

Capital Markets Day 2017 >

Stuttgart, 20 September 2017

Frank Mastiaux, CEO
Thomas Kusterer, CFO



Today's topics



EnBW 2020: Current status of strategy execution



Strategic focus for EnBW towards 2025



Main commercial and technical drivers of success
in the offshore wind business

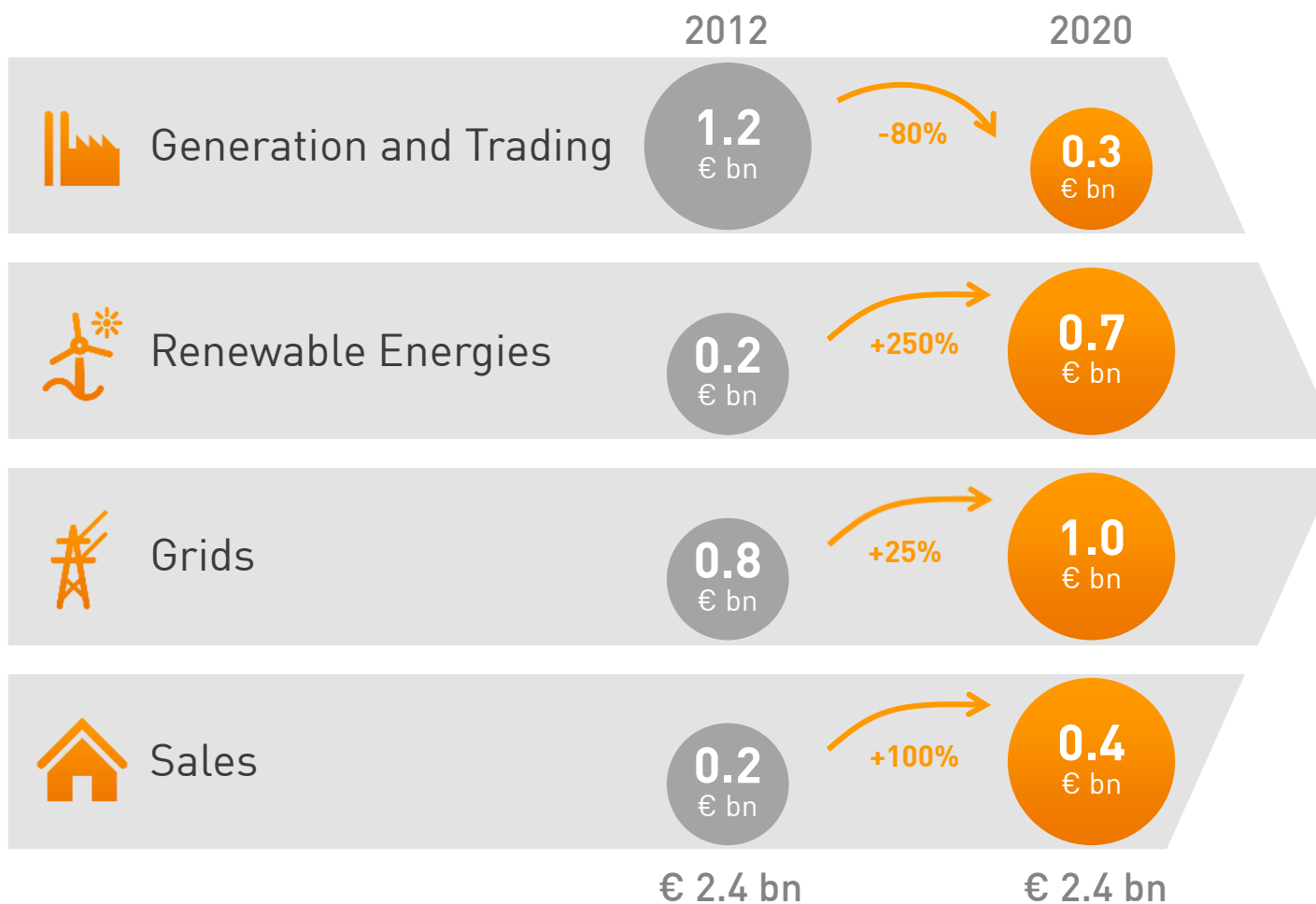
The background features a dark blue grid with a faint, light blue bar chart overlaid on it. The chart shows several vertical bars of varying heights, with a line graph connecting the tops of the bars. The overall aesthetic is professional and data-oriented.

Thomas Kusterer, CFO

Current status of strategy
execution EnBW 2020



EnBW 2020 strategy remains the framework for our ongoing transforming



in Adjusted EBITDA



Nuclear fuel tax reimbursement a positive one-off effect, but no easing of efforts to deliver 2020 strategy



H1 2017

7 June Federal Constitutional Court ruling declared nuclear fuel tax unconstitutional, leading to tax refund

~€1.1bn refunded to EnBW in June
(total paid by EnBW 2011-2016: **€1.44bn**)

H2 2017

Remaining **~€300m** refunded in July

Additional **~€200m** in interest also refunded

~€145m pro-rata payout to co-owner of GKN II



Nuclear waste storage: uncertainty eliminated



Nuclear waste disposal fund

Law approved by Brussels on 16 June

Contract signed on 26 June creates long-term legal certainty for all parties

Operators remain responsible for decommissioning, dismantling and packaging radioactive waste

€4.8bn paid into fund

Cash outflow 3 July 2017; no P&L impact; balance sheet contraction

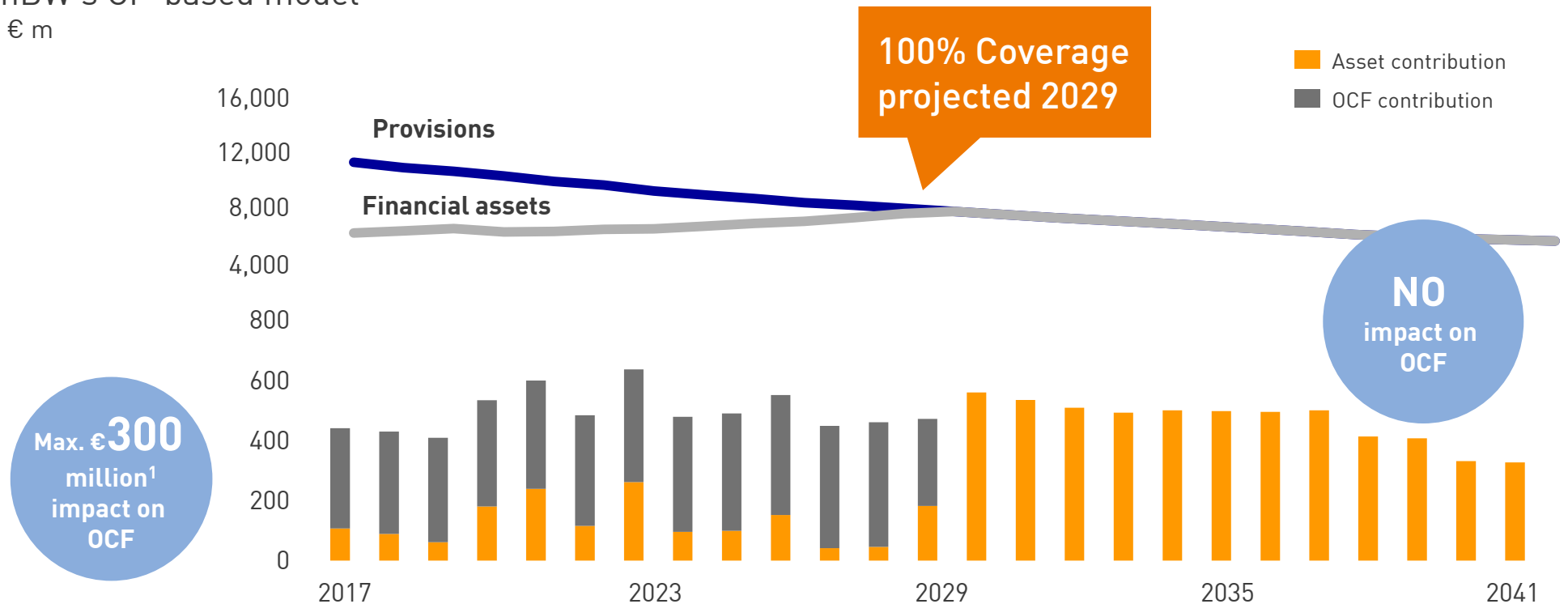
Financial assets of approx. €10bn covering long-term provisions allowed EnBW to pay full amount without refinancing

Cash flow-based Asset Liability Management Model remains in place



Asset Liability Management Model: EnBW nuclear and pension provisions still covered after payment into fund

EnBW's CF-based model
in € m



¹adjusted for inflation



Solid credit quality based on prudent financial policies



Asset Liability Management Model: Coverage of long-term pension and nuclear obligations

Active management of related financial assets

Impact on operating cash flow:
max. €300m p.a. (inflation-adjusted)

No more funding through operating cash flow once full coverage reached

Operating business: Management of net investment to control net financial debt

Internal financing capability as new key performance indicator

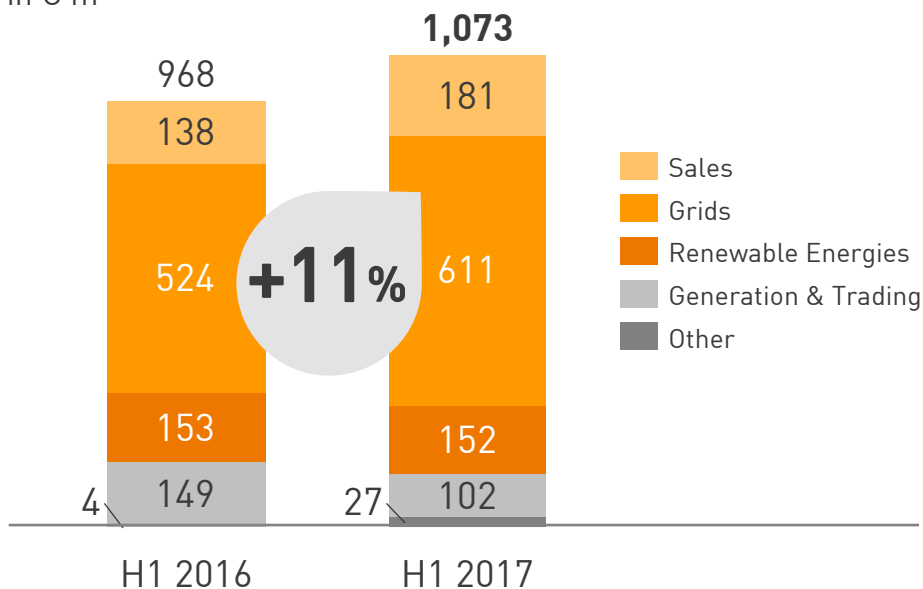
Net investment limited to average €1.3bn p.a. retained cash flow

Ongoing delivery of 2020 strategy secured entirely by internal financing capacity



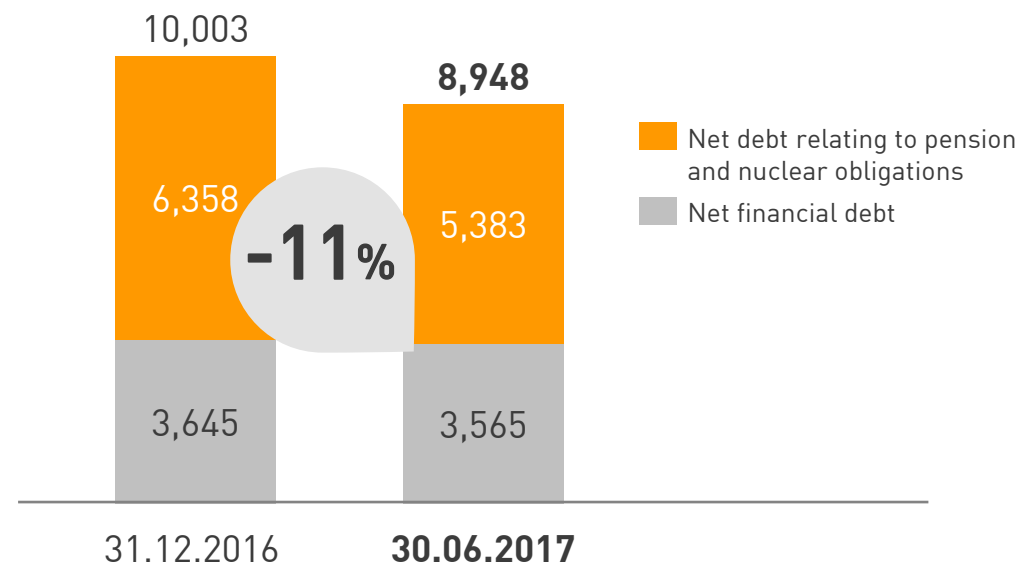
Half-year 2017 key financials underpin 2020 strategy execution

Adjusted EBITDA in € m



- > First-time consolidation of VNG
- > No nuclear fuel tax in 2017
- > Positive effects related to other periods

Net debt in € m



- > Nuclear fuel tax refund
- > Provisions down due to higher discount factor
- > Positive free cash flow
- > 49.89% of EnBW Hohe See sold to Enbridge



First-time consolidation of VNG is a strong booster of the transformation of our business portfolio



EnBW is number 2 in gas transportation and number 3 in gas supply

VNG a perfect fit with EnBW 2020 strategy

~50% of VNG's future earnings are regulated

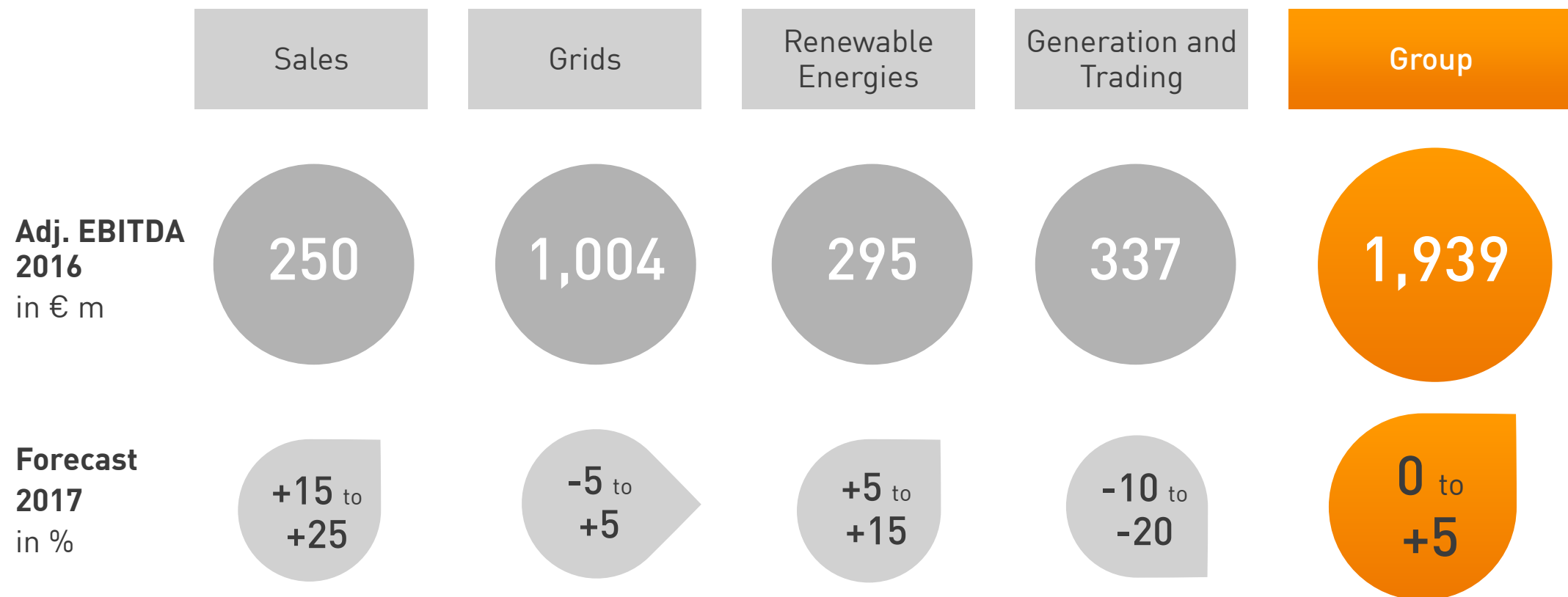
First-time consolidation adds €41m to EnBW's adjusted EBITDA in H1 2017

Expected full-year adjusted EBITDA contribution 2018: ~€140–150m



We will deliver earnings turnaround in 2017

— EnBW

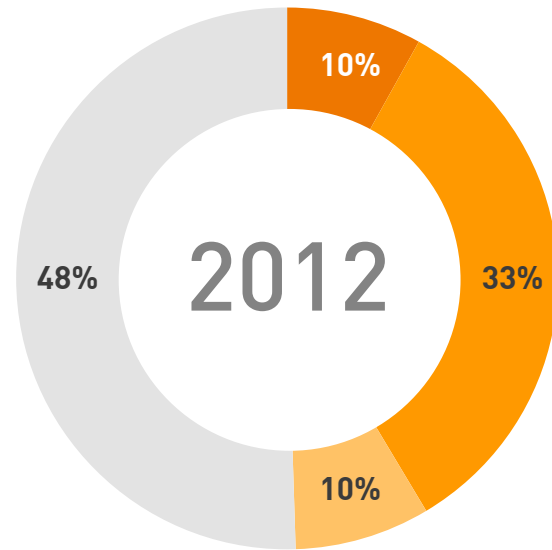




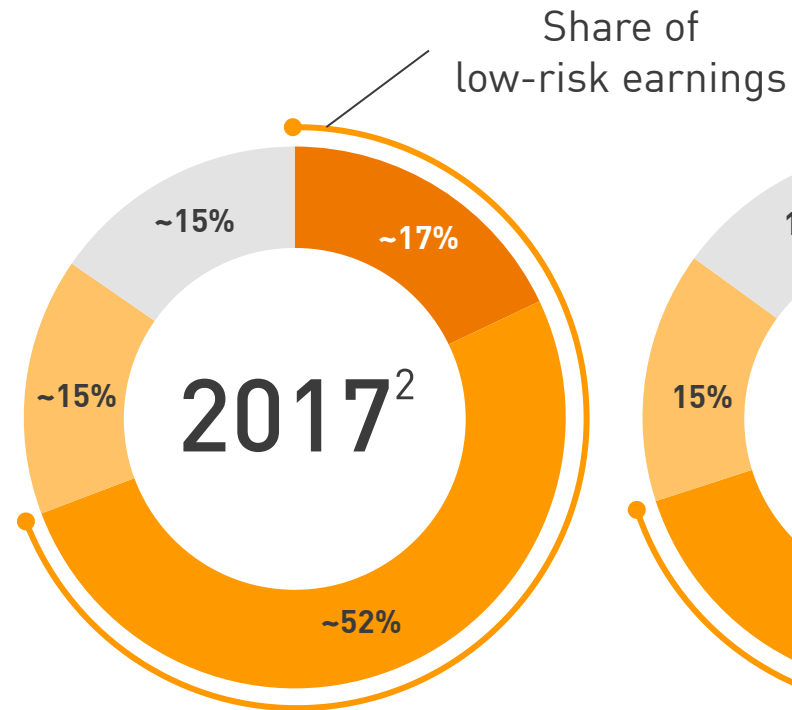
Portfolio transition shows substantial progress, in line with EnBW's 2020 strategy



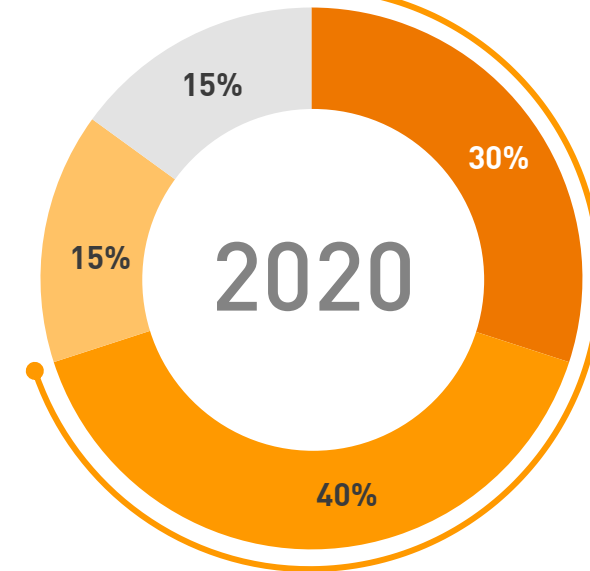
Adjusted EBITDA¹



2.4
€ bn



1.9 – 2.0
€ bn



2.4
€ bn

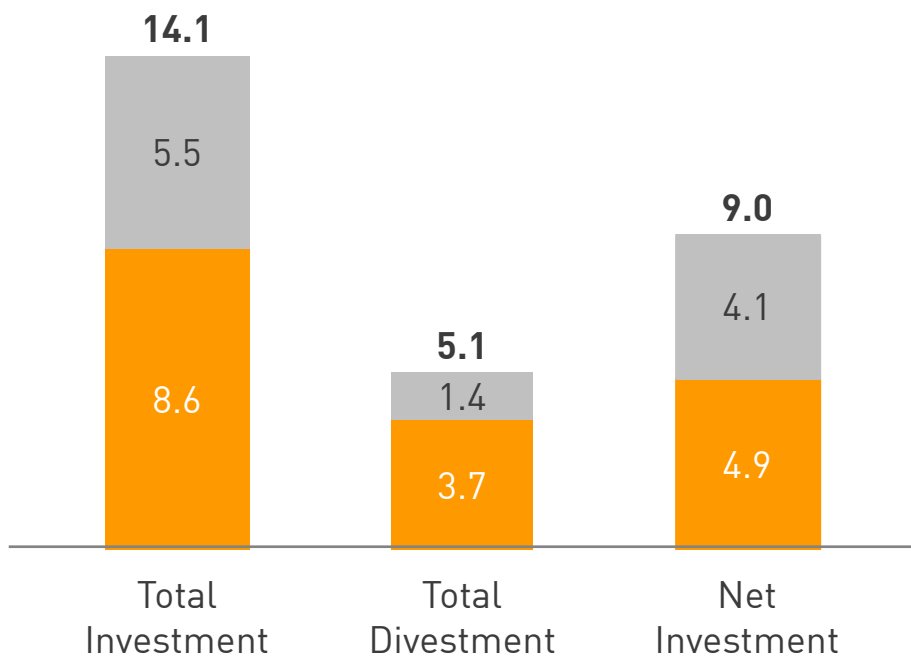
- Sales
- Grids
- Renewable Energies
- Generation & Trading

¹ Divergence from 100% possible due to rounding effects
² Forecast



2017-2019 investment program kept flexible with focus on growth in low-risk businesses

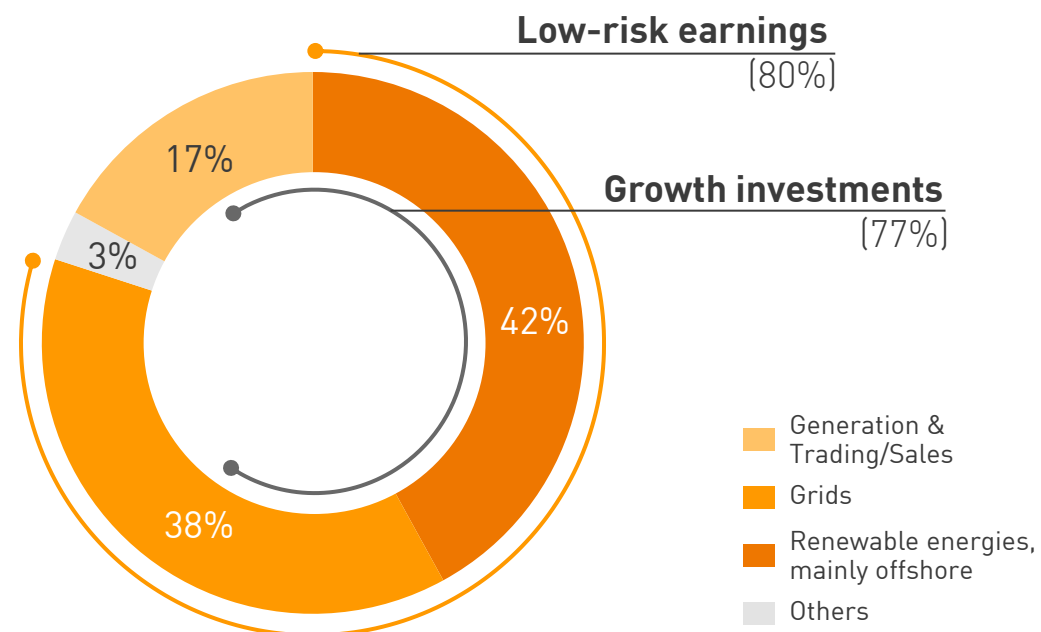
Investment/Divestment volume 2012-2020¹
in € m



Planned Realized

¹ As of 30.06.2017; 2012 as reference year

Investment volume 2017-2019

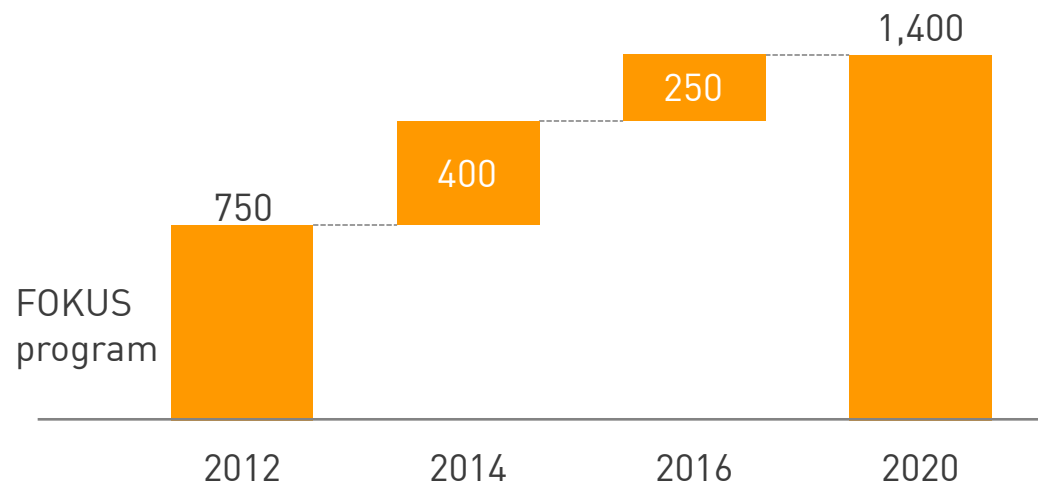




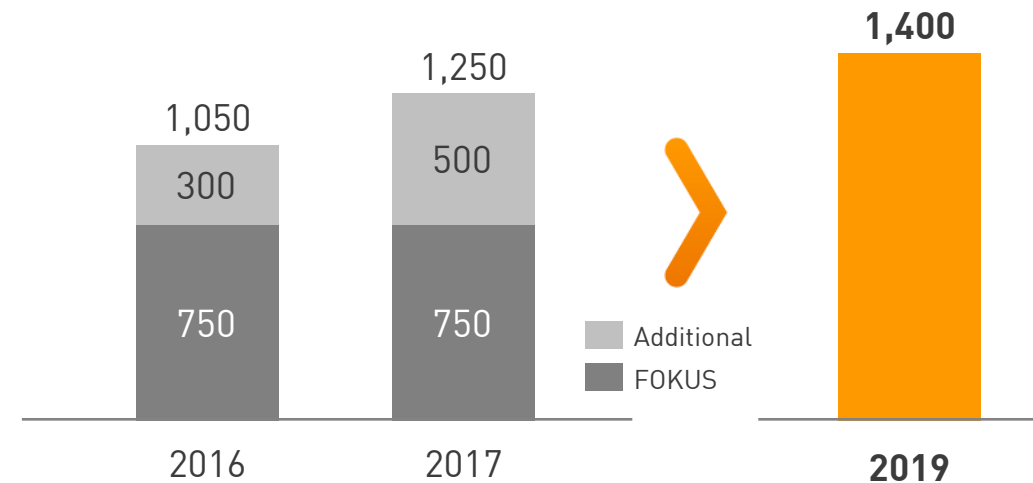
Efficiency targets already to be met by 2019



Efficiency programs: launch
in € m



Efficiency measures: ramp-up
in € m



- > Unprofitable power plants incorporated in German power plants network reserve
- > 2016: exit from unprofitable B2B commodity business
- > 2017–2020: ~€100m p.a. from 6.3% management and workforce pay cut
- > ~€150m p.a. contribution from functional units, including holdings such as VNG



Progress toward 2020 targets supports solid ratings



One-notch downgrade by Moody's in May 2017 – S&P and Fitch ratings confirmed;
all agencies with stable outlook



Long-term rating: Baa1
Outlook: stable



Long-term rating: A-
Outlook: stable



Long-term rating: A-
Outlook: stable

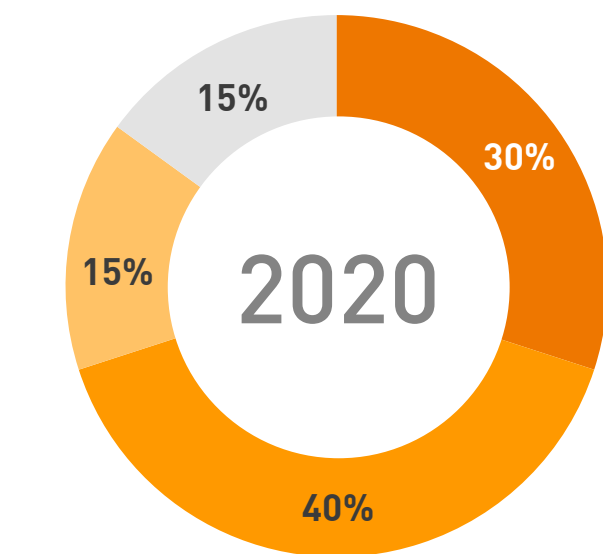


Agencies expect continuation of financial discipline



Concrete measures underpin delivery of 2020 strategy targets

Adjusted EBITDA



2.4
€ bn

- Sales
- Grids
- Renewable Energies
- Generation & Trading

2017

- › Efficiency programs
- › No nuclear fuel tax from 2017
- › Earnings contribution from VNG
- › Growth in onshore wind
- › Growth in offshore wind: Hohe See/Albatros
- › Increasing sales earnings:
 - Exit from B2B Commodity Business
 - Decentralized energy solutions

2020

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Frank Mastiaux, CEO

Strategic focus for
EnBW towards 2025



Key elements of the energy business are shifting (again) – change becomes the norm

Phase 1

Mainly driven by energy policies and regulation

Expansion of renewable energies

Exit from nuclear power

Decline in economic importance of conventional power generation

Expansion of electricity/gas grids

Phase 2

Increasingly market-driven: cost efficiency gains, technical innovation, changing customer needs, changing competitive landscape

Increased competitiveness and market integration of renewable energies

Technical innovations driving new business models (e.g. e-mobility)

Digitization and network energy solutions (e.g. smart grids)

Customer needs: individualization and transaction simplicity

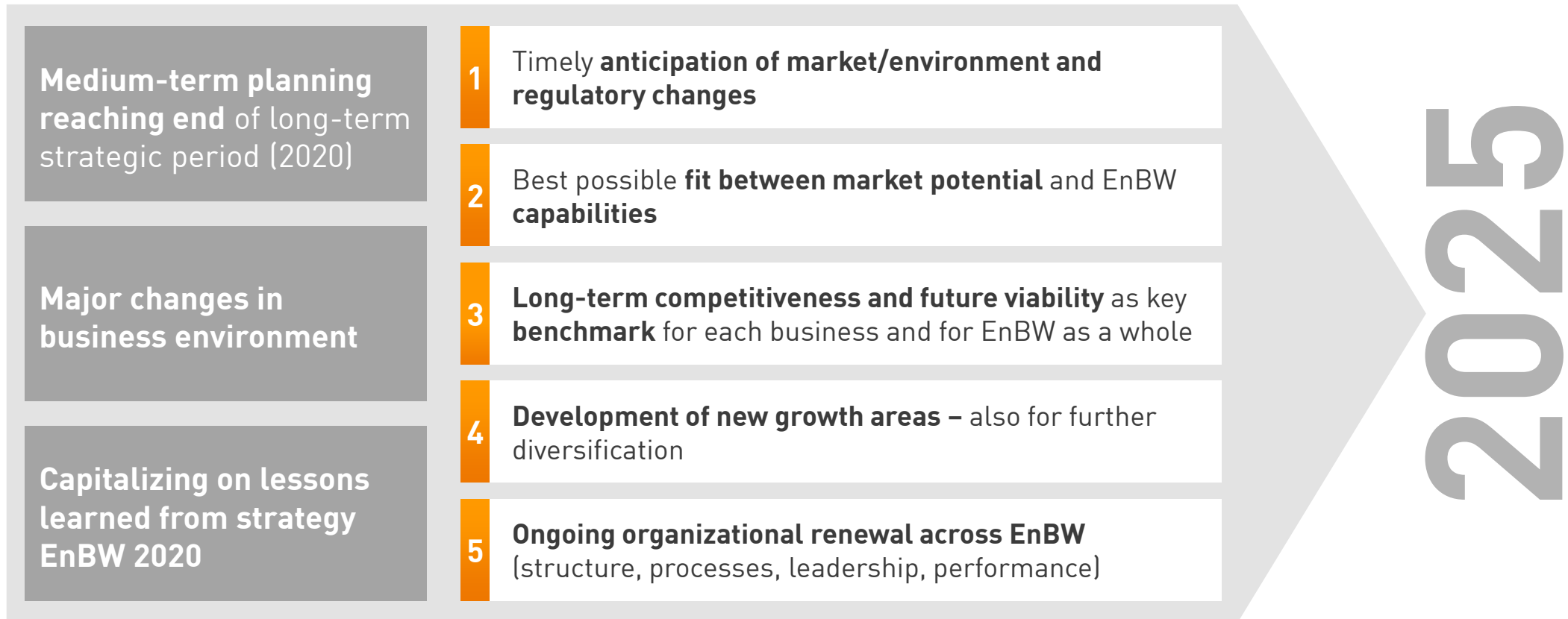


We have extended our strategic thinking towards 2025



Reasons for extension

Methodology and approach





Our assessment of future trends pinpoints six key developments



- 1 Decarbonization continues to be a main driver of political and regulatory action
- 2 Renewable energies and grids will remain pillars of growth in the markets we serve
- 3 New competitors and technological developments will impact the value chain
- 4 Energy and infrastructure issues will converge
- 5 Demand for intelligent, safe and reliable infrastructure will grow significantly
- 6 Customer expectations will demand greater individualization and be harder to predict



Strategic conclusions we have drawn for our business towards 2025



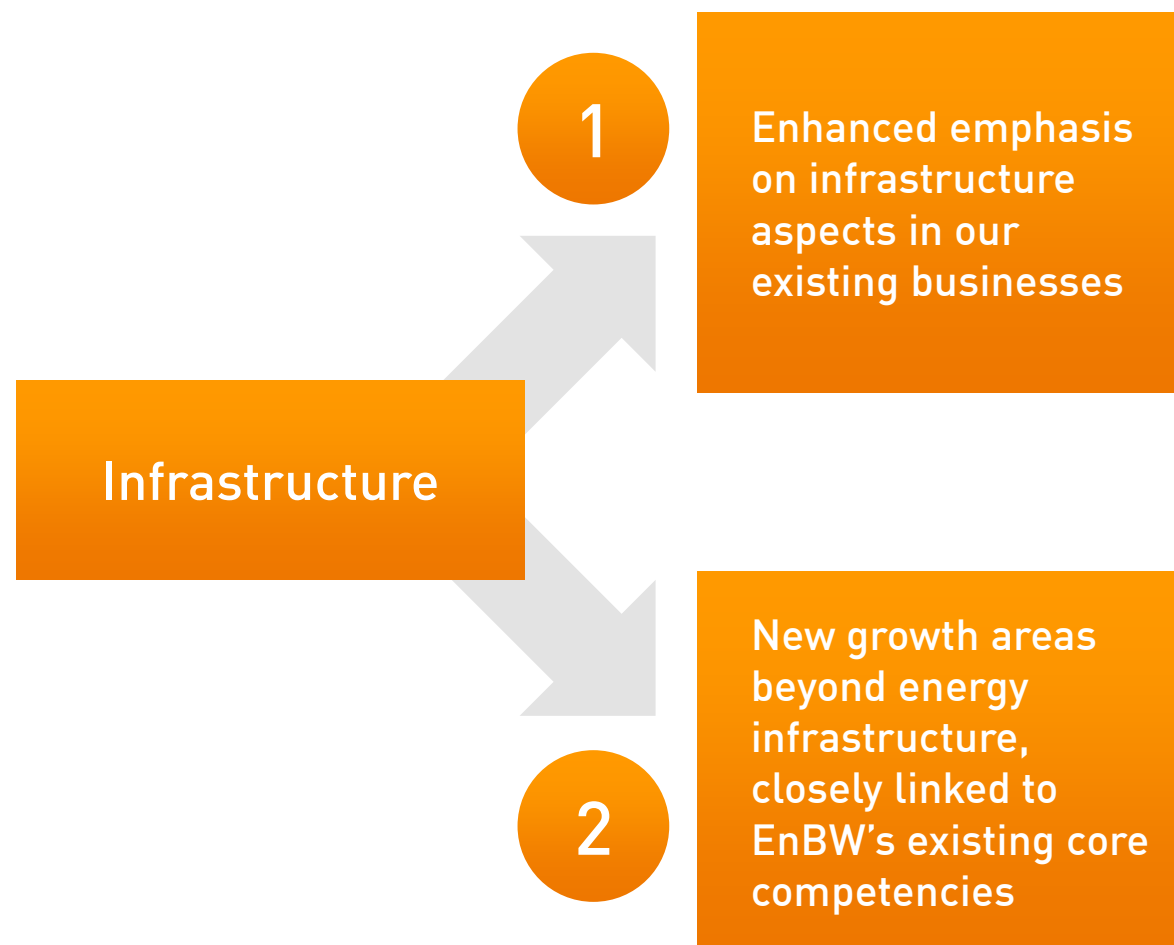
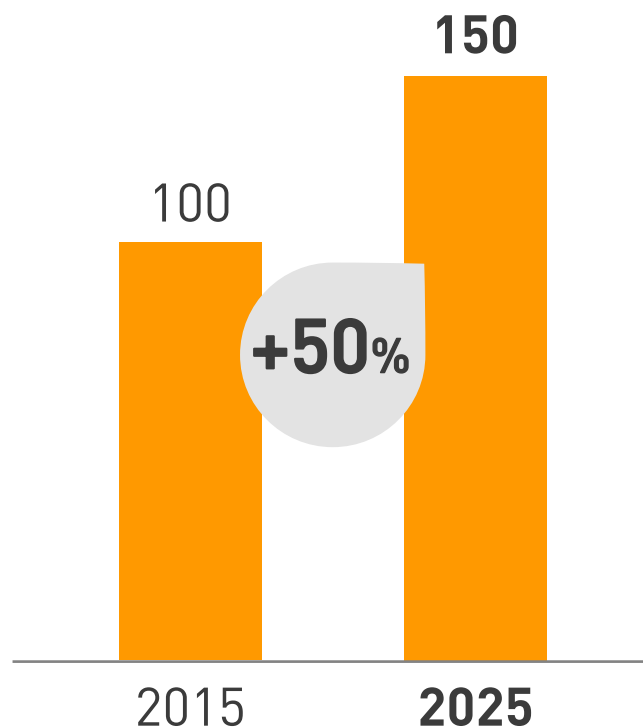
- 1 Renewable energies, grids and customer-facing businesses will remain EnBW's key future growth areas
- 2 We are developing new growth areas in the field of (critical) infrastructure, including beyond energy
- 3 We attach great importance to a balanced and diversified business portfolio
- 4 A key goal of EnBW will remain continuous improvement and performance drive
- 5 We consider the ability to change and adapt quickly to be a key basic competitive success factor
- 6 We are preparing EnBW for growth in absolute numbers post-2020



The German infrastructure market will grow strongly, with opportunities in our existing business portfolio and in areas beyond energy



German infrastructure market
in € bn





Infrastructure pilots beyond energy already underway



Pilot segment

Business case

**Broadband/
telco**

1

Expand **NetCom's telco and broadband activities** into **major earnings pillar** for EnBW Group

**E-mobility/
charging
infrastructure**

2

Launch and build **substantial e-mobility activities focused on grid and charging infrastructure**, plus (digital) services

**Urban precinct
development**

3

Pool existing activities and products and build integrated, extended **portfolio going beyond energy**

**Security
infrastructure**

4

Devise business models for **enhanced public security** based on digital solutions and components (e.g. video surveillance)

Waterway locks

5

Support **lock enlargement on rivers** (Neckar, others?) for larger scale vessels

...



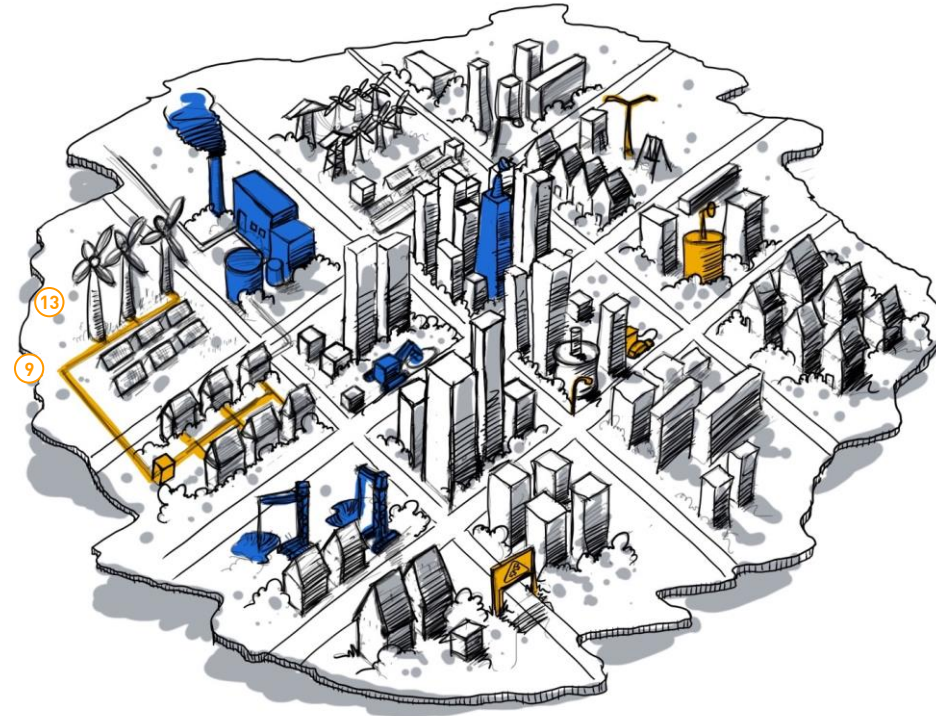
Example: Huge business opportunities in urban infrastructure development

Intelligent street lighting

Public security infrastructure

Integrated development of residential areas

Smart customer solutions



Broadband expansion

Sustainable mobility

Environmental sensors

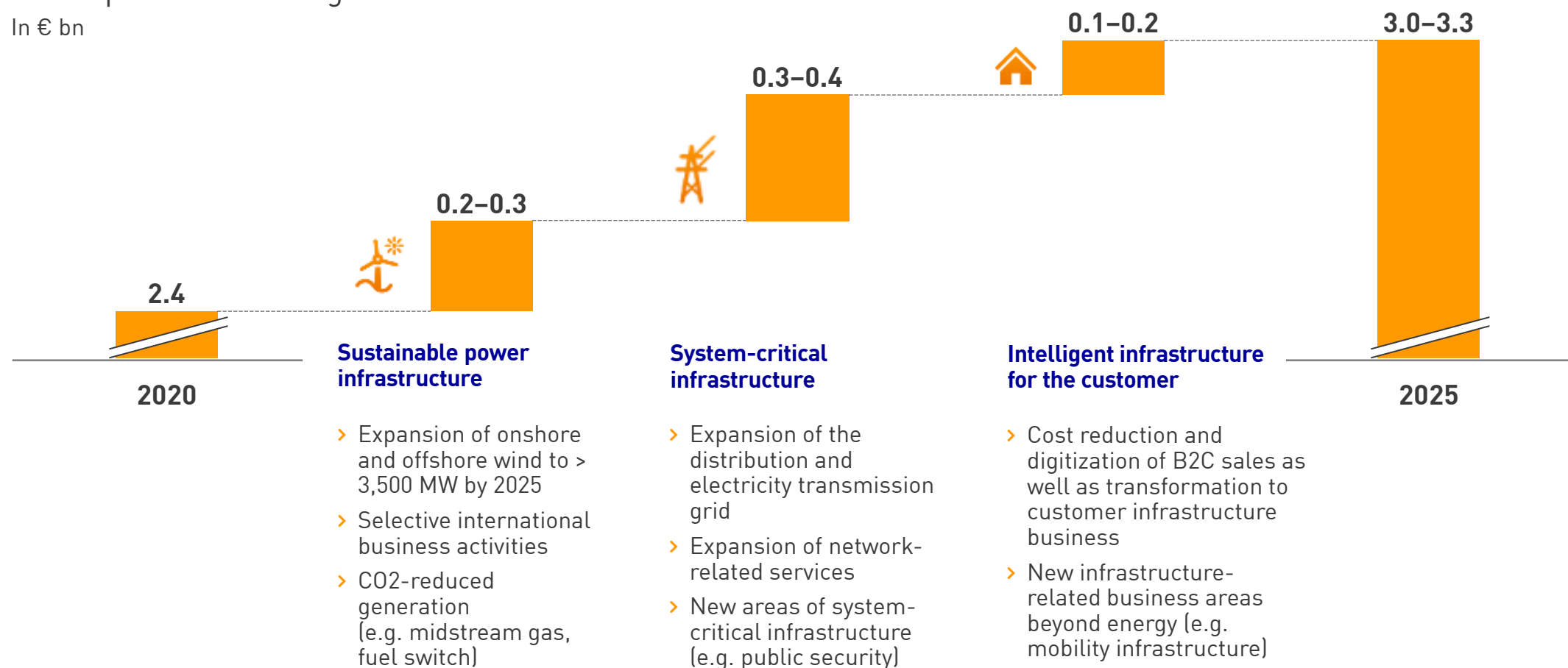
Traffic and parking management



We have defined specific growth targets until 2025,
with a clear set of priorities

Development of earnings

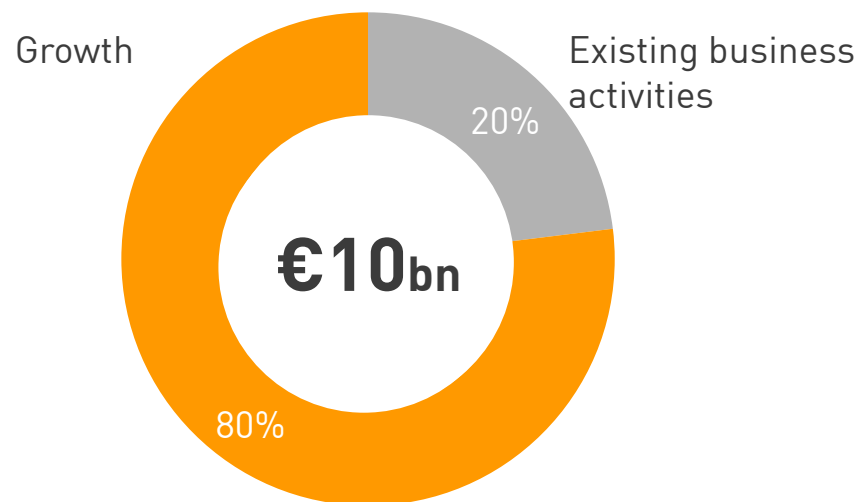
In € bn



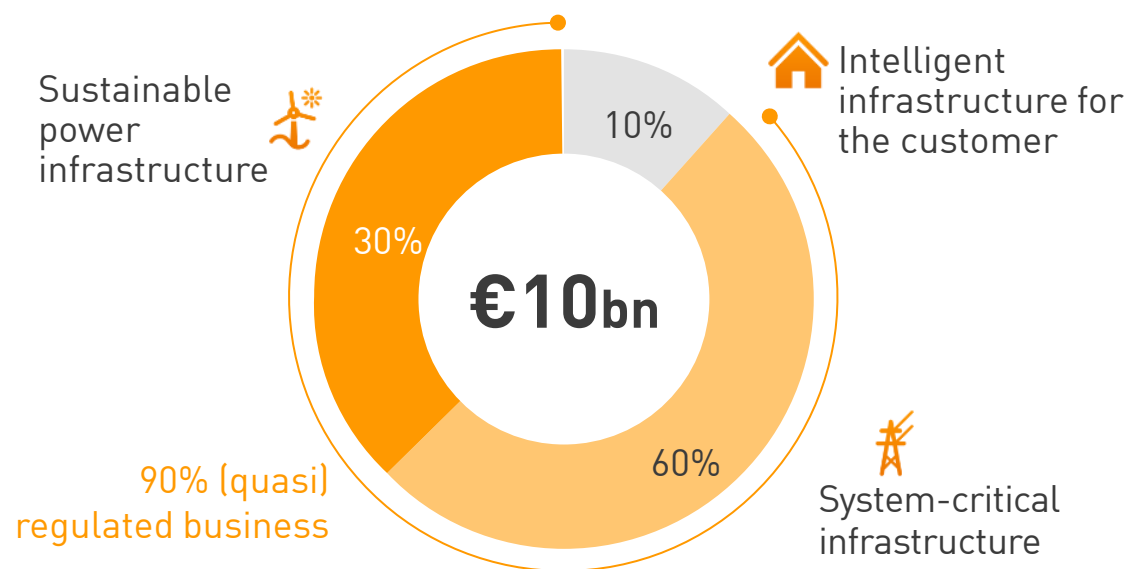


Resulting investment priorities 2021–2025: 80% targeting growth, 90% targeting regulated businesses

Allocation of investment spending



Focus on future growth:
80% of total investment
targets strategic growth areas



High proportion of (quasi) regulated
business: approx. 90% of investment in
grids and renewable energies



Strategic long-term plan: growth and significant improvement in our financial situation by 2025



Significant increase in operating result (adjusted EBITDA) to \geq €3bn (approx. +30% compared to 2020 target)

Increased retained cash flow, stronger balance sheet and higher quality earnings

€10bn total (gross) investment over the period 2021–2025, approx. 80% targeting growth

Adequate and stable dividend yield

Substantial increase in the value of EnBW by 2025



Clear-cut goals for EnBW in 2025



EnBW transformed into a sustainable and innovative infrastructure company



Balanced portfolio with three key areas and high proportion of stable and regulated businesses: power, infrastructure, customers



New growth areas beyond energy closely linked to EnBW's core competencies



Significant improvement in our financial situation



Evolution of EnBW into a modern, high-performance organization

Stefan Kansy, New Projects Offshore

Main commercial and technical drivers of success in the offshore wind business



Topics



Portfolio and status update



How does the world's first zero-subsidy bid work?



EnBW's path to its current market position



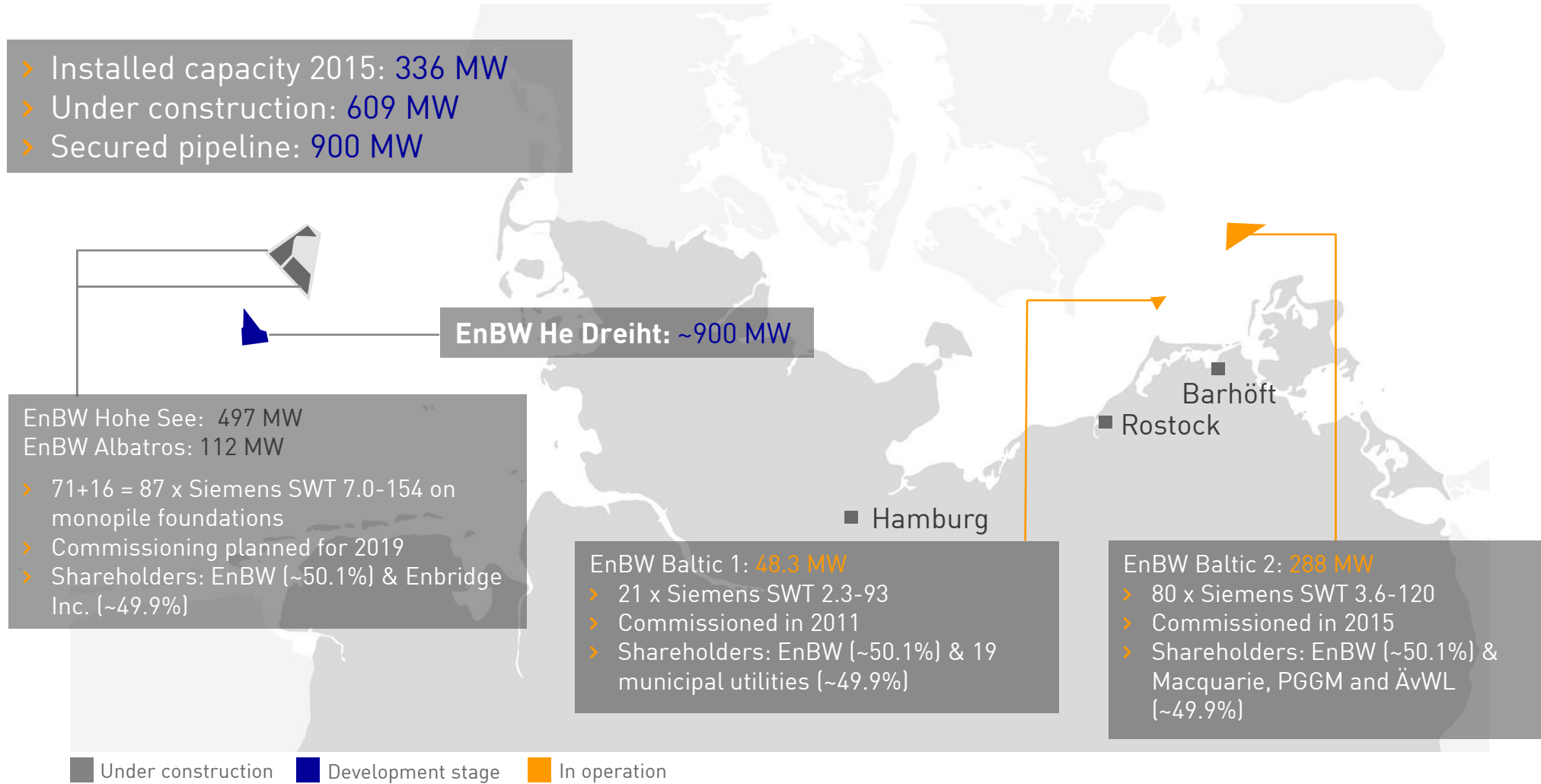
The future of offshore wind – EnBW's next steps



Offshore wind portfolio and project pipeline

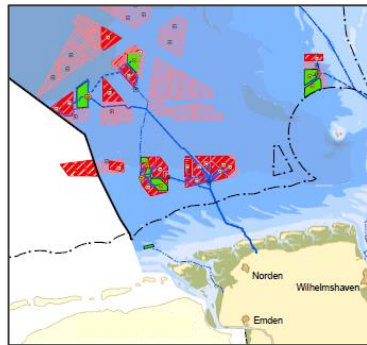


- › Installed capacity 2015: **336 MW**
- › Under construction: **609 MW**
- › Secured pipeline: **900 MW**





Update on the EnBW Hohe See and Albatros offshore wind farms



Design

- > Partner on board
- > Design ready and certified
- > ALB¹: new OTM²

Fabrication

- > HS³: all lots started
- > ALB: directly after HS

Installation

- > Key equipment secured
- > FOU⁴, IAG⁵, OSS⁶: 2018
- > WTG⁷/feed-in: 2019

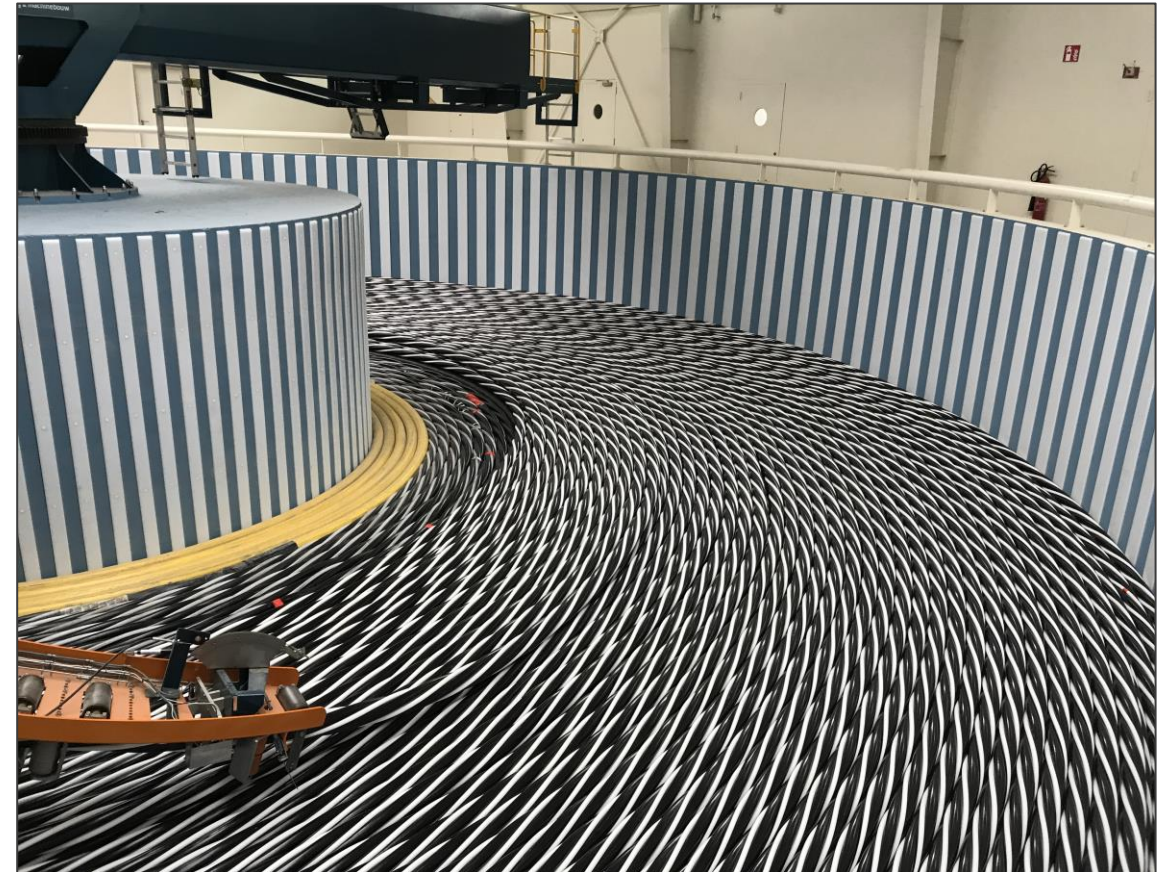
¹ ALB = Albatros ² OTM = Offshore transformer module ³ HS = Hohe See ⁴ FOU = Foundations ⁵ IAG = Internal array grid ⁶ OSS = Offshore substation ⁷ WTG = wind turbine generators



Update on the EnBW Hohe See and Albatros offshore wind farms



Offshore Substation (Hoboken, Belgium)



Internal array grid (Lochem, The Netherlands)



Update on the EnBW Hohe See and Albatros offshore wind farms



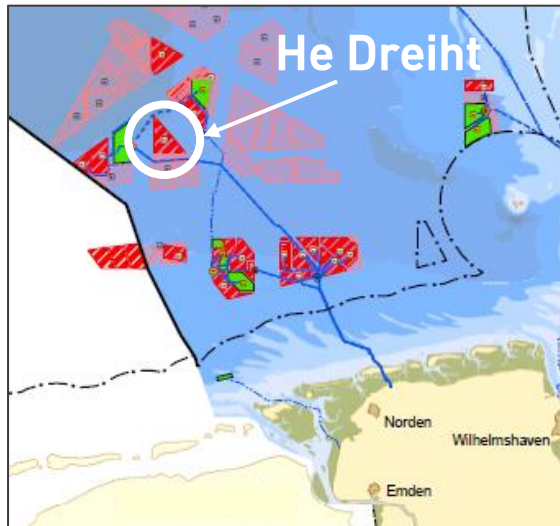
1st coated monopile (Rotterdam, The Netherlands)



Transition piece (Hoboken, Belgium)



How does the world's first zero-subsidy bid work?



Technical aspects

- > Size: 63 km²
- > Water depth: 39-40 m
- > Distance to shore: 85 km
- > Wind speed: $\bar{\varnothing}$ 10.1 m/s
- > Years of operation: 25 (EEG 2017)

Current state of project development

- > Approval granted since 2007
- > Principal surveying of seafloor and subsoil in 2011²

Capacity

- > 119 approved sites for wind turbines
- > Maximum of 900 MW generation capacity¹

Timeline

- > Auction on 3 April 2017
- > FID until mid-2023
- > Grid connection: Borwin 5 (NOR-7-1) in accordance with Offshore Network Development Plan (O-NEP 2025)
- > Commissioning and start of operation in 2025

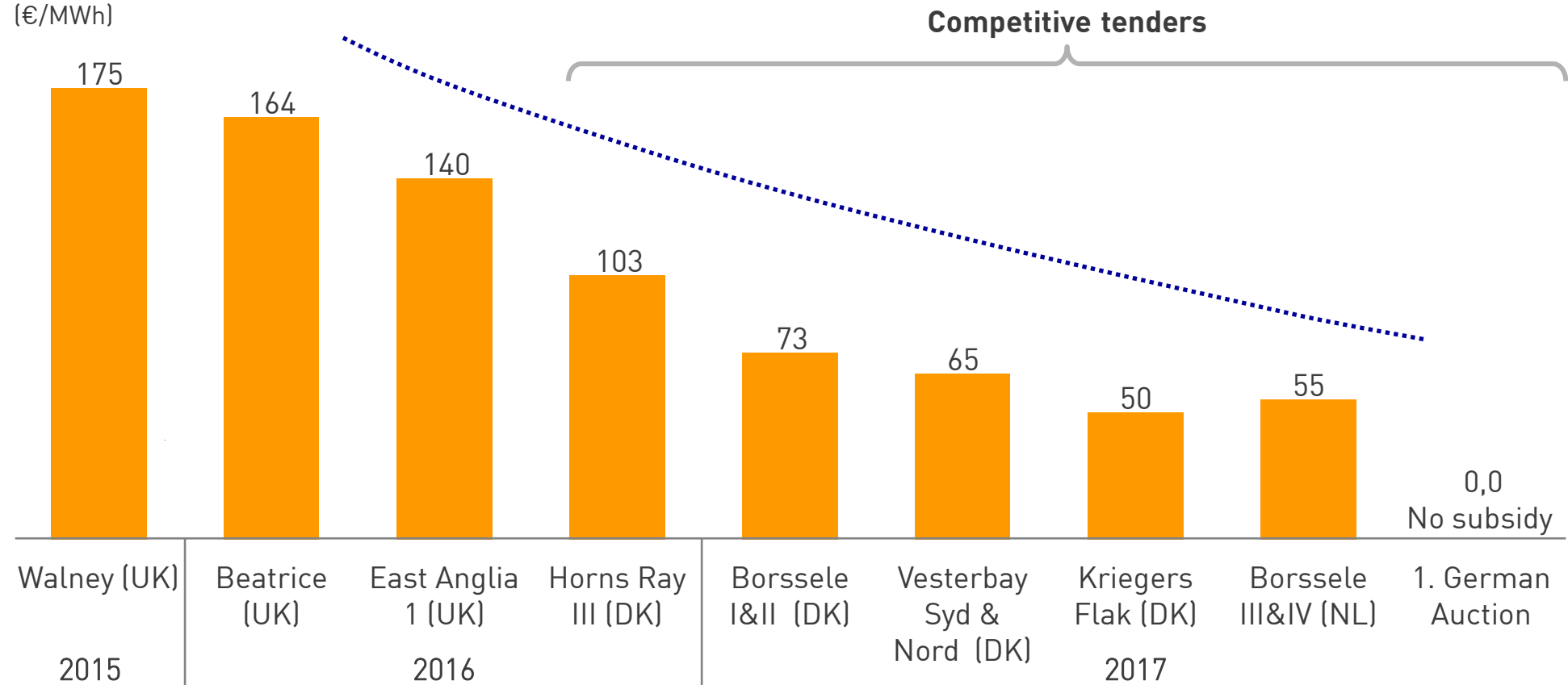
¹ Grid connection capacity of 900 MW

² A new survey of the seafloor and subsoil is partly necessary due to the planned use of larger wind turbines.



Remuneration for offshore wind in Europe: strong trend of declining remuneration since 2015

Projects in order of FID
(€/MWh)

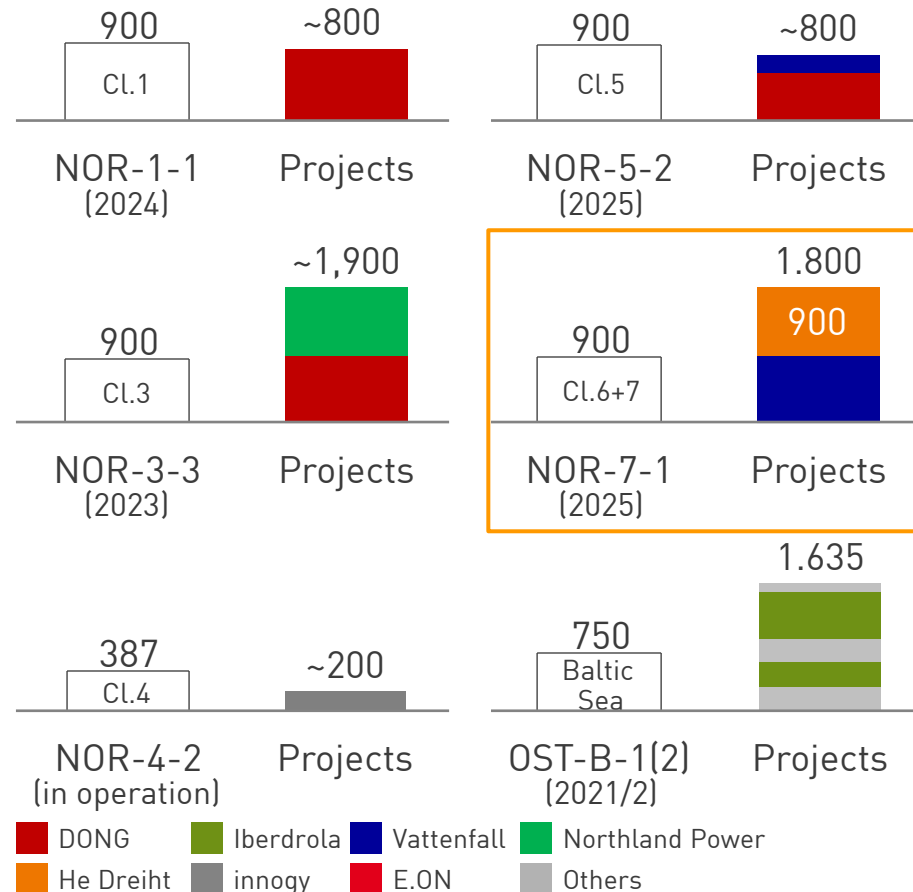


Note: Without consideration of differences in regulatory frameworks; bids in other currencies converted to EUR.

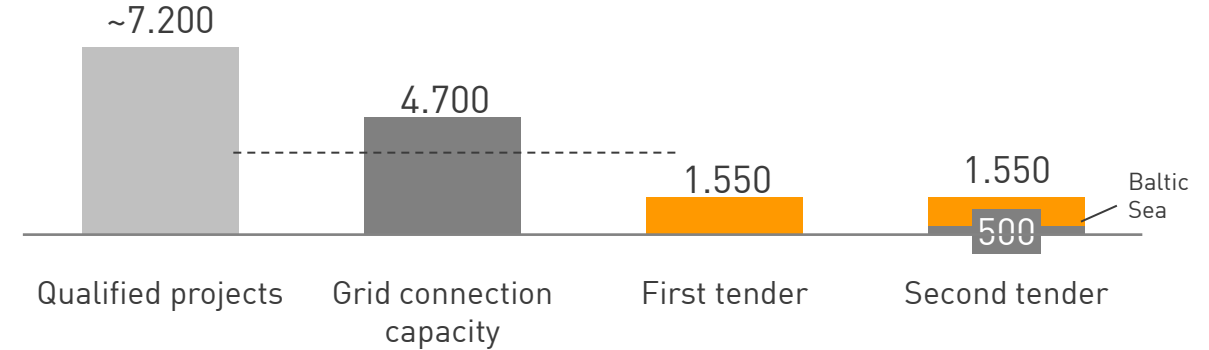


Two rounds of offshore wind auctions in 2017/2018 – overview of the competitive situation

Competition within cluster



Competition across all clusters



Competition on two levels

- > Demand for grid connection capacity significantly exceeded auctioned capacity in the first round in 2017 (oversubscribed by 4.6 times)
- > Available grid connection capacity within the specific clusters limits capacity to be awarded

- ➔ **Competition has to be overcome at two levels**
- ➔ **Participation in second round of auctions in 2018 only if grid connection capacity within cluster still available**



Results of the first German offshore wind auction 2017



The German Federal Network Agency published its acceptance of the following bids on 13 April 2017 in accordance with § 15 WindSeeG in conjunction with § 35 section 1 EEG 2017:

- › Date of auction 03/04/2017
- › Accepted volume 1,490 MW (of max. 1,550 MW)
- › Lowest bid accepted 0.00 ct./kWh
- › Highest bid accepted 6.00 ct./kWh
- › Average bid price 0.44 ct./kWh

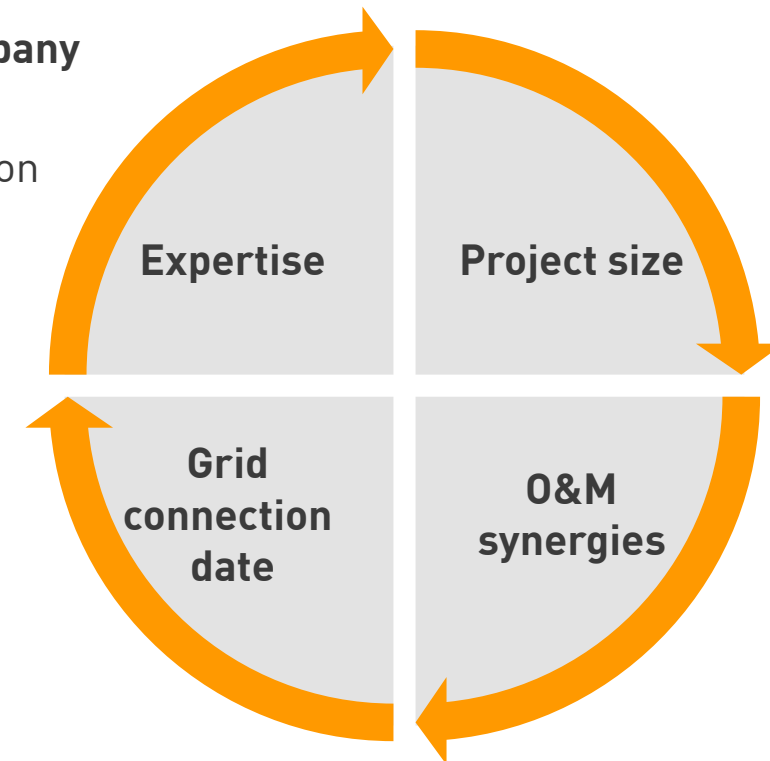
Accepted Bids	Capacity	Bid	Location
EnBW He Dreiht GmbH	900 MW	0.00 ct./kWh	North Sea Cluster 7
Dong Energy Borkum Riffgrund West II GmbH (Dong)	240 MW	0.00 ct./kWh	North Sea Cluster 1
Northern Energy OWP West GmbH (Dong)	240 MW	0.00 ct./kWh	North Sea Cluster 1
Gode Wind 03 GmbH (Dong)	110 MW	6.00 ct./kWh	North Sea Cluster 3



Unique conditions of the project

EnBW He Dreiht combines cost and efficiency benefits in a unique way:

- 1. Project development, realisation and operation by a company** with profound experience and existing portfolio
- 2. Size:** 900MW – by far the largest single project in the auction
- 3. Synergies:** EnBW He Dreiht is located in the direct vicinity of EnBW Hohe See (71 turbines, 497 MW) and Albatros (16 turbines, 112 MW)
→ considerable synergies during operation
- 4. Time of commissioning:** Due to the later connection of BorWin5 to the grid (2025), EnBW He Dreiht will:
 - a. benefit from cost degression, innovation and technological progress within the offshore industry in the coming years
 - b. fully operate in a more favourable market environment (e.g. phasing out of nuclear power in Germany completed)

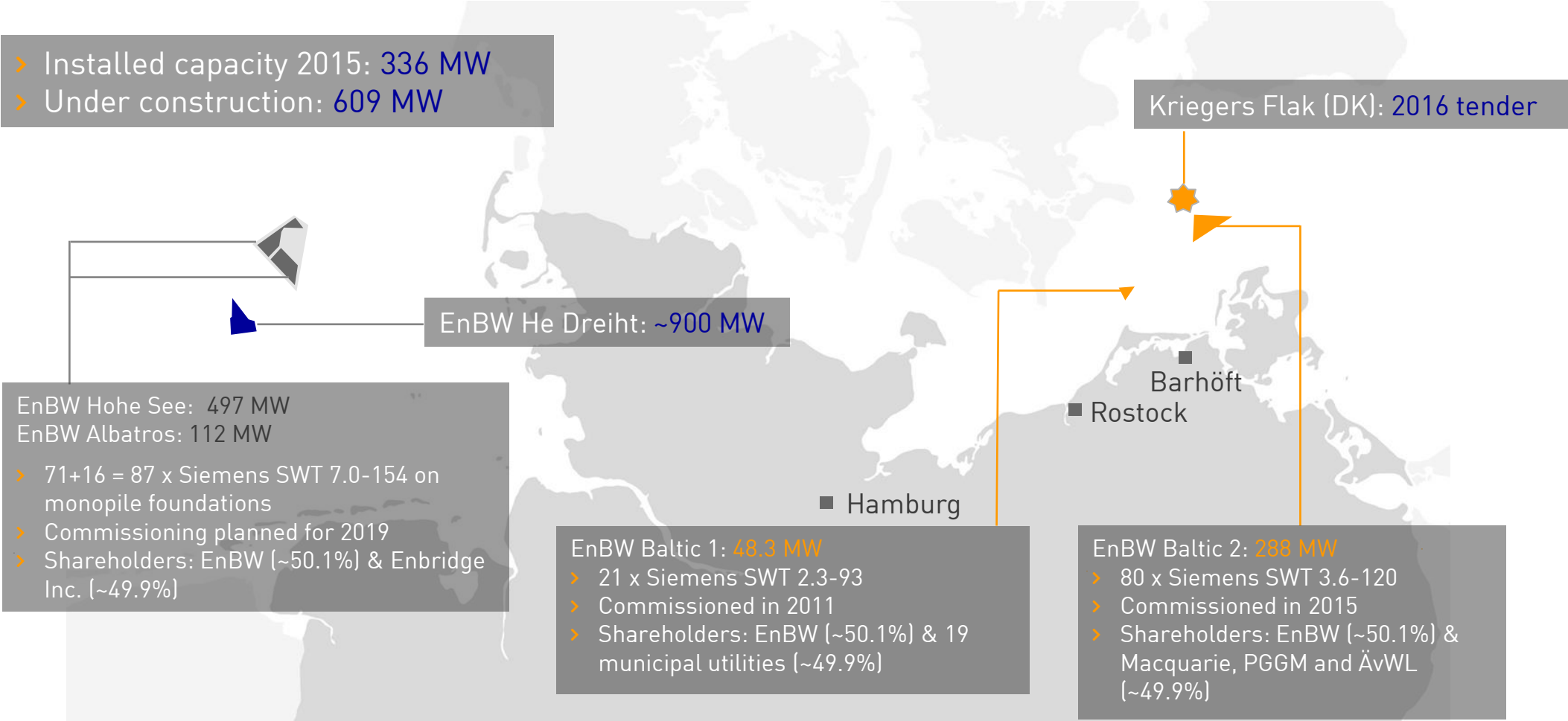




Success factor #1: experienced project developer

Example: project portfolio

- > Installed capacity 2015: **336 MW**
- > Under construction: **609 MW**



■ Under construction ■ Development stage ■ In operation



Success factor #1: experienced project developer

Example: project team

EnBW approach

- › Project office in Hamburg has grown continuously since 2009
- › All areas of expertise in project development covered by in-house resources
- › Selective in-sourcing of external expertise

Team



Areas of in-house expertise

Project management

Wind turbine technology

Foundations and substation steel construction

Substation technology

Inter array cabling

Offshore installation management and maritime logistics

Marine biology and environmental management

Geology and subsoil analysis

Health and safety

Quality assurance

Contract and claim management

Certification

Consenting and external grid

Commercial

Finance

Plus: interface & risk management, time scheduling, insurance, document management...



Success factor #2: size of wind farm

Comparison of project sizes

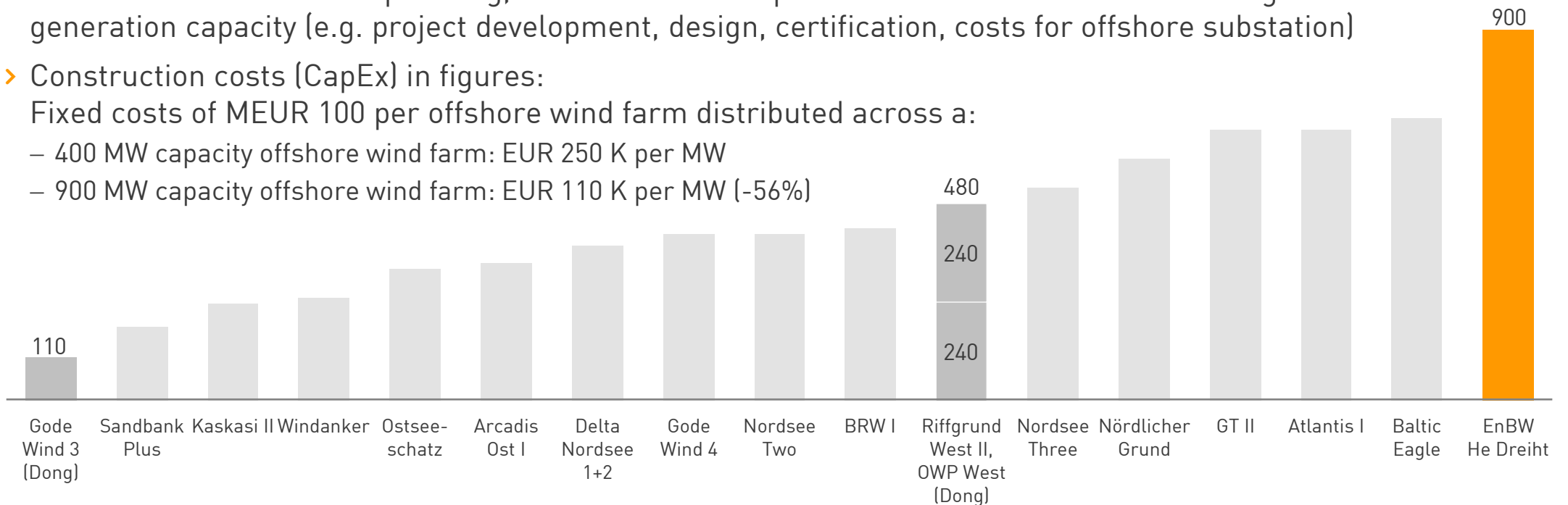
Overview of the qualified projects according to size¹

- › EnBW He Dreiht was by far the largest project in the auction
- › Economies of scale: fixed planning, construction and operation costs distributed over a larger installed generation capacity (e.g. project development, design, certification, costs for offshore substation)

- › Construction costs (CapEx) in figures:

Fixed costs of MEUR 100 per offshore wind farm distributed across a:

- 400 MW capacity offshore wind farm: EUR 250 K per MW
- 900 MW capacity offshore wind farm: EUR 110 K per MW (-56%)



¹ Several smaller Baltic Sea offshore wind farms were omitted for illustrative purposes.

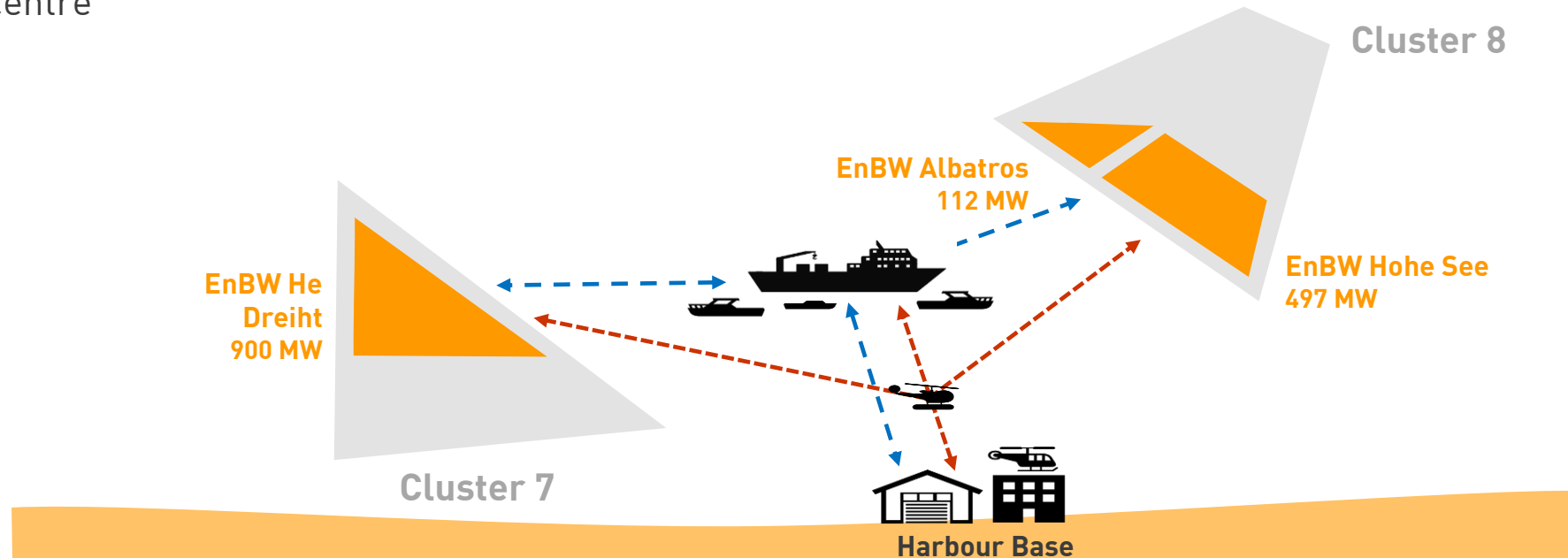


Success factor #3: synergies in operation

Example: EnBW cluster in the North Sea

Joint offshore logistics for three wind farms with a capacity of more than 1,500 MW

- › EnBW cluster consisting of the Hohe See (497 MW), Albatros (116 MW) and He Dreiht (900 MW) wind farms
- › The small distance of just 7 nm between the wind farms makes a joint logistical concept possible comprising several vessels and a helicopter; operating from a central harbour base and dispatch centre





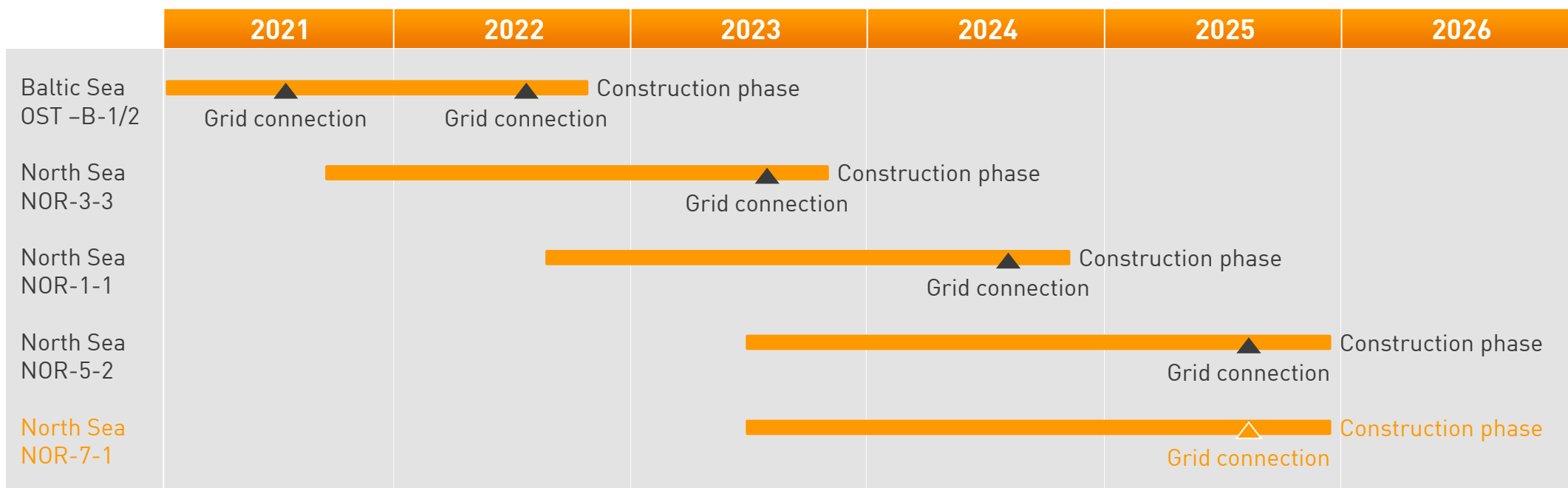
Success factor #4: time of commissioning in 2025

Example: schedule for connection to the grid in accordance with O-NEP



Auction scheme and Offshore Network Development Plan (O-NEP) define the time schedule for the realisation of the accepted projects

- Time schedules for the offshore wind farms under EEG 2017 are governed by the target dates for offshore grid connections in the Offshore Network Development Plan. System NOR-7-1 (relevant for EnBW He Dreiht) is due to be commissioned in 2025 and is one of the last grid connection systems for the transition phase of EEG 2017.

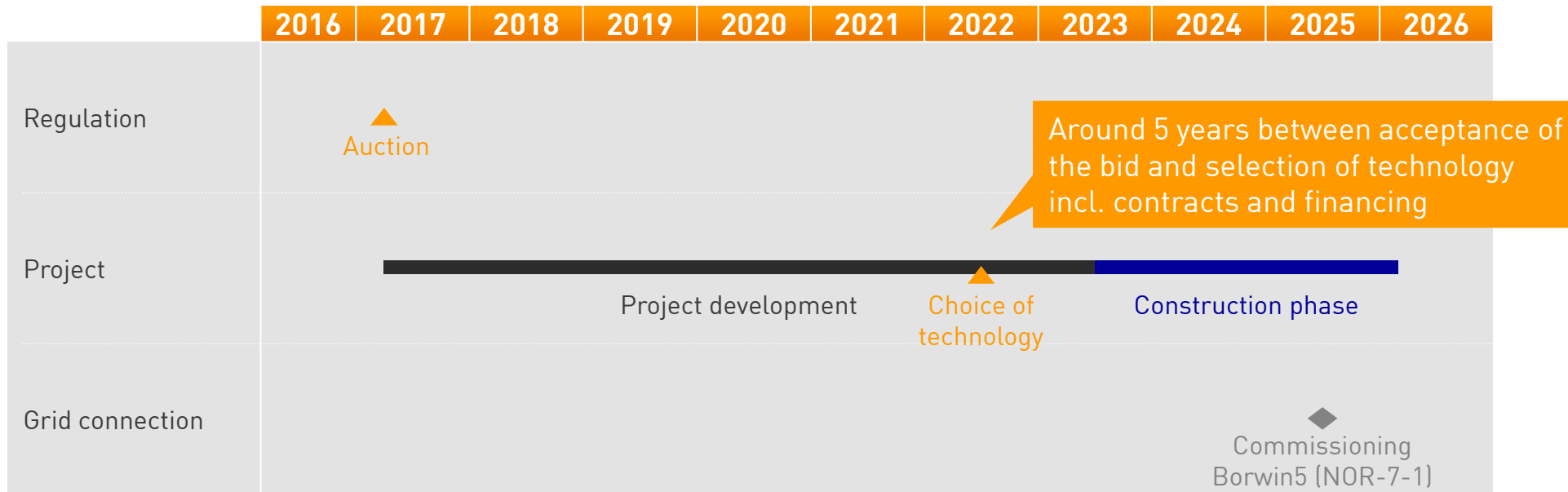




Success factor #4: time of commissioning in 2025

Example: time schedule & selection of technology

Due to the later connection to the grid via NOR-7-1, the technology for EnBW He Dreiht only needs to be chosen in early 2022



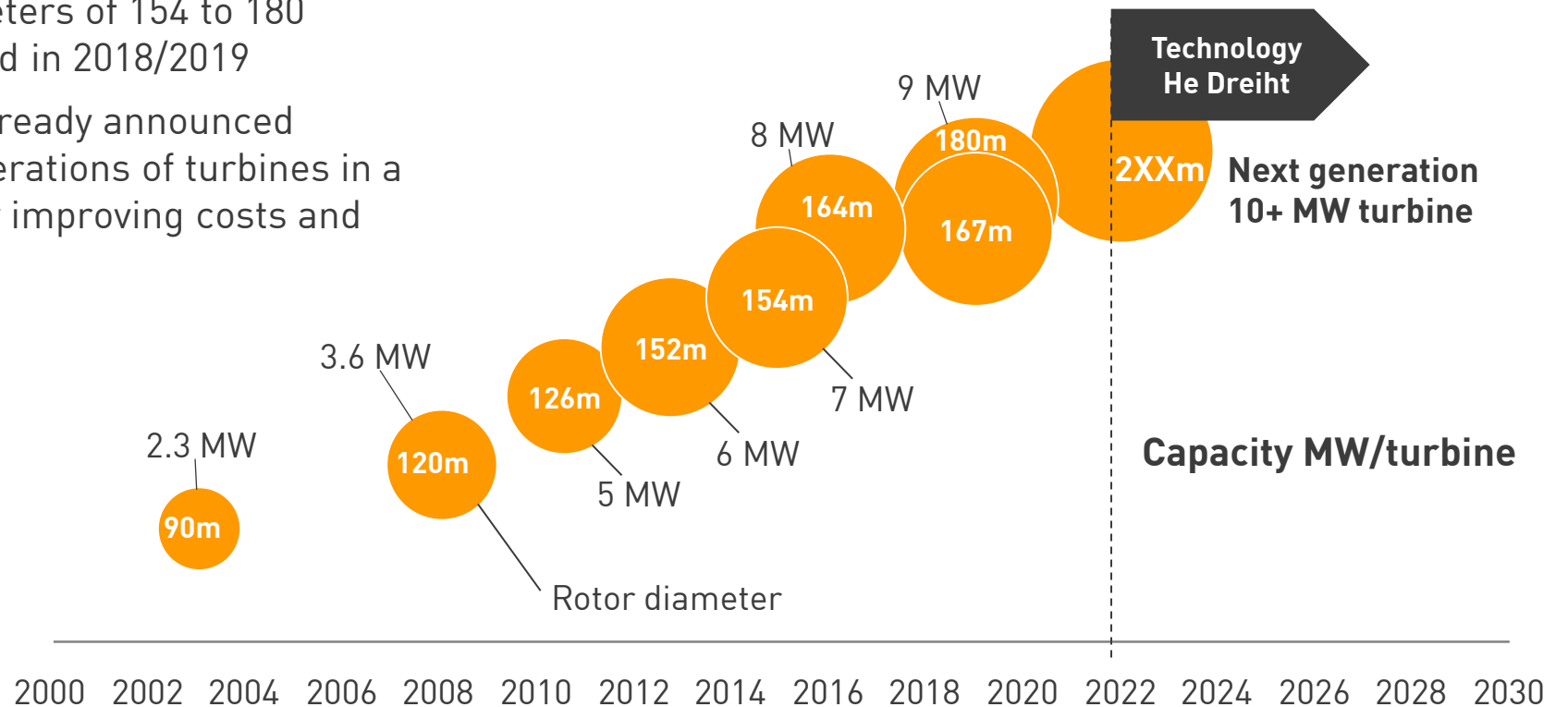


Success factor #4: time of commissioning in 2025

Example: technology and innovation

Turbine manufacturers are already developing the next generation of wind turbines

- > Current turbine technology in the 8 – 10 MW range with rotor diameters of 154 to 180 metres will be deployed in 2018/2019
- > Manufacturers have already announced availability of new generations of turbines in a few years, significantly improving costs and efficiency



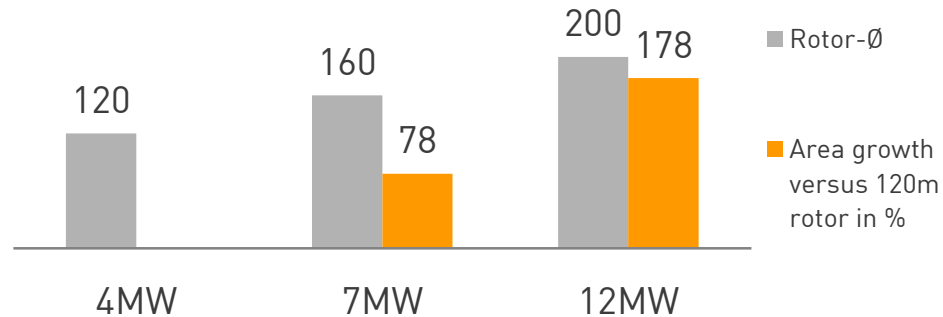


Success factor #4: time of commissioning in 2025

Example: enhanced yield, reduced foundation costs

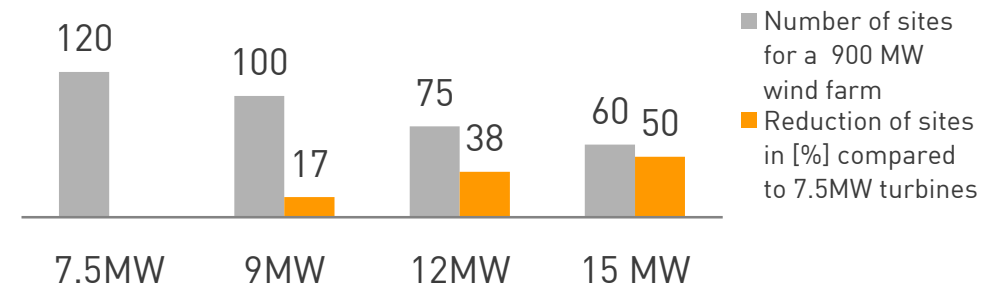
More powerful turbines with larger rotors have three positive effects:

- 1 > Energy yield = function of rotor surface
- > Effect of larger rotor diameters is significant because rotor surface increases by the power of 2 with the diameter



The area covered by a 200 m rotor (31416 m²) is equivalent to more than four football pitches and almost three times as large as the area covered by a 120 m rotor (11310 m²)

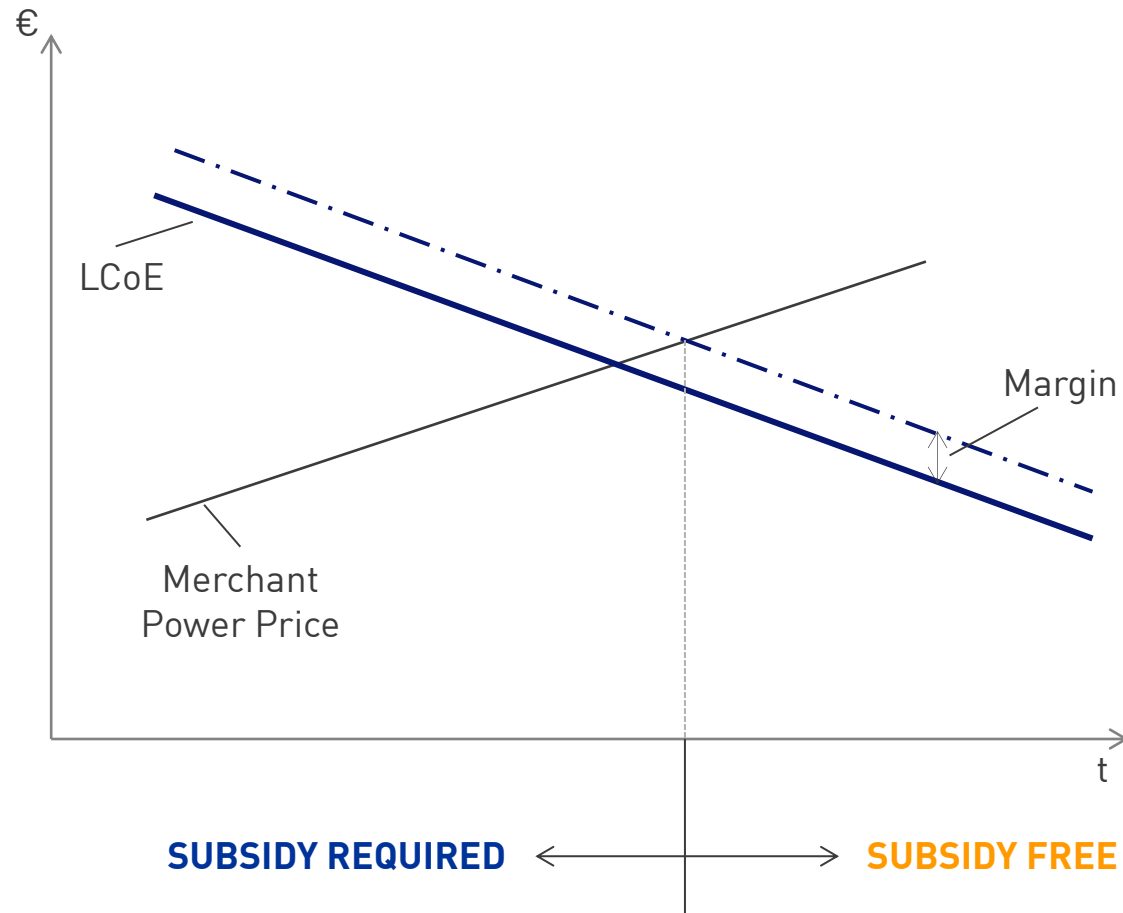
- 2 > Larger turbines mean that fewer turbines are required to obtain same overall wind farm capacity
- > Fewer turbines mean faster installation and thus reduced exposure to weather risks
- > This results in lower specific installation costs



- 3 > Maintenance costs mainly driven by the number of sites rather than the capacity of each turbine
- > Fewer sites mean lower O&M costs



Time to break even



- 1. Drivers for lowering LCoE:**
 - a) Total size of wind farm (fixed cost depression)
 - b) Technological developments/innovation (turbine capacity)
 - c) O&M synergies with surrounding wind farms
 - 2. Drivers for increasing merchant power prices:**
 - a) Price increase for CO₂ and fossil fuels
 - b) Phase-out/reduction of power generation capacities
- The combination is decisive



EnBW's path to its current market position



Organizational aspects – Transform existing DNA as an asset operator to a best-in-class project team for offshore wind

Benefit from decades of experience in developing, building & operating complex and large-scale power generation assets

Utilise the organisation's broad range of expertise by setting up multidisciplinary teams. Turn division of labour into a gain rather than a pain.

Change your image of projects and allow the projects to change the organization

Expertise and excellence Approach and skills

Start small and simple, transfer lessons learned and then increase size and complexity

Cover all project phases from early development until operation

Know the product you are buying and have a rock-solid understanding of the risks involved



The future of offshore wind/EnBW's next steps



Future of offshore wind

Mature markets (NL, F, D): increased competition, more zero-subsidy bids/market integration

Young markets (Taiwan, USA, Korea): establishment of regulatory frameworks; more countries entering market due to zero-subsidy bids

Technological developments: larger turbines; floating structures allow offshore wind in vicinity of large populations and also in deeper waters (i.e. West Coast of USA)

Consolidation of supply chain (OEMs)

Next steps

Completion of EnBW Hohe See and Albatros by end of 2019

Further development of EnBW He Dreiht

Participation in selected European auctions. Monitoring global developments

Only competitiveness brings opportunities – being the best in class



The future of offshore wind – EnBW's next steps



1

The Hohe See and Albatros offshore projects are making a major contribution to achieving the targets in our EnBW 2025 strategy

2

High competitiveness enables the successful acquisition of new offshore wind projects, while excellence and experience ensure they are delivered on budget

3

Offshore wind will be a significant pillar of our strategy even after 2020. Therefore, we will selectively participate in European auctions and monitor global developments



Questions & Answers



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