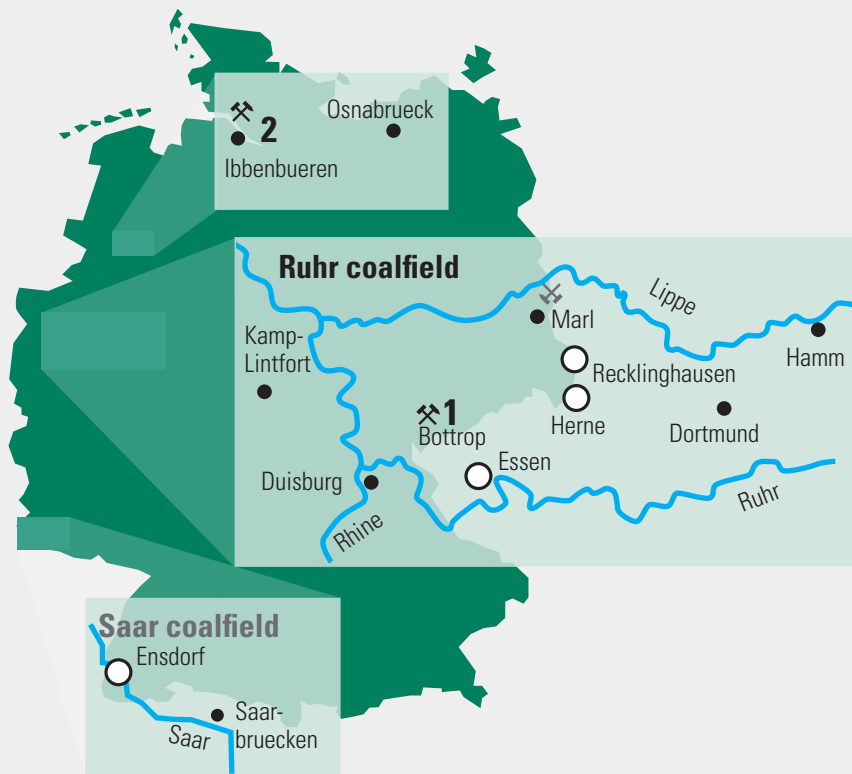


German coal industry sites



- Bergwerke**
 - 1** Prosper-Haniel
 - 2** Ibbenbueren
- Auguste Victoria**
(Mine closure to 01.01.2016)
- RAG sites**
 - Herne:**
RAG
RAG Deutsche Steinkohle
RAG Mining Solutions
RAG Ruhnanalytics
RAG Sales
GVSt head office
 - Essen:**
RAG Montan Immobilien
 - Recklinghausen:**
RAG internal auditing
 - Ensdorf:**
Saar regional admin. centre

Development history of RAG

1968	1997	2007	2018	2019
Ruhrkohle AG established	Reorganised as the diversified RAG Group	Core business – mining German coal	End of subsidised coal production	RAG now to focus on post-mining activities

Graphics: RAG, 2016

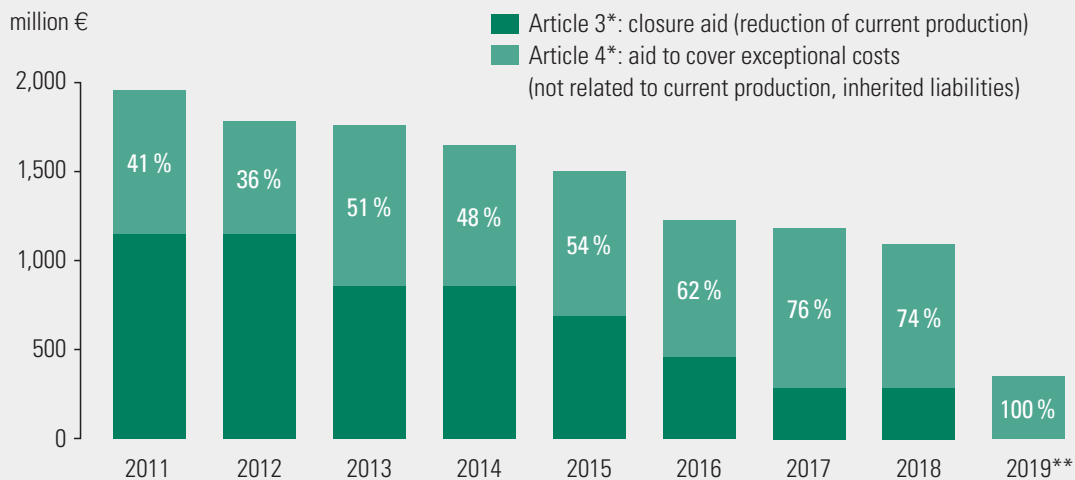
The current STEAG Strategy House



Graphics from the STEAG Company Report, 3/2016

*commercial projects in non-focus countries

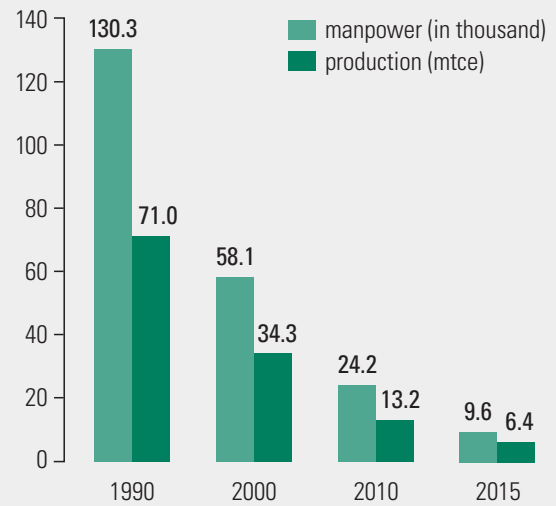
Closure aid for the German coal industry authorised under EU law



* according to Council Decision 2010/787/EU

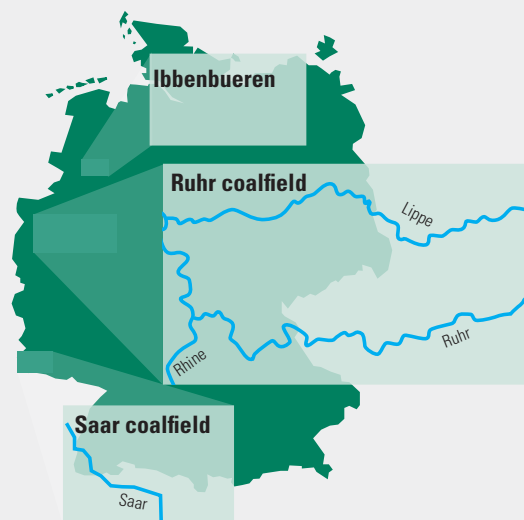
** As from 2019 depreciations resulting from the closure of the last mines and additional costs for closed production units may be distributed over several years. Estimate for 2019.

Adaptation in the German coal industry



Abandoned RAG mines

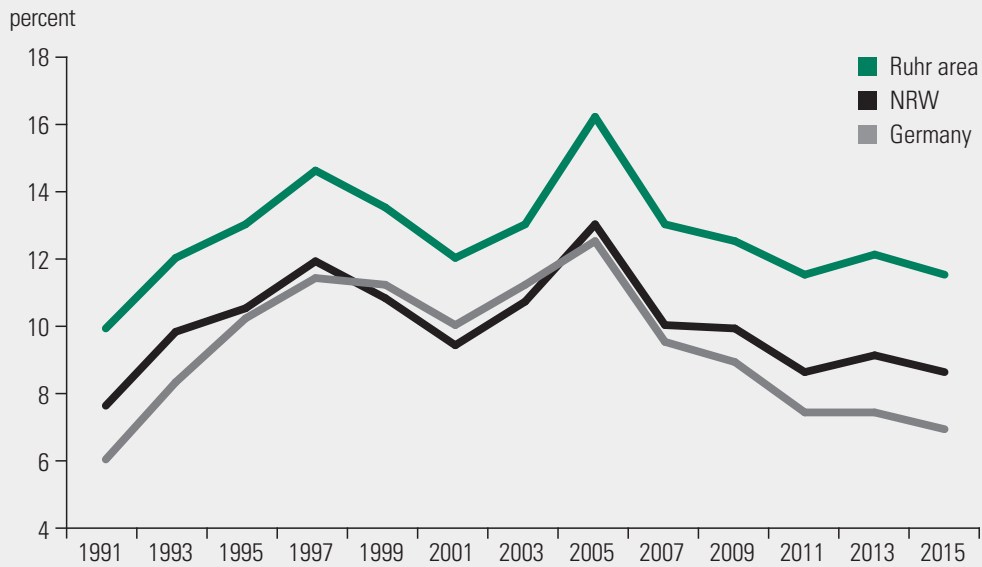
Number of RAG coal-mining easements	728
Area covered	5,283 km ²
Number of RAG non-coal easements	51
Area covered	138 km ²
Mine openings within the remit of RAG	7,348
Area covered by shallow and near-surface mine workings	285 km ²
Remediation and securement sites as at 2015	52



Source: RAG

Trends in unemployment rates for the Ruhr area compared with NRW and Germany overall

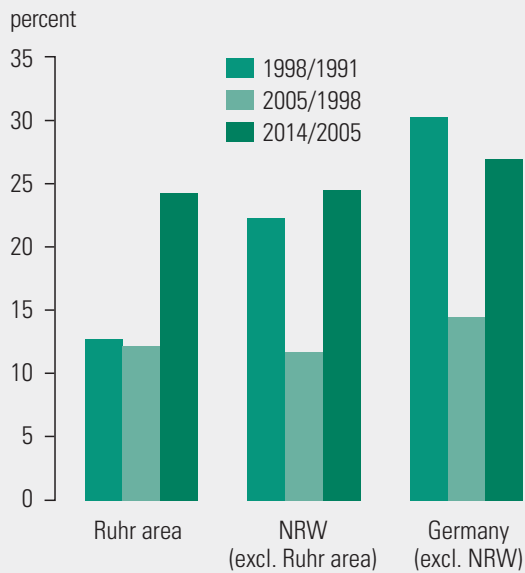
Unemployment rates (BfA), on a September basis



Source: RVR, 2016

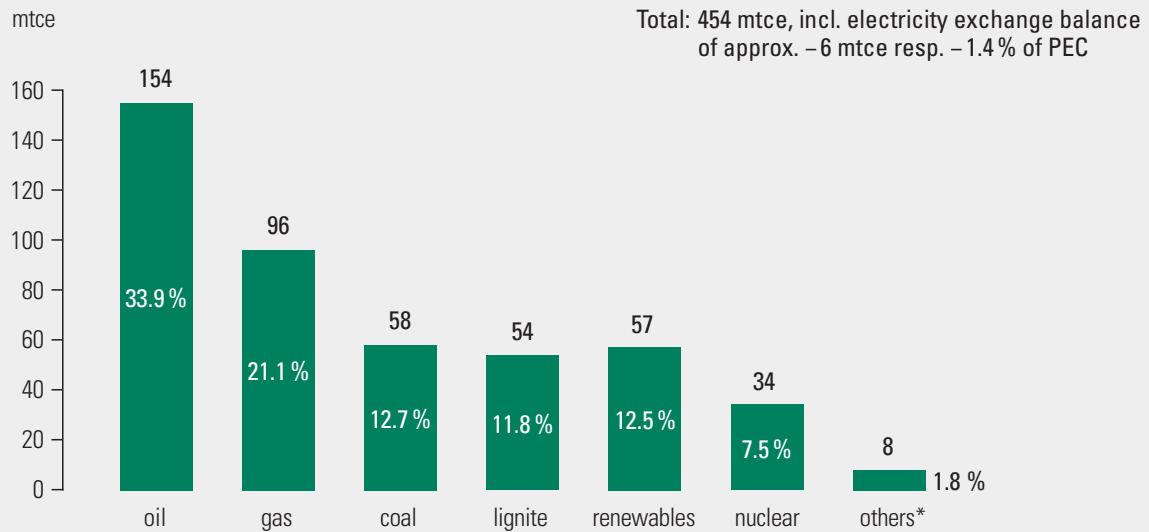
Development in GDP growth in the Ruhr area set against that of NRW and Germany overall

Nominal GDP growth rates for the given period



Source: IT.NRW 2016 (regionalised GDP figures for the Ruhr area only available to 2014); own calculations

Primary energy consumption in Germany 2015



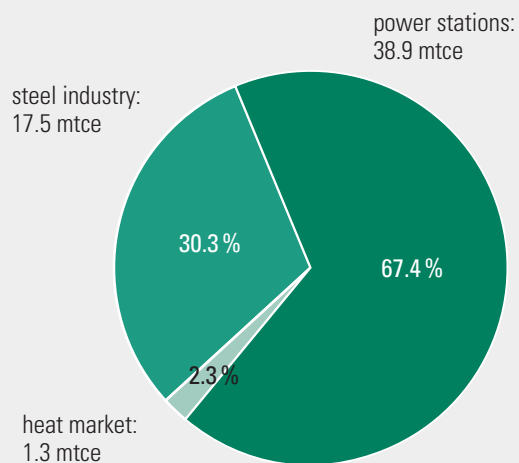
Source: AGE, 3/2016

* esp. non-biogenic waste

Consumption structure of the German coal market 2015

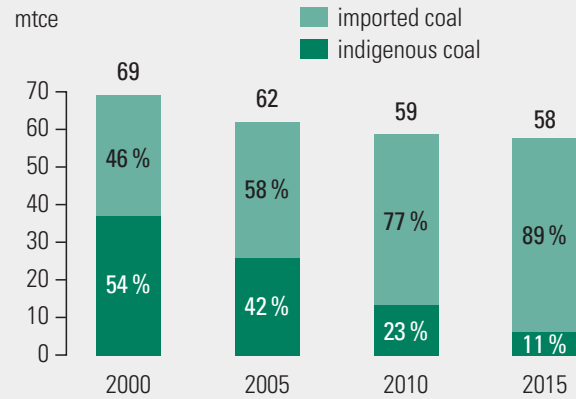
Total coal sales:
57,7 mtce

of which from indigenous production:
6,4 mtce (= 11%)

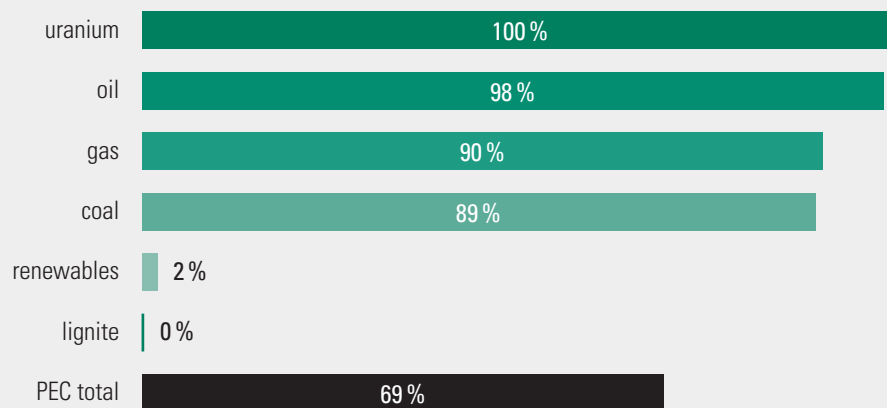


German coal market: consumption of indigenous and imported coal

Market shares of indigenous and imported coal in Germany

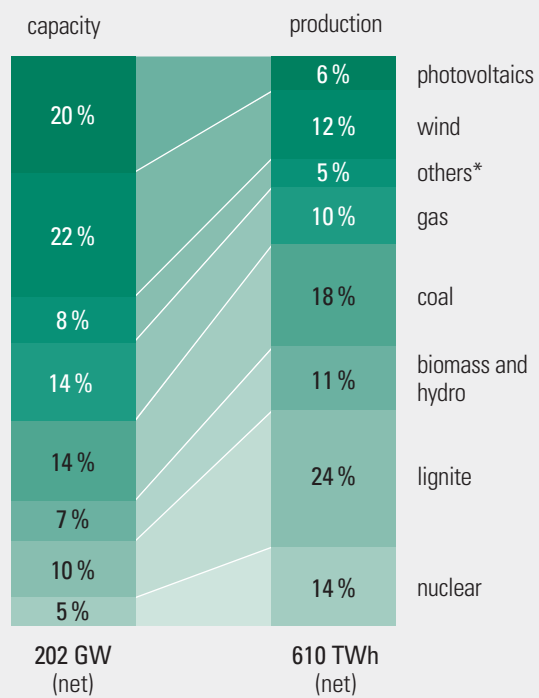


Germany's reliance on energy imports 2015



Sources: AGEB, 3/2016; own calculations

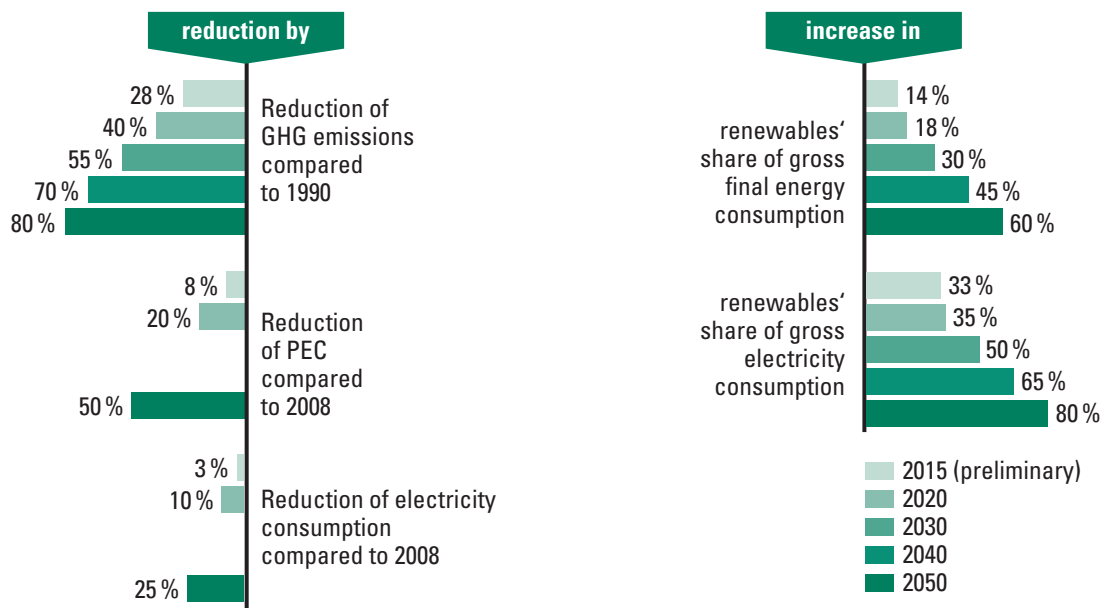
Power station capacity and electricity production in Germany 2015



* oil, non-biogenic waste, landfill/sewage/mine gas, pumped storage etc.

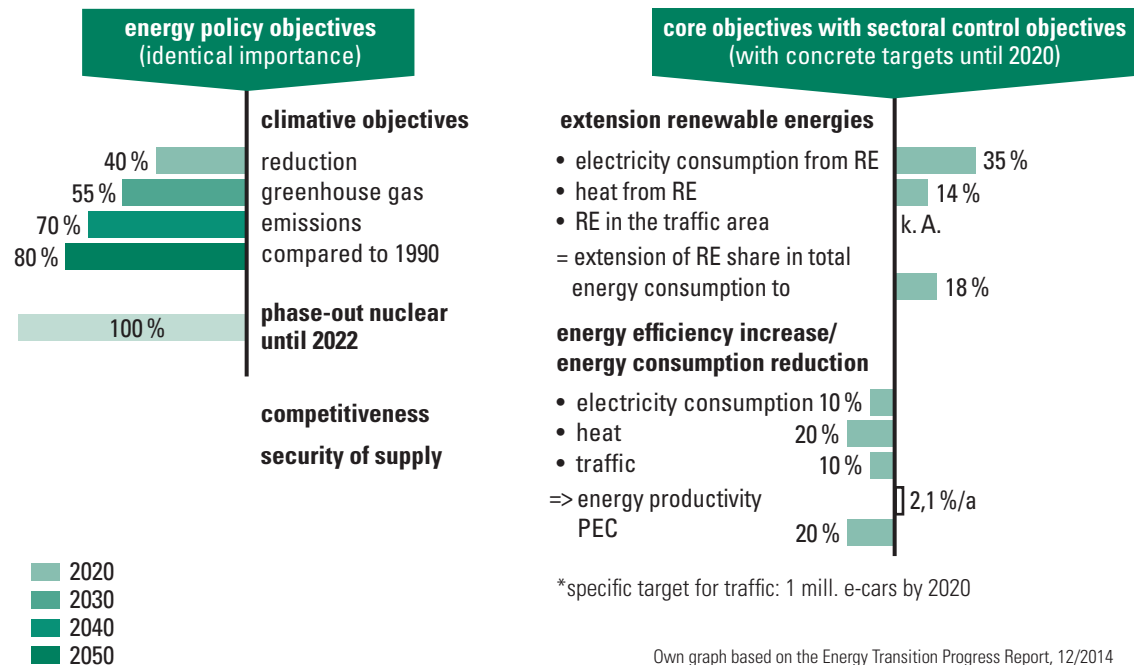
Sources: BDEW, 4/2016 and 8/2016 (preliminary)

The German Energy Plan: targets and timeframes



Sources: Energy Transition Progress Report, 12/2014; UBA, 2/2016; AGEB, 3/2016

The German Energy Plan: New "target architecture"/systematic approach for the target system

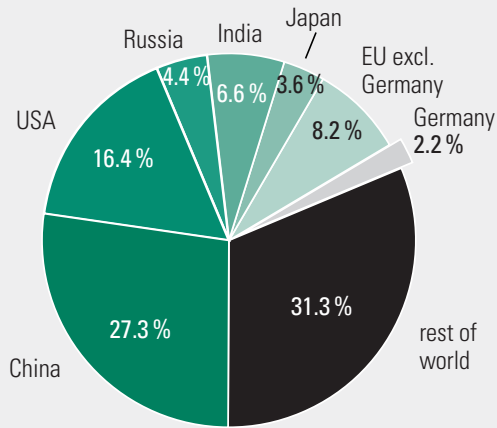


Own graph based on the Energy Transition Progress Report, 12/2014

Global CO₂-emissions

CO₂-emissions 2015: 33.5 bn t CO₂

Increase since 1990 (reference year for Kyoto Agreement): 53.9%, annual average: 1.7%

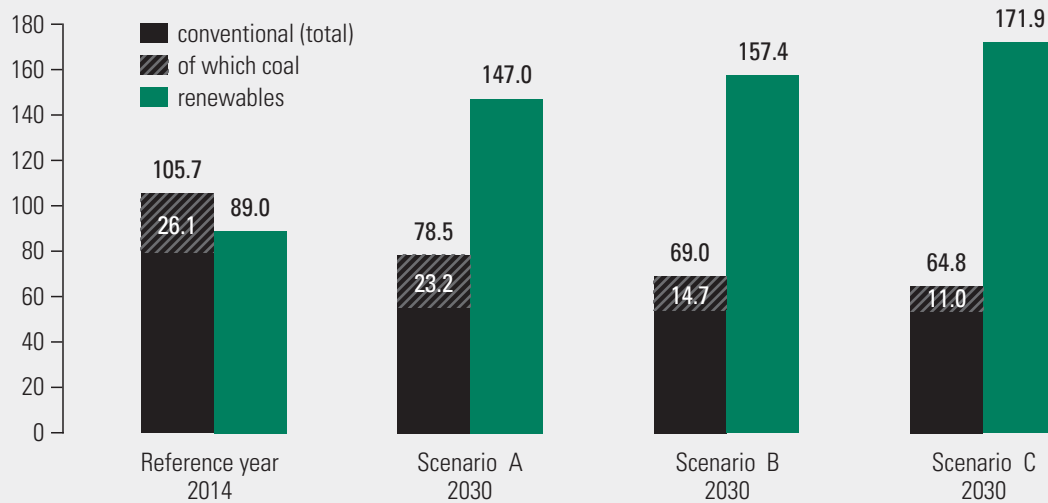


Sources: BP 6/2016; own calculations GVSt

Scenario settings developed by transmission system operators for domestic power generation capacities in 2030

Installed generation capacity in Germany 2014 and future outlook (scenarios)

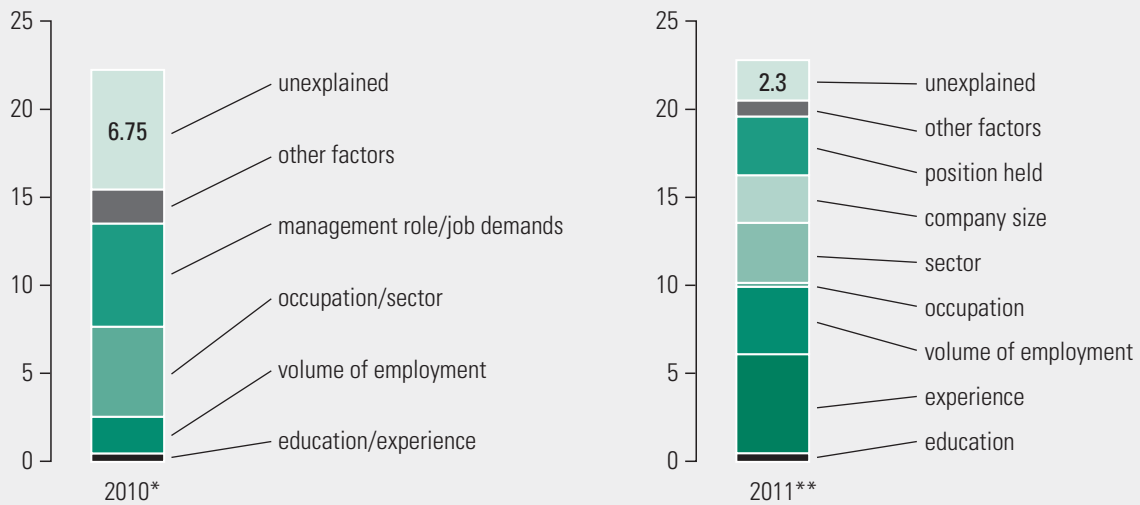
GW



Source: Federal Network Agency, 2016

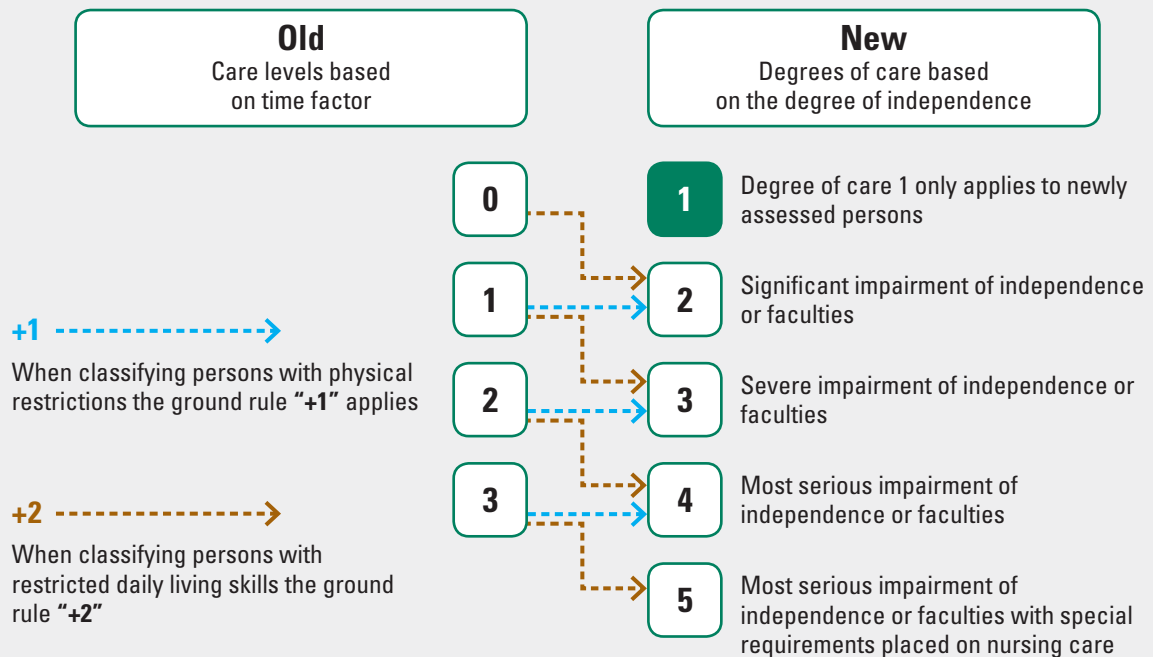
Pay equity – factors underlying the wage gap between men and women

Wage differential in percent – analysis of changing trends



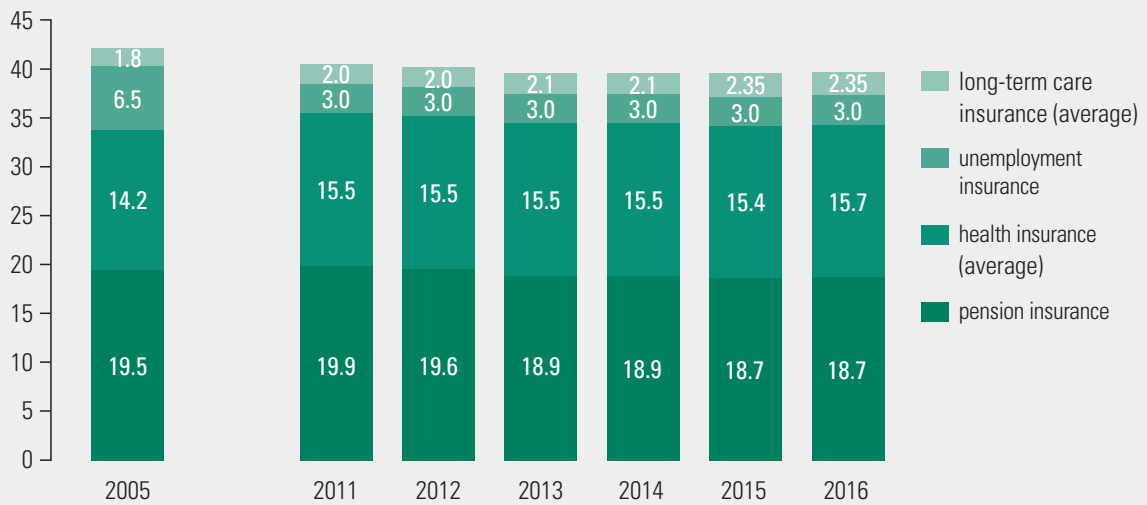
Sources: *Federal Statistical Office (2013); ** based on SOEPv.29 gender pay gap

Transition from level of care to degrees of care



Source: Federal Health Ministry, 2016

Development of the total social insurance contribution*

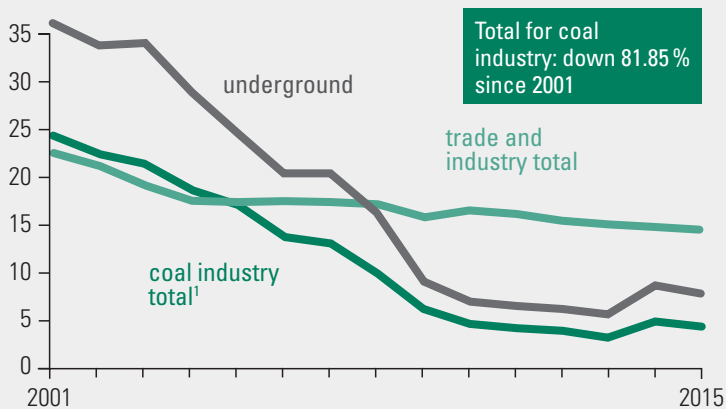


* total of the contributions to pension, health, unemployment and long-term care insurance (shares of employers and employees) in percent of the salary subject to social insurance contributions

Sources: DRV KBS; Bundesanzeiger 2015

Accident trends

accidents (total per million hours worked)



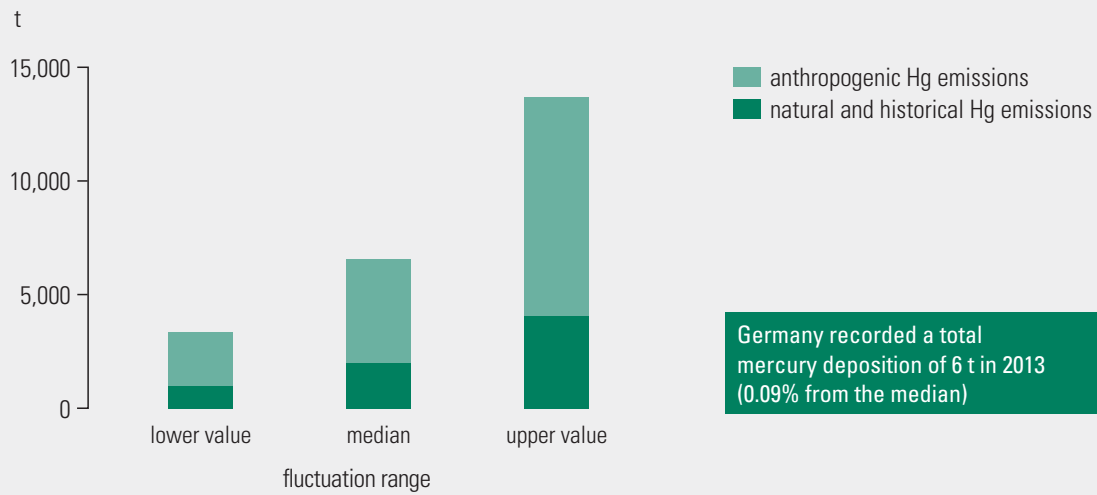
¹ only units under mining-authority supervision

Sources: DGUV; RAG

Mercury levels in air, water bodies and foodstuffs

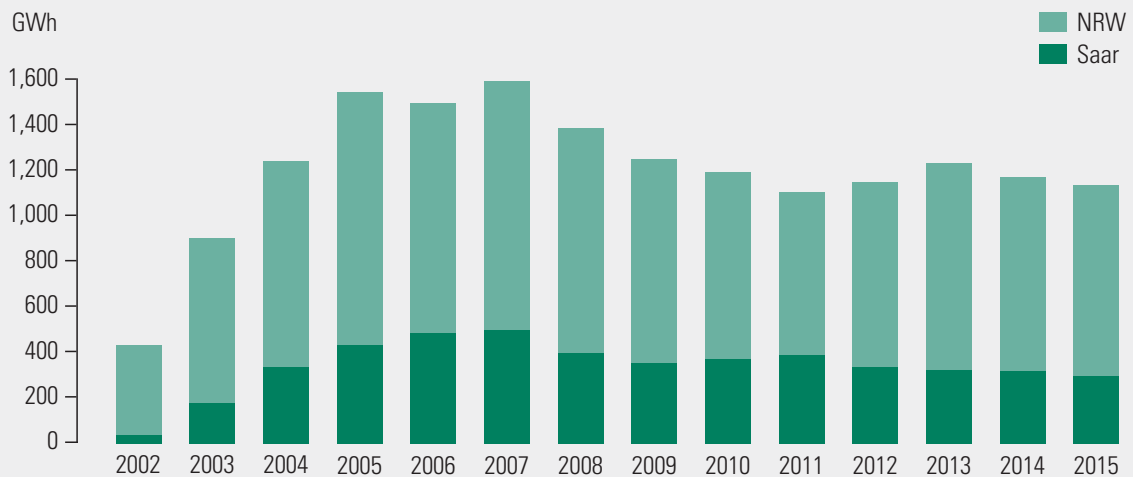
Air concentration levels	
Air quality standard set by the World Health Organisation (WHO)/benchmark for assessing the health impact of long-term inhalative exposure, as defined by the Federal/Land Working Group on Immission Protection (LAI) 50 ng/m ³ air	Nationwide background measurements taken by the Federal Environment Agency (UBA) 1 to 2 ng/m ³ air
Deposition (mercury in dust precipitation)	
TA Luft Air Quality Value 1 µg/(m ² · d)	Measurements taken by the Land Agency for Nature, Environment and Consumer Protection of North Rhine-Westphalia (LANUV) 0,03 µg/(m ² · d)
Foodstuffs and fish	
Commission Regulation EC 1881/2006 Fish products in general 0,5 mg/kg fish (wet weight)	Foodstuffs control tests met
Certain predatory fish 1,0 mg/kg fish (wet weight)	met
Water bodies, bream	
When assessing water quality an EQS is applied in the case of mercury 20 µg/kg fish (wet weight)	Water-body sampling points Exceeds EQS
Water bodies, suspended matter	
Maximum allowable concentration (MAC) 0,07 µg/l	Water-body sampling points MAC levels met

Global mercury emissions in 2013



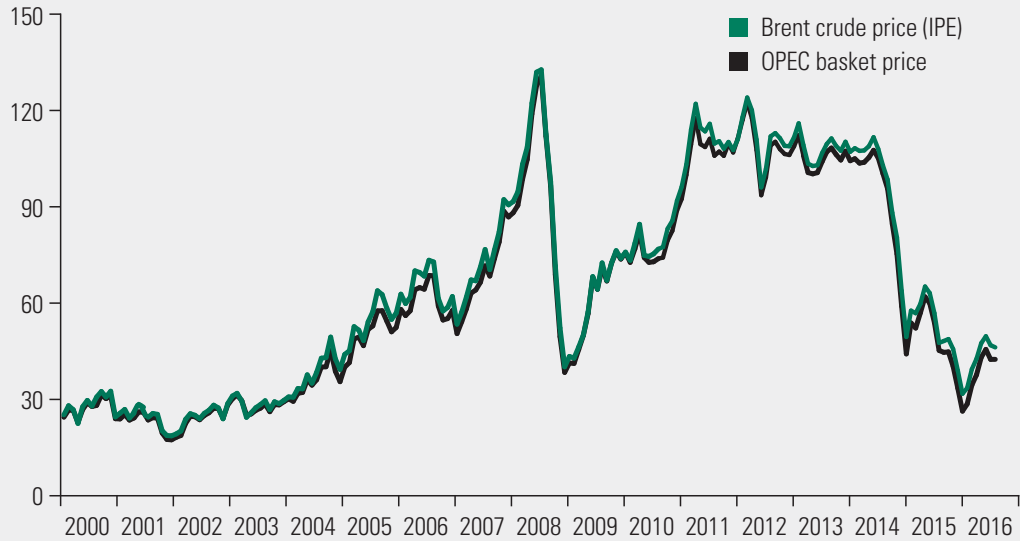
Sources: UNEP Global Mercury Assessment, 2013; own calculations

Electricity generation from mine gas



Price trends: Brent crude (IPE) and crude OPEC basket

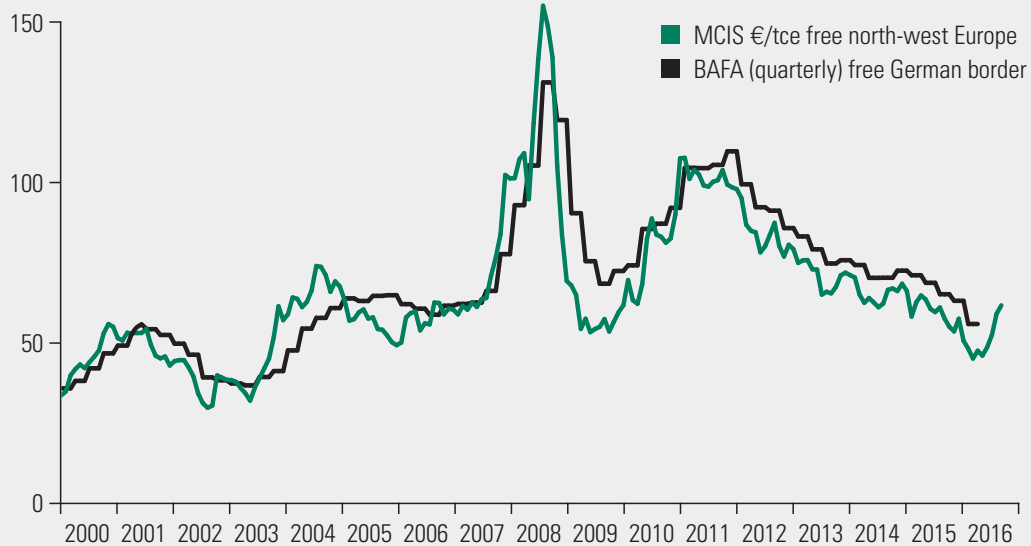
US\$/bbl



Sources: IPE; OPEC

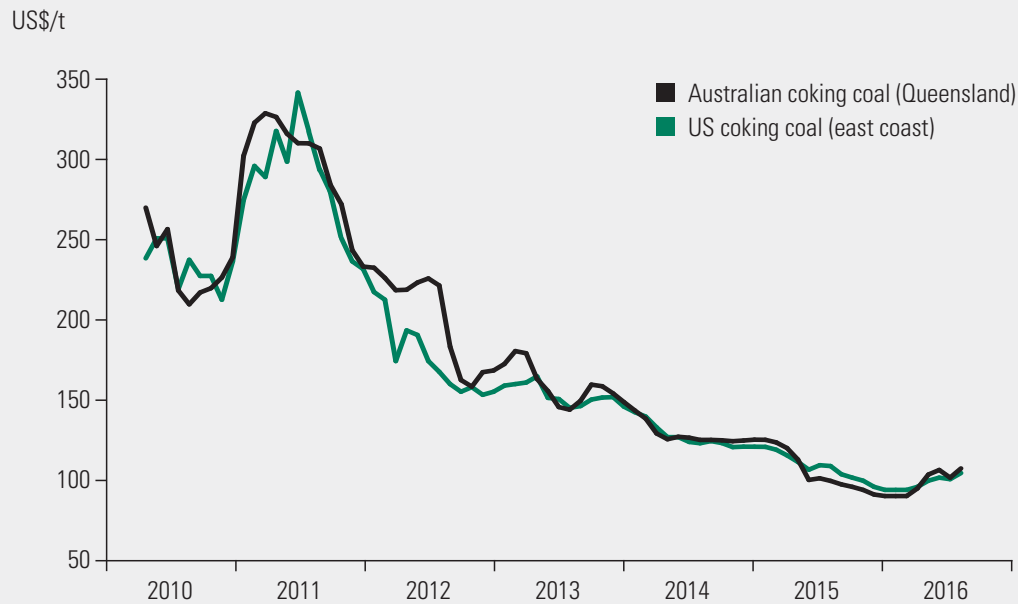
Price trends: steam coal free north-west Europe and free German border

€/t tce



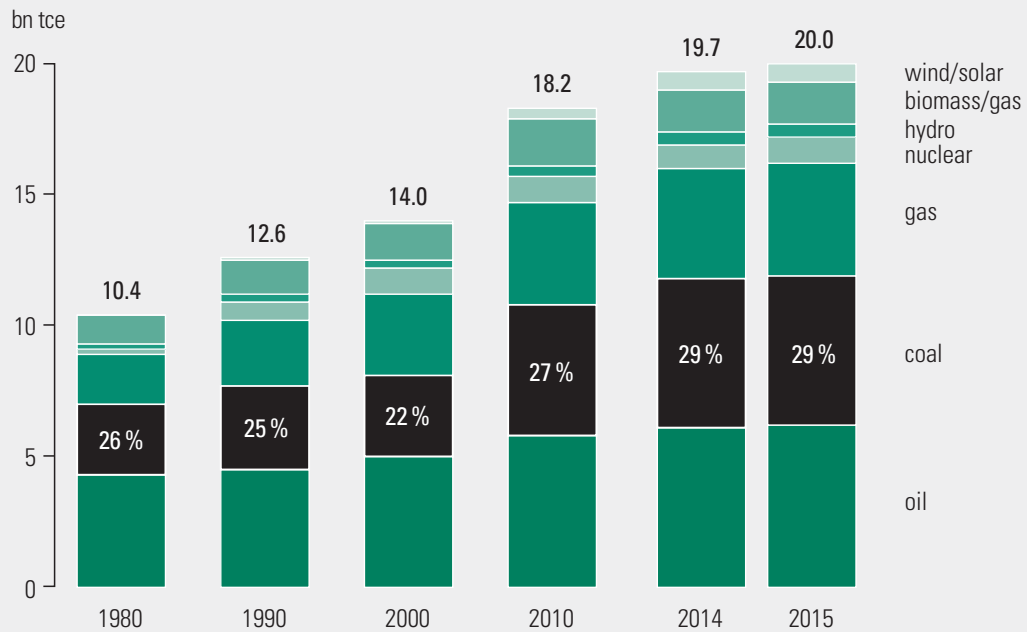
Sources: IHS McCloskey Coal Report, 1/2000 to 7/2016; BAFA, third-country coal prices by quarter

Price trends: premium coking coal fob Australia and USA



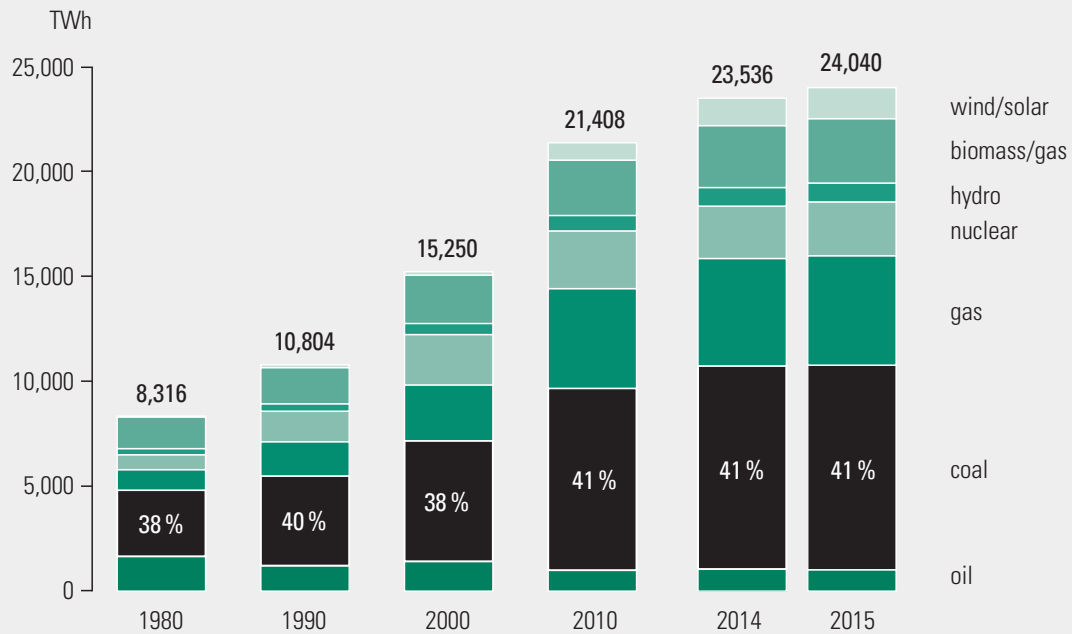
Sources: IHS McCloskey Coal Report, 4/2010 to 9/2016

World primary energy consumption by energy source



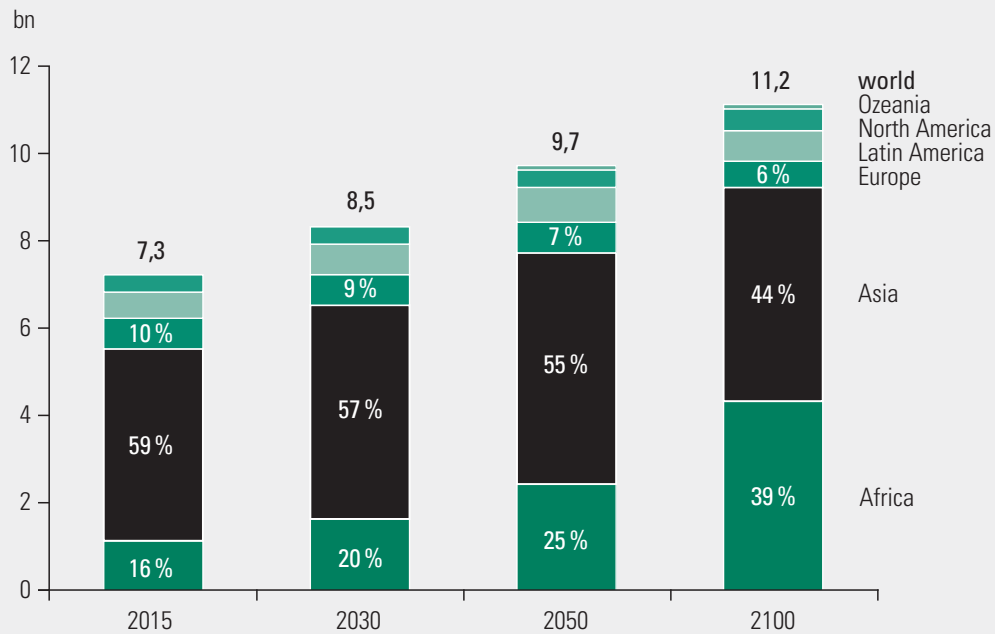
Sources: World Energy Council Germany, 2016; BP Statistical Review 2016; DOE-EIA-IEO 2016; own calculations

World net electricity generation by energy sources



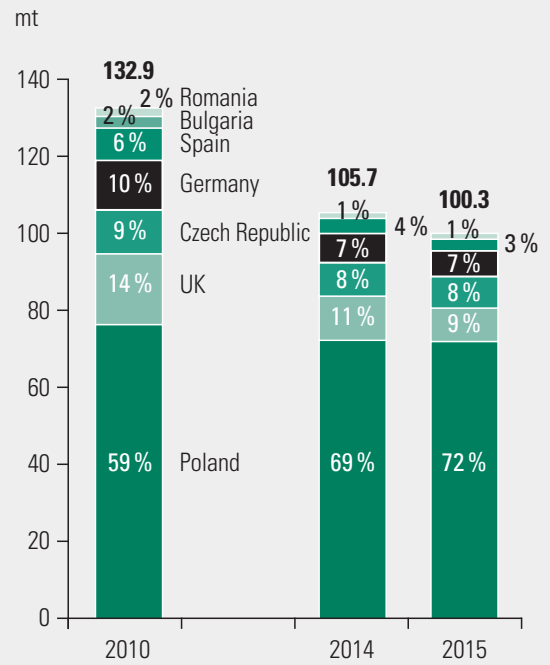
Sources: World Energy Council Germany, 2016; IEA World Energy Outlook 2015; BP Statistical Review 2016; own calculations

Population trends by region



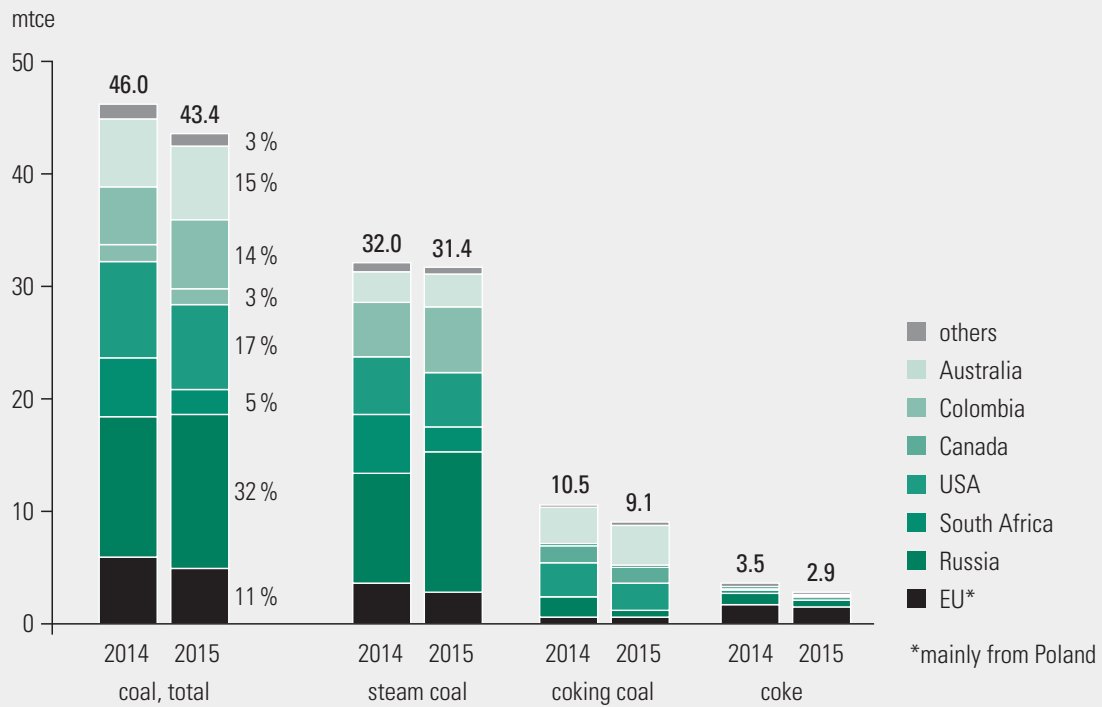
Source: World Population Prospects: The 2015 Revision, New York, United Nations

Coal production by source country in EU-28



Source: EURACOAL

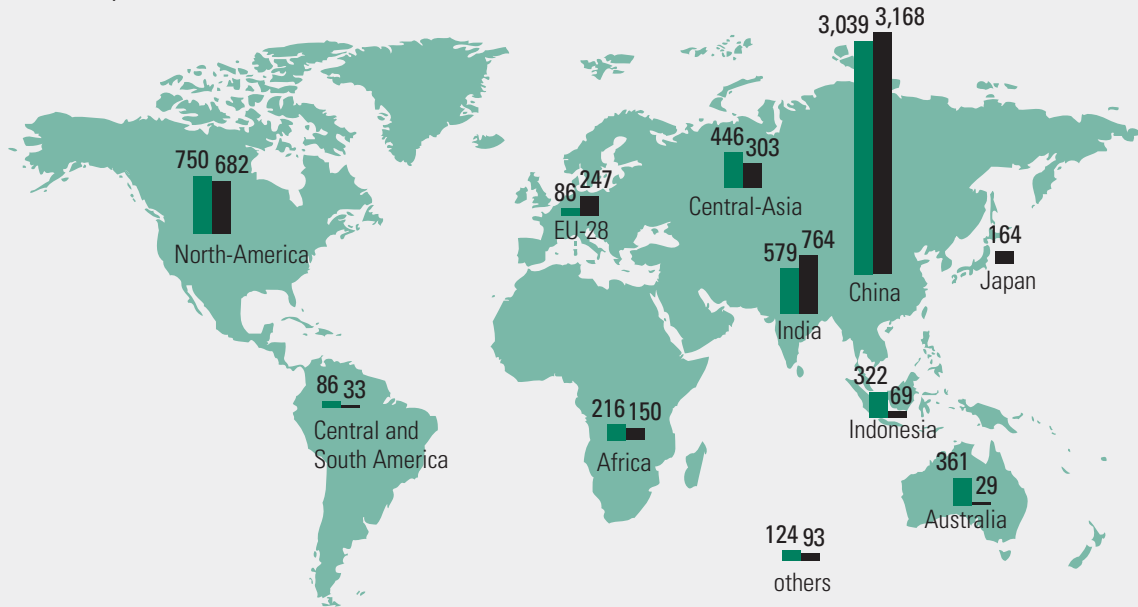
German coal imports 2014/2015 incl. coke



Source: Federal Statistical Office, survey according to the Energy Statistics Act, 6/2016

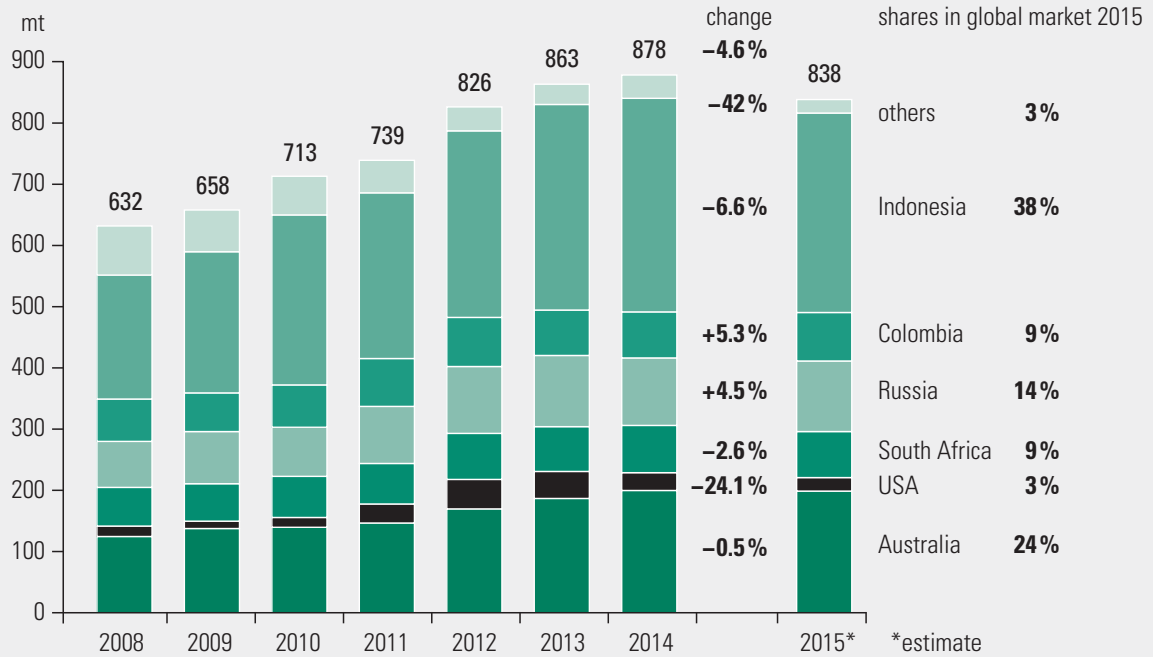
World coal production and consumption 2015

■ production: 6,009 mtce
 ■ consumption: 5,702 mtce



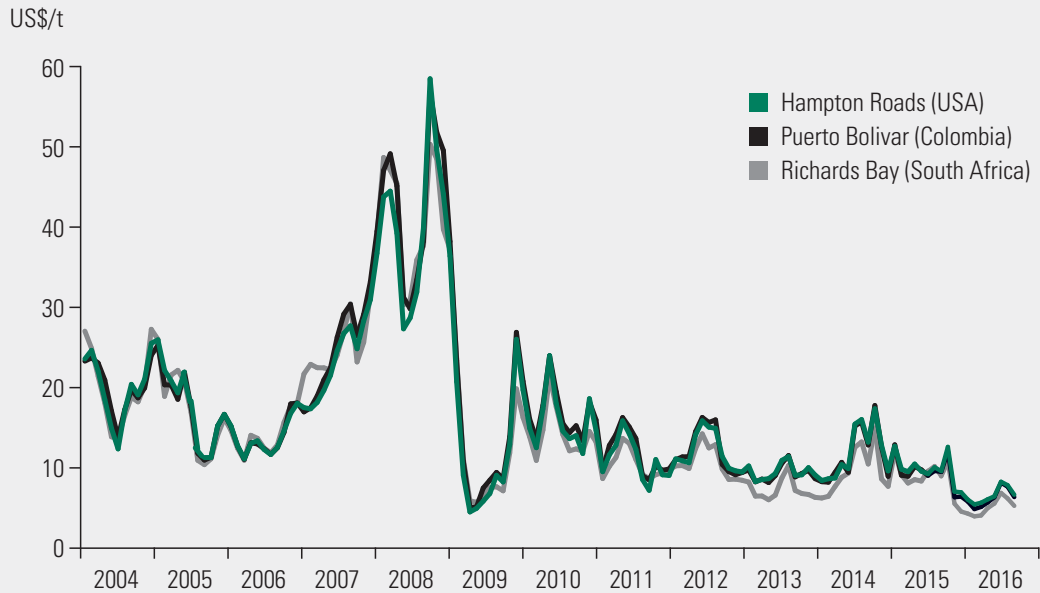
Sources: VDKi; IEA; BP; DOE-EIA; WEC; specific national statistics

Seaborne steam coal exports by supply countries



Sources: VDKi 2015; DOE-EIA 2015; own calculations

Price trends: Capesize-sea freight rates to Europe

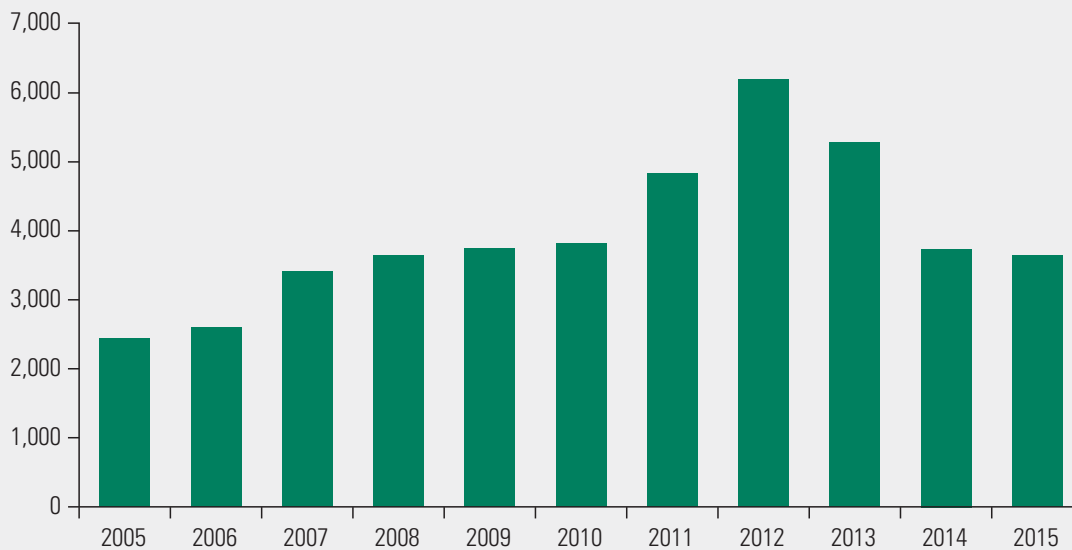


Sources: IHS McCloskey Coal Report, 1/2004 to 8/2016

German mining machinery production

total production in mill. €

of which exported in 2015: 94 %



Source: VDMA, 2015; 2015 value is an estimate on first nine months basis