



Federal Ministry
for Economic Affairs
and Energy

Energiewende

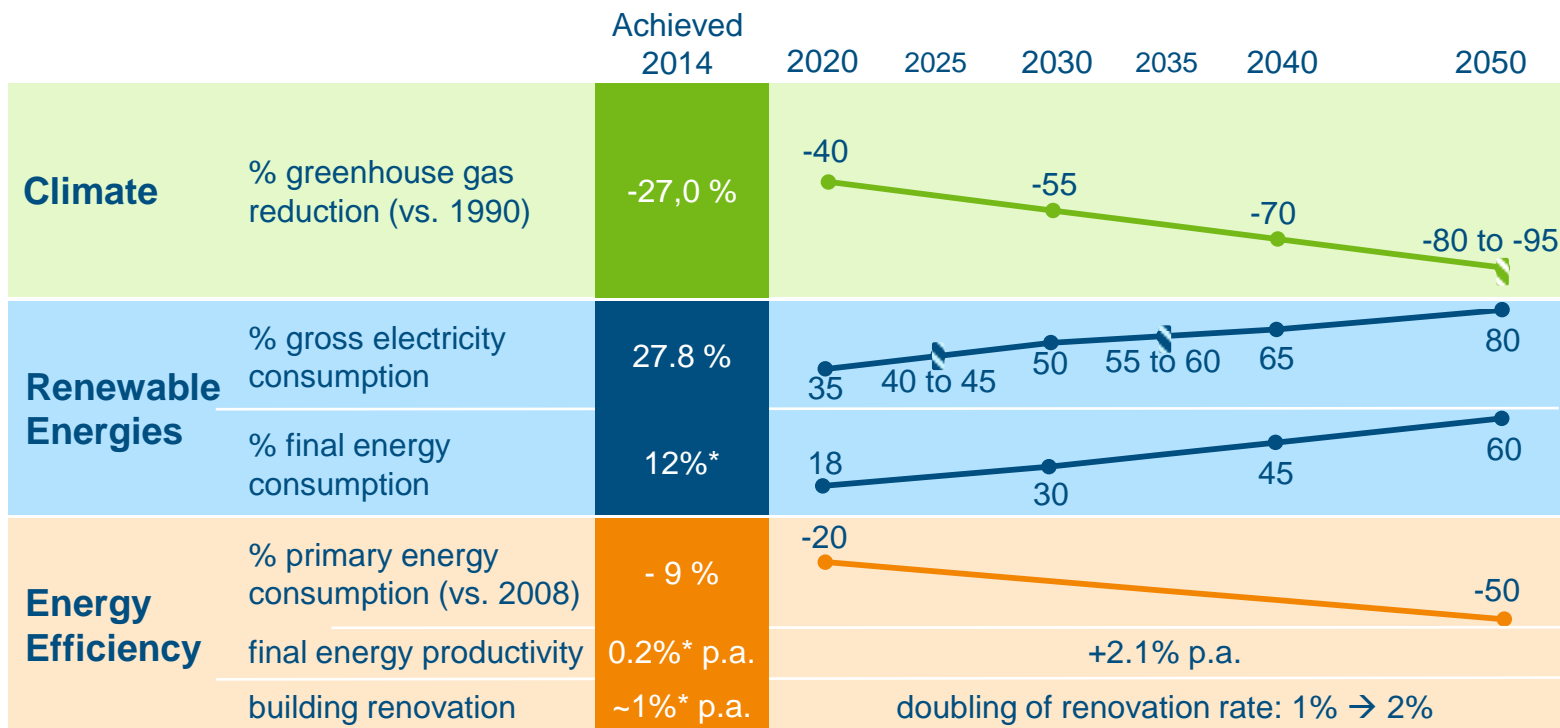
The German renewable energy and energy efficiency policy and our international cooperation

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Federal Ministry for Economic Affairs and Energy



2050 *Energiewende* targets



* 2013

Source: Federal Government 2010, BMJ/BMWi 2014, AGEE-Stat 2014, AGEF 2015

The energy transition follows a transparent long-term strategy.



Two pillars of the *Energiewende*

Energy Efficiency

Key legislation:
Energy Saving Ordinance
Heating Cost Ordinance

- Reduce energy consumption
- Cost-efficient

Supporting fields of action



Renewable Energy

Key legislation:
Renewable Energy Sources Act
Renewable Energy Heat Act

- Steady growth
- Environmentally friendly

Source: Ecofys 2014

Energy efficiency and renewables sustain a secure Energy transition.



Main federal-level energy efficiency measures



Buildings

- Energy consulting
- KfW programmes for construction and renovation
- MAP (Market Incentive Programme)
- Energy saving legislation



Products and appliances

- Energy consulting (Energy Efficiency Campaign)
- NTRI: National Top Runner Initiative
- Energy Efficiency Labelling Ordinance
- Ecodesign Directive (eff. classification)



Industry and business

- Energy consulting services
- KfW credits and loans (Effizienzprogramm, BAFA)
- Obligatory energy audits
- European emissions trading (ETS)



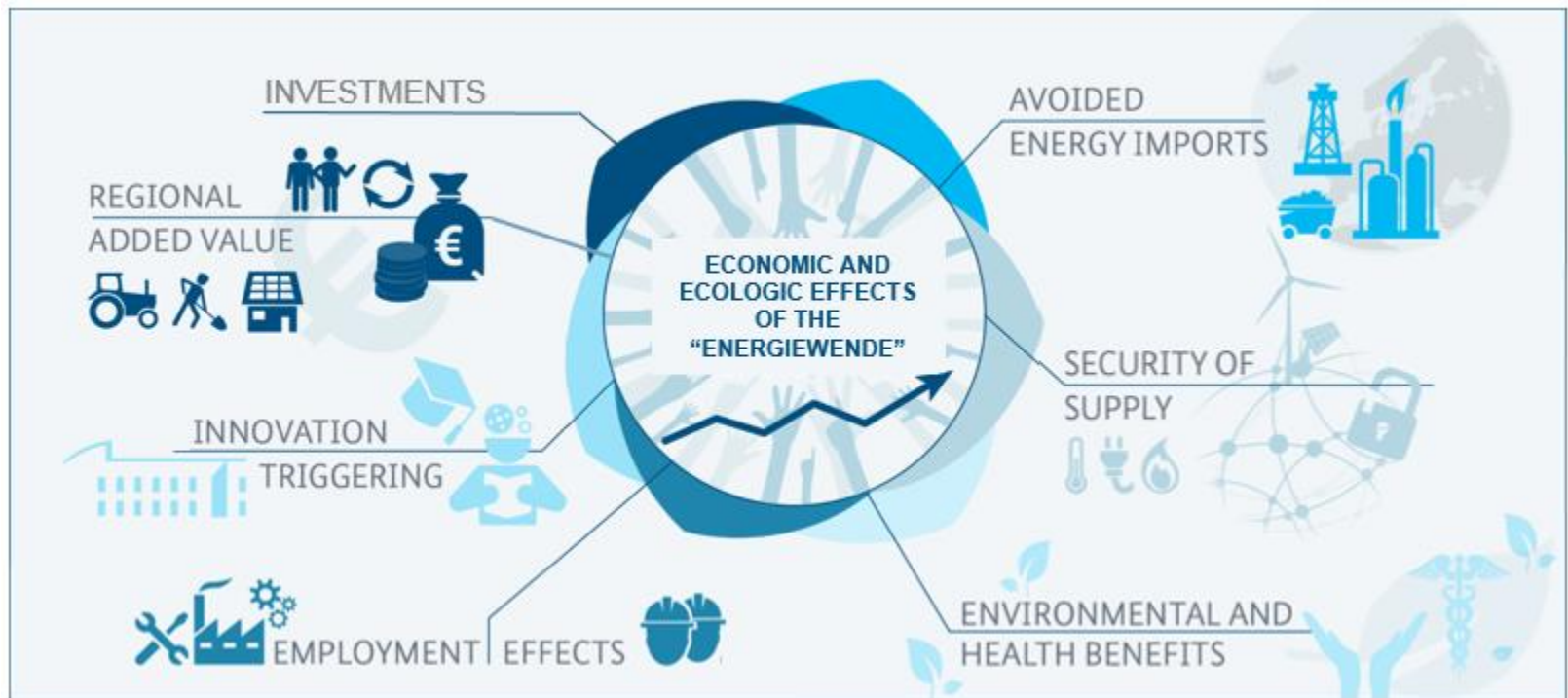
Transport

- Labelling (EU Directive Fuel Economy)
- Regulation of consumption
- Motor vehicle taxation
- E-mobility strategy
- Mobility and fuel strategy

A balance of consultation and information, incentives and regulations.



Benefits of fostering energy efficiency and renewables

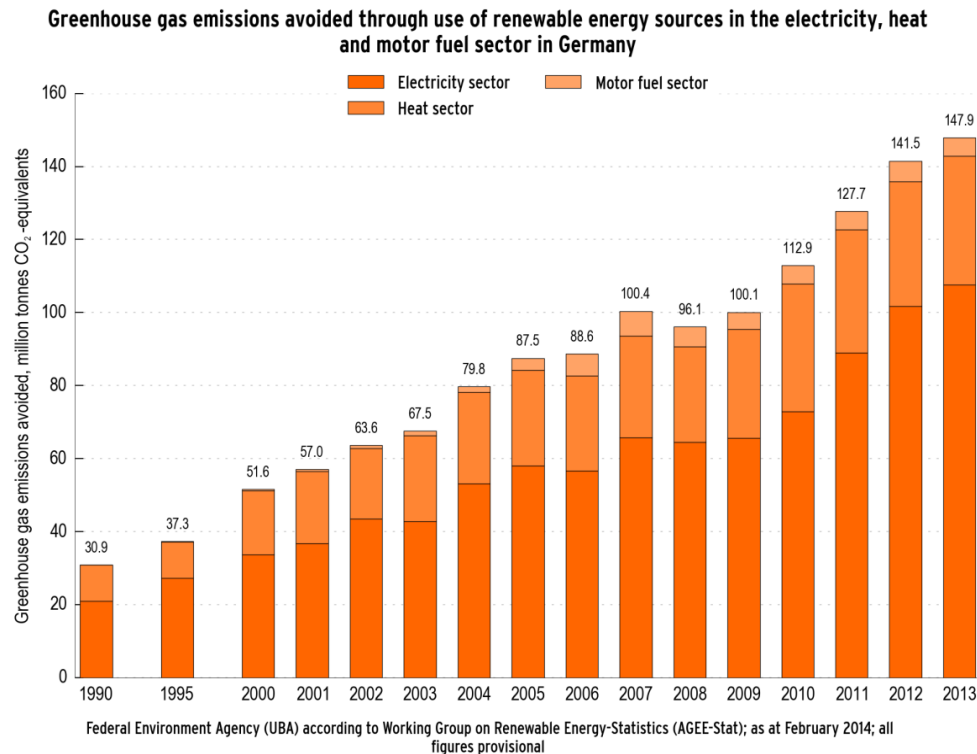


Source: ERGO 2014

The energy transition has positive effects on various levels of the economy.



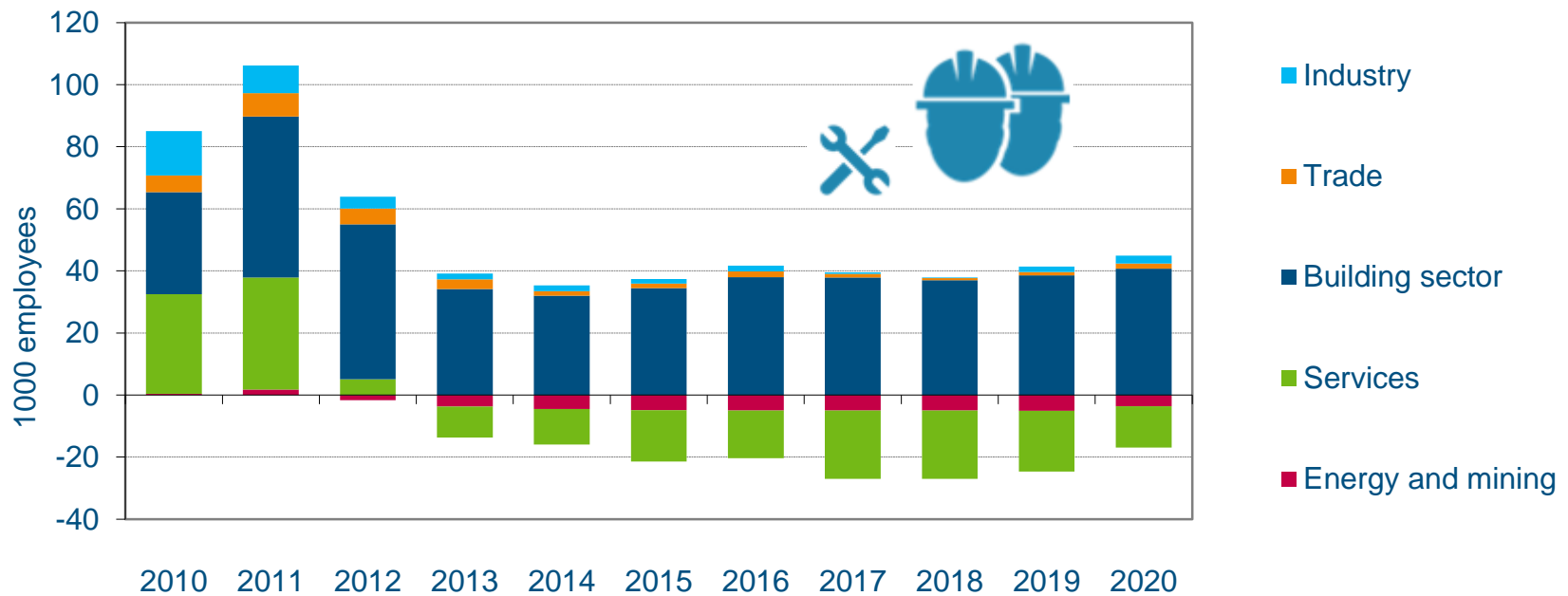
GHG emission savings through renewables use



Source: BMWi AG EE-Stat 2014

In 2013 renewables avoided 148 million tonnes of CO₂ in Germany.

Net employment effects of the energy transition

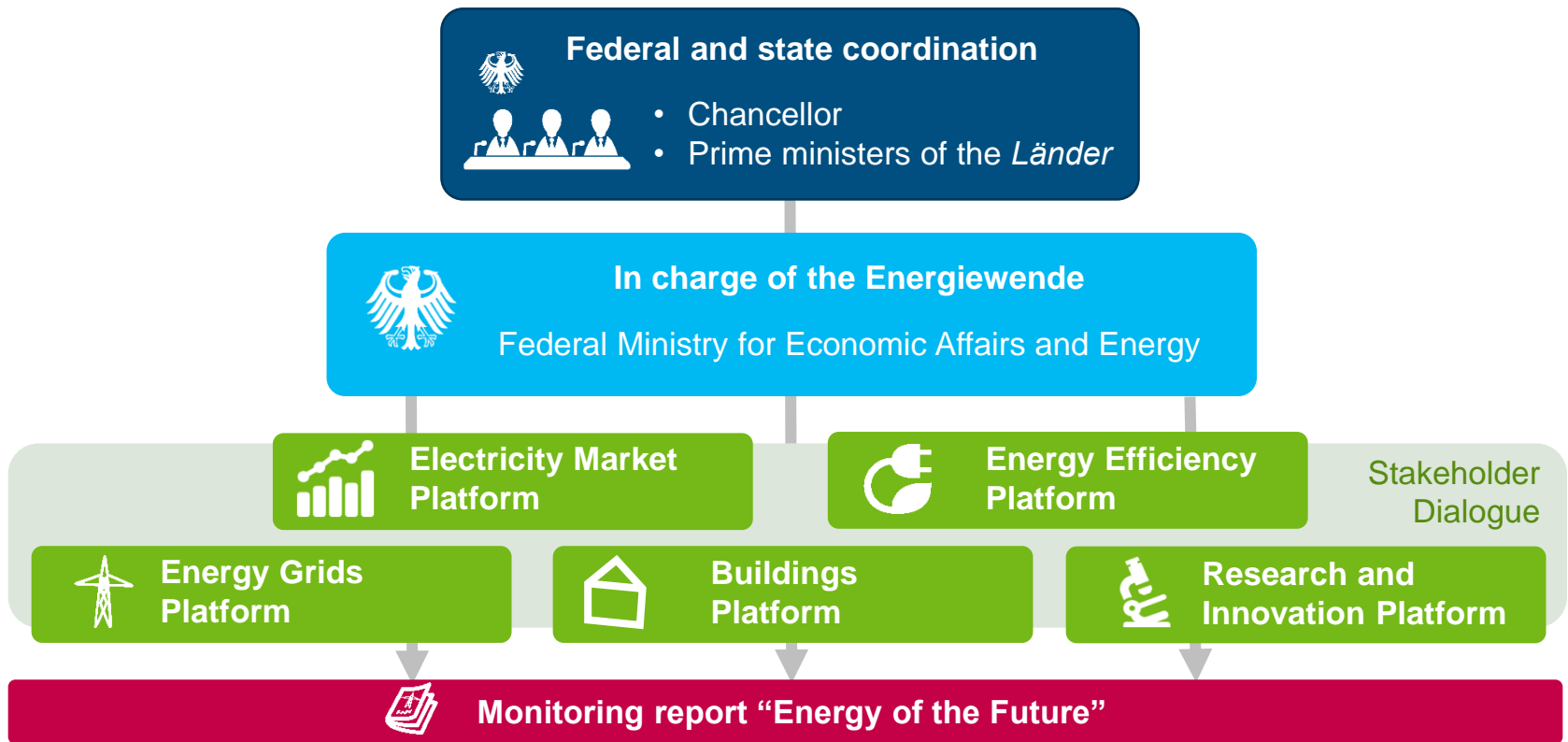


Source: GWS, EWI, Prognos 2014

Most jobs are created in the building sector, thanks to the energy transition.

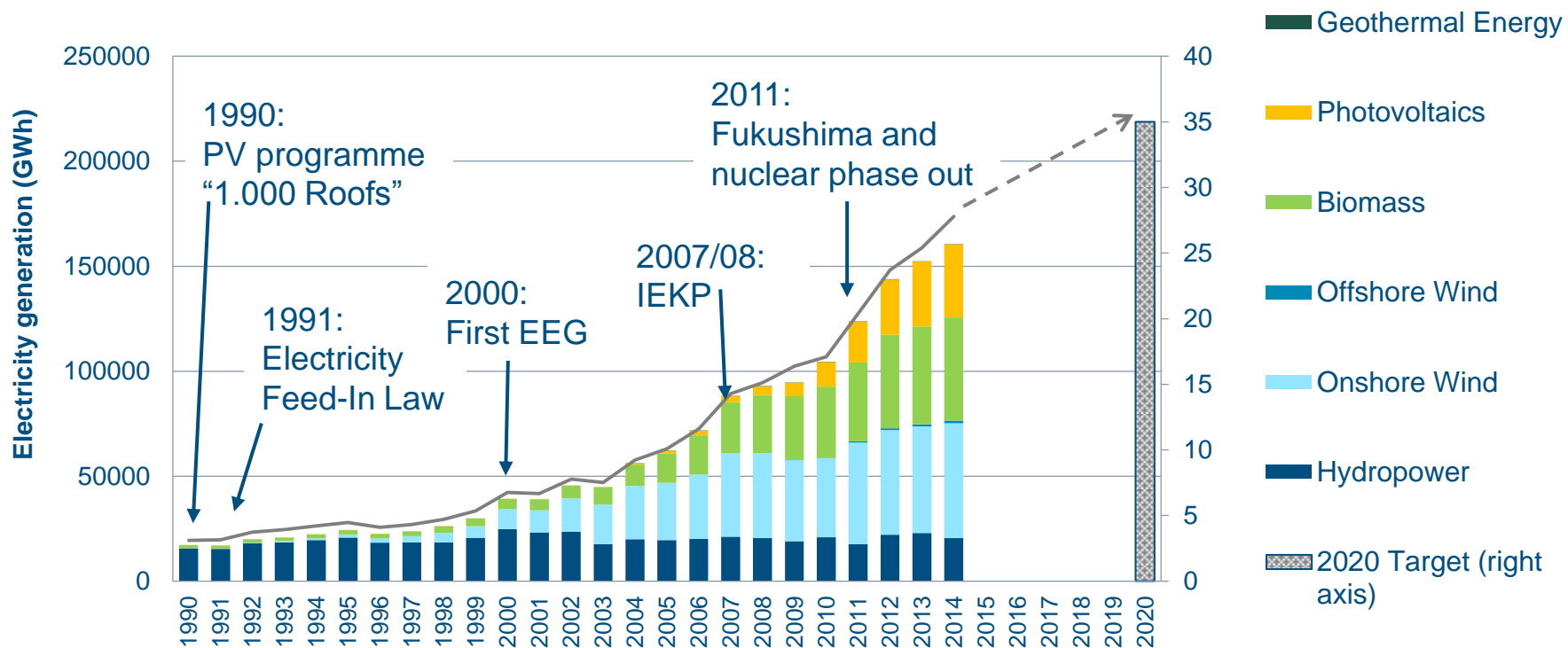


Central steering of the *Energiewende*





Development of renewable electricity generation in Germany since 1990 + 2020 target

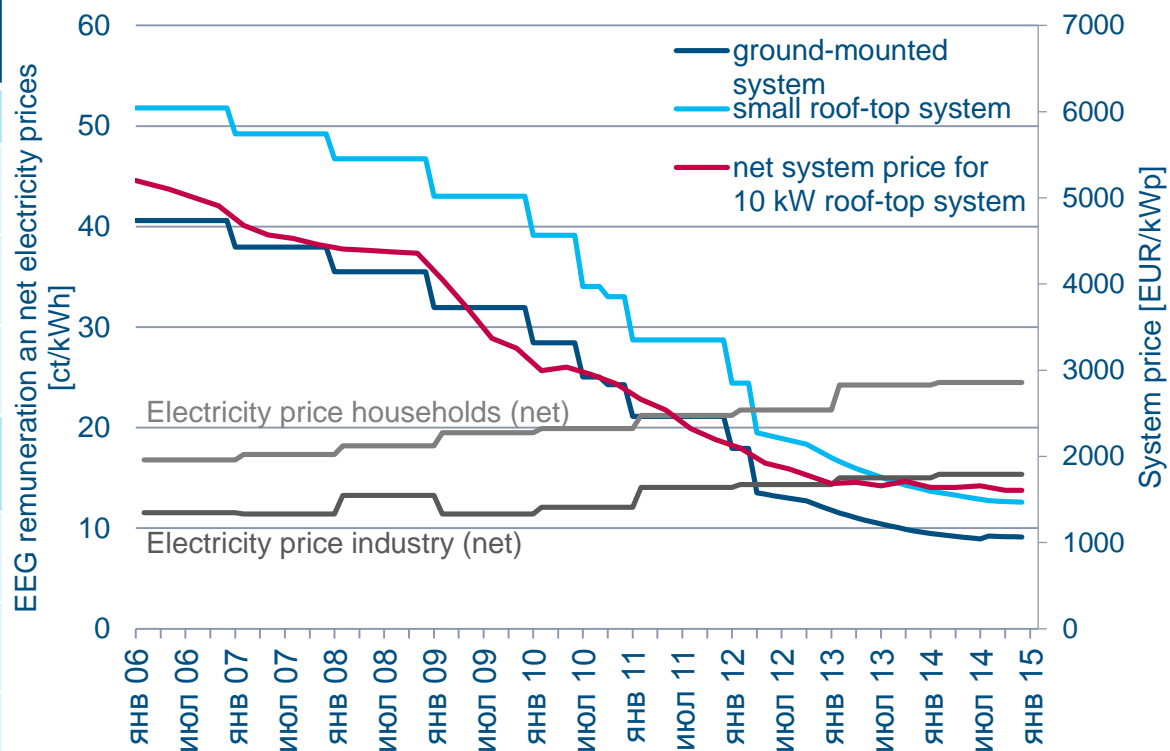


Continuously developed policy support has fostered steady growth of renewables in Germany.



PV support costs decline steadily

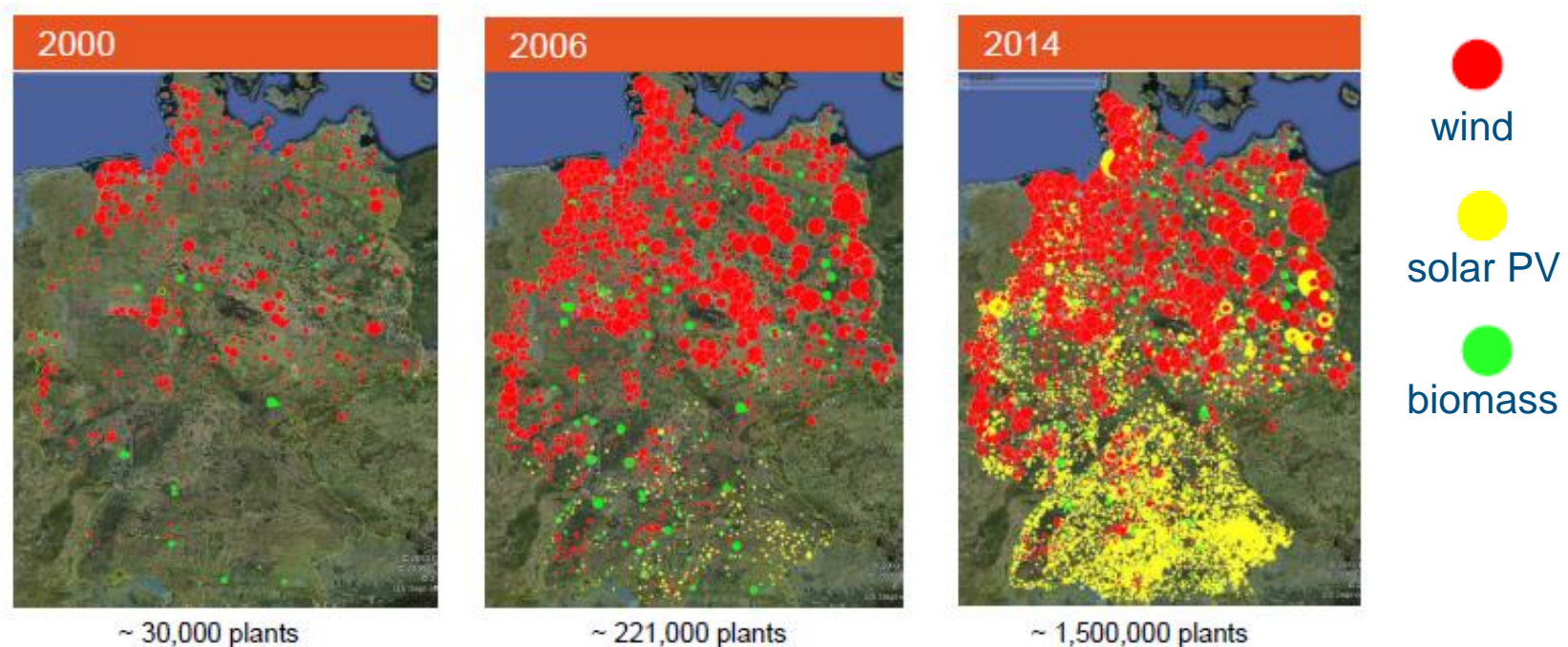
Support levels solar energy (Cent/kWh)	January 2006	June 2015
Roof-top installations		
< 10 kW	51,80	12,40
< 40 kW	51,80	12,06
< 100 kW	49,28	10,79
Large installations	FiT	FiP
< 1000 kW	48,74	11,18
< 10 MW	48,74	8,98
Ground-mounted	40,60	8,98 (tendered)



Source: EEG 2014 (Draft, 26.06.2014), BSW 2013, 2014, BMWi 2013



Expansion of renewable energy sources in Germany

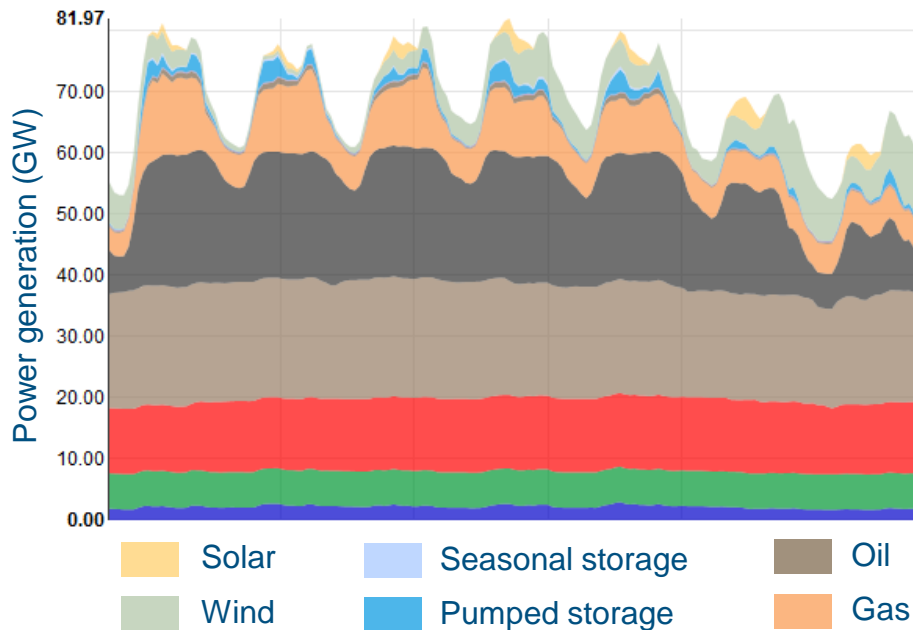


Business opportunities: the number of renewable power plants has grown exponentially over the past 14 years.

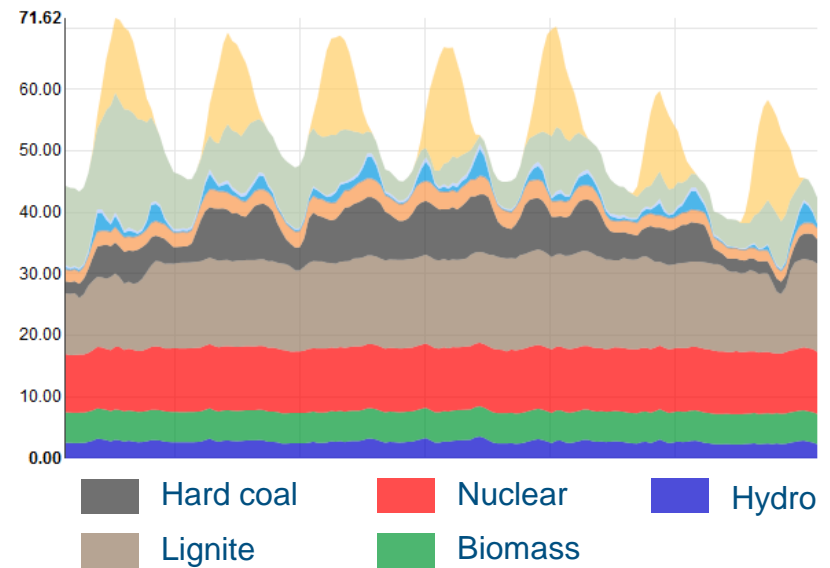


German electricity system volatility today

Winter 2014 - week no. 4 (January)



Summer 2014 - week no. 34 (August)

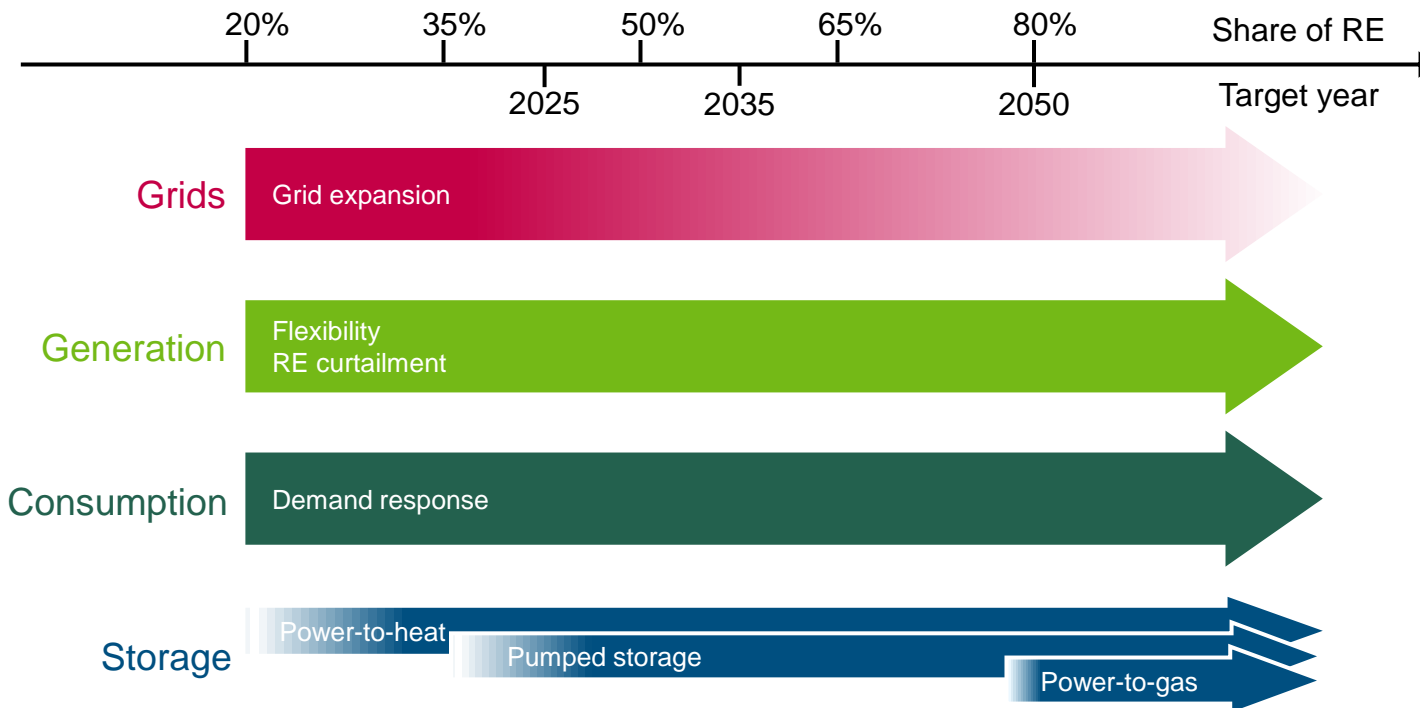


Source: Fraunhofer ISE 2015

Conventional power plants are needed to back up volatile renewables.



Four areas to increase flexibility



Different flexibility measures are suitable for varying shares of volatile renewables.



International cooperation



International Renewable Energy
Conferences (IRECs)



Der Energiewende eine internationale Stimme verleihen



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Thank you for your attention

Contact details

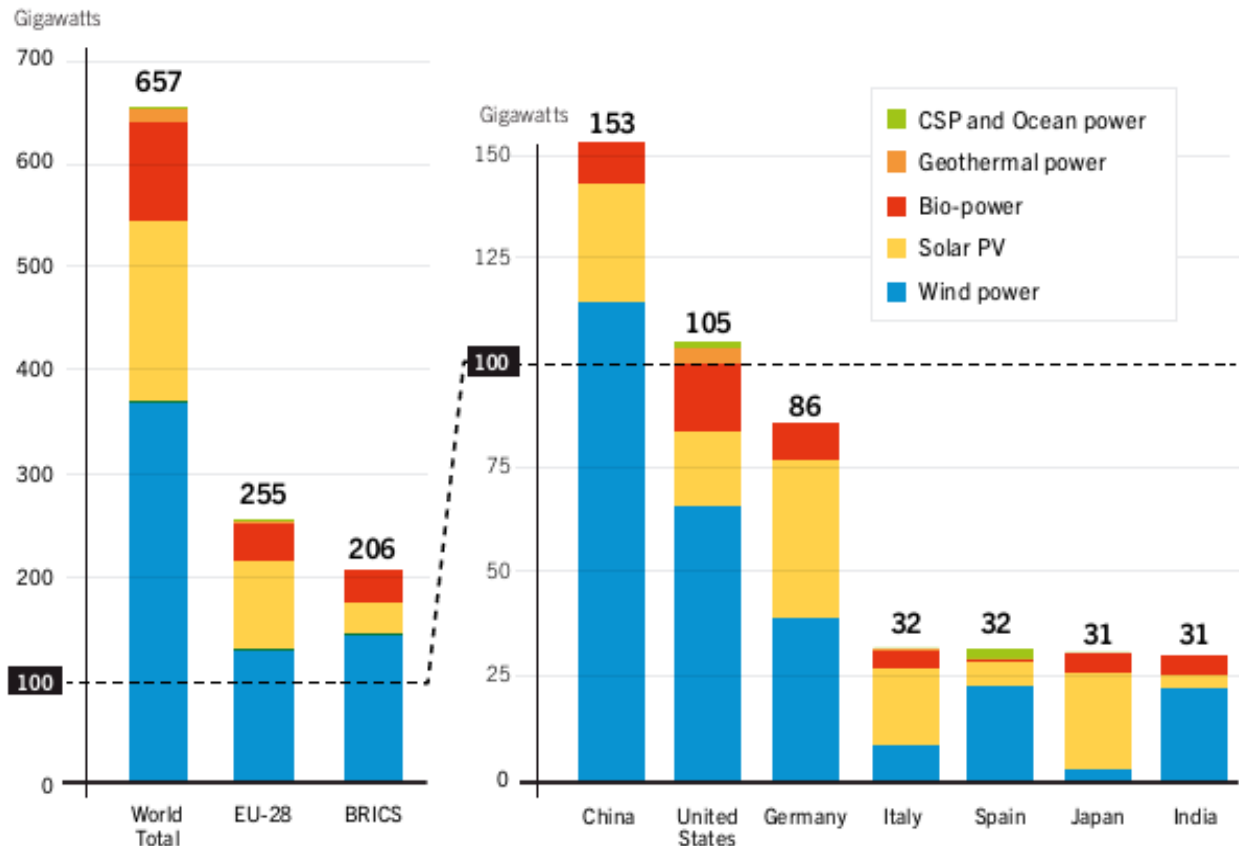
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Renewable Power Capacities* in World, EU-28, BRICS, and Top Seven Countries, 2014

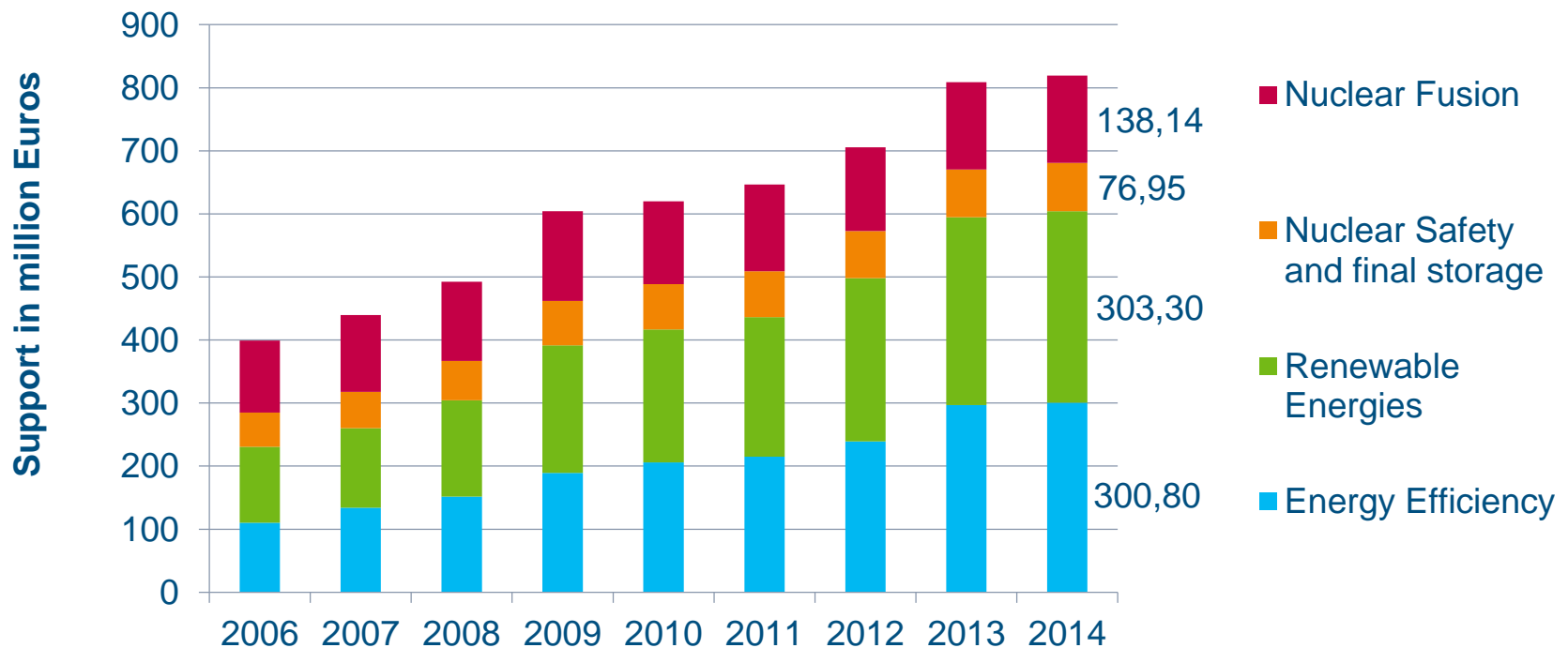


Source: REN21 GSR 2015

Who is in the RE Club?



Support for energy-related research and development

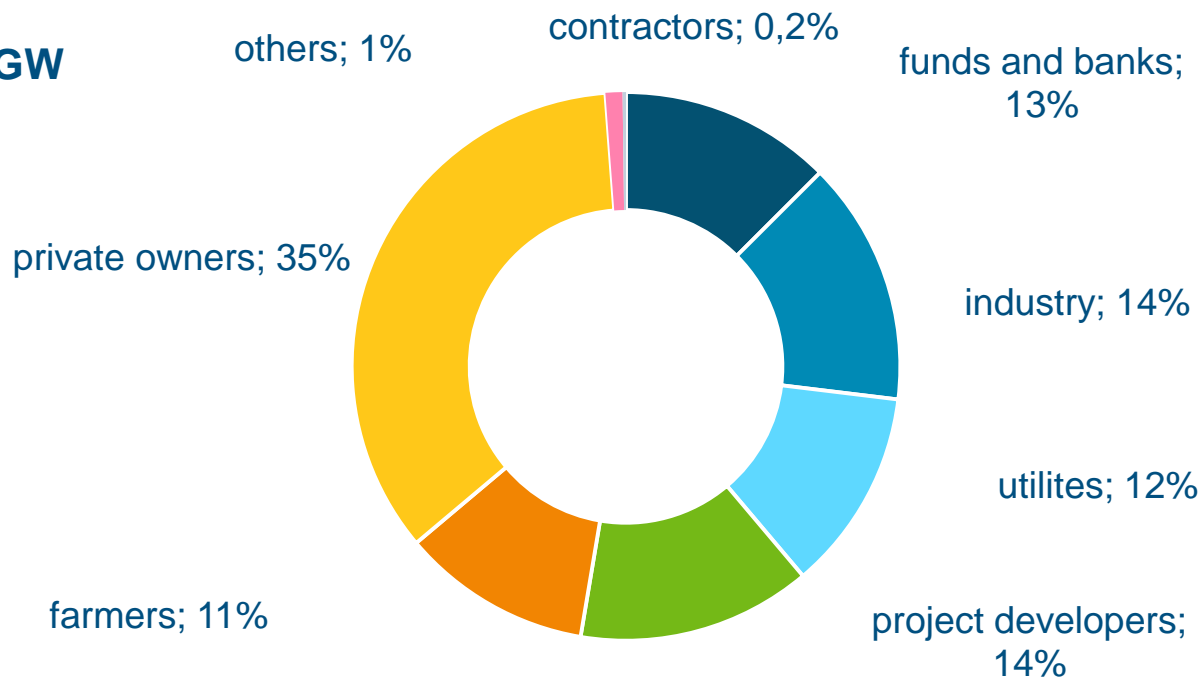


Energy research is a key element of the energy transition.



Ownership structure of German RES facilities in 2012

Total ~ 73 GW



Source: trend:research 2013

Renewable installations create multiple opportunities for entrepreneurship – the ownership structure is versatile.

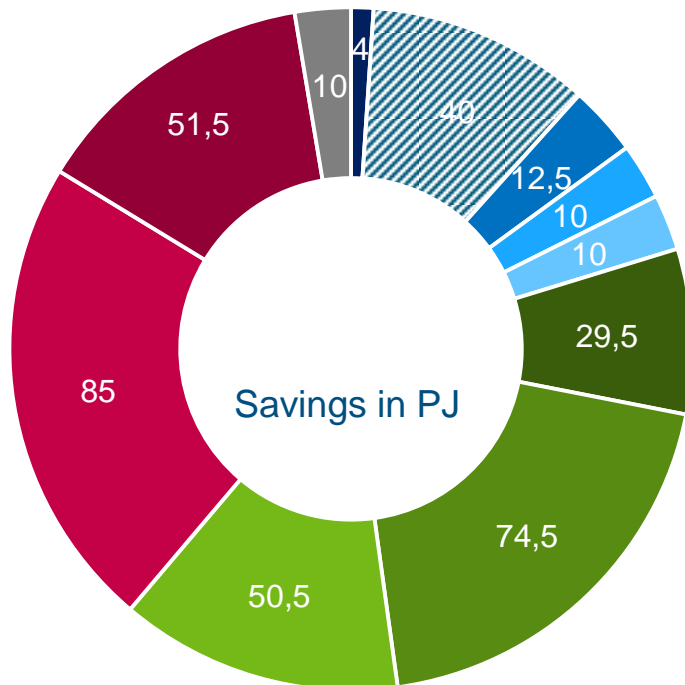


Average household electricity spending: an international comparison

Country	Consumption (kWh)	Price (€ ct/kWh)	Bill (€)
Denmark	4,000	30	1,200
US	11,800	9	1,060
Germany	3,500	30	1,050
Japan	5,600	18	1,010
Spain	4,400	23	1,010
Canada	10,800	8	850
UK	4,200	19	800
France	5,000	16	800
Italy	2,700	25	680

German households spend less on electricity than in the US: efficiency outweighs higher electricity prices.

NAPE: Additional energy efficiency measures in Germany



- Quality assurance and optimising energy consulting
- ▣ Incentives for energy-efficient renovations (tax cancelled, substituted by incentive programme, total savings not clear)
- Upgrading, continuation and increased funding of the CO2 building renovation programme
- Promoting "energy performance contracting"
- National energy-efficiency label for old heating installations
- Upgrading the KfW energy efficiency programmes
- Energy efficiency networks initiative
- Obligation to perform energy audits for non-SMEs
- National top runner initiative
- Introduction of a competitive tendering scheme for energy efficiency
- Additional immediate measures

These measures shall lead to additional energy savings of 350-380 PJ by 2020.



Climate Action Programme 2020

Key policy measures	Contribution to GHG emission reduction (million t CO ₂ eq)
National Energy Efficiency Action Plan (NAPE) (excl. measures in the transport sector)	Ca. 25 – 30 m t
Strategy on climate-friendly building and housing (incl. building specific NAPE measures)	Ca. 5.7 – 10 m t
Transport sector measures	Ca. 7 – 10 m t
Non-energy related emissions in - industry , trade/commerce/services, waste mgmt. - agriculture	3 – 7.7 m t 3.6 m t
Emission trading reform	Dependent on EU
Further measures, incl. the electricity sector	22 m t

Source: Federal Ministry for the Environment 2014

Total emission reductions will reach 62 to 78 million tonnes CO₂ by 2020.