

October 2024



# Debt investor presentation



# Key credit strengths



## Integrated portfolio approach

- Demonstrated resilience across cycles and crises



## High share of low-risk business

- Target 2024-30:  $\geq 70\%$  share of regulated grids and contracted or guaranteed renewables earnings



## Strong financial performance

- Strong FY23 and good 6M 24 earnings performance, robust FY24 guidance



## Strict balance sheet management

- Commitment to strong capital structure and solid investment grade ratings



## Stable government-related shareholder structure

- $>93\%$  of share capital constantly held by Baden-Wuerttemberg (third-largest German state) and OEW (an association of counties)



## Attractive energy transition investment

- €40 bn of gross investments 2024-2030 with  $\geq 85\%$  environmentally sustainable capex



## Prudent hedging strategy

- Locking in margin up to three years in advance in addition to natural hedge between own generation and sales



## Strong ESG focus

- Validated SBTi emission reduction targets lead the way to climate neutrality of our own emissions in 2035

1. EnBW at a glance .....	3
2. Corporate and sustainability strategy .....	9
3. Funding strategy .....	22
4. Appendix .....	29

# As the leading integrated utility in Germany, EnBW is a key player in the energy transition

## Engaged in all aspects of the energy business



### Sustainable Generation Infrastructure

- Power generation and marketing of electricity, district heating, trading, gas storage



### System Critical Infrastructure

- Transmission & distribution grids for electricity and gas, water supply



### Smart Infrastructure for Customers

- Sale of electricity and gas, e-mobility, telecommunications and home storage



### Operational track record FY 2023

- Generation capacity: **>12 GW**
- Power generation: **27 TWh**
- Electricity and gas grids: **179,000 km**
- Fast-charging points in Germany: **>5,500<sup>1</sup>**
- B2C & B2B customers: **5.5 m**
- Employees: **28,630**

**With an integrated approach along the value chain and by serving the entire triangle of the energy transition, EnBW is a key player in the European energy transition**

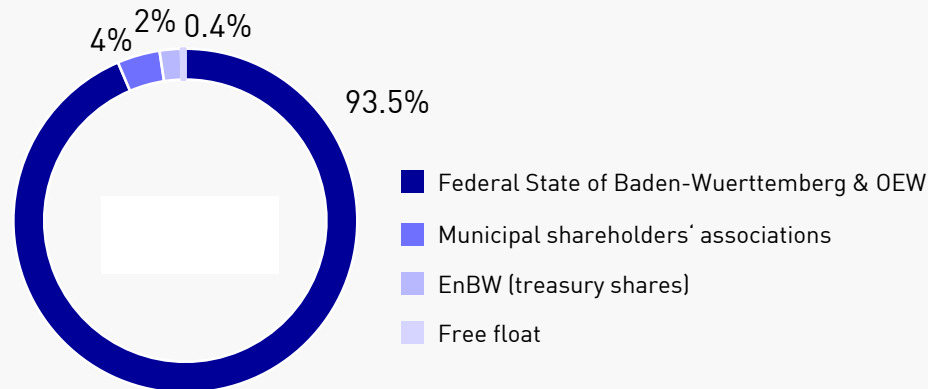
<sup>1</sup> As of October 2024.

# Stable and mostly governmental shareholder structure supports our strategy in the long-term

## Government-related shareholder structure

**>93% Baden-Wuerttemberg**

(3<sup>rd</sup> largest German state and one of the most prosperous regions in Europe) & **OEW**  
(an association of districts)



## Regional footprint beyond Germany

- Austria, Czech Republic, Denmark, France, Sweden, Switzerland, Türkiye, United Kingdom

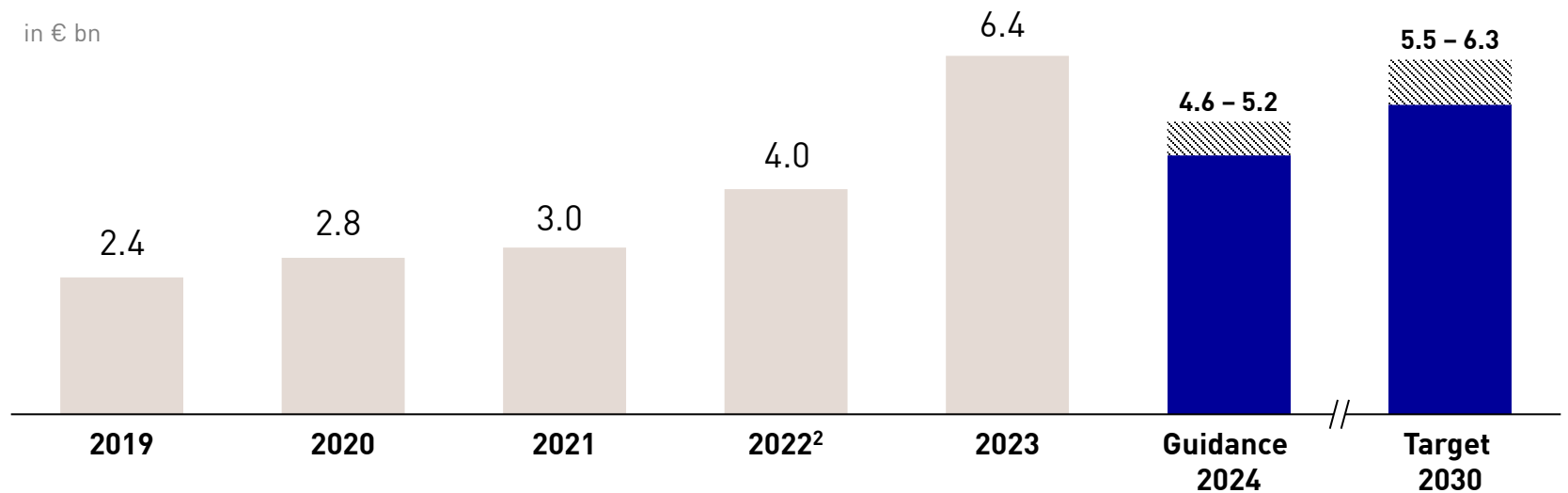


# Sustainably strong earnings performance supports the achievement of the strategic target by 2030

## FY 2023

- Revenues: **€44.4 bn**
- Retained cash flow: **€4.8 bn**
- Gross investments: **€4.9 bn**
- Taxonomy-aligned capex: **87%**
- Net debt: **€11.7 bn**
- Credit ratings: **A-** (S&P)  
**Baa1** (Moody's)
- ESG ratings<sup>1</sup>: **AA** (MSCI)  
**A-** (CDP)

## Adj. EBITDA development (2019-2023) with guidance 2024 and target 2030



### Robust delivery despite:

- Uncertainty in commodity markets (2022)
- Power price volatility (2023)
- Decline in European power prices (2024)

<sup>1</sup> Current ESG rating. | <sup>2</sup> Restated figures.



# Confirmed guidance 2024 reflects earnings in a normalised market environment

in € bn



**EnBW Group**  
Adj. EBITDA

**Guidance 2024**  
**4.6 – 5.2**  
2023: 6.4<sup>1</sup>



**Sustainable Generation Infrastructure**

FY 2023

4.6



Guidance 2024

**2.6 – 3.1**

- Decline on the back of the falling energy prices and lower hedged generation margins
- Increased capacity in renewables



**System Critical Infrastructure**

FY 2023

1.8



Guidance 2024

**1.9 – 2.2**

- Higher earnings from grids through returns from increased investments



**Smart Infrastructure for Customers**

FY 2023

0.24



Guidance 2024

**0.25 – 0.35**

- No repetition of negative one-offs 2023
- Increased competition B2B and B2C customers

<sup>1</sup> Incl. Other/consolidation with €-0.3 bn [-5%].

# Core strategic focus on driving the energy transition in our countries of operation



We continuously increase our renewables portfolio ...

**+0.2 GW** (to 6.5 GW)  
Installed renewables capacity<sup>1</sup>

**55%**  
Renewables installed capacity share

**5 GW**  
Offshore pipeline<sup>2</sup>



... and consistently reduce our coal assets ...

**-1 GW** (to 3.5 GW)  
Coal-based capacity

**3%** (-1% pt yoy)  
Coal-based revenues

**-100 g/kWh** (to 290 – 350 g/kWh)  
CO<sub>2</sub> intensity 2024 target adjusted



... while strengthening our balanced integrated portfolio.

**1.5 GW** (under construction)  
H<sub>2</sub>-ready new flexible capacity

**>800 km** (under construction)  
TSO power links projects

**>5,000** (+52% yoy)  
Fast-charging points



1. EnBW at a glance .....	3
2. Corporate and sustainability strategy .....	9
3. Funding strategy .....	22
4. Appendix .....	29

# Overview of the energy market in Germany – transition to a carbon neutral energy system

## Broad consensus to phase-out conventional energy sources

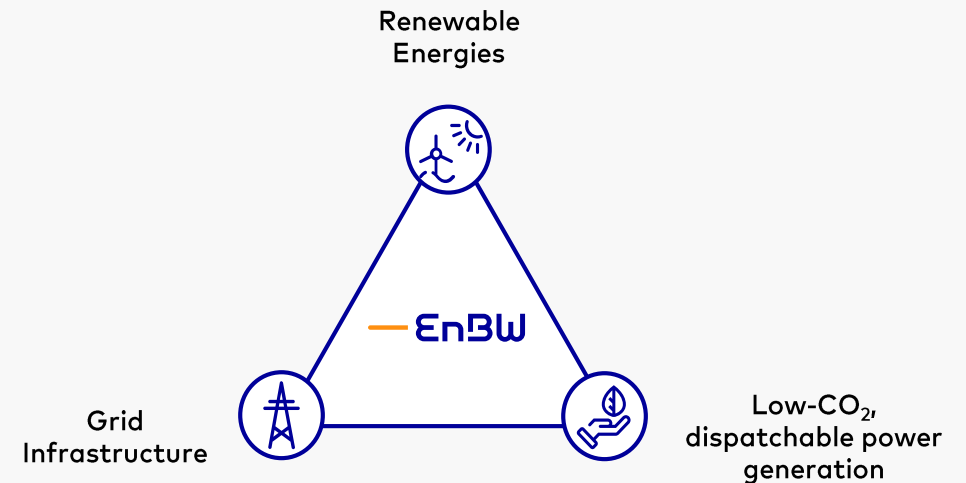
### Phase-out of nuclear energy

- Decided in 2011 in a political and social consensus and regulated by law
- The last 3 nuclear power plants were shut down in April 2023
- All of **EnBW's** nuclear power plants are in the dismantling stage; it is technically impossible to bring them back into operation

### Phase-out of coal-fired power plants

- Decided in 2020 – law sets the rules for a phase-out of coal by 2038. There is a political will to bring this forward to 2030.
- **EnBW** targets to fully phase-out of coal by 2028 already

## EnBW serves the entire triangle of the energy transition



## The energy transition requires simultaneous investments into all elements of the triangle of the energy transition

- Renewables buildout for replacing thermal generation – **EnBW** with 6.5<sup>1</sup> GW of renewables capacity
- Grid infrastructure for renewables feed-in and transporting electricity from north to south – **EnBW** investing into transmission and distribution grids
- Low-CO<sub>2</sub> dispatchable power generation serving as backup capacity – **EnBW** is constructing three H<sub>2</sub>-ready power plants with capacity of 1.5 GW

<sup>1</sup> As of 30 June 2024.

# Our outlook 2030 focuses on energy infrastructure, renewables and smart products for our customers

## Strategy 2025

- Focus on the infrastructure aspects of existing energy-related business fields
- Development of a balanced and diversified business portfolio along the entire value chain
  - Sustainable Generation Infrastructure
  - System Critical Infrastructure
  - Smart Infrastructure for Customers

## Benefits

- Integrated strategy along the entire energy value chain
- Demonstrated resilience to adverse market developments
- Quick adaptation to political and social changes
- Investments in energy transition protect us against crises
- Reduced import dependency, improved cost structures, climate protection
- Commitment to continue this path

## Outlook 2030

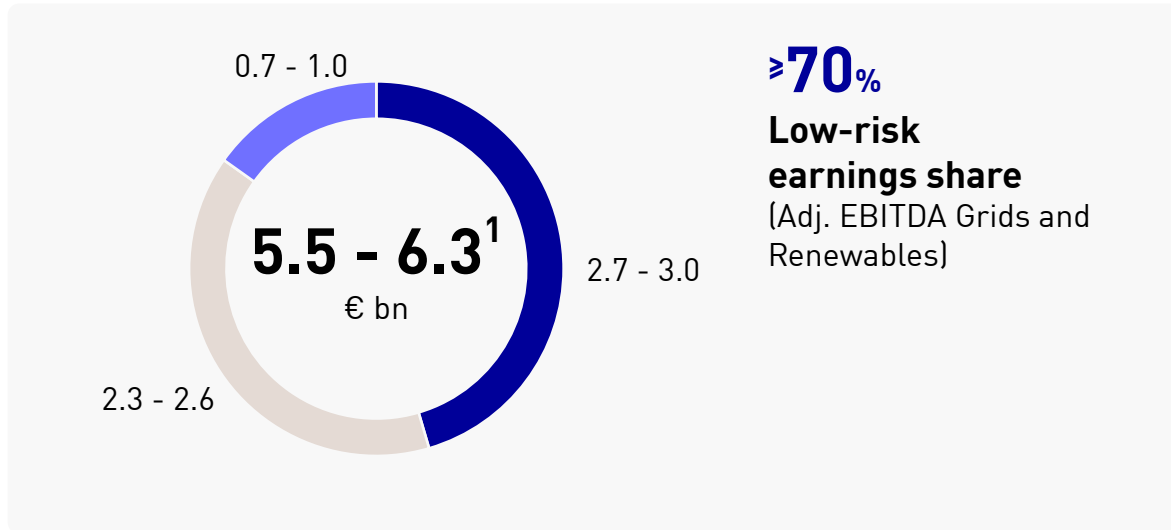
Update of the strategy 2025 with an outlook to the period up to 2030

- Rigorously push forward the expansion of the energy infrastructure
- Accelerated roll-out of renewable energies and grid infrastructure
- Development of smart products and services for our customers that support the energy transition at home and on the move



# Outlook 2030: integrated setup with profitable growth while building a sustainable future

## Adj. EBITDA target 2030

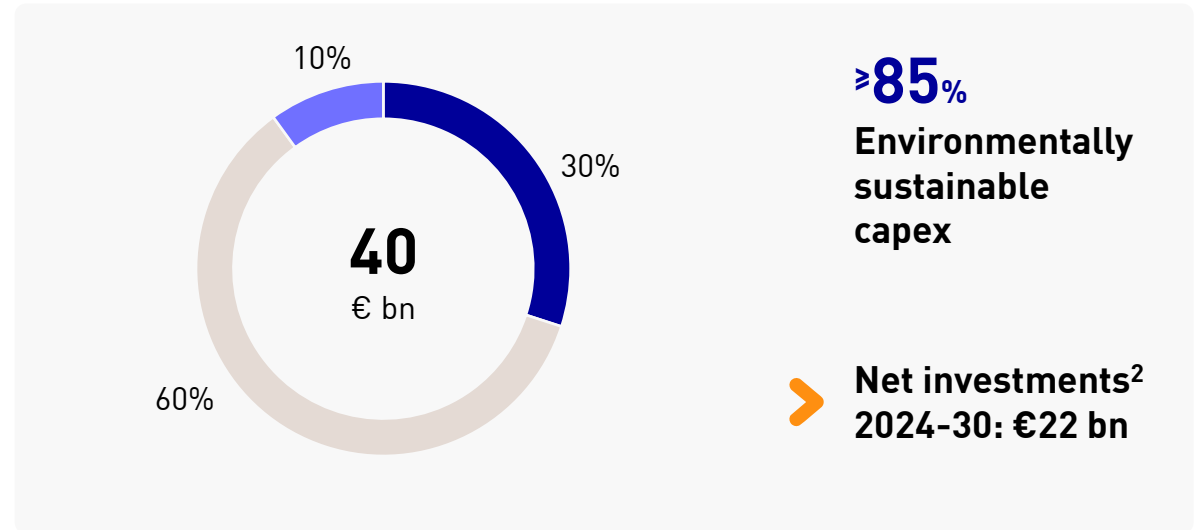


■ Sustainable Generation Infrastructure

■ System Critical Infrastructure

■ Smart Infrastructure for Customers

## Gross investments 2024-30



**Environmental targets 2030**

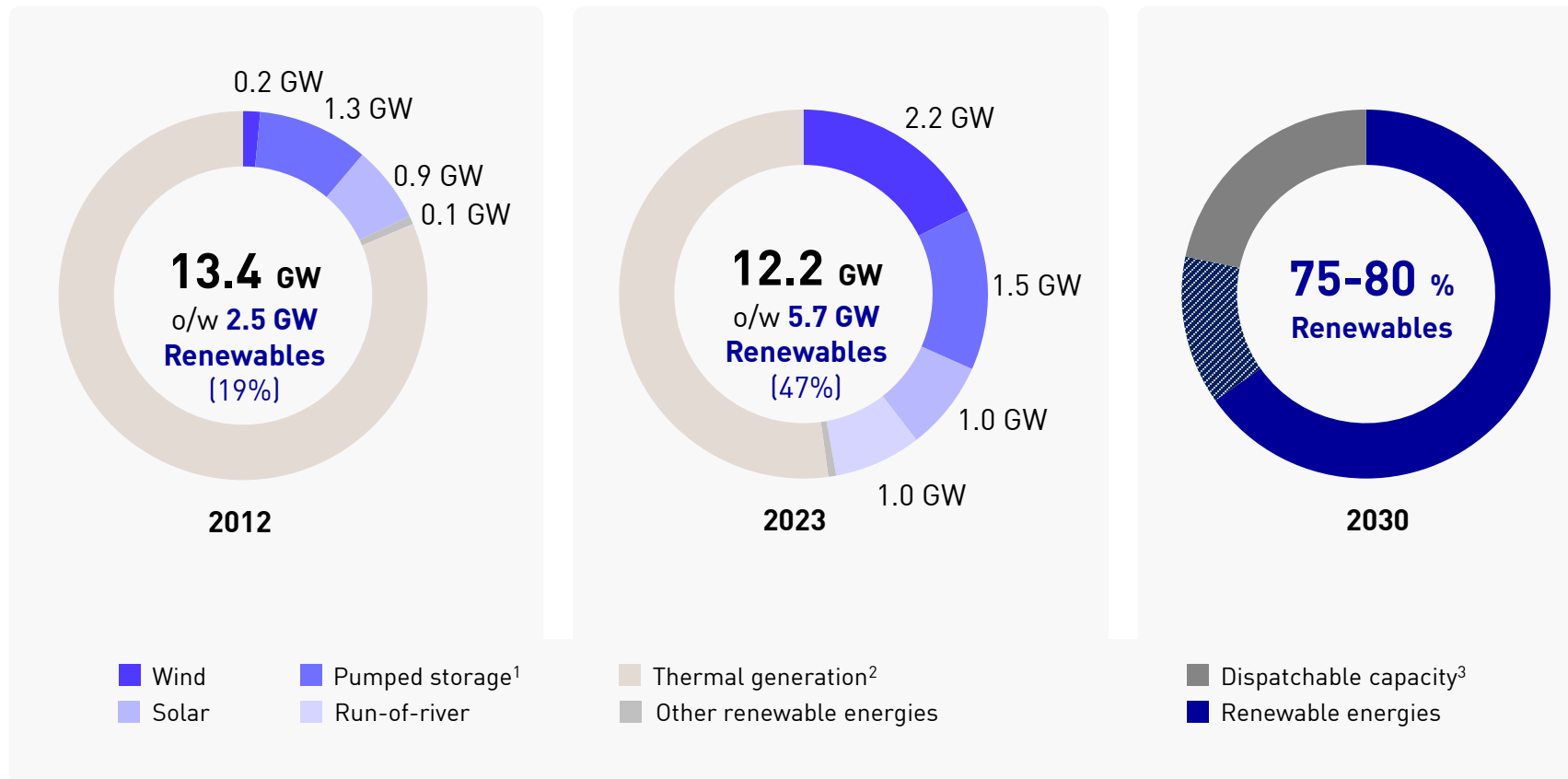
- Expansion of renewable energies from ~ 6 GW (end of 2023) to 10 - 11.5 GW
- Reduction of CO<sub>2</sub> intensity from 347 g/kWh (in 2023) to 90 - 110 g/kWh

<sup>1</sup> Incl. Other/consolidation. | <sup>2</sup> Net investments = Gross investments – share of capex covered by third parties under partnership model.

# EnBW is fundamentally restructuring its generation portfolio towards climate neutrality by 2030



## Restructuring of the EnBW generation portfolio



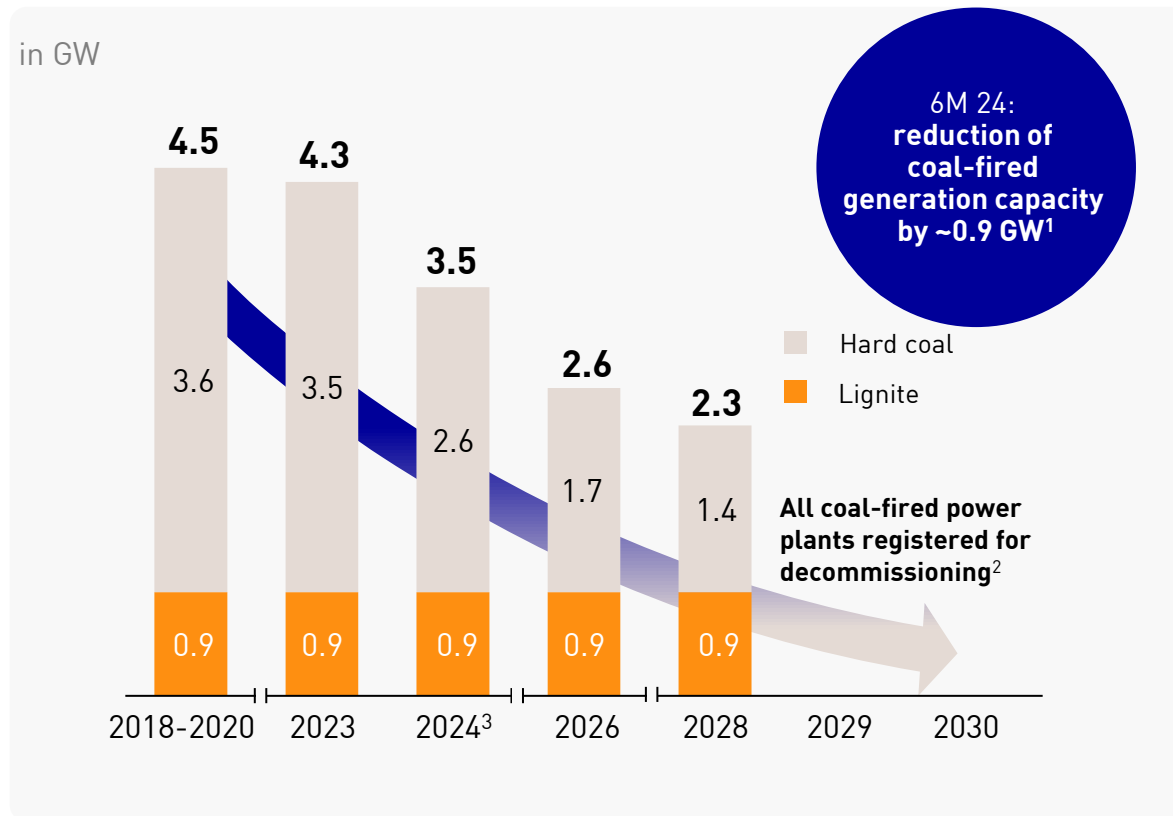
## Major developments

- Significant expansion of the portfolio
- **Renewable** portfolio increases to **10 – 11.5 GW** by 2030
- Thermal generation is **gas-based**; coal-free in 2028
- Switch to climate-neutral **hydrogen** as soon as available
- **Almost zero emissions** subsequently achieved in the power plant portfolio

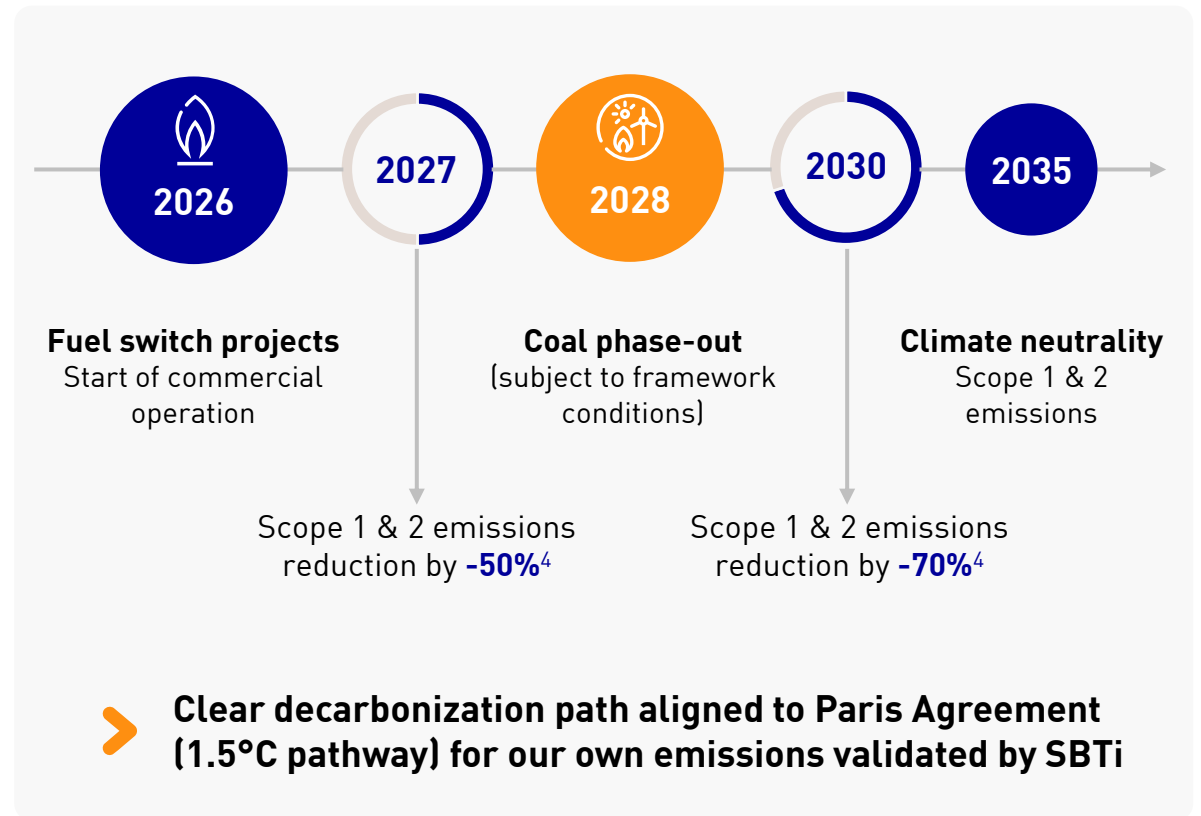
<sup>1</sup> Pumped storage with natural flow of water. | <sup>2</sup> Thermal power plants: Coal, gas, pumped storage without natural flow of water. | <sup>3</sup> Thermal dispatchable capacity: Pumped storage with and without natural flow of water; gas-based thermal power plants.

# EnBW keeps pushing the energy transition forward and is committed to SBTi targets

Early coal phase-out by 2028 in line with our SBTi targets, well ahead of German legal framework



Well on track with our climate neutrality roadmap



<sup>1</sup> Shut down for good or moved into reserve at request of grid operator. | <sup>2</sup> Provided the energy transition progress allows a coal exit by 2028. | <sup>3</sup> As of end of May 2024. | <sup>4</sup> Compared to the base year 2018.

# Installed renewables capacity on the rise

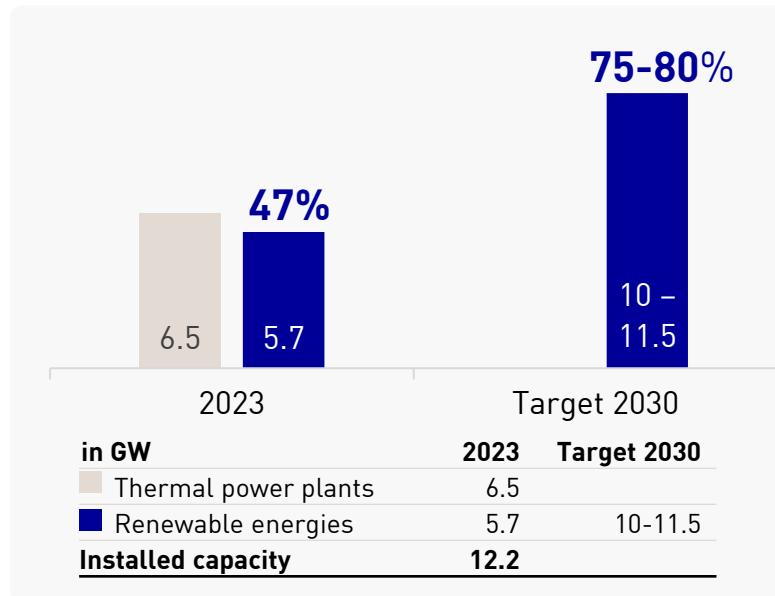
## Activities

- Power generation and marketing of electricity, district heating, trading, gas storage

## Goals

- Joint ventures with bp to build 5.9 GW offshore wind farms in the UK by 2029
- 30% of all investments will be on the expansion of wind farms and solar parks and the construction of climate-friendly, hydrogen-ready power plants until 2030

## Share of generation capacity



## Energy Trading

- EnBW follows a risk mitigating hedging strategy focused on reducing the earnings impact from price fluctuations
- Forward hedging of our expected electricity generation up to 3 years in advance, whilst also hedging the prices for necessary fuels and emission allowances
- Sales contracts closed on back-to-back basis
- Hedge levels<sup>1</sup>  
**2024:** almost fully hedged  
**2025:** >80%, **2026:** 40 - 70% , **2027:** <30%

## Thermal Generation and Trading | Renewables

- Adj. EBITDA 2023<sup>2</sup>:** € 2.9 bn | €1.7 bn  
Share of total adj. EBITDA: 46% | 27%
- Investments 2023:** € 0.6 bn | € 1.2 bn
- Employees 2023:** 7,563 (total segment)
- Generation capacity 2023:** 6.5 GW | 5.7 GW
- Electricity generated 2023:** 14 TWh | 13 TWh
- Under construction:** 3 dispatchable H<sub>2</sub>-ready gas power plants, 1.5 GW in total | 230 MW onshore and 360 MW solar, 960 MW offshore, 4 GW offshore pipeline<sup>3</sup>

<sup>1</sup> As of 30 June 2024. | <sup>2</sup> Previous figures restated due to reallocation of pumped storage. | <sup>3</sup> Includes 3 GW UK offshore seabed projects (EnBW pro rata share), 1 GW German seabed offshore project.



# Our lighthouse projects – building out offshore wind



**100%**  
Environmentally  
sustainable

## ① Mona and Morgan | ② Morven

<b>Location</b>	United Kingdom
<b>Capacity</b>	3 GW (leases) Mona and Morgan 2.9 GW Morven
<b>Commissioning</b>	2029/30e Mona and Morgan 2035e Morven Depending on grid connection
<b>Remuneration</b>	CfD <sup>1</sup> , PPA and/or merchant offtake
<b>Shareholders</b>	50% EnBW 50% bp

## ③ Dreekant

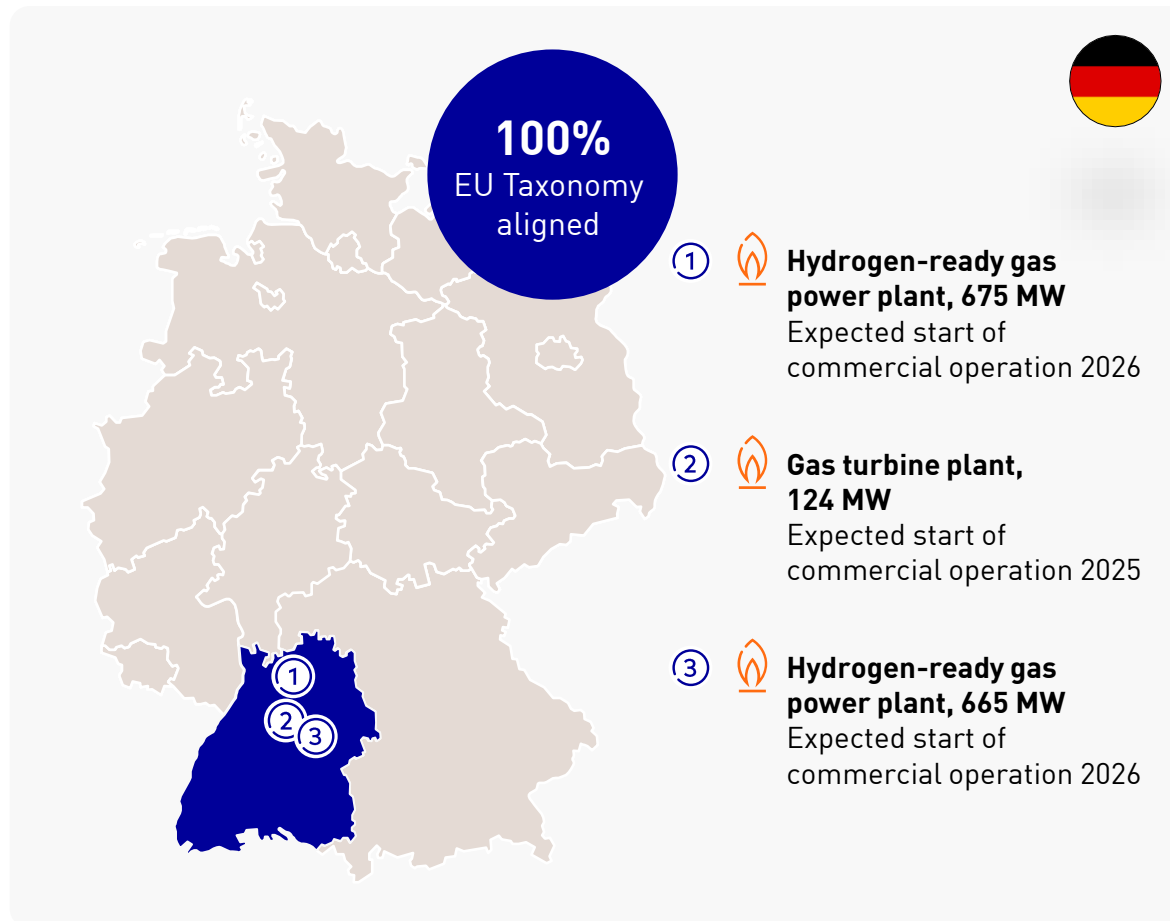
<b>Location</b>	Germany, North Sea
<b>Capacity</b>	1 GW
<b>Commissioning</b>	2031
<b>Remuneration</b>	Without EEG <sup>2</sup> support PPAs will be used
<b>Shareholders</b>	100% EnBW

## ④ He Dreiht (under construction)

<b>Location</b>	Germany, North Sea
<b>Capacity</b>	960 MW
<b>Commissioning</b>	2025
<b>Remuneration</b>	Without EEG support >50% capacity secured via PPAs
<b>Shareholders</b>	50.1% EnBW 49.9% consortium of Allianz Capital Partners, AIP and Norges Bank Investment Management

<sup>1</sup> CfD: Contract for Difference. <sup>2</sup> EEG: Renewable Energy Act is a German scheme to support the production of electricity from renewable energy sources approved by the European Commission.

# Our lighthouse projects – fuel switch to support transition away from coal



## 3 major fuel switch projects from coal to natural gas to climate neutral gases reduce CO<sub>2</sub> from dispatchable generation significantly

- Final Investment Decision in March 2022
- All 3 projects under construction
- Reduces carbon emissions immediately by 55%
- Dispatchable hydrogen-ready gas power plants pave the way to exit coal
- Support heat energy transition; located on sites with district heating or industrial heat requirement
- Profitable due to heat supply and contributing to security of supply
- Operation with climate-neutral gases from mid-2030s

# System Critical Infrastructure

## Electricity and gas grids

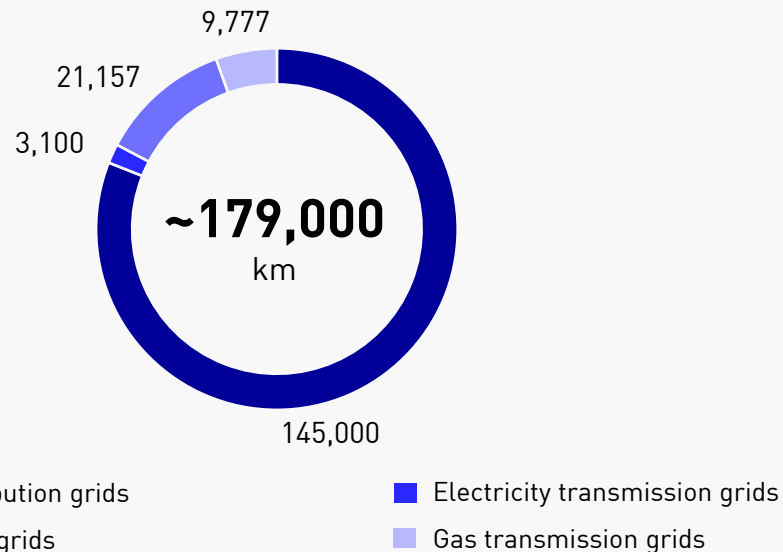
### Activities

- Transmission and distribution grids for electricity and gas
- Water supply and provision of grid-related services

### Goals

- Expansion of electricity and gas transport grids
- Preparation of grid infrastructure for future demands (mobility, heat pumps, decentralized energy)

### Grid lengths 2023

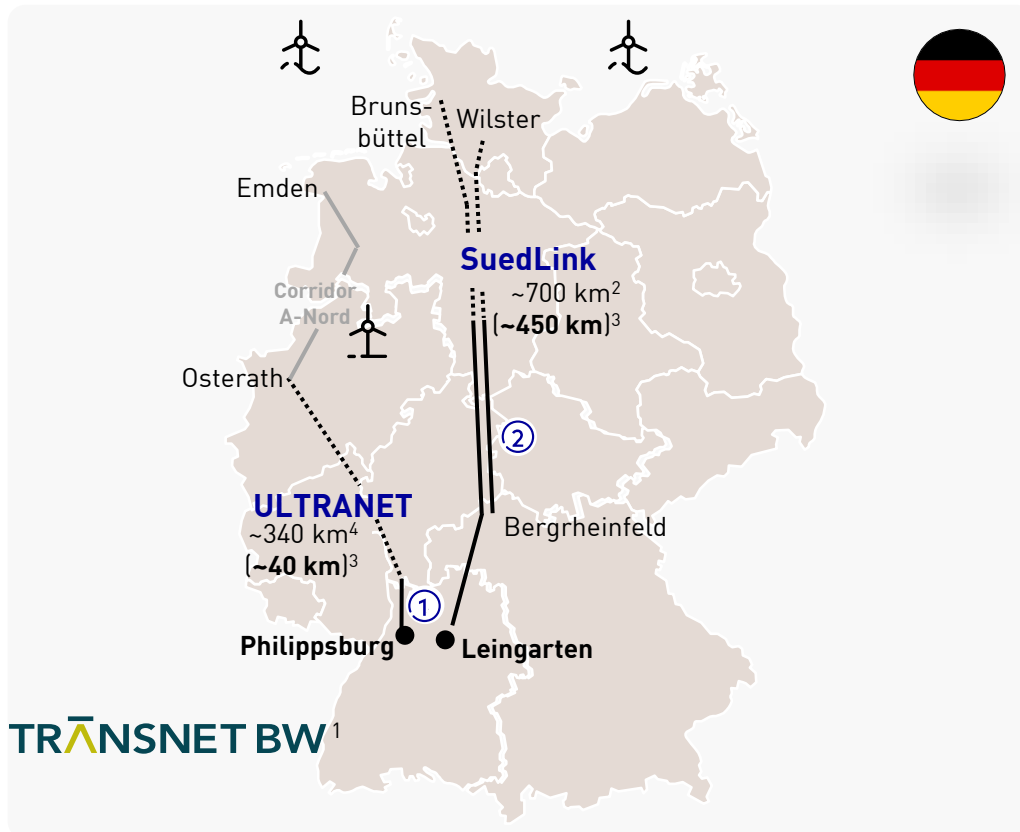


- **Adj. EBITDA 2023:** €1.8 bn  
Share of total adj. EBITDA: 28%
- **Investments 2023:** €2.7 bn
- **Employees 2023:** 11,635
- **Transmission volumes 2023:** electricity 56 TWh, gas 29 TWh
- **Sale of 49.9% minority stake in TransnetBW** (Transmission System Operator) to long-term partners
- **Large-scale Transmission System Operator projects under construction:** Start of SuedLink converter, start for the southernmost section of ULTRANET project (both in Germany)

 System Critical Infrastructure

# Our lighthouse projects – expansion of electricity transmission grids to support energy transition and security of supply

**100%**  
Environmentally  
sustainable



## DC<sup>5</sup> expansion

Scheduled  
completion

### ULTRANET 2 GW corridor

End of 2026

#### ① TransnetBW contribution

- ~40 km power lines
- Converter Philippsburg

### SuedLink 2x2 GW corridor

End of 2028

#### ② TransnetBW contribution

- ~450 km power lines
- Converter Leingarten

 Smart Infrastructure for Customers

# Supporting our customers with fast-charging and household energy solutions

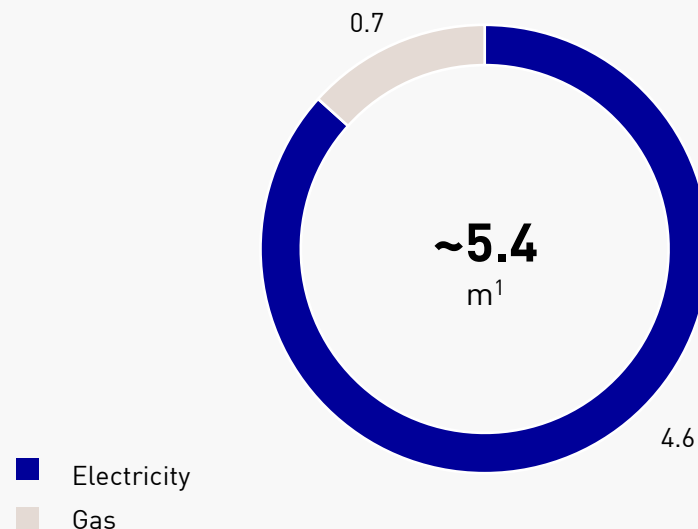
## Activities

- Sale of electricity and gas, in addition to telecommunications
- E-mobility and home storage systems for solar electricity

## Goals

- Focus on expanding fast-charging infrastructure for e-mobility to 30,000 points by 2030
- Expansion of household energy solutions, such as photovoltaics and storage

## B2C electricity and gas customers



- **Adj. EBITDA 2023:** €0.2 bn  
Share of total adj. EBITDA: 4%
- **Investments 2023:** €0.4 bn, mainly in e-mobility
- **Employees 2023:** 5,711
- **B2B and B2C customers<sup>2</sup>:** 5.5 m
- **Leading charge point operator and e-mobility provider in Germany**
  - Largest fast-charging network in Germany with > 5,500 fast-charging points (own infrastructure)<sup>3</sup>
  - Access to >600,000 charging points in 17 European countries (roaming)
  - EnBW mobility+ app downloaded >2.7 m times

<sup>1</sup> 0.9 m outside Germany. | <sup>2</sup> Mainly electricity and gas customers. | <sup>3</sup> As of October 2024.

# Strengthening our leading position in e-mobility in Germany

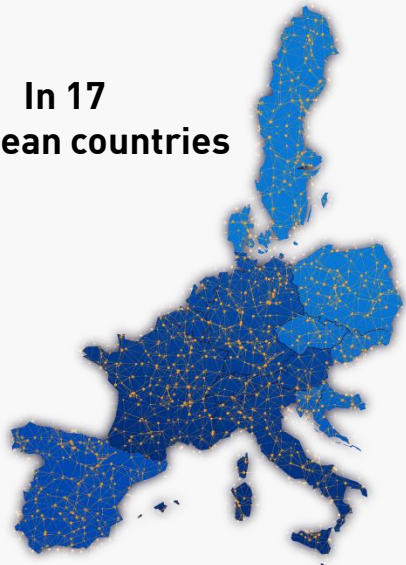
## EnBW is market leader in EV fast-charging



Most popular  
electromobility app  
in Germany!

**> 2.7 million**  
downloads of EnBW mobility+ app

In 17  
European countries



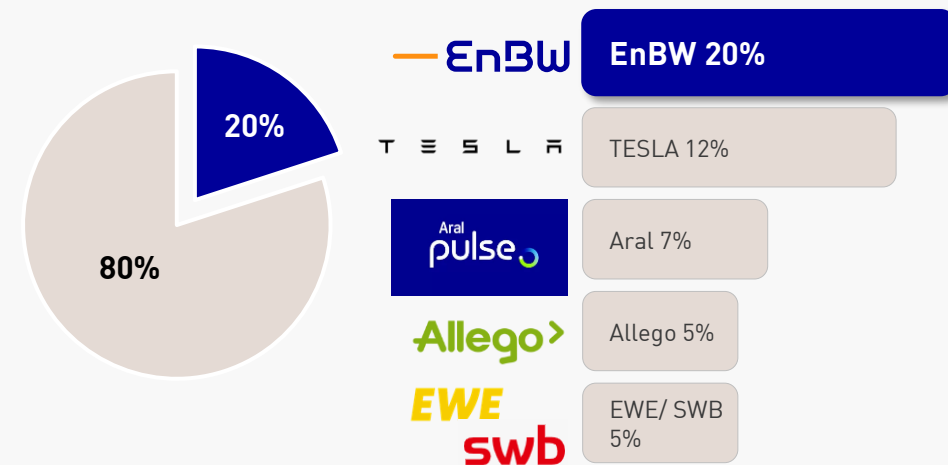
**> 600,000**  
charging points across Europe in the  
“EnBW HyperNetwork” (roaming)

**> 5,500**  
fast-charging points in Germany (own  
infrastructure)

**100%**  
green electricity at EnBW charging  
stations

## What makes us unique

- EBITDA break-even expected in 2024
- Ranked as the winner in consumer tests as Germany’s largest and best electromobility supplier and rated as VERY GOOD as a charging network operator for the third time in a row
- Market share in Germany<sup>1</sup>



<sup>1</sup> Share by number of CCS LP, min. 50 kW, Germany, as of January 2024, goingelectric.de.

1. EnBW at a glance .....	3
2. Corporate and sustainability strategy .....	9
3. Funding strategy .....	22
4. Appendix .....	29



# Diversified funding strategy



**Annual funding volumes**

**€2.5 - 3 bn p.a. on average**

- Refinancing of maturing liabilities
- Funding of corporate growth



**Tenors**

**Up to 30 years**

- EnBW's assets are typically characterised by long life cycles
- Decision based on market demand, maturity profile & interest levels



**Green financing**

**Outstanding volume of €6.7 bn<sup>1</sup>**

- First green bond issued in 2018
- Target 2030: at least 85% of all new issues to be sustainable
- Green Financing Framework use of proceeds 100% environmentally sustainable



**Currencies**

**EUR, CHF, USD, GBP & JPY outstanding**

- Main focus EUR but also AUD, CHF, GBP, JPY & USD
- Flexible use of cross-currency opportunities



**Diversification**

**... in instruments, currencies & markets**

- Bonds, promissory notes, USPP
- Exploring new markets and broadening investor base
- Public offerings & private placements

<sup>1</sup> As of July 2024.

# Strict balance sheet management and high share of low-risk business reflected in solid investment grade ratings

## EnBW's top KPIs for financial steering

- Debt repayment potential**

- EnBW regularly checks whether target value is in line with key credit metrics of the rating agencies to safeguard rating targets

$\frac{\text{Retained Cash Flow}^1}{\text{Net Debt}}$



target adjusted in Integrated Annual Report 2023

- High share of low-risk earnings**

- EnBW wants to ensure strong cash flow predictability from its business mix

$\frac{\text{Adj. EBITDA from Grids and Renewables}}{\text{Group adj. EBITDA}}$

≥70%



**S&P Global**  
Ratings

**A-**  
stable

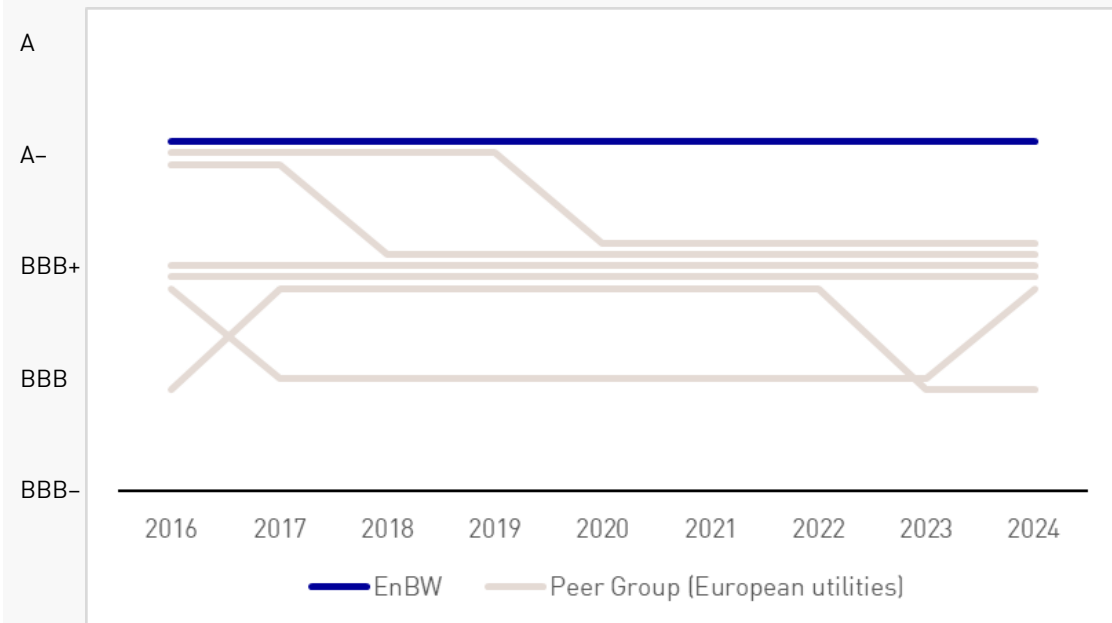
**MOODY'S**  
RATINGS

**Baa1**  
stable

<sup>1</sup> After covering ongoing costs and dividend payments, the retained cash flow is available to the company for investment without the need to raise additional debt.

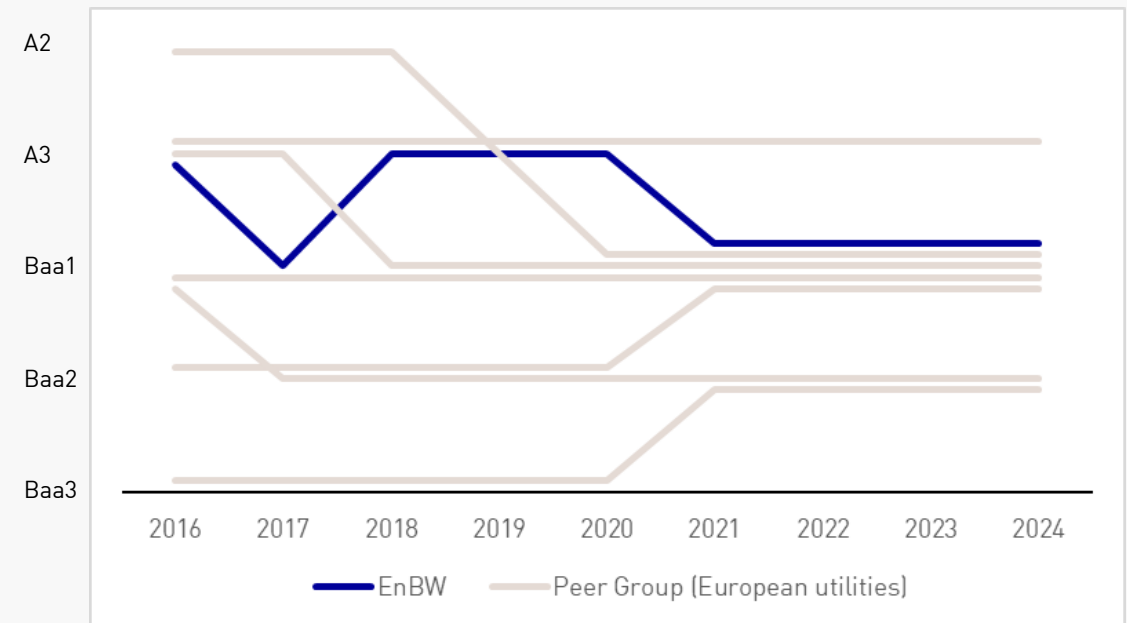
# EnBW's rating has remained resilient in times of market volatility and geopolitical tensions

## S&P Global Ratings











- EnBW is the highest and most stably rated company within its peer group, maintaining an A- rating since 2016
- Slight overall downward trend over time recognizable within the utility sector

## MOODY'S RATINGS



- EnBW is at the high end of the rated universe, only one company within its peer group maintains an A3 rating with Moody's currently
- From a broad perspective, credit ratings within the utility sector have converged towards a level of Baa1 over time

# We aspire to be an ESG leader and count ESG ratings among our key performance indicators

		As of 30 September 2024	Recent development (last 12M)
	ESG rating <sup>1</sup>	 <b>AA</b> Leadership	Improvement
	ESG rating <sup>2</sup>	 <b>B</b> Prime status	No change
	ESG risk rating <sup>3</sup>	 <b>28.0</b> Medium risk	Improvement
	Climate disclosure rating <sup>4</sup>	 <b>A-</b> Leadership	Improvement

<sup>1</sup> MSCI Scale: AAA to CCC (Leader AAA – AA; Average A – BB, Laggard B – CCC). | <sup>2</sup> ISS ESG Scale: A+ to D- (absolute best-in-class basis; Prime Status awarded). | <sup>3</sup> Sustainalytics Scale: 0 to 40+ (Risk Score: negligible [0-10]; low [10-20]; medium [20-30]; high [30-40]; severe [40+]). | <sup>4</sup> CDP Scale: A to D (Leadership A/A-; Management B/B-; Awareness C/C-; Disclosure D/D-; Failure F).

# Green Financing Framework reflects commitment to sustainability, best market practices and regulatory framework









## Key facts

- First published in 2018 and most recently updated in 2024
- Alignment with **ICMA Green Bond Principles & LMA Green Loan Principles** and with **EU Taxonomy**
- **Second-party opinion** by ISS-Corporate



## Use of proceeds

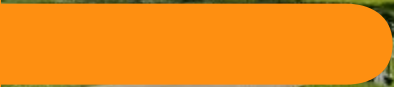
**100%**  
Environmentally  
sustainable

Eligible green activity	Project category	Contribution to UN SDGs	EU taxonomy <sup>1</sup>
Renewable energy	• Solar (PV) energy generation		4.1 Electricity generation using solar photovoltaic technology (NACE: D35.1.1)
	• Offshore/Onshore wind energy generation	 	4.3 Electricity generation from wind power (NACE: D35.1.1)
	• Hydropower energy generation		4.5 Electricity generation from hydropower (NACE: D35.1.1)
	• Electricity distribution & transmission infrastructure	 	4.9 Transmission and Distribution of Electricity (NACE: D.35.1.2, D.35.1.3)
	• Smart meters	 	7.5. Installation, maintenance and repair of instruments and devices for measuring, regulation and controlling energy performance of buildings (NACE: D.35.1.3)
Clean transportation	• E-mobility charging infrastructure	 	6.15 Infrastructure enabling low-carbon road transport and public transport (NACE: D.35.1.2, D.35.1.3, F.42.2.1)

<sup>1</sup> The taxonomy is an EU-wide system for classifying sustainable economic activities.



**Thank you very much for your  
attention!**



1. EnBW at a glance .....	3
2. Corporate and sustainability strategy .....	9
3. Funding strategy .....	22
4. Appendix .....	29



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# Additional information: Management team

# Management team with many years of utility sector and financial expertise

## Executive Board (as of September 2024)

- Responsible for Group management and strategy
- Represents the company legally



**Dr. Georg Stamatelopoulos**  
Chairman

25+ years industry experience  
Joined EnBW in 2010



**Thomas Kusterer**  
Finance, Deputy Chairman

20 years industry experience  
Joined EnBW in 2004



**Colette Rückert-Hennen**  
Human Resources

10+ years industry experience  
Joined EnBW in 2019



**Dirk Güsewell**  
System Critical Infrastructure and Sales<sup>1</sup>

25 years industry experience  
Joined EnBW in 1999



**Peter Heydecker**  
Sustainable Generation Infrastructure

30+ years industry experience  
Joined EnBW in 2017

## Supervisory Board

- Consists of 20 experienced, diverse and independent members and is composed of an equal number of shareholder and employee representatives
- Appoints members of Executive Board and defines their remuneration
- Acts as a monitoring and advisory body



**Lutz Feldmann**  
Chairman of the Supervisory Board  
Joined the supervisory board in 2015

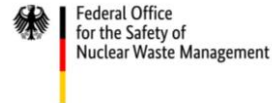
<sup>1</sup> Sales includes the segment Smart Infrastructure for Customers.

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# Additional information: Nuclear and coal

# As of April 2023, all nuclear power plants in Germany have been shut down

## Shut down of nuclear power plants



2005	-	<b>Obrigheim was shut down</b> and has been in the dismantling process since 2008.
2011	<b>March</b> – 6 Nuclear Power Plants shut down immediately after the Fukushima incident. <b>June</b> – German Bundestag (Parliament) decides <b>to phase-out nuclear energy completely</b> within a decade.	-
2013	-	EnBW starts the multi-stage application process to <b>decommission and dismantle Neckarwestheim I and Philippsburg 1</b> .
2016	-	EnBW applies for a <b>decommissioning and dismantling license for Neckarwestheim II</b> (granted in 2023) and <b>Philippsburg 2</b> (granted in 2019).
2017	<b>Externalization of final and interim storage</b> – Law approved and contract signed in June creating long-term certainty for all parties. The nuclear power plant operators have <b>transferred the financial responsibility for final and interim storage</b> and thus <b>all associated financial and non-financial risks</b> are with the German state. Operators remain responsible for decommissioning and dismantling.	EnBW receives <b>decommissioning and dismantling license for Neckarwestheim I and for Phillippsburg 1</b> .
2020	-	Dismantling process starts at <b>Philippsburg 2</b> .
2021	<b>Majority of German nuclear power plants shutdown</b> and only three were left active.	-
2023	<b>April</b> – Last three power plants are finally shutdown. <b>Germany is free of nuclear power</b> .	<b>April</b> – EnBW is granted the decommissioning and dismantling licence for its fifth and last nuclear power plant – <b>Neckarwestheim II</b> . Since then, all nuclear power plants of EnBW have been shut down.

 Decommissioning and dismantling process for EnBW's nuclear power plants is ongoing!

# Complete phase-out from nuclear energy in Germany

## Installed generation capacity in Germany<sup>1</sup>

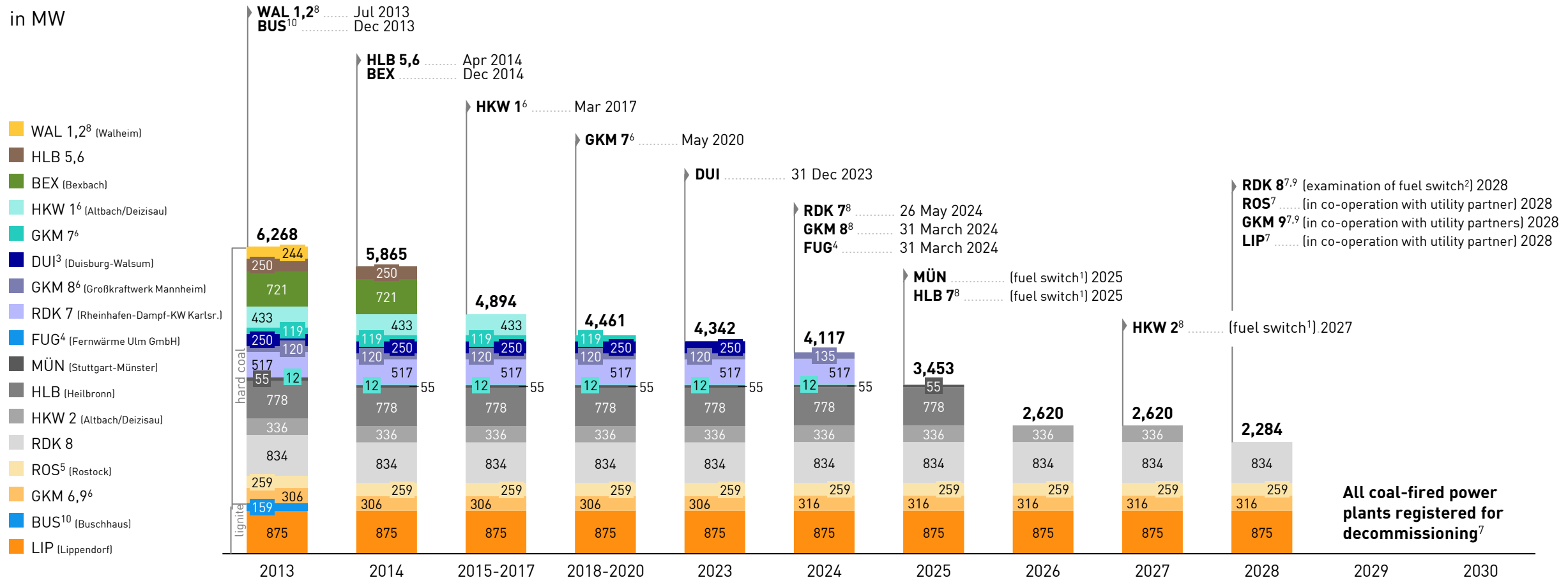
in GW	2023	2022	2021
Solar	81.8	67.6	60.1
Onshore wind	61.0	58.0	55.9
Biomass	9.0	8.9	8.9
Offshore wind	8.5	8.2	7.9
Hydropower <sup>2</sup>	5.4	5.4	5.5
Gas	34.8	34.3	32.4
Hard coal	18.9	19.0	19.0
Brown coal	18.6	18.7	19.0
Nuclear power	-	4.1	4.1
Oil	4.7	4.7	4.7
<b>Total<sup>3</sup></b>	<b>242.7</b>	<b>228.7</b>	<b>217.3</b>

- **No installed nuclear capacity** for electricity generation in Germany since May 2023
- EnBW considers the **dismantling of its five nuclear power plants to be part of the energy transition** and is rigorously implementing the dismantling measures
- EnBW has set aside dedicated **financial assets to cover nuclear and pension provisions** separately from funding its operating business. As of 31 December 2023, the assets totalled around € 6.2 bn
- The amount of the accounted **nuclear provisions is reviewed** annually by the federal authority Bafa (Federal Office for Economic Affairs and Export Control). Therefore, the risk beyond that is minimal

<sup>1</sup> The figures for the previous year have been restated. | <sup>2</sup> Adjustment to the installed output from hydropower by EnBW. Source: Fraunhofer ISE ([www.energy-charts.de](http://www.energy-charts.de)), as of 24/01/2024. | <sup>3</sup> The figures may not add up due to rounding differences.

# EnBW follows a detailed schedule to phase out coal by 2028

in MW



<sup>1</sup> Fuel switch from coal to natural gas, until the mid-2030s switch to climate neutral gases like Green Hydrogen. <sup>2</sup> Examination of options to switch to climate neutral dispatchable generation (fuel switch to climate neutral gases e.g. Green Hydrogen). <sup>3</sup> Duisburg-Walsum: Electricity supply contract with STEAG AG. <sup>4</sup> Fernwärme Ulm GmbH: EnBW and Stadtwerke Ulm/Neu-Ulm GmbH (SWU) each have a 50% share in Fernwärme Ulm GmbH (FUG), temporary return of the coal fired units to the electricity market (max. March 2024). <sup>5</sup> Rostock: Joint power plant EnBW (50,38%), Rheinenergie (49,62%). <sup>6</sup> GKM: Joint power plant RWE Generation SE (40%), EnBW Energie Baden-Württemberg AG (32%) and MVV RHE GmbH (28%); from 2024, EnBW's share increases by 15 MW for GKM8 and by 10 MW for GKM6. <sup>7</sup> Provided the energy transition progress allows a coal exit by 2028. <sup>8</sup> Market decommissioning as planned, transfer to grid reserve. <sup>9</sup> Market decommissioning as planned, transfer to grid reserve expected. <sup>10</sup> Power purchase agreement.

The background is a solid dark blue. It features several large, abstract shapes: a large light blue circle on the left side, a dark blue horizontal bar at the top, a dark blue horizontal bar at the bottom, and a dark blue circle in the bottom right. An orange horizontal bar with rounded ends is positioned on the left side, partially overlapping the light blue circle.

# Additional information: Sustainable Generation Infrastructure

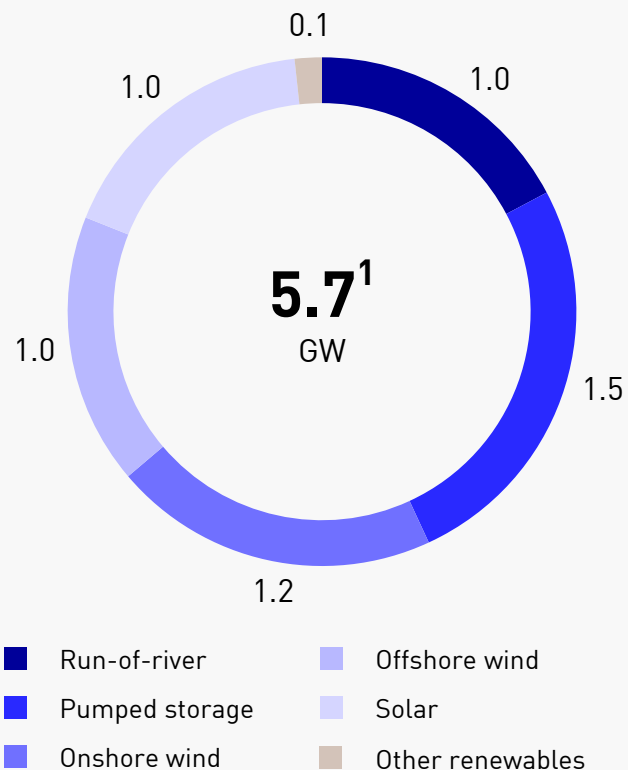


# Sustainable Generation Infrastructure

## Renewable energies



### Renewable generation capacity 2023



- **Adj. EBITDA 2023<sup>2</sup>:** €1.7 bn  
Share of total adj. EBITDA: 27%
- **Investments 2023:** €1.2 bn
- **Employees 2023:** 7,563 (Sustainable Generation Infrastructure)
- **Generation capacity 2023:** 5.7 GW, 47% of total generation capacity
- **Electricity generated 2023:** 13 TWh, 48% of total generation capacity
- **Under construction:** 230 MW onshore and 360 MW solar, 960 MW offshore
- **Offshore pipeline:** 4 GW<sup>3</sup>

<sup>1</sup> Due to rounding, individual values may not add up to the total value. | <sup>2</sup> Previous figures restated due to reallocation of pumped storage. |

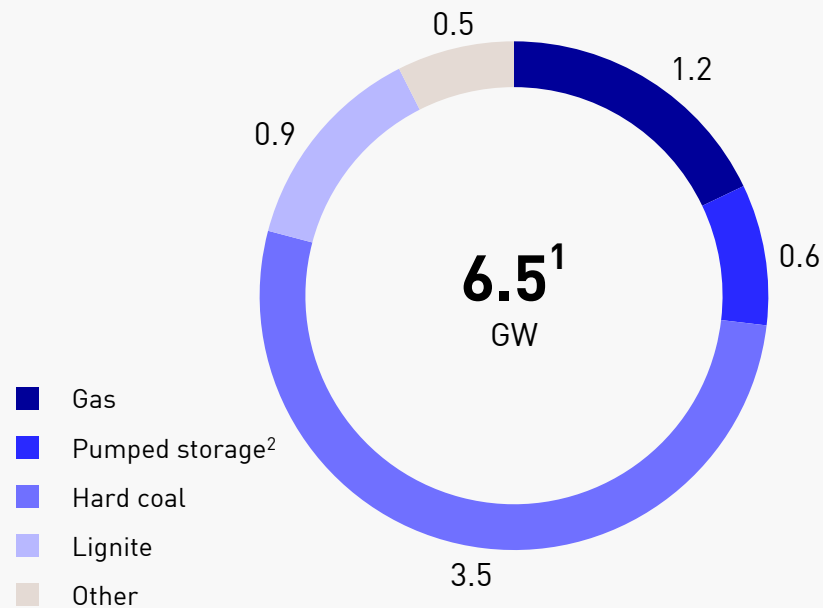
<sup>3</sup> Includes 3 GW UK offshore seabed projects (EnBW pro rata share), 1 GW German seabed offshore project.

# Sustainable Generation Infrastructure

## Thermal Generation



### Thermal Generation capacity 2023



- > • **Coal based revenues:** 4%
- **Own CO<sub>2</sub> emissions YoY:** -37%

- **Adj. EBITDA 2023<sup>3</sup>** (including trading): €2.9 bn  
Share of total adj. EBITDA (including trading): 46%
- **Investments 2023:** €0.6 bn
- **Employees 2023:** 7,563 (Sustainable Generation Infrastructure)
- **Generation capacity 2023:** 6.5 GW, 53% of total generation capacity
- **Electricity generated 2023:** 14 TWh, 52% of total generation capacity
- **Under construction:** 3 dispatchable hydrogen-ready gas power plants, 1.5 GW in total (Expected start of commercial operation 2025/26)

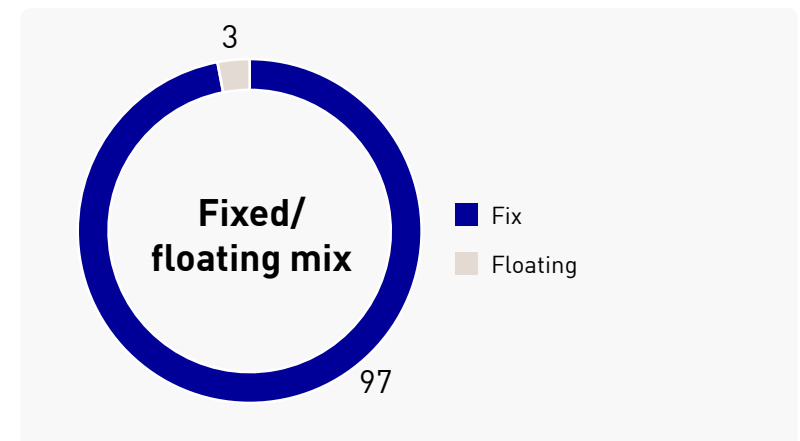
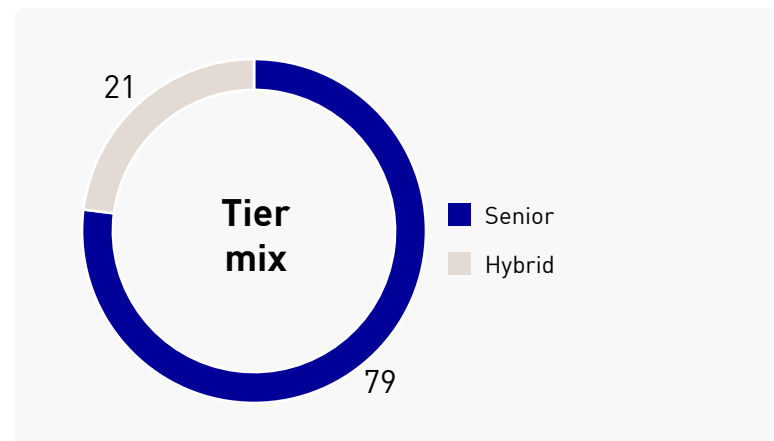
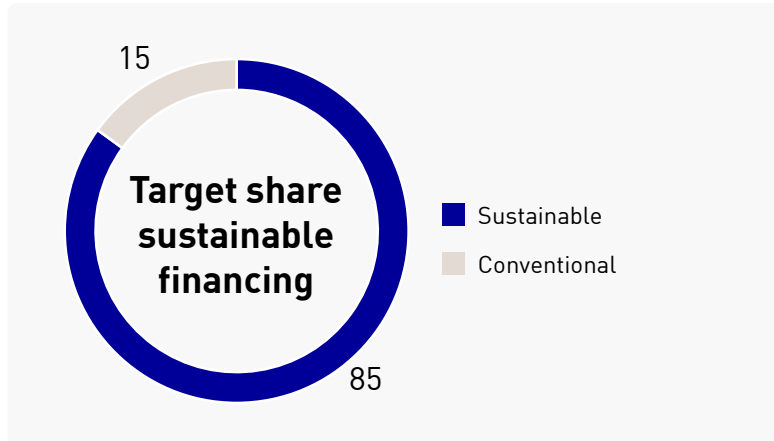
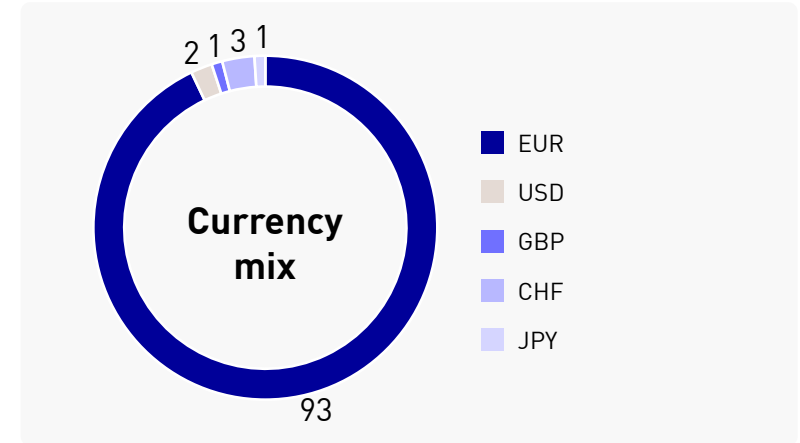
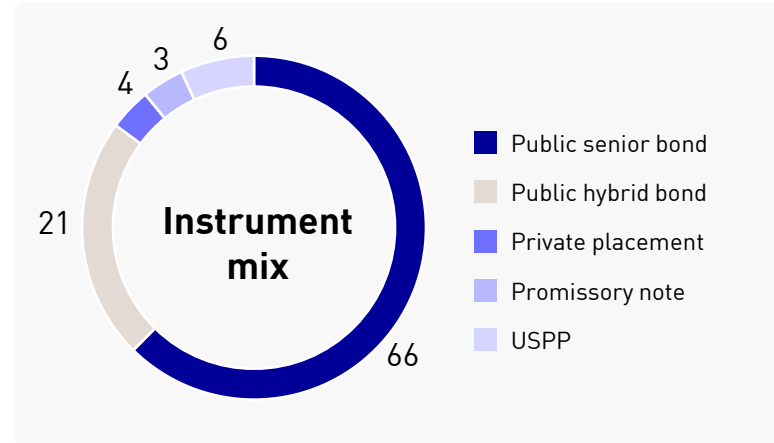
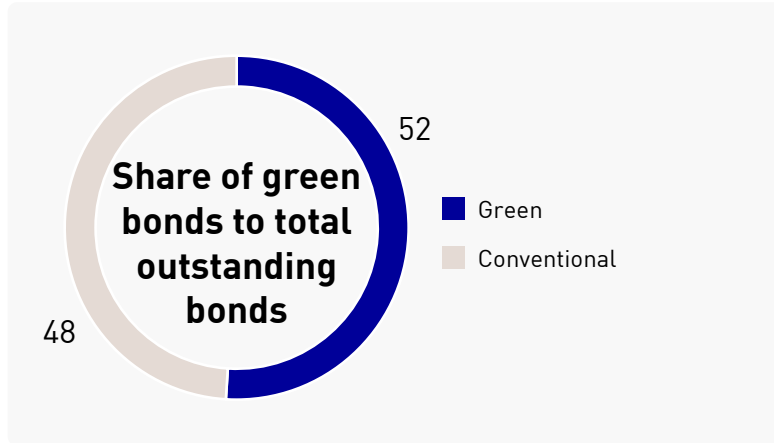
<sup>1</sup> Due to rounding, individual values may not add up to the total value. | <sup>2</sup> Part of renewables since 1 January 2024. | <sup>3</sup> Previous figures restated due to reallocation of pumped storage.

# Additional information: Funding

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# Prepared to scale up in diversification

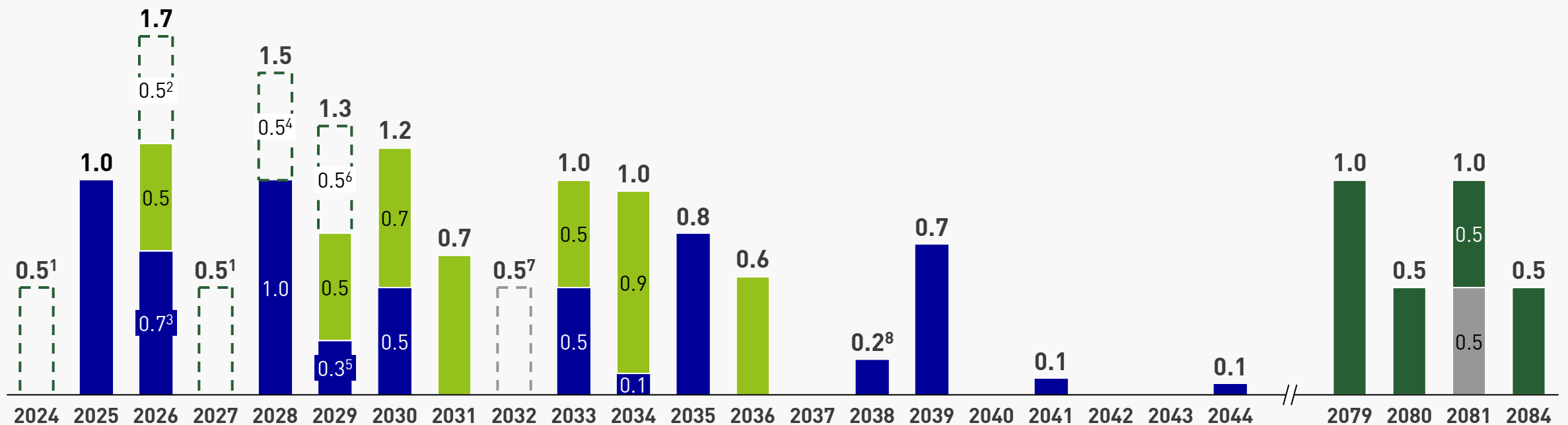
in %



# Maturities of outstanding bonds

in € bn  
as of 30 June 2024

■ Senior bonds        First call dates of hybrid bonds        Hybrid bonds  
■ Green senior bonds        First call dates of green hybrid bonds        Green hybrid bonds

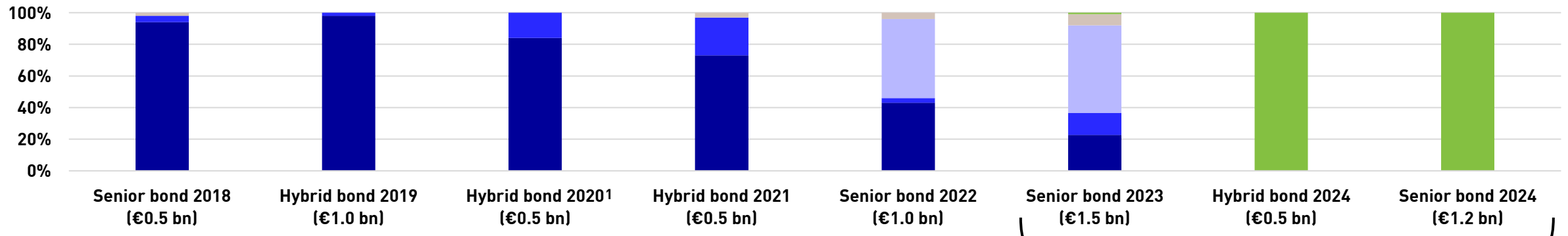


<sup>1</sup> First call date: green hybrid maturing in 2079. Hybrid is due to be redeemed on 5 November 2024. | <sup>2</sup> First call date: green hybrid maturing in 2080. | <sup>3</sup> Includes CHF 165 m | <sup>4</sup> First call date: green hybrid maturing in 2081. | <sup>5</sup> CHF 245 m | <sup>6</sup> First call date: green hybrid maturing in 2084. | <sup>7</sup> First call date: hybrid maturing in 2081. | <sup>8</sup> JPY 20 bn (swap in €), coupon after swap 5.460%.

# Allocation of eligible green assets to green bonds reflects largely the value chain of a fully integrated utility



## Allocation to green bonds



<sup>1</sup> The proceeds were used to refinance the acquisition of French wind and solar company Valeco in 2019. The split is based on the generation capacity for wind and solar.

The proceeds will be fully allocated within 24 months after the issuance

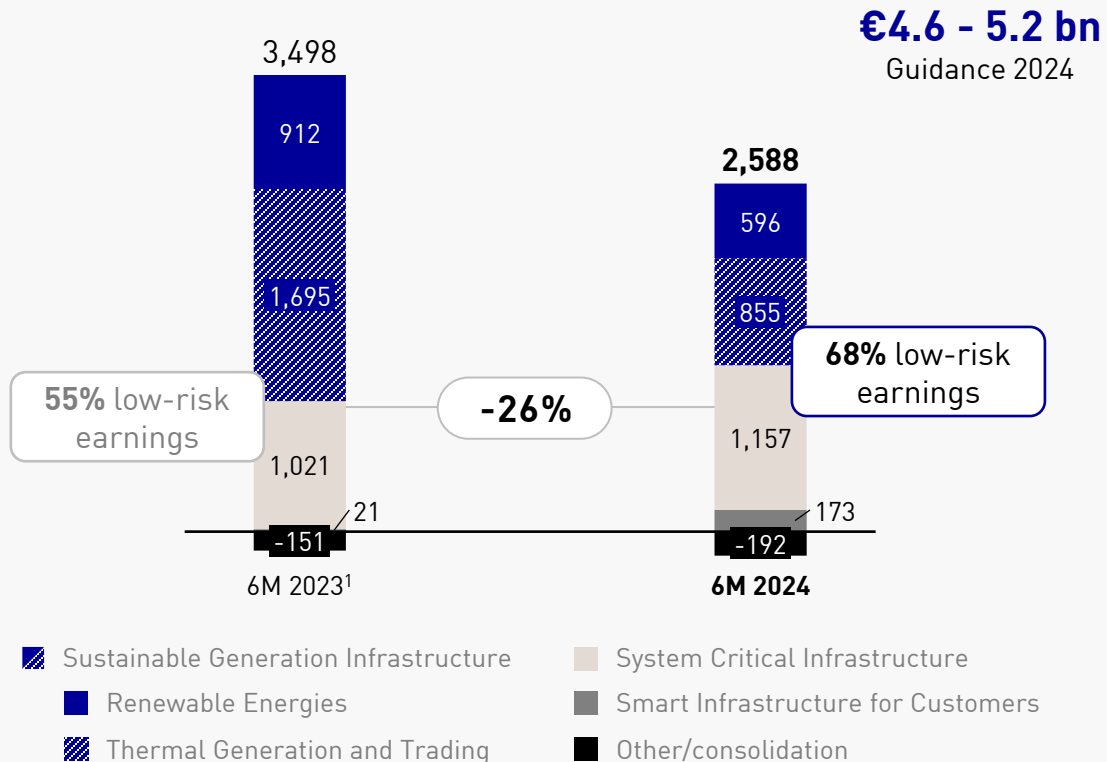
# Additional information: Financial overview

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# Adjusted EBITDA in H1 2024 in line with the normalisation of the power price environment

## Adjusted EBITDA

in € m



### Renewable Energies

- Pumped storage earnings contribution below exceptionally high level in the previous year

### Thermal Generation and Trading

- Return to normalized earnings level after very high earnings contribution in 2023

### Transmission and distribution grids

- + Higher earnings as a result of increased investments in grid expansion

### Customer business

- + Absence of negative prior-year effect due to deconsolidation of our subsidiary

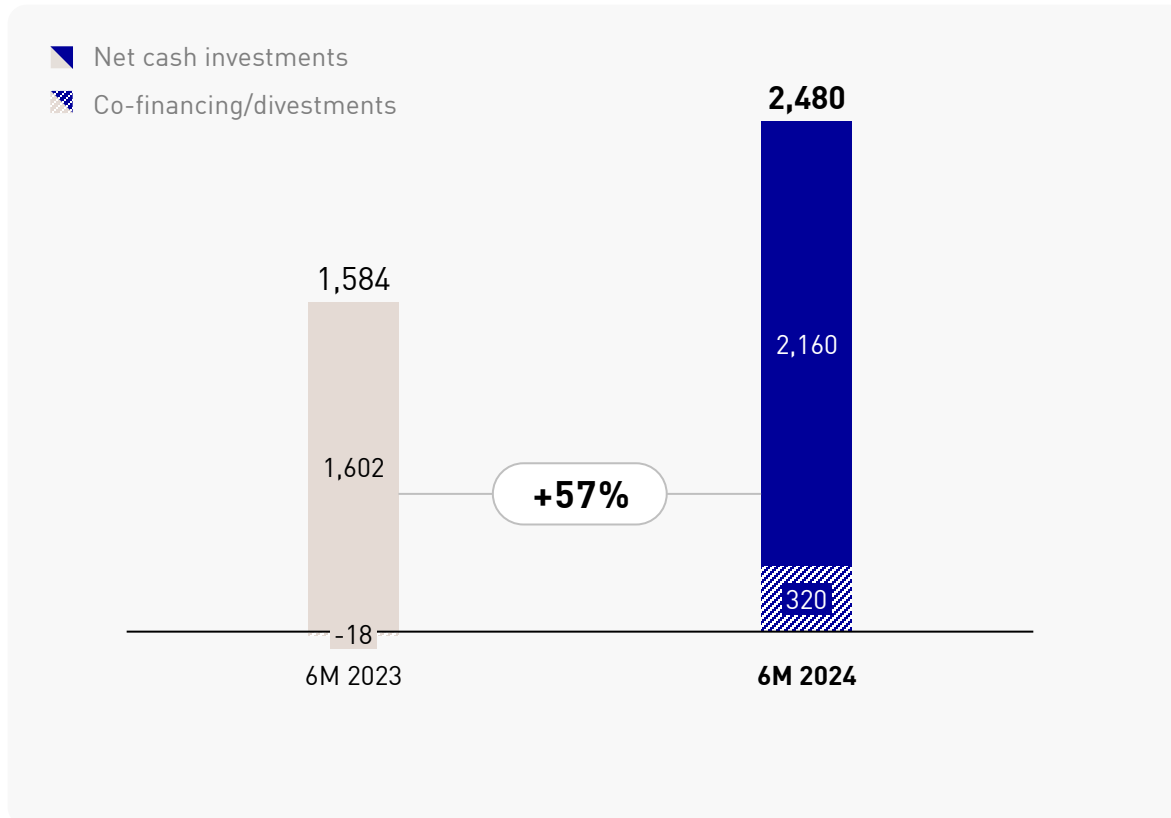
<sup>1</sup> Previous year's figures restated due to reallocation of pumped storage.



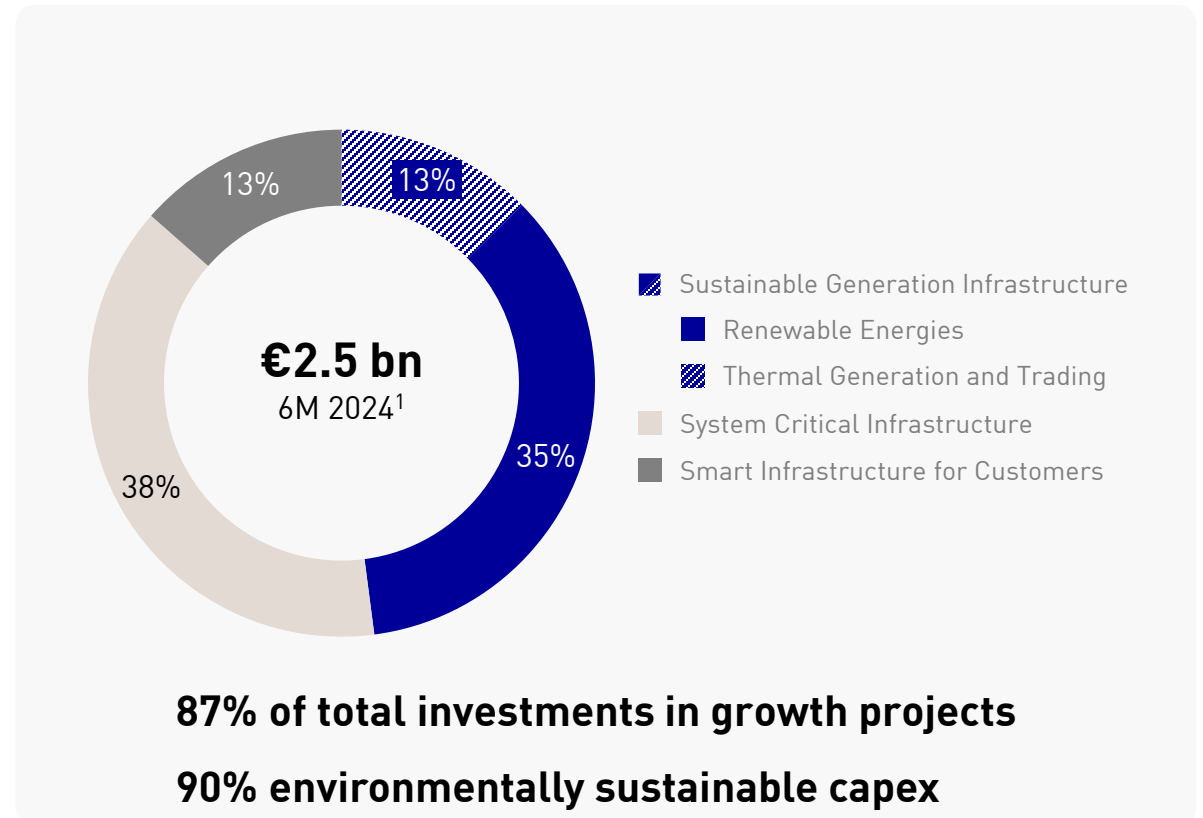
# Accelerated investments in renewables and grids in H1 2024

## Total investments

in € m



## Investments by segments

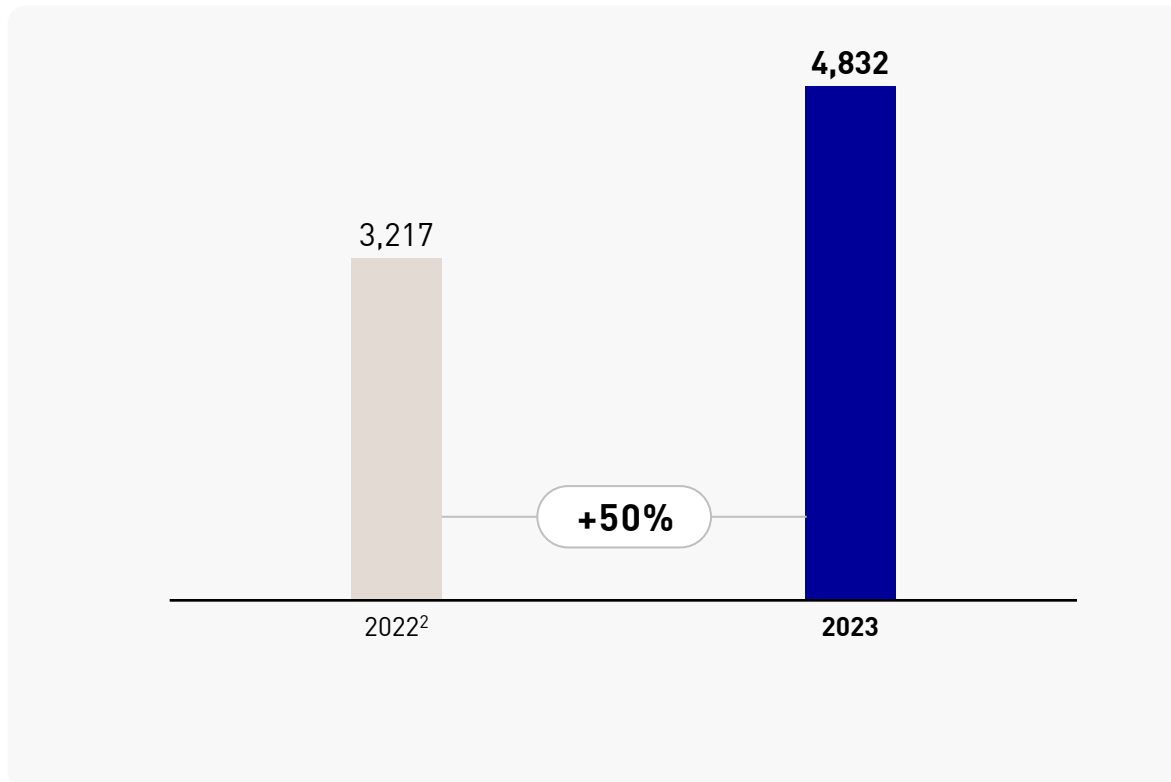


<sup>1</sup> Chart doesn't add up to 100% due to investments in Other/consolidation with €22m in 6M 2024.

# Retained cash flow<sup>1</sup>

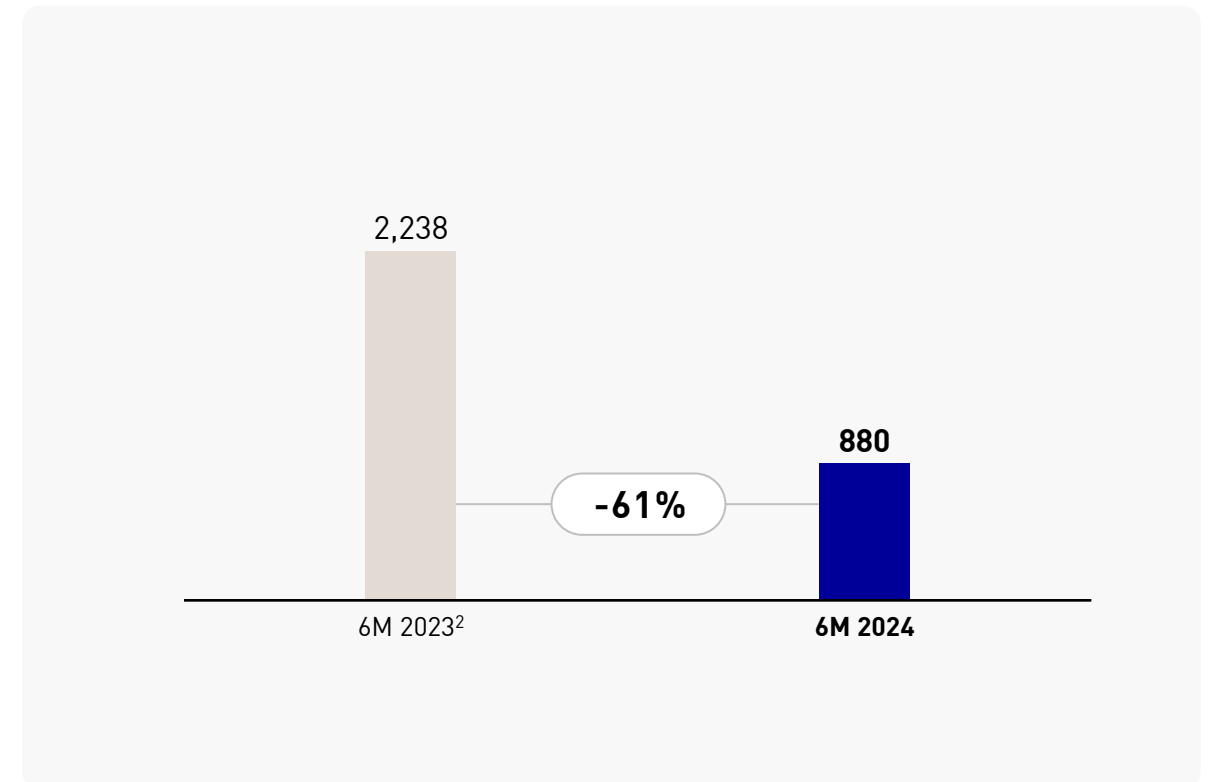
2023: Retained cash flow increased to €~4.8 bn in light of higher FFO driven by strong operating earnings

in € m



RCF in the first 6 months with €0.9 bn marked by normalized adjusted EBITDA and higher dividends

in € m

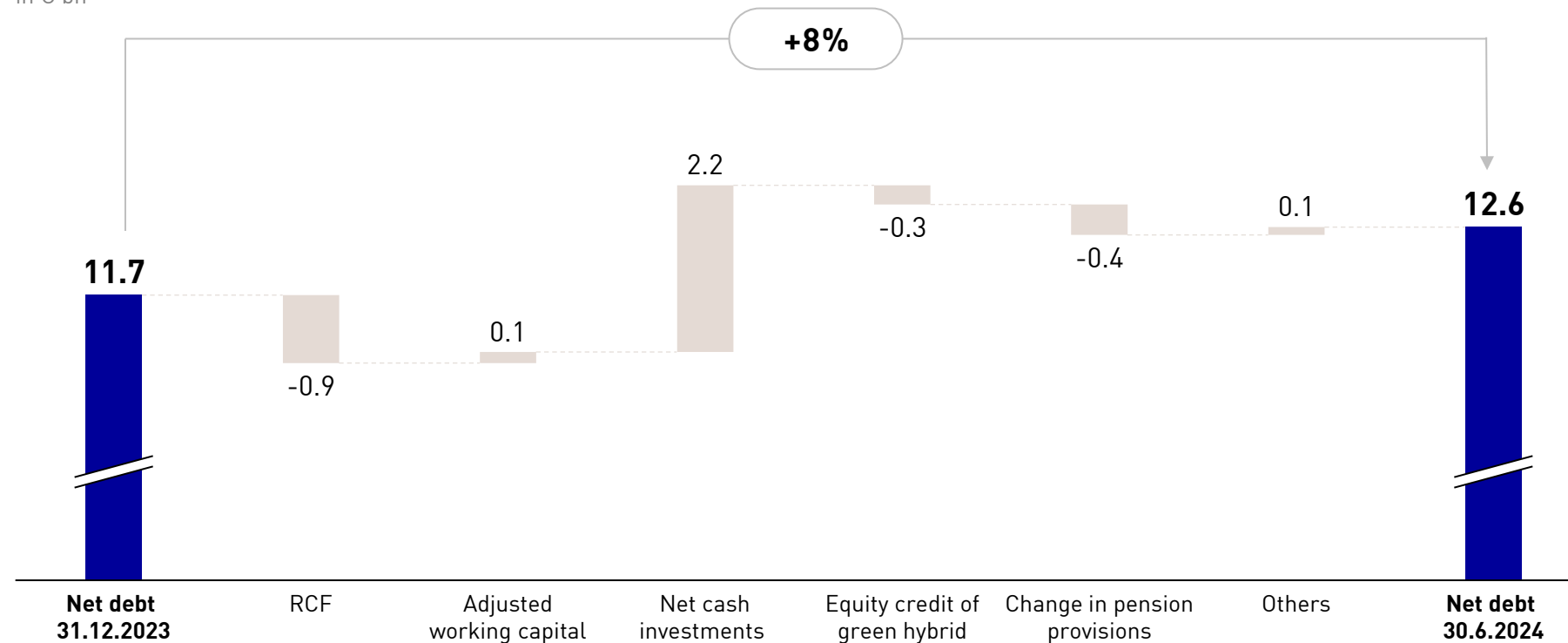


<sup>1</sup> After covering interest expenses, taxes and dividend payments, the retained cash flow is available to the company for investment without the need to raise additional debt. | <sup>2</sup> Previous year's figures restated.

# Net debt in H1 2024 increase driven by higher investments

## Net debt

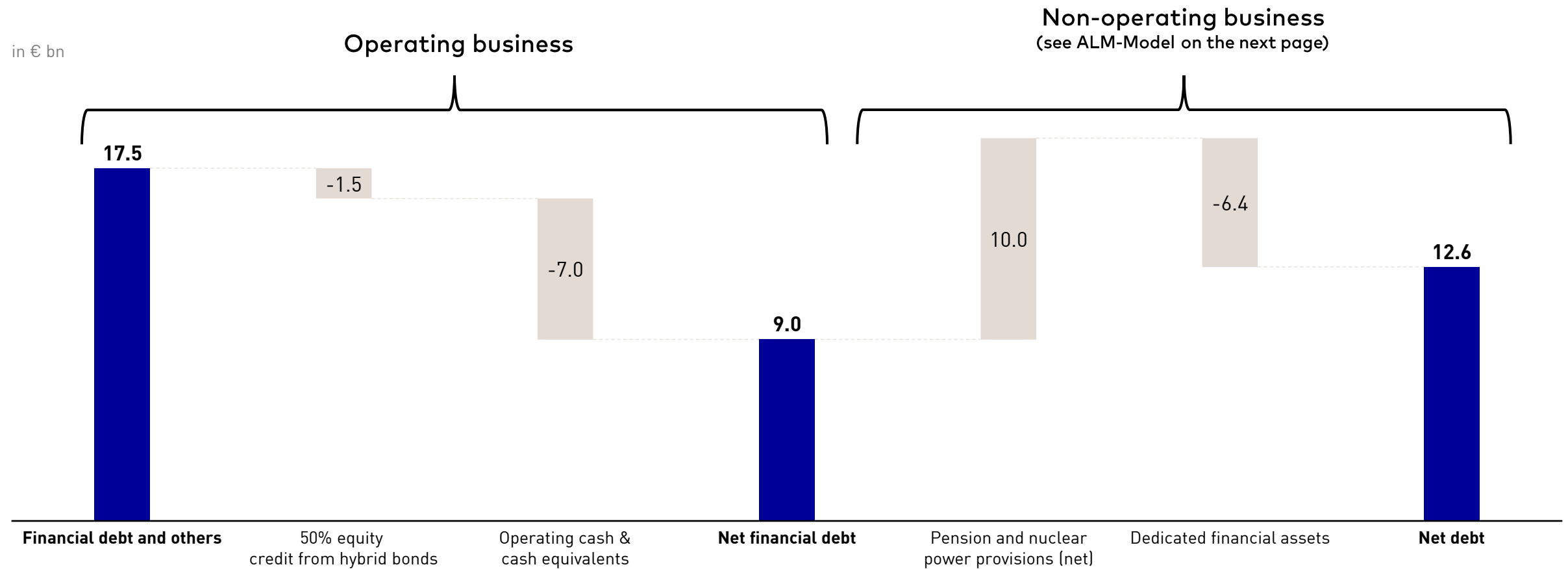
in € bn



- Debt repayment potential target of **≥15%**<sup>1</sup>
- Current credit ratings: **A-/Baa1**
- Commitment to maintain **solid investment grade ratings**

<sup>1</sup> Retained cash flow/net debt.

# EnBW manages its provisions independently from the operating business<sup>1</sup>

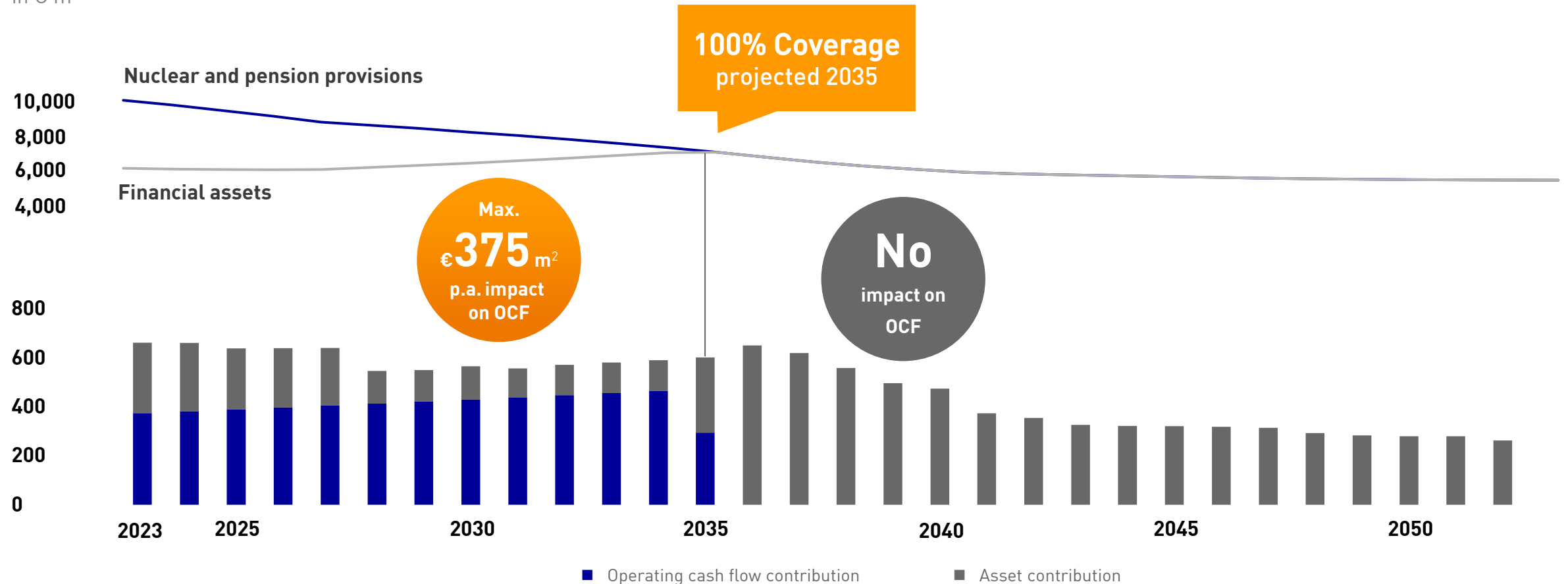


<sup>1</sup> Numbers as of 30 June 2024.

# Asset Liability Management Model limits the impact on the operating cash flow<sup>1</sup>

## EnBW's cash flow-based model

in € m



<sup>1</sup> As of December 2023. | <sup>2</sup> Adjusted for inflation.

# Multi-year overview (1/2)

		2023	2022	2021	2020	2019
<b>Earnings</b>						
External revenue	€ mn	44,431	56,003	32,148	19,694	19,436
Adjusted EBITDA <sup>1</sup>	€ mn	6,365	3,967	2,959	2,781	2,433
Adjusted Group net profit/loss <sup>1,2</sup>	€ mn	2,780	1,413	1,203	683	787
Earnings per share <sup>2</sup>	€	5.68	6.42	1.34	2.20	2.71
Dividend per share/dividend payout ratio <sup>3</sup>	€ / %	1.50/15	1.10/31	1.10/36	1.00/40	0.70/40
<b>Balance sheet</b>						
Equity	€ mn	15,853	12,769	8,499	7,769	7,445
Net debt <sup>4</sup>	€ mn	11,703	10,847	10,351	14,407	12,852
Net financial debt <sup>4</sup>	€ mn	7,558	7,214	4,466	7,232	6,022
<b>Cash flow</b>						
Retained cash flow <sup>1</sup>	€ mn	4,832	3,217	1,784	1,639	1,241
Debt repayment potential <sup>1,4,5</sup>	%	41.3	29.7	17.2	11.4	-
Internal financing capability <sup>5</sup>	%	-	-	-	102.8	90.0
<b>Profitability</b>						
ROCE <sup>1,6</sup>	%	17.6	10.9	6.9	6.3	5.2
Value spread <sup>1,6</sup>	%	10.2	4.1	2.0	-	-

<sup>1</sup> The figures for the 2022 financial year have been restated. | <sup>2</sup> In relation to the profit/loss attributable to the shareholders of EnBW AG. | <sup>3</sup> The dividend payout ratio for 2022 was calculated based on the adjusted Group net profit before the restatement of the figure for the previous year. Adjusted for the valuation effects of IFRS 9 in 2021 and 2019. | <sup>4</sup> For the calculation of the net debt and debt repayment potential, please refer to the section "The EnBW Group" of the management report. | <sup>5</sup> The debt repayment potential replaced the internal financing capacity as a key performance indicator in 2021. | <sup>6</sup> The value spread replaced the return on capital employed (ROCE) as a key performance indicator in 2022.

# Multi-year overview (2/2)

		2023	2022	2021	2020	2019
<b>Energy sales</b>						
Electricity	bn kWh	81	106	108	107	153
Gas	bn kWh	548	509	495	442	362
<b>Sustainable Generation Infrastructure</b>						
External revenue	€ mn	20,832	30,543	13,804	6,064	6,623
Adjusted EBITDA <sup>1</sup>	€ mn	4,648	2,616	1,540	1,278	925
<b>System Critical Infrastructure</b>						
External revenue <sup>1</sup>	€ mn	6,328	6,679	4,413	3,657	3,460
Adjusted EBITDA <sup>1</sup>	€ mn	1,772	1,058	1,263	1,347	1,355
<b>Smart Infrastructure for Customers</b>						
External revenue <sup>1</sup>	€ mn	17,249	18,755	13,924	9,965	9,350
Adjusted EBITDA <sup>1</sup>	€ mn	240	498	344	335	326

<sup>1</sup> The figures for the 2022 financial year have been restated.

# Additional information: Energy sector in Germany

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# The electricity and gas value chains in the German energy industry

The energy industry is divided into the two areas of electricity and gas along comparable stages of the value chain. Electricity and gas are both non-differentiable goods ("commodities"). For this reason, each stage of the value chain is managed separately from the others.

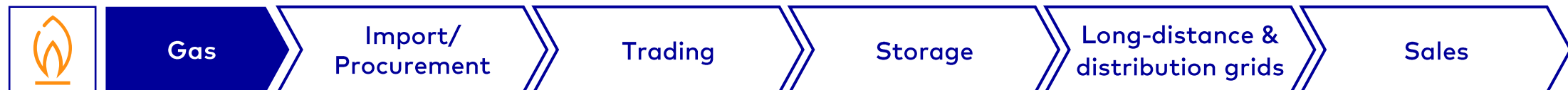
## Electricity value chain

- Generation provides the electrical energy. Trading ensures the procurement and marketing of electricity and is responsible for risk management
- The transmission grids transport the electricity via the extra-high-voltage grids, assuming the responsibility for the technical system and the security of supply
- Distribution grids bring the electrical energy to customers at lower voltage levels and take on the generation of most renewable energy systems (wind, solar PV). The distributors supply the electricity to customers via customer contracts.



## Natural gas value chain

- Exploration and production (E&P) does not play a significant role in the gas value chain in Germany
- Natural gas is supplied on the basis of import contracts via pipelines and, in the future, via liquefied natural gas (LNG)
- Storage plays an important role in the gas value chain in order to compensate for the strong seasonality of demand for heating energy
- The good storability of natural gas compared to electricity is exploited here. The downstream value chain stages of trading, transmission and distribution networks and sales are similar to the electricity value chain.

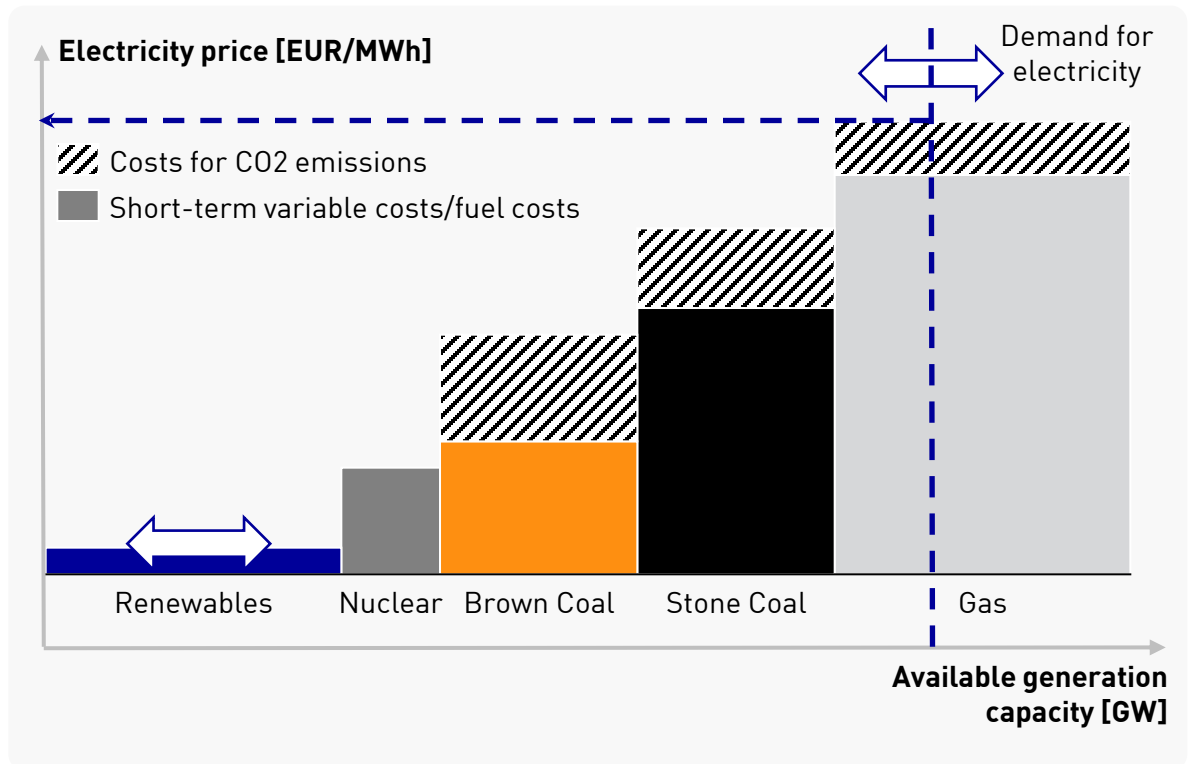


# Prices on the wholesale electricity market are formed according to the merit order principle

## Merit order, marginal costs and price volatility

- The merit order is the sequence of available generation capacity in a period sorted in ascending order according to variable electricity generation costs
- The electricity generation costs depend largely on the costs of the fuels used and the costs of CO<sub>2</sub> emissions
- The variable electricity generation costs (short-term marginal costs) of the generation unit that is just needed to cover demand in the period under consideration determine the short-term electricity market price (in the example on the right: gas-fired power plants)
- As demand and the available generation capacity, especially of renewable energies, vary, significant short-term price differences can occur between individual hours

## Pricing - merit order schematic



**> The marginal costs vary not only by technology, but also depend on the size, age, location, efficiency or subsidization of the systems, among other factors**

# Electricity trading as a key interface between generation and sales

## Purpose of electricity trading

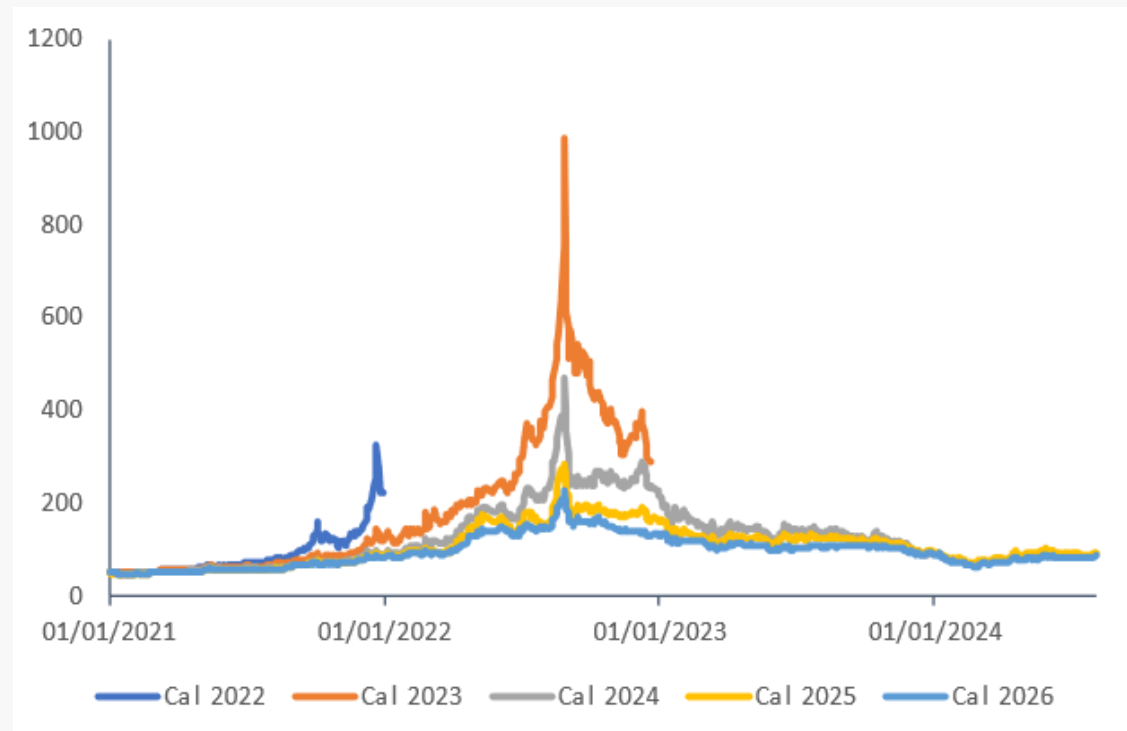
- **Access to wholesale:** procurement and marketing of electricity
- **Risk management:** reduction of market price risks by hedging generation positions

## Spot and future market

These markets are differentiated by the different lead times between the conclusion of the transaction and the start of delivery.

- **Spot market** transactions are characterized by **short lead times**. Transactions are concluded on the day before (day-ahead) or on the day of delivery (intraday). Individual transactions generally have delivery periods of a few hours and quarters of an hour. Spot market transactions are used to create a short-term balance between supply and demand.
- Transactions for deliveries with **longer lead times** are carried out on the **futures market**. As a rule, transactions are concluded for up to three years into the future and are therefore used to hedge medium-term market risks.

## Forward prices for electricity Baseload Germany 2022 - 2026 in EUR/MWh



# The prices of the grid monopolies and their relationship to distribution and generation are regulated



- Since competition between several networks in an area would be economically inefficient, networks represent a **natural monopoly** that is regulated
- The regulator's **unbundling requirements** govern the relationship between the grid operators and the competitive areas (generators and sales) and their exchange of information
- The aim of unbundling is to ensure **equal treatment of all market participants** despite the monopoly position of the grid operator

## Electricity and gas regulation periods

Base year for following RP

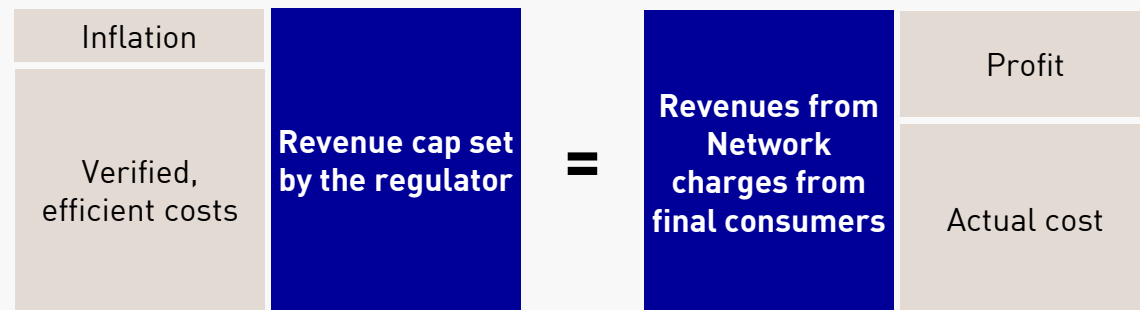
3rd regulation period gas					4th regulation period gas					...
2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
...	3rd regulation period electricity				4th regulation period electricity					

- In order to ensure **cost-efficient grid operation**, the formation of grid prices - grid fees - is subject to so-called **incentive regulation**
- This determines the grid operators' revenues based on the costs of the so-called **base years for five-year regulatory periods**

# Revenues of the grid monopolies are determined as part of incentive regulation

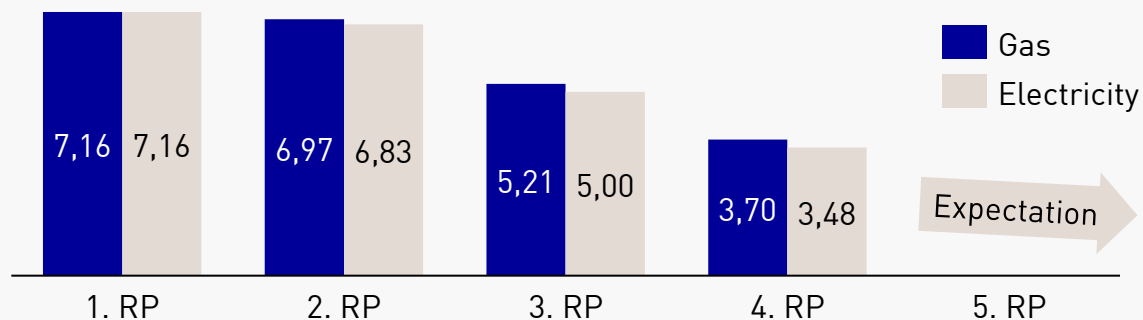
## Incentive regulation

### Schematic representation of the regulatory formula



### Development of the regulatory return on equity for new investments over the five regulatory periods (RP)

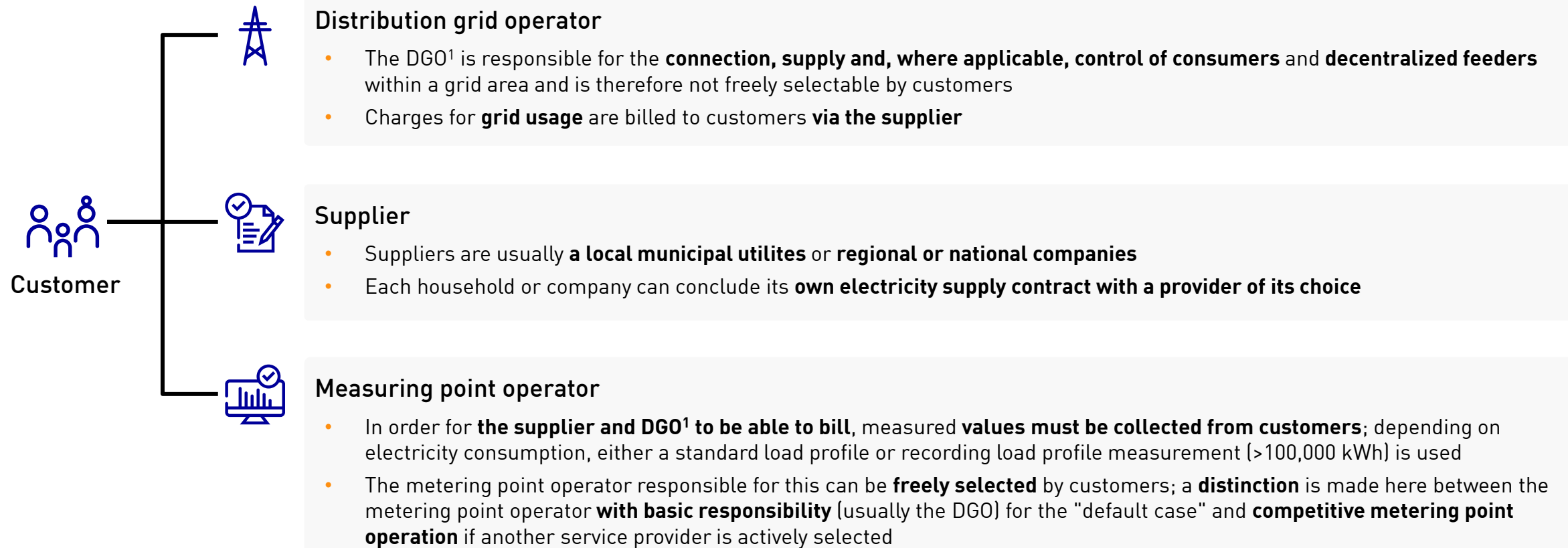
in % p.a. before corporation and trade tax



- Incentive regulation provides for the determination of the grid operator's sales revenue as an **annual revenue cap**, which is passed on to all consumers as **grid fees**
- To this end, the regulatory authority determines the efficient costs of each grid operator every five years, in the so-called **base year**, and translates them into the individual revenue cap using the regulatory formula
- Grid operators are compared in terms of their efficiency and receive an **efficiency score**. It describes the ratio of efficient to inefficient costs: **inefficient costs must be reduced** within a regulatory period; **efficiency increases** beyond this can be recognized as **profit**
- In addition, the **grid operators** are entitled to an appropriate **return on their capital employed**, which is calculated on the basis of past interest rates (over the last ten years)
- **Changes in the general interest rate level are therefore only taken into account in regulation** with a delay, while grid revenues are **protected against inflation risks** by linking the revenue cap to the consumer price index
- Comprehensive **understanding of the regulator's mindset and methods** is a key success factor for a network operator

# In addition to the supplier, customers interact with distribution and metering point operators

## Market roles at the customer interface

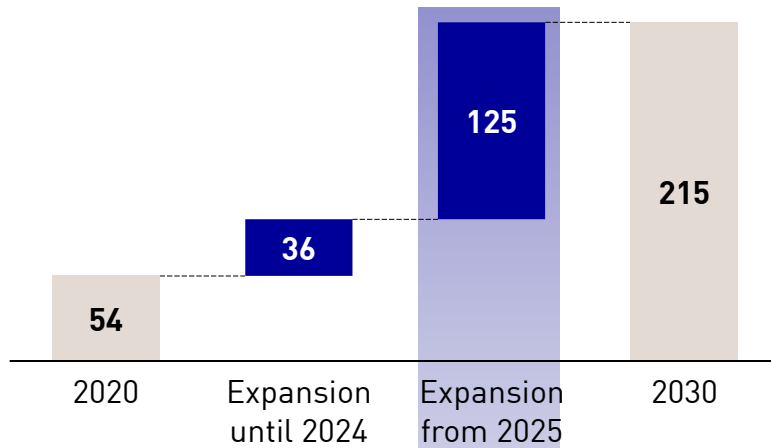


<sup>1</sup> Distribution Grid Operator.

# An unprecedented expansion of renewables is required to achieve the climate targets in Germany



**PV - Installed capacity/additions<sup>1</sup>**  
in GW



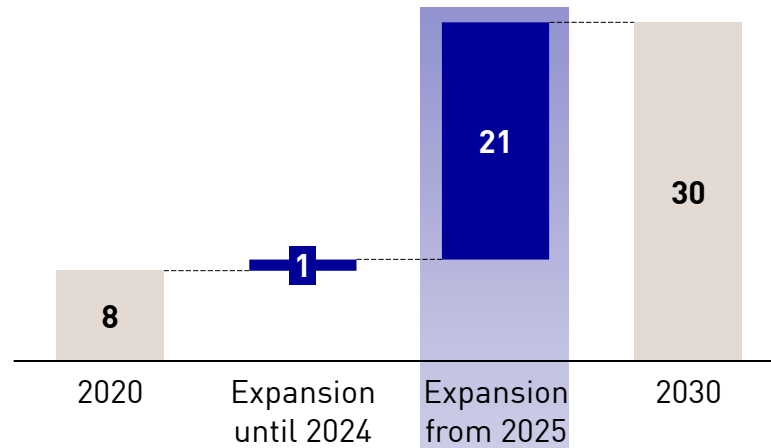
Required addition per working day (from 2025)

**90 MW PV**

... approx. a solar park in the size of 800,000 m<sup>2</sup>/day



**Wind Offshore - Installed capacity/additions**  
in GW



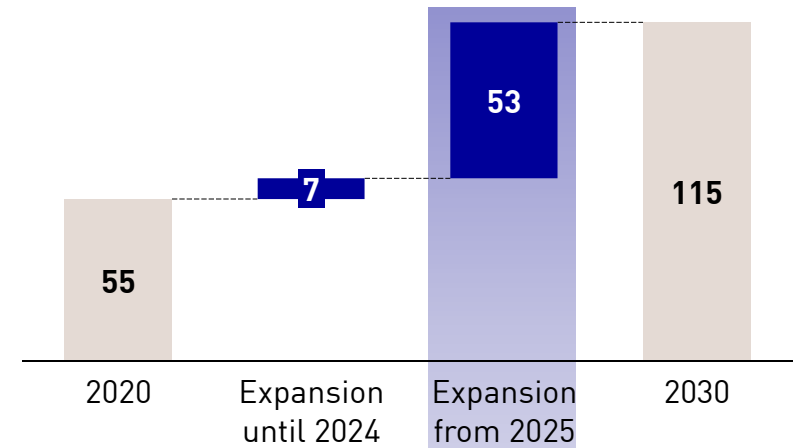
+

**15 MW Offshore**

... approx. a park like He Dreiht every 2 months



**Onshore wind - Installed capacity/additions**  
in GW



+

**30 MW Onshore**

... approx. 7 turbines/day

<sup>1</sup> Expansion from 2025 based on EEG expansion targets up to 2030.

**Additional information:  
Calendar, links and contacts**

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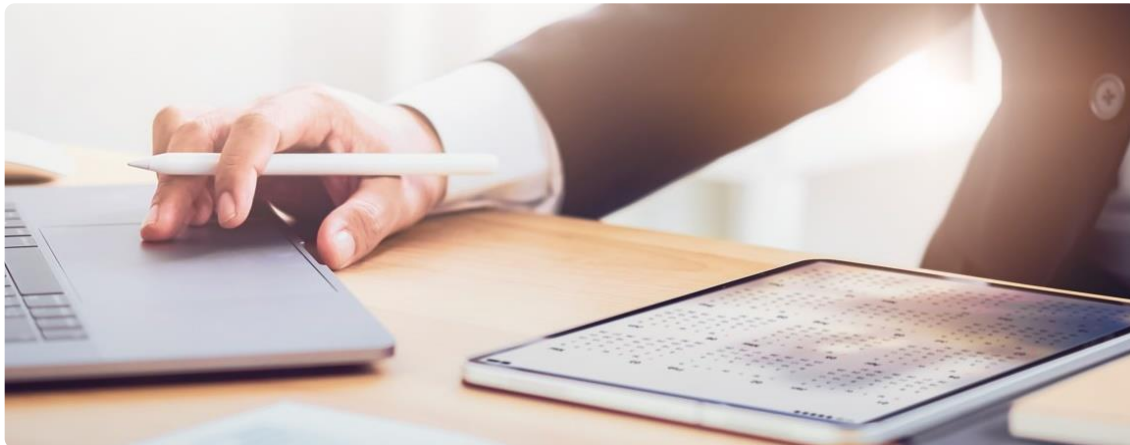


# Financial calendar and important links

## Upcoming events



**Publication reporting 9M 2024**  
 12 November 2024, 02:00 p.m. (CET)  
 Investor and analyst conference call




## Important links



<b>Integrated Annual Report 2023</b>	<a href="#">Download now</a> (PDF, 4.7 MB)
<b>Green Bond Impact Report 2023</b>	<a href="#">Download now</a> (PDF, 3.6 MB)
<b>Factbook 2023</b>	<a href="#">Download now</a> (PDF, 11.5 MB)
<b>Green Financing Framework 2024</b>	<a href="#">Download now</a> (PDF, 5.6 MB)
<b>ESG Factbook 2024</b>	<a href="#">Download now</a> (PDF, 8.6 MB)
<b>EnBW Climate Transition Plan 2024</b>	<a href="#">Download now</a> (PDF, 2.5 MB)
<b>EnBW Investor website</b>	<a href="#">Open in browser now</a>

# Key contacts

 EnBW Investor website

 investor.relations@enbw.com





**Marcel Münch**  
SVP Finance, M&A  
and Investor Relations  
 +49 721 63 16 102  
 ma.muench@enbw.com



**Lenka Zikmundova**  
Head of Investor Relations  
 +49 721 63 12 210  
 l.zikmundova@enbw.com



**Peter Berlin**  
Head of Finance  
 +49 721 63 12 844  
 p.berlin@enbw.com

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## EnBW Energie Baden-Württemberg AG

### Investor Relations

✉ [investor.relations@enbw.com](mailto:investor.relations@enbw.com)

☎ +49 721 63-12060

Durlacher Allee 93

76131 Karlsruhe, Germany

Companies registered office: Karlsruhe, Germany

Local court Mannheim · HRB no. 107956

Chairman of the Supervisory Board: Lutz Feldmann

Board of management: Dr. Georg Stamatelopoulos (Chairman), Thomas Kusterer (Deputy Chairman),

Dirk Güsewell, Peter Heydecker, Colette Rückert-Hennen