



Federal Ministry  
for Economic Affairs  
and Energy



# *Energiewende*

Germany's energy system and the status of the energy transition

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Federal Ministry for Economic Affairs and Energy

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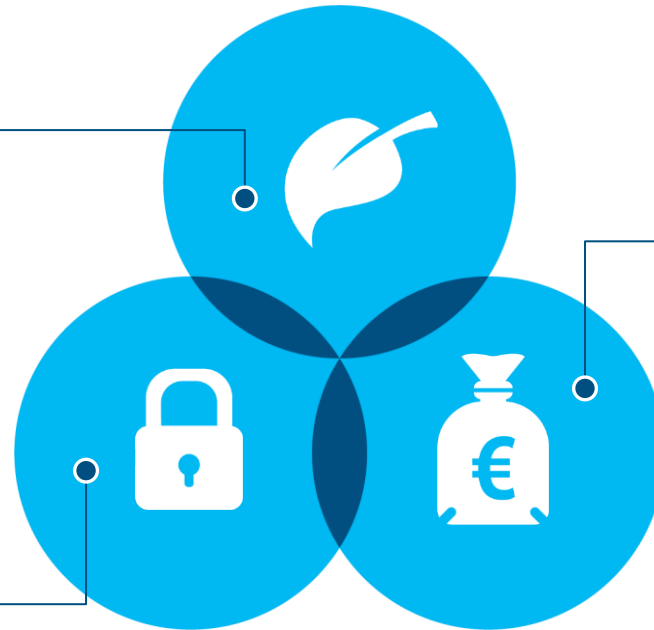
# The *Energiewende* combines security of supply, cost-effectiveness and environmental protection

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Environmentally  
sound

Affordable and  
cost-effective

Secure and  
reliable



# Five reasons for the Energiewende



- **Phase-out of nuclear power generation**
- Reduce dependency on energy imports
- Reduce carbon emissions and reach climate protection targets
- Energy policy that is both sustainable and economically successful
- New technologies as additional source of growth and employment

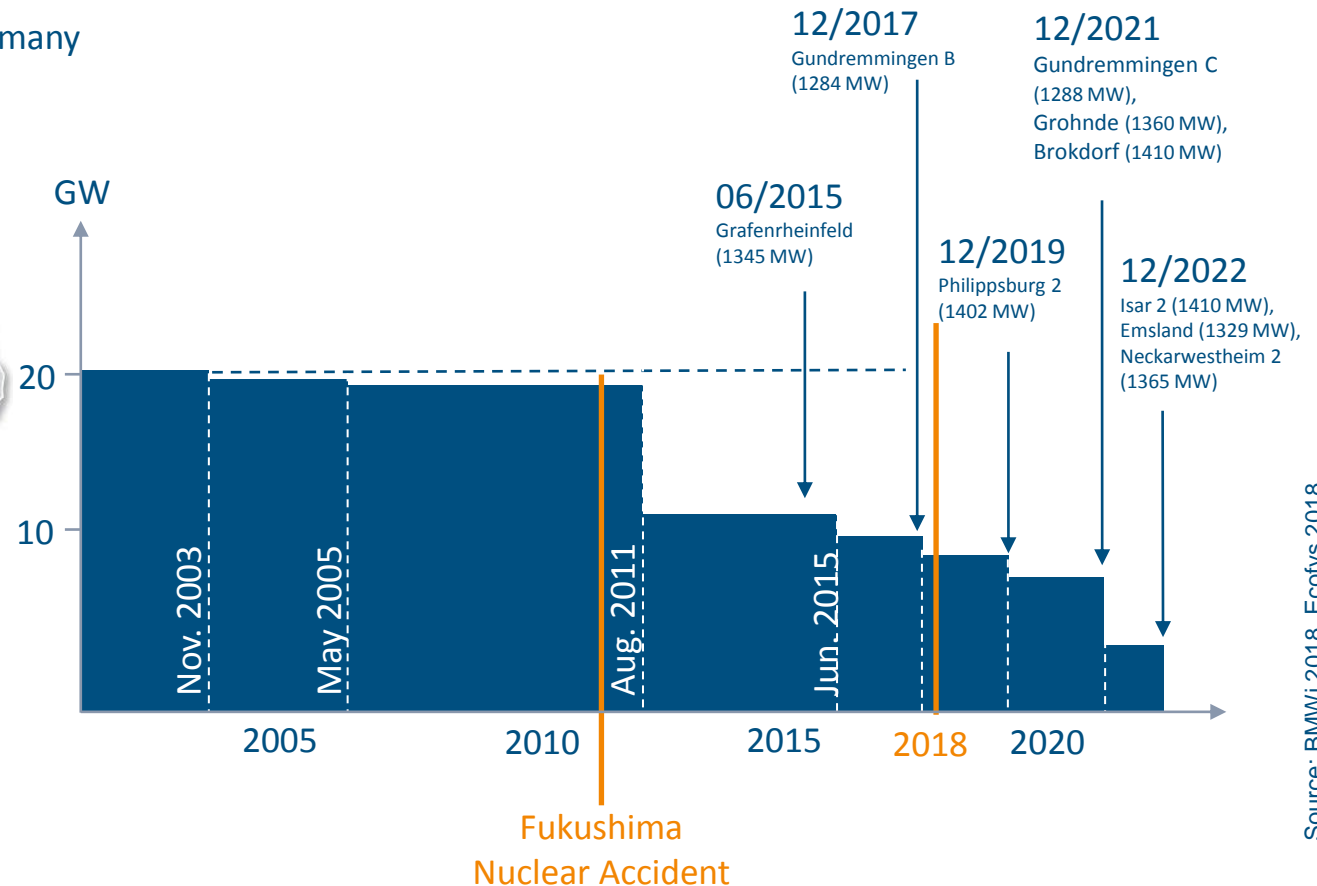


# Germany is gradually phasing out nuclear power up to 2022

Nuclear power plants in Germany



 already retired  
 scheduled for retirement



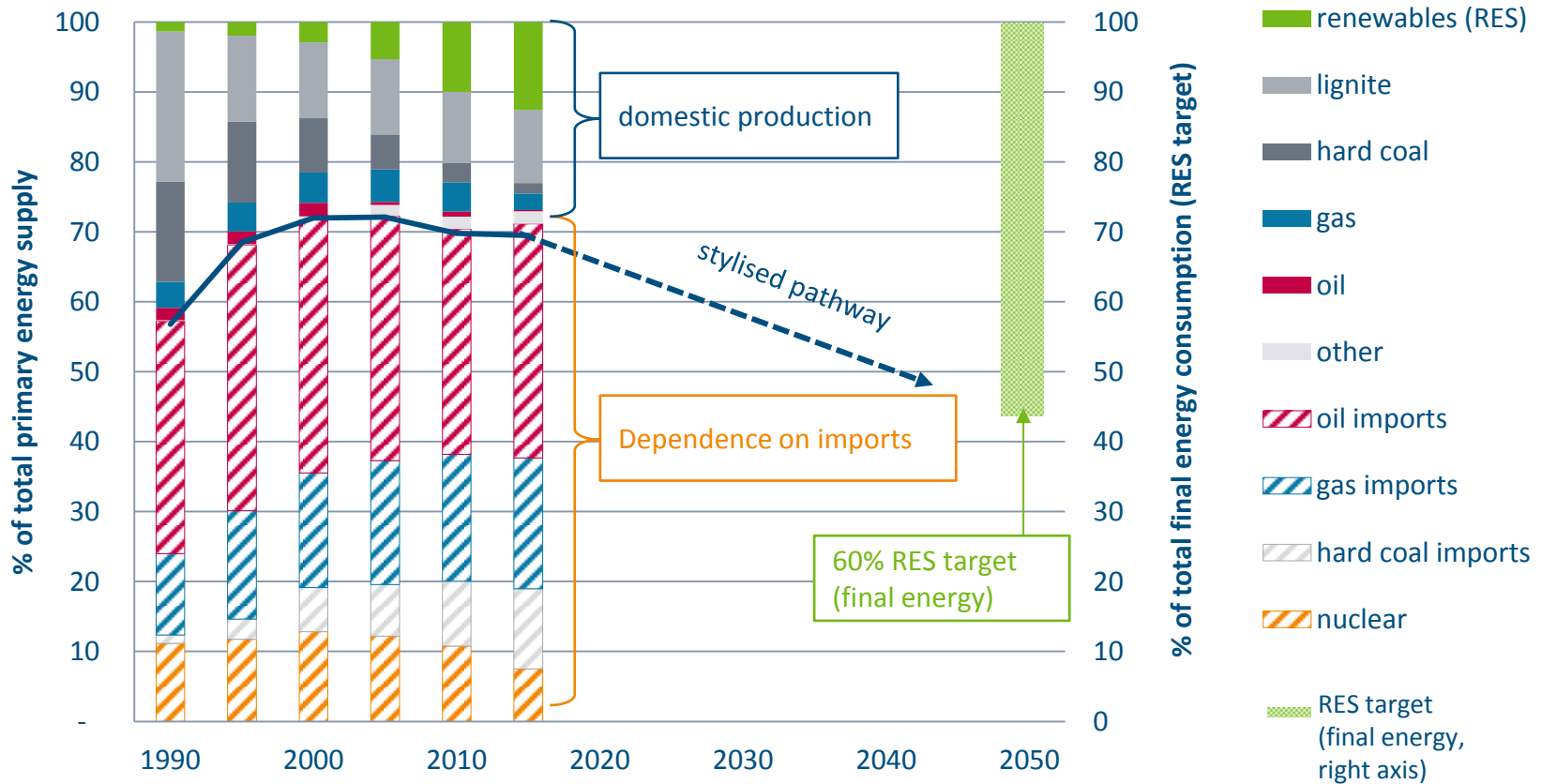
Source: BMWi 2018, Ecofys 2018

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# Renewables reduce dependence on energy imports



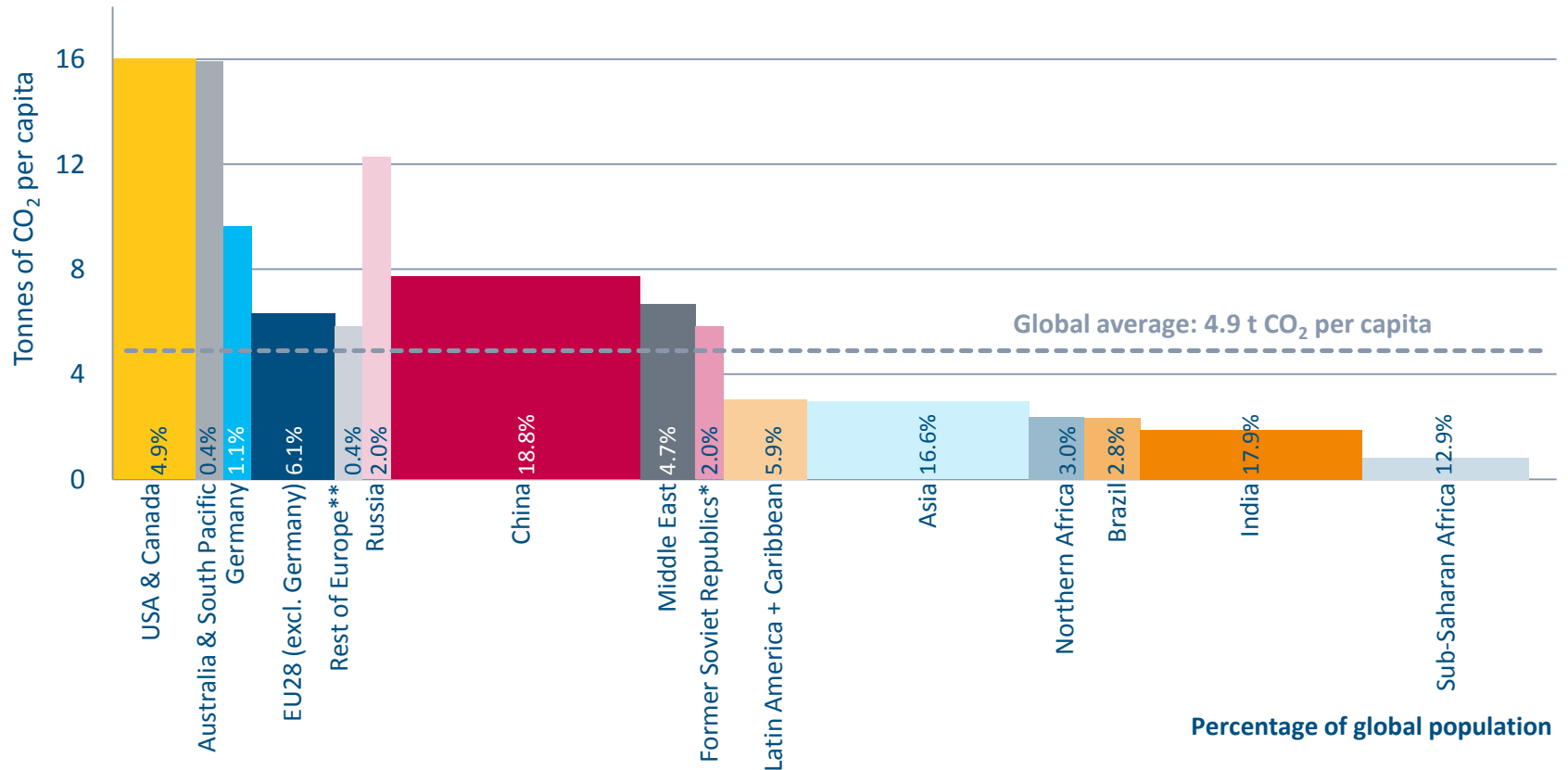
Source: Ecofys 2017 based on AGEb 2012, AGEb 2014

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# Per capita carbon emissions of some western economies are still twice as high as those of China



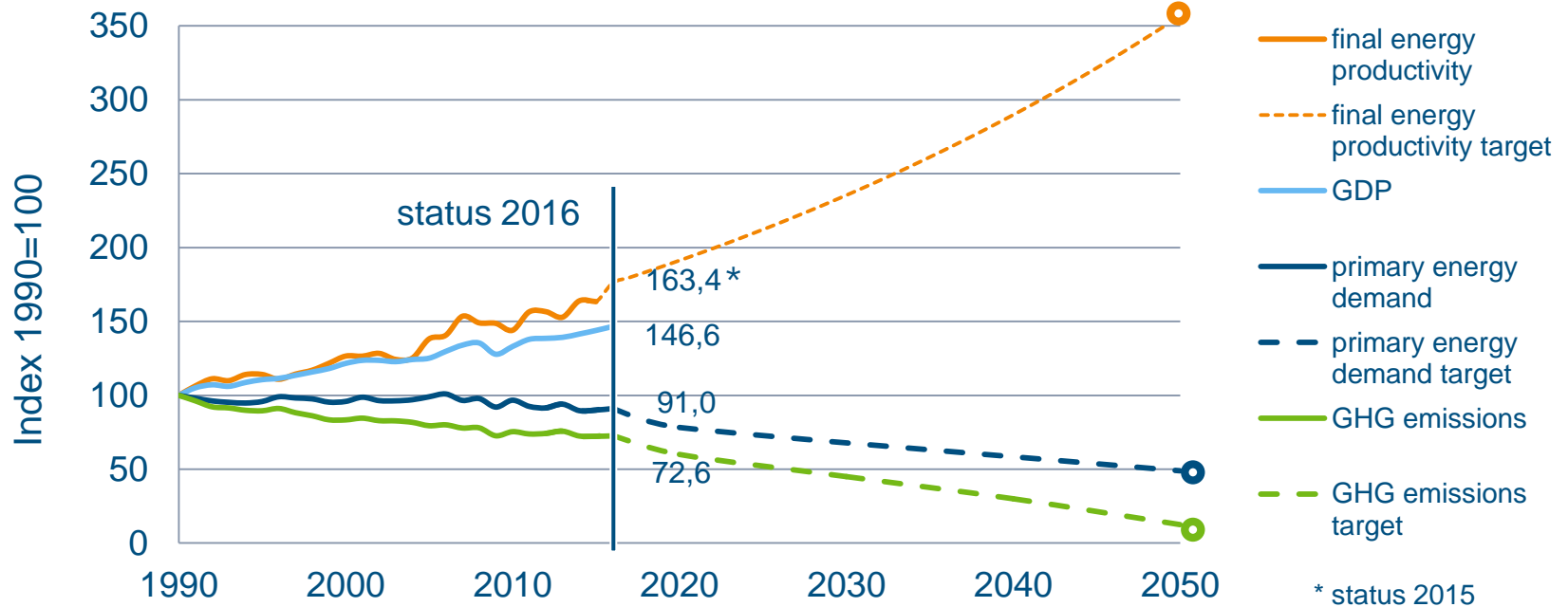
\*excluding Russia and EU members

\*\*Rest of Europe includes IS, NO, CH and the Balkans

Source: Ecofys 2017, data from EDGAR (2016) and World Bank (2016)



# Efficiency measures allow clean growth by decoupling economic development from energy consumption



National targets:

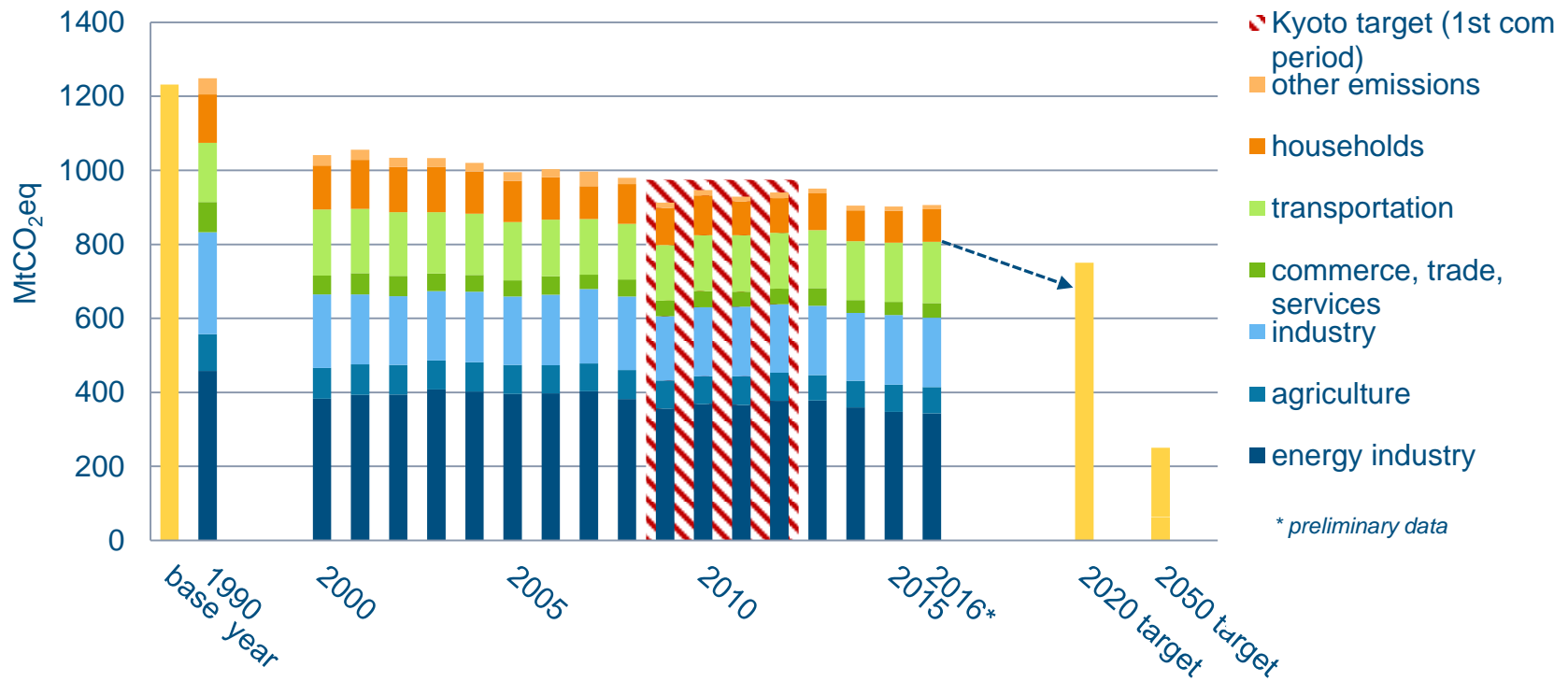
● +2.1% final energy productivity p.a.

● 2020/2050: 20/50% reduction vs. 2008

● 2050: 80-95% reduction vs. 1990

Source: Ecofys 2017 based on UBA 2017, World Bank 2017, AG Energiebilanzen 2017

# Germany has made significant progress. But more action needed to achieve the emission reduction targets



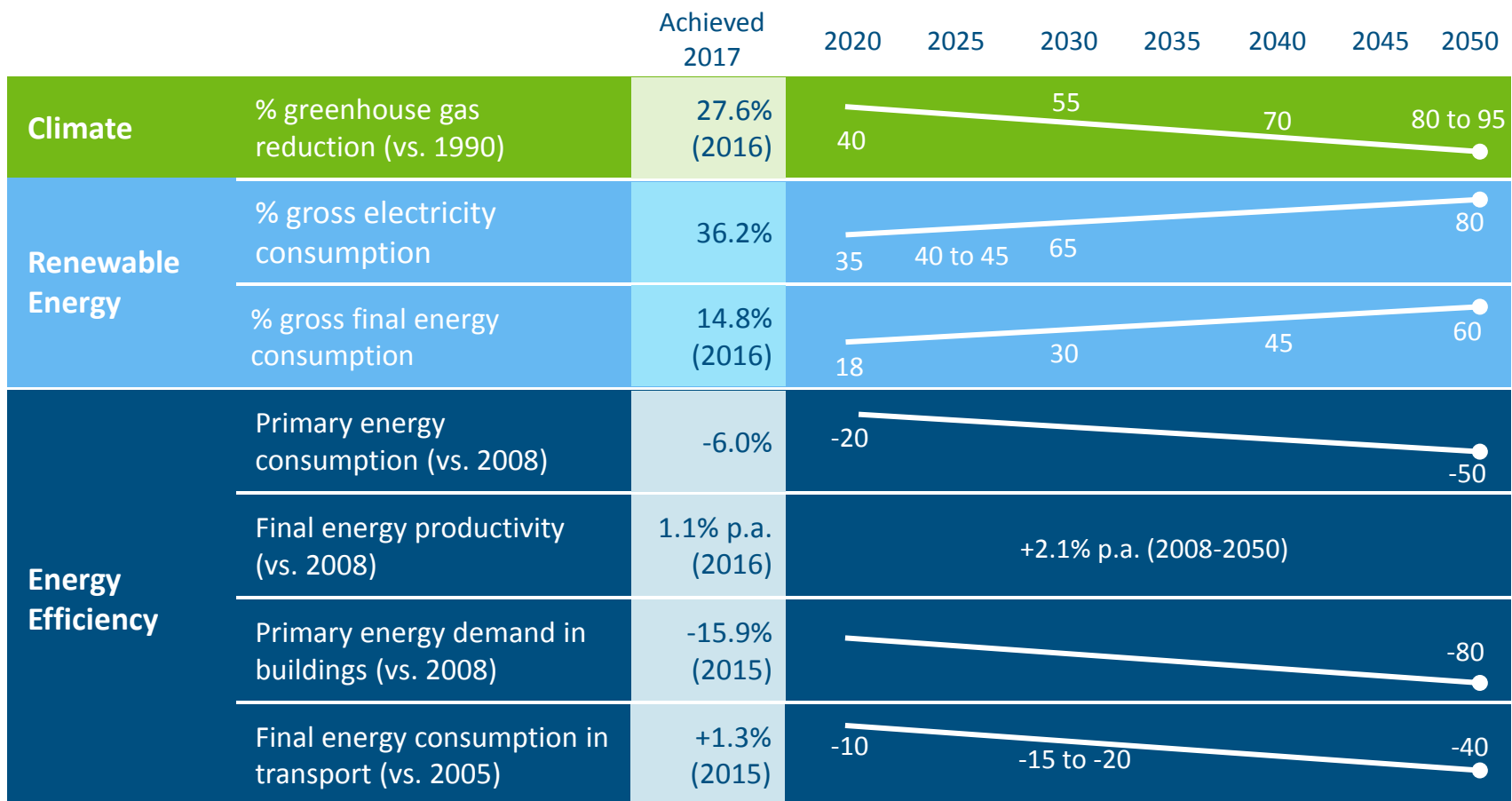
Source: UBA 2017

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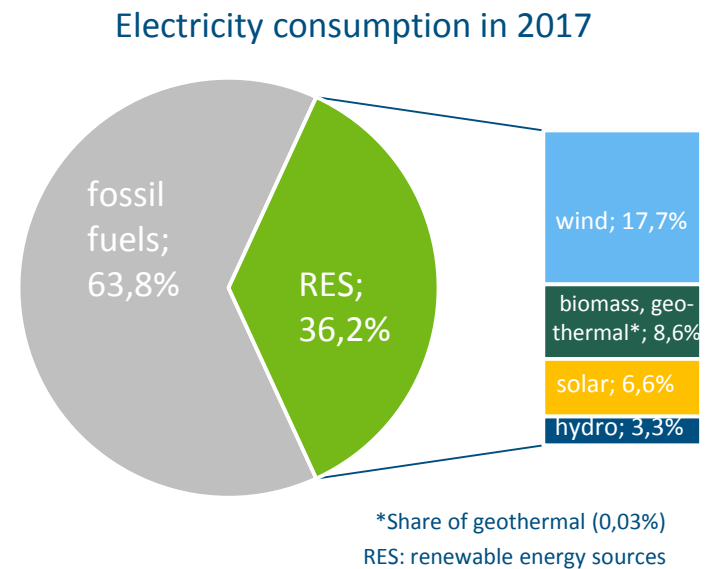
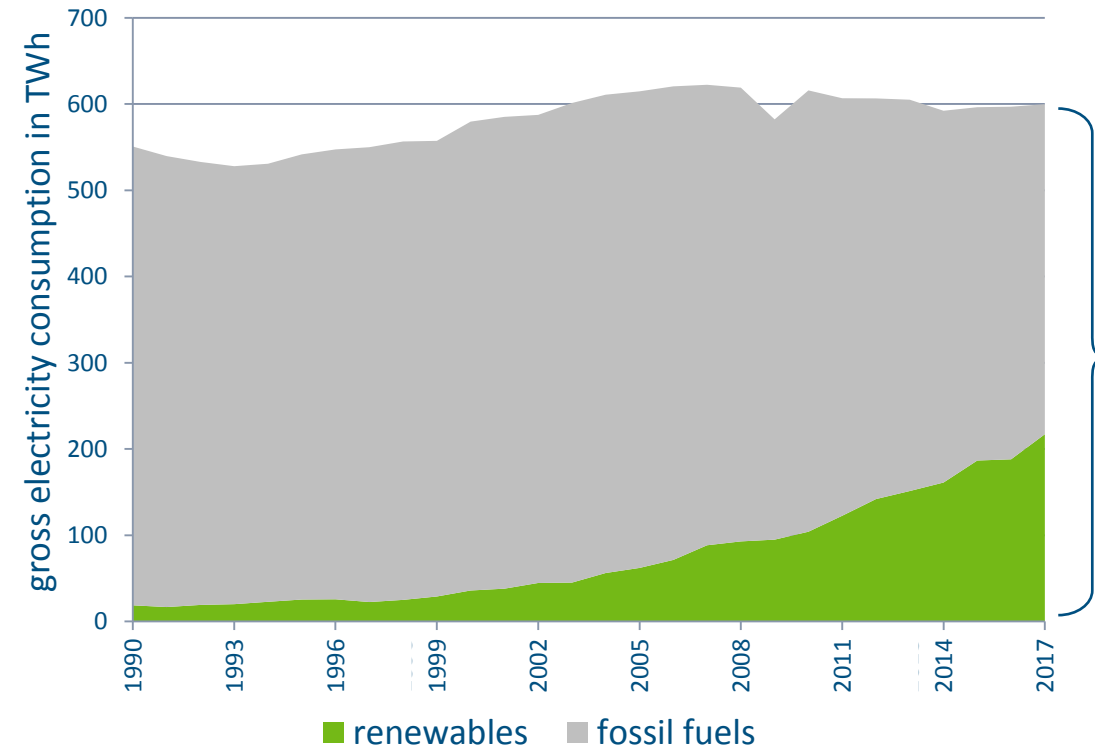


# The *Energiewende* is Germany's long-term energy and climate strategy



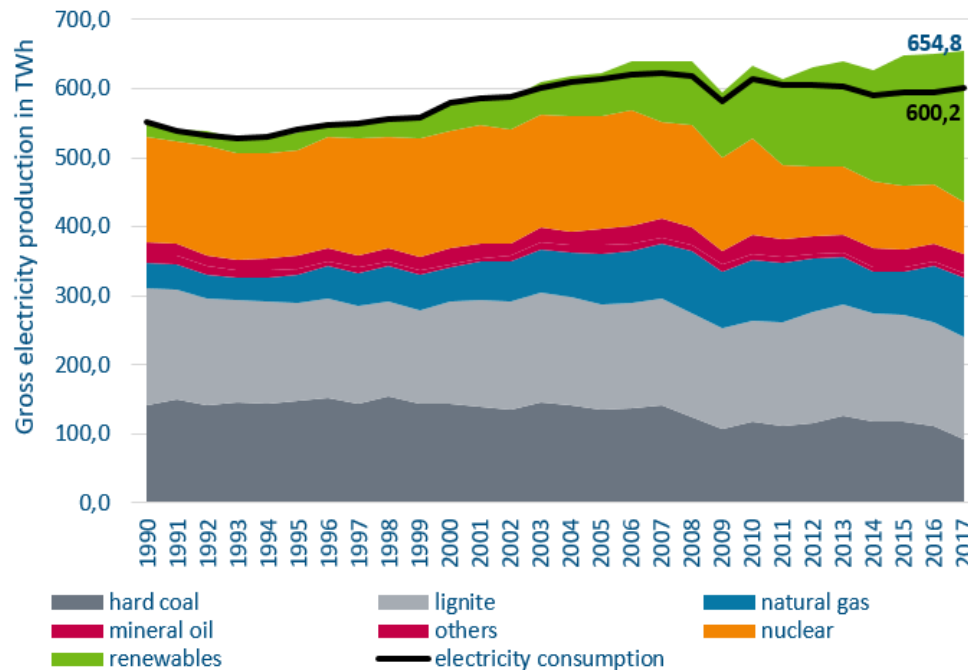
Source: Ecofys 2018 based on BMWi 2016, UBA 2018, AGEb 2018

# Germany's renewables share of total power use reached a record of 36%

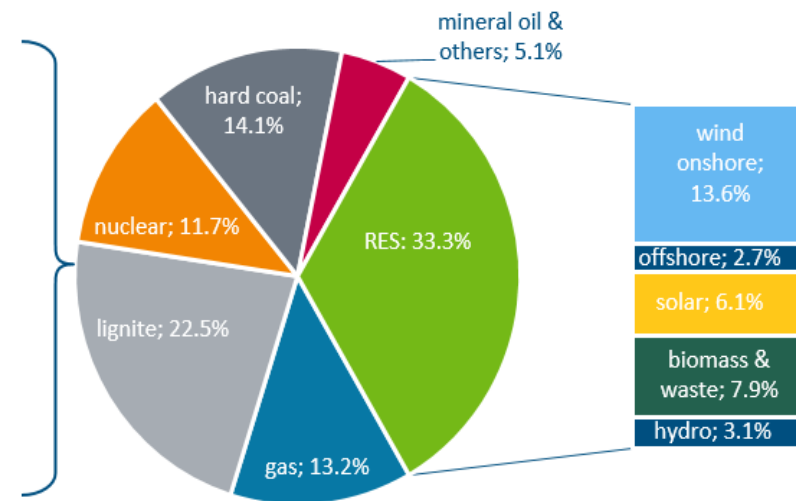


Source: Ecofys 2018 based on BMWi 2018, AGEB 2018, UBA 2018

# Renewables have become Germany's No. 1 source of electricity

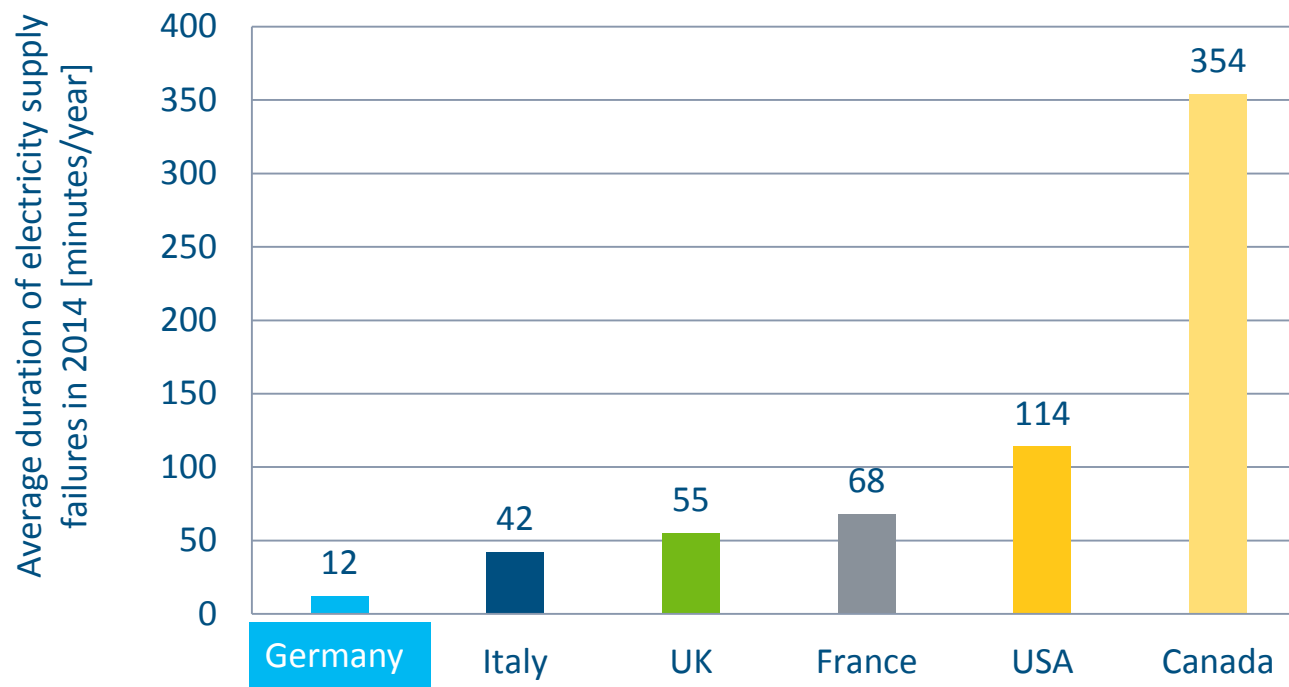


Electricity mix in 2017  
(654.8 TWh in total)



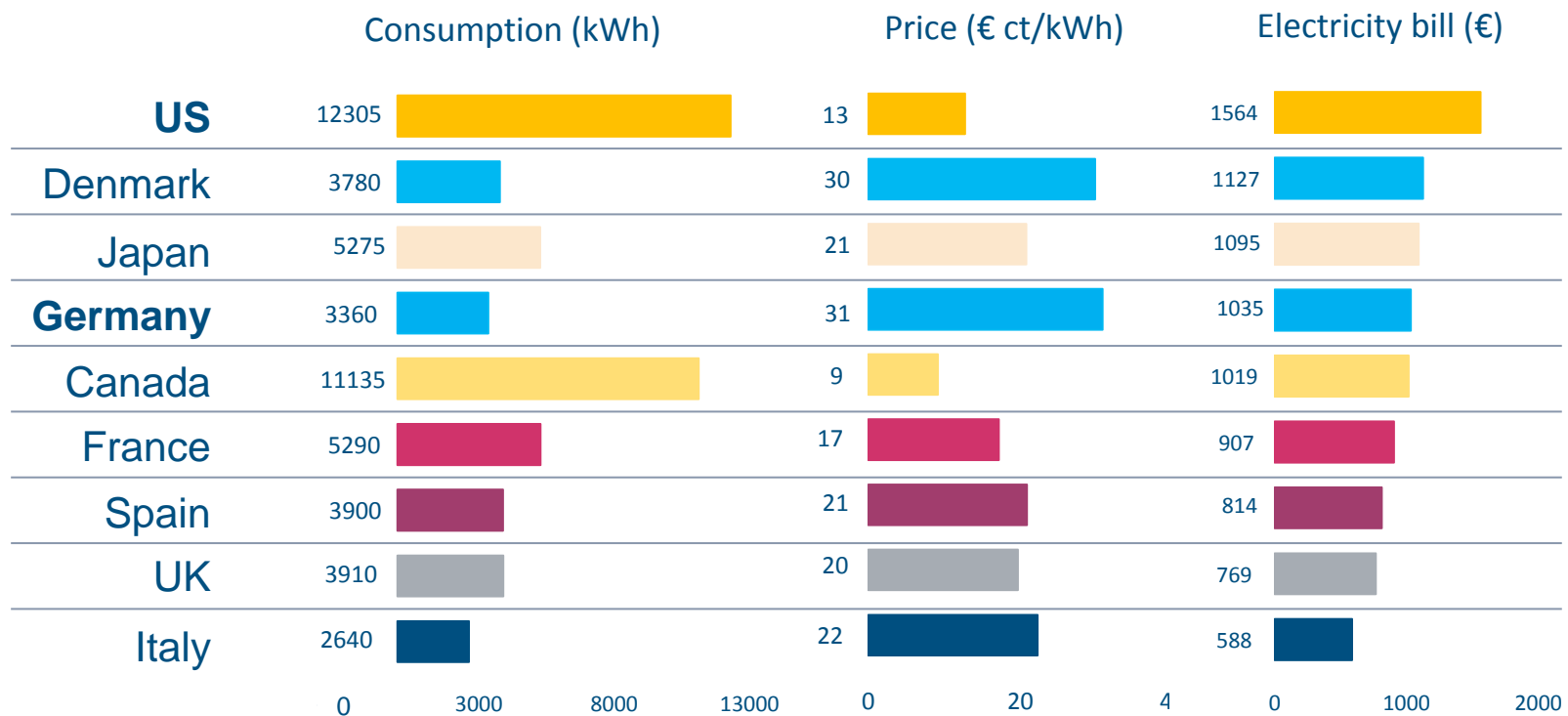
Source: Ecofys 2018 based on BMWi 2018

# Germany's security of electricity supply remains one of the highest worldwide



Source: Ecofys 2017 based on VDE 2015, CEER 2015; EIA 2014; Canadian Electricity Association 2014; Data based on SAIDI index, excluding exceptional events Data from 2013 and 2014 according to availability

# Average electricity bill in Germany is comparable to those of other industrialised countries



Source: Electricity 2016 based on Eurostat (2017), World Energy Outlook 2016, German Chamber of Commerce in Japan

Data from 2014-2017

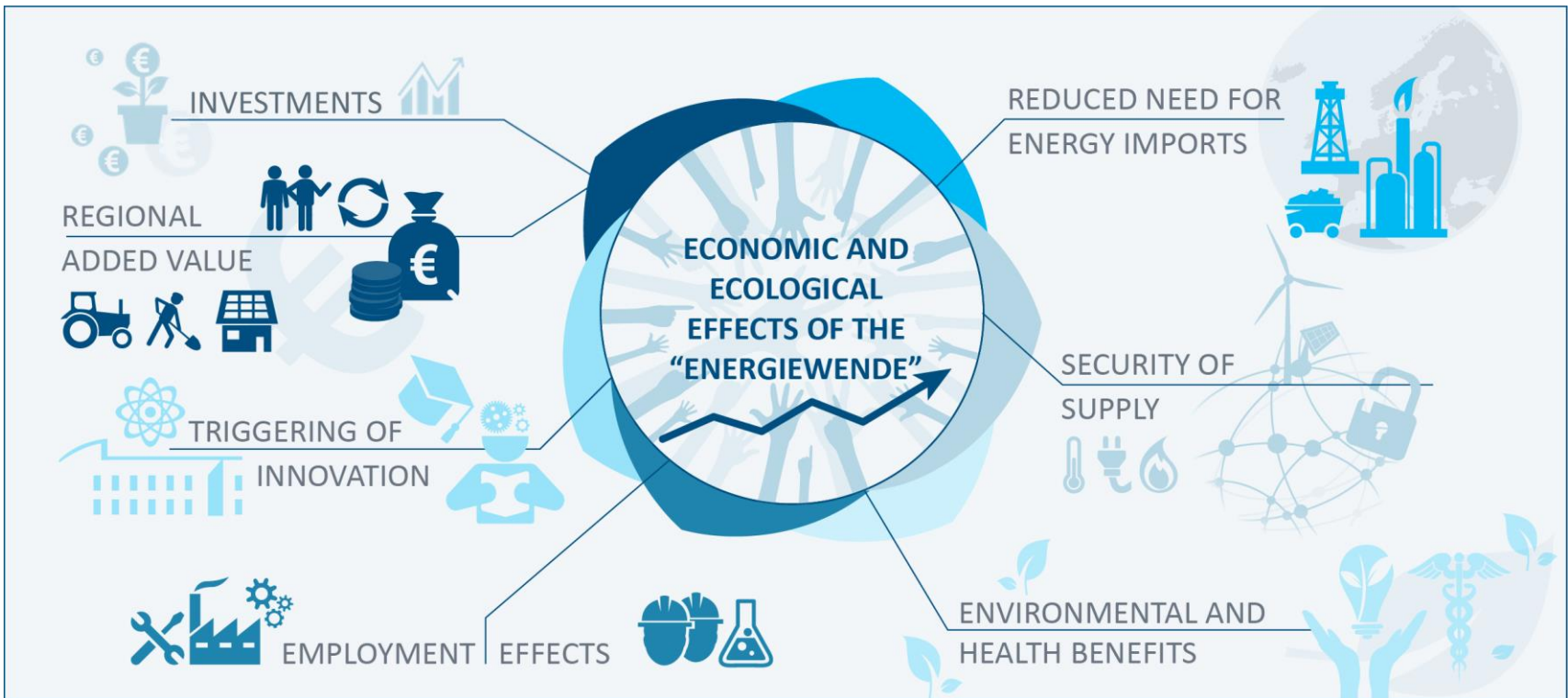


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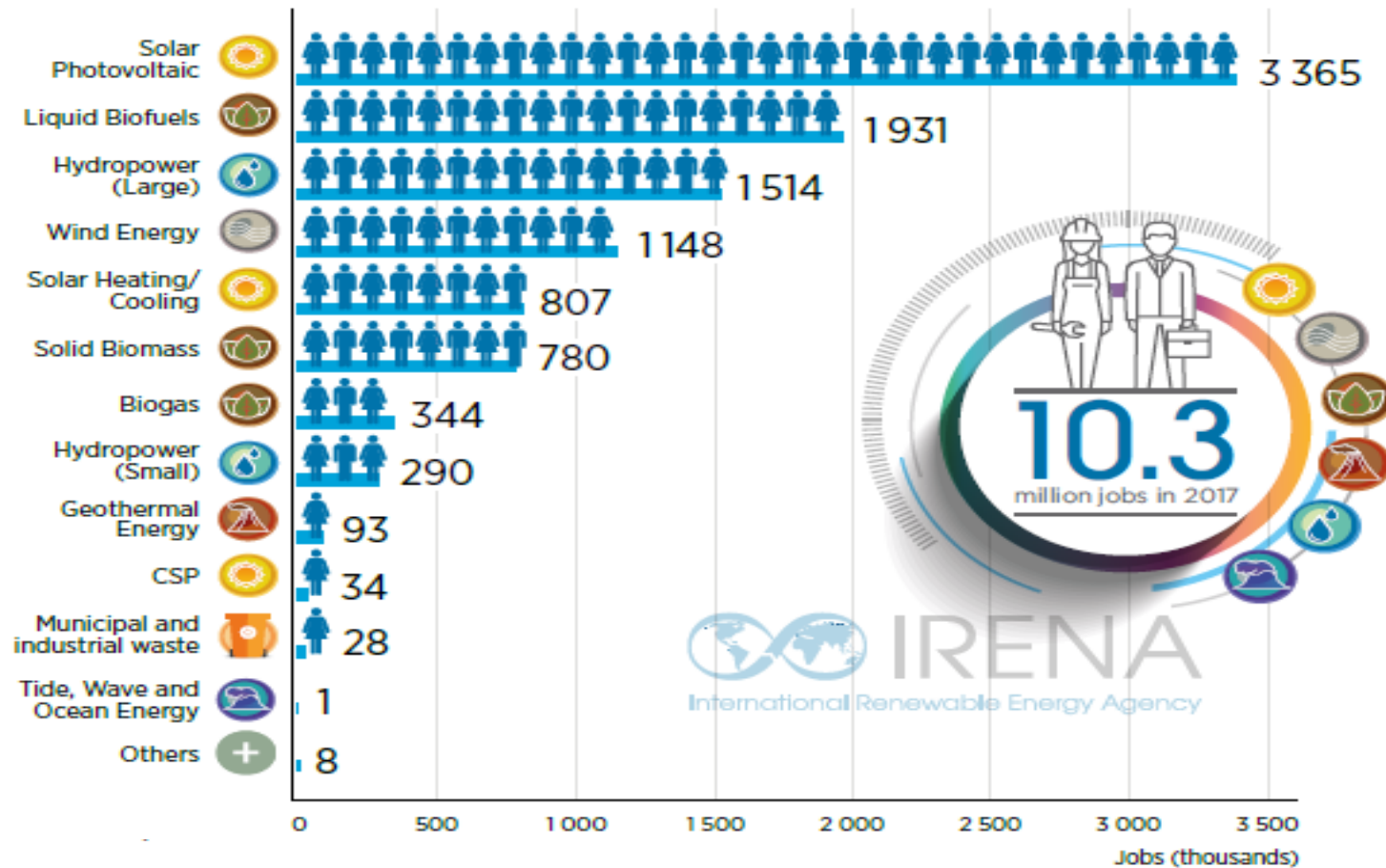


# The energy transition is having positive effects at various levels of the economy

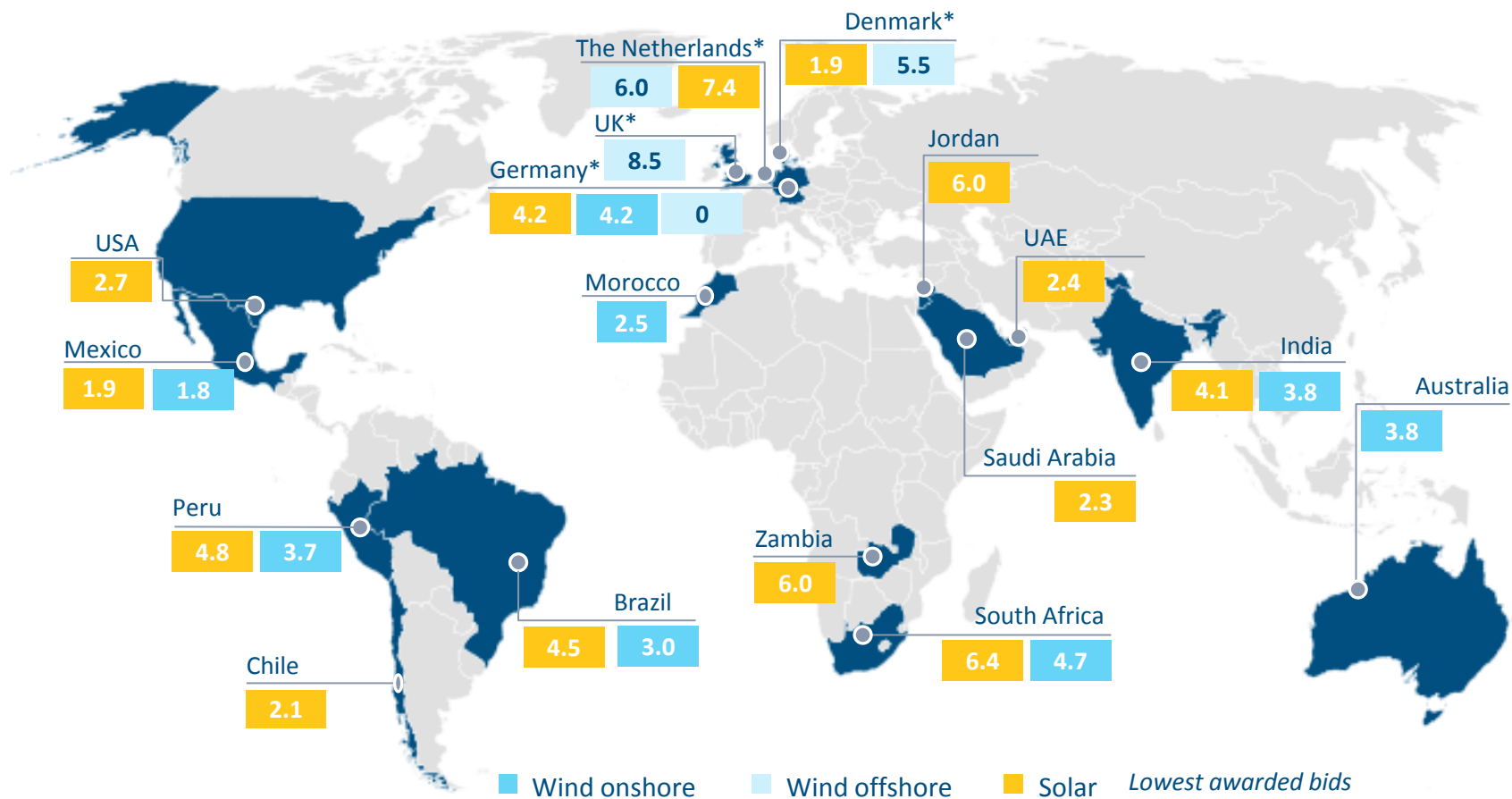


Source: Edelman.ergo 2016

# The renewable energy sector has created over 10 million jobs worldwide in 2017



# Global trend: Auction results highlight rapidly declining costs for renewables



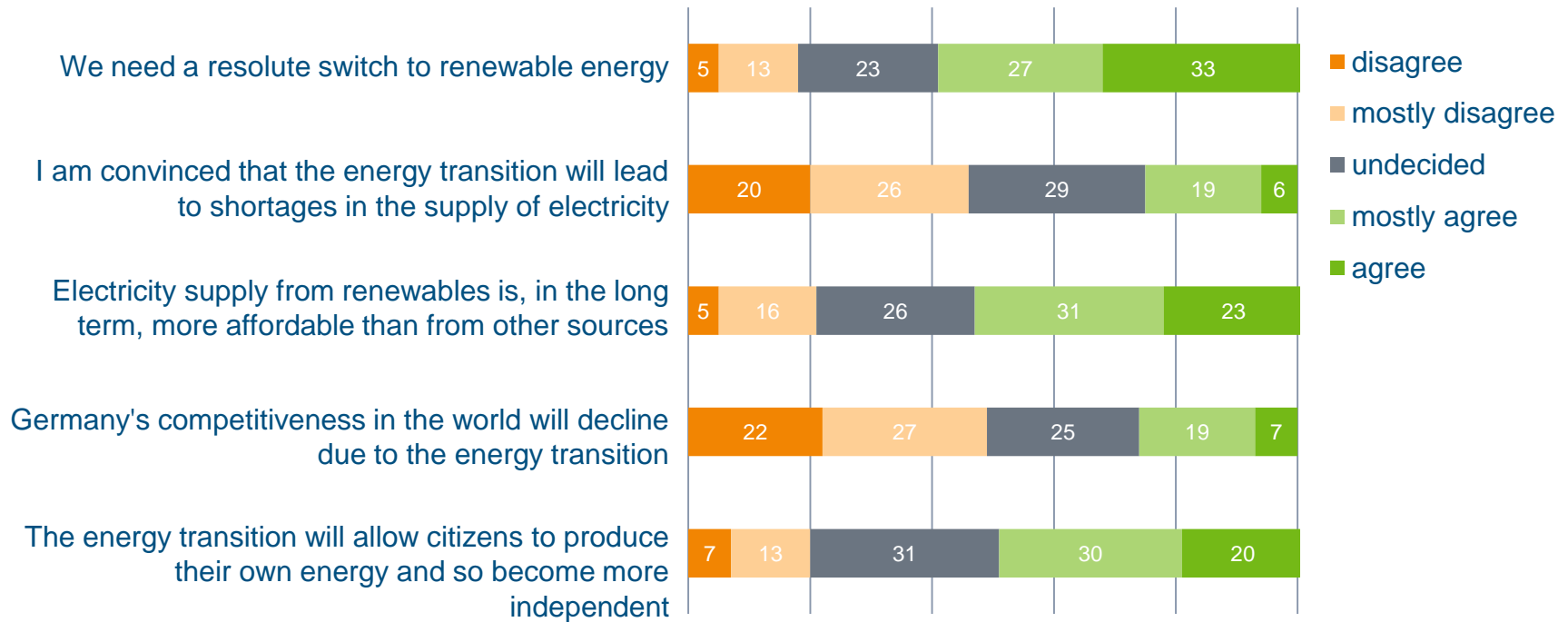
Lowest awarded bids

All prices in US ct/kWh  
at 1.1 USD/EUR

\* Countries with a feed-in premium  
(instead of a feed-in tariff / PPA)

# The *Energiewende* as a whole enjoys relatively large support within the German population

## Attitudes towards the Energiewende in %



Source: University of Stuttgart, University of Münster, Fraunhofer ISI and ISE 2016



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# Thank you for your attention

## Contact details

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