

December 2023



# EnBW Investor presentation >



# EnBW's integrated business model proves resilience in times of market volatility and geopolitical change



## Integrated portfolio approach

- The only German utility covering the entire value chain
- Stabilizing the energy system, providing security of supply and driving the German energy transition



## High share of low-risk business

- Regulated grids and contracted or guaranteed renewables earnings are anchor of stability
- 66% EBITDA contribution from low-risk business in 2022



## Prudent hedging strategy

- Natural hedge of own generation and sales activities de-risks unfavorable price movements
- Earnings locked-in by hedging for up to 3 years and growing long-term (10y+) PPA footprint



## Strong ESG focus

- Accelerated coal exit by 2028
- Paris-aligned with a 1.5°C path for own emissions approved by SBTi
- Climate neutrality target 2035



## Strong financial performance

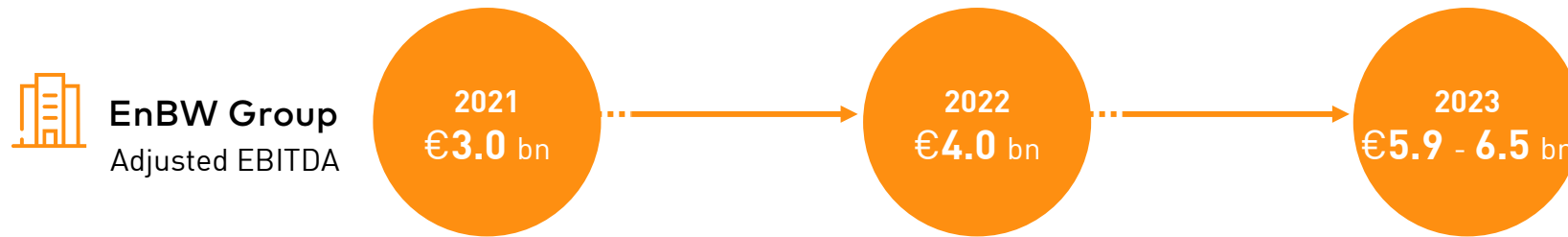
- FY2022 earnings performance well above guidance despite challenging market environment
- Significant growth potential from strong political commitment to accelerate energy transition
- Adjusted EBITDA guidance FY23: €5.9 to 6.5 bn (+48 to +63%)



## Stable government-related shareholder structure

- Federal state of Baden-Württemberg and OEW (an association of counties) > 93% of share capital
- The shareholder structure has remained virtually unchanged and thus very stable since 2011

# Strong performance despite significant headwinds in 2022

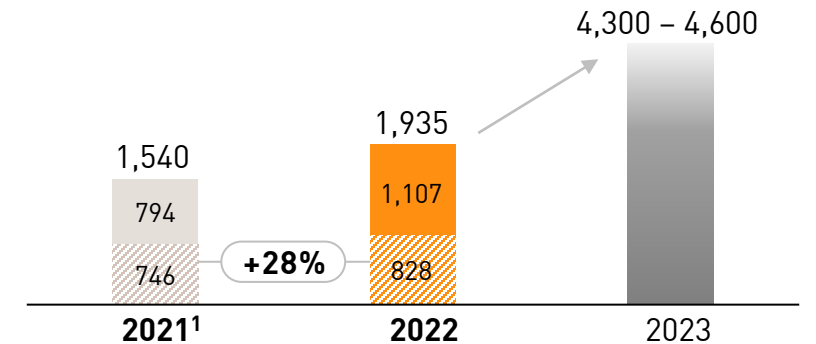
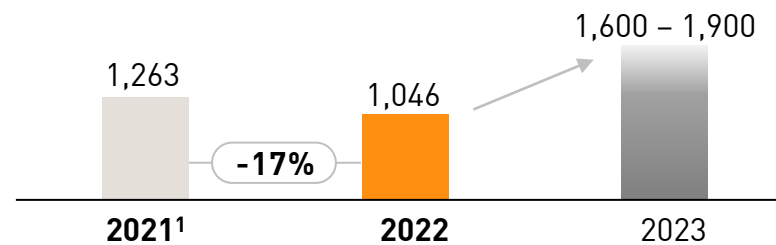
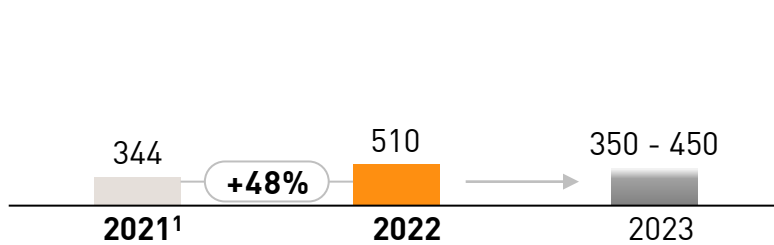


Adjusted EBITDA in € m

## Smart Infrastructure for Customers

## System-Critical Infrastructure

## Sustainable Generation Infrastructure



energy prosumer connected home  
 digital services heat transition eco-oriented providers  
 autarchy **sustainability** price increases  
 increasing customer expectations **green energy tariffs**  
 upward trend in e-mobility

e-mobility smart grids  
 volatile electricity generation **grid stability** HVDC  
 transmission grids electricity  
 Baden-Württemberg **hydrogen** distribution grid  
 infrastructure higher demand

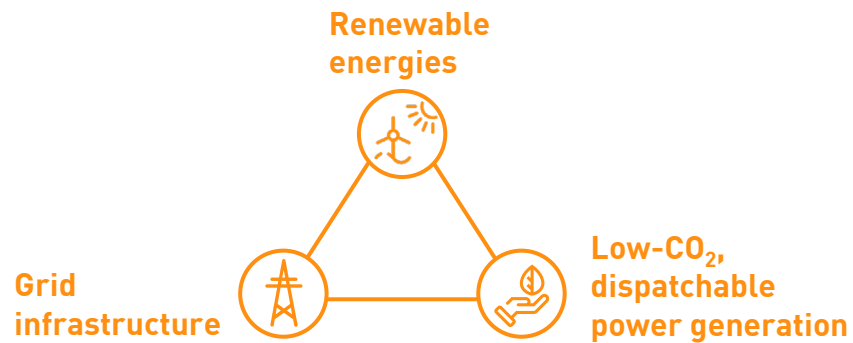
coal phase-out increased CO<sub>2</sub> prices  
 conventional power back-up **renewable energy** solar and offshore wind in Germany  
 increasing electricity demand **high commodity prices** fuel switch

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

# Significant investment volume accelerates energy transition



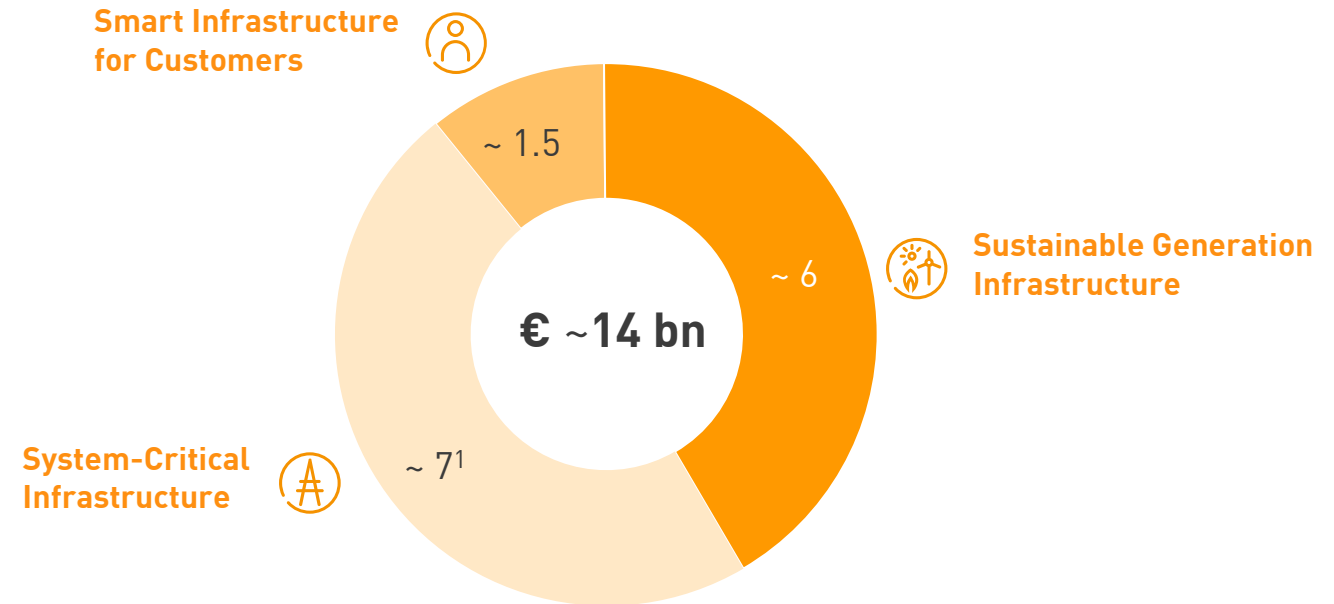
## Triangle of energy transition



- Significant progress has to be made in all three fields simultaneously – rather than sequentially - to realize the energy transition in Germany within the contemplated time frame

## Total investment volume 2023 - 2025

in € bn



- Being the only fully integrated utility in Germany EnBW implements major projects in all dimensions
- EnBW has a holistic view of the energy transition in all its facets

<sup>1</sup> Investments in transmission grids, distribution grids, water grid and grids services

# Renewables and flexible power plants complement each other


 **Renewable Energies**
**In operation 2022**

- Offshore wind 1 GW
- Onshore wind 1 GW
- Solar 0.8 GW

**Targets 2025**

- Share of generation capacity >50%
- Renewable Energies 6.5 – 7.5 GW

**Climate neutral gases**

- Exclusive offtake rights for green ammonia
- Hydrogen from beginning of 2030s

 **Investments RE 2023 - 2025** €~4 bn


 **Thermal Generation**
**Coal exit 2028**

- Coal 33% of generation capacity (2022)
- Share adjusted EBITDA < 5% (2022)
- Share external revenue < 5% (2022)

**Nuclear exit 15 April 2023<sup>1</sup>**

- 9% of generation capacity (2022)

**Reserve power plants**

- 1.7 GW<sup>2</sup>

**Fuel switch projects: H<sub>2</sub>-ready**

- 1.5 GW (COD 2025/26)


 **Energy Trading**
**Hedging policy**

- Hedging generation and sales position against high volatility
- Contracts are closed on a back-to-back basis
  - Hedge levels<sup>3</sup>: 90 – 100% for 2024, 50 – 80% for 2025; 10 – 40% for 2026

**Strategic dimensions**

- Further growing LNG sourcing
- Further diversification of gas and coal procurement
- Regional expansion into CWE/Nordics

<sup>1</sup> Limited extension for three German nuclear power plants until 15 April 2023 including EnBW's power plant Neckarwestheim 2

<sup>2</sup> Not included in EnBW's generation portfolio

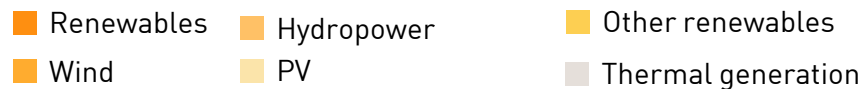
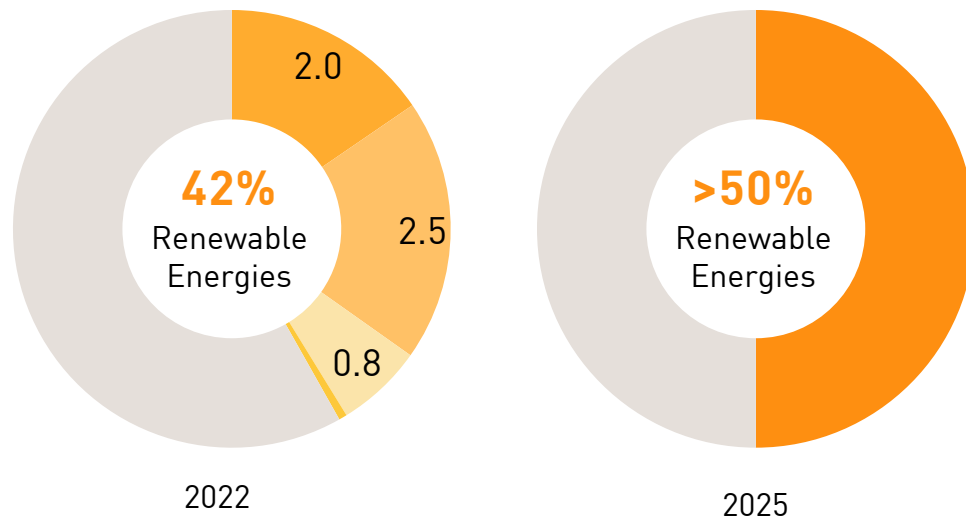
<sup>3</sup> As of 30 September 2023

# Focus on large-scale expansion of renewable energies

## Generation portfolio

in GW

13.1 GW of which 5.4 GW renewables



## Secured pipeline including project development<sup>1</sup>

 **PV**  
• ~7.7 GW

 **Wind onshore**  
• ~7.1 GW

 **Wind offshore**  
• ~5.9 GW

### EnBW focuses on Europe for the expansion of offshore wind power

#### Irish sea

- Combined capacity of 3 GW  
Expected FID 2026 / COD 2029



#### Scotland

- Capacity of 2.9 GW  
Expected FID 2026 / COD 2030

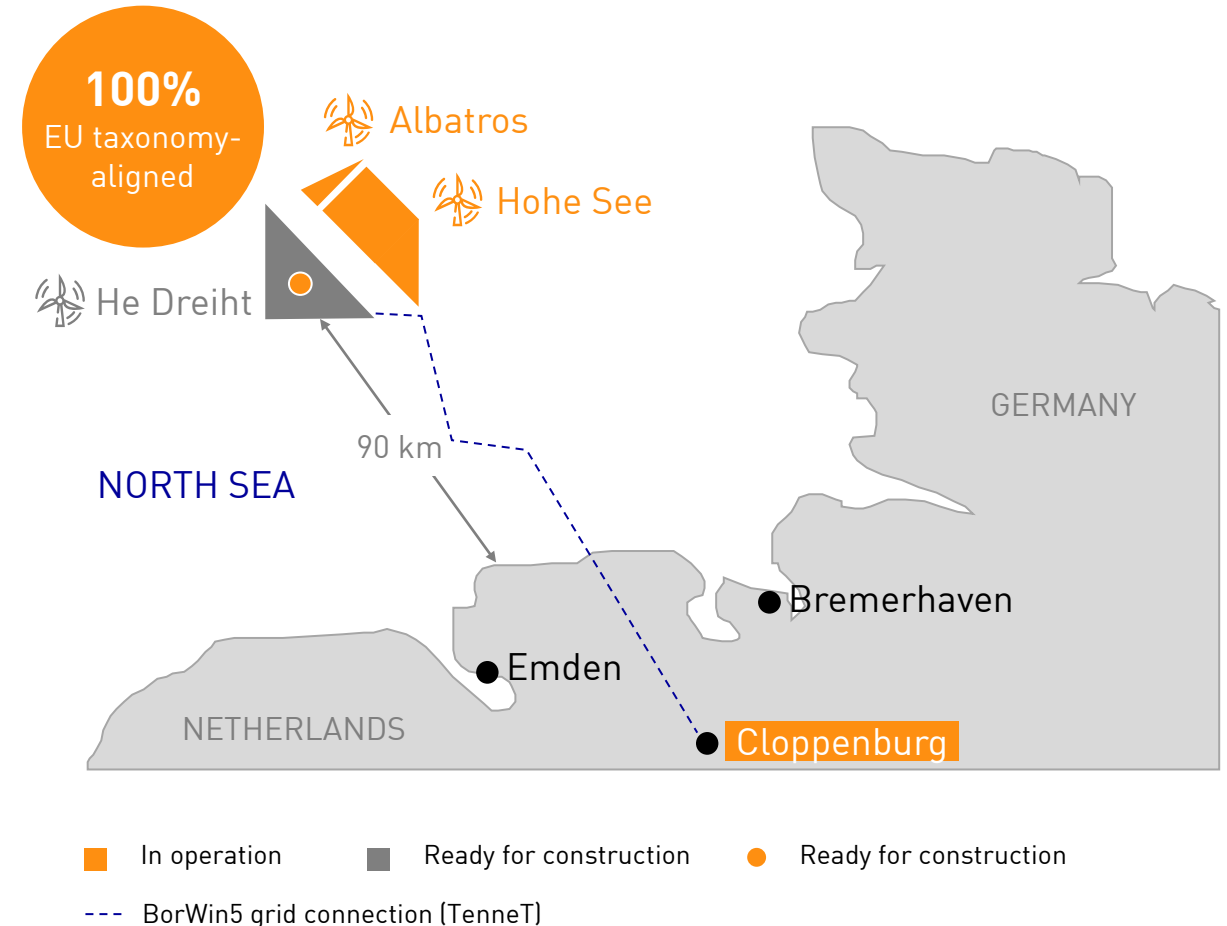


<sup>1</sup> As of 30 June 2023

# EnBW realizes first fully merchant offshore wind project in Germany

## He Dreiht

- One of the first offshore wind projects worldwide that committed to be delivered on zero-subsidy in an auction in 2017
- FID March 2023 / Planned COD 2025
- 960 MW installed capacity - largest turbines to date with 15 MW each (64 Vestas turbines)
- Investment volume of €2.4 bn
- Investment secured with strong partners; commencement of construction in partnership with a consortium of infrastructure funds (49.9% minority stake) - Allianz Capital Partners, AIP, Norges Bank (March 2023)
  - EnBW as long-term operator providing all relevant services during the lifetime of the windfarm
  - Comprehensive portfolio of 455 MW long-term PPAs concluded with financially solid offtakers – Fraport, Evonik, Salzgitter, Bosch, Deutsche Bahn and PASM
  - EnBW equity contribution supplemented through a €600 m long-term loan by EIB and a €500 m long-term loan by EIFO



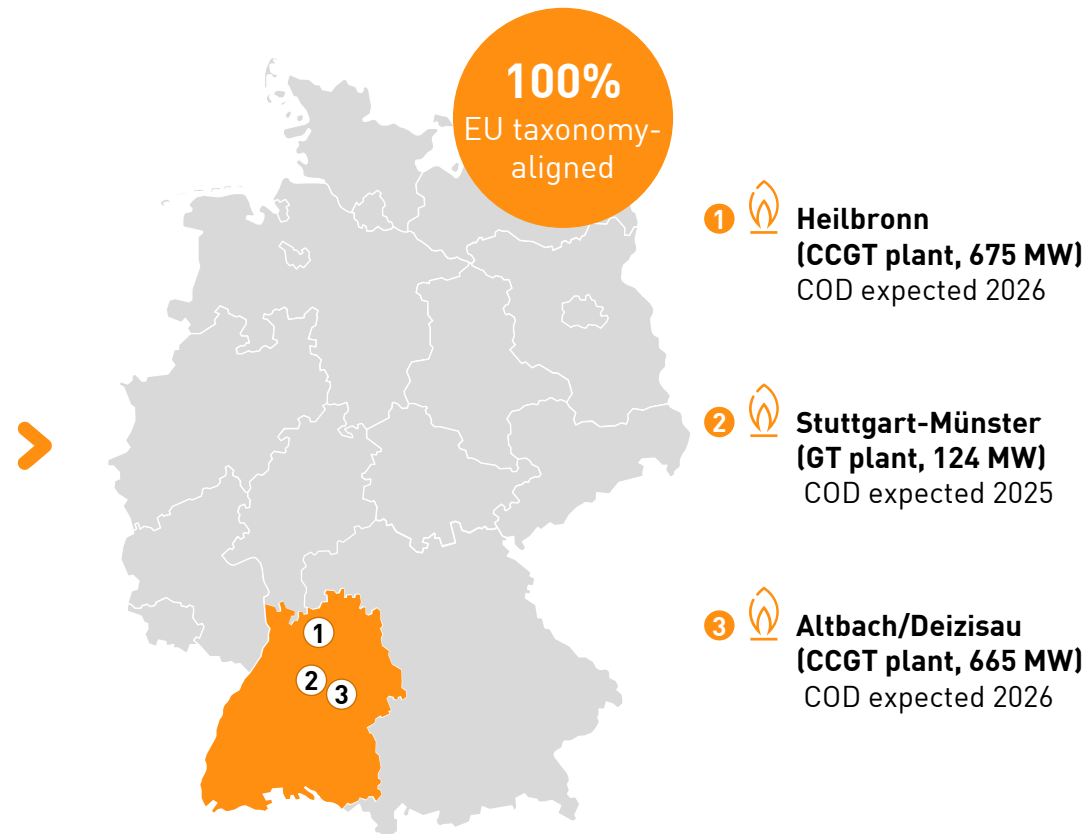
# Fuel switch from coal to natural gas to climate neutral gases reduces CO<sub>2</sub> from dispatchable generation significantly

## 3 major fuel switch projects from coal to natural gas

- FID March 2022
- Investment volume of €~1.6 bn

### Rationale for fuel switch

- Cuts carbon emissions immediately by 55%
- Dispatchable power CCGT plants pave the way to exit coal
- Driven by heat energy transition, priority on locations with integrated district heat provision
- Keeps locations economically viable and contributes to security of supply



### Fuel switch plants H<sub>2</sub>-ready

- Deployment of gas turbines allows admixture of 10% - 25% H<sub>2</sub> from the beginning
- Conversion to 100% H<sub>2</sub> combustion already reflected
- Operation with climate-neutral gases from beginning of 2030s



## Sustainable Generation Infrastructure

# Wide variety of hydrogen activities already in progress across the EnBW Group

### ① Öhringen Hydrogen Island

- Up to 30% hydrogen blended into gas grid for heat supply
- Supply of operating site plus 26 households
- Operating buildings supplied from 2021



### ② Fuel-switch power plants

- Conversion of three coal-fired heat and power plants to natural gas and subsequently hydrogen
- Total output 1,500 MW<sub>el</sub>, 829 MW<sub>th</sub>
- Planned start-up: COD 2025/26, conversion to H<sub>2</sub> from beginning of 2030



### ③ H<sub>2</sub> Whylen Real-World Lab

- Production of green hydrogen from run-of-river hydropower
- Utilises electrolysis waste heat
- Generating capacity: 6 MW<sub>el</sub>
- Planned start-up: 2025 (1 MW<sub>el</sub> already on stream)



### ④ Rostock hydrogen port

- Production of green hydrogen
- Consortium project (Port of Rostock, Rheinenergie, RWE)
- Generating capacity: 100 MW
- Electrolyser planned to start operating in 2026



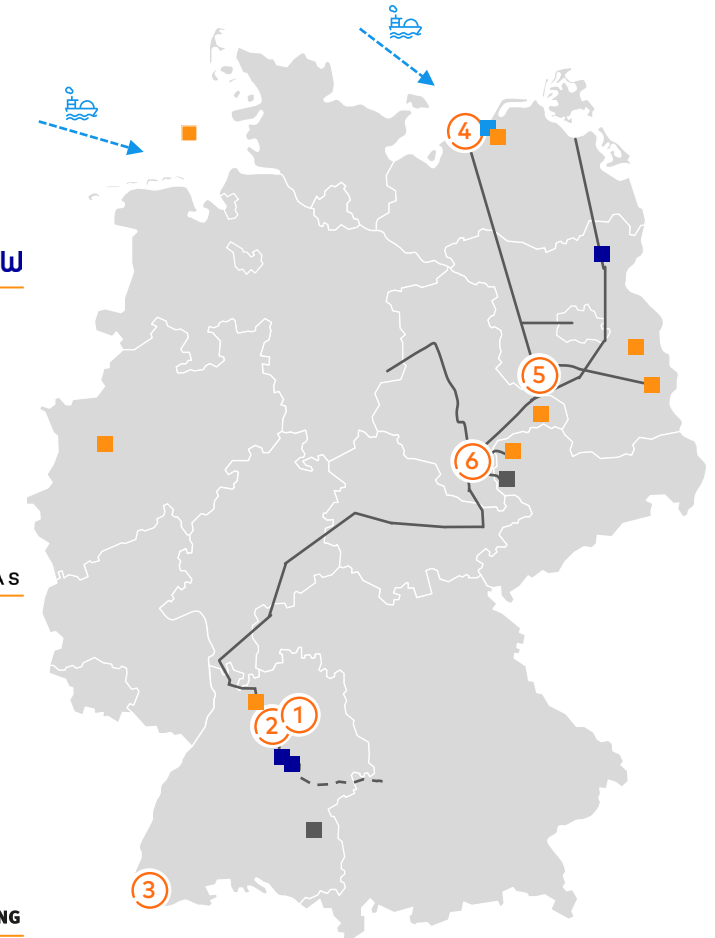
### ⑤ Doing Hydrogen & Green Octopus

- Conversion of natural gas pipelines and construction of additional hydrogen pipelines for total of 900 km (Rostock-Leipzig-Salzgitter axis)
- First sections of pipelines planned to start operating from 2027



### ⑥ Energy Park Bad Lauchstädt

- Integrated project along hydrogen value chain in project consortium (uniper, Terrawatt, DBI)
- Hydrogen produced used in industry
- Electrolyser generating capacity: 30 MW
- Wind farm, electrolyser and pipeline planned to start operating in 2025



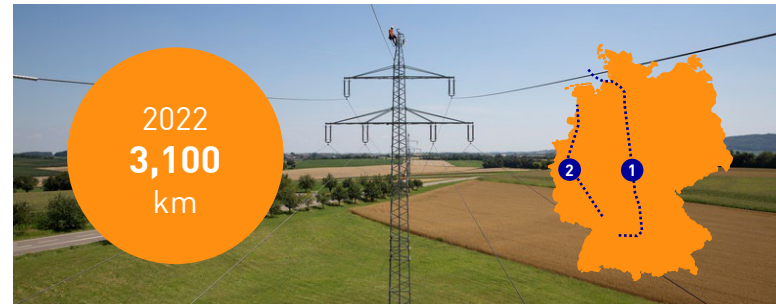
## System-Critical Infrastructure

# Investing into the backbone of the energy transition - grids



### Electricity distribution grids

- Integration of renewables and e-mobility
- Netze BW climate neutral since 2021
- Expansion and renewal program launched in 2022 (Netze BW)
- Partnership of Netze BW & 214 municipalities (14%)
- >40,000 feed-in applications in 2022 (+78% for photovoltaic systems)
- 20,000 wallbox applications in 2022



### Electricity transmission grids

Expansion to transmit electricity generated in the windy north to southern Germany

- 1 SuedLink 2 x 2 GW, >600 km (TransnetBW, TenneT)
- 2 ULTRANET 2 GW, 340 km, 40 km under TransnetBW (TransnetBW, Amprion)

#### TransnetBW:

Sale of 49.9% minority stake to long-term partners

- 24.95% to Südwest Konsortium<sup>2</sup> Holding GmbH (May 23)
- 24.95% to German state-owned KfW bank (Nov 23)



### Gas grids

Transmission/distribution of H<sub>2</sub> from beginning of 2030s expected; pilot projects at an earlier stage

#### Transmission grids (9,800 km)

- Commissioning of Neckarenztal-pipeline (30 km) already H<sub>2</sub>-ready
- Planning of H<sub>2</sub>-ready natural gas pipelines in South-Germany (~250 km) to meet rising demand<sup>1</sup>

#### Distribution grids (16,900 km)

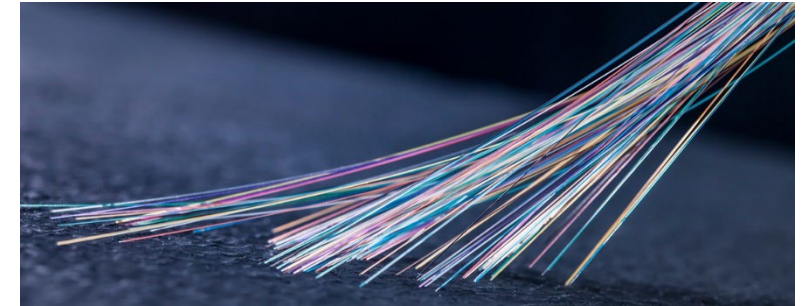
- Project "H<sub>2</sub>-island" Oehringen already delivers highly pure hydrogen

<sup>1</sup> terranets bw; <sup>2</sup> consortium of financial institutions, insurers and corporations investing in TransnetBW, consists of many Baden-Württemberg savings banks together with L-Bank, BGV Badische Versicherungen, Württembergische Gemeinde-Versicherung, Stuttgarter Lebensversicherung, SV Sparkassenversicherung and Evangelische Landeskirche Württemberg



## Smart Infrastructure for Customers


# Sustainable engagement for our customers




## Electricity and gas

Supply of ~5.5 m customers with electricity, gas, district heating, drinking water

- Green electricity as standard product - 620,000t CO<sub>2</sub> saved in 2022<sup>1</sup>
- Energy related services for B2B customers
- Energy supply & savings contracting
- SENEK among top 3 suppliers for home storage and solar systems in Germany
  - PV capacity sold doubled to ~220 MW in 2022 in Germany
  - Market share of 20% in Germany



## E-mobility

- Leading and award-winning Charge Point Operator (CPO) with largest fast charging network in Germany
  - Currently >1,000 locations
  - Best German CPO<sup>2</sup>
  - Target 2030: 30,000 fast-charging points
- Leading E-mobility provider in Germany
  - Access to ~500,000 charging points in Europe
  - Access to largest charging net in DACH<sup>3</sup>
  - Best value for money of independent suppliers<sup>4</sup>
  - No.1 e-mobility app in Germany<sup>5</sup>
- Successful expansion to Austria
  - 25% of shares in SMATRICS acquired



## Broadband/Telecommunication

Fiber infrastructure combined with product and service portfolio

### NetCom BW

- ~87,000 customers
- ~21,700 km of fiber optic cable

### Plusnet (telecommunications provider)

- >25,000 business customers
- 100G core network based on 6,500 km fiber network with access to further 50,000 km fiber

<sup>1</sup> Excluding the provision of basic and reserve supplies;

<sup>2</sup> connect 11/2022 and 12/2021;

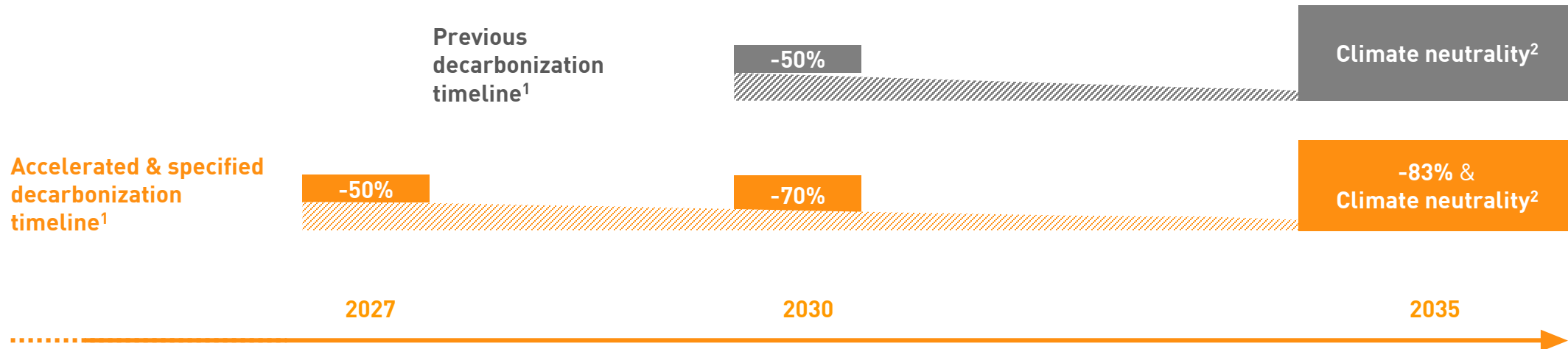
<sup>3</sup> AUTO BILD 27/2023, 22/2022 and 20/2021;

<sup>4</sup> AUTO BILD „eMobility Excellence Report 2023“: EnBW test winner for the third year in a row

<sup>5</sup> Stiftung Warentest 5/2022 GOOD, iOS: 2.1, Android: 2.2

# EnBW has accelerated its decarbonization consistent with a 1.5°C path for own emissions approved by SBTi

## EnBW has set itself more ambitious climate action targets



- SBTi validates EnBW's climate targets in Scopes 1, 2 & 3
- Paris-aligned with a 1.5°C path for our own emissions approved by SBTi
- Coal exit by 2028 accelerated by 7 years
- Climate neutrality target 2035 confirmed with accelerated decarbonization milestones

<sup>1</sup> EnBW's own emissions (Scope 1 & 2). The target refers to CO<sub>2</sub>eq (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O and SF<sub>6</sub>). The baseline year is 2018.

<sup>2</sup> Includes in part the offsetting of remaining residual emissions via recognized compensation certificates.

# Emission reduction targets include the entire value chain



## Scope 1

Direct emissions from EnBW-owned electricity and heat generation plants



## Scope 2

Indirect emissions transmission and distribution of energy by subsidiaries (grid loss emissions)



## Scope 3

Indirect emissions from gas procurement and from gas combustion at end customers

Reduction<sup>1</sup> 2035  
in absolute emissions by **83%**

Reduction<sup>1</sup> 2035  
in absolute emissions  
from gas activities by **43%**

<sup>1</sup> Relative to 2018 base year

# Accelerated coal exit 2028 is a key milestone in EnBW's climate transition plan

## EnBW 1.5°C Paris-aligned pathway for 2035 (scope 1 & 2)

- Adding dispatchable power by early fuel switch from coal to gas starting in 2026 in three plants
- Early phase-out of the remaining coal power plants in 2028 with around 2,000 MW generation (originally scheduled for 2035)
- Fuel switch to climate neutral gases from early 2030s

## A just transition

- Security of supply guaranteed
- Secure locations and jobs
- Coal procurement aligned with ESG standards

## CO<sub>2</sub>-footprint of EnBW (scope 1 – in mt CO<sub>2</sub> eq.)



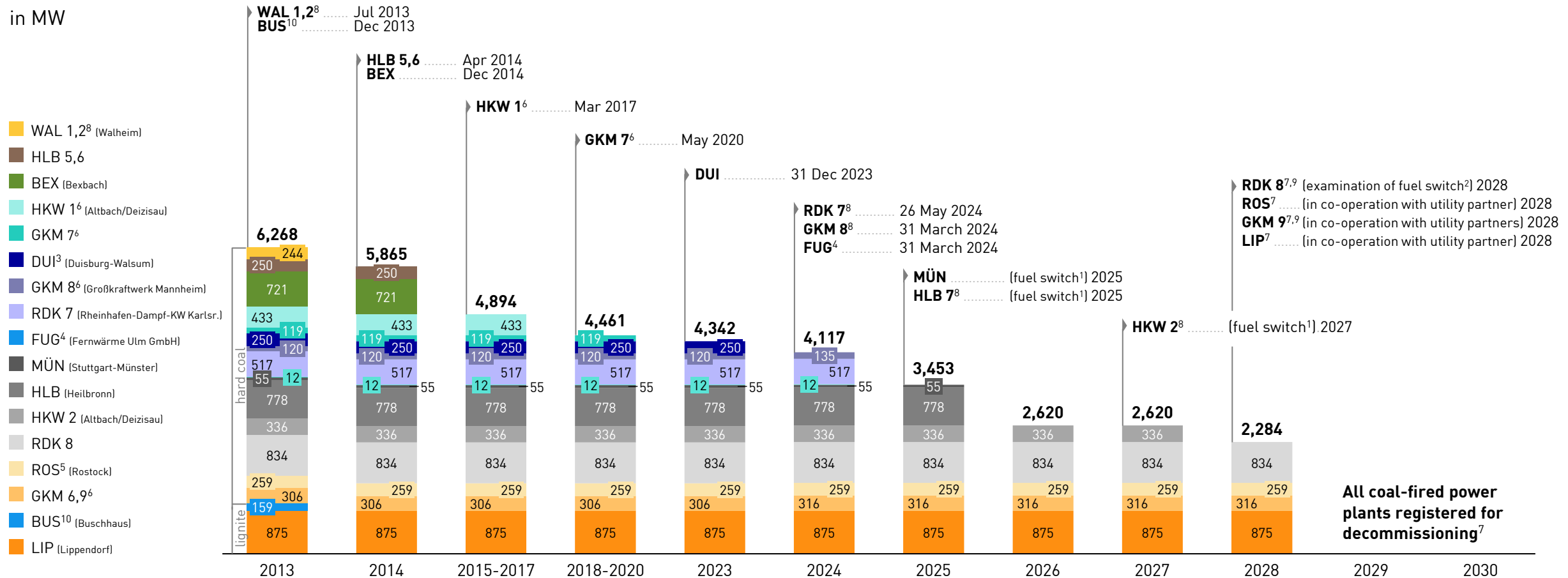
<sup>1</sup> Non-controllable emissions: Emissions from reserve power plants and redispatch operations not controlled by EnBW.

They are displayed separately from controllable emissions in our integrated report. For the reduction pathway, our main focus is on the controllable emissions.

<sup>2</sup> Scope 1 & 2 compared to 2018

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

in MW



1 Fuel switch from coal to natural gas, until the mid-2030s switch to climate neutral gases like Green Hydrogen  
 2 Examination of options to switch to climate neutral dispatchable generation (fuel switch to climate neutral gases e.g. Green Hydrogen)  
 3 Duisburg-Walsum: Electricity supply contract with STEAG AG  
 4 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)  
 5 Rostock: Joint power plant EnBW (50,38%), Rheinenergie (49,62%)

6 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.  
 7 Provided the energy transition progress allows a coal exit by 2028  
 8 Market decommissioning as planned, transfer to grid reserve  
 9 Market decommissioning as planned, transfer to grid reserve expected  
 10 Power purchase agreement

# EnBW has further diversified funding sources and broadened the investor base thanks to trust in its robust business model



## EnBW's financial objectives

- Flexible access to capital markets
- Well-diversified portfolio of financing sources
- Solid investment grade ratings:  
Moody's Baa1 stable, S&P A- stable
- Management of credit metrics by KPI debt repayment potential
- Close integration of corporate and financing strategy



## EnBW's financing strategy

- Separate management of operating financing needs and long-term obligations
- Diversified market and investor approach
- Funding mix complemented by ESG linked instruments
- Well-balanced maturity profile
- Subordinated capital to support senior debt holders

**Long-term financing in the capital markets**  
€~2.0 bn p.a.

## Successful financing activities in 2022 & 2023

- €500 m promissory notes across 3-10 years
- \$850 m equiv. US private placement in USD, GBP and EUR and 3-12 years
- €2.25 bn senior bond issuances (thereof €1.0 bn Green Bonds)
- €2.0 bn bilateral credit lines added, total of €6.6 bn<sup>1</sup>
- €600 m loan contract for He Dreiht signed with European Investment Bank
- €500 m loan with a consortium of banks secured by EIFO
- CHF410 m senior bond issuances
- €1.5bn two senior Green Bonds

<sup>1</sup> Syndicated and bilateral bank lines available as of 30 September 2023

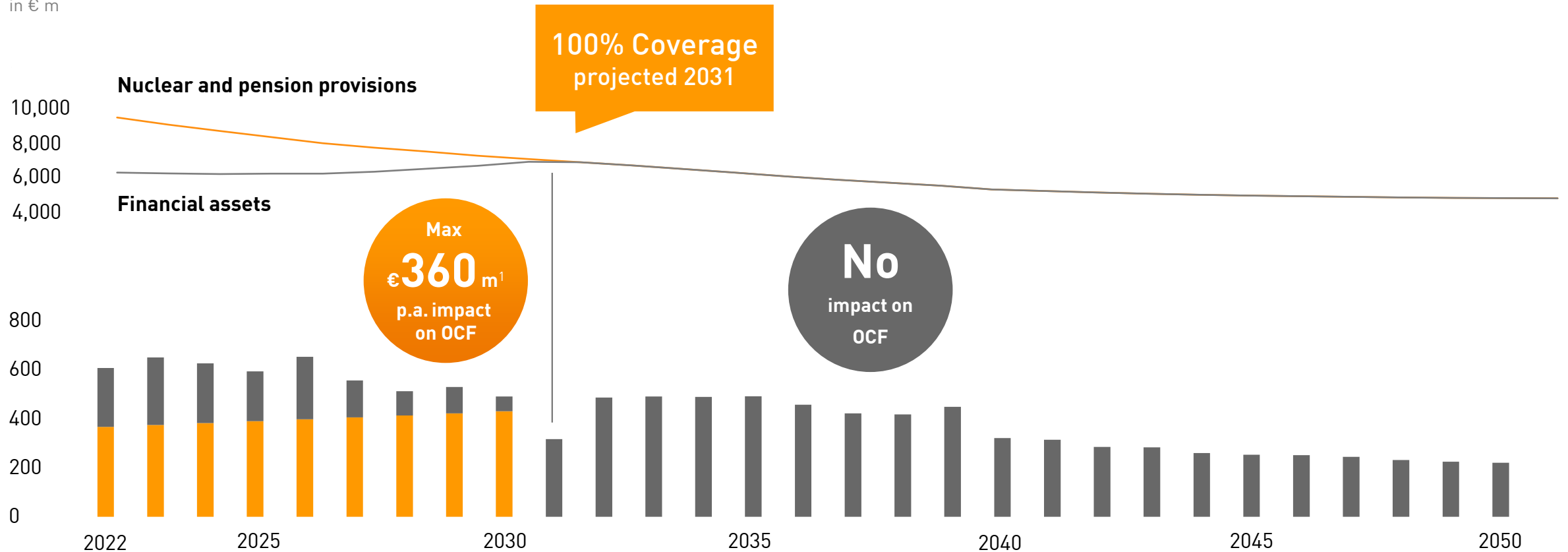


# Asset Liability Management Model

## Management of financing needs for pension and nuclear obligations

### EnBW's cash flow-based model

in € m



As of 30 June 2022  
<sup>1</sup> Adjusted for inflation

OCF: Operating cash flow

# Key investment highlights



**Integrated utility with a diversified business portfolio**

**High share of stable, low-risk business**

**Hedging of merchant earnings for up to 3 years in advance**

**Ambitious climate action targets**

**Prudent financial policy and solid investment-grade credit ratings**

**Stable government-related shareholder structure**

# Financial calendar

## Upcoming events



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**27** **March 2024, 03:00 pm CET**  
**Publication FY 2023**  
Investor and analyst conference call

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**7** **May 2024, 10:00 am CEST**  
**Annual General Meeting 2024**

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**14** **May 2024, 01:00 pm CEST**  
**Publication 3M 2024**  
Investor and analyst conference call

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**9** **August 2024, 01:00 pm CEST**  
**Publication 6M 2024**  
Investor and analyst conference call

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**12** **November 2024, 01:00 pm CET**  
**Publication 9M 2024**  
Investor and analyst conference call

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