainable districts for third parties. Our aim is to make our own property portfolio climate neutral by 2035. To this end, we developed a road map in 2022 that lays out the measures required to reduce CO_2 emissions. In the area of sustainable districts, we provide energy infrastructure services and other building-related services for project developers, investors and local authorities. For example, we have developed an innovative concept that is emission-free at a local level for the "Scharnhausen West industrial park" in Ostfildern (p. 95↗).

- **Culture of sustainability: Measure 9** is designed to strengthen the area of sustainable finance. In November 2022, we successfully issued two green bonds, each with a volume of €500 million. For the first time, the funds from a green bond will be used for the expansion and refinancing of the electricity distribution grids in Baden-Württemberg. Our subsidiary Netze BW is responsible for the expansion of these grids (p. 38↗). Furthermore, EnBW is represented in expert groups such as the Task Force on Climate-related Financial Disclosures (TCFD) – an initiative established by the Financial Stability Board – and the Sustainable Finance Committee of the German Federal Government.
- **Protecting the natural environment:** Sustainable supply chains are the main focus of **measure 13.** In the "LkSG Ready" project, representatives from the sustainability, purchasing and compliance departments at EnBW AG are preparing for the requirements stipulated in the Supply Chain Due Diligence Act (LkSG) that came into force on 1 January 2023. We have also been working together with other companies in the energy industry to establish an "Energy Sector Dialog," which will be held in 2023. The aim is to draft guidelines for action with respect to human rights due diligence in the energy industry and support companies in their implementation (p. 57↗).

The EnBW Sustainability Agenda will be supported by a **comprehensive governance structure** that monitors the implementation of the agenda using performance indicators. These can be adjusted for certain measures if necessary.

Our climate protection goals

Learn more about our **Sustainability Agenda** here.

Online ↗

Two key elements of the **EnBW Sustainability Agenda** are compliance with science-based targets and the achievement of our goal of climate neutrality. Our goals for reducing greenhouse gas emissions along the value added chain are aligned with these aims.

Science Based Targets initiative (SBTi)

Further information on **SBTi** can be found here.

Online ↗

The Science Based Targets initiative (SBTi) helps companies to develop their own science-based climate protection targets. In October 2021, EnBW announced its intention to set **science-based targets** according to the SBTi. This process is due to be concluded in spring 2023. EnBW will then have reduction targets that are in line with the Paris Agreement. These reduction targets cover the entire value added chain for EnBW and are split into three emission categories or so-called Scopes: Scopes 1 and 2 include , in particular, the greenhouse gas emissions produced by our power plants as they generate electricity and heat, and when energy is distributed in the grids operated by our subsidiaries. Our Scope 3 emissions are mainly influenced by the gas consumption of our customers (p. 99 f.↗). We aim to follow a 1.5 degree-aligned path for Scopes 1 and 2 emissions and a well below 2 degrees-aligned path for Scope 3 emissions.

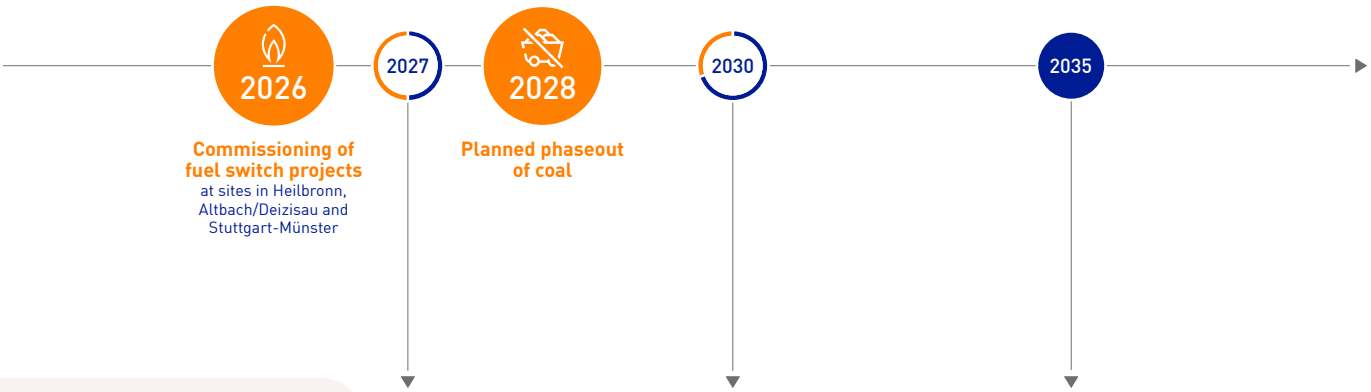
As an integrated energy company with its own generation portfolio – which is increasingly characterized by renewable energies – we can make an important contribution to decarbonization and thus to safeguarding the livelihoods of future generations.

Measures

Our climate targets **are in line with the requirements and targets of the Paris Agreement.** They should also strike a balance between the different expectations of our stakeholders, with whom we remain in constant dialog. This includes above all the provision of affordable and climate-friendly energy and ensuring the security of supply. Even before the Coal Phaseout Act, we voluntarily divested ourselves of 2,700 MW of particularly carbon-intensive generation. Guaranteeing the security of supply has been made more difficult by the war between Russia and Ukraine and the energy crisis, which have also led to an increase in conventional generation and thus to higher CO_2 emissions. We expect the energy market will normalize in the medium term and this will enable us to gradually realize our reduction path. We have already implemented suitable human resources measures such as further training and forward-looking human resources planning for employees working in conventional generation. Some employees from the area of conventional generation are already bringing their technical expertise to other areas of the company, such as at our offshore wind turbines.

The most important step for achieving our climate protection goals is the early phaseout of coal. Based on the assumption that renewable energies will be ramped up as forecast in the plans announced by the German government, we aim to phase out coal at EnBW by 2028 and will enter into the necessary discussions on how to achieve this.

Our climate protection goals



	2027	2030	2035
Goals	• Reduction in emissions[1] by **50%**	• Reduction in emissions[1] by **70%**	• **Climate neutral** in Scope 1 and 2[2]
Measures	**2020 to 2027** • **Planning and implementing the fuel switch to climate friendlier fuels, use of green electricity at the sites in Heilbronn, Altbach/Deizisau and Stuttgart-Münster** • **Decommissioning the remaining coal power plant capacities of around 2 GW** • Climate neutrality at individual companies, such as Energiedienst (since 2020) and Netze BW (since 2021)	**2027 to 2030** • **Planned phaseout of coal by 2028** • **Concluding the fuel switch at the power plant sites in Heilbronn, Altbach/Deizisau and Stuttgart-Münster** • Making our gas power plants H_2-ready • Increasing the proportion of renewable electricity supply in the grid business • Preparing to switch over our gas power plants to hydrogen	**2030 to 2035** • **Using green gases (hydrogen) in our power plants** • High proportion of renewable electricity supply in the grid business • Supporting the ramp-up of hydrogen in the heating sector • Offsetting the remaining CO_2 emissions with recognized climate mitigation projects

1 Reduction in Scope 1 and 2 emissions compared to the reference year 2018.
2 Achievement of our climate protection targets in line with the 1.5 degree path of the Paris Agreement.

Milestones

Scope 1 and 2: emissions in our value added chain

An important milestone for significantly reducing our CO_2 emissions will be the fuel switch at the power plants in Heilbronn, Altbach-/Deizisau and Stuttgart-Münster. The conversion work at the plants is already underway and is due to be completed in 2026. The aim is to operate the plants from the middle of the 2030s onwards with climate-neutral gases, primarily green hydrogen, so that they will then generate climate neutral energy. EnBW plans to phase out its remaining power plants with around 2,000 MW of generation capacity by 2028.

Various measures will be required to reduce our indirect emissions from purchased or acquired energy (Scope 2). The CO_2 emissions from the general electricity mix will be reduced in the coming years by the expansion of renewable energies and the gradual phaseout of fossil fuel-fired generation. This will also lead to a reduction in our Scope 2 emissions. Furthermore, we plan to specifically utilize green electricity.

Scope 3

When it comes to reducing our Scope 3 emissions, the volume of our gas sales is particularly important. This will be dependent on various developments in the heating sector. Alongside a further increase in the use of heat pumps and the partial mixing of the natural gas used to generate heat with climate-neutral gases, there will be a general reduction in the need to heat buildings due to energy-efficient refurbishment and a fall in the average age of the residential building stock. We will push forward these developments as a partner, especially when establishing a hydrogen infrastructure. This will enable us to offer our gas customers a more environmentally friendly energy supply in future as we align our sales portfolio towards green gases.

The last step to reaching climate neutrality

We already set ourselves the target in 2020 of becoming climate neutral with respect to Scope 1 and 2 emissions by 2035. We will offset any non-reducible, residual greenhouse gas emissions by supporting recognized climate change mitigation projects that are carried out according to the highest standards. Our subsidiaries Energiedienst and Netze BW have already been climate neutral since 2020 and 2021, respectively.

Sustainable financing

The use of **sustainable financing instruments** underpins our corporate strategy and makes a contribution to achieving national and international sustainability targets, above all the Paris climate targets and the UN Sustainable Development Goals (SDGs) (p. 81 f.↗). Since 2018, we have successfully issued several **green bonds** on the capital market with a total volume of €3.5 billion. In accordance with our Green Financing Framework, the proceeds from our green bonds are exclusively used in the areas of renewable energies (offshore wind, onshore wind and photovoltaics) and clean transport (charging infrastructure for electromobility). In the 2022 financial year, the EnBW Green Financing Framework was expanded to include the new project category "electricity grids." As a result, the funds from one of the green bonds were used for the expansion and refinancing of the electricity distribution grids in Baden-Württemberg for the first time in 2022.

Further information on our **sustainable financial instruments** can be found on our website.

Online ↗

We provide detailed information on the allocation of the funds every year in our **Green Bond Impact Report,** which is published at the same time as the Integrated Annual Report. The green bonds thus support our investment in sustainability and in turn the key non-financial performance indicators in the environment dimension. The financing conditions for the **sustainability-linked syndicated credit line** are linked to selected non-financial key performance indicators. The proceeds from the **green promissory note of our subsidiary VNG** can only be used for environmentally sustainable projects: The focus in the medium to long term will be green gases, primarily biogas and sustainably produced hydrogen.

Information on how the funds from the green bonds are used can be found in the **Green Bond Impact Report** on our website.

Online ↗

Goals and performance management system

Performance management system

The management of the company comprises financial, strategic and non-financial goals and, as well as the finance and strategy goal dimensions, includes the dimensions customers and society, environment and employees. The centerpiece of this **integrated corporate management** is the performance management system (PMS). The most important financial and non-financial Group goals have been broken down into target agreements insofar as they are considered a sensible performance indicator for the respective area. The value drivers for the most important operating performance indicators that contribute to the achievement of targets for the key performance indicators (finance, strategy and environment goal dimensions) are reported in the quarterly performance reviews conducted at a Board of Management level. In terms of external communication, the PMS feeds into the **integrated reporting** of the financial and non-financial performance of the company based on the "International Reporting Framework." This Integrated Annual Report 2022 incorporates the financial and non-financial aspects of our business activities. The key performance indicators enable us to measure the degree to which goals are achieved and to manage our company.

TOP

Definition of the key performance indicators

We monitor the implementation of our strategy by means of a holistic goal and performance management system. This system strengthens integrated thinking in our company. At the same time, it underpins our comprehensive and transparent focus on performance and stakeholders. Our goal system comprises the five dimensions of finance, strategy, customers and society, environment and employees. A number of specific targets have been defined in each goal dimension and their achievement is continuously measured using key performance indicators. Linked with this goal system and the centerpiece of our corporate management is the performance management system (PMS). Quantitative target values are currently set for the key performance indicators for the 2025 strategy horizon. The key performance indicators for the 2022 financial year were unchanged in comparison with the previous year with one exception: The ROCE was replaced by value spread as planned.

TOP **Financial and non-financial key performance indicators and targets**

Goal dimension	Goal	Key performance indicator	2022	Target for 2025
Finance	Securing profitability	Adjusted EBITDA in € billion	3.3	3.2
	Managing the financial profile	Debt repayment potential in %	23.4	≥ 12[1]
	Increasing Group value	Value spread in %	1.1	0.5 – 1.5
	The EnBW Group, p. 76 ff.↗ | Forecast, p. 128 f.↗ | Report on opportunities and risks, p. 132 ff.↗ | Multi-year overview, p. 304↗			
Strategy[2]	Share of result accounted for by "Smart Infrastructure for Customers"	Share of overall adjusted EBITDA in € billion / in %	0.5/15.5	0.6/20.0
	Share of result accounted for by "System Critical Infrastructure"	Share of overall adjusted EBITDA in € billion / in %	1.0/31.8	1.3/40.0
	Share of result accounted for by "Sustainable Generation Infrastructure"	Share of overall adjusted EBITDA in € billion / in %	1.9/58.9	1.3/40.0
	The EnBW Group, p. 76↗ | Forecast, p. 128↗ | Report on opportunities and risks, p. 132 ff.↗ | Multi-year overview, p. 304↗			
Customers and society	Reputation	Reputation Index	58	58 – 62
	Customer proximity	EnBW/Yello Customer Satisfaction Index	139/166	125 – 136/148 – 159
	Supply reliability	SAIDI Electricity in min./year	16.6	< 20
	The EnBW Group, p. 91 ff.↗ | Forecast, p. 129↗ | Report on opportunities and risks, p. 137↗ | Multi-year overview, p. 305↗			
Environment	Expand renewable energies (RE)	Installed output of RE in GW and the share of the generation capacity accounted for by RE in %	5.4/41.7	6.5 – 7.5/> 50
	Climate protection	CO_2 intensity in g/kWh[3]	491	-15% – 30%[4] (reference year 2018)
	The EnBW Group, p. 97 ff.↗ | Forecast, p. 130↗ | Report on opportunities and risks, p. 137 f.↗ | Multi-year overview, p. 305↗			
Employees	Employee engagement	People Engagement Index (PEI)[5]	81	77 – 83[6]
	Occupational safety	LTIF for companies controlled by the Group[7,8]	2.6	2.1
		LTIF overall[7]	4.1	3.5
	The EnBW Group, p. 104 ff.↗ | Forecast, p. 131 f.↗ | Report on opportunities and risks, p. 138↗ | Multi-year overview, p. 306↗			

1 To achieve the unchanged goal of maintaining solid investment-grade ratings, EnBW regularly checks the target value for the debt repayment potential for managing its financial profile.
2 The sum of the three segments does not correspond to the adjusted EBITDA for the EnBW Group. €-205.3 million (+9.6%) is attributable to Other/Consolidation in the 2022 financial year (p. 76 f.↗).
3 The calculation for this performance indicator does not include nuclear generation and the share of positive redispatch that cannot be controlled by EnBW. If the share of positive redispatch that cannot be controlled by EnBW is taken into account, CO_2 intensity would be 508 g/kWh for the reporting year (previous year: 492 g/kWh). The CO_2 intensity including nuclear generation for the reporting year was 401 g/kWh (previous year: 386 g/kWh).
4 The reference year is 2018 because the 2020 reporting year cannot be considered representative for the coming years (due to, among other things, market effects and the coronavirus pandemic).
5 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered (except ITOs)). Companies that were fully consolidated for the first time in the fourth quarter of 2022 were not included in the employee surveys for the PEI.
6 Due to the extraordinary effects relating to the coronavirus pandemic in the year this key performance indicator was introduced, we may need to adjust this target value during the strategy period.
7 Variations in the group of consolidated companies (all companies with more than 100 employees, excluding external agency workers and contractors, are considered).
8 Companies that were fully consolidated for the first time during the 2022 financial year were not included in the calculations for the LTIF performance indicators. Excluding companies in the area of waste management.

The **financial key performance indicators** within the PMS are the adjusted EBITDA, the shares of the adjusted EBITDA accounted for by the segments, the debt repayment potential and value spread:

- The **adjusted EBITDA** is the earnings before the investment and financial results, income taxes and amortization and adjusted for non-operating effects. Adjusted EBITDA is a key performance indicator for the finance goal dimension, while the key performance indicators for the strategy goal dimension, which describe the **shares of adjusted EBITDA accounted for by the segments** (p. 76 f.↗ and 128↗) are derived from it.
- The key performance indicator **debt repayment potential** describes the retained cash flow in relation to net debt. The debt repayment potential measures the ability of EnBW to repay its debts from its current earnings potential. This performance indicator should enable us to achieve a controlled growth in earnings within the scope of our financial targets, while maintaining a solid investment-grade rating at the same time. To manage our financial profile, we regularly check whether the debt repayment potential complies with the latest requirements of the rating agencies (p. 87↗ and 129↗).
- The **value spread** measures the surplus return over the minimum return on capital employed before taxes in a reporting period. It is calculated by deducting the minimum return on capital employed before tax, defined by the weighted average cost of capital (WACC), from the return on capital employed before taxes that was actually achieved. Value spread replaced ROCE (return on capital employed) in 2022. It is a more meaningful indicator and is independent of external market influences, making it easier to manage and also improves the comparability of the data (p. 88 f.↗ and 129 f.↗).

In addition to the financial key performance indicators, the PMS also includes **non-financial key performance indicators:**

The **customers and society goal dimension** comprises the Reputation Index, the Customer Satisfaction Index and the SAIDI (System Average Interruption Duration Index) Electricity:

- In order to calculate the **Reputation Index,** a total of around 5,000 people – from the stakeholder groups relevant for the EnBW brand of customers, the wider public, industrial companies, opinion leaders and investors – are asked about their impressions of the EnBW brand by an external market research institute. Results are collected for each stakeholder group about the distinctiveness of the brand and their assessment of the competence of and emotional attitude towards the EnBW brand. These are merged together to form a Reputation Index. The individual reputation indices for each stakeholder group are weighted equally to form a consolidated and reported Reputation Index (p. 91↗ and 129↗).
- The key performance indicator **Customer Satisfaction Index** assesses the average satisfaction of private end customers for electricity over the year, which is directly linked to customer loyalty. The information is compiled using customer surveys about the two brands EnBW and Yello conducted by an external service provider. The Customer Satisfaction Index allows us to draw conclusions about how well we are meeting the needs and wishes of the surveyed customers (p. 92↗ and 130↗).
- **SAIDI Electricity** serves as the key performance indicator of supply reliability. It specifies the average length of supply interruption in the electricity distribution grid experienced annually by each connected customer. SAIDI Electricity includes all unscheduled interruptions to supply that last more than three minutes for the end consumer. The definition and calculation of this performance indicator is based on the guidelines issued by the Network Technology/Network Operation Forum (FNN) of the VDE (German Association for Electrical, Electronic & Information Technologies) (p. 96↗ and 130↗). The reliability of the supply in the grid areas operated by our grid subsidiaries builds on our comprehensive investment in grids and facilities as well as our system expertise.

The key performance indicators in the **environment goal dimension** are the installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE and CO_2 intensity:

- **The installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE** are measures of the expansion of renewable energies and refer to the installed output of the power plants and not to their weather-dependent contribution to electricity generation (p. 97↗ and 130↗).

- The emissions of CO_2 from own generation of electricity for the Group, as well as the volume of electricity generated by the Group without the contribution made by the nuclear power plants, form the basis for the calculation of the key performance indicator **CO_2 intensity.** This performance indicator is calculated as the ratio between the emissions and the generated volume of electricity and thus specifically describes the amount of CO_2 released per kilowatt hour. By discounting the electricity generated by nuclear power plants, the performance indicator will not be influenced by the phasing out of nuclear energy (p. 98↗ and 131↗).

The People Engagement Index (PEI) and LTIF (Lost Time Injury Frequency) are utilized as performance indicators in the **employees goal dimension:**

- The **PEI** expresses how engaged employees are in their work at EnBW. It is compiled at all companies with more than 100 employees (except for the Independent Transmission Operators [ITOs]) as part of an employee survey carried out by an external, independent service provider. It is determined based on the first question of the standardized list of questions "How happy are you working for the EnBW Group / a company in the Group?" It is a question that uses a rating scale from 1 (I do not agree at all) to 5 (I agree completely). The value determined is then converted to a scale of 0 to 100 (p. 104 f.↗ and 131↗).
- **LTIF** is calculated on the basis of LTI (Lost Time Injuries), which denotes the number of accidents during working hours which have occurred exclusively because of a work assignment from the company and result in at least one day of absence. LTIF indicates how many LTI occurred per one million working hours performed. The calculation of the LTIF overall includes all companies with more than 100 employees. For the calculation of the LTIF for companies controlled by the Group, those companies engaged in the area of waste management are excluded because the number of accidents deviates significantly from that in the core business in the energy industry. Moreover, companies that were fully consolidated in the EnBW Group for the first time in the reporting year will not be included in the LTIF for companies controlled by the Group for a transitional period of three years if the LTIF calculated for the respective company deviates significantly from the LTIF for companies controlled by the Group. This transitional period will make it possible to take measures to improve the area of occupational safety. External agency workers and contractors are not taken into account in either performance indicator (p. 108↗ and 131↗).

Interdependencies

In order to give a comprehensive portrayal of the company, we are convinced that it is not only necessary to present economic, ecological and social aspects, but also to illustrate and provide an analysis of interdependencies between them. To further encourage the idea of a holistic corporate management approach within EnBW, we promote integrated thinking within all important company processes. In doing so, we anchor not only financial but also non-financial aspects into decision-making processes.

Since the 2021 financial year, we have illustrated the progress we have made in anchoring integrated thinking in our company using the **investment approval process** as an example, and have thus also been able to highlight the increasingly important role played by non-financial aspects.

In the 2020 financial year, we were already evaluating our planned investments in the areas of generation, grids and sales using sustainability criteria as part of a comprehensive pilot project. The basis for this was the revision of our investment guidelines. Alongside economic and strategic factors, this type of sustainability evaluation became a fixed component of the approval process followed by the EnBW investment committee and the EnBW Board of Management in the 2021 financial year, providing information relevant to the decision-making process.

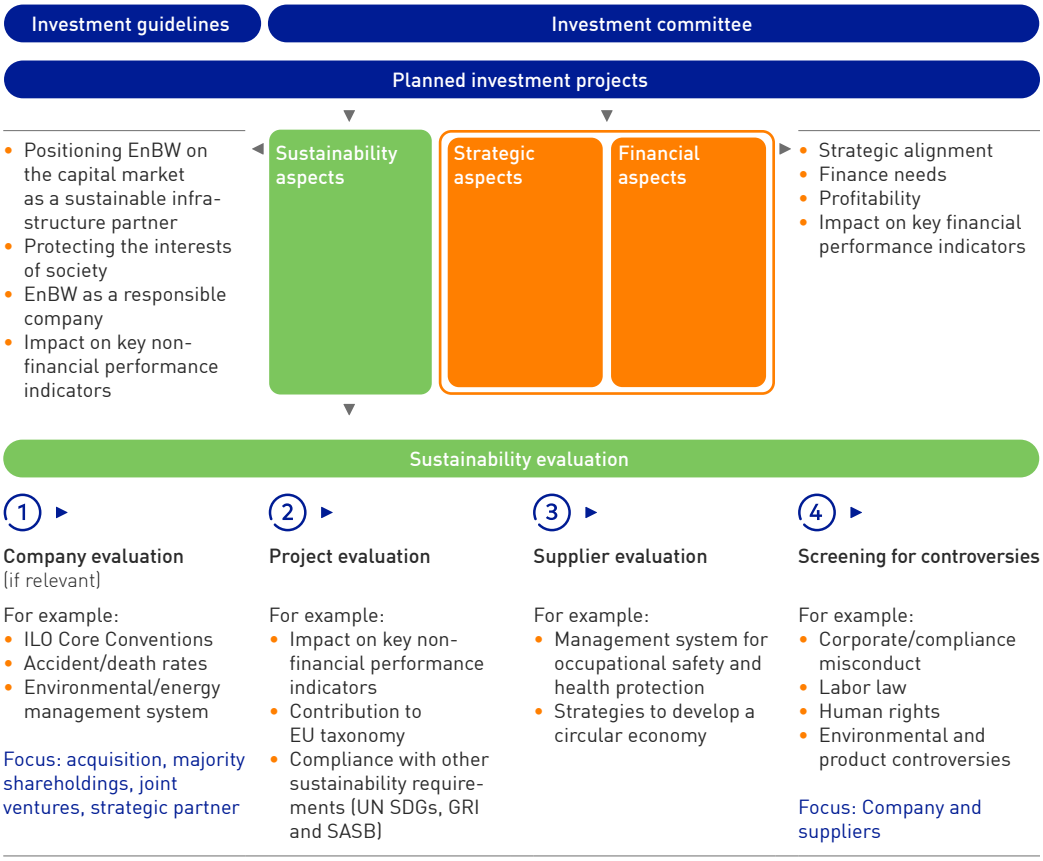
The investment approval process is managed by the Board of Management. Individual projects are discussed and recommendations drawn up by the investment committee (InC). Alongside the Chief Financial Officer, the members of the InC include representatives from all remits of the EnBW Board of Management and various specialist departments, including the sustainability department. The InC develops recommendations that are presented to the entire Board of Management together with the project documentation submitted by the specialist departments.

In the past, the main focus when evaluating individual investment projects was placed on the strategic alignment, funding requirements, profitability and impact of the project on the key financial performance indicators.

An investment project now undergoes additional steps to also evaluate its sustainability:

- **Company evaluation** (as part of an acquisition) with respect to its management of social and environmental sustainability: We check, for example, whether the company has guidelines for compliance with the core labor standards from the ILO (International Labour Organization), has an environmental/energy management system and publishes figures on accident and death rates.
- **Project evaluation:** Examining the planned project and/or project category with respect to sustainability. On the one hand, we evaluate the impact of the project category (e.g., wind power, solar, fuel switch, fiber-optic) on our relevant key performance indicators, and on the other hand, we check whether the project fulfills the EU taxonomy requirements and makes a contribution to selected themes from other sustainability standards and initiatives (e.g., UN Sustainable Development Goals [UN SDGs], GRI and SASB).
- **Supplier evaluation:** Examining the suppliers involved in the project to assess their management of sustainability. For this purpose, we check whether the supplier has a management system for occupational safety and health protection and implements strategies or measures to develop a circular economy for the product or product components (e.g., wind power plants, solar modules).
- **Screening for controversies:** The company (from the company evaluation) and the main suppliers (from the supplier evaluation) are screened and evaluated to identify any controversies related to sustainability in the last five years with respect to corporate/compliance misconduct, labor law, human rights, environmental and product responsibility.

Investment approval process



Corporate governance

Corporate management

Good corporate governance is an essential part of the corporate culture at EnBW. We are convinced that responsible and transparent corporate governance strengthens the trust and confidence that customers, capital providers, employees and the general public place in the company, thereby contributing to its long-term success. The Board of Management and Supervisory Board have the responsibility of managing and supervising the company above and beyond merely fulfilling statutory requirements, but to do so in accordance with recognized benchmarks for good corporate governance and in harmony with the principles of a social market economy, guaranteeing the continued existence of the company and ensuring a sustainable increase in its added value. Therefore, we also predominantly meet the recommendations of the German Corporate Governance Code (DCGK) in the version from 28 April 2022.

As the member of the Board of Management responsible for corporate governance, Colette Rückert-Hennen monitored conformity with the German Corporate Governance Code at EnBW and reported extensively to the Board of Management and Supervisory Board on all current themes pertaining to corporate governance. Both boards acknowledged her report and addressed the recommendations and suggestions in the Code. They subsequently approved the company's annual declaration of compliance pursuant to section 161 German Stock Corporation Act (AktG) on 8 December 2022. The current declaration of compliance is part of the Integrated Annual Report (p. 164 ff.↗) and is also published at www.enbw.com/declaration-of-compliance. The remuneration report can be found in a separate report at www.enbw.com/corporate-governance.

The **declarations of compliance** from previous years are published here.

Online ↗

Management and supervision

Board of Management

Allocation of responsibilities at Board of Management level (as of 15/02/2023)

Andreas Schell
Chairman

- Corporate development
- Sustainability
- Strategy and energy economy
- Communications/policy
- IT and Digital Office
- Corporate security

Thomas Kusterer
Finance

- Accounting and tax
- Controlling
- Finance
- Digital finance and transformation
- Investor Relations
- M&A
- Risk management/ICS
- Equity investment management
- Performance in growth
- Purchasing
- Risk management for trading
- Venture Capital

Colette Rückert-Hennen
Sales and Human Resources

- Personnel
- HR strategy
- Sales, marketing and operations
- Transformation (Next Level EnBW)
- Law
- Auditing
- Regulatory management
- Compliance management and data protection
- Boards and shareholder relationships
- Occupational medicine and health management
- Real estate management

Dr. Georg Stamatelopoulos
Sustainable Generation Infrastructure

- Conventional generation/ nuclear
- Renewable generation
- Coordination technology
- Waste management/ environmental services
- Decentralized energy services
- Occupational safety, environmental protection and crisis management
- Research and development
- Trading

Dirk Güsewell
System Critical Infrastructure

- DSO[1] electricity/gas
- TSO[2] electricity/gas
- Grid technology
- Telecommunications
- Gas value chain
- Innovation management

1 Distribution system operator.
2 Transmission system operator.

Further information on the **Board of Management** of EnBW AG can be found on our website.

Online ↗

As of 31 December 2022, the Board of Management of EnBW AG consisted of five members. The Board of Management is jointly responsible for managing Group business. In addition to the role of CEO, the tasks performed by the Board of Management are split into the remits of "Finance," "Sales, Legal, Human Resources," "Corporate Real Estate Management," "Sustainable Generation Infrastructure" and "System Critical Infrastructure." There was a reallocation of responsibilities at Board of Management level as of 1 May 2022. In addition to her previous remits, Colette Rückert-Hennen

has also taken over responsibility for Sales, Marketing and Operations. Andreas Schell became Chairman of the Board of Management as the successor to Dr. Frank Mastiaux on 15 November 2022 and took over the duties of CEO. These duties were handled by the Board of Management in its entirety in the transitional phase between the end of the term of office of Dr. Frank Mastiaux on 30 September 2022 and Andreas Schell taking up the position on 15 November 2022.

Supervisory Board

The Supervisory Board of EnBW AG consists of 20 members in accordance with article 8 (1) of the Articles of Association. In accordance with the German Co-determination Act (MitbestG), an equal number of members represent shareholders and employees. Three employee representatives are nominated by the ver.di trade union. The Supervisory Board appoints the members of the Board of Management and advises them on their management of the company. It discusses the business performance, planning and strategy of the company together with the Board of Management at regular intervals and ratifies the annual financial statements. The Supervisory Board is always involved in decisions of fundamental importance to the company. Legal transactions and measures subject to the approval of the Supervisory Board are defined in its rules of procedure. In order for the Supervisory Board to optimally perform its functions, it has formed the following standing committees: a personnel committee, a finance and investment committee, an audit committee, a nomination committee, a mediation committee in accordance with section 27 (3) MitbestG, a digitalization committee, an ad hoc committee and a special committee.

The full version of the **Report of the Supervisory Board** is published here.

Online ↗

Further information on the Board of Management and Supervisory Board can be found in the Integrated Annual Report under the section on "Corporate bodies" (p. 296 ff.↗) and the declaration of corporate management (p. 164 ff.↗), which is also published separately at www.enbw.com/corporate-governance, as well as on our website in the Report of the Supervisory Board.

Annual General Meeting

You will find all of the information about our **Annual General Meeting** here.

Online ↗

The Annual General Meeting offers a platform for dialog with stakeholders and it is where shareholders exercise their rights with regard to company matters. The Annual General Meeting passes resolutions on the discharge of Board of Management and Supervisory Board members, the appropriation of earnings and the selection of the auditor. Resolutions of the Annual General Meeting only require a simple majority of votes in most cases. Each bearer share is equivalent to one vote.

Shares of EnBW AG are listed on the General Standard segment of the Frankfurt Stock Exchange. A stake of 46.75% of the share capital in EnBW AG is owned by each of both the Federal State of Baden-Württemberg – via its wholly owned subsidiary NECKARPRI GmbH and, in turn, via its wholly owned subsidiary NECKARPRI-Beteiligungsgesellschaft mbH – and by Zweckverband Oberschwäbische Elektrizitätswerke (Zweckverband OEW) via its wholly owned subsidiary OEW Energie-Beteiligungs GmbH.

Overall, the shareholder structure is unchanged as of 31 December 2022 when compared to the previous year.

Shareholders of EnBW

Shares in %[1]	
OEW Energie-Beteiligungs GmbH	46.75
NECKARPRI-Beteiligungsgesellschaft mbH	46.75
Badische Energieaktionärs-Vereinigung	2.45
Gemeindeelektrizitätsverband Schwarzwald-Donau	0.97
Neckar-Elektrizitätsverband	0.63
EnBW Energie Baden-Württemberg AG	2.08
Other shareholders	0.39

1 The figures do not add up to 100% due to rounding differences.

The ordinary Annual General Meeting was once again held as a virtual event on 5 May 2022. At the meeting, the shareholders of EnBW AG resolved to distribute a dividend of €1.10 per entitled share. Based on the shares entitled to dividends, this corresponds to a dividend payout of €297.9 million. The dividend was paid on 10 May 2022.

The next ordinary Annual General Meeting will be held on 3 May 2023 in virtual form in accordance with the new "Act on the introduction of virtual general meetings of stock corporations and amending other provisions."

Compliance and data protection

Compliance management systems

The **code of conduct** and other information on the theme of **compliance** are published here.

Online ↗

Compliance with the relevant legal regulations and internal company rules forms the basis for our business activities, is part of our corporate culture and is laid out in the code of conduct. Our compliance management systems (CMS) and functions are individually designed: They are based on company and sector-specific priorities and risks, the size of the company and other factors. They are designed to support each company – and thus the whole Group – in avoiding risks, liability claims and damage to reputation.

Depending on the type of corporate control over a company, the compliance-relevant companies with employees are either directly or indirectly integrated into the compliance management system of EnBW. The CMS and thus the compliance department focus on the prevention, detection and sanctioning of corruption, the prevention of violations against competition and antitrust laws, and the prevention of money laundering in those companies directly integrated into the CMS. A total of 23 companies were directly integrated into the CMS of EnBW in the reporting year (previous year: 23). The CMS is regularly examined and updated both internally and externally.

The companies that are indirectly integrated into the CMS – Energiedienst (ED), Pražská energetika (PRE), Stadtwerke Düsseldorf (SWD), VNG and ZEAG as well as the ITOs (Independent Transmission Operators) terranets bw and TransnetBW – operate their own independent compliance systems. The preventative measures that these companies implement apply to all participating interests that are integrated into the respective compliance management system.

We aim to safeguard our commercial success by combating compliance risks – especially corruption and bribery. Preventative risk assessment methods, advisory services and training concepts have been implemented at EnBW, the compliance-relevant companies and the ITOs.

Compliance activities in the reporting year

The reporting year was once again affected by the coronavirus pandemic and the impact of the war between Russia and Ukraine. As most employees were still working from home, the compliance prevention activities were predominantly held online – such as the Compliance & Privacy Day on the theme of "Compliance and Privacy under Stress Test." In 2022, we held training courses for employees in sensitive areas and in other target groups in accordance with our plans for the year. In addition, we placed greater focus on the provision of specific training content for employees with certain duties, such as those involved in business partner auditing. All employees and managers are obligated to complete an e-learning course on corruption prevention every two years, while new employees must complete it during their first year of employment. All of the indirectly integrated companies held training courses to increase awareness among employees. The companies used either the available **in-person or online training courses.**

+76.2%

more participants took part in **compliance training events** in 2022 in comparison to the previous year.

Number of participants in compliance training events [1]

	2022 [2]	2021 [2]	2020 [2]	2019	2018
Sensitive areas	1,275	716	839	904	746
New management personnel / employees	484	355	369	229	182
Management personnel	188	34	75	52	13
Total	**1,947**	**1,105**	**1,283**	**1,185**	**941**

1 At EnBW AG and directly integrated companies.
2 Live online training courses and hybrid training courses due to the coronavirus.

The annual **compliance risk assessments** at EnBW investigate the corruption, antitrust, fraud and data protection risks and form the basis for all work relating to compliance. In 2022, they were carried out using a risk-based selection process at those companies directly integrated into the CMS.

The EnBW compliance department is available to provide advice on all compliance issues and can be reached via a compliance hotline, e-mail or in person. This service is also available to all subsidiaries. In 2022, the hotline received around 1,060 inquiries. Key issues included sponsoring, donations, gifts and – in contrast to previous years – an increase in inquiries relating to the auditing of business partners including sanctions. Advice was also provided on conflicts of interest and other compliance issues. Advisory services dealing with compliance themes at the indirectly integrated companies were also used to good effect. Against the background of the economic challenges resulting from the war between Russia and Ukraine, existing and newly developed measures for compliance with sanctions proved to be effective. Among other things, regular and recurring business partner audits including the screening of sanction lists were carried out.

In order to improve our compliance work, an external consultant was commissioned to evaluate different areas of corporate compliance and help push forward **digitalization initiatives.** A documentation tool was developed as a result for optimizing the processes relating to the documentation of business partner audits.

Compliance breaches

EnBW AG and the directly integrated companies have established reporting channels via which internal, and also external, whistleblowers can report suspected cases while remaining anonymous. Alongside EnBW AG, the companies ED, PRE, SWD, VNG, ZEAG, terranets bw and TransnetBW have also established a whistleblower system.

In the reporting year, there were seven breaches at directly integrated companies. There were no compliance breaches at indirectly integrated companies in the reporting year. No cases of corruption were reported.

We faced neither antitrust law penalty procedures nor third-party antitrust lawsuits in the 2022 financial year. Law enforcement agency investigations of individual employees and former members of corporate bodies relating to the so-called Russian business deals and the sales tax carousel in CO_2 allowance trading also continued throughout 2022 without any discernible activity by the law enforcement agencies. It is not possible to say at the present time when these proceedings will end.

Data protection

In view of the increasing digitalization of our business activities, data protection plays an important role. Our efforts to bring more and more digitalization to the Group in order to both simplify internal processes and develop new business models are closely accompanied by the data protection department in an advisory capacity at an early stage. We closely monitor European regulatory measures such as the “EU Data Act” or “EU Artificial Intelligence (AI) Act” so that the company can take prompt and appropriate action in response to new laws. The data protection department works to guarantee that the rights of the data subject are respected through regular training to raise awareness, continuous improvement measures and audits. Data protection compliance risks are also specifically examined every year and regular reports are submitted to the Board of Management and supervisory bodies to ensure transparency and control. We meet the standards we have set for the processing of personal data by using internal data protection guidelines within the Group that define objectives, the principles for the processing of the data and the procedures themselves. We also have an established reporting system for reporting any data protection breaches. A network of decentralized data protection managers has been formed to support compliance with legal and internal Group regulations. This network regularly receives information, advice and training from the central data protection department. To ensure that data flows within the Group remain transparent, an interdisciplinary body meets three times a year to discuss the framework conditions relating to data protection law, information security issues and any activities dealing with data and digitalization. In sensitive areas of the company, digital learning activities and online/in-person training courses are used to raise employee awareness for this theme. We also offer special e-training courses and educational campaigns for areas of the company that work particularly closely with personal data.

In dialog with our stakeholders

Our stakeholders

The **Energy & Climate Protection Foundation** provides the ideal platform for dialog on the future of energy.

Online ↗

Continuous dialog with our internal and external stakeholders is an important element in the design and orientation of our business activities. The expectations of our stakeholders are taken into account in the strategic positioning of the company and when making business decisions. At the same time, we critically and constructively discuss the necessary conditions for the development of efficient, reliable and sustainable infrastructure with relevant stakeholders on the basis of transparent information. As part of this dialog, it is also important for us to listen to critical opinions such as those expressed at events held by our Energy & Climate Protection Foundation. It is our belief that mutual understanding, social acceptance and trust are increased further through this **open and respectful exchange** of insights and perspectives. In addition, it can also help us to identify central developments and key topics at an early stage. The dialog with stakeholders thus contributes to the economic success of the company. Therefore, we will continue to intensify this dialog – with a special focus on the themes of the energy transition, mobility transition, climate protection and sustainability.

Our stakeholder groups and selected opportunities for dialog

- Telephone conferences with investors and analysts, Annual General Meeting, Group Bankers' Day, investor update and road show
- Donation campaigns and relief efforts, participation and dialog with citizens, supporting entrepreneurs and young start-ups, engagement in art and culture, tours, information events, Open Door Days, activities with Junge Stiftung
- Local authority events, Energy Team Baden-Württemberg, regional council meetings
- Dialog and discussion with customers, networking events, participation in trade fairs and congresses
- Dialog on handling coal and gas procurement responsibly, discussions and cooperation with suppliers
- Employee communication and services, diversity campaigns, social engagement of employees, opportunity for dialog with potential employees
- Discussion events held by the Energy & Climate Protection Foundation, events held by the EnBW Energy and Business Club (EWC), discussion format and exchange of ideas with politicians, active communication via the media
- Biodiversity: funding program "Stimuli for Diversity," dialog on the climate and sustainability, campaigns for the environment and climate protection

Materiality analysis

We have continuously expanded our processes over the last few years for identifying material themes and linking them with the development of the company's strategy. Material aspects are determined based on our non-financial declaration and on the International Reporting Framework, as well as in accordance with standards for sustainability reporting issued by the Global Reporting Initiative (GRI). In addition, current developments flow into the determination of future key themes, such as the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) on climate-related risk reporting.

We consider themes to be material if they have a significant influence on long-term value added and thus the performance and future viability of our company. Contributions to the strategic orientation of the company as a sustainable and innovative infrastructure partner are of particular importance in this context. Furthermore, aspects reflecting any important economic, ecological and social impacts our company may have and that significantly influence the perception of stakeholders are also taken into account. Material themes are continuously implemented in the functional and business units, as well as in the individual companies of EnBW.

The **materiality analysis process** comprises three steps: the creation of an overview of the themes relevant to strategy and communication, the development of a list of themes relevant from the perspective of sustainability and the derivation of material themes from the reputation analysis. During each step of the process, the themes identified are regularly compared to the key themes that were dealt with by the Supervisory Board in the reporting year. Every step leads to a prioritization of the themes and ultimately to a final list of the top themes. The **material themes** and events at EnBW in the 2022 financial year are allocated to the three segments in the overview of the segments (p. 29↗). By focusing on our material themes, we aim to make a significant contribution to the Sustainable Development Goals (SDGs) and generate added value for our stakeholders.

Sustainable Development Goals

Contribution made by EnBW to the Sustainable Development Goals (SDGs)

Four key SDGs at EnBW – activities and performance indicators (examples)

SDG 7: Affordable and clean energy

- Expansion of renewable energies (RE)
- Climate-friendly products (e.g., green electricity)

- Key performance indicators: Installed output of RE, Customer Satisfaction Index

SDG 9: Industry, innovation and infrastructure

- Expansion and operation of electricity and gas grids
- Research, development and innovation management

- (Key) performance indicators: SAIDI Electricity, SAIDI Gas

SDG 11: Sustainable cities and communities

- Expansion of quick-charging infrastructure for electromobility
- Expansion of broadband infrastructure

- Performance indicator: Number of EnBW quick-charging stations in Germany

SDG 13: Climate action

- Climate neutrality by 2035
- Biodiversity at EnBW sites

- (Key) performance indicators: CO_2 intensity (generation), CO_2 emissions

Other important SDGs at EnBW

The Sustainable Development Goals (SDGs) define the global framework for building a sustainable future. These goals were published by the United Nations in 2015 as part of the Agenda 2030. The 17 overarching goals and 169 targets focus on global challenges in an economic, ecological and social context. All sectors of society – including companies – have been called on to make their contribution to achieving the SDGs.

We have taken international standards and frameworks, such as the SDGs, into account in the development of our EnBW sustainability agenda (p. 34 ff.↗). As a sustainable and innovative infrastructure partner, we want to contribute to the achievement of these goals through our activities while also creating value for our stakeholders. In particular, we make a contribution to **four key SDGs.** It is fundamentally important for us as a company to address the concerns and interests of society and we carry out various activities and campaigns to this end every year.

Corporate citizenship and social activities

We are committed to addressing the concerns and interests of society, with a focus on the target groups of end customers, business partners and local authorities. Support for overriding social issues is concentrated on the core areas of popular sport, education, social issues, the environment and art and culture. We also refer you to the details provided in the "Report on opportunities and risks" (p. 132↗).

The Group guidelines on corporate sponsoring, memberships, donations and involvement with universities govern the goals, responsibilities, standards, principles and processes for EnBW AG and all of the domestic companies in which it holds a controlling interest. Companies based outside of Germany must comply with the EnBW guidelines for foreign companies. Donations are documented in a donation report that is presented annually to the Board of Management. In 2022, donations made by the EnBW Group came to €2.1 million, following €3.7 million in the previous year. Donations worth €720,000 (previous year: €950,000) were attributable to EnBW AG.

The EnBW Board of Management decided a number of years ago not to send Christmas gifts to business partners. Instead, we once again made donations to **social projects in Baden-Württemberg** in 2022 and supported eight charitable campaigns and campaigns initiated by readers of regional newspapers in Baden-Württemberg with total donations of €32,000. Following the outbreak of the war in Ukraine, the main focus of our social engagement was supporting **relief efforts** for the people in Ukraine and also for those refugees arriving in Germany. We made a financial donation of €100,000 in emergency aid to "Aktion Deutschland Hilft" (Germany's Relief Coalition). The EnBW Food Truck provided food for refugees arriving in Berlin and numerous employees coordinated voluntary campaigns on the EnBW Intranet. Our own initiative called "EnBW helps" was a notable success and employees donated more than €120,000 in total for projects run by regional aid organizations. We also donated €30,000 to the campaign "Schenke Licht!" (Give us light!) organized by the association "Ukranians in Karlsruhe." The money was used to purchase generators, power banks and portable power stations and transport them to Ukraine to help alleviate the emergency situation caused by the destruction of the energy infrastructure. We are also housing three Ukrainian families in our holiday home on Lake Titisee and have offered the City of Stuttgart the use of five single room apartments. In addition, we donated food worth a total of €60,000 to the food banks in Baden-Württemberg. EnBW donated protective suits from its surplus stocks to the Zoological City Garden Karlsruhe, the Zoological Garden Halle and Rostock Zoo. The **EnBW "Making it happen" bus** was on tour again in 2022 and the team supported a total of five selected social projects, which were each also awarded up to €5,000 for any necessary materials. The "Let's Volunteer" initiative continued in 2022: Each month two employees who volunteer in their local communities are given €1,000 to donate to a charitable association.

Since 2016, employees have regularly supported social and charitable projects with the **EnBW "Making it happen" bus.**

Online ↗

Against the background of the war between Russia and Ukraine, various subsidiaries in the EnBW Group also made donations in 2022 to charitable causes to help victims and refugees. For example, **Stadtwerke Düsseldorf (SWD)** donated €100,000 to the Action Alliance for Disaster Relief and thus doubled the amount collected by its own employees. **Pražská energetika (PRE)** provided financial aid to many families who had fled Ukraine to help with their food costs and to help integrate Ukrainian children into Czech schools. In addition, PRE continued to support the Charta 77 Foundation – Barriers Account, as well as other non-profit organizations focusing on charity, health, social and education activities, and environmental protection. Via its subsidiary ONTRAS Gastransport, **VNG** donated a total of around €30,000 in equal shares to the organizations "Emergency aid for children and families in Ukraine," "SOS Kinderdörfer weltweit e. V." (SOS Children's Villages Around the World) and "Emergency Aid Ukraine – Your Donation Helps!" organized by Aktionsbündnis Deutschland Hilft e. V. **Netze BW** continued the "Mail instead of letter" campaign in 2022 in which the costs saved by electronically mailing requests to read the electricity meter were donated to numerous charitable organizations in the local communities. This campaign also saved printing costs, paper and CO_2 emissions.

Learn more about our engagement in **art and culture** here.

Online ↗

In the area of **art and culture,** we held the **"BioMedia. The Age of Media with Life-like Behavior" exhibition** in cooperation with the Center for Art and Media (ZKM) in Karlsruhe in 2022. The exhibition gave visitors the opportunity to learn about and discuss potential forms of coexistence between organic and artificial lifeforms. Four works were displayed at the EnBW site in Karlsruhe. We also sponsored the **"Crochet Coral Reef" exhibition** that highlights the fact that coral reefs are dying all

around the world. Over 4,000 people helped to produce the crocheted sculptures depicting the coral reefs featured in this participatory environmental project. The "Baden-Baden Satellite Reef" that was created as part of the campaign was exhibited at the EnBW sites in Stuttgart and Karlsruhe in 2022. We also provided a platform for the organization release Stuttgart e. V. via a series of exhibitions called **"release and art."** Half of the proceeds raised by the artists was donated to this organization based in Stuttgart that provides advice and assistance to people with drug-related issues.

Corporate guidelines for party donations and lobbying

You will find a selection of the associations of which EnBW and its Group companies are **members** here.

Online ↗

Ensuring transparency with respect to our lobbying activities (p. 34ff.↗). The EnBW Code of Conduct has been valid since 2009 for EnBW AG and all companies in which it holds a controlling interest. Our lobbying activities are coordinated in our offices in Brussels, Berlin and Stuttgart. As well as maintaining direct contact with political decision makers or their employees and participating in relevant events, we also engage in political dialog by publishing position papers and contributing to consultation processes either directly or via associations. At the same time, we hold our own specialized political events and conferences at our sites. Furthermore, we work together with sector associations and initiatives, research institutes, foundations and think tanks at a local, regional and European level. The EnBW Code of Conduct stipulates that no donations may be made to political parties, organizations affiliated with them, civil servants, elected representatives or candidates for public office.

In dialog with citizens

Dialog with citizens is important to us as a sustainable infrastructure partner. A large number of virtual events, as well as some local in-person events, were held in 2022 to give out information and encourage the participation of citizens.

For example, the **GeoHardt geothermal project** established a dialog forum in 2022 with randomly selected citizens who were able to discuss the latest issues surrounding geothermal power and the advantages and disadvantages of the project for the region with experts and the project team. In addition, the project team continued to head the political panel of experts and advisory board that was founded in 2021 and organized a virtual information evening on the latest geological studies.

Citizens were already able to participate in the public consultation phase for the **fuel switch projects** back in 2021. As part of the approval process, an application for planning approval for the project in Stuttgart-Münster in accordance with the Federal Immission Control Act was officially made available to the public in summer 2022 and a public hearing is thus no longer necessary. The draft resolution on the development plans for the project in Heilbronn was made available to the public in November 2022 and we organized an accompanying digital information event.

Further details on the information forum **"Nuclear safety and radiation protection"** can be found here.

Online ↗

In the area of **nuclear energy**, the political discussions on the possible continued operation of the nuclear power plants in Germany were the main focus of dialog. Alongside our active communication on this matter, we also answered numerous questions. After the amended German Atomic Power Act came into force in December 2022, we provided information at a digital press event on our procedures for the extended generation of electricity at our Neckarwestheim II power plant and the impact it will have on our plans to dismantle the power plant. Furthermore, we were invited to make contributions at two events as part of the virtual information forum "Nuclear safety and radiation protection" organized by the Ministry of the Environment Baden-Württemberg.

Link to the **citizen participation platform.**

Online ↗

We plan, construct and operate wind farms and photovoltaic power plants in direct partnership with or through the participation of local authorities and citizens. Local citizens are able to use the **EnBW citizen participation platform** to participate financially in regional renewable energy projects. Two citizen participation models in Hüttersdorf and Silberberg were implemented in 2022.

Research, development and innovation

Research and development

Goals

The goal of our research and development is to identify technological trends at an early stage, assess their economic potential and build up expertise in the business units. For this purpose, we carry out pilot and demonstration projects together with partners or customers directly at the site of their subsequent application. This ensures that successful research projects deliver innovations for our company.

Research, development and innovation also lead to inventions and patents in many cases. The portfolio of patents grew by 23 patents (previous year: +1) in 2022; the EnBW Group thus held 248 patents (previous year: 225) at the end of the year. The patents held by EnBW focus mainly on the areas of renewable generation, gas and electromobility.

Selected activities

Wind energy: Offshore wind power plants with fixed foundations are limited to shallow waters with water depths of up to around 50 m. Floating platforms could be used to install wind turbines in deeper waters. In cooperation with partners, we are investigating several different concepts for floating offshore wind farms that would be suitable for opening up new international offshore wind energy regions. In cooperation with the engineering company aerodyn from northern Germany, we have developed a new design for floating wind turbines called **Nezzy².** After good results with a 1:10 scale model, a 1:1 scale model was constructed in 2022 and will enter into trial operation during 2023. In parallel, we have analyzed the feasibility and costs for European invitations to tender. Floating foundations are still an important element for the implementation of our offshore strategy and will remain the subject of further research activities in the future.

Further information on the **floating wind power plant Nezzy²** can be found on our website.

Online ↗

There are high logistical costs associated with the servicing and maintenance of offshore wind turbines. Since April 2022, we have been researching how **transport drones** can reduce the number of helicopter and ship deployments in conjunction with the German Aerospace Center (DLR). This three-year project is being funded by the Federal Ministry for Economic Affairs and Climate Action (BMWK). An initial concept for managing the interface between the transport container and the drone was developed in 2022 and was very well received at the WindEnergy trade fair in Hamburg. The first real test flight with DLR drones at an EnBW wind farm is planned for the middle of 2023.

Photovoltaics: We are supporting the initiative to rebuild the European PV industry using one of our own developments. Our subsidiary EnPV has industrialized a new **photovoltaic cell design** that promises a higher cell efficiency at the same production costs when compared to the mass market cells currently available. Novel laser processes enable us to employ a simple process to position all the contacts on the rear of the cell, which means it is possible to work with aluminum instead of the comparatively more expensive material silver. In September 2022, EnPV signed a letter of intent with a European solar engineering company to examine the possibility of jointly producing the cells in Europe.

Geothermal energy: In addition to the production of electricity, geothermal energy has the potential to reduce the use of fossil fuels in heating networks. We support our business partners, such as local authorities, in decarbonizing their **heating networks using geothermal energy.** We have held the geothermal license for the Mannheim-Heidelberg-Speyer region together with MVV since August 2020. This license grants us the right to examine how geothermal energy can be used to decarbonize the local district heating system within this region. The two companies founded the company **GeoHardt** for this purpose at the beginning of 2021. After the first geophysical and hydro-chemical studies in 2021 confirmed that the region was geologically suitable, these findings were supplemented by more in-depth studies (3D seismic studies) in winter 2022/2023 to identify the precise target area for the boreholes. GeoHardt remains in continuous dialog with the local authorities, associations and citizens about all stages of the work. A geothermal plant in Bruchsal that is operated jointly with the company Stadtwerke Bruchsal is already reliably supplying a nearby police station with

Further information on the **Hardt geothermal project** can be found here.

Online ↗

geothermal heat today. During the fourth heating season of the project, the heat supplied could be transferred from peak load to base load operation and increased by 20% to 2,400 MWh. At the same time, the technology used in the electricity generation plant was improved and has been operating reliably for many thousands of hours. We have carried out geological studies to investigate possibilities for expanding the power plant site in order to supply other customers with heat and electricity using geothermal power.

Find out more about the **hydrogen projects in Wyhlen** here.

Online ↗

Hydrogen from renewable energies: We also want to provide our customers with carbon-neutral gaseous energy sources in the long term. We are investigating how to generate affordable green hydrogen with funding from the German government at the H_2-Wyhlen and H_2Mare field labs. In **Wyhlen,** our subsidiary Energiedienst (ED) is expanding an electrolysis plant that was constructed with funding from the State of Baden-Württemberg by 5 MW to 6 MW to make it the **largest power-to-gas plant in southern Germany.** It will supply a district as well as industrial and mobility customers with green hydrogen generated using green electricity. In the reporting year, the contract for the construction of the plant was awarded to a consortium headed by the company APEX. The work to expand the production capacities at the ED hydropower plant in Wyhlen is due to be completed in 2025. Together with a consortium of 35 industry and research partners, we are carrying out research in the **H_2Mare** project into the **production of green hydrogen directly in offshore wind power plants.** Our aim is to develop the skills we will need to construct and operate hydrogen plants at wind power plant sites in the future. As part of the project, an invitation to tender for the planning of a floating pilot plant for use in ports was issued in 2022. It should be placed into operation in 2024 as the first plant in Germany for the generation of hydrogen and derived products at sea. H_2Mare thus aims to lay the foundations for becoming a technological leader in this area in just four years.

The **"Energy Park Bad Lauchstädt"** demonstrates all stages of the value added chain for hydrogen.

Online ↗

Hydrogen in the gas grid: Natural gas grids can be decarbonized using zero-emission energy sources like hydrogen – just like the electricity grid. At the field laboratory **"Energy Park Bad Lauchstädt"** in central Germany, we are investigating the entire value added chain for green hydrogen on a large industrial scale, from its production and transport through to its storage and application, in a project led by VNG. Preparations for the storage of the hydrogen in an underground salt cavern are also underway. The project has been running since September 2021 and is being funded as a field lab by the Federal Ministry for Economic Affairs and Climate Action (BMWK). The regulatory framework for this business model was analyzed in 2022 and further progress was made with the approvals and building plans. The approval application for the planned 30 MW power-to-gas plant has now been submitted. Approval for feeding the hydrogen into a natural gas pipeline has already been granted. Our subsidiary Netze BW started a pilot project called the **"Hydrogen Island Öhringen"** in 2020 in the City of Öhringen in the Hohenlohe district that is unique across Germany. A section of the existing natural gas grid is being disconnected and will be supplied independently. The conversion work required for this project was successfully completed in 2022. A natural gas mix with a green hydrogen content of up to 30% will be used in the island grid. The hydrogen will be produced from 2023 onwards using renewable electricity with the aid of an electrolyzer on the premises of Netze BW. Supplied hydrogen had previously been mixed with the natural gas to successfully demonstrate the concept at the company's own operating buildings. The mixed gas is used to supply heat to the company premises and 22 other buildings.

Further information on the **"Hydrogen Island Öhringen"** project can be found on our website.

Online ↗

Further information on **integrating electromobility into the grid** can be found on our website.

Online ↗

Integration of e-mobility into the grid: Since 2018, our colleagues at Netze BW have been investigating the practicalities of integrating electromobility into the electricity grid in a total of four electromobility grid laboratories at eight sites in Baden-Württemberg. These **pilot projects on grid integration** were completed on schedule. The results on the mobility habits and charging behavior of customers, as well as on the relevance, potential and customer acceptance for load management systems to support the grid, were presented to the public in November 2022 at the digital event eNetz 2.0 in order to support the mobility transition in the sector. The findings and the solutions developed in the projects will now be transferred into regular operation within the defined key action points of Customer-Oriented Grid Connections, Transparency in the Distribution Grid, Smart Grid Optimization and Future-Proof Grid Development.

Inductive charging: Our site at the Port of Karlsruhe has been connected to the public transport system with its own **electric bus** since 2021. The special feature of this electric bus is that the batteries are charged inductively during the journey and at the bus stops **by inductive coils beneath the road surface.** As soon as the vehicle drives over them, the receiver coils fitted on the underbody are activated. Electrical energy is transferred via a magnetic field to the coils and stored in the battery. We are investigating contactless charging not just because it saves space in the bus and it can travel longer distances without having to be taken out of service for charging. As a future option, it could also be used to refuel autonomous vehicles. The contactless charging technology originates from the Israeli company Electreon. We expanded our research into wireless charging in 2022 by developing **prototypes for wireless charging** in the car park at the EnBW head office in Stuttgart in cooperation with leading automotive companies and suppliers. By comparing the performance of the different prototypes, we will be able to further improve the charging results in the future. In addition, the preparation work for opening a longer charging route for buses using more advanced technology has been carried out in cooperation with a local authority in the Zollernalb district. It should be possible to place the route into operation in the middle of 2023.

Further information on the **extraction of lithium** at the Bruchsal geothermal plant can be found here.

Online ↗

Sustainable extraction of lithium: The lithium required for batteries in electric vehicles can also be sourced in Germany – it can be extracted from thermal water in Oberrheintal. In cooperation with the Karlsruhe Institute of Technology (KIT) and other scientific companies and institutes, we tested a process to extract lithium from thermal water sustainably. The process produced very good results in the laboratory. It was possible in 2022 to design and construct the plant technology for a real geothermal plant in Bruchsal. EnBW already began extracting lithium in small quantities at the plant in cooperation with a French partner in June. In 2023, we will be focusing on completing short and long-term extraction experiments and examining the environmental impact and economic potential of extracting lithium for electric car batteries here in Germany.

Expenditure and personnel

In the 2022 financial year, we spent €28.1 million (previous year: €38.6 million) on research and development. This decrease was due to the conclusion of a major development project and extraordinary events related to the coronavirus pandemic. We received government research grants of €4.8 million (previous year: €1.0 million). There were a total of 49 employees in areas dedicated to research and development at the Group (previous year: 66 employees). In addition, 282 employees (previous year: 253 employees) were involved in research and development projects as part of their operational work.

Expenditure on research and development

in € million	2022	2021
Grids	12.3	18.8
Generation from renewables	8.0	5.2
Smart energy world, storage and electromobility	3.9	7.1
Hydrogen	3.5	6.5
Customer-related research projects	0.1	0.7
Other	0.4	0.3
Total	**28.1**	**38.6**

Innovation

Goals

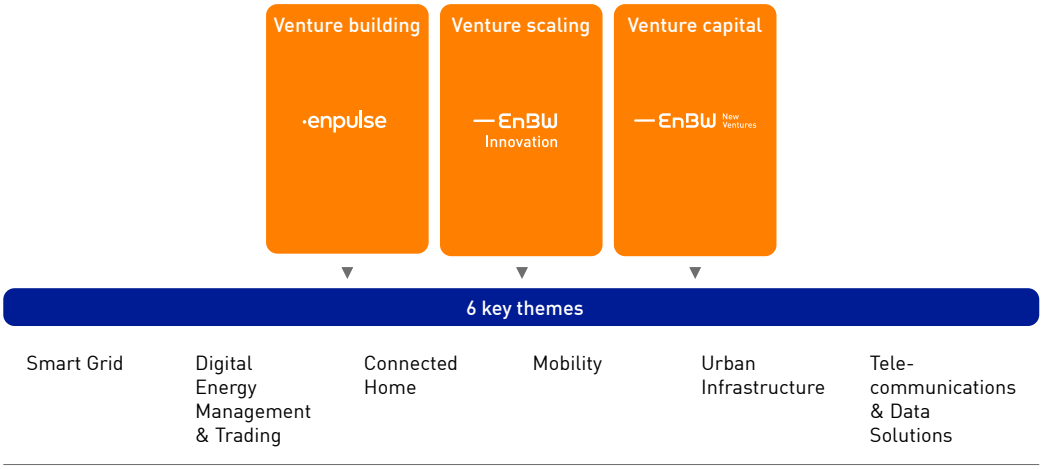
Sustainability is an integral component of our business activities and also defines a framework within which we develop innovative business models in the energy sector and beyond (p. 25 ff. and 34 ff.↗). We want to make a positive contribution to the climate and society. Therefore, we develop new business models on the basis of the Sustainable Development Goals (SDGs). You can find out more about EnBW's key SDGs on p. 48 f.↗. Furthermore, all of the business models in our portfolio rely on a high degree of digitalization. We focus on the development of innovations that push forward the energy transition and make infrastructure smarter and more reliable. Against the background of the war between Russia and Ukraine, new solutions for the energy supply and mobility are becoming increasingly important.

We developed a fundamentally new innovation strategy in 2022 with the goal of promoting innovative ideas in a more targeted manner and in close cooperation with entrepreneurs, investors and employees, while at the same time, opening up new business fields for EnBW. On the one hand, we will focus on strengthening the entrepreneurial independence of the team and spinning off business models as start-ups as early as possible. New business models are now primarily developed outside of the Group and we founded EnPulse in 2022 for this purpose. On the other hand, we will also invest in start-ups outside of the EnBW Group in order to push forward existing innovations and establish a strong network of partners.

Innovation strategy

Overall, we are concentrating our activities on **six key themes:** Smart Grid, Digital Energy Management & Trading, Connected Home, Mobility, Urban Infrastructure and Telecommunications & Data Solutions.

Three pillars of the innovation strategy



The new **innovation strategy** is based on **three central pillars:**

Venture building: EnPulse was founded by EnBW as an independent company in May 2022 and will take over all of the early phase activities from EnBW Innovation in future. It develops new business models within the six key themes.

It will have a broad range of tasks, from analyzing trends and developing and testing initial business ideas through to the foundation of start-ups. EnPulse will also be responsible for **awarding grants to start-ups.** These grants are aimed at young people with entrepreneurial ambitions and will support them in the further development of their business model for between six and twelve months by providing both expertise and up to €120,000 in start-up capital. A total of three start-up grants were awarded in 2022: **Carico** develops test systems for AC and DC charging points. **Tenta Vision** has developed a patented technology that enables companies to test parts during industrial production and identify any defects without damaging the parts in the process. **Zentur.io** has developed a software solution that brings greater transparency to heating grids.

Learn more about how **EnPulse** supports young start-ups.

Online ↗

EnPulse invested in the company **Zählerfreunde** in 2022. This start-up provides an independent platform that helps users of smart meters save electricity. **q-bility** was spun-off from EnPulse as an independent company in 2022. This start-up enables buyers and sellers to trade greenhouse gas (GHG) quotas on its digital marketplace. Another start-up that was founded in 2022 with investment from EnPulse is **nue GmbH.** nue digitalizes the certification process for large solar power plants so that they can be tested and placed into operation more quickly.

EnBW Innovation received the **Digital Lab Award 2022** in the category "Venture Building" and thus took first place in a ranking of the best digital innovation units.

Online ↗

Venture scaling: EnBW Innovation supports young companies that have successfully entered the market so that they can continue to grow. It assists these companies with financing and also helps them to develop their growth strategy by acting as a strategic sparring partner, while its specialist trainers use their experience to provide them with inspiration in their marketing, sales, operations and organizational development.

Find out more about the **leasing models for solar power plants** from **DZ4** here.

Online ↗

In November 2022, EnBW increased its stake in **DZ4,** in which the EnBW Group had already held a majority shareholding since June 2021, and has been the sole shareholder since. DZ4 was the first company in Germany to bring a leasing model for solar power plants to the market in 2012 and is now one of the leading providers with several thousand customers. This good market position is to be further expanded in the next few years with the aim of driving forward the private energy transition.

In addition, **EnBW Cyber Security, SMIGHT** and **ChargeHere** were also founded as independent companies in 2022. We founded EnBW Cyber Security GmbH in response to the growing demand for security solutions for IT (information technology) and OT (operative technology) (p. 95↗). The start-up SMIGHT is one of the leading providers of IoT (Internet of Things) grid solutions. It collects real-time data from local grids using its own sensor technology and thus contributes to the efficient operation of the grids. The start-up ChargeHere offers charging solutions for the electrification of company fleets that take into account the current state of the grid when charging.

The **investment team at ENV** has received multiple awards from Global Corporate Venturing.

Online ↗

Venture capital: Alongside the strategic investments made as part of venture building and venture scaling activities, **EnBW New Ventures (ENV)** is responsible for financing external start-ups. It supports entrepreneurs as they develop sustainable solutions for smart infrastructure and has an investment volume of €100 million. ENV also offers these start-ups access to professional investor expertise and a network of customers and suppliers in the energy and infrastructure sectors. ENV is aiming to secure minority shareholdings in up to 20 start-ups, with an investment period of four to eight years in each case. It has so far invested in a total of 15 start-ups and realized two successful exits, while EnBW has also acquired a majority stake in one of the companies. Its evergreen business model means that any proceeds from the sale of shares in start-ups can be reinvested in new companies.

Link to the **second award.**

Online ↗

Learn more about the investment made by EnBW New Ventures in **Easelink.**

Online ↗

ENV announced **four new investments** in 2022. These include the start-up **Easelink,** which aims to simplify the charging of e-vehicles and automate conductive charging. In addition, ENV has invested in **Intigriti.** This start-up has developed a global cybersecurity platform which companies can use to provide bug bounties (competitions to identify programming bugs). Bug bounties offer an incentive to a community of more than 50,000 hackers to uncover any vulnerabilities and find bugs. Another investment was **CYCLE.** This company provides delivery companies with electric bikes via an all-inclusive care-free subscription service. The fourth start-up is **Deepomatic** based in Paris. The company uses image recognition software to streamline operational processes for field services.

Procurement

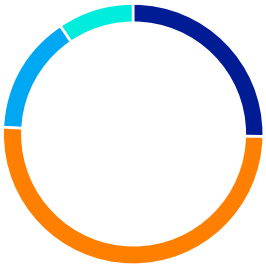
Efficient and sustainable procurement processes

More information on the **sustainable supply chain** can be found on our website.

Online ↗

The purchasing department at EnBW views itself as a **partner for the success of the company.** It optimizes the cooperation between business, suppliers and the market from a commercial viewpoint while maintaining high quality standards. Digitalization also helps to make procurement processes more efficient. Central purchasing strives to achieve sustainable procurement, taking into account the requirements of national laws, EU law and the Group's internal guidelines. As a result, it makes an important contribution to the competitiveness of the company and to minimizing risks.

Procurement volumes of the EnBW Group by segment
in %



- 25.5 System Critical Infrastructure (2021: 37.1)
- 50.4 Sustainable Generation Infrastructure (2021: 33.5)
- 14.7 Smart Infrastructure for Customers (2021: 18.8)
- 9.4 Other (2021: 10.6)

The **procurement volume** of the EnBW Group in 2022 (without ITOs) amounted to around €6.5 billion (previous year: around €3.5 billion). This considerable increase in comparison to the previous year is mainly due to large investment projects in the area of offshore wind energy and fuel switch projects that were contractually agreed in the reporting year.

The procurement markets were significantly impacted in 2022 by the effects of the **war between Russia and Ukraine. Supply bottlenecks** and a high **level of uncertainty** on the market were typical of the problems experienced (p. 140↗ and 142↗). Prices were already high at the beginning of 2022 due to the coronavirus pandemic and the resulting disruptions to the supply chain. Further rises in energy and logistics costs caused additional price increases across all sectors. A sharp increase in demand in the area of sustainable generation infrastructure also exacerbated the situation. The sanctions against Russia – which had been an important trading partner for the energy industry for certain raw materials and (intermediate) products – led initially to further shortages in supply and thus higher prices. In the second half of the year, the supply chains had already reordered themselves to some extent and the price of important raw materials fell again, although prices were still higher than before the beginning of the war. We adjusted the regional distribution of our supply chains at an early stage and identified new suppliers to expand our portfolio. In addition, we developed a reporting process for risks in the supply chain and the possible impact they could have on our business. This gives us a sound basis upon which we will be able to take appropriate action to reduce such risks.

Further diversifying our suppliers and service providers and improving cooperation with them plays an important role in our efforts to achieve a leading position on the energy market. **Supplier management** promotes successful cooperation with our suppliers because it makes their performance transparent and also makes continuous optimization in partnership possible. The careful selection of our suppliers is embedded in our risk management system and supports the observance of legal regulations and internally defined quality standards. Especially with regard to the selective internationalization of the business, central purchasing at EnBW AG is also developing an integrated **supply chain management system** in close cooperation with the business and functional units.

Supplier management process

1	2	3	4
Supplier identification	Supplier selection/ prequalification	Supplier evaluation/ classification	Supplier development
Identification and documentation of potential suppliers	Registration/onboarding, completion of the EnBW qualification stages	Assessing suppliers based on defined evaluation criteria, classification of the suppliers	Deriving development measures according to the classification of all suppliers

Sustainable procurement begins with the careful selection of suppliers. Central purchasing at EnBW AG uses a standardized **prequalification process** for this purpose. Suppliers are required to provide a self-assessment via a supplier portal on whether they have sustainable measures in place

in the areas of environmental management, occupational health and safety, the respect for human rights, the fight against corruption, data protection and quality management. This self-assessment was completed by 97% of our suppliers by the end of 2022 (measured by procurement volume).

Respecting human rights and protecting the environment are key pillars of our corporate culture. In cooperation with our business partners, we aim to **improve the situation with respect to sustainability and transparency across the entire supply chain.** We are thus planning to make our procurement process even more sustainable in the future – giving consideration especially to social and ecological aspects. This is also reflected in our EnBW Sustainability Agenda (p. 34 ff.↗), in which anchoring sustainability criteria in the purchasing process is defined as one of the key measures within the strategic theme of "Protecting the natural environment." We introduced our **Supplier Code of Conduct (SCoC)** in 2021 as a shared set of values and an important criterion for the selection and development of our suppliers. 97% of our suppliers (measured by procurement volume) had already accepted the SCoC as the basis for our cooperation with them by the end of 2022.

The **Supplier Code of Conduct** forms the basis for our cooperation with our suppliers. The PDF is available to download here.

Online ↗

In the **"LkSG Ready" project**, we are laying the foundations for compliance with all elements and regulations in the German Supply Chain Due Diligence Act (LkSG). In 2022, we focused on establishing clearly defined processes and developing the expertise and tools needed to analyze sustainability risks both on the procurement markets and in relation to our suppliers. On this basis, we agree measures with our suppliers, where necessary, to improve sustainability and evaluate their effectiveness together. We have also **expanded our existing compliance reporting processes** to include an independent complaints mechanism in accordance with LkSG (p. 45 f.↗). Another important measure in 2022 was **preparing a declaration on human rights.** We have also been working together with other companies in the energy industry to establish an "Energy Sector Dialog." The **Energy Sector Dialog** uses a multi-stakeholder approach and is supported by the Federal Ministry of Labour and Social Affairs. The aim in 2023 is to draft guidelines for action with respect to human rights due diligence in the energy industry and support companies in its implementation.

The **EnBW declaration on human rights** is available to download in PDF format here.

Online ↗

Since the middle of 2022, our **CO_2 tracker for emissions in the supply chain** has enabled us to identify hot spots and carry out more in-depth analyses together with our suppliers for reducing our Scope 3 upstream CO_2 emissions – for example, at the charging parks for electric vehicles. We have also been including CO_2 emissions and other sustainability criteria as measurable decision-making criteria in relevant invitations to tender since 2022 (p. 36↗).

Via our **supplier portal** we offer our suppliers central access to selected information and self-service access.

Online ↗

Various **automation and digitalization initiatives** have been introduced in central purchasing at EnBW AG with the aim of simplifying our processes even further and, in particular, ensuring that any recurring procurement activities are carried out with the minimal amount of effort. As part of our Group-wide transformation project, we successfully established the new **Ivalua purchasing system** in December 2021 and **constantly updated it** during 2022. It makes cooperation between suppliers, specialist departments and central purchasing significantly easier. Prequalification and supplier evaluation procedures, the ordering process and self-service applications have been greatly simplified and are now intuitive to use. In addition, we have introduced a catalog platform containing almost 25 million items that can be accessed by the employees of EnBW AG.

Our subsidiaries that are not overseen by central purchasing at EnBW AG address non-financial aspects in purchasing using their own mechanisms. **Energiedienst Holding (ED)** works together closely with central purchasing at EnBW AG to procure important product groups using joint invitations to tender and framework contracts, including the associated prequalification processes. In addition, orders are placed largely with regional suppliers from Germany, Switzerland or neighboring EU countries. Purchasing at the companies of **Pražská energetika (PRE)** ensures that suppliers observe practices such as the payment of social security contributions, the settlement of tax liabilities and the prevention of money laundering. Potential suppliers must verify their compliance with these aspects by either submitting a sworn declaration or by presenting corresponding certificates when bidding for invitations to tender. The fulfillment of these obligations is also stipulated in supplier contracts. At **Stadtwerke Düsseldorf (SWD),** sustainability aspects are anchored in the compliance guidelines, environmental management system manuals and process descriptions. In the area of procurement, SWD pays particular attention to the use of environmentally friendly and sustainable products. It also uses clauses in its supplier contracts as one way to reinforce the fight

against corruption and bribery and to ensure observance of labor and social laws. A Supplier Code of Conduct (SCoC) was introduced in 2022 that includes joint obligations with the suppliers to generate economic, ecological and social added value along the entire supply chain. Alongside economic criteria, SWD places great importance on business ethics, integrity, legally compliant trade, compliance with working standards and environmental protection when selecting, evaluating and monitoring new and existing business partners. The fundamental principles for procurement at **VNG** are regulated by a code of conduct, the management handbook and Group guidelines. Aspects such as the prevention of corruption – which is embedded in the compliance management system – and environmental protection are fixed components of procurement processes.

We also refer you to the details provided in the "Report on opportunities and risks" (p. 132↗).

Responsible raw materials procurement in the coal sector

Origin of coal supplies

With a view to the CO_2 reduction targets set by the German government, we will gradually replace hard coal with more climate-friendly energy sources. The most important milestones here will be the realization of the fuel switch projects and the planned phaseout of coal by 2028. Nevertheless, hard coal will still play a relevant role for EnBW as a source of energy over the next few years to ensure a reliable and economic supply of electricity. Responsible raw materials procurement, especially in the coal sector, is thus extremely important to us in order to strengthen our sustainable purchasing.

Origin of coal supplies to EnBW power plants

in million t	2022	2021
Russia	2.0	3.6
Columbia	1.6	0.2
USA	0.4	0.4
Other	0.1	–
Total [1]	4.2	4.2

1 The figures may not add up due to rounding differences.

There was major upheaval on the West European coal market in 2022. Russia had been by far the largest supplier of power plant coal to the EU for many years up to this point. As a result of the EU sanctions against Russian coal producers, participants on the European market were forced to fundamentally realign their strategy and seek alternative sources of supply within a short period of time. EnBW was successful in finding new sources and thus always had sufficient coal supplies for its power plants despite the EU ban on the import of Russian coal.

By the end of 2021 and thus even before the outbreak of war in the Ukraine, EnBW had already started to further diversify its procurement portfolio in order to reduce its dependency on Russian coal supplies. In the reporting year, no new contracts were concluded with Russian coal producers.

Until the sanctions came into force in August 2022, EnBW accepted delivery of Russian coal that was covered by existing contracts with Russian coal producers in which there were corresponding contractual obligations. These deliveries accounted for 48.5% of the total coal supplied to the company. A large proportion of the Russian deliveries were stored in reserve at the seaports.

The lost volumes of Russian coal were replaced mainly by coal from Colombia and the USA. The coal supplies to EnBW over the whole of 2022 can be summarized as follows: Russia was still the largest supplier with 2 million t but coal supplies from Colombia increased significantly from 0.2 million t to 1.6 million t. The total amount of coal supplied was the same as in the previous year at 4.2 million t (previous year: 4.2 million t). The procurement volume increased considerably, however, in 2022 to €1,150 million (previous year: €433 million) due to the sharp increase in the price of coal.

Further information on **coal procurement** can be found on our website.

Online ↗

The EnBW Group places great importance on knowing exactly where the coal it uses is sourced and being able to disclose this information. Some 88.0% of our coal requirements are thus covered by contracts where the respective producers are already known when the contract is concluded. The remainder is sourced from contracts concluded with trade intermediaries who usually define a quality standard and the countries from which the coal could be sourced, but not the source of the coal itself.

Our Russian coal supplies up to August 2022 originated in the mining region of the Kuznetsk Basin (Kuzbass) and were primarily mined by the producers SUEK and Kuzbassrazrezugol (KRU). The Colombian coal was mined by the producers Cerrejón and Drummond. The coal from the USA was sourced from various mining regions.

The opportunities and risks in relation to coal procurement can be found in the "Report on opportunities and risks" (p. 136 f.↗).

Positioning, overarching concepts and due diligence for the protection of human rights

The **rules of conduct governing the responsible procurement** of hard coal and other raw materials can be downloaded in PDF format here.

Online ↗

In accordance with the Guiding Principles on Business and Human Rights of the United Nations, we strive to procure coal responsibly. The EnBW coal supplier portfolio acts as the basis for our activities and it is updated on an annual basis. The sustainability performance of current and potential coal suppliers to EnBW is continuously examined and evaluated on the basis of the **EnBW rules of conduct** governing the responsible procurement of hard coal and other raw materials. The business partner audit comprises an audit with respect to both compliance and sustainability. We determine any future action based on the supplier evaluations resulting from these audits, such as requesting further specific information from selected suppliers. In the process, we pay close attention to the latest studies from competitors and international initiatives, as well as relevant information and contributions from civil society organizations.

Further information on the international business initiative **Bettercoal** can be found here.

Online ↗

We have been a member of the corporate initiative **Bettercoal** since 2020. The independent audits carried out via Bettercoal and the monitoring of the progress made by the individual producers with respect to fulfilling the Bettercoal Continuous Improvement Plans flow into our process for auditing business partners. Currently, we are primarily active within Bettercoal in the Colombian working group because this is where the majority of the coal deliveries were sourced in the second half of 2022. The Russian working group was disbanded immediately after the start of the war between Russia and Ukraine. In addition, we use Bettercoal as a platform for exchanging information with our producers and above all with other stakeholders from civil society, with government representatives from the coal mining regions and with experts on individual countries and human rights. A trip to Colombia was organized by Bettercoal for this purpose in fall 2022.

Our rules of conduct in combination with internal implementation guidelines form the foundations for our business activities. In the sustainability clause that is a fundamental component of all of our contracts with coal producers, we obligate our business partners to observe these rules of conduct. In addition to regular auditing of the sustainability performance of coal suppliers, a multi-stage auditing process is triggered in the event of suspected breaches of the rules. This can lead to temporary suspension or, as a last resort, the termination of the business relationship and thus exclusion from our procurement process. When new contracts are due to be concluded, the results of the analyses saved in the sustainability index are presented to an internal **committee for the responsible procurement of hard coal and other raw materials (AVB)** at regular intervals, with participation from all relevant specialist areas (especially credit risk trading, compliance, environment and sustainability). If any deviations from the minimum standards are identified for existing supply contracts, corrective measures are developed in cooperation with the producers and their implementation is monitored. In 2022, this committee held regular meetings to discuss possible additions to our portfolio of producers – such as potential new coal producers in South Africa and Kazakhstan – that are necessary due to the current situation on the market.

Current developments

Russia

As a result of the increasing tensions between Russia and Ukraine at the time, EnBW had already begun to further diversify its procurement portfolio at the end of 2021 in order to reduce its dependence on deliveries of Russian coal. The company continued to gradually switch over to alternative sources of coal until August 2022, by which time it was no longer reliant on Russian coal.

Colombia

We procured larger amounts of coal from Colombia in 2022 in order to satisfy the increased demand for coal at our power plants. As a member of the Colombian working group at Bettercoal, we were involved in the preparations for and reporting on the Bettercoal trip to Colombia. Meetings were held with relevant stakeholder groups during this trip. They included discussions with representatives from civil society, the unions and government, as well as with the coal producers. Against the background of the changed political conditions in the country, the discussions in Colombia focused on two main areas: socially acceptable structural change in the coal mining regions and dialog with local stakeholder groups. The discussions with the producers (Drummond and Cerrejón) primarily concentrated on the continuous implementation of various improvement measures and thus on ways to achieve environmentally and socially acceptable coal mining in accordance with the Bettercoal Code 2.0.

USA

The USA was for a long time only of limited importance to us as a procurement country. On the one hand, conditions on the market did not give us any reason to procure coal from there and, on the other hand, the quality of the coal did not meet our standards. Both factors have now changed and we have added producers from the USA to our portfolio following a thorough sustainability audit and clarification of some outstanding issues. Our business party audit stipulates that we must clarify any questions that arise during the audit directly with the producers. Therefore, we held in-depth discussions with one producer on their complaints mechanism and their strategy for protecting the environment. This enabled us to agree a path forward together to achieve continuous improvement.

Other procurement alternatives

We are currently examining additional procurement options in Australia, Africa and Asia in addition to those in Colombia and the USA in order to further diversify our procurement portfolio in the medium term. The coal market is generally characterized by an elastic supply and the coal is mainly transported by ship, which means that there is no need for any kind of special pipeline infrastructure. Our procurement initiatives make a comprehensive audit of all potential new business partners just as critical as the quality of the available coal and whether it is suitable for our power plants.

Responsible raw materials procurement in the gas sector

Natural gas as a transition technology

In order to achieve our target of climate neutrality by 2035, we are working intensively on initially switching over our power plants from coal to more climate-friendly natural gas (fuel switch) and then to climate-neutral gas such as biogas or (green) hydrogen in the long term (p. 35↗). Natural gas plays an important role as a **transition technology** – either in the form of liquefied natural gas (LNG) or grid-based natural gas. Against this background, we have transferred our due diligence measures for the responsible procurement of coal over to the procurement of natural gas. The main focus will be a comprehensive business partner audit of all the direct LNG suppliers before they are approved as a business partner for EnBW. In addition, the internal AVB committee is being expanded to include all relevant specialist areas within the company that deal with gas procurement.

Origin and own consumption

In 2022, EnBW mainly sourced its natural gas via supply contracts with companies in Norway and Russia as well as via the European wholesale market. We had two gas supply contracts via VNG Handel & Vertrieb that were affected by the restrictions in supply from Russia. The indirect contractual partner for one of these contracts was SEFE Securing Energy for Europe GmbH (formerly Gazprom Germania GmbH), while for the other, Gazprom export was the direct contractual partner. In the case of the first contract, it was agreed with the contractual partner SEFE that any additional costs for replacement procurement will be reimbursed in full. Compensation was agreed with the German government for the second contract that partially compensates for the increased procurement costs. Both contracts expired at the end of 2022 (p. 64↗). As a consequence of that situation and also for other reasons, we have been strengthening our efforts to diversify our **sources of gas** to a much greater extent. We concluded two long-term purchase agreements in June for liquefied natural gas (LNG) with Venture Global LNG for a term of 20 years, which will diversify our sources of gas in the long term. The total volume of LNG will be around 2.8 billion m³, half of which will be sourced from the Plaquemines facility and half from the Calcasieu Pass 2 facility (both in the USA) of Venture Global LNG from 2026/2027 onwards. Although a gas procurement agreement with the Russian supplier Novatek has been canceled, an LNG procurement contract that expires in 2023 still exists and outstanding deliveries will continue to be made in the coming year.

In 2022, we acquired 7,611 GWh of natural gas for our **own consumption at EnBW** (previous year: 8,249 GWh). We use this gas for generating electricity and heat in our power plants, for heating our buildings and for operating our gas plants.

The opportunities and risks in relation to gas procurement can be found in the "Report on opportunities and risks" (p. 136↗).

Exercising due diligence

We also take our responsibilities seriously in the procurement of gas and exercise human rights due diligence in our supply chain. We have transferred our **business partner auditing** processes from the area of coal procurement to gas procurement. In 2022, we were then able to audit the sustainability performance of all new business partners using a clearly defined process. The business partner audit comprises an audit with respect to both compliance and sustainability. The main focus is placed on the observance of international sustainability standards, a commitment to and compliance with guidelines on environmental protection and human rights, dialog with stakeholders and disclosure of extraction methods. Existing suppliers are reevaluated from a sustainability perspective every one to three years, depending on a risk assessment, as part of our recurring audits, insofar as there are no reasons to carry out an audit sooner. In addition, we are examining whether lessons learned in the Bettercoal initiative can also be transferred to sustainable gas procurement. We are currently holding discussions with various players in the international energy sector on this matter.

Methane emissions

The monitoring of methane emissions from natural gas is becoming increasingly important due to our growing procurement volumes. It is very difficult to collect exact data on methane emissions particularly in the upstream gas supply chain due to the different calculation models used. We are currently working with a general emissions factor of 29 g CO_2eq/kWh natural gas for the upstream supply chain for our gas procurement based on information from the German Environment Agency and the DBI Gas and Environmental Technology Institute. This figure includes methane emissions. For the combustion of the gas, we use an emissions factor (including methane) of 202 g CO_2/kWh natural gas based on data from the German Environment Agency (UBA) and the German Emissions Trading Authority (DEHSt). Despite these low amounts, we are continuously working to further reduce methane emissions. This includes measures at our grid subsidiaries for smart grid management to avoid blowouts, systematic integrity evaluations of the grid, eliminating any weaknesses and the continuous modernization of grid technology, as well as the application of special technical equipment and systems to avoid methane emissions from our lines during maintenance and repair work. We also include direct CO_2 emissions from the operation of the facilities in our gas grids in the calculation of our carbon footprint. We determine the methane emissions from our gas grids using the method developed by the Oil and Gas Methane Partnership (OGMP) (p. 99 f.↗).

Business report

General conditions

Macroeconomic trends

Economies

Following a noticeable recovery of the global economy from the effects of the coronavirus pandemic in 2021, there was considerable uncertainty at the beginning of 2022 due to the war between Russia and Ukraine. Soaring raw material prices and an extensive strategic realignment, especially of the European energy supply system, exacerbated the already perceptible inflationary tendencies even more. The war also increasingly led to the formation of geopolitical blocs and in some cases the escalation of earlier bilateral conflicts. Furthermore, recurring regional lockdowns due to China's zero-Covid policy caused repeated interruptions to the global supply chains. The restrictions were eased in China in November and December 2022, although consumer behavior and the general economic mood still remained subdued until the end of the year.

The war in Ukraine continues and is certain to also have an impact on the development of the global economy in 2023. However, there were some encouraging signs in the third quarter of 2022, such as the easing of tensions on the energy markets, although they had already come to a standstill again in part in the fourth quarter of 2022. Accordingly, the International Monetary Fund (IMF) only raised its growth forecast slightly in its World Economic Outlook Update in January 2023 compared to the update published in October 2022. According to the IMF, global gross domestic product (GDP) grew by 3.4% in 2022 (previous year: 6.2%). The IMF forecasts global growth of 2.9% in 2023. GDP is expected to grow at a much weaker pace in the eurozone and Germany in 2023. In its World Economic Outlook Update in January, the IMF predicted growth of 0.7% in the eurozone and just 0.1% in Germany. The macroeconomic environment will probably also experience huge uncertainty and volatility in 2023, which makes it difficult to make specific statements about the impact on the company's business performance.

Development of gross domestic product (GDP)

in %	2023	2022[1]	2021[1]
World	2.9	3.4	6.2
Eurozone	0.7	3.5	5.3
Germany	0.1	1.9	2.6
France	0.7	2.6	6.8
United Kingdom	-0.6	4.1	7.6
Sweden	-0.1	2.6	5.1
Switzerland	0.8	2.2	4.2
Czech Republic	1.5	1.9	3.5
Turkey	3.0	5.0	11.4

1 The figures for the previous year have been restated.

Development of interest rates

Unexpectedly high rates of inflation and corresponding adjustments to key interest rates led to a drastic turnaround in interest rates in 2022. As a result, almost all of the securities listed on the stock market fell in value. After decades in which price risks had played almost no role on the capital markets, the USA and Europe were temporarily hit by double-digit rates of inflation during the 2022 financial year for the first time since the 1970s. The yields on ten-year German government bonds increased over the course of the year from –0.1% to almost 2.6%. In view of the economic crisis in Europe and the slowdown in growth momentum in China, the US dollar rose considerably against the euro and the Chinese yuan over the year.

Against this background, the actuarial interest rates, which are used to discount the pension and nuclear provisions, also rose during the course of 2022, which led to a reduction in the present value of the provisions.

Development of the sector and competitive situation

The energy sector is currently experiencing a period of great upheaval. There is particular pressure for change due to the energy transition. However, digitalization, sector coupling and the desire of local authorities to become self-sufficient are also having a strong influence on the sector.

A significant factor is that the energy sector is highly regulated, which means that political policies strongly influence developments. Traditional energy companies need to re-examine their competitiveness in individual business areas, exploit the potential offered by a changed market environment and realign their strategies for the future.

Selection of international, national, regional and new competitors

Established competitors		New competitors			
National and international	**Regional**	**Commodity suppliers/ solution suppliers/ start-ups**	**Renewable energies**	**E-mobility, telecommunications and broadband**	**Financial investors**
ALPIQ, EDF, EDPR, Enel, Engie, E.ON, Equinor, EVN, Fortum, Iberdrola, Ørsted, RWE, Vattenfall, Verbund	Badenova, Entega, EWE, Mainova, MVV, NErgie, SWM, Thüga	1komma5°, enpal, Lichtblick, NEXT Kraftwerke, Octopus Energy, ostrom, Sonnen, Thermondo, Tibber	BayWa r.e., bp, Encavis, ENERTRAG, PNE Wind, Shell, theolia, Total Energies, wpd	1&1, Allego, Aral pulse, Deutsche Glasfaser, Deutsche Telekom, Ecotel, Fastned, Google, Ionity, Shell, Tesla, VW	Private equity, infrastructure and pension funds, and insurance companies

EnBW position:
- Further development from an integrated energy supplier to a sustainable and innovative infrastructure partner
- Focus on growth in renewable energies, grids and customer solutions (especially e-mobility, telecommunications and broadband)
- Active in Baden-Württemberg, Germany and selected foreign markets

Challenges:
- Increasing competition due to entry of new market participants in the core business
- New competition due to market entry of EnBW in new business fields
- Optimal positioning with respect to the regulatory environment and highly competitive market

Cross-segment framework conditions

Coronavirus pandemic

Case numbers rose at the beginning of 2022 driven by the omicron wave. The figures then fell at the beginning of June due to, among other things, seasonal effects but then climbed again until July as a result of what was described in the media as the "Covid summer wave." There were further fluctuations in the incidence rates during the remainder of the year but the coronavirus pandemic was largely pushed aside in public discourse by other crises. The impact on the energy sector has remained manageable. Total electricity consumption was slightly below the figure in the previous year (–3.2%), which in view of the increase in energy prices also does not suggest any reduction in consumption due to the coronavirus.

War between Russia and Ukraine

Russian troops invaded Ukraine on 24 February 2022. The war in Ukraine has since raged with increasing intensity and destruction. NATO and EU states have imposed a comprehensive range of **sanctions on Russia.** One of the sanctions agreed as a compromise between the EU states and their leaders was an **oil embargo** against Russia. At a summit on Ukraine held in Brussels on 30 May 2022, the EU agreed to ban more than twothirds of Russian oil imports into the EU by the end of the year. Germany also halted all imports of crude oil from Russia at the turn of the year. The EU member states also agreed an **import ban on Russian coal** with effect from 11 August 2022 (p. 56 ff.↗).

There were also several reductions in the supply of **gas** from Russia via the Nord Stream 1 pipeline from the middle of July 2022 and ultimately a complete shutdown of supplies in September. To ensure that the **storage facilities** were filled, a ministerial ordinance was issued to increase the legally prescribed fill levels. The storage facilities had to be 75% full by 1 September 2022. The minimum fill level was then increased to 85% by 1 October and 95% by 1 November. These targets were achieved in good time. The German gas storage facilities were completely full in November. The gas storage

facilities operated by EnBW and VNG also achieved these targets in good time and were completely full by October. Following a fall in the storage levels to 87% in the middle of December as a result of the temperature, the storage facilities were 90% full at the end of the year. The target set for February 2023 was to keep fill levels above a minimum of 40%. This was exceeded by a large margin with a fill level of around 78%.

The German Bundesrat has given the green light for a one-off **advance payment** as a form of support for gas and district heating customers. This advance payment is designed to act as a financial bridge until the introduction of the "gas price brake" in March 2023. The advance payment provides relief to so-called final consumers of grid-bound natural gas and heating customers by covering their monthly installment payment for December. The actual price brake will introduce a maximum price level for gas and electricity that applies to 80% of the customer's consumption. The Bundesrat approved the adopted Electricity Price Brake Act on 16 December 2022. The mechanism will come into force in March 2023. In addition, customers whose gas or electricity prices were above the cap of 12 ct or 40 ct per kWh respectively in January and February 2023 will be reimbursed retroactively. Furthermore, the windfall profits from the sale of electricity generated using renewable energies, nuclear power, mineral oil, waste and brown coal will be levied in the period between 1 December 2022 and 30 June 2023 to finance the relief provided to final consumers. The **windfall profit levy** is understandable insofar as it only applies to profits resulting from the currently unusually high electricity prices. However, these levied windfall profits will no longer be available for investment in the energy infrastructure.

The gas importer **Uniper** was left in severe difficulties by the reduction in Russian gas deliveries. The German government, Uniper and the previous majority shareholder Fortrum agreed to extensively nationalize Uniper as a result. The parties signed a corresponding stabilization package on 21 September 2022. As part of the agreement, a capital increase of €8 billion was carried out that was exclusively subscribed by the German state.

Our subsidiary **VNG** also submitted an application to the Federal Ministry for Economic Affairs and Climate Action (BMWK) for stabilization measures in accordance with section 29 of the Energy Security Act (EnSiG) on 9 September 2022. The application was necessary as a result of unfulfilled delivery obligations from two contracts with suppliers. VNG had to replace the missing Russian gas at significantly higher prices on the energy markets so that it could continue to supply its customers reliably at contractually agreed, much lower prices. Due to an agreement reached with the German government on compensation for losses incurred in connection with the replacement procurement costs resulting from the contract with Gazprom export LLC (GPE), VNG was able to resolve the residual risks from replacement gas procurement related to this contract. VNG has a second supply contract with WIEH GmbH, a subsidiary of SEFE Securing Energy for Europe GmbH (formerly Gazprom Germania GmbH). Under a settlement reached for this contract on 10 October 2022, the additional costs of replacement procurement in the 2022 financial year will be borne by WIEH. Both contracts expired at the end of 2022. Following the agreement, VNG withdrew its application for stabilization measures according to section 29 EnSiG. The government will therefore not take an equity stake in VNG. Instead, EnBW and the other shareholders have agreed to increase VNG's equity by a total of €850 million in a two-step process (p. 61↗).

In view of the gas shortage and high prices, it is even more important to **save energy.** To this end, Federal Minister for Economic Affairs Robert Habeck launched an energy-saving campaign at the Energy Efficiency Summit in Berlin in 2022. The state government of Baden-Württemberg also initiated an energy-saving campaign called "CLEVERLÄND – saving energy together."

Climate change mitigation

Federal Minister for Economic Affairs Robert Habeck announced that in light of the current situation the German government will activate additional **coal-fired power plants** to replace the electricity generated by gas power plants. The Federal Cabinet laid the foundations for this measure in the Act on Maintaining the Readiness of Substitute Power Plants for Reducing Gas Consumption in the Electricity Sector. It authorizes the deployment of power plants that are currently available only to a limited extent, are due to be dismantled in the near future or that have been transferred to the grid reserve. A good example is provided by Block 7 of the Rheinhafen steam power plant (RDK 7)

that was not decommissioned as planned but will continue to operate until at least the end of 2023. EnBW is thus making a significant contribution to the security of supply.

Despite having to use these coal-fired power plants again as a fallback solution, there has still been significant progress made in legislating for more climate protection. For example, the Federal Cabinet passed a series of draft laws as part of its so-called **Easter Package** on 6 April 2022. This package will amend a total of 28 laws and ordinances and introduces the new Energy Levies Act (EnUG). One example is the "EEG Article Act," which brings in immediate measures to accelerate the expansion of renewable energies and other measures in the electricity sector. This law contains new regulations within various acts including the Renewable Energy Act (EEG 2023), the Heat and Power Co-Generation Act (KWKG 2023) and EnUG. Another example is the "EnWG/BBPlG Article Act" – a law to amend energy industry law with respect to the Climate Protection Action Program and to modify regulations governing end customer deliveries. This comprises, among other things, amendments to the German Energy Industry Act (EnWG), the Federal Requirement Plan Act (BBPlG) and the Grid Expansion Acceleration Act (NABEG). The aim is to reduce the level of bureaucracy and accelerate the planning and expansion of renewable energies and the electricity grids. Finally, another important measure to mention is the reform of the Offshore Wind Energy Act (WindSeeG). This increases the expansion targets for the uptake of offshore wind energy, introduces additional auctions for sites that have not been pre-developed and brings in a transition to Contracts for Difference (CfD), which means bidders must submit their bids for a fixed price. Depending on the market price for electricity, the bidder will either receive the difference to the fixed price in the bid as a subsidy or must pay the difference to the fixed price using retained profits. In view of EnBW's alignment towards renewable energies, we believe that an acceleration in the rate of expansion and the removal of bureaucratic hurdles are especially positive developments.

As part of its **Immediate Climate Action Program,** the German government made an additional €8 billion available for climate action measures, of which €5 billion will be used to fund the energy-efficient modernization of buildings and the installation of energy-efficient heating systems. The "summer package" planned for the second half of the year was split into individual proposals. The reform of the Energy Efficiency Act (EnEfG) defined binding energy saving targets for 2030, 2040 and 2045. These targets are based on the associated EU Directive. EnBW believes that these planned improvements for greater climate protection are a step in the right direction.

European energy policy

Negotiations for the "Fit for 55" and gas legislative packages as well as efforts to finalize the guidelines in the EU taxonomy have been ongoing at an EU level, but the main focus was, however, the increasingly fraught situation with respect to **energy prices and the security of supply** together with the associated emergency measures necessary as a result of the war between Russia and Ukraine. In view of the considerable impact on the economy and household customers, there was increasing political pressure to quickly carry out a fundamental review of the design of the current internal energy market in Europe. Preparations for an accelerated reform before the end of this legislative period (until 2024) were initiated in the second half of 2022.

In order to counteract the **impact of the war between Russia and Ukraine,** the European Commission initially concentrated on increasing the freedom of member states to cushion hardships experienced by badly affected consumers, diversifying the sources of supply and expanding the framework for state aid. As part of an urgent referral process, obligatory regulations for the management of gas storage facilities together with associated solidarity agreements were thus put in place in preparation for potential shortages in the winter months. Furthermore, the European Council introduced emergency measures for the windfall profit levy in the electricity generation sector, for energy-saving obligations and for accelerating approval processes. Other measures include the establishment of a joint purchasing platform for gas and solidarity measures for the supply of gas, as well as a gas price cap – although with limited scope.

Beyond these emergency measures, the EU has been working on proposals for the **reform of the electricity market design** so that it can handle the challenges posed by an energy system characterized by volatile renewable energies in the medium and long term. The details of this reform are still unclear. The European Commission initially wants a sharply focused reform that will have an

impact as quickly as possible, with further opportunity for more in-depth discussions in the coming legislative period. There have also been calls for immediate and far-reaching changes to the design of the market, which have been viewed critically by EnBW as they abandon the market-driven system.

VNG is a member of the **European Clean Hydrogen Alliance,** which is pushing forward the rollout of clean hydrogen production and use in Europe.

Online ↗

The challenges caused by the war between Russia and Ukraine have also had an effect on the negotiations for the **"Fit for 55" package** and especially the Renewable Energy Directive. The European Commission has presented various legislative proposals during the ongoing negotiations for the "Fit for 55" package. These include increasing the expansion targets for renewable energies, accelerating approval processes and providing additional resources for funding transition investments and compensating vulnerable consumers. It was possible to reach some agreement on climate legislation before the end of 2022 – such as the revision of the Emissions Trading Directive including the introduction of an additional emission trading system for the heating and transport sectors, the Effort Sharing Regulation and the Carbon Border Adjustment Mechanism (CBAM) – with largely ambitious compromises. Agreement on the rest of the dossier, especially the reform of the Renewable Energy Directive and the Energy Efficiency Directive, should be reached by the end of the first quarter of 2023. The negotiations on the legislative proposals for the decarbonization of the gas sector from December 2021 are taking time and it is expected that the position of the EU Parliament and the EU Council of Ministers will only be presented in the first quarter of 2023, and will come before the European Council in the second quarter. Agreement between the two sides is only expected by the end of 2023. The EU has taken the first positive steps with respect to the unbundling requirements for a future hydrogen grid that are particularly important to EnBW.

Further information on our **experiences with applying the EU sustainable finance taxonomy** can be found here.

Online ↗

The intensive negotiations on supplementary criteria to define electricity generation from natural gas and nuclear energy on a transitional basis as sustainable activities in accordance with the **EU Taxonomy Regulation** ultimately led to very restrictive requirements. EnBW welcomes the recognition of gas activities as a transformation technology. Information on the EU taxonomy can be found in the chapter "EU taxonomy" (p. 110 ff.↗) and in the key performance indicators for the EU taxonomy (p. 151 ff.↗).

Smart Infrastructure for Customers segment

Electricity and gas prices for retail and industrial customers

Average electricity price for a household [1]

in ct/kWh	HY2 2022	HY1 2022	2021
Grid fees [2]	8.08	8.08	7.80
EEG cost allocations [3]	0.00	3.72	6.50
Procurement, sales	20.64	14.40	7.93
VAT	6.40	5.92	5.13
Electricity tax	2.05	2.05	2.05
Concession fees	1.66	1.66	1.66
Other allocations	1.24	1.24	1.09
Total	**40.07**	**37.07**	**32.16**

1 Annual consumption of 3,500 kWh.
2 Including metering and metering station operation. Source: BDEW | As of January 2023
3 EEG cost allocations no longer apply as of 1 July 2022.

+24.6%

increase in **electricity costs** for a household with an annual consumption of 3,500 kWh in the second half of 2022 in comparison to the previous year.

According to an analysis of electricity prices by the German Association of Energy and Water Industries (BDEW) published in December 2022, the average monthly electricity bill for a household with an annual consumption of 3,500 kWh came to €108.12 in the first half of 2022. This figure increased to €116.86 in the second half of 2022. The average figure for the whole of 2021 was €93.80. As a result of the abolishment of the EEG cost allocations as of 1 July 2022, the BDEW published two figures for the average electricity price in 2022, one for each half of the year. As procurement costs rose anyway due to significant increases in energy prices, the abolishment of the EEG cost allocations did not really reduce the burden on consumers over the year as a whole.

After reducing prices for customers on two occasions, EnBW was forced to increase its prices for household electricity for the first time since 2020 due to the significant rise in procurement costs. On 1 October 2022, EnBW raised the prices for its basic supply tariffs by an average of 31.1%. This

was due to the significant increase in procurement costs on the electricity market, mainly triggered by the war between Russia and Ukraine and especially by the reductions in gas supplies by Russia. Prices for other tariffs also increased by a similar amount as those for the basic supply. The price rises introduced by EnBW were in the middle of the range of price increases on the overall market.

For industrial customers receiving a medium-voltage supply, the average electricity price including electricity taxes increased significantly during the course of 2022 according to calculations made by BDEW. While the average electricity price still stood at 33.02 ct/kWh in the first half of the year, it increased in the second half of the year to 53.38 ct/kWh. In the previous year, prices only just exceeded the 20 ct/kWh mark at 21.38 ct/kWh.

Average natural gas price for a household in a single-family house [1]

in ct/kWh	Q4 2022	Q1–Q3 2022	2021
Procurement, sales	15.88	10.06	3.25
Grid fees [2]	1.66	1.66	1.64
VAT [3]	1.31	2.44	1.13
Natural gas tax	0.55	0.55	0.55
CO_2 price [4]	0.55	0.55	0.46
Other duties and cost allocations	0.09	0.03	0.03
Total	20.04	15.29	7.06

1 Natural gas central heating with hot water provision, each set at a special customer tariff including a reduced concession fee (0.03 ct/kWh), annual consumption of 20,000 kWh, base price included on a pro rata basis, not volume-weighted.
2 Including metering and metering station operation.
3 The "law for the temporary reduction of the value added tax rate for the supply of gas via the natural gas grid" reduced the VAT rate on gas deliveries retrospectively from 1 October 2022 until the end of March 2024 from 19% to 7%.
4 The CO_2 price represents the cost for the acquisition of CO_2 emissions trading allowances according to the BEHG and is fixed at a price defined by law until the end of 2025. Source: BDEW | As of January 2023

+183.9%

increase in **natural gas prices** for a household with an annual consumption of 20,000 kWh in the fourth quarter of 2022 in comparison to the previous year.

According to calculations by the German Federal Statistical Office, natural gas prices for private households were 17.7% higher in the first half of 2022 than in the second half of 2021. Gas prices for industry rose in the same comparative period by 38.9%. According to the gas price analysis published by the BDEW in December 2022, the average natural gas price for a household in a single-family house over the first nine months of 2022 was 15.29 ct/kWh. This figure rose to 20.04 ct/kWh for the fourth quarter of 2022. The reason for the publication of two average figures for 2022 was the reduction in VAT for gas deliveries from 19% to 7% from 1 October 2022 and the resulting change to the price structure in the fourth quarter of 2022.

After initially raising gas prices in its basic supply tariffs by 34.8% on 1 July 2022, EnBW was forced to increase prices for the basic supply of gas once again by an average of 38.0% on 1 December 2022, due to further increases in procurement costs. However, the gas prices at EnBW are still below average compared to the overall market. Prices for other tariffs also increased by a similar amount as those for the basic supply.

Structural changes

High wholesale market prices for electricity and gas have placed smaller suppliers, in particular, under pressure. Consequently, some companies canceled their supply contracts with their customers or were forced to declare themselves insolvent. As a result of our long-term procurement strategy, we were less affected initially by the rising prices and were able to demonstrate our reliability, also guaranteeing that those customers in our **basic supply area** who had lost their suppliers were still supplied with energy as usual. Due to the persistently high wholesale prices, however, EnBW was forced to adjust its prices for electricity and gas during the course of the year.

Despite the coronavirus pandemic, the **home electricity storage market** already grew by 48% in 2021 compared to the previous year. Further growth was also seen in 2022. The boom in small photovoltaic power plants continued in the first months of the year and the demand for photovoltaic home storage systems also increased further in its wake. EUPD Research estimated that more than 220,000 home storage systems would be installed for the first time in 2022. 87% of new rooftop systems are now combined with a photovoltaic home storage system. We are one of the leading providers on this market via our subsidiary SENEC and are thus participating in this growth (p. 93f.↗).

There continues to be very dynamic growth in the **registration of new electric vehicles.** The total number of new passenger car registrations fell by about 1.3% in 2022, following already low numbers in the previous year. This fall was due mainly to bottlenecks in supply. According to the Federal Motor Transport Authority, around 471,000 electric cars were nevertheless registered in 2022, which was around 32% more battery electric vehicles than in the previous year. The share of the total number of new registrations accounted for by purely electric vehicles increased to 18%. A similarly high proportion of the overall market was accounted for by plug-in hybrid vehicles, with 362,093 newly registered vehicles. This increase was mainly due to the growing acceptance for these vehicles among customers and the wider choice of models available. This growth will also be supported by the target of 15 million electric cars by 2030 that is defined in the coalition agreement concluded by the German government. EnBW mobility+ is helping to ensure there is sufficient **charging infrastructure** to achieve this target. It already operates the largest quick-charging network in Germany, is investing in further expansion and also provides drivers with the opportunity to charge their vehicles throughout large areas of Europe using the EnBW mobility+ app (p. 93↗).

The coronavirus pandemic has increased awareness for just how crucial the Internet is for the economy and for social life. However, a comprehensive expansion of the **broadband infrastructure** is currently not economically viable in many regions. For this reason, future funding will now focus on "gray areas," and since 1 January 2023 has been provided for areas with a bandwidth ≤ 100 Mbit/s (symmetrical), thus effectively for all private customer connections that are not gigabit-ready. Total funding of €17 billion is available for the expansion of the fiber-optic infrastructure. In order to benefit from this transformation to a gigabit-ready infrastructure, Plusnet is active across Germany, while NetCom BW will focus on Baden-Württemberg (p. 94 f.↗).

System Critical Infrastructure segment

The shutdown of around half of the French nuclear power plants and the generally tense situation on the energy markets since the start of the war between Russia and Ukraine led to an accumulation of risks for the security of supply in Germany and Europe. For this reason, the German transmission system operators carried out a second special analysis for the winter of 2022/2023 that was completed by September 2022. The analysis took into account the reduced generation from the French nuclear power plants, potential shortages in the supply of coal due to low water levels, the potential non-availability of the gas power plants in southern Germany and of the reserve power plants, and high prices of natural gas of up to €300/MWh. The results of this second **stress test** showed that although crisis situations on an hourly basis in the electricity system were very unlikely, they could not be completely ruled out. The proposed countermeasures include the deployment of reserve power plants and returning coal power plants to the market, additional electricity production in biogas plants and increasing the load on the electricity grids. As the potential contribution that could be made by nuclear energy is limited according to the calculations, and nuclear energy is classified as a high-risk technology, a new deployment reserve consisting of the three nuclear power plants still connected to the grid (Neckarwestheim, Isar, Emsland) was formed for a limited period until April 2023. The Federal Network Agency will monitor the current conditions on the electricity market and grids (coal stocks, power plant availability, gas availability, etc.) and then decide on the basis of this information whether to continue operating the three remaining nuclear power plants in Germany, including Block II in Neckarwestheim.

The Federal Network Agency (BNetzA) confirmed the framework scenario produced by the four electricity transmission system operators (TSOs) for the **Network Development Plan 2037/2045 (2023) Electricity** in July 2022 based on a draft scenario by the TSOs, a public consultation and the BNetzA's own evaluations. It contains three scenarios for 2037 and, for the first time, also includes an outlook for a "climate-neutral grid" to support a climate-neutral Germany in 2045. It not only factors in the phaseout of coal and nuclear energy but also the national hydrogen strategy, the highly ambitious policies for the expansion of renewable energies and an increasingly integrated internal energy market in Europe as the main drivers of the transformation of the energy system. The three scenarios reflect different degrees of hydrogen uptake and electrification. The installed renewable energy generation capacities should reach between 400 and 445 GW for photovoltaics and between 230 and 250 GW for onshore and offshore wind by the year 2045. This means that the growth rate

will have to increase fivefold in comparison to the reference year of 2020 in order to cover gross electricity consumption in 2045, which is expected to double to around 1,000 to 1,300 TWh. The first results from the grid calculations are expected at the end of the first quarter.

Our transmission grid operator TransnetBW is participating in two major projects to push forward the development of high-voltage DC transmission lines (HVDC) to transport wind energy in future from the north of Germany to the centers of consumption in the south. TransnetBW is responsible for the most southern section of the **ULTRANET** project between North Rhine-Westphalia and Philippsburg. It was possible to submit objections to the plans for this section up to the end of August 2022 during the consultation process. These objections will be discussed with the BNetzA in the next stage before the final decision on awarding planning permission is made. In the **SuedLink** project, two high-voltage DC transmission lines from Schleswig-Holstein to Bavaria and Baden-Württemberg are being realized in cooperation with TenneT. The consultation process for the first of a total of eight sections for which TransnetBW is responsible ended in September. The BNetzA has defined the scope of the assessments required for the further planning of the remaining seven sections.

The **grid companies in the EnBW Group have implemented numerous digitalization measures** which should reduce the huge need to expand the electricity grid in order to achieve the climate neutrality targets and also to optimize the processes involved in operating the grids. In October 2022, Netze BW founded the cooperation network **"1:network" (1:n)** together with the German meter manufacturer EMH metering, Stromnetz Hamburg and Stadtwerke Karlsruhe Netzservice. The partners aim to push forward the use of the 1:n wireless solution and accelerate its time to market. 1:n connects several electricity meters to one single smart meter gateway via a wireless protocol. It will fulfill all of the requirements set by the Federal Office for Information Security (BSI) and the National Metrology Institute of Germany (PTB) for a smart metering system in the future. 1:n can thus drastically reduce the number of smart meter gateways required and should mark a milestone in the efficient rollout of smart meters and the digitalization of the energy transition.

The BNetzA confirmed the amended scenario framework for the **Network Development Plan Gas 2022 – 2032** in November 2022. This means that the current process for the preparation of the NDP Gas will now take into account the impact of the war between Russia and Ukraine. The gas transmission system operators will thus reflect the significant changes to the framework conditions in the gas industry arising from the new geopolitical situation in their models for the grid. Among other things, the gas transmission system operators will consider three LNGplus variations of the scenario for securing the supply of gas that foresee the full replacement of Russian gas with capacities that are available at the German LNG facilities and the additional capacities available at cross-border points in Western Europe. The modeling of a hydrogen scenario, which will demonstrate how the existing natural gas grid in Germany can be used to develop an infrastructure for hydrogen by 2032, remains a part of the Network Development Plan. The consultation document on the Network Development Plan Gas 2022–2032 was published by the gas transmission system operators in December 2022.

The current Network Development Plan Gas runs until 2030 and envisages an increase in the gas transmission capacities in Baden-Württemberg, especially for the supply of new gas power plants, which will require a needs-based **expansion of the gas transmission grid** by our subsidiary terranets bw. One of the current expansion measures is the Neckar-Enz Valley pipeline. It will increase the security of supply in Baden-Württemberg and sustainably increase the supply of gas to the Ludwigsburg/Enzkreis region, even at peak times. Construction of this almost 30 km long pipeline began at the beginning of March 2022 and it was placed into operation in December 2022.

Sustainable Generation Infrastructure segment

Installed net output for electricity generation in Germany

in GW	2022	2021	2020	2019	2018
Solar	66.5	59.0	54.1	49.1	45.3
Onshore wind	58.2	56.3	54.8	53.2	52.5
Biomass	9.0	9.4	8.3	8.5	8.1
Offshore wind	8.1	7.8	7.7	7.5	6.4
Hydropower [1]	5.4	5.5	5.5	5.5	5.5
Gas	32.1	31.7	30.5	30.1	30.1
Hard coal	19.0	19.9	23.7	22.7	23.8
Brown coal	18.9	20.0	20.3	20.9	20.9
Nuclear power	4.1	8.1	8.1	9.5	9.5
Oil	4.7	4.7	4.4	4.4	4.4
Total	**226.0**	**222.3**	**217.4**	**211.3**	**206.5**

1 Addition of 5.4 GW hydropower by EnBW. Source: Fraunhofer ISE (www.energy-charts.de) | As of 13/02/2023

Renewable energies

Germany

The proportion of total electricity generation accounted for by renewable energies was around 44% in 2022 and thus significantly higher than in the previous year (previous year restated due to more precise analyses: 41%). More favorable wind conditions and a higher installed photovoltaic capacity were the main reasons for this increase.

The target for the share of the gross electricity consumption accounted for by renewable energies in 2030 has been raised to at least 80% in the reform of the Renewable Energies Act. In order to achieve this target, significant increases were defined for the annual auction capacities and expansion volumes as well as other measures. The annual growth rate for onshore wind power will be increased to 10 GW. Annual growth in photovoltaics of 22 GW is planned from 2026 onwards. As part of the reform of the Offshore Wind Energy Act, the targets for offshore wind energy have been increased to an installed output of 30 GW by 2030, 40 GW by 2035 and 70 GW by 2045. We welcome these developments and believe that they validate our strategy of making renewable energies an important pillar of our company.

Onshore wind

In 2022, new onshore wind farms with a total capacity of around 2 GW were placed into operation in Germany. In the auctions held in May and September, the available capacities were not covered by the submitted bids, which was mainly due to poorer financial framework conditions as a result of higher interest rates, and a significant increase in the cost of raw materials. The target land areas defined for the federal states by the German government will have a positive impact on the expansion of onshore wind energy in the long term. The amendments on the protection of species in the Federal Nature Conservation Act will also have a positive effect.

Offshore wind

One new offshore wind farm with a capacity of around 340 MW was placed into operation in Germany in the first half of 2022. An auction for a pre-investigated site in the North Sea with an installed output of 980 MW was held in September. Significant auction capacities were also announced for 2023 and 2024.

Photovoltaics

A total of around 6 GW of photovoltaic power was connected to the grid in Germany in 2022. In the auctions held in 2022, bids for open-field projects with a total capacity of 2.3 GW and for rooftop power plants with a total capacity of 0.5 GW were accepted. The auctions covered a total capacity of 4.8 GW. The fact that only 2.9 GW was awarded to the successful bids indicates that there are not enough approved projects available to participate in the auctions and the financial framework conditions have become significantly more challenging. In order to achieve the ambitious expansion targets, it will be necessary to expand the approved areas for wind farms considerably.

France

We develop and realize wind energy and PV projects on the French market through our subsidiary Valeco – a project developer and operator in the renewable energies sector. We expect continued dynamic growth in France both in the area of wind power and photovoltaics. 20 GW of onshore wind capacity is currently installed in France. The government's target is to expand this figure to between 33 and 35 GW by 2028. It also aims to expand the installed photovoltaic capacity from the current figure of 16 GW to between 35 and 44 GW. The French energy strategy includes ambitious expansion targets for offshore wind power. We are taking part in an auction for a floating wind farm off the coast of Brittany and are already prequalified for the next phase of auctions for floating projects in the Mediterranean Sea.

Great Britain

The British government has once again raised its target for the expansion of offshore wind capacity by a further 10 GW to 50 GW by 2030 and has underlined its position as the largest European market for offshore wind. In the latest auctions within the CfD (Contracts for Difference) funding scheme, six projects with a total capacity of almost 7 GW were successful.

The results of an auction for offshore wind rights in Scotland were announced at the beginning of 2022. We had our joint bid – submitted together with our partner bp – accepted for sites to develop offshore wind farms with a capacity of up to 2.9 GW. The "Morven" project that will be developed on one site will generate enough power to supply more than three million households on aggregate.

Sweden

The Swedish energy market offers favorable physical conditions and a still growing and competitive market environment for renewable energies. The further expansion of onshore wind plays an important role in the Swedish generation market. Photovoltaics are becoming an even more attractive proposition, especially in southern Sweden. It remains to be seen whether offshore wind power will also play an increasing role in the Swedish energy mix in future, both as an important source of electricity and in combination with the targets for integrating green hydrogen into the industrial and transport sectors.

Turkey

Our joint venture in Turkey with our partner Borusan operates wind turbines with a total output of 665 MW and is one of the largest players on the Turkish wind market. In addition, the joint venture operates a hydropower plant (50 MW) and two solar parks (9 MW). Since 2021, there has been a new funding mechanism for renewable energies that will be valid for projects commissioned up until the end of 2025. Feed-in remuneration for new projects will no longer be calculated in US dollars, as previously, but rather in Turkish lira directly. This change will have no impact on the earnings from our existing projects.

Turkey continues to have great untapped potential with respect to renewable energies, primarily in the areas of onshore wind and photovoltaics. We believe that the Turkish market remains an attractive proposition for the future, although we are monitoring the current political and economic developments in Turkey very closely.

Conventional generation: market and fuel prices

Electricity wholesale market

In 2022, the average spot market price of around €235/MWh was approximately €139/MWh higher than in the previous year. The average price on the forward market was also significantly higher than the average price in the previous year. These price increases were mainly due to higher prices for gas, coal and CO_2 allowances. In addition, coal power plants were deployed to a much greater extent than normal due to the high price of gas. The future development of electricity prices will depend on the development of fuel and CO_2 prices and trends in the electricity generation mix. As well as the future development of energy and climate policies, what happens in the war between Russia and Ukraine and the sanctions imposed on Russia will have a major influence on the electricity market.

Development of prices for electricity (EPEX), base load product

in €/MWh	Average 2022	Average 2021
Spot [1]	235.45	96.85
Rolling front year price	298.86	89.14

1 The figures for the previous year have been restated.

Gas market

Development of prices for natural gas on the TTF (Dutch wholesale market)

in €/MWh	Average 2022	Average 2021
Spot	122.98	46.87
Rolling front year price	114.21	33.60

Prices increased considerably in 2022 in comparison to the previous year. Repeated reductions in the quantities supplied by Russia were the main reason for this development. There were huge increases in spot market prices for a short period of time immediately after the start of the war between Russia and Ukraine. Russian gas continued to flow initially despite the war, which calmed the market to some extent. At the beginning of April 2022, Gazprom Germania (renamed as SEFE Securing Energy for Europe since June 2022) was placed under government control after Gazprom made changes to ownership. Gazprom reduced the capacity of the Nord Stream 1 pipeline by two thirds in the middle of June 2022. This reduction was the main reason for Germany moving to warning level 2 of the Emergency Plan for Gas. Overall, this led to significant price increases from the middle of June 2022 onwards. Russia resumed its supply of gas to Europe via Nord Stream 1 after the completion of maintenance work and gas flowed again from 21 July. However, gas only flowed through the pipeline at 20% of its maximum capacity. Gazprom announced further maintenance work on Nord Stream 1 at the end of August and thus triggered another massive increase in prices. Following the completion of the maintenance work, the company reported damage to a turbine and did not resume exports again. At the end of September, there was an attack on the pipelines in which two strands of the Nord Stream 1 pipeline and at least one strand of the Nord Stream 2 pipeline were damaged.

The lack of gas from Russia was compensated for to some extent by very high production in Norway. LNG imports to northwest Europe also increased considerably in comparison to the previous year. However, imports fell slightly over the summer of 2022 because there were insufficient pipelines to transport the gas from the LNG terminals to several gas storage facilities. Gas storage levels in Northwest Europe were comparatively low at the end of last winter but reached a relatively high level over the summer months. The EU also passed a law requiring a fill level of 80% by 1 November 2022. Some countries increased this target even further, such as the 95% level prescribed by Germany. The gas storage targets were achieved. This was helped to some extent by a warm October, which meant there was low demand for heating, and falling prices on the spot market (p. 63 f.↗).

The European governments called on power plants, industry and households to reduce their gas consumption by around 15% in order to prevent potential gas shortages over the winter 2022/2023. Large volumes of LNG will continue to be needed in northwest Europe to replace Russian gas. In September 2022, the first new LNG terminal in the Netherlands was placed into operation and has helped to ease the situation. The first liquefied natural gas terminal in Wilhelmshaven also started operating on 21 December 2022. Another liquefied gas terminal was then opened just four weeks later by the Federal Chancellor Olaf Scholz. A Floating Storage and Regasification Unit (FSRU) arrived in Brunsbüttel at the end of January. It is thus the third German LNG terminal that has been placed into operation this winter to ensure the security of the energy supply in just a short space of time.

Oil market

Development of prices on the oil markets

in US$/bbl	Average 2022	Average 2021
Crude oil (Brent) front month (daily quotes)	99.17	70.95
Crude oil (Brent), rolling front year price (daily quotes) [1]	87.19	66.32

1 The figures for the previous year have been restated.

Oil prices rose almost continuously from the beginning of January until June 2022. This trend was only interrupted by a sharp spike in prices of up to US$128/bbl immediately after the beginning of the Russian attack on Ukraine at the end of February, although this did not have a sustained impact. Prices continued to climb until 8 June when they hit a price of US$123/bbl. Alongside the war between Russia and Ukraine, a significant rise in the global demand for oil after the coronavirus pandemic and a shortage of oil products also contributed to the increase in prices. Although the OPEC+ group repeatedly increased oil production at first, more and more member OPEC+ states were simply not able to fulfill their rising production quotas. From the middle of June 2022 onwards, high oil prices combined with the sharp increases in interest rates made by many central banks increased the fears of a possible recession amongst market participants and led to an associated negative impact on the global demand for oil. Only the agreement by the OPEC+ group to cut their oil production by two million barrels a day from 1 November 2022 was able to stop the drop in prices and stabilize them. The oil market will still be subject to considerable uncertainty in the future due to the geopolitical crisis, artificial shortages in supply created by OPEC+ since November and macroeconomic risks.

Coal market

Coal prices increased initially up to the end of February 2022. Russia and South Africa reported problems with their domestic logistics that had a negative effect on export volumes. The Indonesian government also imposed a coal export ban for January 2022. Prices then climbed significantly following Russia's attack on Ukraine. There were sharp increases in spot prices up to the beginning of March 2022 with prices reaching US$417/t because of market fears that Russia would fail to deliver its coal. As Russia continued to deliver coal to Europe, however, prices fell at first before continuing to rise again. A new all-time high of US$424.97/t for the spot price API #2 was ultimately reached on 23 June 2022. The spot price API #2 experienced very volatile sideways movement immediately afterwards but there was then a sharp downturn in API #2 coal prices from the beginning of September. Coal prices then tended to follow not only developments in European gas prices and German electricity prices but in producer margins. On the one hand, there was downward pressure on prices due to the fact that European coal consumers had already covered their demand for the rest of the year to a very high extent to avoid supply shortages. Coal reserves in the ARA region (around Antwerp, Rotterdam and Amsterdam) almost reached full capacity. Following concerns of potential shortages in supply, there was paradoxically a physical oversupply of coal in northwest Europe. In the near future, the European coal market will be highly dependent on the weather during the winter, the development of gas and electricity prices and changes in supply and demand. The forward market is anticipating that the situation will ease slightly only in 2024 and 2025 because the demand for coal will remain high in Europe and there is no possibility of a resumption of Russian deliveries for the time being.

Development of prices on the coal markets

in US$/t	Average 2022	Average 2021
Coal – API #2 rolling front year price	222.13	95.07
Coal – API #2 spot market price	292.08	122.24

CO_2 allowances

At the beginning of 2022, prices for EUA certificates at first rose continuously from around €80/t CO_2 to over €96/t CO_2 and were significantly higher than those in the previous year. Following the start of the war between Russia and Ukraine, prices fell back down below €60/t CO_2. They then recovered over time and have been between €70/t CO_2 and €100/t CO_2 since the middle of April 2022. The main drivers of prices for EUA certificates in 2022 were, on the one hand, high emissions in the electricity sector and, on the other hand, the risk of lower emissions in the industrial sector caused by high gas prices and a potential physical shortage of gas during winter 2022/2023. As a result of the further reductions in supply imposed by the market stability reserve (MSR) and the tightening of the climate targets for 2030, further price increases are expected in the long term.

Development of prices for emission allowances/daily quotes

in €/t CO_2	Average 2022	Average 2021
EUA – rolling front year price	81.04	52.76

Nuclear power

Germany had decided to phase out nuclear power by the end of 2022. This decision was reaffirmed in the current coalition agreement. We responded to this decision at an early stage with a comprehensive dismantling strategy that is being rigorously implemented by our subsidiary EnBW Kernkraft (EnKK). EnKK is the licensed operator of our five nuclear power plants and is also responsible for their dismantling. The dismantling work has been underway in Obrigheim since 2008, at the blocks Neckarwestheim I and Philippsburg 1 since 2017 and at Philippsburg 2 since 2020. In accordance with the German Atomic Power Act (AtG), operation of the fifth power plant – Block II in Neckarwestheim – was only due to continue until the end of 2022. EnKK has also already applied for approval to dismantle this power plant so that work can be started as soon as possible after it is finally shut down.

Following approval by the Bundesrat on 25 November 2022, the three remaining nuclear power plants in Germany – including Block II in Neckarwestheim – will now continue to operate until 15 April 2023. For this reason, EnBW has carried out all of the preparatory work to ensure that, instead of the planned phaseout of nuclear power at the end of the year, Block II in Neckarwestheim can continue to operate reliably and safely. EnBW will thus make its contribution to the security of the energy supply in Germany to the best of its abilities.

The EnBW Group

Finance and strategy goal dimensions

Changes to the segment reporting

Due to a change in the allocation of business activities to the different Board of Management remits, there has been a change in the composition of our segments. The area of contracting was previously allocated to the Smart Infrastructure for Customers segment but is now part of the Sustainable Generation Infrastructure segment. Innovation activities were previously reported under the Smart Infrastructure for Customers segment but will be presented under the System Critical Infrastructure segment from 2022 onwards. The figures for the comparative periods have been restated in each case.

Results of operations

Electricity and gas sales at almost same level as previous year

Electricity sales volume (without System Critical Infrastructure)

in billion kWh[1]	Smart Infrastructure for Customers		Sustainable Generation Infrastructure		Total (without System Critical Infrastructure)		Change in %
	2022	2021	2022	2021	2022	2021	
Retail and commercial customers (B2C)	14.1	14.4	0.0	0.0	14.1	14.4	-2.1
Business and industrial customers (B2B)	22.6	23.5	0.6	0.0	23.2	23.5	-1.3
Trade	0.1	0.1	68.5	69.5	68.6	69.6	-1.4
Total	**36.8**	**38.0**	**69.1**	**69.5**	**105.9**	**107.5**	**-1.5**

1 The figures for the previous year have been restated.

Electricity sales in 2022 were at the same level as in the previous year. In a currently challenging market environment, electricity sales to retail and commercial customers (B2C) and also to business and industrial customers (B2B) remained at almost the same level as in the previous year. Sales in the trading sector were also at around the same level as in the previous year.

Gas sales volume (without System Critical Infrastructure)

in billion kWh	Smart Infrastructure for Customers		Sustainable Generation Infrastructure		Total (without System Critical Infrastructure)		Change in %
	2022	2021	2022	2021	2022	2021	
Retail and commercial customers (B2C)	15.5	18.3	0.0	0.0	15.5	18.3	-15.3
Business and industrial customers (B2B)	147.5	246.6	0.0	0.0	147.5	246.6	-40.2
Trade	1.9	1.2	343.7	228.9	345.6	230.1	50.2
Total	**164.9**	**266.1**	**343.7**	**228.9**	**508.6**	**495.0**	**2.7**

Gas sales increased slightly by 2.7% in 2022 in comparison to the previous year. Adjusted for the effects of changes in the consolidated companies, gas sales were 6.8% higher than the figure in the previous year. Gas sales to retail and commercial customers (B2C) fell due to the weather and the currently challenging market environment. The decrease in sales to business and industrial customers (B2B) in comparison to the previous year was mainly attributable to the cessation of the gas activities at Gas-Union. Sales in the trading sector increased significantly due to expanded trading activities, including in the area of LNG.

External revenue significantly higher than previous year

External revenue by segment

in € million [1, 2]	2022	2021	Change in %
Smart Infrastructure for Customers	18,772.8	13,923.6	34.8
System Critical Infrastructure	6,679.1	4,412.6	51.4
Sustainable Generation Infrastructure	30,543.2	13,804.0	121.3
Other/Consolidation	7.5	7.7	-2.6
Total	**56,002.6**	**32,147.9**	**74.2**

1 The figures for the previous year have been restated.
2 After deduction of electricity and energy taxes.

Adjusted for the effects of the changes in the consolidated companies, external revenue was 76.3% higher than the level in the previous year. The increase in revenue was accompanied by a corresponding rise in the cost of materials in all segments.

Smart Infrastructure for Customers: Revenue in the Smart Infrastructure for Customers segment increased significantly in 2022 in comparison to the previous year. Adjusted for the effects of the changes in the consolidated companies, revenue was 34.5% higher than in the previous year. This was primarily due to higher prices, especially in the B2B business.

System Critical Infrastructure: Revenue in the System Critical Infrastructure segment increased considerably in 2022 in comparison to the previous year. This increase in revenue was primarily due to higher income from the settlement of redispatch measures with other transmission system operators that has no impact on the result.

Sustainable Generation Infrastructure: In the Sustainable Generation Infrastructure segment, revenue increased considerably in comparison to the previous year, mainly due to higher prices and an increase in trading activities as a result of growing volatility on the electricity and gas markets. Adjusted for the effects of the changes in the consolidated companies, revenue was 128.1% higher than in the previous year.

Material developments in the income statement

The increase of €23,854.7 million in revenue in comparison to the previous year to €56,002.6 million was primarily attributable to higher sales prices in the electricity and gas sectors. The cost of materials was €25,197.4 million higher than the figure in the previous year for the same reason. Other operating income increased by €5,091.9 million in comparison to the previous year. This was attributable to higher income from derivatives, reversals of impairment losses especially on our conventional generation plants and the reversal of provisions for onerous contracts due to, among other things, the early termination of an electricity procurement agreement. Other operating expenses increased by €1,966.6 million, which was also a result of the valuation of derivatives in comparison to the previous year. Amortization and depreciation fell by €312.7 million compared to the previous year. This was mainly attributable to impairment losses on conventional power plants in the previous year.

The investment result in the reporting year stood at €276.8 million, which was €96.8 million higher than the figure of €180.0 million in the previous year. This increase was primarily the result of higher income from the dedicated financial assets. The financial result deteriorated in the reporting period in comparison to the same period of the previous year by €197.1 million to €–22.6 million (previous year: €174.5 million). The main reason for this development was a lower result from the market valuation of securities. This was offset to some extent by the increase in the interest rate for nuclear provisions.

Overall, earnings before tax (EBT) totaled €2,395.4 million in the 2022 financial year, compared with €513.3 million in the same period of the previous year.

Earnings

The Group net profit/loss attributable to the shareholders of EnBW AG increased from €363.2 million in 2021 by €1,374.8 million to €1,738.0 million in the reporting period. Earnings per share amounted to €6.42 in the 2022 financial year, compared to €1.34 in the previous year.

Adjusted earnings and non-operating result

The sum of the adjusted earnings figures and non-operating figures gives the figures on the income statement. The non-operating result includes effects that cannot be predicted or cannot be directly influenced by us and as such are not relevant to the ongoing management of the company. The effects are presented and explained in the section "Non-operating EBITDA". The business activities relevant to the ongoing management of the company are of particular importance for internal management and for the external communication of the current and future earnings potential. We use the adjusted EBITDA – earnings before the investment and financial results, income taxes and amortization, adjusted for non-operating effects – as the key reporting indicator for disclosing this information.

Adjusted EBITDA and the share of the adjusted EBITDA accounted for by the segments

TOP

Adjusted EBITDA by segment

in € million [1]	2022	2021	Change in %	Forecast 2022 [2]	Adjusted forecast 2022 [3]
Smart Infrastructure for Customers	510.2	344.0	48.3	350 to 425	✓
System Critical Infrastructure	1,046.0	1,263.0	-17.2	1,225 to 1,325	↘
Sustainable Generation Infrastructure	1,934.8	1,539.7	25.7	1,650 to 1,750	↘
Other/Consolidation	-205.3	-187.4	9.6		
Total	**3,285.7**	**2,959.3**	**11.0**	**3,025 to 3,175**	**2,700 to 2,900**

1 The figures for the previous year have been restated.
2 Forecast as published in the report from 31/12/2021.
3 Adjusted forecast as published in the report on 30/09/2022.

TOP

Share of adjusted EBITDA accounted for by the segments

in %	2022	2021	Forecast 2022 [2]
Smart Infrastructure for Customers	15.5	11.6	10 to 15
System Critical Infrastructure	31.8	42.7	35 to 45
Sustainable Generation Infrastructure	58.9	52.0	50 to 60
Other/Consolidation	-6.2	-6.3	–
Total	**100.0**	**100.0**	

1 The figures for the previous year have been restated.
2 Forecast as published in the report from 31/12/2021.

The adjusted EBITDA for the EnBW Group increased by 11.0% in the 2022 financial year in comparison to the previous year to €3,285.7 million, and was thus higher than the original and also the adjusted forecasted range. Adjusted for the effects of changes in the consolidated companies, the adjusted EBITDA for the EnBW Group would have increased by 10.8%.

Smart Infrastructure for Customers: The adjusted EBITDA of the Smart Infrastructure for Customers segment of €510.2 million was significantly higher than the previous year and our forecasted range. Adjusted for the effects of changes in the consolidated companies, earnings increased by €162.0 million. The reason for this increase in earnings and the outperformance of our forecast was the positive earnings performance of the SENEC Group and our B2B business at our subsidiaries.

System Critical Infrastructure: The adjusted EBITDA of the System Critical Infrastructure segment decreased in the 2022 financial year in comparison to the previous year and was clearly below the originally forecasted range, as already communicated in our reporting from 30 September 2022. As a result, the share of the adjusted EBITDA for the Group accounted for by this segment of 31.8% was lower than originally forecast. The reason for this fall in earnings and the underperformance of the forecasted range was the considerably higher expenses for the grid reserve including redispatch to maintain the security of supply, as there was a large increase in both the number of deployments and prices. This was offset to some extent by higher congestion revenue due to a high electricity price differential between Germany and the neighboring countries of France and Switzerland.

Sustainable Generation Infrastructure: The adjusted EBITDA of the Sustainable Generation Infrastructure segment of €1,934.8 million in 2022 exceeded both the value in the previous year and also our forecasts. Adjusted for the effects of changes in the consolidated companies, earnings increased by 25.6%.

This positive development compared to our published forecasts was mainly due to lower negative effects from the market valuation of energy derivatives and a higher result from energy trading.

Adjusted EBITDA Sustainable Generation Infrastructure

in € million	2022	2021	Change in %
Renewable Energies	1,107.1	794.0	39.4
Thermal Generation and Trading	827.7	745.7	11.0
Sustainable Generation Infrastructure	**1,934.8**	**1,539.7**	**25.7**

In comparison to the previous year, the adjusted EBITDA for the Renewable Energies area increased by 39.4% to €1,107.1 million. High market prices, better wind conditions and the addition of new solar parks contributed to this increase in earnings. In the Thermal Generation and Trading area, the adjusted EBITDA increased in 2022 by 11.0% to €827.7 million in comparison to the previous year. Higher market prices and positive earnings contributions from trading positions taken were able to more than offset the negative effects of the reductions and cessation in gas supplies due to the war between Russia and Ukraine and the negative effects from the market valuation of energy derivatives.

Increase in the non-operating EBITDA in comparison to the previous year

Non-operating EBITDA

in € million	2022	2021	Change in %
Income/expenses relating to nuclear power	-591.6	70.5	–
Income from the reversal of other provisions	14.8	8.6	72.1
Result from disposals	3.8	-6.6	–
Reversals of/additions to the provisions for onerous contracts relating to electricity and gas procurement agreements	393.8	-343.1	–
Income from reversals of impairment losses	1,499.1	69.5	–
Restructuring	-28.7	-42.3	-32.2
Other non-operating result	-103.6	87.6	–
Non-operating EBITDA	**1,187.5**	**-155.8**	**–**

The increase in non-operating EBITDA was primarily attributable to income from reversals of impairment losses on our conventional generation plants and from the reversal of provisions for onerous contracts. The improvement in profitability of coal power plants in the liquid period was the reason for the reversals of impairment losses on the conventional generation plants and, alongside the early termination of an electricity procurement agreement, was also related to the reversal of provisions for onerous contracts. This was offset to some extent by higher expenses relating to nuclear power.

In the 2022 financial year, the other non-operating result decreased in comparison to the previous year. This was mainly attributable to valuation effects from derivatives. In addition, the non-operating result contains corrections relating to previous years.

Considerable increase in Group net profit

Group net profit

in € million	2022			2021		
	Total	Non-operating	Adjusted	Total	Non-operating	Adjusted
EBITDA	**4,473.2**	**1,187.5**	**3,285.7**	**2,803.5**	**-155.8**	**2,959.3**
Amortization and depreciation	-2,332.0	-716.8	-1,615.2	-2,644.7	-1,088.3	-1,556.4
EBIT	**2,141.2**	**470.7**	**1,670.5**	**158.8**	**-1,244.1**	**1,402.9**
Investment result	276.8	-35.8	312.6	180.0	-42.1	222.1
Financial result	-22.6	449.6	-472.2	174.5	0.0	174.5
EBT	**2,395.4**	**884.5**	**1,510.9**	**513.3**	**-1,286.2**	**1,799.5**
Income tax	-551.5	-265.7	-285.8	-72.1	330.7	-402.8
Group net profit/loss	**1,843.9**	**618.8**	**1,225.1**	**441.2**	**-955.5**	**1,396.7**
of which profit/loss shares attributable to non-controlling interests	(105.9)	(-146.6)	(252.5)	(78.0)	(-115.5)	(193.5)
of which profit/loss shares attributable to the shareholders of EnBW AG	(1,738.0)	(765.4)	(972.6)	(363.2)	(-840.0)	(1,203.2)

The increase in Group net profit in comparison to the previous year was the result of several different effects. High reversals of impairment losses, especially on our conventional generation plants, which had only been impaired in the previous year, and the reversal of provisions for onerous contracts in the 2022 financial year, compared to additions to the provisions in the same period of the previous year, were the main reasons. Please refer to the section "Non-operating EBITDA" for more information (p. 77↗). The better result from the valuation of the derivatives also had a positive effect. This was offset to some extent by the decrease in the financial result, which was primarily due to a significantly lower result from the market valuations of securities. It was not possible to compensate for this decrease with income from the increase in the interest rate for nuclear provisions and higher income from the dedicated financial assets in the investment result. Please refer to the section "Material developments in the income statement" on p. 75↗ for further information. Income taxes change in line with the development of EBT.

We use the amended adjusted investment result to calculate the value spread. This is calculated on the basis of the adjusted investment result less the adjusted result from investments held as financial assets of €226.2 million (previous year: €133.7 million).

Financial position

Financial management

Basis and objectives

The purpose of our financial management system is to ensure that EnBW is able to meet its payment obligations at all times without restriction. In order to minimize risk, optimize costs and increase transparency, financial transactions are managed within the Group finance department as far as possible.

The liquidity management system at EnBW is based on an efficient in-house bank approach in which liquidity is combined in an EnBW cash pool. Liquidity needs are determined using a forecasting tool and compared with corresponding liquidity sources. By applying a utilization rate for liquidity, we can derive the financing needs and then implement them. We have identified almost 100 relevant liquidity drivers for the forecast. The tool combines a deterministic approach with a risk-based approach to liquidity management. Daily operational management of liquidity is secured using a seven-day and three-month assessment. We also examine the situation over a period of twelve months in our strategic financial analysis.

In the operating business, derivatives are deployed for hedging purposes only: for example, for forward contracts for electricity and primary energy source trading. This also applies for foreign exchange and interest rate derivatives. All trading activities take place within a consistent framework using risk capital on the one hand and derived limits on the other. The value at risk (VaR) is of

central importance when measuring the level of risk in proprietary trading. In the reporting year, the average value at risk was €20 million.

Interest rate risk management involves the management and monitoring of interest-sensitive assets and liabilities. All relevant interest positions at the Group are analyzed here and used to derive an interest risk strategy. The purpose is to limit the impact of fluctuations in interest rates and interest rate risks on the results of operations and net assets. Appropriate recommendations for action for managing the interest position are resolved by an interest committee. The interest committee meets regularly and can also be convened on an ad hoc basis depending on the market situation.

Details on the **risk management system** can be found in the notes to the consolidated financial statements in note (26) "Accounting for financial instruments."

Currency positions resulting from operations are closed by appropriate forward exchange contracts. Currency fluctuations from operating activities do not have any major effect on our operating result. Foreign exchange risks are monitored on a case-by-case basis within the framework of the currency management system.

As part of the EnBW-wide digital transformation, the treasury IT landscape including the payment transaction system and in-house bank has been replaced. As a result, we have achieved greater automation and more stable processes, and have also implemented new and amended governance rules.

We will continue to strive to maintain a balanced financing structure, solid financial profile and thus solid investment-grade ratings. We aim to secure our long-term access to the capital markets under competitive conditions by reaching a broader base of investors using sustainable financial instruments. Furthermore, we are digitalizing the underlying information and decision-making processes by creating a centralized data structure that can be managed and viewed using new media.

EnBW manages its financial profile using the key performance indicator debt repayment potential as the most important indicator of the company's creditworthiness. The debt repayment potential describes the retained cash flow in relation to the net debt and measures the ability of EnBW to repay its debts from its current earnings potential. A target value of at least 12% should enable the company to exploit growth opportunities while maintaining the creditworthiness of the company at the same time. This target level is reviewed on a regular basis to guarantee a solid investment-grade rating.

Further explanations of our financial terms can be found in the chapter "Strategy, goals and performance management system" on p. 39f.↗.

Credit ratings

We aim to hold solid investment-grade ratings in order to:

- ensure unrestricted access to capital markets
- offer reliable opportunities for financing partners
- be regarded as a dependable business partner in our trading activities
- achieve the lowest possible capital costs
- implement an appropriate number of investment projects and thereby maintain the future viability of the company

Development of credit ratings – rating/outlook

	2022	2021	2020	2019	2018
Moody's	**Baa1/stable**	Baa1/stable	A3/negative	A3/negative	A3/stable
Standard & Poor's (S&P)	**A-/negative**	A-/stable	A-/stable	A-/stable	A-/stable

Even from a ratings perspective, 2022 was highly impacted by the war between Russia and Ukraine, which affected Germany's gas supply and had financial implications for the EnBW subsidiary VNG. The rating agencies Moody's and S&P constantly monitored developments, took them into account in their rating assessments for EnBW and published updates regularly.

For example, S&P confirmed its A– rating for EnBW AG on 15 September 2022 in response to the application submitted by VNG to the German Federal Ministry for Economic Affairs and Climate Action for stabilization measures under section 29 of the Energy Security Act (EnSiG). In its EnBW rating, S&P took into account, among other things, that in their estimation the company's integrated position should continue to prove it is more resilient than non-integrated peers to changing conditions. Nevertheless, the outlook was downgraded to negative.

In December 2022, the financial situation of VNG stabilized in the long term after the risks associated with replacement procurement for the loss of Russian gas deliveries were eliminated by two settlement agreements, and VNG was provided with additional liquidity for its core business and corporate transformation via a capital increase by its shareholders. On 8 December 2022, Moody's confirmed the EnBW rating of Baa1 with a stable outlook. It highlighted the fact that EnBW was able to substantially mitigate the losses associated with the gas contracts through, for example, increased income in the area of electricity generation.

On 6 December 2022, S&P announced that it could revise its rating outlook to stable once there is more clarity with respect to the results for the full 2022 financial year and the development of the financial key performance indicators.

EnBW continues to have one of the strongest credit ratings among integrated energy supply companies in Europe with an A– rating from S&P and a Baa1 rating from Moody's. These ratings are in line with EnBW's objective of maintaining solid investment-grade ratings.

Assessment by the rating agencies

Moody's (06/01/2023)

- Leading position on market as vertically integrated utility within Baden-Württemberg
- High share of regulated earnings (transmission and distribution grid)
- Growing share of renewable assets under contracts
- Track record of measures to defend credit quality
- Supportive stance of shareholders
- 2022 EBITDA limited by its exposure to Russian gas supply
- Continued evolution of generation markets
- Execution risks from a large capital spending program, which will constrain credit metrics
- Increasingly competitive environment for renewable assets
- Stable rating outlook reflects expectation that EnBW will record solid earnings growth in 2023–2024 and maintain a prudent financial policy

Standard & Poor's (06/12/2022)

- EnBW's diversified and integrated position should continue to prove it is more resilient than non-integrated peers to changing conditions
- High share of regulated EBITDA and expanding share of renewable generation provides predictability to earnings and cash flow
- Investment strategy with focus on regulated infrastructure and renewable capacity deployment provides a long-term earnings base
- Financial policy, including shareholder support, geared toward protecting the "A–" rating
- Gas reprocurement losses and potential equity support for subsidiary VNG could pressure EnBW's credit metrics and caused negative rating outlook.
- Rating outlook could be revised to stable after gaining clarity on the company's full-year performance and its remedial measures to medium-term pressure on credit metrics

Sustainability ratings

We maintain close contacts with leading sustainability rating agencies and take their analyses and evaluations of the corporate strategy, the company situation and its business prospects into account in our decision-making process. In the selection of agencies, the main focus is placed on, among other things, transparent and plausible evaluations and efficient working processes between the rating agencies, companies, investors and sustainability analysts. We strive to continuously improve our ratings from recognized agencies in the area of sustainability. We thus aim to strengthen our position as a responsible and sustainable company and also want to address those financial investors whose investment decisions are based wholly or partially on sustainability criteria.

Further information on **sustainability ratings** can be found on our website.

Online ↗

Latest sustainability ratings

	CDP	ISS ESG	MSCI	Sustainalytics
Result	B/Management (2022)	B/Prime Status (2022)	A/Average (2023)	27.3/Medium Risk (2023)
Scale	A to D-	A+ to D-	AAA to CCC	0 to 40+
Relative position	"Energy utility networks" sector: EnBW has an average rating.	"Multi utilities" sector: EnBW rated in the top 10%.	"Utilities" sector: EnBW has an average rating.	"Utilities" sector worldwide: EnBW is ranked in the top third.
Rating focus	Climate protection	Environmental, social and governance aspects	Environmental, social and governance aspects	Environmental, social and governance aspects

In 2022, we received good scores in important sustainability ratings within the energy sector. The ESG Risk Rating from Sustainalytics for EnBW still stood at 31.0 in 2021 but had improved by January 2023 to a score of 27.3 and is now categorized as "medium risk" (scale: negligible 0-10, low 10-20, medium 20-30, high 30-40 and severe 40+). The scores from the other sustainability ratings were at the same level as in the previous year.

Further information on the non-financial key performance indicators can be found on p. 91ff.↗.

Financing strategy

We manage the financing needs of our operating activities separately from the Group's pension and nuclear obligations. As part of our financing strategy, we constantly assess capital market trends with regard to the current interest rate environment and to any potentially favorable refinancing opportunities. On this basis, we decide on further financing steps.

Alongside the internal financing capability and our own funds, we have the following financing instruments at our disposal to cover the financing needs of the operating business (as of 31 December 2022):

- Debt Issuance Program (DIP), via which bonds are issued: €~5.7 billion of €10.0 billion drawn. On 14 April 2022, we increased the volume of the DIP to €10.0 billion so that we are flexibly positioned to handle the planned investment for our EnBW 2025 strategy over the coming years.
- US private placement: equivalent value of US$~850 million (translation on the pricing day)
- Subordinated bonds: €~2.5 billion
- Commercial paper (CP) program: €~0.7 billion of €2.0 billion drawn
- Promissory notes: €0.5 billion
- Sustainability-linked syndicated credit facility: €1.5 billion undrawn, with a term until the end of June 2027 after utilizing the second extension option for an additional year
- Committed credit lines: €~0.2 billion of €~4.6 billion drawn. This includes the credit line that was concluded with KfW by VNG on 5 April 2022 with a volume of €660 million and a term until April 2023. This credit line was not utilized at any time. It was concluded to exclusively provide additional financial security in response to the potential risk of extreme developments on the market that could not be excluded due to the impact the war between Russia and Ukraine is having on the energy markets. The credit line was terminated prematurely by VNG on 7 February 2023.
- Uncommitted credit lines: €~0.0 billion of €~1.3 billion drawn. These can be utilized in agreement with our banks.
- Bank loans and loans from the European Investment Bank (EIB). For example, EnBW agreed a bank loan of €600 million with the European Investment Bank in December 2022 to finance the He Dreiht offshore wind farm. The loan will be drawn at the earliest in March 2023.
- In addition, subsidiaries have other financing activities in the form of bank loans and promissory notes.

Capital market activities

We have sufficient and flexible access to the capital market at all times. The EnBW bonds continue to have a well-balanced maturity profile. As part of our financing strategy, we constantly assess capital market trends with regard to the current interest rate environment and to any potentially favorable refinancing opportunities.

Information on how the funds from the green bonds are used can be found in the **Green Bond Impact Report** on our website.

Online ↗

To implement our sustainable corporate strategy, we use green bonds as a sustainable financing instrument. We have already issued green bonds with a total volume of €3.5 billion. They are exclusively used to finance climate-friendly projects, which means that all of the proceeds are invested in sustainable environmental and climate-protection projects. All of our green bonds fulfill the criteria for certification by the Climate Bonds Standard Board on behalf of the Climate Bonds Initiative.

The euro subordinated bond with a volume of €725 million and the US dollar subordinated bond with a volume of US$300 million were redeemed at the earliest possible date on 5 January 2022 in accordance with their terms at their principal amounts plus interest accrued.

On 6 July 2022, EnBW successfully issued its first promissory notes in a volatile market environment after several weeks of marketing activities. The volume of €500 million significantly exceeded the target volume of €300 million stated on the term sheet. It was possible to fix the price of all tranches at the lower end of the indicated range. The promissory notes have enabled us to successfully diversify the financing sources available to the Group and further expand our investor base, with over 50 participating German and international investors.

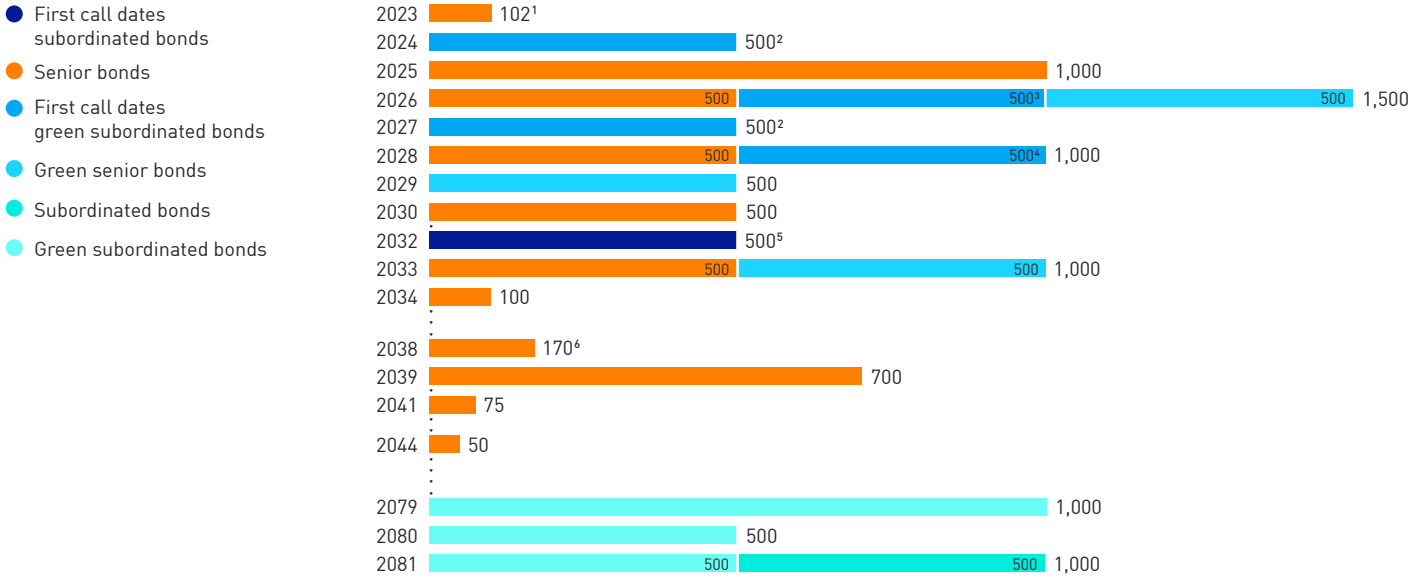
At the end of August 2022, the Climate Bonds Standard Board confirmed the post-issuance certification of the green subordinated bond with a volume of €500 million that was issued on 24 August 2021. The proceeds of the green bond were used entirely for wind power, photovoltaic and electromobility projects.

EnBW concluded its first US private placement of bonds with a total volume of US$~850 million on 9 November 2022, following two weeks of intensive dialog with investors. Discussions were held with investors on various occasions, including during a road show in the USA and London. The transaction covers amounts in euros, US dollars and pounds sterling with terms of three to twelve years.

In the middle of November, EnBW successfully issued two green corporate bonds with an emission volume of €1 billion. The proceeds from the bonds will be used for offshore wind projects, onshore wind farms and solar parks. For the first time, the funds will also be used for the expansion and refinancing of the electricity distribution grids in Baden-Württemberg.

At the beginning of the year on 17 January 2023, EnBW successfully issued two bonds with a total volume of €1.25 billion. The proceeds from the bonds will be used for implementing aspects of the company's strategy that focus on sustainability.

Maturity profile of EnBW bonds (as of 31 December 2022)
in € million



1 CHF 100 million, converted into € as of 31/12/2022.
2 First call date: green subordinated bond maturing in 2079.
3 First call date: green subordinated bond maturing in 2080.
4 First call date: green subordinated bond maturing in 2081.
5 First call date: subordinated bond maturing in 2081.
6 JPY 20 billion (swap in €), coupon before swap 5.460%.

Asset liability management model

We ensure the timely coverage of the pension and nuclear obligations using our asset liability management model.

The aim is to cover the Group's pension and nuclear provisions within an economically feasible period of time by means of appropriate financial assets. We ensure this using our cash flow-based asset liability management model. For this purpose, we determine the effects on the cash flow statement, income statement and balance sheet over the next 30 years. Alongside the anticipated return on financial assets, actuarial reports on pension provisions and sector-specific appraisals by external experts on costs for nuclear decommissioning and disposal are taken into account. The impact the utilization of the pension and nuclear obligations may have on the operating business is limited by taking funds from the financial assets. In the 2022 financial year, the impact on the cash flow from operating activities was around €370 million. As soon as the provisions are fully covered by the financial assets, no further funds will be taken from the cash flow from operating activities as part of the model. This model also allows simulations of various alternative scenarios.

As of 31 December 2022, the dedicated financial assets for pension and nuclear provisions totaled €6,034.7 million (previous year: €6,477.2 million). Alongside the dedicated financial assets, there are plan assets to cover certain pension obligations with a market value of €714.2 million as of 31 December 2022 (previous year: €869.9 million).

We strive to reach the defined investment targets with minimum risk. We also further optimized the risk/return profile of the financial assets in 2022. The main part of the dedicated financial assets is distributed as investments across nine asset classes. The financial assets are bundled in two master funds with the following investment targets:

- Risk-optimized investments, with a performance in line with market trends
- Consideration of the effects on the balance sheet and income statement
- Broad diversification of the asset classes
- Reduction of costs and simplification of administrative processes
- Consideration of sustainability aspects

The asset management department at EnBW is responsible for the sustainable alignment of medium to long-term capital investments. It already began to rethink and sustainably realign the investment philosophy a number of years ago. This is why we take ESG criteria into account in our investment decisions. Our considerations in this regard thus focus on improving climate protection and good corporate management with respect to themes such as reputation, fraud and corruption.

As an institutional investor, we can already demonstrate today that a significant proportion of our investment is impact investment. The proportion accounted for by sustainable capital investments is already more than 50% and rising. The solutions implemented as part of our digitalization strategy are also supporting us on this path. We have already been able, for example, to verifiably reduce CO_2 emissions and improve other ESG performance indicators in our portfolio. In the future, we plan to make our medium to long-term capital investments CO_2 neutral – just like EnBW itself.

Net debt

The liquid assets in the EEG account are only held in custody by the transmission grid operators and cannot be used for the operating business. Due to the size of the balance on the reporting date, the net debt will be reported from this reporting date onwards without the liquid assets in the EEG account. The figures for the previous year have been restated accordingly. As of 31 December 2022, net debt had risen by €495.7 million compared to the figure posted at the end of 2021. The increase in net financial debt in comparison to that reporting date was mainly the result of high fill levels at the gas storage facilities, which were filled at higher procurement costs, and the increase in collateral. This was offset to some extent by the fall in net debt relating to pension and nuclear obligations, mainly as a result of the increase in the interest rate for the pension provisions.

Net debt

in € million [1]	31/12/2022	31/12/2021	Change in %
Cash and cash equivalents available to the operating business	-4,626.1	-5,251.3	-11.9
Current financial assets available to the operating business	-600.4	-584.5	2.7
Long-term securities available to the operating business	-2.4	-2.1	14.3
Bonds	9,683.8	8,401.0	15.3
Liabilities to banks	1,969.4	2,067.4	-4.7
Other financial liabilities	1,238.0	782.0	58.3
Lease liabilities	912.6	884.5	3.2
Valuation effects from interest-induced hedging transactions	-51.0	-53.0	-3.8
Restatement of 50% of the nominal amount of the subordinated bonds [2]	-1,250.0	-1,746.3	-28.4
Other	-59.7	-31.4	90.1
Net financial debt	**7,214.2**	**4,466.3**	**61.5**
Provisions for pensions and similar obligations [3]	5,426.0	7,772.4	-30.2
Provisions relating to nuclear power	4,614.4	4,955.6	-6.9
Receivables relating to nuclear obligations	-372.9	-365.8	1.9
Net pension and nuclear obligations	**9,667.5**	**12,362.2**	**-21.8**
Long-term securities and loans to cover the pension and nuclear obligations [4]	-5,642.1	-6,053.4	-6.8
Cash and cash equivalents to cover the pension and nuclear obligations	-185.0	-186.5	-0.8
Current financial assets to cover the pension and nuclear obligations	-75.7	-97.3	-22.2
Surplus cover from benefit entitlements	-106.0	-121.5	-12.8
Other	-25.9	-18.5	40.0
Dedicated financial assets	**-6,034.7**	**-6,477.2**	**-6.8**
Net debt relating to pension and nuclear obligations	**3,632.8**	**5,885.0**	**-38.3**
Net debt	**10,847.0**	**10,351.3**	**4.8**

1 The figures for the previous year have been restated.
2 The structural characteristics of our subordinated bonds meet the criteria for half of each bond to be classified as equity, and half as debt, by the rating agencies Moody's and Standard & Poor's.
3 Less the market value of the plan assets (excluding the surplus cover from benefit entitlements) of €714.2 million (31/12/2022: €869.9 million).
4 Includes equity investments held as financial assets.

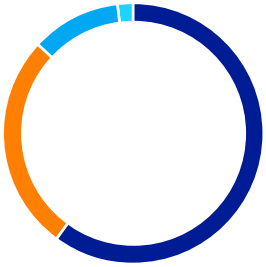
Investment analysis

Net cash investment

in € million [1]	2022	2021	Change in %
Investment in growth projects	2,355.6	2,022.1	16.5
Investments in existing projects	797.8	786.4	1.5
Total investments	**3,153.5**	**2,808.5**	**12.3**
Divestitures	-68.3	-20.4	–
Participation models [2]	-152.6	-147.9	3.2
Disposals of long-term loans	-0.6	-1.1	-45.5
Other disposals and subsidies	-164.3	-167.9	-2.1
Total divestitures	**-385.8**	**-337.3**	**14.4**
Net cash investment	**2,767.7**	**2,471.2**	**12.0**

1 Excluding investments held as financial assets.
2 This includes offsets of capital reductions in non-controlling interests with short-term receivables to foreign companies. The latter was due to advance payments made in the previous year as a result of contractual regulations.

Investment by segment
in % [1]



- 60.2 System Critical Infrastructure (2021: 58.6)
- 27.3 Sustainable Generation Infrastructure (2021: 30.1)
- 10.8 Smart Infrastructure (2021: 9.5)
- 1.7 Other (2021: 1.8)

1 The figures for the previous year have been restated.

Gross investment by the EnBW Group of €3,153.5 million in 2022 was around 12% higher than the level in the previous year (€2,808.5 million). Around 74.7% of overall gross investment was attributable to growth projects; the proportion of investment in existing facilities stood at 25.3%.

Gross investment in the **Smart Infrastructure for Customers** segment of €340.7 million was higher than the level in the previous year (previous year restated: €266.7 million), which was mainly a result of increased investment in the area of electromobility.

Gross investment in the **System Critical Infrastructure** segment of €1,898.7 million was higher than the level in the previous year of €1,647.0 million. In both years, the investment was mainly linked to projects at our Group subsidiaries TransnetBW and terranets bw that are included in the network development plans. In addition, our grid companies invested in the expansion and renewal of the distribution grid.

There was gross investment of €859.6 million in the **Sustainable Generation Infrastructure** segment, which was slightly higher than the level in the previous year (previous year restated: €844.4 million).

Investments in Sustainable Generation Infrastructure

in % [1]	2022	2021
Renewable Energies	20.0	23.3
Thermal Generation and Trading	7.3	6.8
Sustainable Generation Infrastructure	**27.3**	**30.1**

1 The figures for the previous year have been restated.

€631.7 million of this investment was in the Renewable Energies area, compared to €655.6 million in the previous year. In 2021, we secured the offshore wind rights to a site in the Irish Sea and paid the associated auction price. At the beginning of 2022, our bid to secure the offshore wind rights to a site for the development of an offshore wind farm in the Scottish Sea was accepted. In addition, we continued to invest heavily in the He Dreiht wind farm in the German North Sea in 2022. Investment in the Thermal Generation and Trading area stood at €227.9 million and was thus higher than in the previous year (previous year restated: €188.8 million). This increase was mainly attributable to investment in the planning of the fuel switch projects for converting three of our thermal power plants in Baden-Württemberg from coal to gas, with the aim of guaranteeing the supply of district heating from these three sites and maintaining the security of supply in Baden-Württemberg.

Other investments of €54.5 million were at the same level as in the previous year (€50.4 million).

Total divestitures of €385.8 million were higher than the level in the previous year (€337.3 million). The item divestitures includes the impact of our exit from the offshore wind power business in the USA. In the participation models, these divestitures mainly comprised the sale of our minority shareholdings in our solar portfolio. In the previous year, the divestitures comprised the sale of minority shares in a portfolio of onshore wind farms and transactions as part of our local authority participation model "EnBW connects." Other disposals were at the same level as in the previous year.

We also take climate goals into account in our investment decisions. For this purpose, we adapted our investment guidelines in 2021: Significant investment projects now undergo additional steps to evaluate their sustainability. This additional information flows into the approval processes carried out by the investment committee and Board of Management (p. 41f.↗).

Liquidity analysis

Condensed cash flow statement

in € million[1]	2022	2021	Change in %
Cash flow from operating activities	1,804.8	7,597.8	-76.2
Cash flow from investing activities	-2,734.9	-2,873.7	-4.8
Cash flow from financing activities	734.6	614.7	19.5
Net change in cash and cash equivalents	**-195.5**	**5,338.8**	**-103.7**
Change in cash and cash equivalents due to changes in the consolidated companies	0.3	29.0	-99.0
Net foreign exchange difference	17.8	32.4	-45.1
Change in cash and cash equivalents due to risk provisions	-0.1	0.1	–
Change in cash and cash equivalents	**-177.5**	**5,400.4**	**-103.3**

1 The figures for the previous year have been restated.

Despite an increase in cash-relevant EBITDA in comparison to the previous year, the cash flow from operating activities was significantly lower than the figure in the previous year. This development was mainly due to an outflow of cash in the net current assets for reasons related to the reporting date. This was primarily due to the significant increases in inventories and cash outflows for collateral against the backdrop of current price fluctuations on the market, compared to cash inflows in the previous year. In contrast, the sharp fall in the net balance of trade payables and receivables in comparison to the previous year had a positive effect on the cash flow from operating activities.

Cash flow from investing activities returned a lower outflow of cash in comparison to the previous year, despite the higher net investment on intangible assets and property, plant and equipment. The reasons for this development were a decrease in net investment as part of the portfolio management of securities and financial investments and in cash payments for shares in entities accounted for using the equity method. The latter was primarily attributable to the foundation of two companies in Great Britain in the previous year and the associated bids for offshore wind rights for the construction of offshore wind farms.

Cash flow from financing activities returned a higher cash inflow than in the previous year. This was primarily due to the increase in financial liabilities as part of liquidity management and an increase in cash received for changes in ownership interest without loss of control. This was offset to some extent by an increase in cash outflow for other payments to non-controlling interests.

The solvency of the EnBW Group was ensured as of the reporting date thanks to the company's internal financing capability and the external sources available for financing. The company's future solvency is secured by its solid financial position and results of operations.

Retained cash flow

in € million	2022	2021	Change in %
EBITDA	**4,473.2**	**2,803.5**	**59.6**
Change in provisions	**36.2**	-103.9	-134.8
Non-cash-relevant expenses/income	**-1,251.7**	-396.3	–
Income tax paid	**-227.9**	-200.6	13.6
Interest and dividends received	**427.0**	358.0	19.3
Interest paid for financing activities	**-318.8**	-314.5	1.4
Dedicated financial assets contribution	**-92.2**	184.8	-149.9
Funds from operations (FFO)	**3,045.7**	**2,331.0**	**30.7**
Declared dividends	**-510.8**	-547.2	-6.7
Retained cash flow	**2,534.9**	**1,783.8**	**42.1**

Funds from operations (FFO) were higher than the level in the previous year, which was mainly due to the increase in EBITDA and higher interest and dividends received. The increase in provisions (previous year: reduction in provisions) also had an impact. This was offset to some extent by higher non-cash-relevant income and a reduction in the dedicated financial assets contribution.

The retained cash flow was significantly higher than in the previous year. It is an expression of the internal financing capability of EnBW and reflects the funds that are available to the company for investment – after all stakeholder claims have been settled – without the need to raise additional debt.

TOP

Debt repayment potential

in € million [1]	2022	2021	Change in %
Retained cash flow	**2,534.9**	1,783.8	42.1
Net debt	**10,847.0**	10,351.3	4.8
Debt repayment potential in %	**23.4**	**17.2**	**–**

1 The figures for the previous year have been restated.

The liquid assets in the EEG account are only held in custody by the transmission grid operators and cannot be used for the operating business. Due to the size of the balance on the reporting date, net debt will be reported from 31 December 2022 onwards without the liquid assets in the EEG account. The comparative figure for the previous year was adjusted by €1,565.2 million.

In the reporting year, the retained cash flow was higher than the forecasted range of €1.75 billion to €1.85 billion mainly due to the increase in cash-relevant EBITDA. As a result of the higher retained cash flow and factors that are outside of the company's sphere of influence, such as the rise in the interest rate for pension provisions, the debt repayment potential in the 2022 financial year was significantly higher than the target value of between 13.5% and 14.5%.

Net assets

Condensed balance sheet

in € million	31/12/2022	31/12/2021	Change in %
Non-current assets	36,984.0	35,232.5	5.0
of which intangible assets	(3,218.2)	(3,417.0)	(-5.8)
of which property, plant and equipment	(22,705.3)	(20,364.4)	(11.5)
of which entities accounted for using the equity method	(1,134.0)	(1,017.9)	(11.4)
of which other financial assets	(6,560.1)	(6,744.3)	(-2.7)
of which deferred taxes	(79.4)	(1,115.2)	(-92.9)
Current assets	32,511.9	35,986.7	-9.7
Assets held for sale	7.8	54.0	-85.6
Assets	**69,503.7**	**71,273.2**	**-2.5**
Equity	12,769.3	8,499.3	50.2
Non-current liabilities	28,064.5	28,531.0	-1.6
of which provisions	(10,483.9)	(14,089.5)	(-25.6)
of which deferred taxes	(958.1)	(1,018.3)	(-5.9)
of which financial liabilities	(11,927.3)	(9,182.5)	29.9
Current liabilities	28,669.9	34,242.9	-16.3
of which provisions	(3,346.8)	(2,676.5)	(25.0)
of which financial liabilities	(963.9)	(2,067.9)	(-53.4)
Equity and liabilities	**69,503.7**	**71,273.2**	**-2.5**

As of 31 December 2022, total assets were €1,769.5 million lower than the figure at the end of the previous year. Non-current assets increased by €1,751.5 million between the two reporting dates, which was mainly due to the reversals of impairment losses. This was offset to some extent by the decrease in deferred taxes. Current assets decreased by €3,474.8 million. This was primarily due to the decrease in derivatives as a result of the slight fall in prices on the energy trading markets. This was offset to some extent by the increase in inventories.

As of 31 December 2022, equity increased by €4,270.0 million as a result of the increase in Group net profit and the increase in other comprehensive income, which was mainly caused by the rise in the discount rate for the pension provisions from 1.15% at the end of 2021 to 3.70% as of the reporting date in 2022. The equity ratio increased from 11.9% to 18.4% between the two reporting dates. As a result of the fall in the pension provisions due to the increase in the discount rate, non-current liabilities decreased by €466.5 million. This was offset by the issuing of two green corporate bonds with a total volume of €1.0 billion and the US private placement (USPP) with a nominal value of around US$850 million. Current liabilities reduced by €5,573.0 million. This was mainly attributable to the decrease in derivatives and the repayment of a euro subordinated bond with a volume of €725 million and a US dollar subordinated bond with a volume of US$300 million. This was offset to some extent by an increase in trade receivables.

TOP

Value spread

Value spread – which is calculated by deducting the weighted average cost of capital before tax (WACC) from ROCE – has replaced ROCE as the key performance indicator since this financial year. The cost of capital before tax represents the minimum return on average capital employed (calculated on the basis of the respective quarterly figures for the reporting year and the year-end figure for the previous year). A positive value spread is achieved when the return on capital employed (ROCE) exceeds the cost of capital. The cost of capital is determined based on the weighted average cost of equity and debt together. The value of equity is based here on a market valuation and thus deviates from the value recognized in the balance sheet. The cost of equity is based on the return of a risk-free investment and a company-specific risk premium. The latter is calculated as the difference between a risk-free investment and the return for the overall market, weighted with a company-specific business field risk. The terms according to which the EnBW Group can raise long-term debt are used to determine the cost of debt.

Value Spread by segment 2022

	Smart Infrastructure for Customers	System Critical Infrastructure	Sustainable Generation Infrastructure	Other/ Consolidation	Total
Adjusted EBIT including the adjusted investment result[1] in € million	352.6	424.8	1,279.4	-263.4	1,793.4
Average capital employed in € million	1,565.5	12,359.7	8,178.4	586.9	22,690.5
ROCE in %	**22.5**	**3.4**	**15.6**	**–**	**7.9**
Weighted average cost of capital before tax in %	9.2	6.2	7.3	–	6.8
Value Spread in %	**13.3**	**-2.8**	**8.3**	**–**	**1.1**

1 Amended adjusted investment result of €86.4 million, adjusted for taxes (investment result/0.703 - investment result; with 0.703 = 1 - tax rate 29.7%).

Value Spread by segment 2021[1]

	Smart Infrastructure for Customers	System Critical Infrastructure	Sustainable Generation Infrastructure	Other/ Consolidation	Total
Adjusted EBIT including the adjusted investment result[2] in € million	199.1	694.2	868.4	-233.6	1,528.1
Average capital employed in € million	1,602.9	11,165.3	8,967.0	514.7	22,249.9
ROCE in %	**12.4**	**6.2**	**9.7**	**–**	**6.9**
Weighted average cost of capital before tax in %	7.6	4.0	5.4	–	4.9
Value Spread in %	**4.8**	**2.2**	**4.3**	**–**	**2.0**

1 The figures for the previous year have been restated.
2 Amended adjusted investment result of €88.4 million, adjusted for taxes (investment result/0.706 - investment result; with 0.706 = 1 - tax rate 29.4%).

There are various factors that influence value spread. ROCE and value spread depend not only on the development of the operating result but above all on the capital employed. Large-scale investments tend to significantly increase the capital employed in the early years, while the effect on income that boosts value, however, only filters through over a lengthier period of time, often long after the investments were initially made. This is especially true of capital expenditure on property, plant and equipment relating to the construction of new power plants, which do not have any positive effect on the operating result of the Group until after they are commissioned. Capital expenditure on power plants, on the other hand, is already taken into account in the capital employed during the construction phase. In a comparison of individual years, the development of ROCE and value spread is, to a certain extent, cyclical in nature, depending on the investment volume. This effect is therefore inherent in the system and results in lower ROCE in phases of strong growth or phases of investment.

Due to the level of the EEG-funds currently held by the transmission grid operators, we are disclosing them under capital employed from 31 December 2022 onwards. Both the payments into and out of the EEG account are always considered non-interest-bearing liabilities for the EnBW Group because they are only held in custody by the transmission grid operators and cannot be used for the operating business. This adjustment will avoid any impact that the EEG payments may have on the capital employed. The figures for the comparative periods have been restated accordingly in each case.

In the 2022 financial year, value spread fell in comparison to the previous year to 1.1% and thus fell below our expectations for the 2022 financial year (forecast for 2022: 1.5% to 2.5%). The current figure for the value spread is below the forecasted range due to increased capital costs. Adjusted EBIT including the adjusted investment result increased, while the average capital employed rose at the same time with the effect that ROCE increased to 7.9%. The risk-adjusted weighted average cost of capital rose in comparison to the previous year to 6.8%.

Smart Infrastructure for Customers: Value spread in the Smart Infrastructure for Customers segment increased by 8.5 percentage points in 2022. This was due to the significant increase in adjusted EBIT including the adjusted investment result. At the same time, the average capital employed was largely unchanged in comparison to the previous year.

System Critical Infrastructure: Value spread in the System Critical Infrastructure segment decreased by 5.0 percentage points in comparison to 2021. The adjusted EBIT including the adjusted investment result was €269.4 million lower than the figure in the previous year, while the increase in capital employed, which was mainly due to investment in the transmission and distribution grids, also had

a negative impact on the value spread. The increase in risk-adjusted weighted average cost of capital to 6.2% then caused the value spread to decrease further.

Sustainable Generation Infrastructure: Value spread in the Sustainable Generation Infrastructure segment was 8.3%, which was 4.0 percentage points higher than the value in the previous year. Adjusted EBIT including the adjusted investment result increased to €1.3 billion. An increase in liabilities in the first half of the year due to higher market prices more than offset the reversals of impairment losses on conventional generation plants, and the average capital employed in the reporting year was below the level in the previous year as a result.

Performance indicators relevant to remuneration

The **remuneration report** is available as a separate report on our website.

Online ↗

The performance indicators relevant to remuneration are derived as follows:

EBT relevant to remuneration

in € million	2022	2021
EBT	**2,395.4**	**513.3**
Less outstanding items for derivatives allocated under trading within EBITDA	226.6	-220.2
Less the measurement of financial assets and outstanding items for derivatives allocated under trading within the financial result	199.5	-380.3
Less changes to the inflation rate and discount rate for nuclear provisions	-418.0	-2.0
EBT relevant to remuneration	**2,403.6**	**-89.2**

Funds from operations (FFO) relevant to remuneration

in € million	2022	2021
Funds from operations (FFO)	**3,045.7**	**2,331.0**
Less income tax paid	227.9	200.6
Funds from operations (FFO) relevant to remuneration	**3,273.6**	**2,531.6**

Intangible assets and property, plant and equipment (net) relevant to remuneration

in € million	2022	2021
Intangible assets	3,218.2	3,417.0
Property, plant and equipment	22,705.3	20,364.4
Investment properties	40.1	45.6
Investment cost subsidies	-8.8	-3.8
Construction cost subsidies	-991.8	-967.0
Intangible assets and property, plant and equipment (net)	**24,963.0**	**22,856.3**
Average intangible assets and property, plant and equipment (net) [1]	**23,520.3**	**22,381.0**

1 Average calculation based on the relevant quarterly values for the reporting year and the year-end value for the previous year.

ROA (return on assets) relevant to remuneration

in € million	2022	2021
EBIT	**2,141.2**	**158.8**
Less outstanding items for derivatives allocated under trading within EBITDA	226.6	-220.2
Less changes to the inflation rate and discount rate for nuclear provisions	169.9	0.0
EBIT relevant to remuneration	**2,537.7**	**-61.4**
Average intangible assets and property, plant and equipment (net)	23,520.3	22,381.0
ROA (return on assets) relevant to remuneration in %	**10.8**	**-0.3**

Other performance indicators relevant to remuneration

	2022	2021
Expansion of renewable energies (electrical output in MW)	344.6	235.0
LTIF for companies controlled by the Group	2.6	2.3

The **LTIF** is explained in the LTIF section of this chapter.

The remuneration of the members of the Board of Management is described in full in the **remuneration report,** which is available as a separate report at www.enbw.com/corporate-governance.

Customers and society goal dimension

Reputation

A strong reputation is an important factor for the sustainable success of a company. The good social reputation of a company reflects the trust placed by the general public and relevant stakeholders in the competent and responsible actions of that company.

We assume our responsibilities for the economy and society and aspire to be a driver of the energy transition. In the process, we want to gain social acceptance and improve our reputation. A good reputation signals the willingness of society and its different stakeholder groups to cooperate with and invest in the company.

We aim to continuously improve our reputation. The focal point of this concept is the stakeholder team, which was set up on the initiative of the Board of Management in 2017. It consists of representatives from all important areas of the company. The stakeholder team communicates and maintains dialog with relevant stakeholder groups both directly and indirectly (p. 47↗).

Reputation Index

Reputation is measured using the key performance indicator Reputation Index using a standardized survey that is carried out by an external market research institute. It is measured in accordance with the requirements of the EnBW Group standard for market research and surveys (p. 40↗).

TOP

Key performance indicator

	2022	2021	Change in %	Forecast 2022
Reputation Index	58	55	5.5	56 – 59

The Reputation Index increased in 2022 by three index points in comparison to 2021. Not only does the score now lie within our target corridor of 56 to 59 points, but we also achieved the highest score to date for the Reputation Index for EnBW. This increase was mainly due to a sharp improvement in the figures for opinion leaders and investors in 2022. This improvement can be attributed to positive reporting and enhanced advertising activities, leading to greater visibility in the media as a result. In addition, the result reflected EnBW's engagement in the area of e-mobility and its transformation towards renewable energies, because sustainability as a theme was shown to have the highest relevance across all target groups, even when unprompted.

More details on reputational risks can be found in the "Report on opportunities and risks" on p. 137↗.

Customer proximity

You can find our **company website** here.

Online ↗

Both the coronavirus pandemic and the energy crisis have made **digitalization** even more important for our end customer business in 2022, both with respect to electricity and gas sales and also e-mobility. The main focus shifted here from customer acquisition via digital channels to digital customer communication and increasingly covers the provision of digital services for existing customers. 47% of EnBW customers and 77% of Yello customers are now happy to receive their contractual documents and invoices in paperless form. This figure more than doubled for EnBW customers in comparison to the previous year (2021: 23%). 92% of EnBW customers (excluding the basic supply of energy and reserve supplies) and 96% of Yello customers who concluded a new contract via digital and digitally supported channels have selected paperless customer interaction. The EnBW "zuhause+" app, which was made available for the first time in the previous year, is being used more and more, and over 100,000 customers have now installed the app on their mobile devices. Customers were able to register for the gas saving bonus offered by EnBW for the heating period 2022/2023 via the app and continuously received updated consumption forecasts after entering their meter readings.

We took over the billing system for our two sales brands in 2022 that was previously hosted by a software provider. This will ensure that we can improve our digital customer communication in the best way possible as we are now responsible ourselves for its operation and development. This work will largely be carried out by our own personnel. Responsibility for the operation and development of the IT systems used to manage the EnBW charging infrastructure and handle customer interaction and billing on the EnBW mobility+ app now also lies in our own hands.

Our aim is to rigorously anchor **sustainability** in our sales processes (e.g., with respect to our products and services). In doing so, we hope to generate economic, ecological and social value and strengthen our market position even further. Our initial focus has been placed above all on the area of climate protection. We were able to implement further initiatives in 2022 and we present the most important ones in the section "Selected activities" (p. 93ff.↗).

Customer Satisfaction Index

Our customers lie at the heart of our philosophy and actions. We aim to build long-term relationships with our customers by offering an intelligent combination of products and services, developing new product worlds, communicating transparently and delivering the highest-quality service possible. Maintaining a high level of customer satisfaction is key. The Customer Satisfaction Index is compiled for EnBW and Yello from customer surveys carried out by an external provider (p. 40↗).

TOP

Key performance indicator

	2022	2021	Change in %	Forecast 2022
Customer Satisfaction Index for EnBW/Yello	139/166	127/159	9.4/4.4	127 – 139/ 150 – 161

The Customer Satisfaction Index for EnBW improved by 9.4% to a value of 139 in 2022. The satisfaction of EnBW retail customers was thus at a very good level and at the top end of our forecasted range. A very good level is reached when 60% of those surveyed indicate that overall they are particularly satisfied with EnBW. This is the case from 136 points upwards. This significant improvement in the Customer Satisfaction Index for 2022 was achieved in a particularly challenging market environment because the exceptional rise in energy prices since fall 2021 has placed an increasing burden on households. By guaranteeing a secure supply of energy, EnBW has demonstrated that it is a reliable and efficient partner. We initiated various different measures to improve customer satisfaction. These included developing a sustainable range of products and pushing forward the expansion of our digital and analogue range of services. The "EnBW Energiewelt" (EnBW Energy World) platform bundles together all of the various products online and creates transparency. Specialized services are also available that offer transparent information on energy costs and help customers to reduce them. We believe that constant investment in our national marketing campaign on the theme of e-mobility has also had a positive effect on the image of the company with respect to innovation and sustainability.

The satisfaction of Yello customers increased to an outstanding index value of 166. This positive development is being influenced by the current state of energy policy and corporate decision-making, resulting in Yello customers being less likely to want to switch providers.

The **customer test panel "Powerhelden"** gives us feedback on our products, services and performance.

Online ↗

Another tool for evaluating and improving customer satisfaction is the **customer test panel "Powerhelden"** (power heroes) that was established back in 2019. It is currently made up of a group of around 1,200 people of all ages and social and educational backgrounds who source their energy from the EnBW Group or third-party providers. We use questionnaires, user tests and interviews to gain insights that can flow into the optimization, creation and monitoring of products and processes across the Group.

Further details are available in the "Report on opportunities and risks" p. 137↗.

Selected activities

We provide **information on how to save energy** on our website.

Online ↗

2022 was significantly impacted by the **challenges on the energy market.** EnBW and Yello intensified their communication with customers via digital media, information letters and their websites with the aim of providing transparency and bolstering customer trust. EnBW and Yello have also been supporting their customers in the form of a **gas saving bonus,** which will help customers cushion increasing costs and give them an extra incentive to save energy. Customers who reduce their gas consumption by 10% between October 2022 and April 2023 will be rewarded with a bonus of €100.

Green electricity has become the standard in the product portfolio of EnBW and Yello. The proportion of the electricity supplied to new customers by EnBW and Yello that was accounted for by green energy increased from 96% in 2021 to almost 100% in 2022. 62% of the total customer base is now supplied with green electricity across both brands (EnBW excluding the basic supply of energy). Taking compensation measures into account, Yello and EnBW were thus able to save a total of around 620,000 t of CO_2 emissions in 2022. At the beginning of 2022, Yello also launched its new brand identity with the theme of sustainability at its core, advertising it using the slogan "Good Energy" and a wide-reaching image campaign.

Further information on **electromobility** is available online.

Online ↗

EnBW is the market leader among both charging infrastructure operators and electromobility providers in Germany. It operates the biggest quick-charging network in the country and is continuing to expand it at a rapid pace. In order to **expand the charging infrastructure** for electromobility, we are not only investing in our own sites but also in sites that we are jointly developing with our partners. In 2022, we concluded more new, long-term, nationwide cooperation agreements with renowned companies and placed new quick-charging sites into operation. EnBW was able on average to complete more than one large charging park with a solar roof per month. For example, two were placed into operation in Lower Saxony: Car drivers now have access to 20 high-power charging (HPC) points in Lauenau and 16 in Bispingen with capacities of up to 300 kW. A quick-charging park that can charge 32 vehicles simultaneously will be completed in Großburgwedel, near to Hannover, by the end of March 2023. We tested other vehicle-related services at this charging park for the first time such as vacuum cleaners and compressed-air tire inflators. Concepts for autonomous shops were tested jointly with partner companies at the quick-charging parks in Bispingen and Kamen in 2022. Drivers can purchase items quickly using contactless payment systems while their vehicle is charging. All of our sites are operated 100% with green electricity.

As an electromobility provider, we can offer our customers easy access to the **EnBW HyperNetwork –** the biggest charging network in Germany, Austria and Switzerland. It also provides nationwide charging options in France, Italy, the Netherlands, Belgium, Luxembourg and Liechtenstein. Eight additional countries were added to the network in 2022: Croatia, Poland, Sweden, Denmark, Slovakia, Slovenia, Spain and the Czech Republic. The number of countries has thus almost doubled to 17 in the space of a year. Using the **EnBW mobility+ app** and a charging card, car drivers have access to almost 400,000 charging points (as of 31 December 2022) where they can always charge at the same price. The EnBW mobility+ app has now been downloaded more than 1.8 million times and also came out on top in a number of independent tests in 2022. For example, it was named the best electromobility app by the magazine Stiftung Warentest with a grade of GOOD (iOS: 2.1, Android: 2.2; test 5/2022).

In the first half of 2022, we acquired around 25% of the shares in SMATRICS, a subsidiary of the Austrian energy company VERBUND. This investment will enable closer cooperation in wide-reaching product collaborations, especially in the area of fleet and business customers, and also with customers on the German market. We are pushing forward the expansion of quick-charging infrastructure in Austria via **SMATRICS EnBW,** a joint subsidiary of SMATRICS and EnBW.

Our subsidiary **SENEC** based in Leipzig was one of the top three providers of home storage systems for solar power plants in Germany in the 2022 financial year. SENEC is a specialist in equipping customers so that they are able to meet their own energy needs with solar electricity. It has continued to grow at a high rate and has now sold around 58,000 storage systems in Germany, Italy and Australia. It also doubled the amount of photovoltaic capacity it sold in Germany in comparison to the previous year to around 220 MW (2021: around 110 MW). According to the results of independent market research, SENEC has a 20% share of the installed home storage system market in Germany. Business in Italy developed particularly well and the company had sold around 14,000 storage systems by the end of the year. SENEC Italia thus tripled its sales volume in comparison to the previous year and is growing as quickly as the entire Italian market for providers of energy solutions.

SENEC Germany had its carbon footprint calculated for the first time in 2022 and has agreed further recommendations for action in 2023. These include continuing to use a sustainable trade fair booth construction concept, which was presented for the first time at the Intersolar 2022 trade fair. One component of this solution is a carbon-saving event construction kit made from recycled overseas shipping containers that will last for several years and is very versatile to use. Overall, SENEC and its customers helped to save around 430,000 t CO_2 in Germany in 2022.

The contracting project with a major German food company is presented in the following **video**.

Online ↗

In the area of **contracting,** we provide industry, the real estate sector and public clients with a sustainable and efficient energy infrastructure implemented directly at the customer's site. We create customized energy concepts for the provision of energy with either no CO_2 emissions or only low emissions – a service that is now in ever greater demand. In a project for a large German food company, for example, we were able to sustainably reduce the CO_2 emissions from processes to provide energy and media by 35% in June 2022. We were also able to extend the contracting agreement with a local authority customer for the supply of cooling and heating by 20 years. At several different properties, we installed, for example, a new heating plant, a new cooling supply system, new PV power plants and a new air-conditioning system. The new installations and renovation measures will save 450 t CO_2 per year, which corresponds to a reduction of 53%. An important component of our long-term contracting agreements is the ongoing monitoring and optimization of plant operation. We enhance applications and business processes as part of our digitalization approach that automatically collect, link and evaluate data from the plant.

Our company views itself as an experienced and capable **partner for local authorities and public utilities.** We have invested in many local authority companies across the whole of Baden-Württemberg and play an active role in networks for the exchange of information between our participating interests and other public utilities. Local authorities are also able to invest in Netze BW using our **"EnBW connects"** participation model. A total of 214 local authorities have now indirectly invested in Netze BW via the local authority holding company Netze BW GmbH & Co. KG. "EnBW connects" also gives local authorities the opportunity to get actively involved with current issues in the energy industry. By remaining in regular, direct contact with the local authorities, and through the introduction of a new market cultivation program in 2022, Netze BW has been able to further improve its range of services. In the currently challenging situation on the energy market, we can offer our local authority customers a high level of transparency, deliver information in different formats and provide them with a comprehensive range of services, such as creating **contingency plans for emergency and crisis situations.** We have noticed a significant increase in demand for these services. Looking beyond the current situation, ensuring a renewable energy supply that is fit for the future is an important component of our local authority agenda. To this end, Netze BW has been featuring the **H_2-readiness** of its gas grid (i.e., the gas grid is already capable of transporting hydrogen gas directly to end customers) on its digital local authority platform since 2022. Using our **digital school services,** we help local authorities to provide the necessary infrastructure in their schools to make digital learning possible for all of their students. Based on the experience we have gained from our long-standing involvement with 166 schools in Stuttgart, we are currently trialing our services in the towns of Munderkingen and Sindelfingen.

The main telecommunications activities at EnBW AG are bundled together in **EnBW Telekommunikation** with its subsidiaries NetCom BW and Plusnet. In 2022, **NetCom BW** continued to expand by acquiring the end customer business and grid operations of the company Telekommunikation Lindau in the Lake Constance region of Bavaria. The transformation from a so-called FTTC network, in which the fiber-optic cable connects up to the copper network, to a FTTB network, in which the fiber-optic cable is laid straight to the building, is a main focus of the corporate strategy followed by the company. Aside from carrying out any necessary expansion of the broadband network together with cities, local authorities and municipal associations, NetCom BW is now working more intensely on the implementation of self-financed projects. During the course of the financial year, it concluded around 40 cooperation agreements with local authorities and the majority of them have already entered the project planning stage. Construction work has already started in Rottenburg am Neckar and Nagold to connect up to 8,000 households directly to the fiber-optic network by the summer of 2024.

In 2022, **Plusnet** worked rigorously on pushing forward the expansion of the fiber-optic network in industrial areas and financed this expansion itself. Cooperation agreements were concluded during the course of the year with eight local authorities in North Rhine-Westphalia, Rhineland-Palatinate and Hesse to expand their fiber-optic networks. The first fiber-optic network in Bergisch Gladbach was commissioned in the middle of the year. In addition, we concluded important strategic agreements in 2022 for developing the backbone and connection networks for broadband. By working with infrastructure partners – such as GlasfaserPlus, a joint venture between Deutsche Telecom and the IFM Global Infrastructure Fund – Plusnet has been able to significantly expand the fiber-optic network across Germany that can be marketed in future. In cooperation with NetCom BW, Plusnet also signed a contract with DB broadband, a subsidiary of DB Netz AG. NetCom BW and Plusnet will expand the shared backbone network by 20,000 km to around 50,000 km of dark fiber (unswitched fiber-optic line) as part of the agreement.

We founded the company **EnBW Cyber Security** in May 2022 in response to the growing demand for security solutions that protect against cyberattacks. As a wholly owned EnBW subsidiary, EnBW Cyber Security helps companies, local authorities and municipalities to find and implement the right security strategy for them. The company has grown constantly since it was founded in Karlsruhe and its customer base now comprises about 90 companies. EnBW Cyber Security has been working with the Baden-Württemberg Ministry of the Interior and the Baden-Württemberg State Bureau of Investigation since 2020. This cooperation includes the provision of a dual study program for students and, since October 2021, EnBW Cyber Security and its two cooperation partners have been training business information science students specializing in cybersecurity at DHBW Heilbronn.

In the area of **sustainable districts,** we develop sustainable, holistic and at the same time cost-effective concepts for district infrastructure for cities, municipalities and project developers. This business area takes on responsibility for the general planning and for the supply and future operation of the technical infrastructure, including the integration of, e.g., mobility concepts, digital parking space management and smart services. In 2022, we received the first orders for 13 new projects covering around 3,800 residential units. In May 2022, the implementation contract for the **"climate-neutral Scharnhausen West industrial park"** was concluded. This commercial district in Ostfildern will cover an area of 15 hectares and will be home to the largest borehole heat exchanger in Germany. A holistic concept with a self-sufficiency rate of at least 65% has been developed for this district, which will save around 4,300 t CO_2 emissions compared to a standard district with conventional energy supplies.

We present our **services in the area of sustainable districts and our latest projects** here.

Online ↗

Supply reliability

As an energy company and in cooperation with our distribution grid companies, we are tasked with guaranteeing a secure and reliable supply of electricity and gas to our customers. We face additional challenges both now and in the future due to the increasing amount of decentralized generation, with volatile feed-ins as a result of changing weather conditions, and the electrification of road traffic. We are preparing our distribution grids so that they can handle this decentralized energy world. Therefore, we are expanding the existing conventional infrastructure with smart grid technologies so that we can better monitor and manage the generation, distribution and storage of energy. This work includes, for example, the further expansion of local transformer stations with remote monitoring and control systems to reduce the time it takes to find faults, as well as the introduction of an app-based malfunction alert system.

Our grid companies are responsible for the secure and reliable operation of the distribution grids. The processes are managed by the respective grid control center, which is also responsible for coordinating any work to rectify faults in the grid in its region. As part of the investment and maintenance programs, our grid companies are upgrading their grids and expanding them according to demand. In 2022, Netze BW launched a comprehensive expansion and renewal program for its distribution grids. These measures will contribute to the grid expansion plan and to ensuring a reliable supply. The overall annual budget for the realization of all investment and maintenance measures is approved by the Board of Management of the EnBW Group. The measures are carried out over one or multiple years and are realized independently by our grid companies. Some of the investment budget is used for the gradual expansion of smart grids. The growing use of smart grid technology allows us, on the one hand, to optimize our investment processes and, on the other hand,

Further information on the **expansion of the grids at Netze BW.**

Online ↗

to improve the security of supply in our grids and with it the satisfaction of our customers and our reputation. Besides the reliability and security of supply, the efficiency of the measures is also taken into account when making investment decisions. This is because grid investment also has an influence on the network user charges that make up part of the electricity price paid by customers.

SAIDI

We record all unscheduled interruptions to supply at our distribution grid operators for gas and electricity. This data flows into the "System Average Interruption Duration Index" (SAIDI). It states the average duration of supply interruptions per end consumer in minutes per year (p. 40↗).

TOP

Key performance indicator

	2022	2021	Change in %	Forecast 2022
SAIDI electricity in min./year[1]	**16.6**	15.8	5.1	15 – 20

1 SAIDI electricity includes all unscheduled interruptions to supply that last more than three minutes for the end consumer.

The figure for the supply reliability of the electricity distribution grid was within the forecasted range in the 2022 financial year as in the previous year. The moderate increase by 0.8 minutes was mainly due to a large power failure at our grid subsidiary PREdistribuce. This was caused by a fault at the upstream Czech transmission system operator ČEPS that was outside the sphere of influence of PREdistribuce. In contrast, the increasing digitalization of our distribution grids has had a positive impact on supply reliability.

At our gas distribution grid operators, the average duration of unplanned supply interruptions per end consumer (SAIDI Gas) was below 1 min./a in the 2022 financial year, as in the previous year.

Environment goal dimension

Our Group environmental targets – which are integrated into the EnBW 2025 Group strategy – relate to the expansion of renewable energies and to making our contribution to climate protection. These targets are measured using the key performance indicators "installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE" and CO_2 intensity. Our Group environmental goals are supplemented by activities and targets for the implementation of environmental themes in the EnBW Sustainability Agenda (p. 34 ff.↗). Alongside EnBW AG, the main subsidiaries dealing with environmental issues include Energiedienst (ED), Stadtwerke Düsseldorf (SWD), Pražská energetika (PRE) and Netze BW. These and other subsidiaries have an environmental management system certified according to DIN EN ISO 14001 or validated according to EMAS, as does EnBW AG. We have thus created the prerequisites for ensuring that environmental requirements are systematically and continuously taken into account. It is used to manage guidelines and regulations, define and monitor environmental targets and establish the necessary testing processes. The consistent implementation and further development of the environmental management system ensures that any material negative impacts on the environment can be avoided as well as possible. Risks generally exist in the area of environmental protection due to the operation of power generation plants and transmission facilities and the possible consequences for air, water, soil and nature. We counter these risks using organizational and procedural measures to reduce their impact, as well as through emergency planning and hazard prevention measures.

You will find a detailed presentation of the **EnBW Sustainability Agenda** and our **climate neutrality strategy** here.

Online ↗

Expansion of renewable energies

Installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE

TOP

Key performance indicator

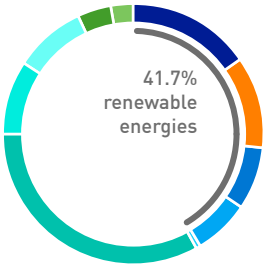
	2022	2021	Change in %	Forecast 2022
Installed output of renewable energies (RE) in GW and the share of the generation capacity accounted for by RE in %	5.4/41.7	5.1/40.1	5.9/4.0	5.4 – 5.6/ 41.5 – 42.5

We provide **citizens** with various opportunities to get involved and find out more information about our **projects to expand wind and photovoltaic power.**

Online ↗

In 2022, the installed output of renewable energies increased to 5.4 GW compared to 5.1 GW in the previous year. The share of the generation capacity accounted for by RE increased to 41.7%. Additional output of around 300 MWp was added with the commissioning of the two solar parks Gottesgabe and Alttrebbin. Other onshore wind power plants and PV power plants were also added. Both key performance indicators were within the forecasted ranges. We have thus continued to push forward the expansion of electricity generation from renewable energy sources in accordance with our strategy. Expanding renewable energies to between 6.5 and 7.5 GW by 2025 is one of the 15 strategic measures in the EnBW Sustainability Agenda (p. 34 ff.↗). In view of the currently installed output and our project pipeline, we believe that we remain on course to achieve the target value.

Installed output
in %



- 15.4 Wind (2021: 15.7)
- 11.6 Pumped storage (with natural flow of water) (2021: 11.9)
- 7.7 Run-of-river (2021: 7.9)
- 6.4 Photovoltaics (2021: 3.9)
- 0.6 Other renewable energies (2021: 0.7)
- 33.2 Brown and hard coal (2021: 34.1)
- 9.4 Nuclear power (2021: 9.6)
- 8.9 Gas (2021: 9.2)
- 4.2 Pumped storage (2021: 4.3)
- 2.6 Other thermal power plants (2021: 2.7)

Generation capacity[1] (as of 31/12)

Net electrical output[2] in MW	2022	2021
Renewable Energies	**5,444**	**5,100**
Run-of-river power plants	1,008	1,007
Storage/pumped storage power plants using the natural flow of water[2]	1,513	1,517
Onshore wind	1,031	1,016
Offshore wind	976	976
Photovoltaics	832	498
Other renewable energies	84	86
Thermal power plants[3]	**7,622**	**7,622**
Brown coal	875	875
Hard coal	3,467	3,467
Gas	1,166	1,166
Other thermal power plants	346	346
Pumped storage power plants that do not use the natural flow of water[2]	545	545
Nuclear power plants	1,223	1,223
Installed output[4]	**13,066**	**12,722**
of which renewable in %	41.7	40.1
of which low CO_2 in %[5]	13.1	13.4

1 Generation capacity includes long-term procurement agreements and partly owned power plants.
2 Output values irrespective of marketing channel, for storage: generation capacity.
3 Including pumped storage power plants that do not use the natural flow of water.
4 In addition, power plants with an installed output of 1,706 MW were registered for decommissioning. However, they were classified as system-relevant by the Federal Network Agency and TransnetBW and are thus used by TransnetBW as reserve grid capacity.
5 Excluding renewable energies; only gas power plants and storage power plants that do not use the natural flow of water.

Own generation [1, 2] by primary energy source

in GWh	2022	2021
Renewable Energies	**11,744**	**11,692**
Run-of-river power plants	**4,676**	5,150
Storage/pumped storage power plants using the natural flow of water	**687**	858
Onshore wind	**1,927**	1,746
Offshore wind	**3,331**	3,196
Photovoltaics	**825**	432
Other renewable energies	**298**	310
Thermal power plants [3]	**30,340**	**30,707**
Brown coal	**6,348**	5,691
Hard coal	**10,606**	10,829
Gas	**2,764**	3,452
Other thermal power plants	**151**	152
Pumped storage power plants that do not use the natural flow of water	**1,081**	1,106
Nuclear power plants	**9,390**	9,477
Own generation	**42,084**	**42,399**
of which renewable in %	**27.9**	27.6
of which low CO_2 in % [4]	**9.1**	10.8

1 Own electricity generation includes long-term procurement agreements and partly owned power plants.
2 Generation volumes are reported without the volumes for positive redispatch that cannot be controlled by EnBW. Own generation including positive redispatch in 2022 was 44,690 GWh.
3 Including pumped storage power plants that do not use the natural flow of water.
4 Excluding renewable energies; only gas power plants and storage power plants that do not use the natural flow of water.

In 2022, own generation of electricity was slightly below the previous year's level at 42.1 TWh. Generation based on renewable energies increased compared to the previous year due to the addition of new power plants and better wind conditions, although generation from our hydropower plants was significantly lower than the level in the previous year due to low water levels. The volume of electricity generated by our thermal generation plants fell in comparison to the previous year. Although generation at our coal power plants increased slightly driven by prices on the market, generation at the gas power plants fell considerably. The proportion of own generation from renewable energy sources thus increased in comparison to the previous year to 27.9%.

CO_2 intensity/climate protection

CO_2 intensity

TOP

Key performance indicator

	2022	2021	Change in % [2]	Forecast 2022
CO_2 intensity in g/kWh [1]	**491**	478	2.6	0% – 15%

1 The calculation for this performance indicator does not include nuclear generation and the share of positive redispatch that cannot be controlled by EnBW. If the share of positive redispatch that cannot be controlled by EnBW is taken into account, CO_2 intensity would be 508 g/kWh for the reporting year (previous year: 492 g/kWh). CO_2 intensity including nuclear generation for the reporting year was 401 g/kWh (previous year: 386 g/kWh). We publish a five-year comparison of the performance indicators in our "Multi-year overview" on p. 305.
2 The figures may not add up due to rounding differences.

The CO_2 intensity of our own electricity generation increased in comparison to the previous year by 2.6% to 491 g/kWh and was thus at the lower end of our range for the forecasted increase of 0% to 15%. In comparison to 2021, generation from renewable energy sources increased due to more favorable wind conditions and higher generation from photovoltaics following the construction of additional solar parks. In contrast, there was an increase in the deployment of our coal power plants in Germany, especially in southwest Germany to maintain the security of supply, but also in France due to the priority given to the storage of gas in the second half of 2022 as a result of the war between Russia and Ukraine and the fact that many of the French nuclear power plants were taken offline. This high deployment had a negative impact on the availability of the hard coal power plants. The CO_2 intensity fell by 10.4% in 2022 in comparison to the reference year of 2018 (548 g/kWh). We were thus still within our target corridor in 2022 for achieving our target of reducing CO_2 intensity by 15% to 30% by 2025, in comparison to the reference year of 2018. We also refer you to the details provided in the "Report on opportunities and risks" (p. 137 f.↗).

Carbon footprint of EnBW

EnBW calculates and reports on its carbon footprint in accordance with the international Greenhouse Gas Protocol standard and takes into account Scope 1, Scope 2 and Scope 3 emissions.

The Scope 1 emissions from burning fossil fuels are calculated based on the guidelines issued within the European Emission Trading System (EU ETS). These guidelines are mainly based on the EU regulation on the monitoring and reporting of greenhouse gas emissions (in short: Monitoring Regulation, MRR) (EU Regulation 2018/2066). The emission factors are taken from the current "Guidance for preparing monitoring plans and emission reports for stationary installations" from the German Emissions Trading Authority (DEHSt) and publications issued by the German Environment Agency (UBA). The CO_2 equivalents of the greenhouse gases are calculated based on their global warming potential GWP100 according to the Sixth Assessment Report (AR6) from the IPCC.

We measure market-based Scope 2 emissions using specific emission factors according to the designation of the electricity and heating supplies to our plants and buildings. In order to determine location-based Scope 2 emissions, we apply the energy designations used in the respective country, such as the Bundesmix (federal mix) of the general electricity supply according to section 42 German Energy Industry Act.

We are currently working with a general emissions factor of 29 g CO_2eq/kWh for the upstream Scope 3 emissions of our gas sales and the gas consumption at our gas power plants based on information from the German Environment Agency and the DBI Gas and Environmental Technology Institute. We calculate the upstream CO_2 emissions for procured fuel used for energy generation in our power plants using GEMIS factors. The Scope 3 emissions for our flights and train trips are based on data we receive from the booking agents and the German rail company Deutsche Bahn. For gas combustion of our customers, we use an average emissions factor of 200 g CO_2/kWh natural gas based on the average composition of the natural gas.

EnBW also provides information on the performance indicator "CO_2 emissions avoided" when reporting its carbon footprint. A key goal of the energy transition is to protect the climate by reducing greenhouse gas emissions and using energy efficiently. "CO_2 emissions avoided" give another measure of EnBW's contribution to the achievement of this target. The activities carried out by EnBW in this area – both internally and also with our customers – support the implementation of the energy transition.

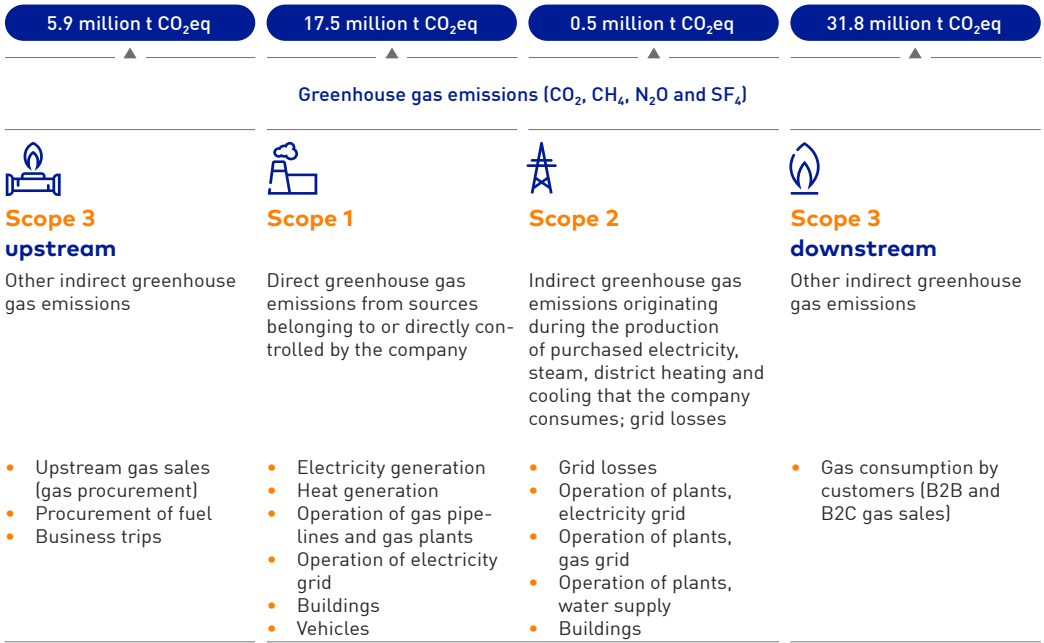
Direct CO_2 emissions are determined mainly by the deployment of our power plants. As a result of rising gas prices caused by the war between Russia and Ukraine, the transmission system operator instructed us to deploy our reserve power plants to a greater extent to maintain the security of supply. This led to an increase in direct CO_2 emissions from 16.4 million t CO_2eq in 2021 to 17.5 million t CO_2eq in 2022. We present this category of electricity generation separately in the following table as "Electricity generation – not controllable." Higher indirect CO_2 emissions from grid losses were the main reason for the increase in Scope 2 CO_2 emissions from 0.4 million t CO_2eq to 0.5 million t CO_2eq. Scope 3 CO_2 emissions are mainly influenced by the gas consumption of our customers and thus by gas sales in the B2C and B2B sectors. As a result of the war between Russia and Ukraine, gas sales and thus also the Scope 3 emissions fell significantly in the 2022 financial year from 60.9 million t CO_2eq in the previous year to 37.7 million t CO_2eq. There was an increase in CO_2 emissions avoided, which was primarily attributable to the increase in biogas activities in 2022, from 9.8 million t CO_2eq to 10.0 million t CO_2eq.

Carbon footprint

in thousand t CO_2eq/in %	2022	2021
Direct CO_2 emissions (Scope 1)	**17,474/100.0**	**16,377/100.0**
Electricity generation – not controllable [1, 3]	2,906/16.6	1,701/10.4
Electricity generation – controllable [2, 3]	13,465/77.1	13,415/81.9
Heat generation [3]	773/4.4	884/5.4
Operation of gas pipelines/plants [3, 4]	257/1.5	306/1.9
Operation of electricity grid	32/0.2	32/0.2
Buildings	11/<0.1	10/<0.1
Vehicles	28/0.2	27/0.2
Other [5]	2/<0.1	2/<0.1
Indirect CO_2 emissions (Scope 2) [6]	**516/100.0**	**439/100.0**
Grid losses	449/87.0	373/85.0
Operation of plants, electricity grid	7/1.3	11/2.4
Operation of plants, gas grid [4]	40/7.7	37/8.4
Buildings	11/2.1	9/2.1
Operation of plants, data and telecommunications network	6/1.2	7/1.5
Other [7]	4/0.8	3/0.7
Indirect CO_2 emissions (Scope 3)	**37,675/100.0**	**60,898/100.0**
Upstream indirect CO_2 emissions (Scope 3)	**5,894/15.6**	**8,900/14.6**
Upstream gas sales	4,729/12.6	7,669/12.6
Procurement of fuel for energy generation	1,151/3.1	1,222/2.0
Upstream gas consumption, gas plants	11/<0.1	8/<0.1
Business trips	3/<0.1	1/<0.1
Downstream indirect CO_2 emissions (Scope 3)	**31,781/84.4**	**51,998/85.4**
Gas consumption by customers	31,781/84.4	51,998/85.4
CO_2 emissions avoided	**9,984**	**9,808**
CO_2 intensity of business journeys and in traveling CO_2/km	**163**	**190**

1 Includes the CO_2 emissions for electricity generation from redispatch and reserve power plant deployment.
2 CO_2 emissions from electricity generation excluding redispatch and reserve power plant deployment.
3 The figures for the previous year have been restated.
4 The methane emissions from the gas grids included here were calculated using the method developed by the Oil and Gas Methane Partnership (OGMP).
5 Includes non-automotive fuel consumption (e.g., emergency generators).
6 Market-based method. According to the location-based method, the Scope 2 emissions were 759 thousand t CO_2eq in 2021 (the figure for the previous year has been restated) and 921 thousand t CO_2eq in 2022.
7 Contains Scope 2 emissions from electricity consumption at water plants and own/operational consumption at charging infrastructure for e-mobility.

Emissions (Scope 1, 2 and 3)



Energy consumption

Energy consumption

	2022	2021
Total final energy consumption in GWh [1, 2]	1,072	1,019
Proportion of renewable energies in final energy consumption in % [2, 3]	20.2	20.2
Energy consumption of buildings per employee in kWh per employee [2, 4]	5,474	4,778

1 Includes final energy consumption of production including pump energy, energy consumption of grid facilities (electricity, gas and water) excluding grid losses, energy consumption of buildings and vehicles.
2 The figure for the previous year has been restated.
3 For electricity consumption for which the proportion of renewable energies is unknown, the Bundesmix (federal mix) label for electricity in the respective reporting year is assumed. For fuels, a proportion of 5% bioethanol is generally assumed.
4 Calculations based on assumptions and estimates. Only those companies with relevant consumption data have been taken into account.

Total final energy consumption includes the consumption of final energy for our business activities. It does not include conversion losses during energy generation or grid losses. The total final energy consumption and the proportion accounted for by renewable energies are determined based on our own consumption and the operational consumption of the power plants. Due to the increase in the deployments of our coal power plants, total final energy consumption increased in comparison to the previous year by 5.2% from 1,019 GWh to 1,072 GWh. Apart from the thermal power plants, the uptake of energy from renewable sources increased so that the proportion of renewable energies in final energy consumption was 20.2% as in the previous year.

You can find numerous other **environmental performance indicators** on our website.

Online ↗

The energy consumption of our buildings covers the energy required for heating rooms and providing hot water and electricity. As the coronavirus pandemic has subsided, the use of our office spaces has increased. This led to an increase in the energy consumption of buildings per employee from 4,778 kWh in 2021 to 5,474 kWh in 2022.

Selected activities

Climate-friendly internal mobility: In order to make a contribution to climate-friendly mobility, we are replacing all of the company vehicles that have conventional drives with fully electric vehicles in the **fleet** operated by EnBW AG by 2024. At the end of 2021, there were still 178 conventional vehicles in the fleet. This figure had fallen to 134 vehicles by the end of 2022, which we plan to replace with fully electric vehicles. At the end of 2022, we already had 74 fully electric vehicles in the EnBW AG fleet. Our subsidiary PRE has also introduced a program to **switch its fleet over to electric vehicles** to help it achieve its goal of climate neutrality. It plans to increase the proportion of electric vehicles in its fleet of passenger vehicles to 37% by 2025, 50% by 2030 and 100% by 2035. A total of 15 new electric passenger cars were purchased by PRE in 2022 and 13 passenger cars with combustion engines were removed from the fleet. ED Netze is also working on the **full electrification** of all vehicles at its site.

Another element of climate-friendly internal mobility is the electric cars in the EMMA employee program (Entgeltumwandlungsmodelle und Mitarbeiterangebote / deferred compensation models and employee offers), previously known as NewMobility. These offers proved very popular again in 2022. 825 employees were using an electric car in the EMMA program by the end of 2021 and this figure had risen to 1,635 electric cars by the end of 2022.

Sustainable real estate management: We aim to reduce the **CO_2 emissions** and improve energy efficiency in our real estate portfolio. EnBW Real Estate, the subsidiary responsible for most of the real estate activities of EnBW AG, has been set the target of reducing the **specific energy consumption** of existing buildings by 10% by 2025 and by 20% by 2030, based on the reference year of 2018. We achieved a reduction of 14% at the benchmark sites by around 2022. The portfolio managed by EnBW Real Estate GmbH comprises about 130 properties with approximately 290 buildings and a net floor space of around 670,000 m². We also expanded our focus on **biodiversity** at the properties to include the increasingly important aspect of **climate resilience** in 2022. Reducing CO_2 emissions is one of the main priorities for the new ED Netze site in Donaueschingen that is currently under construction. The new buildings have lower energy requirements than the maximum level allowed by law according to the KfW 40 standard and also feature a climate-neutral local heating supply. The building construction work and carpentry work at the three hybrid buildings (wood/prestressed concrete) was completed in 2022.

SWD is participating in the construction of the EUREF Campus city district in Düsseldorf, which utilizes an **innovative concept** for the supply of energy including various regenerative and environmentally friendly energy sources, as well as a mobility hub as a testing platform and start-up platform for new forms of mobility.

-77%

reduction in paper usage in 2022 compared to the reference year of 2019.

Reduction in paper consumption: We have set ourselves the goal of significantly reducing paper consumption and want to reduce the volume of paper procured centrally at EnBW AG by up to 90% by 2025, based on the reference year of 2019. Mainly as a result of our digitalization initiatives, we were able to reduce our internal paper consumption by around 68 t and customer-driven paper consumption by around 540 t in 2022, which represents a reduction in paper consumption of 77% since 2019. Alongside the effects of the coronavirus pandemic and the higher number of employees working from home as a result, the further digitalization of our business processes at EnBW has also contributed to the reduction in paper consumption. For example, the number of printers operated by the company decreased even further from 1,400 at the beginning of 2021 to around 930 in 2022. In line with our sustainability goals, new homes have been found for some of the printers that have so far been decommissioned. Among other things, we offer them free of charge to interested educational institutions.

Climate-friendly grid and plant operation: ED Netze is rigorously expanding its electricity grid. The Löffingen transformer station, which was partially placed into operation at the beginning of December 2022, is helping to maintain the security of supply in this grid area. The previous 20 kV transformer station has been replaced with innovative switchgear technology and makes a contribution to achieving the goal of climate neutrality. Instead of the gas sulfur hexafluoride (SF_6) which is still widely used, the switchgears contain so-called clean air. This consists only of nitrogen and oxygen and thus does not have any global warming properties. The transformer station is due to be fully commissioned during the course of 2023. PRE also has another program for **reducing SF_6 emissions** from the electricity grid and for converting to **CO_2-efficient technologies.** In Potsdam-Nesselgrund, the independent transmission system operator ONTRAS Gastransport commissioned **Germany's first emission-free gas pressure control station** in June 2022. It will save up to 98% of primary energy compared to a conventional plant. The innovative plant concept can be used as a blueprint for gas transfer stations throughout Germany and represents an important milestone on the path towards achieving climate-neutral gas transport.

Furthermore, BALANCE Erneuerbare Energien, a subsidiary of VNG, constructed photovoltaic power plants at three sites in 2022 to reduce the own electricity consumption of the biogas plants at the sites. They will feed surplus energy into the public grid. The three power plants will generate a yield of around 475,000 kWh in total in the first year. This corresponds to the annual electricity needs of around 150 two-person households. Alongside the economic benefits, they will also **help to reduce CO_2 emissions.**

Hydropower: Generating electricity from hydropower helps protect the climate. At the same time, utilizing hydropower encroaches on nature. Therefore, we are committed to ensuring that hydropower is used in harmony with the environment. If power plants cause changes to the natural landscape, we balance these effects through environmental compensatory measures. For example, we preserve the continuity of watercourses by **constructing or optimizing fish ladders for fish to ascend or descend the river.** At our hydropower plants on the Iller river, we have started comprehensive studies on restoring ecological continuity in the river and we are planning the construction of a fish ladder in coordination with the licensing authority to help fish ascend the considerable height difference at the hydraulic power plant in Aitrach. Studies on the implementation of a technical fish protection facility including a route that will allow fish to descend the river are just as ambitious. There is currently no established standard for the construction of fish protection racks at major hydropower plants that are combined with a continuous redirection route leading to the tailwater.

At the so-called canal power stations in Tannheim, Unteropfingen and Dettingen on the Iller river downstream of Aitrach, we are also making progress with the plans to **implement ecological river continuity and population protection measures.** This includes the construction of a migration facility for fish to travel upstream at the Mooshausen dam, where water from the Iller river is redirected into the Iller canal at volumes of up to 100 m³/s.

Find out more about our measures to conserve **biological diversity** and protect **nature and species** on our website.

Online ↗

Conservation of biological diversity: We initiated the **EnBW "Stimuli for Diversity" program for the protection of amphibian species** together with the LUBW (Baden-Württemberg State Institute for the Environment) back in 2011, which has also included funding for protective measures for reptiles since 2016. The program is part of the project "The economy and business for nature," which is a component of the state initiative "Active for biological diversity." It still remains the only conservation program from a company nationwide that not only funds the protection of one single species but two whole groups of species across the state. Funding was awarded to ten project applications in 2022. Numerous measures have thus been implemented in a total of 140 projects since 2011 that have helped to improve the habitats of native amphibians and reptiles so that their populations can start to grow again in the medium to long term.

Further information on how we use our **solar parks** to **protect species** can be found here.

Online ↗

As part of the **blooming transformer station** project, Netze BW has been using the uncultivated areas around transformer stations to promote biodiversity since 2019. The aim is to create natural flower meadows at every transformer station that will become home to a large number of different species that are usually found in the natural environment at the respective sites. A further ten transformer stations were transformed into "buzzing transformer stations" using regional seeds in the reporting year and now provide a rich habitat for numerous species of butterflies, wild bees and other insects. These are hotspots for biodiversity with up to 60 different plant species per 10 m², providing food, protection and a place of retreat for native insects. Flower meadows covering a total area of around 84,600 m² have been created at the 39 sites. This will make an active contribution to the proliferation of flower pollinating insects.

Further environmental data, including on the **Global Reporting Initiative,** is available on the Internet.

Online ↗

Alongside the key performance indicators in the environment goal dimension, other environmental targets are defined in the EnBW Sustainability Agenda (p. 34 ff.↗). We utilize a broad range of additional environmental performance indicators for measuring, managing and reporting on the other results of our environmentally relevant activities. Selected activities and performance indicators are described in this section. Other **environmental performance indicators** can be found in our "Multi-year overview" (p. 305↗) and on our website.

Employees goal dimension

The further development of our corporate strategy in the period up to 2025 (p. 33 ff.↗) will place new demands on our HR policy. In future, the strategy will focus on growth, infrastructure, selective internationalization and new business also outside of the energy sector. Using our HR strategy 2025 "People as the main focus," we want to create the conditions that give the people at EnBW and our company itself the opportunity for growth, development, a future and thus success. The key tasks of HR are recruiting employees for the company, managing their development and accompanying them through the transformation, encouraging loyalty to the company among employees and maintaining and fostering their motivation, satisfaction and employability.

Employee engagement

People Engagement Index (PEI)

Since November 2020, we have been using an employee survey (EnMAB) to measure the People Engagement Index (PEI) as a key performance indicator. The PEI allows us to draw conclusions not only on the satisfaction of employees, but also on how motivated and engaged they are in their work at EnBW (p. 41↗).

TOP

Key performance indicator

	2022	2021	Change in %	Forecast 2022
People Engagement Index (PEI)[1]	81	82	-1.2	> 77

1 Variations in the group of consolidated companies (all companies with more than 100 employees are considered (except ITOs)). Companies that were fully consolidated for the first time in the fourth quarter of 2022 were not included in the employee surveys for the PEI.

The employee survey EnMAB was held from 17 October to 3 November 2022. The survey achieved its highest coverage to date, being answered by around 22,900 employees, including trainees and students. On the basis of this survey, the PEI reached 81 points in 2022 on a scale of 0 to 100. It stood at 82 points in the previous year. According to an assessment by the service provider, an international benchmark index compiled using similar questions at numerous companies from various different sectors stood at 75 points in 2022. Our values were very high in comparison with other companies in 2022 in the "Engagement" and "Well-being and respect" categories.

We also refer you to the details provided in the "Report on opportunities and risks" (p. 138↗).

HR strategy 2025

Our HR strategy 2025 "People as the main focus" supports the implementation of the EnBW 2025 corporate strategy. Digitalization requires a willingness to change, technological expertise and modern working practices. Our managers should not just place expectations on their employees but also support them and lead their teams with conviction into a more complex world. Our HR policy will support employees in this process of change, for example by developing new forms for cooperation and for further training and education. In addition, we value the potential offered by the diversity of our employees.

The HR strategy focuses on **six key themes** with 21 strategic areas:

- People-centered transformation
- Employer brand & recruiting
- Leadership & skills
- Qualification@EnBW
- Diversity@EnBW
- HR processes, services & digitalization

Selected activities in our six themes

People-centered transformation: We consider ourselves to be the shapers of a people-centered transformation and are placing the main focus on people and their needs. To support employees during the transformation process, we have, for example, updated the EnMAB employee survey. We supplemented it in 2022 to include an "empowerment survey" for the first time. Our aim is to use the results to discover how different values and standards at the company are impacting the attitudes and experiences of employees in their work. The goal is to derive measures to increase loyalty to the company and to improve the motivation and performance of employees in the long term.

The working world has undergone a period of profound change due to the coronavirus pandemic and to technical and demographic changes. We responded to this transformation in 2021, for example, by launching the **"BestWork"** initiative to deal with the question "How do we design the working world of the future?" The first stage of the Group-wide rollout of "BestWork" began at EnBW AG and some subsidiaries in November 2021 and was concluded in the first quarter of 2022. At the end of this stage, every employee was able to decide whether they wanted to work more or less than 50% from home or on a mobile basis. This decision will be valid in the first instance until the end of 2023. The second stage of BestWork started in February 2022 with the motto "CooperationSpaces." In this stage we will optimize workspaces and technical equipment for the form of cooperation selected by each team and the type of hybrid collaboration. Employees are due to move into their newly designed workspaces by the end of 2023. By giving our employees the opportunity to work from home – where feasible – we are helping to reduce CO_2 emissions caused by commuting to work. Employees at EnBW and some subsidiaries have also been given the opportunity to work from another European country since this year. They are permitted to work from abroad for a maximum of 30 calendar days at a time and for a maximum of 90 calendar days every twelve months.

Employer brand & recruiting: EnBW is on track for growth. This will require us to secure new talent. Our employer campaign which is running under the motto "We are the E" or "I am the E" and which began in November 2020 aims to make EnBW more well known nationwide as an employer and also to continuously improve the attractiveness of EnBW as an employer. The success of this campaign was demonstrated by the results of our market research surveys that were carried out across Germany in December 2021. Almost half of those surveyed stated that working for EnBW is an attractive prospect, which was true for only 29% of those surveyed in 2018. Various images from the campaign could be seen across Germany on social media, digital career networks and the EnBW career website for a six-week period starting in April 2022. In addition, we are constantly working to make our recruiting processes even more efficient. For example, we have digitalized the hiring process to a large extent and improved our talent finder program. During the application process, we are continuing to hold more interviews via videoconference.

Leadership & skills: The growth of our company is closely linked to the personal development of every individual person. This is why we developed our new trainee program that started in April 2022 under the motto "Shape the future with your energy." Over a period of 20 months, we provide trainees with insight into all areas of the Group in eight practical phases including a two-month placement abroad at one of our European subsidiaries. The trainees pick up specialist expertise and also develop their soft skills.

Our digital learning and development platform **"LernWerk"** enables employees to organize their own personal development independently. It was rolled out across the company during 2022. In cooperation with the specialist departments, we developed so-called knowledge hubs covering themes such as sustainability, grid technology training, health management, data analytics and artificial intelligence. "LernWerk" not only includes content to be consumed digitally but also promotes active application of content via, among other things, physical exchange formats. Since the beginning of July 2022, we have also been integrating the "development dialog" into "LernWerk". This comprises the following three formats: personal development reviews, impulse appraisals and status reviews. These give employees the opportunity to maintain continuous dialog on their development at the company.

Qualification@EnBW: On 31 December 2022, there was a total of 1,276 trainees and students working in the EnBW Group. EnBW has been increasingly utilizing virtual reality (VR) and augmented reality (AR) for training since the beginning of 2021 and is cooperating with the start-up Holo-Light. Trainees are able to use smart glasses and VR software to prepare themselves to deal with, for example, hazardous situations, without actually being exposed to any real danger when they are in the virtual world. In addition, EnBW is utilizing gamification approaches in its training, such as in the "E-Quiziert" learning app that has been available since April 2022. This innovative training concept provided by EnBW was ranked in second place in the "Training and Dual Study" category at the German Human Resources Awards 2022.

We have been offering a multi-stage **career integration program** to refugees and migrants since 2016, in which 51 people are currently serving a technical apprenticeship. 27 participants have now completed their training as either an industrial mechanic, electronics technician, plant mechanic or mechatronics engineer and 26 of them have been awarded a permanent contract. As part of our social engagement activities, we will continue the program over the next few years and also carry on using it as an additional tool for recruiting young talent.

Diversity@EnBW: Diversity is a fixed component of our corporate culture and a key element of the HR strategy. We actively support equal opportunities. EnBW wants to give its employees in leadership positions more flexibility. To this end, more leadership positions will be offered as part-time jobs in the future.

Proportion of female managers at EnBW AG

in %	2022	2021
First level below the Board of Management	11.1	7.7
Second level below the Board of Management	23.1	21.3

The Board of Management has set the goal of further increasing the proportion of women at both management levels below the Board of Management in the period from 1 January 2021 to 31 December 2025. At both the first level (top management) and second level (upper management), the proportion of women should increase to at least 20%. This target was not yet achieved in the 2022 financial year in top management. The proportion of women in top management changed from 7.7% in the previous year to 11.1% in the reporting period, while the proportion of women in upper management increased from 21.3% in the previous year to 23.1%. These changes were due to the appointment of more women to management positions. A "Diversity, Equity & Inclusion" strategy was developed in 2022 based on the HR strategy. It covers the three strategic fields "Success and Opportunities," "Inclusive Culture" and "Diverse Ecosystems." In the next stage, we will implement any already defined measures and establish a system for continuously measuring their success. This will also help to achieve the targets for the proportion of women in management positions.

HR processes, services & digitalization: The 2025 corporate strategy also poses new challenges for the HR and IT departments and means that we need to realign and focus our IT-based HR processes. For this purpose, we have launched the "EnABLE HR" project with the aim of establishing a future-oriented process and IT system environment for human resources work. We will use intelligent system solutions to relieve employees in the HR department of the burden of administrative, manual and repetitive tasks, for example, by offering a comprehensive range of self-service solutions. Processes with a customer interface were also digitalized and made easier to use in 2022. For example, employees can now also submit their sick notes electronically.

Selected activities at our key subsidiaries: With the goal of ensuring it can continue to successfully attract new employees in a difficult job market, **Energiedienst** (ED) established, among other things, a new employer branding strategy in 2022. The application process and onboarding program were also modified using the new software Workday. The "HR transformED" project, which originally focused purely on the theme of digitalization, has now become a comprehensive transformation program: The subproject "Time management" was successfully concluded in 2022 and "HR Core System" is still being implemented. **Pražská energetika** (PRE) ran programs and an assessment center for the development of young talent and managers with the aim of retaining and further developing the most important management skills on a continuous basis. Other processes in the area of payroll accounting were also digitalized. **Stadtwerke Düsseldorf** (SWD) founded the Transition Team in 2022 in order to support the transformation of work culture in the best way possible. Other important themes for the company were health management and diversity, for which events and information were provided in formats tailored to specific target groups. **VNG** launched, among other things, its "Next Work" program with the aim of developing the future working world at VNG in the dimensions of culture, space, technology and services. It also pushed forward the digitalization of its HR processes, for example, by introducing a digital seminar management system and a revised e-learning platform.

Other issues

In accordance with the **collective bargaining agreement** that was reached by the Employers' Association for Electricity Power Plants in Baden-Württemberg and the labor union ver.di on 16 March 2021, a second wage increase of 1.6% came into force on 1 May 2022. The first wage increase of 2.1% was made on 1 March 2021. In addition, employees received a one-off tax-free payment based on the pay scale groupings. All employees who were subject to general taxation in Germany and who were in main employment on 1 September 2022 received the so-called flat-rate energy relief payment (Energiepreispauschale – EPP) of €300 gross in their wage slip in September. The German government agreed the EPP as part of the Tax Relief Act in May 2022 to ease the burden on citizens due to the rise in energy prices.

EnBW provides a comprehensive range of services to promote the **health** of its workforce. This includes, among other things, preventative medical services, vaccinations, physiotherapy treatments and psychological counseling. The sickness ratio stood at 5.3% in 2022 and was thus 1.2 percentage points higher than the figure in the previous year.

We publish more **performance indicators for employees** on our website.

Online ↗

Other performance indicators

Employees [1]

	31/12/2022	31/12/2021 [2]	Change in %
Smart Infrastructure for Customers	5,401	5,227	3.3
System Critical Infrastructure	11,485	10,866	5.7
Sustainable Generation Infrastructure	7,151	7,051	1.4
Other	2,943	2,920	0.8
Total	**26,980**	**26,064**	**3.5**
Number of full-time equivalents [3]	25,339	24,519	3.3

1 Number of employees excluding apprentices/trainees and inactive employees.
2 Restated for the new segment structure valid from 2022.
3 Converted into full-time equivalents.

As of 31 December 2022, the EnBW Group had 26,980 employees, which was 916 more than in the previous year. This increase was primarily due to taking on new employees in strategic growth fields. In the System Critical Infrastructure segment, the increase in the number of employees was due to the importance of the regulated business and the first-time consolidation of an investment in the area of grid services. The increase in the number of employees in the Sustainable Generation Infrastructure segment was mainly due to the renewable energies business and restructuring within the Group. Digitalization and transformation processes as well as restructuring within the Group increased the number of employees in "Other." The increase in the number of employees in the Smart Infrastructure for Customers segment was primarily due to the expansion of broadband and increased demand for energy and storage solutions. The employee turnover ratio stood at 7.9% in 2022 and was thus 1.7 percentage points higher than the figure in the previous year.

Occupational safety

In the area of occupational safety, we have set ourselves the goals of avoiding accidents and work-related illness and creating a safe working environment. The Group guidelines "Occupational safety and health protection" describe the responsibilities and tasks related to occupational safety and define the processes. The EnBW guidelines for occupational safety and health protection are also described in this document. The Occupational Safety Working Group has the task of regulating issues that affect all companies uniformly within the Group. It is headed by the Chief Operating Officer Sustainable Generation Infrastructure at EnBW and has the power to make binding decisions in accordance with the company's rules of procedure.

We work continuously on minimizing **danger in the workplace,** which could result in accidents or work-related illnesses, through training and programs of measures. In 2022, 62 managers participated in the training course "Responsibilities and liability with respect to occupational safety" that was organized by the Group occupational safety department.

The Group-wide **Quentic software** is now being used in 32 Group companies with around 17,700 employees. The "Measures" module that helps companies to track site visits and incidents was one of the modules that became well established in 2022. The data entered into Quentic will be used to derive performance indicators in the future. This will enable the target-oriented management of occupational safety measures.

Since most of the protective measures relating to the coronavirus ended in April 2022, we have been able to hold more in-person **training courses** on occupational safety. The ongoing pandemic was still taken into account when organizing these courses and they were thus held in small groups. We are continuing to provide self-tests for our employees.

LTIF

The key performance indicator LTIF (Lost Time Injury Frequency) is used to measure the number of LTI (Lost Time Injuries) according to the definition on p. 41↗. Every company included in the LTIF for companies controlled by the Group receives an individual target from the Board of Management – the fulfillment of this LTIF target flows into the assessments for the achievement of targets in each case. The companies can also set their own individual targets that go beyond those set by the Board of Management.

TOP

Key performance indicator

	2022	2021	Change in %	Forecast 2022
LTIF for companies controlled by the Group [1, 2, 3]	2.6	2.3	13.0	2.0 – 2.2
LTIF overall [1, 2]	4.1	3.3	24.2	3.2 – 3.5

1 LTIF indicates how many LTI occurred per one million working hours performed. Further information on the calculation of this performance indicator can be found on p. 41↗.
2 Variations in the group of consolidated companies (all companies with more than 100 employees, excluding external agency workers and contractors, are considered).
3 Companies that were fully consolidated for the first time during the 2022 financial year were not included in the calculations for the LTIF performance indicators. Except for companies in the area of waste management.

The key performance indicator LTIF for companies controlled by the Group worsened in the 2022 financial year and increased to 2.6. At the same time, however, the average days of absence per accident fell significantly and now stands at 13.1 (previous year: 20.3) for the companies controlled by the Group. This means that the severity of the accidents greatly declined. The LTIF overall – including our subsidiaries in the area of waste management – also increased significantly in the reporting period. However, the average days of absence per accident was also 13.1 days and was thus also considerably below the value in the previous year (19.8). We believe that the increase in both the LTIF for companies controlled by the Group and the LTIF overall is mainly attributable to the increased deployment of power plants due to the energy crisis and the higher staffing requirements as a result. The LTIF overall was also influenced in 2022 by the number of accidents at the newly consolidated (trade-oriented) companies working on the installation of photovoltaic plants and electricity storage systems for retail customers.

In the 2022 financial year, there was unfortunately a fatal accident at an external company working for Energiedienst (ED).

We also refer you to the details provided in the "Report on opportunities and risks" (p. 138↗).

Selected activities

The **measures for achieving the targets for occupational safety** are defined independently by the Group companies:

In October 2022, the integrated management system (occupational safety, environment and energy) at **Netze BW** was certified in accordance with DIN EN ISO 14001, EMAS and DIN EN ISO 50001. The audit according to DIN EN ISO 45001 was concluded in January 2023. As part of the project to improve the occupational safety culture that was started in 2021 with support from DuPont Sustainable Solutions, Netze BW identified four areas of action in the 2022 financial year. The measures are already being implemented in the "Occupational Safety Initiative 2.0" (InA 2.0). Some employees also completed a program to become an "InA Trainer." They will provide training courses for all managers in 2023 on cultural change and raising awareness for occupational safety. Netze BW also ran other initiatives to raise the awareness of employees for occupational safety and health protection, including "Occupational Safety Awareness Day."

In the area of **conventional generation,** training courses and briefings were held from the middle of the second quarter of 2022 onwards, once again increasingly as in-person events. "Occupational Safety Days" were also held once again for employees at these sites. To increase awareness for the theme of occupational safety during apprenticeships, around twenty technical apprentices designed and produced a series of videos themselves entitled "RiskBuster – Next Generation" during a two-day workshop. The videos were presented at the "Safety Days" event at the Rheinhafen steam power plant. The "100 days without accidents" campaign also continued in the reporting year and this goal was achieved a total of ten times at different locations.

The measures implemented by **EnBW Kernkraft** (EnKK) in the area of occupational safety and health protection in 2022 focused on improving the resilience of employees and managers with respect to change. Training courses and workshops were held that covered this complex theme. The aim was to provide all employees with methods to deal with far-reaching change. Another main focus continued to be the training courses designed to promote safe behavior and critical reflection. Learning content for the company's own employees and those from partner companies on specialized dismantling activities was also developed and tested.

Stadtwerke Düsseldorf (SWD) has been implementing its "Personal drive" project at the company Netzgesellschaft Düsseldorf. This project was started in 2021 to improve the "culture of prevention" and sustainably instill precautionary behavior in its employees. The goal is to develop an accident-free corporate culture which guarantees a safe working environment as a matter of course. In the first quarter of 2022, the company introduced an online form for reporting and recording near accidents or dangerous situations. Collecting data on and analyzing near accidents will help identify potential weaknesses and also areas where safety can be improved. In the "New Corporate Governance AS/GS" project, SWD analyzed the current situation and has defined a possible approach for improving the control and management structure for occupational safety and health protection at the company.

In the 2022 financial year, a variety of activities to maintain and further improve occupational safety standards were carried out at **VNG.** For example, the VNG subsidiary BALANCE Erneuerbare Energien completed a review of the current situation with respect to occupational safety and with the aid of an external auditor in order to identify potential levers for optimizing the occupational safety culture. The results were used to hold, amongst other things, workshops with managers and employees on the theme of "Living safety!" VNG Gasspeicher had its integrated quality, environment, safety and health protection management system recertified in October and thus once again fulfills the requirements for DIN EN ISO 9001, ISO 14001 and ISO 45001. The VNG subsidiaries VNG Gasspeicher and Erdgasspeicher Peissen carried out a joint internal emergency exercise at the underground storage facility Bernburg/Katharina.

Energiedienst (ED) concluded a cooperation agreement in July 2022 with Netze BW that included, amongst other things, training courses on how to handle protective equipment and training on the application of certain safe work practices when using grid technology. In addition, ED laid the foundations for the introduction of the occupational safety software "SAM," which will be rolled out in phases from 2023 onwards. As well as providing various tools related to the subject of occupational safety, the software provides employees with a better overview of which courses and briefings they have already completed and which are still pending.

In the reporting year, the main focus at **Pražská energetika** (PRE) was placed on, amongst other things, occupational safety measures for their own employees and those of their suppliers. For example, further training courses were provided for work carried out in cable tunnels. In addition, PRE introduced safety management measures and mechanisms for the construction of PV power plants. Against the background of changes to the law with respect to reserve technical facilities, training courses were provided for the responsible employees. The changes relate to, amongst other things, the editing and updating of documentation and requirements for the further training of employees in electrical trades.

EU taxonomy

The European Commission presented the EU Green Deal in December 2019. It includes the target of reducing net emissions from greenhouse gases in the European Union to zero by 2050. A key element of the EU Green Deal is the EU taxonomy, a classification system used to define "environmentally sustainable" economic activities. The aim is to use defined requirements to classify economic activities EU-wide with respect to their contribution to six environmental objectives in order to encourage the development of sustainable financing products. The six environmental objectives are:

1. Climate change mitigation
2. Climate change adaptation
3. The sustainable use and protection of water and marine resources
4. The transition to a circular economy
5. Pollution prevention and control
6. The protection and restoration of biodiversity and ecosystems

The EU-Taxonomy Regulation distinguishes between "taxonomy-eligible" and "taxonomy-aligned" activities:

- An activity is **taxonomy-eligible** if taxonomy criteria exist for the activity and it matches the taxonomy description of the activity, irrespective of whether it fulfills the criteria.
- An activity is **taxonomy-aligned** if it fulfills the taxonomy criteria for the activity. In this case, it makes a significant contribution to the respective environmental objective (fulfills the technical screening criteria), causes no significant harm to any of the other environmental objectives (fulfills the technical screening criteria to do no significant harm, DNSH) and observes and complies with the minimum safeguards for occupational safety and human rights.

The reporting obligation this year exclusively covers the environmental objectives "climate change mitigation" and "climate change adaptation." The criteria for the other four objectives have not yet been finalized and thus do not have to be reported for the 2022 financial year.

As in the previous year, the economic activities of EnBW will generally be reported based on the criteria in the EU Taxonomy Regulation. In this reporting year, the activities in the energy sector were expanded to include the criteria sets for natural gas and nuclear power activities.

The formulations and terms contained in the EU taxonomy are subject to uncertainty with respect to their interpretation and need further clarification. Our own interpretation is presented below: The EU Taxonomy Regulation requires the presentation of the proportions of total revenue generated by a company that are achieved using products and services associated with taxonomy-aligned economic activities. EnBW believes that it is appropriate to allocate expenditure related to assets or processes associated with taxonomy-aligned economic activities to capex and opex if the measures relevant to capex and opex are implemented such that the technical screening criteria and minimum safeguards are fulfilled. In terms of our fuel switch projects, our assumption at the present time is that these plants will be taxonomy-aligned. However, it will only be possible to assess final compliance with the technical screening criteria at a later point in the implementation of these projects. Associated investment will thus be reported as part of a capex plan.

Implementation of the EU Taxonomy Regulation in the EnBW Group

We have accompanied and supported the development and introduction of the taxonomy from the very beginning. In particular, this included our participation in related expert groups and our reporting on selected taxonomy-aligned economic activities in the EnBW Group at an early stage for the 2020 financial year.

Further information on our **experiences with applying the EU sustainable finance taxonomy** can be found here.

Online ↗

In the 2021 financial year, we then reported in full on the taxonomy alignment of our activities based on all of the final taxonomy criteria that were available at the time the Integrated Annual Report was prepared. We reported on the obligatory key performance indicators revenue, capex and opex as well as voluntarily publishing information on the other performance indicators that are relevant to the ongoing management of the EnBW Group: adjusted EBITDA and capex including the proportion for entities accounted for using the equity method (expanded capex).

For the 2022 financial year, we have now also included information on the following economic activities:

- The publication of the "Report on the gas grid conversion plan" by the German Technical and Scientific Association for Gas and Water (DVGW) in September 2022 removed any uncertainties that may have existed previously with respect to the interpretation of the criteria for the economic activity 4.14. As a result, we can now verify that the **gas grids** fulfill the criteria for a substantial contribution to climate change mitigation for the current reporting year. The investment can thus be classified as taxonomy-aligned.
- In contrast to 2021, the publication of corresponding taxonomy criteria by the European Commission means that certain **natural gas-fired power plants** can now be classified as taxonomy-aligned. The three CCGT plants planned as part of our fuel switch projects will be operated as combined heat and power (CHP) plants in Heilbronn, Altbach/Deizisau and Stuttgart-Münster. This means that the power plants will not only generate electricity but will also be used for district heat extraction. The electricity generation at the plants is assigned to economic activity 4.29: Electricity is generated here from gaseous fuels in a standalone and technically and financially separate process. The CHP operation of the plants is assigned to economic activity 4.30: Electricity and heat are generated here from gaseous fuels. The existing CHP power plants operated by Stadtwerke Düsseldorf are only taxonomy-eligible and not taxonomy-aligned.
- Moreover, it is now also possible to classify the **district heating grid** as taxonomy-aligned, which could not be reported separately in the previous year because it was considered part of an integrated heat generation and distribution system.
- The criteria sets for nuclear power activities in the delegated act do not affect our power plant in Neckarwestheim because the delegated act only envisages criteria for new, innovative power plants or those operated over the long term. The last remaining active nuclear power plant operated by EnBW in Neckarwestheim will cease generating power at the latest on 15 April 2023 following its period of extended operation agreed by the German government. Therefore, it has no approval for a lifetime extension in the sense of long-term operation and it cannot be classified as taxonomy-eligible.

As the economic activities described above are included for the first time in the 2022 financial year, the information given here on the EU taxonomy is only comparable with the information given in the Integrated Annual Report 2021 to a limited extent. The complete set of information on the taxonomy-eligible and taxonomy-aligned economic activities according to Annex II of the delegated act for the EU taxonomy can be found on p. 151 ff.↗. The templates for the activities in the areas of nuclear energy and fossil gaseous fuels are presented below (p. 154 ff.↗).

Activities examined for the EU Taxonomy Regulation

Smart Infrastructure for Customers	System Critical Infrastructure	Sustainable Generation Infrastructure	
• E-mobility	• Electricity distribution grids • Electricity transmission grids • Water grids • Water supply	• Onshore wind • Offshore wind • Solar • Run-of-river • Biomass • Pumped storage	2021
	• Gas distribution grids • Gas transmission grids	• District heating • Electricity generation from gas • Combined heat and power	2022

We only report on activities that are taxonomy-eligible with respect to the EU's environmental objective of "climate change mitigation." Based on the EnBW business model, no activities could be identified that are taxonomy-eligible with respect to the EU's environmental objective of "climate change adaptation." The taxonomy alignment of the economic activities listed above was derived – using the findings from previous years as a basis – by determining that they fulfilled the taxonomy criteria. This was carried out by a central project team, working together with relevant experts from the specialist departments in the EnBW Group. We describe our fundamental approach to the analysis of the taxonomy alignment of our taxonomy-eligible economic activities below. A description of the activity and an overview of how they fulfill the respective technical screening criteria for a substantial contribution to climate change mitigation and do no significant harm to other EU environmental objectives is provided in table form at the end.

Firstly, each taxonomy-eligible business activity was assessed individually to see whether it complies with the criteria for making a substantial contribution to climate change mitigation. This assessment was carried out in principle at the level of the respective plant, insofar as the substantial contribution to climate change mitigation was not considered to have been complied with by the individual activities per se.

No significant harm to the other EU environmental objectives

In the next step, we assessed whether any significant harm was being done to the other five environmental objectives ("climate change adaptation," "the sustainable use and protection of water and marine resources," "the transition to a circular economy," "pollution prevention and control" and "the protection and restoration of biodiversity and ecosystems"). The results of the DNSH criteria assessment for each economic activity can be found in the table (p. 113 ff.↗). Environmental objectives for which no criteria currently exist were considered to have not been harmed and were thus not explicitly examined.

Compliance with minimum safeguards

In the third and final step, we assessed the economic activities at a Group level with respect to their compliance with the minimum social safeguards for human rights and occupational safety (prequalification process [p. 56 f.↗], information on occupational safety [p. 108 f.↗] and the "Report on opportunities and risks" [p. 132 ff.↗]).

Identifying and classifying economic activities

The **technical screening criteria for the EU taxonomy** can be found here.

Online ↗

In the following table, taxonomy alignment is derived at the level of the respective activity. Each activity was initially assessed to see whether it made a substantial contribution to climate change mitigation. In the second step, the activity was analyzed to see whether it did any significant harm to the achievement of the other EU environmental objectives. The analysis of whether the activity could potentially do harm to the second environmental objective "climate change adaptation" was carried out centrally at a Group level in cooperation with the risk management department (p. 137 f.↗), which is why the following table focuses on the environmental objectives 3 to 6. The activities for which a closer examination of the environmental objectives is necessary are to be found in the respective technical screening criteria. Environmental objectives for which there are currently no assessment criteria for identifying potential harm were thus not assessed.

Economic activities according to the EU taxonomy and a description of the activity	Substantial contribution to climate change mitigation	No significant harm to the EU environmental objectives 3 to 6 (insofar as the criteria are relevant)
4.1 Electricity generation via photovoltaic technology → Construction and operation of solar parks to generate electricity **4.3 Electricity generation from wind power** → Construction and operation of wind farms to generate electricity	• In the case of photovoltaic and wind activities and with respect to the requirement for a substantial contribution to climate change mitigation, it is not currently necessary to test compliance with any criteria because energy generation of this type will always remain significantly below the current threshold of 100 g CO_2eq/kWh, even when analyzed over the entire life cycle.	• The vast majority of components for photovoltaic and wind energy power plants are designed for a very long service life, are recyclable and have a residual value at the end of their period of use (steel, aluminum, copper). • These plant components can either be recycled within the EnBW Group or sold to third parties for further use. • Environmental impact assessments (EIA) are carried out in accordance with the legal regulations.
4.5 Electricity generation from hydropower[1] → Construction and operation of run-of-river power plants to generate electricity	• Hydropower plants make an important contribution to climate change mitigation due to their very low greenhouse gas intensity. • The reference values from the German Environment Agency (UBA) were used as the basis for assessing the substantial contribution of run-of-river power plants, which at 2.702 g CO_2eq/kWh lie significantly below the taxonomy threshold of a maximum of 100 g CO_2eq/kWh. • These plants thus comply with the wording of the requirements for economic criteria 4.5 because compliance with the taxonomy threshold for the life cycle emissions could be verified using the UBA reference values. • The publication of the reference values by the UBA complies with the requirements (which are not specified in more detail) for "verification" by an independent third party, especially as the values are not determined by EnBW.	• Prior to the process for reissuing expired permits in accordance with water law, a preliminary environmental impact assessment must be carried out. Depending on the results of this assessment, it may be necessary to subsequently complete a full environmental impact assessment. • The obligatory implementation of the requirements in the European Water Framework Directive is key, both for the award of new permits according to water law and also potentially at any time when the authorities subsequently issue official directives for existing permits. • Potential mitigation measures, such as fish ladders that enable fish to descend the river, are implemented in agreement with the responsible authorities subject to appropriate deadlines.
4.9 Transmission and distribution of electricity → Construction and operation of transmission and distribution grids for electricity	• The electricity grids make a substantial contribution to climate change mitigation because they are part of the synchronous grid of continental Europe (transmission grid) or its downstream grids (distribution grids). • The distribution grid in Germany also fulfills the criteria that the majority of the connections made in the last five years were for renewable energies.	• A waste management plan is in place that ensures maximal reuse or recycling at end of life in accordance with the waste hierarchy. • Legal regulations are complied with when constructing overground power lines. • Compliance with the 26th Federal Immission Control Ordinance (BImSchV) ensures fulfillment of the criteria for electromagnetic radiation. • No oils containing PCBs are used in new equipment. The process to replace oils containing PCBs in old equipment was concluded at the beginning of the 1990s. • Environmental impact assessments are carried out in accordance with the legal regulations.
4.10 Storage of electricity[1] → Construction and operation of pumped storage power plants for the storage of electricity	• There are no criteria that must be assessed with respect to a substantial contribution to climate change mitigation for pumped storage activities.	• The same procedure is followed as for run-of-river power plants when the process to reissue expired permits according to water law is pending. The same applies to the implementation of the requirements in the European Water Framework Directive and corresponding mitigation measures. • A waste management plan is in place that ensures maximal reuse or recycling at end of life in accordance with the waste hierarchy.
4.13 Manufacture of biogas and biofuels for use in transport and of bioliquids[1] → Manufacture of biogas for feeding into the gas grid and operation of CHP power plants with bioenergy	• Agricultural biomasses that comply with the sustainability requirements in EU Directive 2018/2001 are used to produce the biogas. Amongst other things, environmental surveys are carried out for this purpose. • The criterion that no food or feed crops may be used for activity 4.13 only applies to the production of biofuels according to article 2 no. 33 Renewable Energy Directive and not to the production of biogas in general (article 2 no. 28 Renewable Energy Directive). • The greenhouse gas emission savings (depending on the production route) are at least 65% in comparison to the relative fossil fuel comparator set out in Annex V of EU Directive 2018/2001. • If processes for the anaerobic digestion of organic materials are used in the plants, the biogas is only used for specific purposes. Monitoring and contingency plans are also in place to minimize methane leakage.	• In order to do no significant harm to the environmental objectives "the sustainable use and protection of water and marine resources" and "the protection and restoration of biodiversity and ecosystems," there are structural safety measures in place to prevent any pollution of the groundwater. • General preliminary assessments are also carried out to determine whether the activity is subject to an environmental impact assessment. As this activity is not subject to an EIA, the responsible authorities believe that there is no significant negative impact on the environment. • Biogas power plants are not constructed in sensitive ecological areas. Bodies representing the public interest can raise their concerns in the resolution procedure for the submitted building applications. • Pollution prevention and control is ensured by compliance with the legal regulations. In addition, the best available technology is used for any replacement investment.

1 The KPIs for activities 4.5 and 4.10 and for 4.13 and 4.20 are combined in each case.

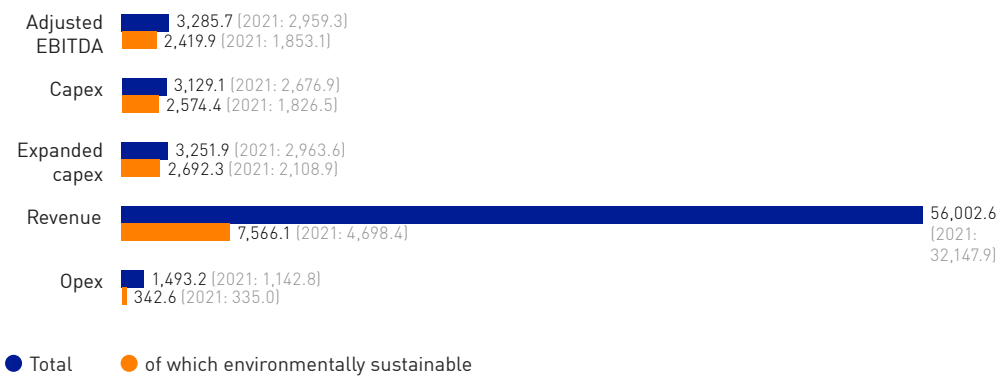
Economic activities according to the EU taxonomy and a description of the activity	Substantial contribution to climate change mitigation	No significant harm to the EU environmental objectives 3 to 6 (insofar as the criteria are relevant)
4.14 Transmission and distribution networks for renewable and low-carbon gases → Construction and operation of gas grids	• This criteria set covers investment in new grids for the transport of hydrogen and other low-carbon gases, as well as investment in existing grids to increase the blend of hydrogen or other low-carbon gases in the gas system.	• The criteria for energy efficient components are complied with by using the best available technology according to the latest standards for the new construction and repair of the gas grid. In particular, this includes the pipelines, fittings and leakage monitoring systems. • Environmental impact assessments are carried out in accordance with the legal regulations.
4.15 District heating/cooling distribution → Construction and operation of district heating grids	• The district heating grids make a substantial contribution to climate change mitigation because they use more than 50% renewable energies, 50% waste heat, 75% CHP heat or 50% of a combination of these energies and heats and are thus classified as efficient according to the EU regulations.	• The district heating grid has no impact on water bodies during normal operation. In the event of a leakage, the damaged section is separated locally from the rest of the grid using fittings. The technology does not allow for the emptying of the district heating water into water bodies. • The criteria for energy-efficient components are complied with by using the best available technology according to the latest standards for the new construction and repair of the district heating grid. In particular, this includes the pipelines, fittings and leakage monitoring systems. • Environmental impact assessments are carried out in accordance with the legal regulations.
4.20 Cogeneration of heat/cool and power from bioenergy[1] → Operation of biogas CHP power plants to generate electricity and heat	• The agricultural biomass used in the activity complies with the criteria laid down in EU Directive 2018/2001. Amongst other things, sustainability certificates are obtained for this purpose. • Forest biomass, sewage sludge and biowaste are not used and thus it is not necessary to assess any criteria in this area. • The greenhouse gas emission savings from the use of biomass in the combined heat and power plants is at least 80% in relation to the GHG emission-saving methodology and fossil fuel comparator set out in Annex VI to EU Directive 2018/2001.	• As is the case for the manufacture of biogas and biofuels, structural safety measures, in particular, are in place to prevent any pollution of the groundwater. • The process for carrying out EIAs is the same as for the manufacture of biogas and biofuels. • Biogas power plants are not constructed in sensitive ecological areas. Bodies representing the public interest can raise their concerns in the resolution procedure for the submitted building applications. • Pollution prevention and control is ensured by compliance with the legal regulations. In addition, the best available technology is used for any replacement investment.
4.29 Electricity generation from fossil gaseous fuels → Construction and operation of gas power plants to generate electricity	• Direct GHG emissions of the activity averaged over 20 years are 160 to 549 kg CO_2e/kW depending on the scenario and are thus lower than 550 kg CO_2e/kW of the power plant's capacity. • The CCGT power plants compensate for shortfalls in the electricity supply from renewable energies and ensure the security of supply. The new power plants are replacing hard coal power plants. The aim is to switch over 100% to hydrogen by 2035 at the latest. A mix with biogases is not planned. • The generation capacities do not exceed the capacity of the previously installed power plants by more than 15%. • The power plants are located in Germany. The Federal Republic of Germany has made the commitment to phase out coal-fired generation by 2038 so that the requirements in the EU taxonomy for these activities are fulfilled. • Measurement equipment to monitor physical emissions is installed in accordance with the legal regulations.	• Preliminary assessments are carried out to determine whether the activity is subject to an environmental impact assessment and any subsequent EIAs are carried out where necessary in a project-specific manner in accordance with the Environmental Impact Assessment Act (UVPG). Otherwise, the respective projects are not approved. • The BAT conclusions from the EU have been transposed into German law. All of the planned power plants comply with limits at least in line with requirements in the currently valid version of the 13th BImSchV and thus also the BAT conclusions.

1 The KPIs for activities 4.5 and 4.10 and for 4.13 and 4.20 are combined in each case.

Economic activities according to the EU taxonomy and a description of the activity	Substantial contribution to climate change mitigation	No significant harm to the EU environmental objectives 3 to 6 (insofar as the criteria are relevant)
4.30 High-efficiency co-generation of heat/cool and power from fossil gaseous fuels → Construction and operation of CHP power plants	• The activity achieves primary energy savings of at least 10% compared with the reference values for the separate production of heat and electricity. Direct GHG emissions are 234 to 252 g CO_2e/kWh of energy output. • The CCGT power plants compensate for shortfalls in the electricity supply from renewable energies and ensure the security of supply. The new power plants are replacing hard coal power plants. The aim is to switch over 100% to hydrogen by 2035 at the latest. A mix with biogases is not planned. • The generation capacities do not exceed the capacities of the previously installed power plants. • A reduction in GHG emissions during the life cycle and in comparison to the previously installed hard coal power plants of 55% is achieved. • The power plants are located in Germany. The Federal Republic of Germany has made the commitment to phase out coal-fired generation by 2038 so that the requirements in the EU taxonomy for these activities are fulfilled. • Measurement equipment to monitor physical emissions is installed in accordance with the legal regulations.	• Preliminary assessments are carried out to determine whether the activity is subject to an environmental impact assessment and any subsequent EIAs are carried out where necessary in a project-specific manner in accordance with the Environmental Impact Assessment Act (UVPG). Otherwise, the respective projects are not approved. • The BAT conclusions from the EU have been transposed into German law. All of the planned power plants comply with limits at least in line with requirements in the currently valid version of the 13th BImSchV and thus also the BAT conclusions.
5.1 Construction, extension and operation of water collection, treatment and supply systems → Construction and operation of water grids	The net average energy consumption of the water grids operated by the EnBW Group is lower than 0.5 kWh/m^3 of water.	• The water passing through the grid complies with the requirements of the Drinking Water Ordinance and is monitored by the authorities – the criteria in this ordinance are stricter than those in the taxonomy. • Environmental impact assessments are carried out in accordance with the legal regulations.
6.15 Infrastructure enabling low-carbon road transport and public transport → Construction and operation of charging infrastructure for e-vehicles	There are no criteria that must be assessed with respect to a substantial contribution to climate change mitigation for activities related to charging infrastructure for e-vehicles.	• Water is only found at our sites in the form of rain water. We do not use any surface waters nor do we extract any groundwater. • The construction of charging infrastructure for e-vehicles is not included in the activities subject to an environmental impact assessment in Annex 1 to the UVPG: Legislators apparently assume that these activities do not per se do any significant harm to ecosystems and biodiversity. An EIA can be requested during the official approval process, although this has never occurred up to now.

The following graphic provides an overview of the proportions of the adjusted EBITDA, capex, extended capex, revenue and opex accounted for by the taxonomy-aligned economic activities:

Proportion of taxonomy-aligned economic activities of the EnBW Group
in € million



The following proportions were determined:

KPIs for the taxonomy-aligned business activities of the EnBW Group 2022

in € million/in %	Total	Proportion of taxonomy-aligned business activities	Proportion of taxonomy-eligible but not taxonomy-aligned economic activities	Proportion of taxonomy non-eligible business activities
Adjusted EBITDA	3,285.7	2,419.9/73.7	125.9/3.8	773.7/22.5
Capex	3,129.1	2,574.4/82.3	2.5/0.1	552.2/17.6
Expanded capex	3,251.9	2,692.3/82.8	2.5/0.1	557.1/17.1
Revenue	56,002.6	7,566.1/13.5	1,639.5/2.9	46,797.0/83.6
Opex	1,493.2	342.6/22.9	2.5/0.2	1,148.1/76.9

KPIs for the taxonomy-aligned business activities of the EnBW Group 2021

in € million/in %	Total	Proportion of taxonomy-aligned business activities	Proportion of taxonomy-eligible but not taxonomy-aligned economic activities	Proportion of taxonomy non-eligible business activities
Adjusted EBITDA	2,959.3	1,853.1/62.6	–	1,106.2/37.4
Capex	2,676.9	1,826.5/68.2	–	850.4/31.8
Expanded capex	2,963.6	2,108.9/71.2	–	854.7/28.8
Revenue	32,147.9	4,698.4/14.6	–	27,449.5/85.4
Opex	1,142.8	335.0/29.3	–	807.8/70.7

Proportion of taxonomy-aligned adjusted EBITDA in the segments 2022

in € million/in %	Total	Proportion of taxonomy-aligned business activities	Proportion of taxonomy-eligible but not taxonomy-aligned economic activities	Proportion of taxonomy non-eligible business activities
Smart Infrastructure for Customers	510.2	-50.6/-9.9	0.0/0.0	560.8/109.9
System Critical Infrastructure	1,046.0	781.2/74.7	0.0/0.0	264.8/25.3
Sustainable Generation Infrastructure	1,934.8	1,689.3/87.3	125.9/6.5	119.6/6.2

Proportion of taxonomy-aligned adjusted EBITDA in the segments 2021 [1]

in € million/in %	Total	Proportion of taxonomy-aligned business activities	Proportion of taxonomy-eligible but not taxonomy-aligned economic activities	Proportion of taxonomy non-eligible business activities
Smart Infrastructure for Customers	344.0	-34.4/-10.0	–	378.4/110.0
System Critical Infrastructure	1,263.0	916.8/72.6	–	346.2/27.4
Sustainable Generation Infrastructure	1,539.7	970.7/63.0	–	568.9/37.0

1 The figures for the previous year have been restated.

Proportion of taxonomy-aligned expanded capex in the segments 2022

in € million/in %	Total	Proportion of taxonomy-aligned business activities	Proportion of taxonomy-eligible business activities	Proportion of taxonomy non-eligible business activities
Smart Infrastructure for Customers	404.9	174.1/43.0	0.0/0.0	230.8/57.0
System Critical Infrastructure	1,979.7	1,900.3/96.0	0.0/0.0	79.4/4.0
Sustainable Generation Infrastructure	821.4	617.9/75.2	2.5/0.3	201.0/24.5

Proportion of taxonomy-aligned expanded capex in the segments 2021

in € million/in %	Total	Proportion of taxonomy-aligned business activities	Proportion of taxonomy-eligible business activities	Proportion of taxonomy non-eligible business activities
Smart Infrastructure for Customers	296.9	107.2/36.1	–	189.7/63.9
System Critical Infrastructure	1,711.5	1,396.4/81.6	–	315.1/19.4
Sustainable Generation Infrastructure	897.8	605.3/67.4	–	292.5/32.6

The adjusted EBITDA from taxonomy-aligned activities was €2,419.9 million and thus significantly higher than in the previous year. The adjusted EBITDA from taxonomy-aligned activities in the Smart Infrastructure for Customers segment was almost unchanged in comparison to the previous year and comparatively low because for many business activities there are still no criteria in the EU taxonomy, such as for the sale of commodities. In the System Critical Infrastructure segment, the adjusted EBITDA decreased mainly due to the considerably higher expenses for the grid reserve including redispatch to maintain the security of supply. The proportion of the adjusted EBITDA for the System Critical Infrastructure segment accounted for by taxonomy-aligned activities was almost at the same level as in the previous year. The adjusted EBITDA for the Sustainable Generation Infrastructure segment was significantly higher than in the previous year due to the increased volatility of market prices in relation to the pumped storage power plants, higher generation volumes and margins at our offshore and onshore wind farms as a result of weather and price factors and the construction of new PV parks. As a result, the proportion of the adjusted EBITDA for this segment accounted for by taxonomy-aligned activities increased considerably. The activities in the Renewable Energies area within the Sustainable Generation Infrastructure segment are fully taxonomy-aligned.

The capex for taxonomy-aligned activities was around €750 million higher than the previous year, which corresponds to an increase of around 41%. Approximately €330 million, which is almost half of this increase, is attributable to the inclusion of additional taxonomy-aligned activities in 2022. This comprises the activities related to gas grids, district heating, electricity generation and combined heat and power generation using gas (economic activities 4.14, 4.15, 4.29 and 4.30). The last two activities are related to the investment in our three fuel switch projects in Baden-Württemberg.

Around 87% of this increase was attributable to additions to property, plant and equipment and additions to non-cash-relevant right-of-use assets from leases. As well as the taxonomy-aligned activities that were added, there was increased investment in the electricity transmission and distribution grids (economic activity 4.9), electricity generation from wind power (economic activity 4.3) and infrastructure enabling low-carbon road transport (economic activity 6.15). The investment made by our Group subsidiary TransnetBW as part of the Network Development Plan Electricity and in our electricity distribution grids by our grid companies was also higher. In the area of offshore wind power, investment in our EnBW He Dreiht wind farm in the German North Sea increased in 2022 in comparison to the previous year. Furthermore, we also increased our investment in the expansion of electromobility.

The proportion of taxonomy-aligned activities in relation to expanded capex in the Smart Infrastructure for Customers segment stood at 43.0% and is thus relatively low because there are still no criteria in the EU taxonomy for many business activities, such as for the sale of commodities. The proportion in the System Critical Infrastructure segment of 96.0% is even higher than in the previous year, which is due to the inclusion of the gas grids this year. The proportion in the Sustainable Generation Infrastructure segment stood at 75.2% and is relatively high. The activities in the Renewable Energies area are fully taxonomy-aligned as in the previous year. The increase in this proportion is mainly attributable to the inclusion of the investment in our three fuel switch projects in Baden-Württemberg.

Revenue from taxonomy-aligned activities of €7,566.1 million in 2022 was significantly higher than in the previous year. This development was primarily due to higher income from the settlement of redispatch measures with other transmission system operators in the System Critical Infrastructure segment that has no impact on the result. The proportion of total revenue accounted for by taxonomy-aligned activities fell slightly in comparison to 2021 because Group revenue from commodity sales and trading activities was higher than in the previous year, mainly as a result of higher prices and the increased volatility on the electricity and gas markets.

The opex for taxonomy-aligned activities of €342.6 million was at the same level as in the previous year. Expenditure on maintenance and repair services was almost unchanged in comparison to 2021.

Accounting policies

The proportion of sustainable **investment (capex)** predominantly refers to assets associated with taxonomy-aligned activities. In accordance with our current interpretation, investment in our fuel switch projects, which are assigned to the economic activities 4.29 and 4.30 and make a contribution to the environmental objective of climate change mitigation, has been included in a capex plan and is reported separately below. The planned investment for these projects was defined using our investment approval process (p. 41↗) and was presented to the Board of Management for approval. However, the taxonomy alignment of the power plants can only be verified following an evaluation of all of the technical screening criteria as the project progresses. The investment measures have a planning horizon of six years. The expected level of investment in the period 2022 to 2027 is €1.6 billion. To calculate the percentages, investment is included according to the following IFRS standards:

- Additions to property, plant and equipment (IAS 16)
- Additions to intangible assets (IAS 38)
- Additions to investment property (IAS 40)
- Additions to right-of-use assets from leases (IFRS 16)

The numerator for investment taken into account according to the taxonomy comprises the following:

Composition of the capex numerator

in € million	2022	2021
Additions to property, plant and equipment [1]	2,307.2	1,649.6
of which additions as part of a capex plan	(60.9)	–
Additions to intangible assets	123.9	70.3
Additions to right-of-use assets from leases	133.6	106.6
Additions to property held as a financial investment	0.0	0.0
Additions resulting from business combinations	9.7	0.0
Total	**2,574.4**	**1,826.5**

1 This includes additions to provisions recognized for the decommissioning and dismantling of property, plant and equipment in the reporting period of €34.1 million (31/12/2021: €14.6 million).

The additions to calculate the denominator can be found in notes 10 (without consideration of the column "Goodwill"), 11, 12 and 14 (column for "Investment properties") of the notes to the consolidated financial statements.

To determine the KPI for sustainable **revenue,** the net revenue that makes a contribution to the environmental objective of climate change mitigation is divided by the total net revenue for the Group. Further information on net revenue can be found in the section on external revenue on p. 75↗ and in note 1 of the notes to the consolidated financial statements.

Composition of the revenue numerator

in € million	2022	2021
Revenue from contracts with customers	7,231.6	4,342.5
Other revenue	334.5	355.9
Total	7,566.1	4,698.4

The denominator to determine the KPI for **opex** in the sense of the Taxonomy Regulation comprises the following direct, non-capitalized costs:

- Research and development
- Building renovation measures
- Short-term leases
- Maintenance and repair costs

The numerator equals the part of the opex that is related to assets or activities associated with taxonomy-aligned economic activities. The expenditure included in the denominator covers the expenditure categories presented in the following table. The numerator for calculating the opex KPI is determined as follows:

Composition of the opex numerator

in € million	2022	2021
Maintenance and repair costs [1]	341.5	328.8
Short-term leases (not recognized as right-of-use assets)	0.7	5.4
Research and development costs	0.4	0.8
Total	342.6	335.0

1 Includes building renovation measures.

As well as the KPIs required by the Taxonomy Regulation, we are also voluntarily reporting information on the environmentally sustainable **adjusted EBITDA** and **capex including the proportion for entities accounted for using the equity method** pursuant to IFRS 11 and IAS 28 **(expanded capex).** The sustainable adjusted EBITDA is the proportion of total adjusted EBITDA that makes a contribution to the environmental objective of climate change mitigation (p. 76↗). With this KPI, we can create a direct link to our key performance indicator adjusted EBITDA that is relevant for the management of the company. Detailed information on this performance indicator can be found in the section on adjusted EBITDA on p. 76 f.↗.

By reporting the expanded capex, we are disclosing all of our sustainable investment, irrespective of whether it is made within the EnBW Group. The numerator for the KPI for expanded capex is determined by taking the capex numerator from the Taxonomy Regulation and expanding it to include additions for entities accounted for using the equity method, whereby sustainable additions from acquisitions and capital increases are taken into account:

Composition of the expanded capex numerator

in € million	2022	2021
Capex numerator according to EU taxonomy	2,574.4	1,826.5
Additions to entities accounted for using the equity method	117.9	282.4
Total	2,692.3	2,108.9

EnBW AG

The financial statements of EnBW AG have been prepared in accordance with the regulations in the German Commercial Code (HGB), the German Stock Corporation Act (AktG) and the law governing the electricity and gas industries in Germany (German Energy Industry Act – EnWG). The regulations for large corporations apply.

The financial statements as audited by the Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, as well as the management report of EnBW AG contained in the Group management report, will be published in the German Federal Gazette (Bundesanzeiger).

The full **financial statements of EnBW AG** are available to download on our website.

Online ↗

For statements that are necessary to understand the position of EnBW AG and that are not explicitly described in the following sections, especially those relating to the strategy of the company and economic and political conditions, please refer to the information provided for the EnBW Group (p. 33 ff. ↗ and 62 ff. ↗).

The annual net profit, which indicates the company's ability to pay a dividend, is an important performance indicator for EnBW AG.

Results of operations of EnBW AG

Condensed income statement of EnBW AG

in € million [1]	2022	2021	Change in %
Revenue	134,746.7	67,052.9	101.0
Cost of materials	-132,374.8	-66,217.0	-99.7
Amortization and depreciation	-201.9	-471.2	-57.2
Other operating result	-762.2	50.5	–
Earnings before interest and taxes	**1,407.8**	**415.2**	**239.1**
Financial result	-108.1	-384.7	-71.9
Tax	-326.4	16.1	–
Net profit	**973.3**	**46.6**	**–**

1 In accordance with German commercial law.

EnBW AG reported an annual net profit of €973.3 million. The improvement in comparison to the previous year was mainly influenced by the €992.6 million in higher earnings before interest and taxes, the increase in the financial result of €276.6 million and the decrease in the tax result of €342.5 million.

Earnings before interest and taxes of EnBW AG is primarily determined by the revenues generated from electricity and gas sales, as well as by the associated cost of materials. The increase of €67,693.8 million in revenue was offset by an increase of €66,157.8 million in the cost of materials.

Revenue (after the deduction of electricity and energy taxes) of €134,746.7 million primarily includes revenue from electricity sales of €11,427.5 million and gas sales of €115,185.2 million. Electricity and gas sales comprise both the trading business, involving deliveries to trading partners and stock exchanges, and sales activities in the form of the direct delivery of energy to end customers.

The trading business recorded an increase of €67,495.2 million in revenue in 2022 to €131,689.3 million. This increase was mainly attributable to price effects as a result of the development of gas and electricity prices since March 2022 combined with a slight decrease in gas volumes. The increase overall in revenue in the trading business was offset by the rise in cost of materials of €66,148.4 million to a total of €129,747.3 million.

Revenues from sales activities were split into €1,687.3 million for electricity and €309.8 million for gas, which represented an overall increase of €95.2 million.

In the retail and end-customer sector (B2C), electricity sales of 6.4 billion kWh were 0.2 billion kWh lower than the level in the previous year, which was primarily attributable to the slight decrease in consumption due to the temperature. Revenues in the electricity business segment were at the same level as in the previous year. Gas sales rose slightly to 4.0 billion kWh due to the increase in the contract portfolio and were thus 0.1 billion kWh higher than in the previous year. Alongside the sales trends described above, higher revenues in the gas business were primarily attributable to price effects caused by the situation on the market in the financial year.

The cost of materials includes costs for electricity procurement of €9,428.9 million and costs for gas procurement of €113,848.4 million.

Alongside scheduled amortization and depreciation, the amortization and depreciation item includes impairment losses of €30.7 million, which relate to intangible assets.

The decrease in the other operating result in comparison to the previous year was primarily due to a fall in income from the disposal of assets of €778.7 million, which was mainly attributable in the previous year to intercompany restructuring, and a fall in income from reversals of provisions of €165.3 million, which was mainly related to provisions for onerous contracts for electricity procurement agreements. The rise in personnel expenses in comparison to the previous year by €285.1 million was mainly due to adjustments to the premises underlying the provisions for post-employment benefits. In addition, rents for gas transport increased by €129.6 million and the expenses for gas storage facilities increased by €60.7 million. The currency result also decreased by €38.9 million. In this financial year, services provided by foreign subsidiaries for trading activities of EnBW AG are disclosed in the other operating result for the first time. This was offset to some extent by the increase in reversals of impairment losses by €992.6 million, which mainly relate to conventional generation plants.

The improvement in the financial result was mainly influenced by lower impairment losses on financial assets of €164.4 million as well as the decrease in interest expenses for nuclear provisions of €85.0 million and the decrease in interest expenses for pension provisions of €57.5 million.

The tax expense in the financial year was €326.4 million, while there was a positive tax result of €16.1 million in the previous year. The taxes mainly comprise additions to the provisions for corporate income tax and trade tax of €198.1 million and for tax audit risks of €21.6 million, compared to reversals of provisions for tax audit risks of €31.0 million in the previous year. Advance payments of €22.4 million were made for income tax. The tax result also includes out-of-period income for income taxes of €46.5 million, compared to out-of-period expenses for income taxes of €8.2 million in the previous year. The option of recognizing a surplus of deferred tax assets was not exercised.

Net assets of EnBW AG

Balance sheet of EnBW AG

in € million [1]	31/12/2022	31/12/2021	Change in %
Assets			
Non-current assets			
Intangible assets	313.6	381.3	-17.8
Property, plant and equipment	1,050.0	623.6	68.4
Financial assets	26,869.7	23,802.6	11.9
	28,233.3	24,807.5	12.8
Current assets			
Inventories	2,340.0	674.0	247.2
Receivables and other assets	7,288.0	7,134.7	2.1
Securities	0.0	305.0	-100.0
Cash and cash equivalents	3,142.5	4,275.5	-26.5
	12,770.5	12,389.2	3.1
Prepaid expenses	6,744.7	8,925.3	-24.4
Surplus from offsetting	31.9	128.7	-75.2
	47,780.4	46,250.7	2.8
Equity and liabilities			
Equity			
Subscribed capital	708.1	708.1	–
Treasury shares	-14.7	-14.7	–
Issued capital	(693.4)	(693.4)	–
Capital reserve	776.0	776.0	–
Revenue reserves	2,022.5	1,572.5	22.3
Retained earnings	652.9	427.6	19.4
	4,144.8	3,469.5	12.5
Extraordinary items for investment cost subsidies and grants	25.9	25.5	1.6
Provisions	15,149.9	13,654.5	11.0
Liabilities	23,203.2	21,191.9	9.5
Deferred income	5,256.6	7,909.3	-33.5
	47,780.4	46,250.7	2.8

1 In accordance with German commercial law.

The net assets of EnBW AG as of 31 December 2022 are significantly influenced by the non-current assets (particularly the financial assets) and the receivables and other assets. These are mostly offset by liabilities and provisions relating to nuclear power and for pensions and similar obligations.

Financial assets primarily consist of shares in affiliated entities of €19,393.5 million, securities held as non-current assets of €2,775.1 million and investments of €1,581.3 million. The increase of €3,067.1 million in financial assets mainly comprises payments into the capital reserves at shares in affiliated entities and intercompany restructuring. This was offset to some extent by the reduction in loans to affiliated entities by €117.9 million and impairment losses of €134.4 million.

Trade receivables of €1,890.9 million mainly comprise receivables from trading activities and consumption accruals for electricity and gas deliveries not yet invoiced.

Receivables from affiliated entities increased by €903.7 million to €2,005.8 million. They mainly comprise receivables from intercompany settlement transactions as part of the centralized financial and liquidity management, as well as claims from profit and loss transfer agreements and short-term loans.

The decrease in other assets by €599.3 million to €3,329.0 million was mainly attributable to a decrease in the collateral to stock markets and trade partners of €672.1 million due to changes in market prices and the resulting adjustments to the hedge strategy.

Cash and cash equivalents of EnBW AG totaling €3,142.5 million largely consist of bank deposits. More details on the development of this item can be found in the section "Financial position of EnBW AG."

The decrease in prepaid expenses by €2,180.6 million to €6,744.7 million was primarily attributable to deferred earnings components from electricity and gas futures resulting from smaller differences between hedge prices and prices on the reporting date, as well as the adjustments to the hedge strategy.

The provisions for pensions and similar obligations held by EnBW AG to the amount of €6,921.3 million combine obligations from the company pension scheme and other company agreements made by major subsidiaries and EnBW AG. The resulting annual expenses for retirement benefits are reimbursed by the subsidiaries concerned in each case. The increase of €572.7 million in the provisions for pensions and similar obligations was mainly due to the effect of the further decrease in the discount rate and adjustments to underlying premises. In addition, provisions relating to nuclear power of €3,866.5 million are disclosed, which are formed to fulfill public law obligations and requirements in the operating licenses.

Of the liabilities totaling €23,203.2 million, €9,482.9 million have a residual term of more than one year. Overall, there are liabilities of €11,844.0 million to affiliated entities, which primarily result from intercompany settlement transactions within the framework of centralized financial and liquidity management, as well as from loan agreements.

The total increase in liabilities of €2,011.3 million was mainly attributable to the increase in liabilities to affiliated entities and investments of €2,442.1 million. In addition, trade payables increased by €510.5 million, other obligations related to the issuing of promissory notes by €500.0 million and liabilities to banks by €259.3 million. The increase in cash collateral received of €136.3 million offset to some extent the reduction in the variation margins of €1,760.1 million, which was due to changes in market prices and the resulting adjustments to the hedge strategy.

Non-current liabilities exist to the amount of €5,709.9 million to EnBW International Finance B.V. as part of the Debt Issuance Program (DIP), of which €3,862.4 million is from the issuing of five subordinated bonds, a private placement of bonds and promissory notes, and €983.2 million is from loan agreements with credit institutions. The main changes in comparison to the previous year were the private placement of bonds totaling €862.4 million, the issuing of promissory notes totaling €500.0 million, taking out two bank loans totaling €596.8 million and repaying two subordinated bonds totaling €992.6 million. Furthermore, two new bonds were issued via EnBW International Finance B.V., each with a volume of €500.0 million.

The decrease in deferred income by €2,652.7 million to €5,256.6 million was primarily attributable to deferred earnings components from electricity and gas futures resulting from smaller differences between hedge prices and prices on the reporting date, as well as the adjustments to the hedge strategy.

The aim is to cover the non-current pension and nuclear provisions with appropriate financial assets within an economically feasible time period. Overall, financial assets of €26,869.7 million are offset by long-term debt of €19,637.0 million.

The liquidity of EnBW AG on the reporting date guarantees the solvency of the company for the payment of current liabilities from the operating business.

Financial position of EnBW AG

In comparison to the reporting date in the previous year, the liquidity of EnBW AG fell from €4,275.5 million by €1,133.0 million to €3,142.5 million.

The cash flows of EnBW AG fundamentally arise from both its own operating business and also the operating business of the subsidiaries with balance payments received and made via the bank accounts of EnBW AG, as part of the intercompany cash pooling system within the framework of central financing and liquidity management.

Important business transactions that had an effect on the financial position of EnBW AG in the financial year are summarized below:

In the financial year, capital measures totaling €2,970.0 million were taken at subsidiaries, mainly in the area of the grids and renewable energies, and at VNG AG.

In addition, EnBW issued a non-convertible bond with a volume of €862.4 million and promissory notes of €500.0 million, and took out a bank loan of €596.8 million. Two new bonds with a total volume of €995.9 million and commercial papers with a volume of €712.5 million were also issued via EnBW International Finance B.V. This was offset to some extent by the repayment of two subordinated bonds with a volume of €992.6 million, the repayment of time deposits in the amount of €273.7 million, the repayment of bank loans totaling €70.5 million and the repayment of commercial papers via EnBW International Finance B.V. totaling €240.0 million.

As a result of the significant improvement in the earnings before interest and taxes, there were corresponding cash inflows in the financial year, especially in the trading business.

Other business transactions with a material impact on liquidity were cash outflows from margin payments of €951.8 million, cash outflows in connection with the utilization of the nuclear power and pension provisions of €567.7 million and interest payments to banks of €182.3 million.

These were offset to some extent in the financial year by cash inflows from the sale of securities of €305.0 million, cash inflows from the receipt of dividends of €264.0 million and a reduction of €117.9 million in loans to affiliated entities.

A total of €298.0 million was distributed to the shareholders of EnBW AG in dividends.

Overall assessment of the economic situation and development of EnBW AG

In our judgment, the development of the results of operations, financial position and net assets of EnBW AG as of 31 December 2022 is satisfactory after taking into account the effects described below that are not relevant to the ongoing management of the company. In the previous year, we forecasted an annual net profit of between €150 million and €200 million for 2022. The net profit/loss for 2022 was influenced by negative effects not relevant to the ongoing management of the company of around €250 million. This was offset to some extent by significantly higher earnings before interest and taxes.

The annual net profit for 2022 stands at €973.3 million and was significantly influenced by effects that arose both at EnBW AG itself and at its subsidiaries, which had an impact on EnBW AG due to profit and loss transfer agreements.

The main effects not relevant to the ongoing management of the company were higher additions to provisions for pension obligations of €532.1 million. Furthermore, additions to the provisions relating to nuclear power of €738.4 million (of which €542.8 million was reported as cost of materials of EnBW AG) had a negative effect. Other negative effects arose from impairment losses on financial assets of €261.1 million, impairment losses on intangible assets totaling €30.7 million and additions to the provisions for onerous contracts of €81.6 million.

This was offset to some extent by reversals of impairment losses of €1,018.7 million, reversals of provisions of €232.7 million and income from the sale of investments of €149.8 million.

Based on the annual net profit of €973.3 million and taking into account the profit carried forward of €129.6 million and the transfer into other revenue reserves of €450.0 million, there are retained earnings of €652.9 million.

We anticipate an annual net profit of around €2,000 million in 2023. This will be influenced by positive effects not relevant to the ongoing management of the company of around €950 million. Adjusted for these effects, the annual net profit will be around €1,050 million.

The amount that is ineligible for distribution as dividends, which primarily comprises the valuation of the provisions for pension obligations, is expected to be around €110 million as of 31 December 2023.

Opportunities and risks

As the business performance, economic situation and opportunities and risks relating to the future development of EnBW AG do not deviate from the business performance, economic situation and opportunities and risks relating to the future development of the EnBW Group, the management report of EnBW AG is combined with that of the EnBW Group (p. 126 ff.↗).

Comments on reporting

The consolidated financial statements of EnBW AG are prepared in accordance with section 315e (1) HGB using the International Financial Reporting Standards (IFRS) set by the International Accounting Standards Board (IASB), the adoption of which is mandatory in the EU as of the reporting date. As a vertically integrated energy supply company in the sense of EnWG, EnBW AG engages in activities in electricity distribution, activities in gas distribution, other activities within the electricity sector, other activities within the gas sector and other activities outside of the electricity and gas sectors in accordance with section 6b (3) sentence 3 and sentence 4 EnWG.

EnBW share and dividend policy

Information on our **share price, dividends and shareholder structure** can be found on our website.

Online ↗

As a result of the small proportion of EnBW shares in free float, events on the financial markets and the development of the DAX generally only have a minor influence on the development of the EnBW share price. The price of EnBW shares was €76.80 at the start of 2022 and stood at €87.00 by the end of the year.

In the long term, EnBW plans to pay out no more than 40% to 60% of the adjusted EBITDA in dividends. Based on the annual net profit of €973.3 million, and taking into account the profit carried forward of €129.6 million and the transfer into other revenue reserves of €450.0 million, there are retained earnings of €652.9 million and thus dividends will be paid for the 2022 financial year. If approved by the Annual General Meeting, the dividend to be distributed for the 2022 financial year will be €1.10 per share. This corresponds to a dividend payout ratio of 31% of the adjusted Group net profit that is attributable to shareholders.

Overall assessment of the economic situation of the Group

Our EnBW 2025 strategy is increasingly placing the company's focus onto the infrastructure aspects of existing energy-related business fields and exploiting new growth opportunities above and beyond the energy sector. Our integrated approach that positions the company along the entire value added chain of the energy industry has demonstrated its resilience in times of crisis. Organized in three segments, we want to further strengthen our profitability and continuously improve our sustainability performance at the same time. In 2022, we began implementing the EnBW Sustainability Agenda and made important progress in all 15 measures. The aim is to make the company climate neutral with respect to our own emissions by 2035.

The operating business developed overall at a Group level in 2022 better than expected and forecast at the start of the year: The adjusted EBITDA increased by 11.0% in comparison to the previous year. The result in the Smart Infrastructure for Customers segment was higher than the level in the previous year and the forecasted range, which was due to the positive earnings performance of our subsidiary SENEC and our B2B business at our subsidiaries. The adjusted EBITDA for the System Critical Infrastructure segment decreased, mainly due to higher expenses for the grid reserve including the redispatch to maintain the security of supply, and was thus slightly below our forecasted range. The result in the Sustainable Generation Infrastructure segment rose significantly and exceeded our forecasted range. While the adjusted EBITDA in the Renewable Energies area increased due to higher market prices, better wind conditions and the construction of new power plants, earnings in the Thermal Generation and Trading area increased due to higher market prices and positive earnings contributions from trading activities. The increase in non-operating EBITDA was primarily attributable to income from reversals of impairment losses on our conventional generation plants and from the reversal of provisions for onerous contracts. This was offset to some extent by higher non-operating expenses relating to nuclear power. In addition, the financial result fell. The Group net profit/loss attributable to the shareholders of EnBW AG increased from €363.2 million in 2021 by €1,374.8 million to €1,738.0 million in the reporting period. Earnings per share amounted to €6.42 in the 2022 financial year, compared to €1.34 in the previous year.

The financial position of the company remains sound. Solvency was ensured at all times thanks to the company's available liquidity and its internal financing capability, as well as external sources available for financing. As of 31 December 2022, net debt had risen by €495.7 million compared to the figure posted at the end of 2021. This was mainly due to the high fills levels at the gas storage facilities – filled at increased procurement costs – and the higher collateral. As a result of the rise in retained cash flow and factors that lie outside the company's influence, such as the rise in the interest rate for pension provisions, the debt repayment potential in the 2022 financial year was significantly higher than the target value of between 13.5% and 14.5%. The value spread fell to 1.1% due to the increase in capital costs and thus underperformed the forecasted range.

In the customers and society goal dimension, the Reputation Index for EnBW reached its highest score to date of 58 points in 2022. In a particularly challenging market environment with respect to energy prices, the Customer Satisfaction Index for EnBW customers increased significantly to a very good level. Yello was able to improve the already high satisfaction of its customers to an outstanding level. As in the previous year, supply reliability remained at a very good level in 2022. In the environment goal dimension, we continued with the expansion of renewable energies. The CO_2 intensity of our own electricity generation was almost at the same level as the previous year with a slight increase in the deployment of our coal power plants but also with higher generation from renewable power plants compared to the previous year. In the employees goal dimension, the People Engagement Index (PEI) remained at a very high level in comparison with other companies, while in the area of occupational safety, the key performance indicators for LTIF increased in comparison to the previous year.

Overall, business at the company developed positively in 2022 despite huge uncertainty on the markets and in the political arena. The figures underline the fact that our integrated approach that positions the company along the entire value added chain of the energy industry ensures economic stability even in difficult times.

Forecast

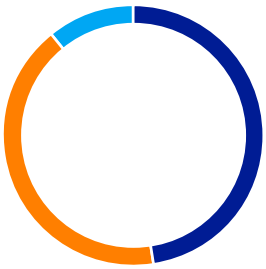
In our forecast we take a fundamental look at the expected growth and development of EnBW in the years 2023 to 2025. It should be noted that the present conditions – such as the high volatility on the markets (p. 71ff.↗) – increase the level of uncertainty with which predictions about the future development of the company can be made. The expected economic, political and regulatory conditions are presented in the chapter "General conditions" (p. 62ff.↗). Potential factors influencing the forecast are described in detail in the "Report on opportunities and risks" (p. 132ff.↗).

Expected trends in the finance and strategy goal dimensions

Investment over a three-year period

In order to continue to play an active role in shaping the energy transition, gross investment of €14.4 billion is planned for the 2023 to 2025 period. This represents on average €4.8 billion per year. 20% of this investment will be on existing projects and 80% on growth projects. The majority of the gross investment (75%) will be in the System Critical Infrastructure segment and the expansion of renewable energies.

Total investment 2023 – 2025
in %



- 47.6 System Critical Infrastructure (growth: 30.3, existing: 17.3)
- 41.7 Sustainable Generation Infrastructure / Other (growth: 39.5, existing: 2.2)
- 10.7 Smart Infrastructure for Customers (growth: 9.8, existing: 0.9)

Around 11% of the investment is planned for the **Smart Infrastructure for Customers** segment, of which approximately 10% will be for growth investment and 1% for investment in existing facilities. This investment is mainly intended for the expansion of electromobility, as well as for the expansion of the telecommunications infrastructure.

Around 48% of the investment will flow into the **System Critical Infrastructure segment.** Growth investment will account for approximately 30% of the overall gross investment and the remaining amount of around 17% will be for upgrading the existing grids. In order to make the transmission of renewable energies from the north to the south of Germany possible, funds have been allocated to the transmission grid for the realization of two HVDC projects ULTRANET and SuedLink that involve our subsidiary TransnetBW and are part of the Network Development Plan. In addition, extensive investment in the expansion and upgrading/renewal of the existing grids is planned by our grid subsidiaries.

Around €6.0 billion or 42% of the investment is planned for the **Sustainable Generation Infrastructure** segment and for other investment (other investment: 1%). 40% of the investment will be on growth themes and only 2% on themes related to existing facilities. Investment of around €3.9 billion for the expansion of renewable energies is planned for the period 2023 to 2025, which corresponds to 27% of the gross investment. The planned investment in renewable energies includes funds for the realization of further offshore wind farms, such as our EnBW He Dreiht wind farm in the German North Sea. After acquiring offshore wind rights in Great Britain, we are planning to construct further offshore projects in Great Britain, for which additional investment has been allocated within the three-year period. In addition, we also plan to invest in the construction of onshore wind farms and photovoltaic parks from our comprehensive project pipeline (p. 34↗). Furthermore, the planned investment for the Sustainable Generation Infrastructure segment also includes €1.9 billion for the thermal power plants. This is primarily for the implementation of the fuel switch projects for converting three of our thermal power plants in Baden-Württemberg from coal to gas in order to guarantee the supply of district heating, in particular, from these three sites and maintain the security of supply in Baden-Württemberg in the future. Other investment mainly involves investment in the central IT system.

The investment program of the EnBW Group supports our strategy of expanding renewable energies and ensuring security of supply in the regulated areas of the transmission and distribution grids (electricity and gas), as well as the expansion of charging infrastructure for the benefit of electromobility.

The total gross investment volume of around €14.4 billion between 2023 and 2025 will be accompanied by **divestitures** of around €5.6 billion. In order to finance our investments for the energy transition, we plan to continue opening up specific areas of the company for investment by third parties as minority shareholders, mainly in the transmission grid operator TransnetBW and the offshore wind farm He Dreiht. These investment opportunities will be offered in the first half of 2023. Other divestitures will include the receipt of building cost subsidies.

The balance of gross investment and divestitures gives the net investment, which is €8.8 billion or €2.9 billion on average per year.

Adjusted EBITDA and the share of the adjusted EBITDA accounted for by the segments

Development in 2023 (adjusted EBITDA and the share of adjusted EBITDA accounted for by the segments) compared to the previous year

	Earnings performance (adjusted EBITDA) compared to the previous year		Development of the share of adjusted EBITDA for the EnBW Group accounted for by the segments	
	2023	2022	**2023**	2022
Smart Infrastructure for Customers	**€0.4 to €0.5 billion**	€510.2 million	**5% to 15%**	15.5%
System Critical Infrastructure	**€1.6 to €1.9 billion**	€1,046.0 million	**30% to 45%**	31.8%
Sustainable Generation Infrastructure	**€2.9 to €3.2 billion**	€1,934.8 million	**55% to 70%**	58.9%
Other/Consolidation		€-205.3 million		-6.2%
Total	**€4.7 to €5.2 billion**	**€3,285.7 million**		**100.0%**

The adjusted EBITDA of the **Smart Infrastructure for Customers** segment will fall in 2023. We believe that volatility will decrease and the market for the B2B and B2C commodity business will normalize. This business will once again be characterized by increasingly stiffer competition. At the same time, we expect stable to slightly improved results from the growth of our new business fields. The share of the adjusted EBITDA for the Group accounted for by this segment is not expected to exceed the level in the previous year.

The adjusted EBITDA of the **System Critical Infrastructure** segment will increase significantly in 2023. The main reason for this development will be the fact that the negative effects for the grid reserve and redispatch in 2022 will no longer exist. Revenue from the use of the grids is expected to increase slightly in comparison to the previous year, as a result of returns on increased investment activity in projects that are included in the Network Development Plan Electricity and Network Development Plan Gas. We expect the share of the adjusted EBITDA for the Group accounted for by this segment to be at least as high as in the previous year.

The adjusted EBITDA of the **Sustainable Generation Infrastructure** segment will increase further in 2023. Renewable energies are expected to contribute more than €1 billion to earnings, which will be about the same level as in the previous year. The forecasts for wind and water yields and thus for the volume of electricity generated are based on the long-term average. As the volumes of electricity generated in 2022 were below this level, especially at the run-of-river power plants, we expect higher volumes in 2023 in comparison to the previous year. The moderate expansion in power plants for the uptake of renewable energies will also make a slightly positive contribution to earnings performance. This will be offset to some extent by falling prices in comparison to 2022 and the measures to levy windfall profits, which came into force on 1 December 2022. We expect a significant increase in earnings at the thermal power plants in 2023 because the extraordinary negative effects at VNG in 2022 will no longer exist. Furthermore, we expect the wholesale market to normalize, which will also mean there will be a relatively moderate negative impact from the windfall profit levy. We expect a stable or increasing share of the adjusted EBITDA for the Group accounted for by this segment.

The adjusted EBITDA for the **EnBW Group** will increase further in 2023 and be between €4.7 billion and €5.2 billion. We also expect the adjusted EBITDA for the Group to be at around the same level in 2024.

The EBITDA in 2023 and 2024 will develop in line with the adjusted EBITDA. We do not make any forecasts relating to material non-operating effects.

The EBT relevant to remuneration will be between €2.1 billion and €2.4 billion in 2023 and thus at the same level as in the previous year. EBT in 2024 is expected to reach the same level as in 2023. The accuracy of the forecast for EBT is dependent on exogenous factors relevant to the non-operating result that cannot be planned for, such as impairment losses, the reversal of impairment losses or impending losses on onerous contracts for electricity procurement agreements.

Assuming an adjusted EBITDA in the range of €4.7 billion to €5.2 billion, we expect to achieve a retained cash flow in 2023 of between €2.5 billion and €3.0 billion. Adjusted for dividend payments (including payments from investments to third parties) and income tax payments, we expect an FFO relevant to remuneration of between €4.0 billion and €4.5 billion. We expect that the retained cash flow in 2024 will be slightly higher than in 2023.

Debt repayment potential

TOP

Key performance indicator

	2023	2022
Debt repayment potential in %	18 – 21	23.4

We expect a debt repayment potential of between 18% and 21% in 2023. The development of the debt repayment potential is dependent on factors within net debt that are outside of the company's sphere of influence, such as the development of interest rates for non-current provisions, the performance of the dedicated financial assets and margin payments from temporary price fluctuations on the market.

Value spread

TOP

Key performance indicator

	2023	2022
Value Spread in %	2.5 – 3.5	1.1

In the 2023 financial year, it is anticipated that the value spread will be between 2.5% and 3.5% and thus higher than the level in 2022 due to the increase in adjusted EBITDA. Value spread is then expected to fall in 2024 as a result of the continued high level of investment.

Expected trends in the customers and society goal dimension

TOP

Key performance indicators

	2023	2022
Reputation Index	57 – 60	58
Customer Satisfaction Index for EnBW/Yello	127 – 139/ 150 – 161	139/166
SAIDI electricity in min./year[1]	15 – 20	16.6

1 SAIDI electricity includes all unscheduled interruptions to supply that last more than three minutes for the end consumer.

Reputation Index

EnBW will strive to improve its reputation continuously and appreciably over the next few years. The Reputation Index is an important non-financial performance indicator because it is influenced by a whole series of factors important to the future viability of our company. The existing reputation management department and stakeholder team at EnBW can recommend measures for optimizing the reputation of the company.

Customer Satisfaction Index

In our opinion, various external factors could have an increasingly negative impact on the satisfaction of our customers in 2023: For example, the effects of the war between Russia and Ukraine, a comparatively high rate of inflation and the ongoing coronavirus pandemic. There may be other negative effects if a higher demand for energy in Germany, Europe and Asia pushes up the prices for electricity and gas. In addition, more investment in the grid infrastructure is needed to push forward the energy and mobility transitions and maintain the stability of the grids. Increasingly volatile developments on the market and, for example, further market exits or insolvencies of market participants could also have negative effects. It is likely that these effects would also impact customer satisfaction with EnBW.

To improve the satisfaction of our customers, we are thus also expanding our range of sustainable energy industry services and energy solutions even further and targeting our sales activities in this direction. We aim to become climate neutral with respect to our own emissions (Scope 1 and 2) by 2035 and in this context are also making the product portfolio for our customers more sustainable (Scope 3). We are combining traditional energy products (electricity and gas) with household and energy-related products and services for our customers. This includes, for example, continuing with the swift and comprehensive expansion of the quick-charging infrastructure in Germany and extending the EnBW HyperNetwork across Germany and Europe with our partners. We will also further exploit the opportunities offered by digitalization. New and improved digital processes will allow us to offer customized products to our customers and provide them with an even better quality of service. On this basis, we are striving to achieve a Customer Satisfaction Index for EnBW of between 127 and 139 points in the 2023 financial year. Through further digitalization of customer processes, flexible offers and a clear focus on sustainability, Yello is once again striving to achieve a Customer Satisfaction Index of between 150 and 161 points in the 2023 financial year.

SAIDI

The grid subsidiaries of EnBW have always achieved a high level of supply reliability throughout their grid area and for their customers. The corresponding key performance indicator SAIDI Electricity, which states the average duration of supply interruptions per end consumer per year, stood at 16.6 minutes in 2022. We are striving to achieve a value of between 15 and 20 minutes in the 2023 financial year and subsequent years.

Expected trends in the environment goal dimension

TOP

Key performance indicators

	2023	2022
Installed output of renewable energies (RE) in GW and the share of the generation capacity accounted for by RE in %	5.8 – 6.0/ 47.0 – 48.0	5.4/41.7
CO_2 intensity in g/kWh [1]	-10% – +5%	491

1 The calculation for this performance indicator does not include nuclear generation and the share of positive redispatch that cannot be controlled by EnBW.

Installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE

The installed output of renewable energies and the share of the generation capacity of the Group accounted for by renewable energies will continue to rise in 2023. This increase will be due to the planned construction of additional onshore wind and PV power plants. The decommissioning of our Neckarwestheim II nuclear power plant will also increase the share of the generation capacity accounted for by RE. In subsequent years, we also expect a continuous increase in the installed output of renewable energies. This will thus increase the share of the generation capacity accounted for by RE further. The expansion in renewable output will be taken into account in the remuneration of the Board of Management in future and will become a component of the Long Term Incentive (LTI).

CO_2 intensity

With respect to our target of reducing the CO_2 intensity of our own electricity generation, 2022 was influenced by the war between Russia and Ukraine, the fact that many of the French nuclear power plants were taken offline and the associated increase in the deployment of our coal power plants, especially in southwest Germany to maintain the security of supply in Germany, but also in France (p. 98ff.↗). In 2023, we anticipate that the situation with regards to electricity generation in France and to the gas supply in Germany will stabilize and that the nuclear power plants will be shut down in April 2023, which will mean generation at the thermal power plants will be at a similar level to 2022. In combination with wind yields, which are forecast using the long-term average, we anticipate that CO_2 intensity in 2023 will in the best-case scenario fall by 10% or increase in the worst-case scenario by 5% in comparison to 2022. In comparison to the reference year of 2018 used for our target of climate neutrality, this forecast corresponds to a reduction in CO_2 intensity of between 20% and 7%.

Expected trends in the employees goal dimension

TOP

Key performance indicators

	2023	2022
People Engagement Index (PEI) [1]	≥ 78	81
LTIF for companies controlled by the Group [2, 3, 4]	2.1 – 2.3	2.6
LTIF overall [2, 3]	3.5 – 3.7	4.1

1 Variations in the group of consolidated companies (all companies with more than 100 employees are considered [except ITOs]). Companies that were fully consolidated for the first time in the fourth quarter of 2022 were not included in the employee surveys for the PEI.
2 LTIF indicates how many LTI occurred per one million working hours performed. Further information on the calculation of this performance indicator can be found on p. 41↗.
3 Variations in the group of consolidated companies (all companies with more than 100 employees, excluding external agency workers and contractors, are considered).
4 Companies that were fully consolidated for the first time during the 2022 financial year were not included in the calculations for the LTIF performance indicators. Companies in the area of waste management were not included.

People Engagement Index

The People Engagement Index (PEI) stood at 81 points in the reporting year. We were thus able to maintain the very good result from the previous year (82 points). An international benchmark index compiled using similar questions at numerous companies from various different sectors stood at 75 points in 2022. Taking into account this global benchmark score, we are striving to achieve a target value for the PEI of at least 78 points in 2023.

LTIF

We are committed to our goal of continuously improving occupational safety within the company for both our own employees and those of our partner companies who carry out work on behalf of EnBW. Therefore, we have implemented numerous accident prevention measures. Our activities in 2022 were once again highly influenced by the coronavirus pandemic. The energy crisis has also brought about huge changes for EnBW as an energy supply company. As a critical infrastructure company, we have a responsibility to ensure a reliable supply of energy. Changes to working conditions and their consequences (such as an increased workload) increased the risk of accidents. We believe that this has already been reflected in the increased number of accidents in 2022. To combat this development, we will take additional measures in 2023 – especially in the area of conventional electricity generation. Despite these challenges, we are still striving to reduce the number of accidents and both the LTIF for companies controlled by the Group and LTIF overall in comparison to the previous year. The LTIF for companies controlled by the Group and the number of fatal accidents will be taken into account in the remuneration of the Board of Management in future and will become a component of the Long Term Incentive (LTI).

Overall assessment of anticipated developments by the management

We anticipate a further increase in the adjusted EBITDA for the Group in 2023 in comparison to the previous year. The shares of earnings accounted for by the different segments will not change significantly. We always strive to maintain a balanced financing structure, solid financial profile and thus solid investment-grade ratings. With respect to our non-financial key performance indicators, we expect a largely stable to positive development in 2023.

Report on opportunities and risks

Principles of the integrated opportunity and risk management system

Opportunity and risk map

Strategic / sustainability		Operative			Financial		Compliance
Strategy	**Sustainability**	**Business activity**	**Infrastructure**	**Implementation of growth fields**	**Financial management**	**Corporate financing**	**Compliance**
Sustainable Generation Infrastructure ● ●	Climate change ● ●	Business processes	Plants / grids / storage / IT	Renewable Energies ● ●	Market prices	Capital market	Corruption ●
Market developments / social trends ●	Environmental protection ●	Operating activities	Information security / confidentiality	Gas / biogas business	Liquidity management	Ratings	Antitrust law
System Critical Infrastructure	Weather / natural events ●	Products / contracts	Crime / sabotage / terrorism	E-mobility / digitalization	Earnings management		Data protection
Smart Infrastructure for Customers	HR ●	Operational projects		Expansion of the grids	Investment management		Fraud
	Occupational safety / health protection ●	Approvals / licenses / patents					Taxes and levies
	Human rights ●	Legislation / regulation / litigation ●					
	Social issues ●						
	Reputation ● ●						

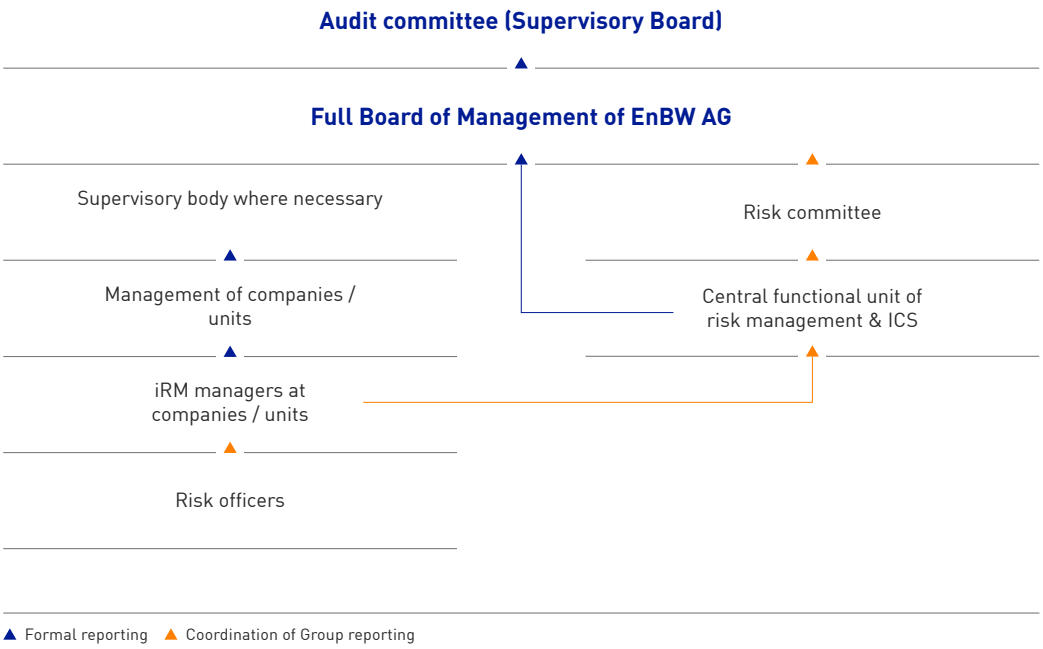
● Task Force on Climate-related Financial Disclosures (TCFD) ● Corporate Social Responsibility (CSR)

The integrated opportunity and risk management system (iRM) of EnBW is based on the internationally established COSO II framework as a standard for risk management systems that span entire companies, as well as the requirements of the IDW. The iRM aims, through a holistic and integrated approach, to effectively and efficiently identify, evaluate and manage opportunities and risks (including monitoring) and report on the opportunity and risk position, as well as to ensure the appropriateness and functionality of related processes. Risk management involves measures for avoiding, reducing or transferring risk through adequate accounting provisions, as well as measures for managing risk tolerance. For this purpose, we define an opportunity / risk as an event that might cause a potential over-attainment / non-attainment of strategic / sustainability, operational, financial and compliance goals in the future. The iRM process also takes into account the guidelines for a non-financial declaration. In order to identify and categorize opportunities and risks, EnBW uses, among other things, the opportunity and risk map that is established throughout the Group. The risk map is used to explicitly identify potential opportunities and risks that affect the sustainable orientation of our company. As well as focusing on the fulfillment of the requirements for a non-financial declaration, the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) are also taken into account.

We constantly improve and enhance the maturity of our integrated opportunity and risk management system. This gives us the chance to react to any legal or regulatory changes and also to exploit any potential for improvement that we may have identified.

Structure and processes of the integrated opportunity and risk management system

Structure and process of the iRM system



The structures and processes of the iRM are established throughout the Group. The central risk management & ICS functional unit is responsible for specifying methods, processes and systems for the whole Group, determining the opportunity and risk position of the Group and for reporting. The central steering body is the risk committee, which – with the involvement of specially selected units/companies – is responsible for clarifying relevant issues from various Group perspectives, as well as for determining the top opportunities/risks.

Internal reports are submitted on a quarterly basis in standardized form. In the case of any significant changes, a special report is immediately issued. The opportunities and risks can have an impact on our key financial performance indicators adjusted EBITDA, value spread and debt repayment potential (p. 39 f.↗). The possible effects on the key non-financial performance indicators (p. 40 f.↗) are discussed with those responsible in the specialist areas.

Opportunities and risks are evaluated within the medium-term planning period. A financial valuation of the opportunities and risks is carried out insofar as this is possible, and the expected values and potential ranges given by the results are considered. If they lie above uniformly defined thresholds, the opportunities and risks are generally included in the Group report on opportunities and risks. The so-called top opportunities/risks and long-term opportunities and risks that are of particular importance are then added. The top opportunities/risks are determined using global opportunity and risk trends, value drivers along the value added chain and quantitative characteristics such as relevance classes and monetary limits.

Any opportunities and risks with a probability of occurrence of up to 50% are subject to an individual review to determine whether they should be taken into account in the next planning session. Opportunities and risks with a probability of occurrence of over 50% are usually taken into account in the planning process and, as far as possible, appropriate accounting measures are taken in the consolidated financial statements in accordance with IFRS.

Opportunities and risks are generally evaluated in relation to the current planning period. This is carried out using quantitative methods involving stochastic modeling based on appropriate probability distributions. The resulting distributions enable us to derive the risk dimensions in each case, such as the expected level for the opportunity and risk and the variation in the expected level. Risk

ranges for the 98% confidence level are applied to ensure that possible extreme scenarios for individual opportunities or risks can be identified. This represents larger financial ranges in order to cover potential extreme scenarios with a higher probability.

Building on this, we then assess the risk-bearing capacity. This is done based on the continuous quantification of risks which are aggregated using stochastic simulations to find the total risk position. The total risk position is then measured against the coverage potential. The result is an assessment of the maximum risk that EnBW can tolerate without jeopardizing its ability to continue as a going concern. This risk-bearing capacity can be used as a management instrument and fulfills the requirements of the auditing standard IDW PS 340 new version.

Relevance filter for classifying opportunities and risks

Strategic / sustainability	Operative	Financial	Compliance	
Achievement of strategic targets, sustainability targets, e.g., climate protection, environmental protection, reputation	Achievement of business targets, functional processes, retaining added value, customer / external effects	Achievement of financial targets, generally in accordance with medium-term planning or approved (project) budgets	Compliance with legal / official regulations and internal regulations	
Relevance class 5				
One strategic / sustainability target for the EnBW Group is not achieved	• One key operational target for the EnBW Group is not achieved • The value added is massively disrupted across the company / business units / functional units	≥ €50 million (relevance threshold for functional units and EnBW Group)	Breach of legal / official regulations and / or internal regulations with negative consequences for the EnBW Group	Group reporting level
Relevance class 6				
Several or all strategic / sustainability targets for the EnBW Group are not achieved	• Several or all operational targets for the EnBW Group are not achieved • Value added throughout the whole Group is massively disrupted	≥ €250 million	Breach of legal / official regulations and / or internal regulations with serious negative consequences for the EnBW Group	

Structure and processes of the accounting-related internal control system

Principles

An accounting-related internal control system (ICS) has been established at EnBW that is designed to ensure proper and reliable financial reporting. In order to guarantee that this ICS is effective, the appropriateness and functionality of the Group-wide control mechanisms are tested regularly at the level of the individual companies and at a Group level.

If any existing weaknesses are identified in the control system and are considered relevant to the financial statements, they are remedied. This accounting-related ICS methodology is based on the COSO II standard.

Once the control mechanisms have reached a standardized and monitored degree of maturity, and no material control weaknesses can be identified, the accounting-related ICS is deemed to be effective. The materiality of control weaknesses is measured as the probability of occurrence and the extent to which there could be a potential misstatement in connection with those financial statement items concerned. The accounting-related risk management system defines measures for identifying and assessing risks that jeopardize the preparation of compliant financial statements as part of the accounting-related ICS.

Despite having established an ICS, there is no absolute certainty that it will attain its objectives or that it will be complete. In individual cases, the effectiveness of the ICS can be impaired by unforeseeable changes in the control environment, fraud or human error.

Structure

The accounting-related ICS at EnBW is organized at both a centralized and decentralized level. All key companies, business units and functional units have an ICS officer. These officers monitor the effectiveness of the ICS and evaluate any control weaknesses that may arise. An effectiveness report is prepared on an annual basis. The ICS officer at Group level assists the companies/units with the implementation of standardized procedures and also consolidates collected data.

Process

Standardized procedures are used to ensure completeness and consistency in the preparation of the financial statements and financial reporting. The accounting-related ICS defines controls designed to ensure compliance with the accounting policies used by the Group, as well as procedures and deadlines for the individual accounting and consolidation processes. During the Group consolidation process, the rigorous implementation of the four-eye principle is observed, while random samples and deviation analyses improve quality. An annual control cycle monitors whether the documentation is up to date and also checks the appropriateness and functionality of the controls. In addition, it identifies and evaluates any control weaknesses that may arise.

A risk-based selection process defines the companies/units, significant items in the financial statements and processes including their associated control measures that are relevant.

The defined processes and controls are recorded in a central documentation system. The effectiveness of the various control activities is then assessed. If any control weaknesses are identified, their effect on the financial statements is evaluated. The results are reported at both company or unit level and at Group level. Furthermore, the Group auditing department performs ICS reviews as part of its risk-oriented audit planning.

Appropriateness and effectiveness of the risk management system and the internal control system (iRM)

A statement on the appropriateness and effectiveness of the iRM process is made annually as part of the internal EnBW Group effectiveness report. The following are examined: the appropriateness and effectiveness of the risk management system at the level of the individual opportunities and risks, signed declarations by the management of important investments and business units and the notification to the internal audit department in the respective reporting year. Findings from the audit of the early risk detection system and the accounting-related ICS carried out by the auditor are presented in the effectiveness report. Financial and non-financial opportunities and risks identified by the system for the iRM process, and also risks identified in the compliance risk assessment are deemed relevant.

All of the individual opportunities and risks that are identified as being material before the application of the envisaged and implemented management instruments are used to assess the appropriateness and effectiveness of the system. Appropriateness is measured using a so-called gross evaluation. This gross evaluation is carried out with the aid of the iRM relevance filter and determines the level of opportunity and risk for each of the four categories: “strategic/sustainability,” “operational,” “financial” and “compliance.” For gross relevance class 5 and above, opportunities and risks are considered appropriate and material enough to be included in the effectiveness report. Risk officers are able to deviate from this classification and can also select a lower relevance class. Management instruments are then documented for the identified opportunities, and risks and the residual level of opportunity and risk (net evaluation) is determined as part of the regular risk reporting process. Ultimately, a self-assessment of the management of the risk is carried out by the risk officer. A second person then examines the management instruments for the specific opportunity/risk to confirm whether the management of the opportunity/risk is effective or not, and so acts as an internal control at the same time. The results flow into the report on the Group effectiveness report.

The managers of the business units and investments finally confirm that they have established a process that is appropriate in accordance with the Group guidelines for complying with the requirements for the ICS and for risk management including compliance management by signing a corresponding declaration. The results from the effectiveness report are passed on to the auditor during the audit of the early risk detection system and also to the internal audit department. The Board of Management reports on the results to the Supervisory Board and substantiates the findings.

As of the reporting date of 31 December 2022, there were no findings in the reporting year that indicated that the risk management and internal control systems were not appropriate and effective in all material respects. It is generally accepted that an internal control system cannot fully guarantee that material misstatements in accounting will be either prevented or detected.

Non-financial declaration

As part of the non-financial declaration, we closely analyze the related opportunities and risks in the areas of compliance, social engagement and procurement, as well as in the customers and society, environment and employees goal dimensions. In order to guarantee that the requirements for a non-financial declaration are fulfilled, the established iRM methods and the associated process are used. In this context, the iRM also identifies opportunities and risks relating to climate protection and thus provides important impetus for the implementation of the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). You can find further information on this subject on p. 150↗.

Risks associated with the non-financial declaration

The non-financial declaration describes, among other things, the fundamental opportunities and risks connected with the EnBW business model and the activities based upon it that could have a possible impact on any individual issue. Material individual risks with a very high probability of a serious negative impact in relation to any of the following issues do not exist at EnBW.

Compliance

The observance of relevant legal regulations and internal company rules forms the basis of our business activities. Managing compliance risks at EnBW (with a main focus on corruption, antitrust and data protection risks) is the task of the compliance and data protection management system, which comprises regular risk assessments of this type. Risks related to fighting corruption and bribery are addressed on p. 45 f.↗ in a cross-segment manner.

Corporate citizenship

There are no risks in the area of corporate citizenship. In fact, we take our social responsibility for civic and social engagement seriously (p. 49 f.↗).

Procurement

Sustainable procurement – purchasing: In the area of procurement, risks cannot be excluded due to increasing levels of complexity. Purchasing utilizes an active risk management system, counters procurement risks and implements the necessary measures for safeguarding against and avoiding risk. These risks are managed using defined processes and, especially in this area, through the prequalification process (p. 56 ff.↗).

Raw materials procurement – coal and gas: In the area of raw materials procurement and thus in the associated supply chain, there are above all potential human rights and environmental risks. In the procurement of raw materials, a multi-stage process is used to check whether human rights and environmental standards are being observed. All coal suppliers and also potential suppliers are regularly subjected to a screening process. The activities carried out for the procurement of coal are currently being implemented for gas procurement. Other measures that form part of the assessment are carried out in direct cooperation with the compliance department.

In coal mining and the production of natural gas, there are possible human rights risks related to the working and living conditions of people in the coal mining regions and natural gas producing regions. In addition, there are environmental risks for the immediate environment in each of these mining and gas producing regions. An increase in civil society activity in this context can in turn result in an increase in reputational risk. We are in constant contact with representatives from civil society and keep them informed about the advances made and challenges faced in all sustainability topics (p. 58 ff.↗).

Customers and society goal dimension

Reputation: All opportunities and risks, as well as non-financial issues, can have a positive or negative impact on reputation and thus on the key performance indicator Reputation Index (p. 91↗). The reputation management department thus identifies opportunities and risks related to reputation, develops measures to protect and improve reputation, advises the Board of Management and management and provides recommendations for action.

Customer proximity: Risks/opportunities exist due to portfolio and volume-related effects caused by the energy crisis (including legislative responses to the energy crisis by the German government). The very volatile market prices in the area of procurement and the potential for increasing competition and rising customer attrition from 2024 onwards if procurement prices fall sharply will also play a role. Opportunities exist above all through the provision of a broader range of customer-specific products and services, such as the expansion of the additional business (GHG certificates, E-Mob bundles, launch of the digital energy consultant), as well as through processes more oriented to the customer. EnBW also continued to expand its range of electromobility products and services, sustainable energy industry services and energy solutions in 2022 and targeted its sales activities in this direction (p. 91 ff.↗).

Environment goal dimension

Expansion of renewable energies: Risks generally exist in the approval and auction process. These risks can result in delays to the further expansion of renewable energies. Due to the fact that the auctions are held on equal terms, we continue to expect a high level of competition. We measure the expansion of renewable energies with our key performance indicator "installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE" (p. 97 f.↗).

CO_2 intensity / climate protection: Risks generally exist in the area of environmental protection due to the operation of power generation and transmission plants with possible consequences for the air, water, soil and nature. The importance of climate protection is taken into account in, for example, the key performance indicator CO_2 intensity (p. 98↗).

We counter these risks using, among other things, an environmental management system certified according to DIN EN ISO 14001, which has been established at key subsidiaries (p. 96↗). We take the safety of the population and the protection of the environment very seriously. In this context, risks also exist due to external circumstances, such as extreme weather conditions. We counter these risks using comprehensive organizational and procedural measures to reduce their impact. We ensure that the risks posed by crisis and emergency situations are mitigated quickly, effectively and with a coordinated approach through regular crisis management exercises and other measures. Through our diverse range of activities in the areas of environmental, nature and species protection, we also utilize the opportunity – beyond our core activities – to make a substantial contribution to improving environmental protection. Thanks to the positive public perception of these activities, they can also have a positive impact on our key performance indicator Reputation Index (p. 91↗).

At the same time, EnBW also faces potential risks due to the ongoing process of climate change. For example, more frequent extreme weather conditions leading to highly fluctuating water levels or limits being placed on emissions locally could have a negative impact, particularly on the operation of power plants and thus the security of supply (electricity grids). The operation of hydropower plants can be restricted by both a lack of, or also an abundance of, water. The output from thermal power plants that must be cooled could possibly be impacted by temperature limits on discharged water. Increasing volatility in the availability of wind, water and sun presents challenges in terms of planning certainty for the operation of power plants and the sale of volumes of electricity (p. 33 ff.↗). For this reason, the top opportunity/top risk of wind fluctuations has been reported since the Integrated Annual Report 2016, although these opportunities/risks have no material effect on

non-financial issues. In addition, there is uncertainty due to increasing environmental restrictions for the realization of projects for sustainable energy generation and for the operation of power plants. These risks are managed and mitigated in internal processes using targeted control measures.

Alongside changes in physical climate parameters and other developments relating to or governed by environmental factors, regulatory guidelines and the potential changes associated with them, as well as changes in the market, also flow into the risk evaluation process. However, there are also opportunities such as changing customer needs (p. 91ff.↗) and an increasing demand for climate-friendly products such as e-mobility. These opportunities and risks are regularly and systematically identified Group-wide. The recommendations from the Task Force on Climate-related Financial Disclosures (TCFD) are continuously implemented and are communicated in the report on opportunities and risks. Building on the risk map (p. 132↗), special focus is placed on sustainability aspects – especially climate protection targets – and they are anchored more deeply in the risk evaluation process. We closely examine the significance of sustainability and climate protection themes for the business model and implement measures and set targets to orientate our opportunity and risk management system even more towards climate-related opportunities and risks.

Employees goal dimension

Engagement of employees: Due to the persistent level of competition on the labor market, especially for qualified and highly qualified specialists, there is a fundamental risk when recruiting employees that the company will not be able to secure a sufficient number of employees with the necessary qualifications at the right time. The more intensive measures to strengthen the company's reputation as an employer, the growing interest in jobs in the energy sector and the possibility of tapping into the international job market lessen this risk to some extent. We believe that regular anonymous employee surveys, from which we derive the People Engagement Index (PEI) as a key performance indicator, are an important tool for seizing opportunities early in the areas of employee development and employee loyalty (p. 104ff.↗).

Occupational safety: Risks generally exist in the areas of occupational safety and health protection in our business activities. We counter these risks using comprehensive organizational and procedural measures, such as workplace-specific hazard analyses, to protect employees as well as possible against any adverse consequences. We also view these measures as an opportunity to preserve the capacity of our employees to do their work and to maintain the position of EnBW as an attractive employer. Occupational safety is measured in the employees goal dimension in the form of the key performance indicator LTIF for companies controlled by the Group and LTIF overall (p. 108f.↗).

Classification of opportunities and risks

The individual evaluations of the top opportunities/risks tell us – based on their level of opportunity/risk – what effects they could have with a high probability of occurrence on our key performance indicators in the finance goal dimension: adjusted EBITDA, debt repayment potential and value spread, which will replace the key performance indicator ROCE from the 2022 financial year onwards. The top opportunities/risks are described after the implementation of risk limitation measures. The financial effects are calculated based on a 98% confidence level (which includes the probability of occurrence and the extent of the damage) and break down as follows:

Classification of the level of opportunity/risk

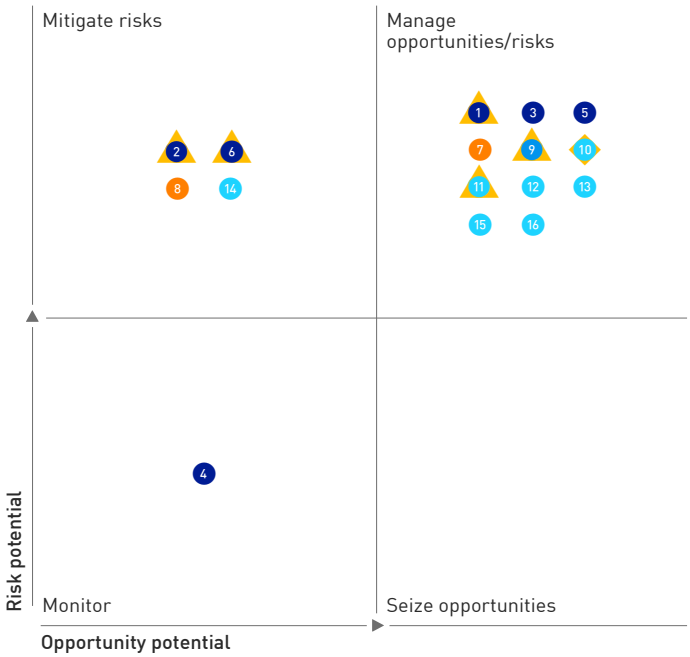
Level	Adjusted EBITDA	Net debt
Low	< €100 million	< €350 million
Moderate	≥ €100 million to < €350 million	≥ €350 million to < €1,200 million
Significant	≥ €350 million to < €600 million	≥ €1,200 million to < €2,000 million
Material	≥ €600 million	≥ €2,000 million

The ranges for the levels of opportunity/risk were adjusted in the 2022 reporting year as there is the potential for greater fluctuations in the financial impact of the opportunities and risks due to the energy crisis.

Opportunity and risk position

The following diagram illustrates how the opportunity and risk position is reported to the Board of Management and the audit committee of the Supervisory Board. The arrangement of the top opportunities/risks in the quadrants indicates how EnBW can employ control measures to exploit the opportunities or to counteract the risks.

Top opportunities/risks as of 31/12/2022



Top opportunities/risks

Cross-segment

1 Legislative and regulatory consequences
2 Non-availability of critical materials and services
3 Market prices of financial investments
4 Discount rate applied to pension provisions
5 Margins / liquidity requirements
6 State-sponsored cyberattacks due to the war between Russia and Ukraine

Smart Infrastructure for Customers

7 Competitive environment
8 Risks to the procurement and supply chain in the sales environment

System Critical Infrastructure

9 Additional expenses for the grid reserve and redispatch

Sustainable Generation Infrastructure

10 Fluctuations in energy yield in the North Sea and Baltic Sea
11 Expansion of major projects
12 Hedging
13 Power plant optimization
14 Credit risk in energy trading
15 Availability of power plants
16 Dismantling of nuclear power plants

▲ New opportunity / new risk ◆ Task Force on Climate-related Financial Disclosures (TCFD)

Details on the top opportunities/risks and their potential effects on the relevant performance indicators are listed in the following section.

The following top opportunities/risks were new in 2022:

- Legislative and regulatory consequences
- Non-availability of critical materials and services
- State-sponsored cyberattacks due to the war between Russia and Ukraine
- Additional expenses for the grid reserve and redispatch
- Expansion of major projects

Cross-segment opportunities and risks

Our company faces general risks from legal proceedings due to our contractual relationships with customers, business partners and employees. To a limited extent, we are also conducting legal proceedings relating to topics in the area of corporate law. For this purpose, adequate accounting provisions are made or, in the event of a probability of occurrence of <50%, adequate contingent liabilities. As a consequence, there is also an opportunity of positive effects on earnings if these provisions can be reversed once again. In addition, various court cases, investigations by authorities or proceedings and other claims are pending against EnBW. The chances of these being successful are, however, considered remote or as not sufficiently substantiated and are therefore not reported under contingent liabilities and other financial obligations.

In connection with these types of legal proceedings, we also recognize the water concession risk in Stuttgart. In the court proceedings dealing with the takeover of the water grid after the water concession in the state capital Stuttgart (LHS) expires, LHS and EnBW are still striving to reach an amicable settlement. These court proceedings have been ongoing since 2013 and suspended several times for mediation talks. Unfortunately, it was not possible to reach such an agreement due to a difference of opinion on the valuation. Therefore, there continues to be a risk in 2023 of losing the water grid without receipt of adequate compensation.

Strategic/sustainable opportunities and risks

1 **Legislative and regulatory consequences:** There is still some regulatory and political uncertainty with respect to the legislative responses of the German government to the energy crisis, which could have an impact on the Group, such as the interpretation of the Electricity Price Brake Act (StromPBG) (p. 64↗). There is also uncertainty in the following areas in particular: funding of renewable energies, expansion of the grid, the future of the gas infrastructure and the expansion of electromobility. There are both risks and opportunities associated with any change to the legal regulations that have a bearing on EnBW. Any financial impact is described in the more detailed explanations given below for each of the potential individual risks.

2 **Non-availability of critical materials and services:** Interruptions to global supply chains and the scarcity of materials and personnel in combination with high energy prices could result in a reduction in production and in turn lead to price increases and longer delivery times. There is even the risk that critical products/materials and service providers will not be available to a sufficient extent. Non-availability of these materials and services could significantly hinder operating and economic processes. Any financial impact is described in the more detailed explanations given below for each of the potential individual risks.

Financial opportunities and risks

3 **Market prices of financial investments:** The financial investments managed through the asset management system are subject to risks that arise from price losses and other losses in value as a result of the volatile financial market environment. The war between Russia and Ukraine led to a fall in the stock markets in 2022. We expect stable, higher income in 2023 due to the increase in interest rates. Nevertheless, there is still a considerable level of uncertainty about future developments, especially with respect to inflation and rising costs for energy and raw materials. To improve the opportunity/risk ratio of the portfolio, greater focus is currently being given to sustainability criteria in our investments. There is a moderate level of opportunity and risk in 2023 and 2024. This will have an impact on net debt and thus on the key performance indicator debt repayment potential.

4 **Discount rate applied to pension provisions:** There is generally opportunity and risk associated with any change in the discount rate applied to the pension provisions because the present value of the pension provisions falls when the discount rate increases and increases when the discount rate falls. As of the reporting date of 31 December 2022, the discount rate was 3.70%, which was up 2.55 percentage points on the rate at the end of 2021 (1.15%). Against the background of the expected development of interest rates, we identify a material level of opportunity and up to a significant level of risk in 2023 and 2024. This will have an impact on net debt and thus on the key performance indicator debt repayment potential.

5 **Margin/liquidity requirements:** The Group's liquidity planning is subject to an inherent degree of uncertainty, especially with respect to margin payments. Sharp increases in prices and high volatility in energy trading on the commodity markets (EEX/ICE) have led to high cash inflows and outflows as part of margining processes which are beyond the normal margin requirements. There is a material level of opportunity and risk for 2023 with an impact on net debt and thus on the key performance indicator debt repayment potential, as well as on the key performance indicator value spread via capital employed.

6 **State-sponsored cyberattacks due to the war between Russia and Ukraine:** The war is also being accompanied by attacks in cyberspace and there is a growing risk of state-sponsored cyber-attacks. According to information obtained by the Federal Office for Information Security, the threat of possible cyberattacks on critical infrastructure and suppliers could increase in the foreseeable future. On the reporting date, there was no indication that there would be more than a moderate level of risk in this area in 2023 and a low level of risk in 2024. This potential risk would have an impact on the key performance indicator adjusted EBITDA and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow and on the key performance indicator value spread via the adjusted EBIT.

Compliance opportunities and risks

Compliance risk assessments focus, in particular, on assessing risks and defining appropriate preventative measures in the compliance risk areas of corruption, antitrust law and data protection.

Risks for which we derive measures for fighting corruption and bribery primarily exist in sales activities relating to local authority/political business activities when dealing with public officials. Important preventative measures, especially training and advisory services, are described on p. 45 f.↗.

The incorrect handling or illicit disclosure or use of personal data poses data protection risks. These risks exist in view of the digital transformation of many business activities. Advisory and awareness services and process controls are in place to guarantee adherence to legal data protection requirements in the Group. Company-specific measures are coordinated via the compliance and data protection department.

Smart Infrastructure for Customers segment

Financial opportunities and risks

7 **Competitive environment:** There is a risk that the legislative framework could have an impact on the competitive situation and sales activities. This affects all EnBW brands in the electricity, gas and energy solutions business, in combination with the volatile procurement prices on the market and continued strain on supply chains. Moreover, the risk of bad debt has increased further. Opportunities currently exist, for example, in the expansion of the range of electromobility products and services, the provision of a broader range of customer-specific products and services, sustainable energy industry services and energy solutions, and through aligning sales activities more towards these products and services. There is a low level of opportunity and risk with an impact on the key performance indicator adjusted EBITDA in both 2023 and 2024 and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow and on the key performance indicator value spread via the adjusted EBIT.

8 **Risks to the procurement and supply chain in the sales environment:** The global availability of materials, such as electronic components and raw materials, is severely restricted and has resulted in additional financial and logistical burdens, especially with respect to the expansion of electromobility. Volatile and high market prices have resulted in higher procurement costs for the commodities electricity and gas. As EnBW holds reserve supplies for B2C customers, insolvencies of other energy suppliers could also pose a financial risk if more customers than planned have to be provided with a basic supply of energy at high procurement prices. There is a low level of risk with an impact on the key performance indicator adjusted EBITDA in 2023 and 2024 and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow and on the key performance indicator value spread via the adjusted EBIT.

System Critical Infrastructure segment

Financial opportunities and risks

9 **Additional expenses for the grid reserve and redispatch:** The federal subsidy for the network user charges in 2023 has neutralized the increased expenses for the grid reserve and redispatch for our transmission grid operator TransnetBW. However, there is still a high level of uncertainty because the situation on the markets remains very volatile. At the same time, these higher expenses will be offset to some extent by revenue from congestion management. There is a low to moderate level of opportunity with an impact on the key performance indicator adjusted EBITDA in both 2023 and 2024 and thus also an indirect impact on the key performance indicator debt repayment potential via the retained cash flow and on the key performance indicator value spread via the adjusted EBIT.

Sustainable Generation Infrastructure segment

Financial opportunities and risks

10 **Fluctuations in energy yield in the North Sea and Baltic Sea:** There are generally opportunities and risks associated with wind power plants due to fluctuations in the energy yield. As we expand our wind power plants and our wind farm portfolio continues to grow, the variation in the level of opportunity and risk will naturally increase. Findings on the development of wind conditions are continuously examined to identify the possible effects of these risks and they are taken into account in the planning. There is a low level of opportunity and risk with an impact on the key performance indicator adjusted EBITDA in both 2023 and 2024 and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow and on the key performance indicator value spread via the adjusted EBIT.

11 **Expansion of major projects:** There are uncertainties with respect to major projects due to changing regulatory framework conditions. There may also be additional effects due to increasing prices, a scarcity of materials and raw materials and possible shortfalls in personnel. The resulting expenses could have a negative impact in the low four-digit million euro range in 2023 and in the low three-digit million euro range in 2024 on capital employed and thus an impact on the key performance indicator value spread.

Further information on **financial instruments** can be found in the notes to the consolidated financial statements in note (26) "Accounting for financial instruments."

12 **Hedging:** When selling generated electricity volumes, EnBW is exposed to the risk of falling electricity prices and the risk of the unfavorable development of fuel prices in relation to electricity prices. The concept underlying our hedging strategy not only limits risk but also seeks to exploit opportunities. The EnBW Group has exposure to foreign exchange risks from procurement and the hedging of prices for its fuel requirements, as well as from gas and oil trading business. There is a low to material level of opportunity with an impact on the key performance indicator adjusted EBITDA in 2024 and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow and on the key performance indicator value spread via the adjusted EBIT.

13 **Power plant optimization:** Following the conclusion of the hedging of generation activities, the Trading business unit will manage the further deployment of the power plants. This is being carried out as part of power plant optimization on the forward market, through the sale of system services and through placements on the spot and intraday trading platforms. We currently identify a high level of volatility due to prices on the market. There is a material level of opportunity and up to a significant level of risk in 2023 and a significant level of opportunity and up to a moderate level of risk in 2024 on adjusted EBITDA and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow and on the key performance indicator value spread via the adjusted EBIT.

14 **Credit risk in energy trading:** There is a risk that trading partners will fail to fulfill their financial obligations or be unable to fulfill them on time. Our credit management department counters this risk by monitoring credit lines very closely, conducting stress tests and introducing measures to reduce its impact. There is a low to moderate level of risk with an impact on the key performance indicator adjusted EBITDA in 2023 and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow and on the key performance indicator value spread via the adjusted EBIT.

15 **Availability of power plants:** There is a general opportunity and risk that exogenous and endogenous factors will have an influence on the planned availability of our power plants and could thus increase or decrease earnings. There is a moderate level of opportunity and a significant risk in 2023 and a moderate level of opportunity and risk in 2024 with respect to the pricing assumptions used for our planning. This will have an impact on the key performance indicator adjusted EBITDA and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow and on the key performance indicator value spread via the adjusted EBIT. The fluctuation in the level of opportunity/risk is significantly greater when taking into account the highly volatile prices on the market.

Impairment losses and impending losses on onerous contracts: As a result of changes to the conditions in the energy industry, there is a general risk that impairment losses on power plants and the formation of provisions for impending losses on onerous contracts for long-term electricity procurement agreements could have a negative impact on earnings. As a result of the reversals of impairment losses on the conventional generation plants in the 2022 financial year, there is an increased risk of impairment losses in the future. We anticipate further impairment losses on the offshore wind farms due to the fact that they will have fewer and fewer operating years with EEG funding in the future.

Operative opportunities and risks

16 **Dismantling of nuclear power plants:** For long-term major projects such as the remaining operation and dismantling of a nuclear power plant, there is a general risk that delays and additional costs may arise over the course of time due to changed framework conditions. Moreover, there is also an opportunity to make lasting cost savings due to synergies over the course of time and due to learning effects for subsequent dismantling activities. During the project planning stage, opportunities and risks were identified that could result in reduced or additional costs, or adjustments to the term of the project. There is a low level of opportunity and risk for both 2023 and 2024 with an impact on net debt and thus on the key performance indicator debt repayment potential.

Changes compared to the 2021 financial year

The risk related to the availability of nuclear power plants reported as part of the risk "Availability of the power plants" no longer exists as the Neckarwestheim (GKN II) nuclear power plant will only continue to generate power for a short time until 15 April 2023.

The following opportunities/risks are no longer included in the reporting because they were taken into account in the planning, the level of opportunity/risk has reduced or they were reported under other individual themes:

- Supply chain risks in generation and operation
- Possible consequences of the global crisis for system critical infrastructure
- Recognition of costs for high-voltage direct current (HVDC) transmission technology
- Year-end balance on the EEG bank account
- Possible consequences of the war between Russia and Ukraine for the trading sector
- Management of gas assets
- Block II of the Neckarwestheim nuclear power plant – supporting the security of supply

Link to the key performance indicators

The top opportunities/risks can have an impact on our key performance indicators, whereby the effects on the non-financial key performance indicators are potential and long term in nature and more difficult to measure. They have thus been shown less boldly in the following diagram.

Linking the top opportunities/risks with the key performance indicators

	Key performance indicators												
	Financial performance indicators			Strategic performance indicators			Non-financial performance indicators						
	A Adjusted EBITDA B Debt repayment potential C Value spread			Overall share of adjusted EBITDA: D Smart Infrastructure for Customers E System Critical Infrastructure F Sustainable Generation Infrastructure			G Reputation Index H EnBW/Yello Customer Satisfaction Index I SAIDI Electricity J People Engagement Index (PEI) K LTIF for companies controlled by the Group / LTIF overall L Installed output of RE and share of generation capacity accounted for by RE M CO_2 intensity						
Top opportunities/risks	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**
Cross-segment													
1 Legislative and regulatory consequences	●	●	●	●	●	●		○				○	○
2 Non-availability of critical materials and services	●	●	●	●	●	●			○			○	○
3 Market prices of financial investments		●											
4 Discount rate applied to pension provisions		●											
5 Margins / liquidity requirements		●	●										
6 State-sponsored cyberattacks due to the war between Russia and Ukraine	●	●	●	●	●	●							○
Smart Infrastructure for Customers													
7 Competitive environment	●	●	●	●			○	○	○	○			
8 Risks to the procurement and supply chain in the sales environment	●	●	●	●			○	○	○				
System Critical Infrastructure													
9 Additional expenses for the grid reserve and redispatch	●	●	●		●			○					
Sustainable Generation Infrastructure													
10 Fluctuations in energy yield in the North Sea and Baltic Sea	●	●	●			●							○
11 Expansion of major projects			●									○	○
12 Hedging	●	●	●			●							
13 Power plant optimization	●	●	●			●							○
14 Credit risk in energy trading	●	●	●			●							
15 Availability of power plants	●	●	●			●	○						○
16 Dismantling of nuclear power plants		●											

● Direct effect
○ Potential / long-term effect
◆ Task Force on Climate-related Financial Disclosures (TCFD)

Overall assessment by the management

The consequences of the war between Russia and Ukraine on economic growth has had a global impact on supply and demand along the supply chains and on raw materials. This has led to highly fluctuating prices in the energy sector with increased liquidity risks and, above all, has led to higher energy procurement costs for electricity and gas sales. The growing threat of state-sponsored cyberattacks around the world continues to pose an increasing risk and has been significantly exacerbated due to the war between Russia and Ukraine. There is also a growing level of uncertainty due to the development of the political and economic framework conditions for the energy sector. These factors are also influencing the deployment and availability as well as the operation of our power plants. In addition, there are planning uncertainties in the area of sustainable energy generation, especially with respect to our wind power plants due to natural fluctuations in the wind yield. This not only harbors risks but also opportunities in the event of, for example, unplanned positive developments in the area of renewable energies or with respect to the availability and marketing of power plant capacities, as well as the area of hedging.

The development of the war between Russia and Ukraine and the sanctions imposed on Russia as a result are being continuously analyzed and evaluated with respect to their potential impact on the EnBW Group using various different scenarios. These effects could have an impact on the following top opportunities/risks: 1 Legislative and regulatory consequences, 2 Non-availability of critical materials and services, 5 Margins/liquidity requirements, 6 State-sponsored cyberattacks due to the war between Russia and Ukraine, 7 Competitive environment, 8 Risks to the procurement and supply chain in the sales environment, 11 Expansion of major projects, 12 Hedging, 13 Power plant optimization, 14 Credit risk in energy trading and 15 Availability of power plants. We do not believe that the company's ability to continue as a going concern is endangered, despite the fact that deliveries of Russian coal and gas have been halted and sanctions have been imposed on Russia.

No risks currently exist that might jeopardize the EnBW Group as a going concern.

Disclosures pursuant to sections 289a (1) and 315a (1) German Commercial Code (HGB) and explanatory report of the Board of Management

In the following, the Board of Management provides the information prescribed by sections 289a (1) and 315a (1) HGB and explains this in accordance with section 176 (1) sentence 1 AktG.

Composition of the subscribed capital and shares in capital

The composition of the subscribed capital is described and explained in the notes to the annual and consolidated financial statements in the section "Equity." Direct or indirect shares in capital that exceed 10% of the voting rights are described and explained in the notes to the annual financial statements in the sections "Shareholder structure" and "Disclosures pursuant to sections 33 ff. German Securities Trading Act (WpHG)" and the notes to the consolidated financial statements in section "Related parties (entities)." Information and explanations about the company's treasury shares are presented below and can be found in note 20 of the notes to the consolidated financial statements (p. 222↗).

Restrictions relating to voting rights or transferability of shares

Agreements were reached on 22 December 2015 between, on the one hand, Zweckverband Oberschwäbische Elektrizitätswerke (Zweckverband OEW) and OEW Energie-Beteiligungs GmbH and, on the other, the Federal State of Baden-Württemberg, NECKARPRI GmbH and NECKARPRI-Beteiligungsgesellschaft mbH, which include clauses relating to restrictions of authorization over EnBW shares held by these parties and a general mutual obligation of both main shareholders to maintain parity investment relationships in EnBW AG with respect to each other. Restrictions relating to voting rights no longer exist to the knowledge of the Board of Management since the aforementioned direct and indirect EnBW shareholders annulled a shareholder agreement on 22 December 2015 that had previously existed between them.

Legal provisions and statutes on the appointment and dismissal of members of the Board of Management and amendments to the Articles of Association

Pursuant to section 84 AktG in conjunction with section 31 MitbestG, responsibility for the appointment and dismissal of members of the Board of Management rests with the Supervisory Board. This competence is stipulated in article 7 (1) sentence 2 of the Articles of Association of EnBW AG. If, under exceptional circumstances, a necessary member of the Board of Management is missing, section 85 AktG requires that a member of the Board of Management be appointed by the court in urgent cases. The Annual General Meeting has the right to make changes to the Articles of Association in accordance with section 119 (1) no. 6 AktG. The specific rules of procedure are contained in sections 179 and 181 AktG. For practical reasons, the right to amend the Articles of Association was transferred to the Supervisory Board where such amendments affect the wording only. This option pursuant to section 179 (1) sentence 2 AktG is embodied in article 18 (2) of the Articles of Association. Pursuant to section 179 (2) AktG, resolutions by the Annual General Meeting to amend the Articles of Association require a majority of at least three quarters of the capital stock represented when passing the resolution, unless the Articles of Association stipulate a different majority, which, however, for any amendment to the purpose of the company can only be higher. Pursuant to article 18 (1) of the Articles of Association, resolutions by the Annual General Meeting require a simple majority of the votes cast, unless legal regulations or the Articles of Association stipulate otherwise. If the law requires a larger majority of the votes cast or of the capital stock represented when passing the resolution, the simple majority suffices in those cases where the law leaves the determination of the required majority to the Articles of Association.

Authority of the Board of Management regarding the possibility to issue or redeem shares

No authorized or conditional capital nor any authorization of the Annual General Meeting pursuant to section 71 (1) no. 8 AktG for the purchase of treasury shares by the company currently exists at EnBW AG. Therefore, the company may only acquire treasury shares on the basis of other reasons justifying such purchases in accordance with section 71 (1) AktG. As of 31 December 2022, the company holds 5,749,677 treasury shares which were purchased on the basis of earlier authorizations in accordance with section 71 (1) no. 8 AktG. The company's treasury shares can be sold on the stock exchange or by public offer to all company shareholders. The use of treasury shares, in particular their sale, in any other way can only occur within the scope of the resolution issued by the Annual General Meeting on 29 April 2004. The treasury shares held by EnBW AG do not grant the company any rights in accordance with section 71b AktG.

Material agreements of the company subject to the condition of a change of control as a result of a takeover bid and the resulting effects

The following material agreements involving EnBW AG and individual companies in the EnBW Group are subject to the condition of a change of control following a takeover bid as defined by sections 289a (1) no. 8 and 315a (1) no. 8 HGB:

The following material financing agreements of EnBW AG will become due for repayment given a change of control, insofar as the purchaser of the shares is not the Federal State of Baden-Württemberg or Zweckverband OEW or another German state-owned public law legal entity:

- sustainability-linked syndicated credit line with a volume of €1.5 billion
- committed credit lines with banks with a volume of €1.9 billion
- bilateral bank loans with a volume of around €1.1 billion
- promissory notes with a volume of €0.5 billion
- a bond issued under the Debt Issuance Program with a volume of JPY 20 billion
- a US private placement with a volume of around US$ 0.9 billion

The following material financing agreements of Stadtwerke Düsseldorf AG (SWD AG) will become due for repayment given a change of control, including an indirect change of control, if, after the change of control, the majority of shares in SWD AG are not held directly or indirectly by German government entities and the City of Düsseldorf does not hold at least 25.05% of the shares in SWD AG:

- promissory notes with a volume of around €0.2 billion
- bank loans/credit lines with a volume of around €0.5 billion

The following material financing agreements of VNG AG will become due for repayment given a change of control, including an indirect change of control, if, after the change of control, the majority of shares in VNG AG are not held directly by German public-sector shareholders or indirectly by these shareholders via controlled legal entities:

- consortium bank loan with a volume of €1.3 billion
- promissory notes with a volume of around €0.3 billion

In the event of a change of control, the financing instruments described above could become due for repayment under the aforementioned conditions, which would mean that the corresponding debt instruments would have to be refinanced – possibly at less favorable conditions.

Compensation agreements pursuant to sections 289a (1) no. 9 and 315a (1) no. 9 HGB

In the event of the premature termination of service on the Board of Management due to a change of control, the possibility of a severance payment for the member of the Board of Management is limited to the pro rata share of annual remuneration(s) for the residual term of the contract. However, the severance payment must not exceed three times the annual remuneration.

Note

Nos. 4 and 5 of sections 289a (1) and 315a (1) HGB were not relevant for EnBW AG in the 2022 financial year.

Indexes and tables

Index for the non-financial declaration of the EnBW Group and EnBW AG

In accordance with sections 315b and 289b German Commercial Code (HGB), the EnBW Group and EnBW AG have been obligated to issue a non-financial declaration since the 2017 financial year. We comply with the requirements by fully integrating the non-financial declaration into the Integrated Annual Report as part of the combined management report of the EnBW Group and EnBW AG. For all of the aspects required by the HGB and also other aspects that are material from the perspective of EnBW, such as standing in society, customer satisfaction and supply quality, we fulfill the obligations by providing information about concepts, results and measures, performance indicators and opportunities and risks.

Non-financial declaration of the EnBW Group and EnBW AG

Description of the business model	p. 24 f.↗
Materiality analysis	p. 47 f.↗
EU taxonomy	p. 110 ff.↗

			TOP Key performance indicators		
Aspects	**Themes**	**Concepts, results and measures**	**Target achievement 2021**	**Forecast 2022**	**Opportunities and risks**
Fighting corruption and bribery	Compliance	p. 45 f.↗ p. 59 f.↗	–	–	p. 136↗
Social issues	Corporate citizenship	p. 49 ff.↗	–	–	p. 136↗
Respect for human rights	Procurement	p. 59 ff.↗	–	–	p. 136 f.↗
Standing in society	Reputation	p. 47 ff.↗ p. 91↗	TOP Reputation Index p. 91↗	p. 129↗	p. 137↗
Customer satisfaction	Customer proximity	p. 47 ff.↗ p. 91 ff.↗	TOP Customer Satisfaction Index p. 92↗	p. 129 f.↗	p. 137↗
Supply quality	Supply reliability	p. 95 f.↗	TOP SAIDI Electricity p. 96↗	p. 129 f.↗	p. 137 f.↗
Environmental issues	Expansion of renewable energies	p. 24 ff.↗ p. 33 ff.↗ p. 97 f.↗	TOP Installed output of RE and share of generation capacity accounted for by RE p. 97↗	p. 130↗	p. 137↗
	CO_2 intensity / climate protection	p. 24 ff.↗ p. 33 ff.↗ p. 98 ff.↗	TOP CO_2 intensity p. 98↗	p. 130 f.↗	p. 137 f.↗
Employee issues	Engagement of employees	p. 104 ff.↗	TOP People Engagement Index (PEI) p. 104↗	p. 131↗	p. 138↗
	Occupational safety	p. 108 ff.↗	TOP LTIF for companies controlled by the Group p. 108↗	p. 131↗	p. 138↗

The non-financial declaration is issued jointly for the EnBW Group and EnBW AG and, unless stated otherwise, covers the group of consolidated companies in accordance with the International Financial Reporting Standards (IFRS). Any differences between statements made for the Group and for EnBW AG are clearly identified in the text. Information on the business model can be found in the section "Business model" (p. 24 ff.↗). We have not identified any material individual risks in the 2022 financial year that have a very high probability of a serious negative impact in relation to the relevant non-financial issues.

Further information on the **GRI content index** can be found on our website.

Online ↗

EnBW has reported in compliance with the GRI Standards for the period from 1 January to 31 December 2022. An audit will be carried out in the second quarter of 2023 as part of the GRI content index service. Our sustainability reporting also complies with the Communication on Progress requirements for the UN Global Compact and is based to an increasing extent on the UN Sustainable Development Goals. The framework standards and the SDGs have been used as the basis for the non-financial declaration.

Information on the diversity concept can be found in the declaration of corporate management (p. 164 ff.↗).

Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft has audited the consolidated financial statements and the combined management report including the contents of the non-financial declaration with reasonable assurance and has thus carried out a complete audit (except for the section "Appropriateness and effectiveness of the risk management system and the internal control system (iRM)" in the "Report on opportunities and risks").

Index for the Task Force on Climate-related Financial Disclosures (TCFD)

EnBW started to implement the recommendations of the TCFD in 2017. This work has continued in the current financial year and is being continuously developed in each of the four key elements. The index also includes other themes besides these where we are working on the further implementation of the TCFD recommendations.

Task Force on Climate-related Financial Disclosures (TCFD)

TCFD element	Themes	Section	Page reference
Governance	• Corporate management	• Corporate governance	page 43↗
	• Materiality analysis	• In dialog with our stakeholders	page 47 f.↗
	• Investment guidelines	• Strategy, goals and performance management system	page 41 f.↗
		• The EnBW Group	page 86↗
	• Climate protection initiatives	• In dialog with our stakeholders	page 48 f.↗
		• General conditions	page 64 f.↗
	• Overall assessment by the management	• Overall assessment of the economic situation of the Group	page 126↗
	• Board of Management remuneration	• Corporate governance	page 43↗
Strategy	• Robustness of business model / scenario analysis	• Business model	page 25 f.↗
	• Strategy, strategic development	• Strategy, goals and performance management system	page 33 ff.↗
	• Interdependencies	• Strategy, goals and performance management system	page 41 f.↗
	• Materiality analysis	• In dialog with our stakeholders	page 47 f.↗
	• Green bonds	• Strategy, goals and performance management system	page 38↗
		• The EnBW Group	page 82 f.↗
	• General conditions, climate protection	• General conditions	page 64 f.↗
Risk management	• Integrated opportunity and risk management including opportunity and risk map	• Report on opportunities and risks	page 132 ff.↗
	• Environment goal dimension: opportunities and risks	• Report on opportunities and risks	page 137 f.↗
Performance indicators and targets	• Sustainability ratings	• The EnBW Group	page 80 f.↗
	• Key performance indicators and long-term targets	• Strategy, goals and performance management system	page 39 ff.↗
	• Environment goal dimension: key performance indicators and other performance indicators	• The EnBW Group	page 96 ff.↗

Key performance indicators for the EU taxonomy

Revenue

						No significant harm to other EU objectives (DNSH)										
	Code	Revenue	Proportion of revenue	Substantial contribution to climate change mitigation	Substantial contribution to adaptation to climate change (substantial contribution criteria)	Climate change mitigation	Climate change adaptation	The sustainable use and protection of water and marine resources	The transition to a circular economy	Pollution prevention and control	The protection and restoration of biodiversity and ecosystems	Minimum social safeguards	**Taxonomy-aligned proportion of revenue 2022**	Taxonomy-aligned proportion of revenue 2021	Category enabling activities	Category transitional activities
		in € million	in %	in %	in %	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	**in %**	in %	E/-	T/-
A. Taxonomy-eligible activities		**9,205.6**	**16.4**													
A.1 Environmentally sustainable activities (taxonomy-aligned)		**7,566.1**	**13.5**										**13.5**	**14.6**		
Electricity generation via photovoltaic technology	4.1	50.5	0.1	100	0	–	yes	yes	yes	yes	yes	yes	**0.1**	0.1	–	–
Electricity generation via wind power	4.3	205.1	0.4	100	0	–	yes	yes	yes	yes	yes	yes	**0.4**	1.4	–	–
Transmission and distribution of electricity	4.9	5,220.6	9.3	100	0	–	yes	yes	yes	yes	yes	yes	**9.3**	9.6	E	–
Storage of electricity[1]	4.10	1,714.4	3.1	100	0	–	yes	yes	yes	yes	yes	yes	**3.1**	2.6	E	–
Production of biogas and biofuels for the transport sector and liquid biofuels[2]	4.13	66.9	0.1	100	0	–	yes	yes	yes	yes	yes	yes	**0.1**	0.2	–	–
District heating/cooling distribution	4.15	2.9	0.0	100	0	–	yes	yes	yes	yes	yes	yes	**0.0**	-[3]	–	–
Electricity generation from fossil gaseous fuels	4.29	0.0	0.0	100	0	–	yes	yes	yes	yes	yes	yes	**0.0**	-[3]	–	T
High-efficiency co-generation of heat/cool and power from fossil gaseous fuels	4.30	0.0	0.0	100	0	–	yes	yes	yes	yes	yes	yes	**0.0**	-[3]	–	T
Construction, expansion and operation of systems to extract, treat and supply water	5.1	202.7	0.4	100	0	–	yes	yes	yes	yes	yes	yes	**0.4**	0.6	–	–
Infrastructure for low-carbon road traffic and public transport	6.15	103	0.2	100	0	–	yes	yes	yes	yes	yes	yes	**0.2**	0.1	E	–
Revenue from environmentally sustainable activities (taxonomy-aligned) (A.1)																
A.2 Taxonomy-eligible activities that are not taxonomy-aligned		**1,639.5**	**2.9**													
Production of biogas and biofuels for the transport sector and liquid biofuels[2]	4.13	0.7	0.0												–	–
High-efficiency co-generation of heat/cool and power from fossil gaseous fuels	4.30	1,638.8	2.9												–	T
Revenue from taxonomy-eligible activities that are not taxonomy-aligned (taxonomy non-aligned activities) (A.2)																
Total (A.1 + A.2)		**9,205.6**	**16.4**													
B. Taxonomy non-eligible activities		**46,797**	**83.6**													
Revenue from non-environmentally sustainable activities (taxonomy-aligned) (B)		**46,797**	**83.6**													
Total (A + B)		**56,002.6**	**100.0**													

1 Including 4.5 Electricity generation from hydropower.
2 Including 4.20 Combined heat/cooling and power plants with bioenergy.
3 Due to the fact that the economic activity can only be taken into account for the first time in the 2022 financial year, there are no figures stated for the previous year.

Capex

						No significant harm to other EU objectives (DNSH)										
	Code	Capex	Proportion of capex	Substantial contribution to climate change mitigation	Substantial contribution to adaptation to climate change (substantial contribution criteria)	Climate change mitigation	Climate change adaptation	The sustainable use and protection of water and marine resources	The transition to a circular economy	Pollution prevention and control	The protection and restoration of biodiversity and ecosystems	Minimum social safeguards	**Taxonomy-aligned proportion of capex 2022**	Taxonomy-aligned proportion of capex 2021	Category enabling activities	Category transitional activities
		in € million	in %	in %	in %	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	**in %**	in %	E/-	T/-
A. Taxonomy-eligible activities		**2,576.9**	**82.4**													
A.1 Environmentally sustainable activities (taxonomy-aligned)		**2,574.4**	**82.3**										**82.3**	**68.2**		
Electricity generation via photovoltaic technology	4.1	94.8	3.0	100	0	–	yes	yes	yes	yes	yes	yes	**3.0**	5.2	–	–
Electricity generation via wind power	4.3	317.0	10.1	100	0	–	yes	yes	yes	yes	yes	yes	**10.1**	6.1	–	–
Transmission and distribution of electricity	4.9	1,615.4	51.6	100	0	–	yes	yes	yes	yes	yes	yes	**51.6**	51.3	E	–
Storage of electricity [1]	4.10	25.3	0.8	100	0	–	yes	yes	yes	yes	yes	yes	**0.8**	0.6	E	–
Production of biogas and biofuels for the transport sector and liquid biofuels [2]	4.13	16.9	0.5	100	0	–	yes	yes	yes	yes	yes	yes	**0.5**	0.3	–	–
Transmission and distribution networks for renewable and low-carbon gases	4.14	256.3	8.2	100	0		yes	yes	yes	yes	yes	yes	**8.2**	- [3]	–	–
District heating/cooling distribution	4.15	12.2	0.4	100	0	–	yes	yes	yes	yes	yes	yes	**0.4**	- [3]	–	–
Electricity generation from fossil gaseous fuels	4.29	31.3	1.0	100	0	–	yes	yes	yes	yes	yes	yes	**1.0**	- [3]	–	T
High-efficiency co-generation of heat/cool and power from fossil gaseous fuels	4.30	29.5	0.9	100	0	–	yes	yes	yes	yes	yes	yes	**0.9**	- [3]	–	T
Construction, expansion and operation of systems to extract, treat and supply water	5.1	20.3	0.6	100	0	–	yes	yes	yes	yes	yes	yes	**0.6**	0.8	–	–
Infrastructure for low-carbon road traffic and public transport	6.15	155.3	5.0	100	0	–	yes	yes	yes	yes	yes	yes	**5.0**	4.0	E	–
Capex from environmentally sustainable activities (taxonomy-aligned) (A.1)																
A.2 Taxonomy-eligible activities that are not taxonomy-aligned		**2.5**	**0.1**													
Production of biogas and biofuels for the transport sector and liquid biofuels [2]	4.13	0.1	0.0												–	–
High-efficiency co-generation of heat/cool and power from fossil gaseous fuels	4.30	2.4	0.1												–	T
Capex from taxonomy-eligible activities that are not taxonomy-aligned (taxonomy non-aligned activities) (A.2)																
Total (A.1 + A.2)		**2,576.9**	**82.4**													
B. Taxonomy non-eligible activities		**552.2**	**17.6**													
Capex from non-environmentally sustainable activities (taxonomy-aligned) (B)		**552.2**	**17.6**													
Total (A + B)		**3,129.1**	**100.0**													

1 Including 4.5 Electricity generation from hydropower.
2 Including 4.20 Combined heat/cooling and power plants with bioenergy.
3 Due to the fact that the economic activity can only be taken into account for the first time in the 2022 financial year, there are no figures stated for the previous year.

Opex

						No significant harm to other EU objectives (DNSH)										
	Code	Opex	Proportion of opex	Substantial contribution to climate change mitigation	Substantial contribution to adaptation to climate change (substantial contribution criteria)	Climate change mitigation	Climate change adaptation	The sustainable use and protection of water and marine resources	The transition to a circular economy	Pollution prevention and control	The protection and restoration of biodiversity and ecosystems	Minimum social safeguards	**Taxonomy-aligned proportion of opex 2022**	Taxonomy-aligned proportion of opex 2021	Category enabling activities	Category transitional activities
		in € million	in %	in %	in %	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	**in %**	in %	E/-	T/-
A. Taxonomy-eligible activities		**345.1**	**23.1**													
A.1 Environmentally sustainable activities (taxonomy-aligned)		**342.6**	**22.9**										**22.9**	**29.3**		
Electricity generation via photovoltaic technology	4.1	5.9	0.4	100	0	–	yes	yes	yes	yes	yes	yes	**0.4**	-0.4	–	–
Electricity generation via wind power	4.3	60.7	4.1	100	0	–	yes	yes	yes	yes	yes	yes	**4.1**	6.9	–	–
Transmission and distribution of electricity	4.9	230.5	15.4	100	0	–	yes	yes	yes	yes	yes	yes	**15.4**	19.6	E	–
Storage of electricity [1]	4.10	14.4	1.0	100	0	–	yes	yes	yes	yes	yes	yes	**1.0**	1.2	E	–
Production of biogas and biofuels for the transport sector and liquid biofuels [2]	4.13	14.4	1.0	100	0	–	yes	yes	yes	yes	yes	yes	**1.0**	1.1	–	–
District heating/cooling distribution	4.15	0.9	0.0	100	0	–	yes	yes	yes	yes	yes	yes	**0.0**	- [3]	–	–
Electricity generation from fossil gaseous fuels	4.29	0.0	0.0	100	0	–	yes	yes	yes	yes	yes	yes	**0.0**	- [3]		T
High-efficiency co-generation of heat/cool and power from fossil gaseous fuels	4.30	0.0	0.0	100	0	–	yes	yes	yes	yes	yes	yes	**0.0**	- [3]	–	T
Construction, expansion and operation of systems to extract, treat and supply water	5.1	16.4	1.1	100	0	–	yes	yes	yes	yes	yes	yes	**1.1**	1.2	–	–
Infrastructure for low-carbon road traffic and public transport	6.15	-0.6	0.0	100	0	–	yes	yes	yes	yes	yes	yes	**0.0**	-0.3	E	–
Opex from environmentally sustainable activities (taxonomy-aligned) (A.1)																
A.2 Taxonomy-eligible activities that are not taxonomy-aligned		**2.5**	**0.2**													
Production of biogas and biofuels for the transport sector and liquid biofuels [2]	4.13	0.1	0.0												–	–
High-efficiency co-generation of heat/cool and power from fossil gaseous fuels	4.30	2.4	0.2												–	T
Opex from taxonomy-eligible activities that are not taxonomy-aligned (taxonomy non-aligned activities) (A.2)																
Total (A.1 + A.2)		**345.1**	**23.1**													
B. Taxonomy non-eligible activities		**1,148.1**	**76.9**													
Opex from non-environmentally sustainable activities (taxonomy-aligned) (B)		**1,148.1**	**76.9**													
Total (A + B)		**1,493.2**	**100.0**													

1 Including 4.5 Electricity generation from hydropower.
2 Including 4.20 Combined heat/cooling and power plants with bioenergy.
3 Due to the fact that the economic activity can only be taken into account for the first time in the 2022 financial year, there are no figures stated for the previous year.

Revenue

Template 1 Nuclear and fossil gas related activities

Row	Nuclear energy related activities	
1.	The undertaking carries out, funds or has exposures to research, development, demonstration and deployment of innovative electricity generation facilities that produce energy from nuclear processes with minimal waste from the fuel cycle.	NO
2.	The undertaking carries out, funds or has exposures to construction and safe operation of new nuclear installations to produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production, as well as their safety upgrades, using best available technologies.	NO
3.	The undertaking carries out, funds or has exposures to safe operation of existing nuclear installations that produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production from nuclear energy, as well as their safety upgrades.	YES
Row	Fossil gas related activities	
1.	The undertaking carries out, funds or has exposures to construction or operation of electricity generation facilities that produce electricity using fossil gaseous fuels.	YES
2.	The undertaking carries out, funds or has exposures to construction, refurbishment, and operation of combined heat/cool and power generation facilities using fossil gaseous fuels.	YES
3.	The undertaking carries out, funds or has exposures to construction, refurbishment and operation of heat generation facilities that produce heat/cool using fossil gaseous fuels.	NO

Template 2 Taxonomy-aligned economic activities (denominator)

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**7,566.1**	**13.5**	**7,566.1**	**13.5**	**–**	**–**
8.	**Total applicable KPI**	**56,002.6**	**100.0**	**56,002.6**	**100.0**		

Template 3 Taxonomy-aligned economic activities (numerator)

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the numerator of the applicable KPI**	**7,566.1**	**100.0**	**7,566.1**	**100.0**	**–**	**–**
8.	**Total amount and proportion of taxonomy-aligned economic activities in the numerator of the applicable KPI**	**7,566.1**	**100.0**	**7,566.1**	**100.0**	**–**	**–**

Template 4 Taxonomy-eligible but not taxonomy-aligned economic activities

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
5.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	1,638.8	2.9	1,638.8	2.9	–	–
6.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-eligible but not taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**0.7**	**0.0**	**0.7**	**0.0**	**–**	**–**
8.	**Total amount and proportion of taxonomy eligible but not taxonomy-aligned economic activities in the denominator of the applicable KPI**	**1,639.5**	**2.9**	**1,639.5**	**2.9**	**–**	**–**

Template 5 Taxonomy non-eligible economic activities

Row	Economic activities	in € million	%
1.	Amount and proportion of economic activity referred to in row 1 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
2.	Amount and proportion of economic activity referred to in row 2 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
3.	Amount and proportion of economic activity referred to in row 3 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	406.0	0.7
4.	Amount and proportion of economic activity referred to in row 4 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
5.	Amount and proportion of economic activity referred to in row 5 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
6.	Amount and proportion of economic activity referred to in row 6 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
7.	**Amount and proportion of other taxonomy-non-eligible economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**46,391.0**	**82.9**
8.	**Total amount and proportion of taxonomy-non-eligible economic activities in the denominator of the applicable KPI**	**46,797.0**	**83.6**

Capex

Template 1 Nuclear and fossil gas related activities

Row	Nuclear energy related activities	
1.	The undertaking carries out, funds or has exposures to research, development, demonstration and deployment of innovative electricity generation facilities that produce energy from nuclear processes with minimal waste from the fuel cycle.	NO
2.	The undertaking carries out, funds or has exposures to construction and safe operation of new nuclear installations to produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production, as well as their safety upgrades, using best available technologies.	NO
3.	The undertaking carries out, funds or has exposures to safe operation of existing nuclear installations that produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production from nuclear energy, as well as their safety upgrades.	YES
Row	Fossil gas related activities	
1.	The undertaking carries out, funds or has exposures to construction or operation of electricity generation facilities that produce electricity using fossil gaseous fuels.	YES
2.	The undertaking carries out, funds or has exposures to construction, refurbishment, and operation of combined heat/cool and power generation facilities using fossil gaseous fuels.	YES
3.	The undertaking carries out, funds or has exposures to construction, refurbishment and operation of heat generation facilities that produce heat/cool using fossil gaseous fuels.	NO

Template 2 Taxonomy-aligned economic activities (denominator)

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	31.3	1.0	31.3	1.0	–	–
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	29.5	0.9	29.5	0.9	–	–
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**2,513.5**	**80.3**	**2,513.5**	**80.3**	**–**	**–**
8.	**Total applicable KPI**	**3,129.1**	**100.0**	**3,129.1**	**100.0**		

Template 3 Taxonomy-aligned economic activities (numerator)

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
			CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	31.3	1.2	31.3	1.2	–	–
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	29.5	1.1	29.5	1.1	–	–
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the numerator of the applicable KPI**	**2,513.5**	**97.6**	**2,513.5**	**97.6**	**–**	**–**
8.	**Total amount and proportion of taxonomy-aligned economic activities in the numerator of the applicable KPI**	**2,574.4**	**100.0**	**2,574.4**	**100.0**	**–**	**–**

Template 4 Taxonomy-eligible but not taxonomy-aligned economic activities

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
			CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
5.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	2.4	0.1	2.4	0.1	–	–
6.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-eligible but not taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**0.1**	**0.0**	**0.1**	**0.0**	**–**	**–**
8.	**Total amount and proportion of taxonomy eligible but not taxonomy-aligned economic activities in the denominator of the applicable KPI**	**2.5**	**0.1**	**2.5**	**0.1**	**–**	**–**

Template 5 Taxonomy non-eligible economic activities

Row	Economic activities	in € million	%
1.	Amount and proportion of economic activity referred to in row 1 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
2.	Amount and proportion of economic activity referred to in row 2 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
3.	Amount and proportion of economic activity referred to in row 3 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	53.2	1.7
4.	Amount and proportion of economic activity referred to in row 4 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
5.	Amount and proportion of economic activity referred to in row 5 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
6.	Amount and proportion of economic activity referred to in row 6 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
7.	**Amount and proportion of other taxonomy-non-eligible economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**499.0**	**15.9**
8.	**Total amount and proportion of taxonomy-non-eligible economic activities in the denominator of the applicable KPI**	**552.2**	**17.6**

Opex

Template 1 Nuclear and fossil gas related activities

Row	Nuclear energy related activities	
1.	The undertaking carries out, funds or has exposures to research, development, demonstration and deployment of innovative electricity generation facilities that produce energy from nuclear processes with minimal waste from the fuel cycle.	NO
2.	The undertaking carries out, funds or has exposures to construction and safe operation of new nuclear installations to produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production, as well as their safety upgrades, using best available technologies.	NO
3.	The undertaking carries out, funds or has exposures to safe operation of existing nuclear installations that produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production from nuclear energy, as well as their safety upgrades.	YES
Row	Fossil gas related activities	
1.	The undertaking carries out, funds or has exposures to construction or operation of electricity generation facilities that produce electricity using fossil gaseous fuels.	YES
2.	The undertaking carries out, funds or has exposures to construction, refurbishment, and operation of combined heat/cool and power generation facilities using fossil gaseous fuels.	YES
3.	The undertaking carries out, funds or has exposures to construction, refurbishment and operation of heat generation facilities that produce heat/cool using fossil gaseous fuels.	NO

Template 2 Taxonomy-aligned economic activities (denominator)

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**342.6**	**22.9**	**342.6**	**22.9**	**–**	**–**
8.	**Total applicable KPI**	**1,493.2**	**100.0**	**1,493.2**	**100.0**		

Template 3 Taxonomy-aligned economic activities (numerator)

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the numerator of the applicable KPI**	**342.6**	**100.0**	**342.6**	**100.0**	**–**	**–**
8.	**Total amount and proportion of taxonomy-aligned economic activities in the numerator of the applicable KPI**	**342.6**	**100.0**	**342.6**	**100.0**	**–**	**–**

Template 4 Taxonomy-eligible but not taxonomy-aligned economic activities

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
5.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	2.4	0.2	2.4	0.2	–	–
6.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-eligible but not taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**0.1**	**0.0**	**0.1**	**0.0**	**–**	**–**
8.	**Total amount and proportion of taxonomy eligible but not taxonomy-aligned economic activities in the denominator of the applicable KPI**	**2.5**	**0.2**	**2.5**	**0.2**	**–**	**–**

Template 5 Taxonomy non-eligible economic activities

Row	Economic activities	in € million	%
1.	Amount and proportion of economic activity referred to in row 1 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
2.	Amount and proportion of economic activity referred to in row 2 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
3.	Amount and proportion of economic activity referred to in row 3 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	50.5	3.3
4.	Amount and proportion of economic activity referred to in row 4 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
5.	Amount and proportion of economic activity referred to in row 5 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
6.	Amount and proportion of economic activity referred to in row 6 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
7.	**Amount and proportion of other taxonomy-non-eligible economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**1,097.6**	**73.5**
8.	**Total amount and proportion of taxonomy-non-eligible economic activities in the denominator of the applicable KPI**	**1,148.1**	**76.9**

Declaration of the legal representatives

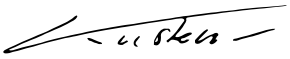
We assure to the best of our knowledge that, in accordance with the applicable accounting principles, the annual and consolidated financial statements give a true and fair view of the net assets, financial position and results of operations of the company and the Group, and that the combined management report gives a true and fair view of the business development including the result and situation of the company and the Group and also describes the significant opportunities and risks relating to the anticipated development of the company and the Group.

Karlsruhe, 13 March 2023

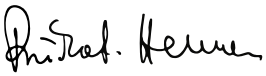
EnBW Energie Baden-Württemberg AG

Schell

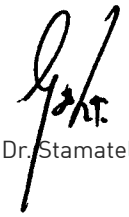
Güsewell



Kusterer



Rückert-Hennen



Dr. Stamatelopoulos