The German Energiewende from an Industry Perspective

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BDI The Voice of German Industry

Energy Exchange Series

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The BDI – as the federation of German industries – represents 38 German industry associations vis-à-vis policy makers

Introduction: BDI - Bundesverband der Deutschen Industrie

Umbrella organisation

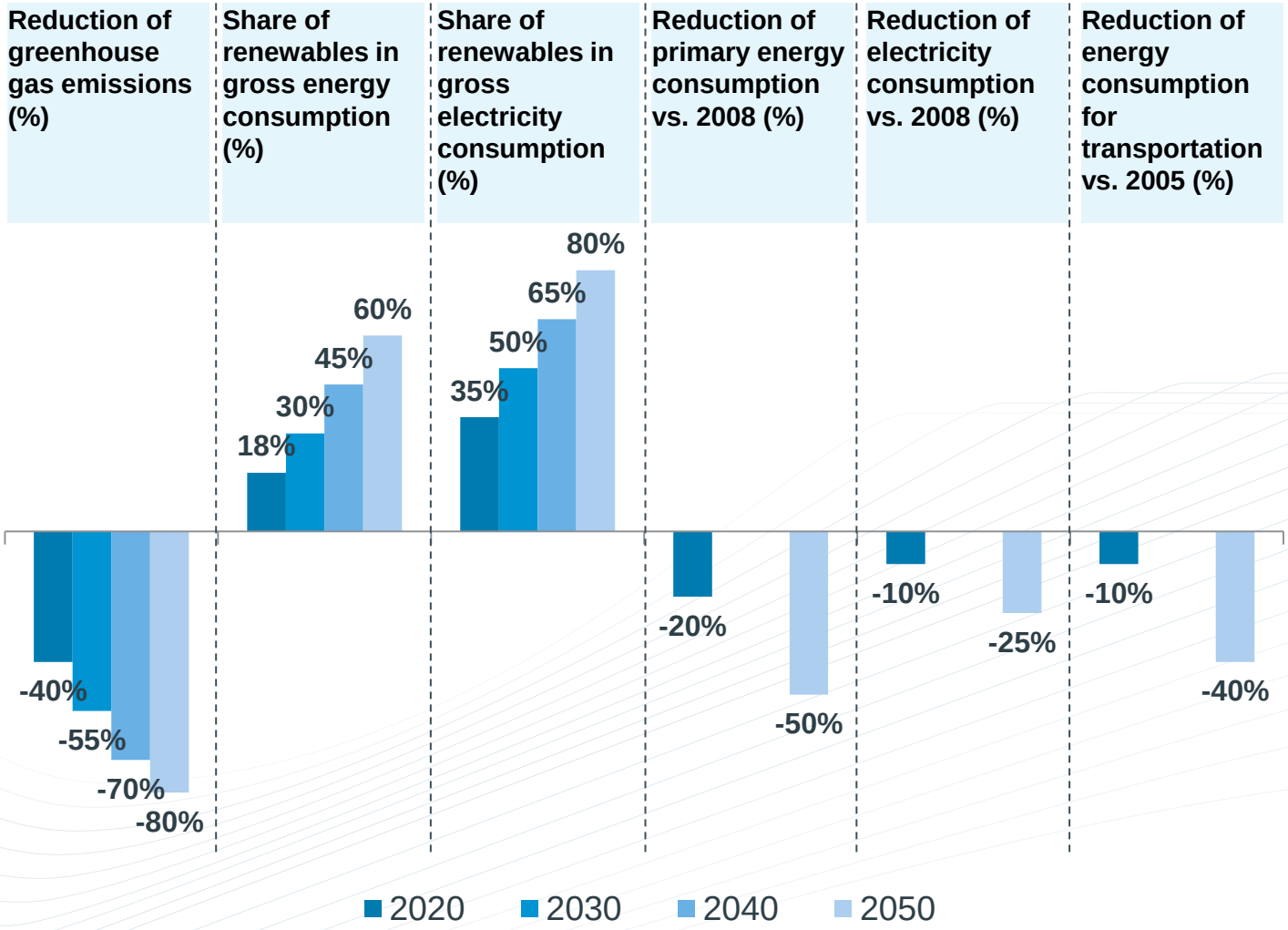
38 industry associations

~100.000 Companies
~ 8 Mio. employees

- **Voice of German Industry** vis-à-vis:
  - German Government,
  - European Union (EU),
  - Public and Press
  - International partners

The German government has set different targets to shift the whole energy system to a more sustainable one

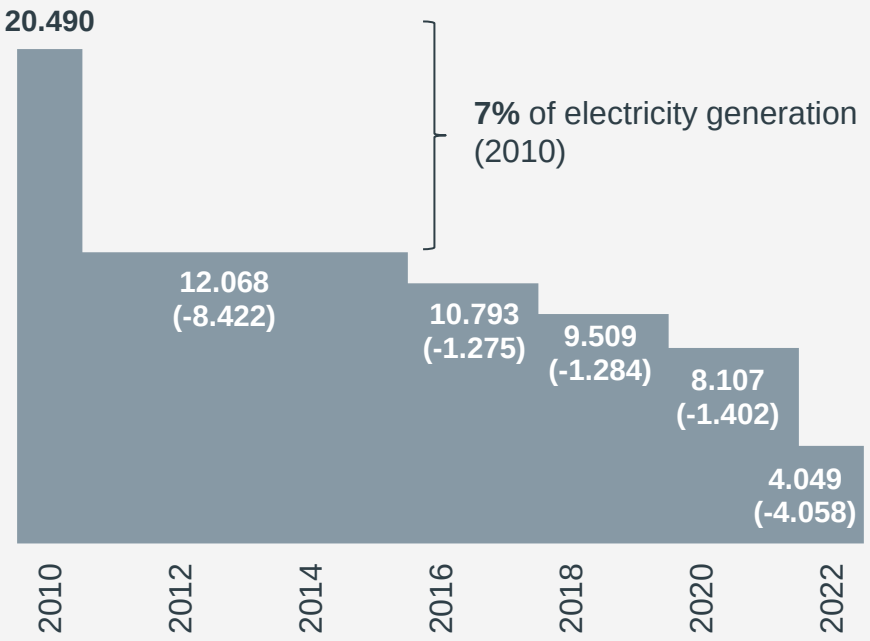
Selected Energiewende targets



No nuclear power plant is going to generate electricity in Germany from 2022 onwards

Timeline of scheduled nuclear phase-out in Germany

Development of installed capacity of nuclear power in Germany (MW)



Baseload capacity will need to be replaced.

Yet: quantity of future necessary baseload still unclear.

Current market environment discourages investment in conventional generation.

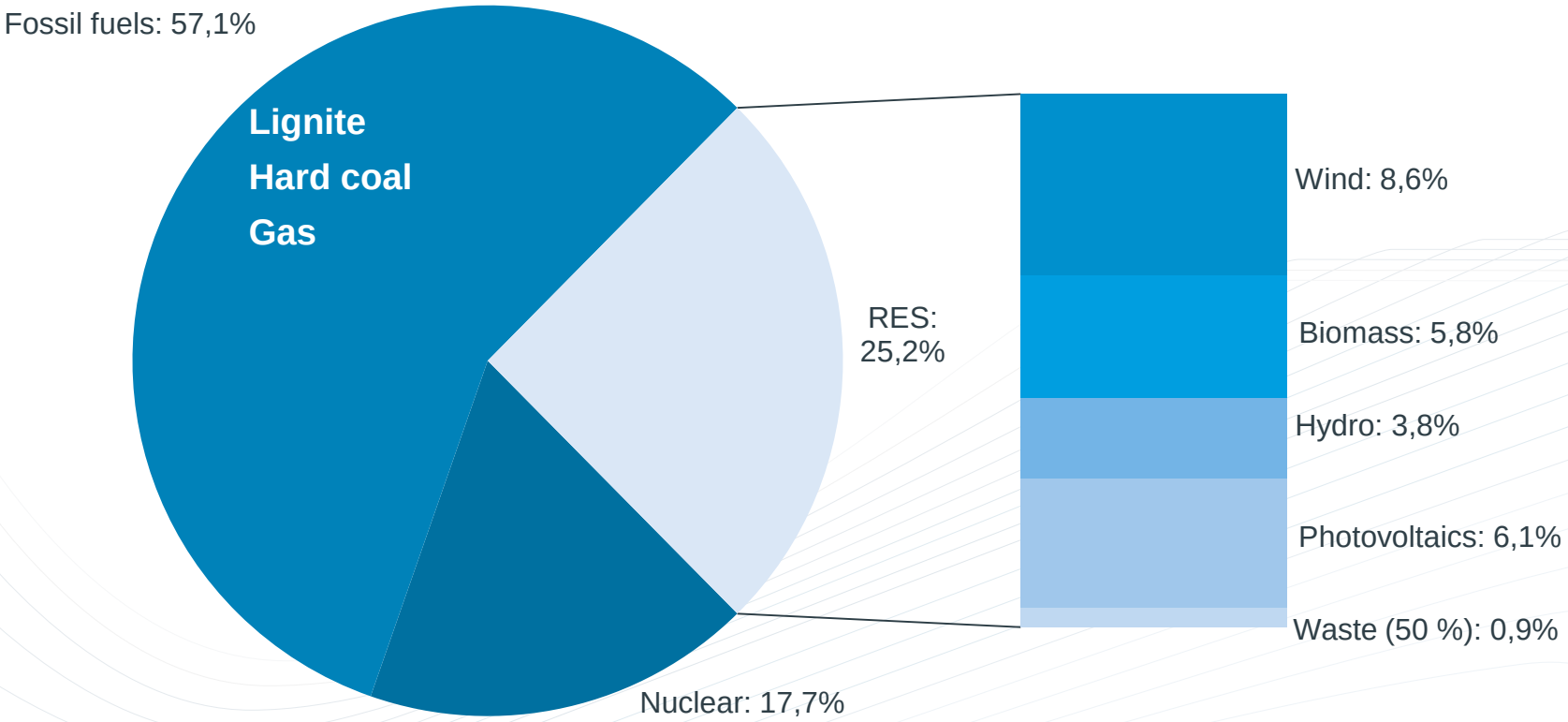
Regional perspective to the nuclear phaseout. Southern-Germany especially affected.

Source: BDEW

During the last years the share of renewables has increased

Gross electricity generation 2012

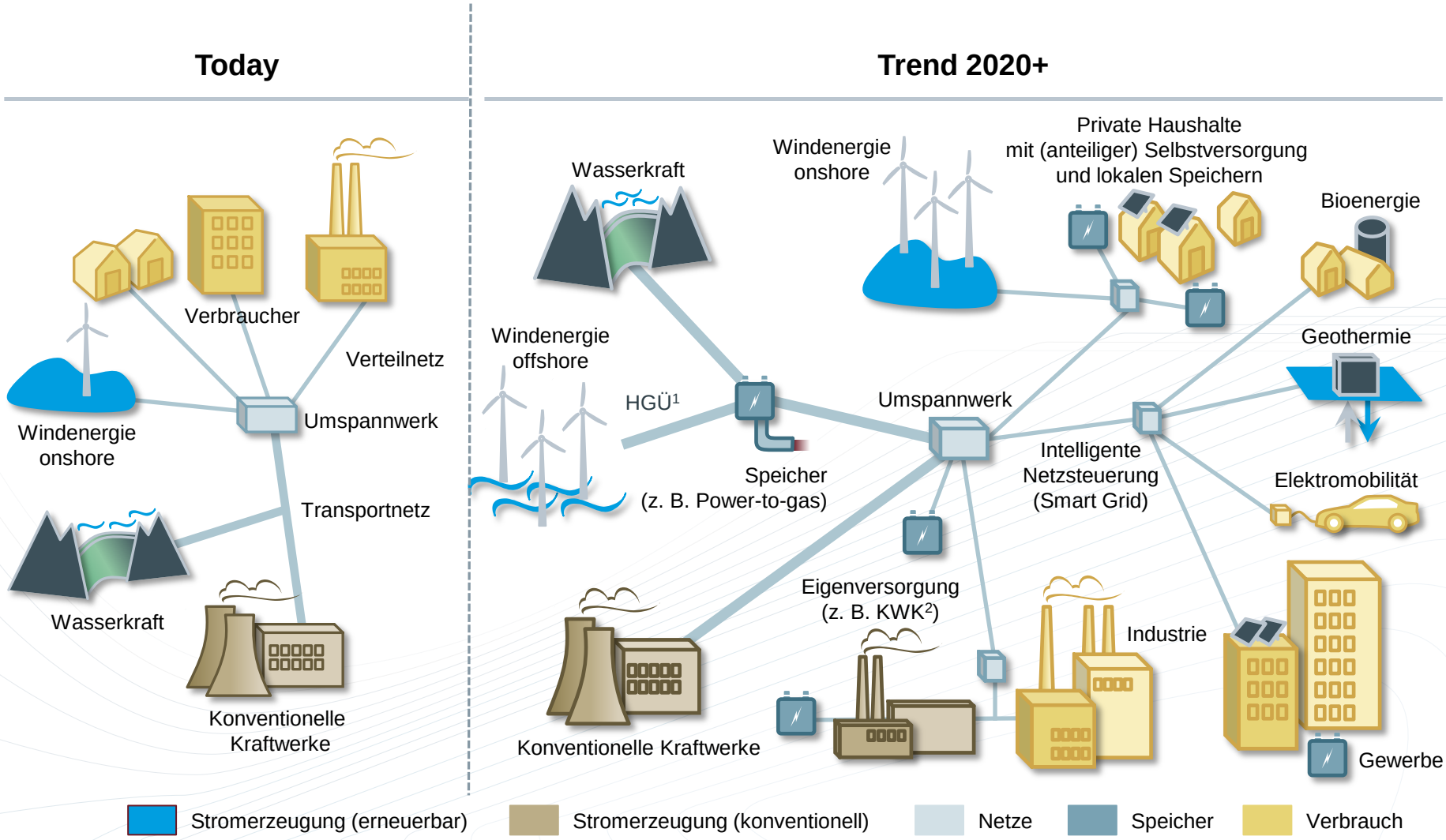
Gross electricity production Q1-Q3 2012 in Germany: **408,1 bn. kWh**



Source: BDEW

The Energiewende is fostering various technologies and changing the German energy landscape

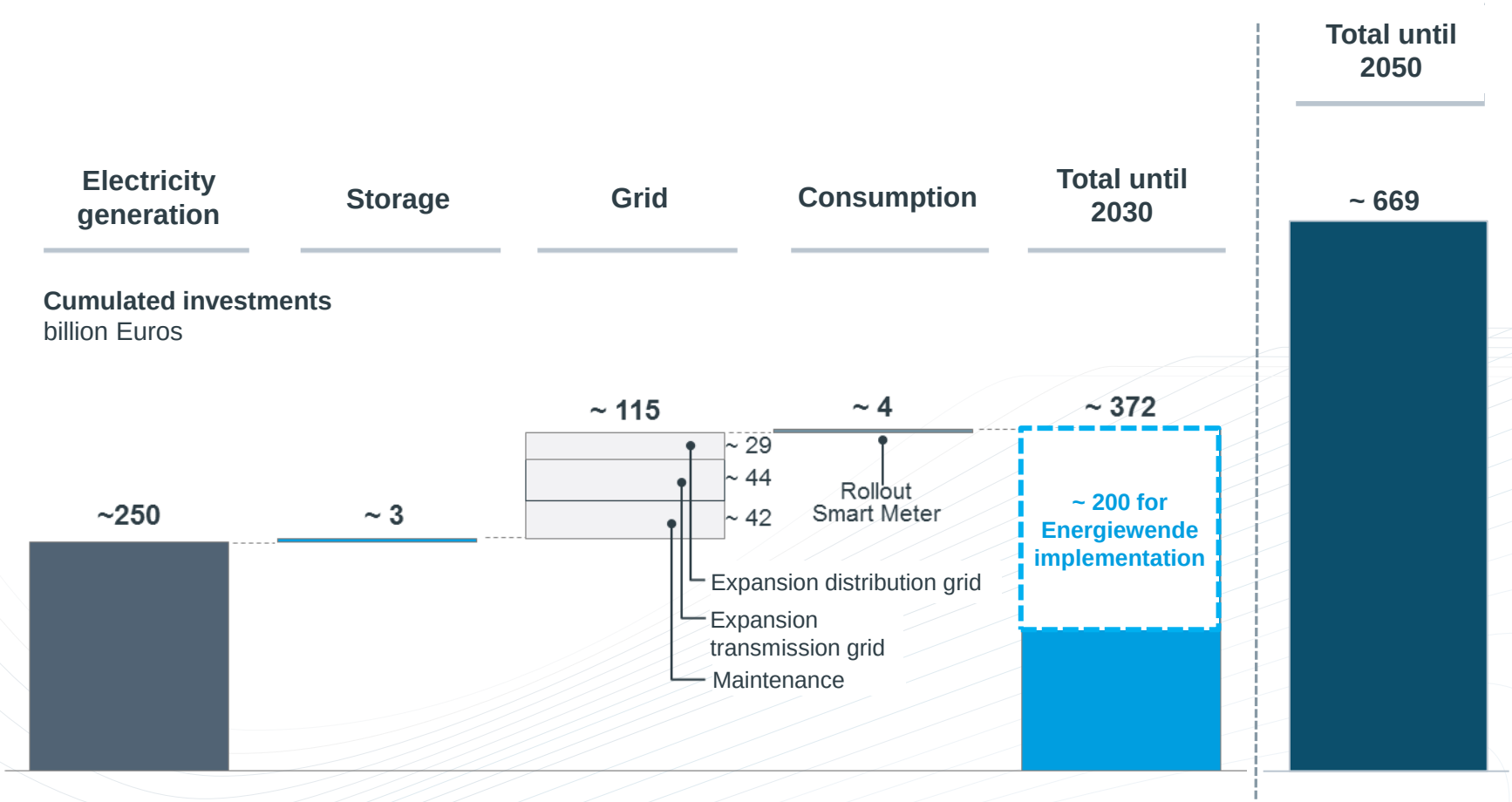
Change of energy landscape in Germany (schematic)



1. HGÜ = Hochspannungsgleichstromübertragung **2.** KWK = Kraft-Wärme-Kopplung
Source: BCG

Implementing the Energiewende requires investments of ~ € 200 b into the German electricity sector until 2030

Forecast of cumulated necessary investments into German electricity system (target scenario)



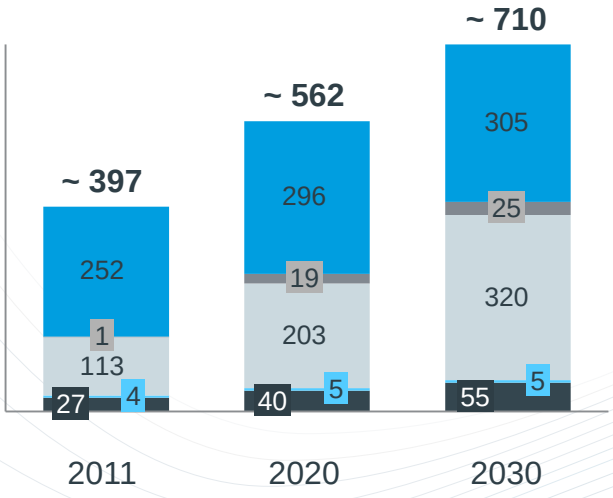
Source: BCG

The Energiewende means worldwide revenue potentials with end products of more than € 60 b p.a. for German enterprises in 2020

Forecast of revenue potentials with respect to different technologies

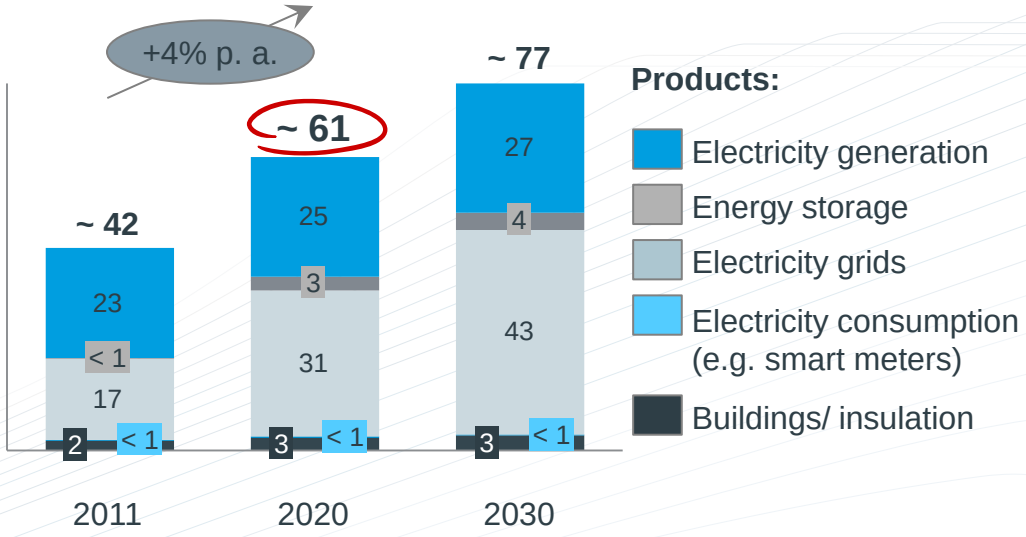
Global market

Revenue potential
billion € p. a.



Thereof potential for German enterprises

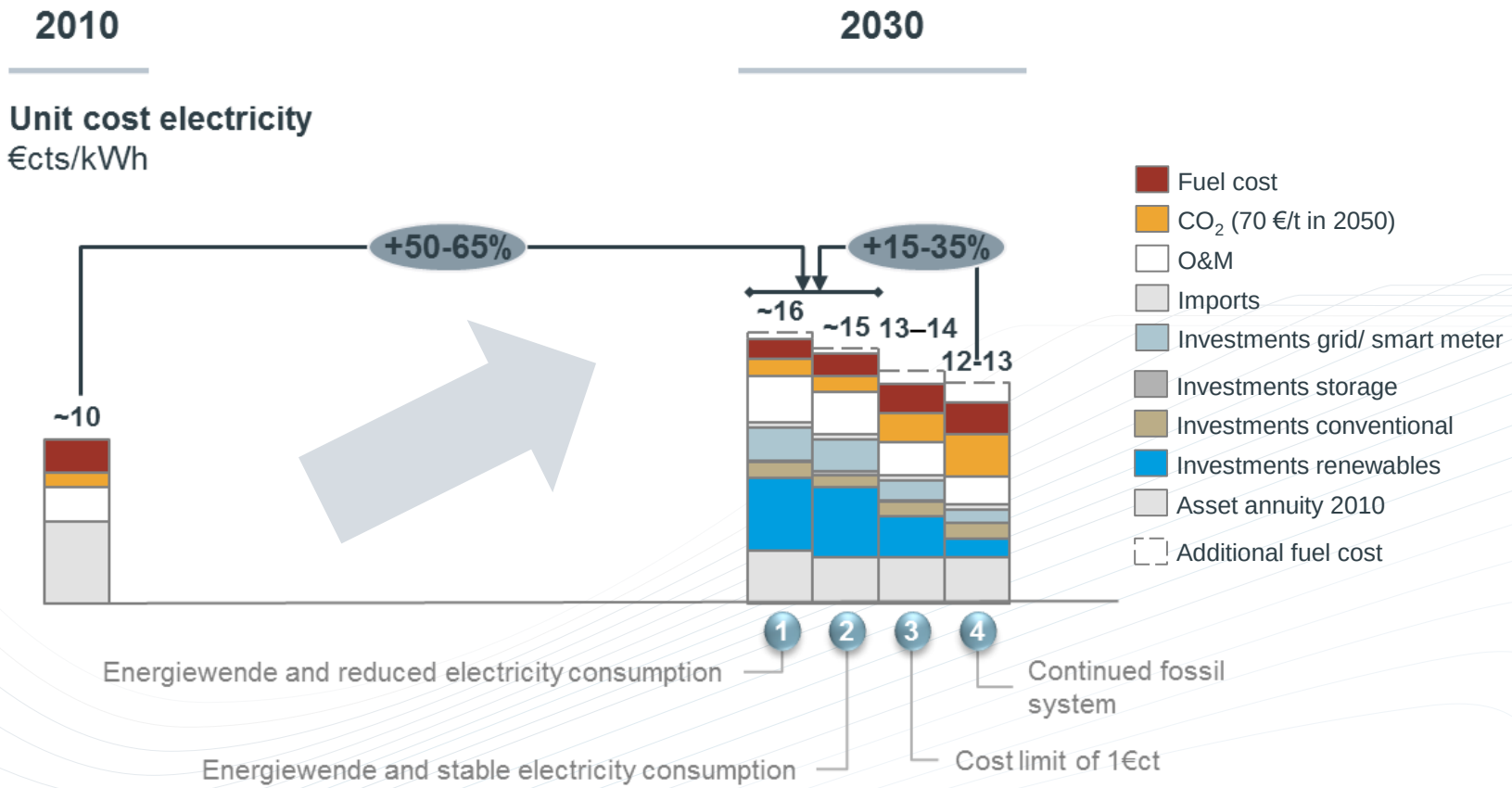
Revenue potential
billion € p. a
share of German enterprises in global market constant



Source: BCG

On the other hand unit cost of electricity will rise by 15 – 35% compared to continuing the current system until 2030

Forecast of unit cost development of electricity

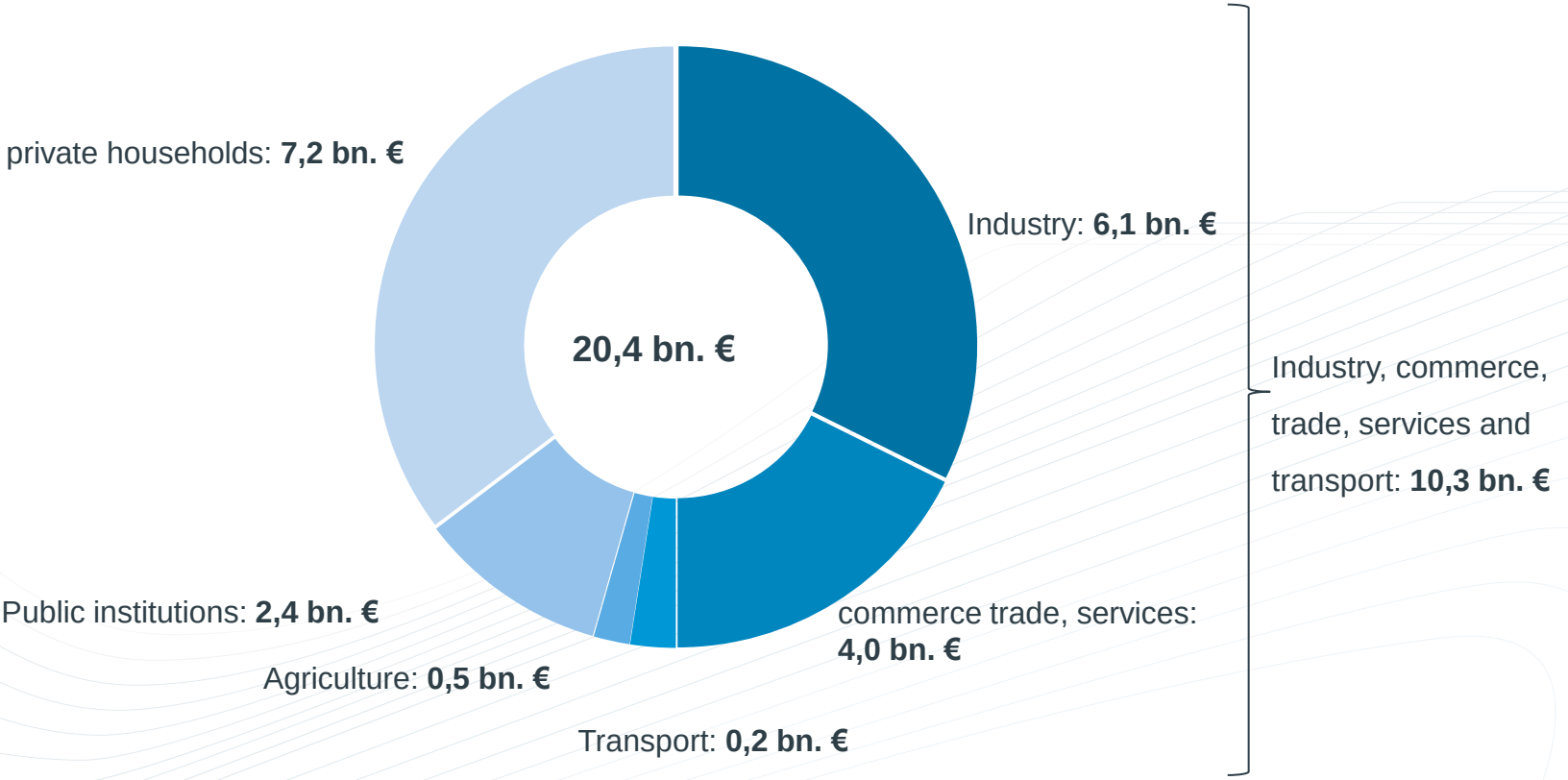


Source: BCG

Currently, households and industry cover more than 2/3 of Energiewende cost

Energiewende cost (EEG only) distribution for electricity consumers

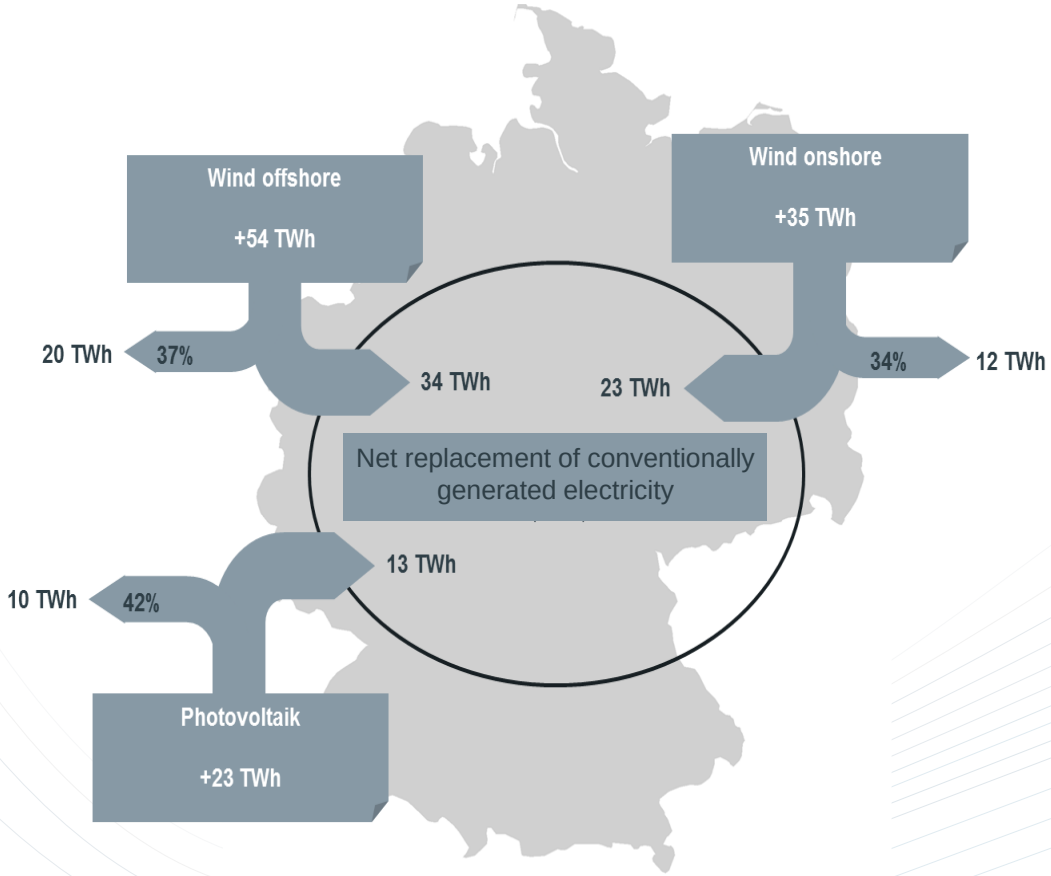
Costs that have to be borne by the customers for the EEG 2013: **20,4 bn. €**



Source: BDEW

More than one third of additional renewable generation in 2022 will only contribute to the increase of German export surplus

Overview: selected expected electricity flows in 2022 (target scenario)



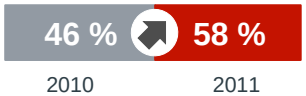
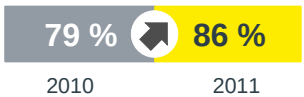
- Generation and load in Germany will diverge
- Hours of high feeding-in of renewables and low demand create market incentives to export electricity abroad
- In 2022 the electricity generated from renewables can only be integrated into the German electricity market by about two third

The Energiewende is a European challenge and therefore has to be approached on the European level.

Source: EWI

Current status of Energiewende: mixed picture.

BDI Energiewende navigator 2012 – results at a glance

Impact on climate and environment 	**Good progress due to rapid extension of renewable generation capacities** ▪ Share of renewables in primary energy and electricity consumption with complete target achievement ▪ Transportation sector behind expectations
Economic Feasibility 	**Economic feasibility critical due to increasing electricity prices** ▪ Electricity prices on high levels compared to other countries ▪ Constant energy consumption despite GDP growth
Supply Security 	**Sufficient generation capacities, but grid extension behind schedule** ▪ Generation capacities currently covering demand (only regional need for action ▪ Network capacities still sufficient, but extension lagging behind
Public Acceptance 	**Public acceptance high in general, but low when increasing cost come into play** ▪ Broad support in population; cost increase regarded as critical issue ▪ Industry expecting higher cost; supply security regarded uncritical
Innovation 	**R&D expenditures in field of energy remaining on low levels** ▪ Public environment-related R&D expenditures in 2010 less than in 2008 ▪ Increasing share of "Green Energy Patents"

Target achieved (10% tolerance) | 89% to 75% target achievement | Less than 75% target achievement

In case of any questions please do not hesitate to contact us.

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