

Insights from the German Energiewende



Departure to Ecologic Modernity

- core issue of „Greens“
- „Great Transformation“ as *the* challenge for humankind
- utilization of natural resources within the planetary boundaries – human rights and development goals - Radical Realism for Climate Justice
- Germany with particular responsibility - big eco-footprint and high innovation potential



Foto: Robert Sperfeld

Turning away from fossil fuels: phase out nuclear and coal

Renewable energies, intelligent grids and storage

Energy Sector
Sustainable, secure supply, cost efficient

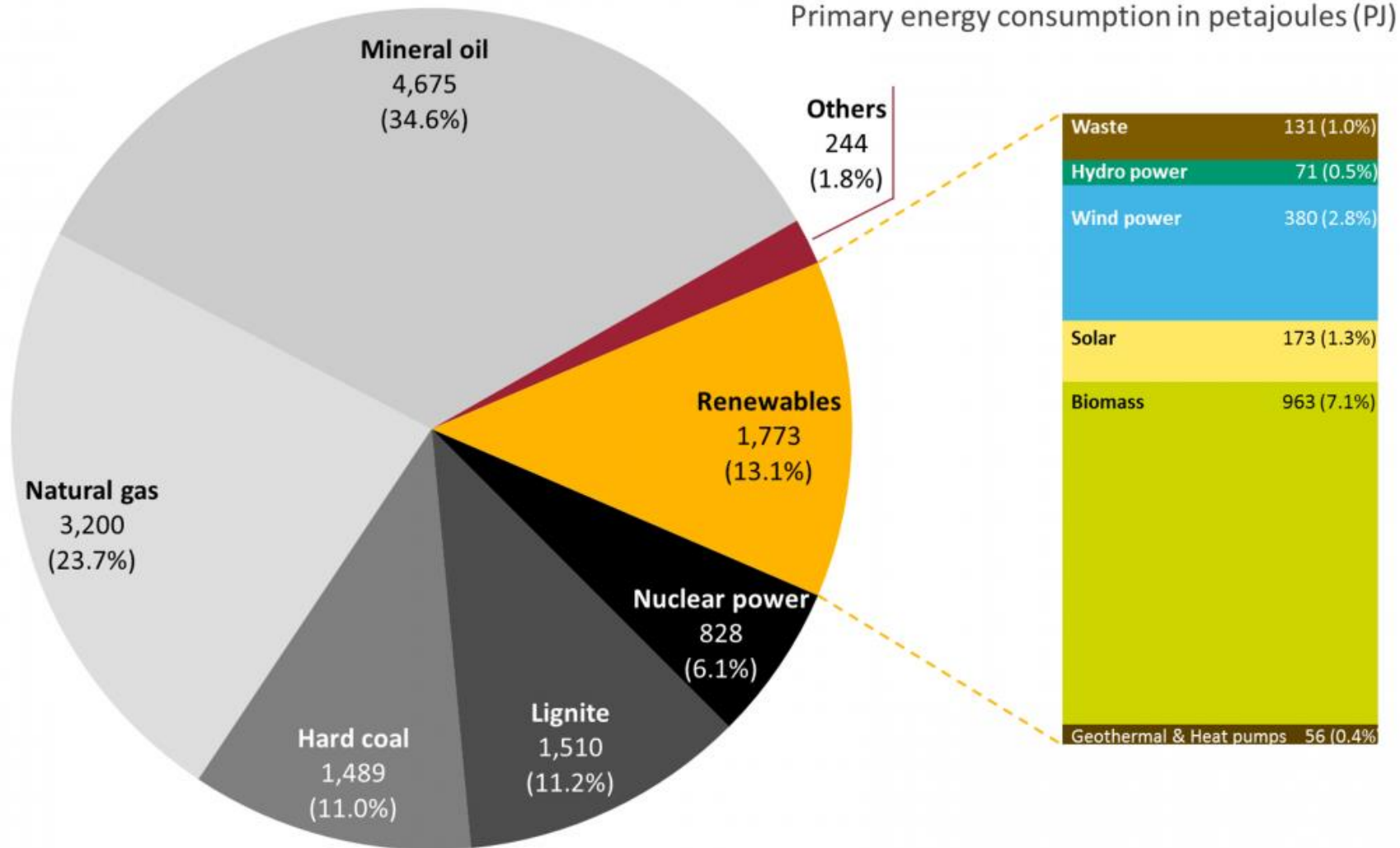
Coupling power, heat and mobility

Decentralism
Citizen energy
Market regulation

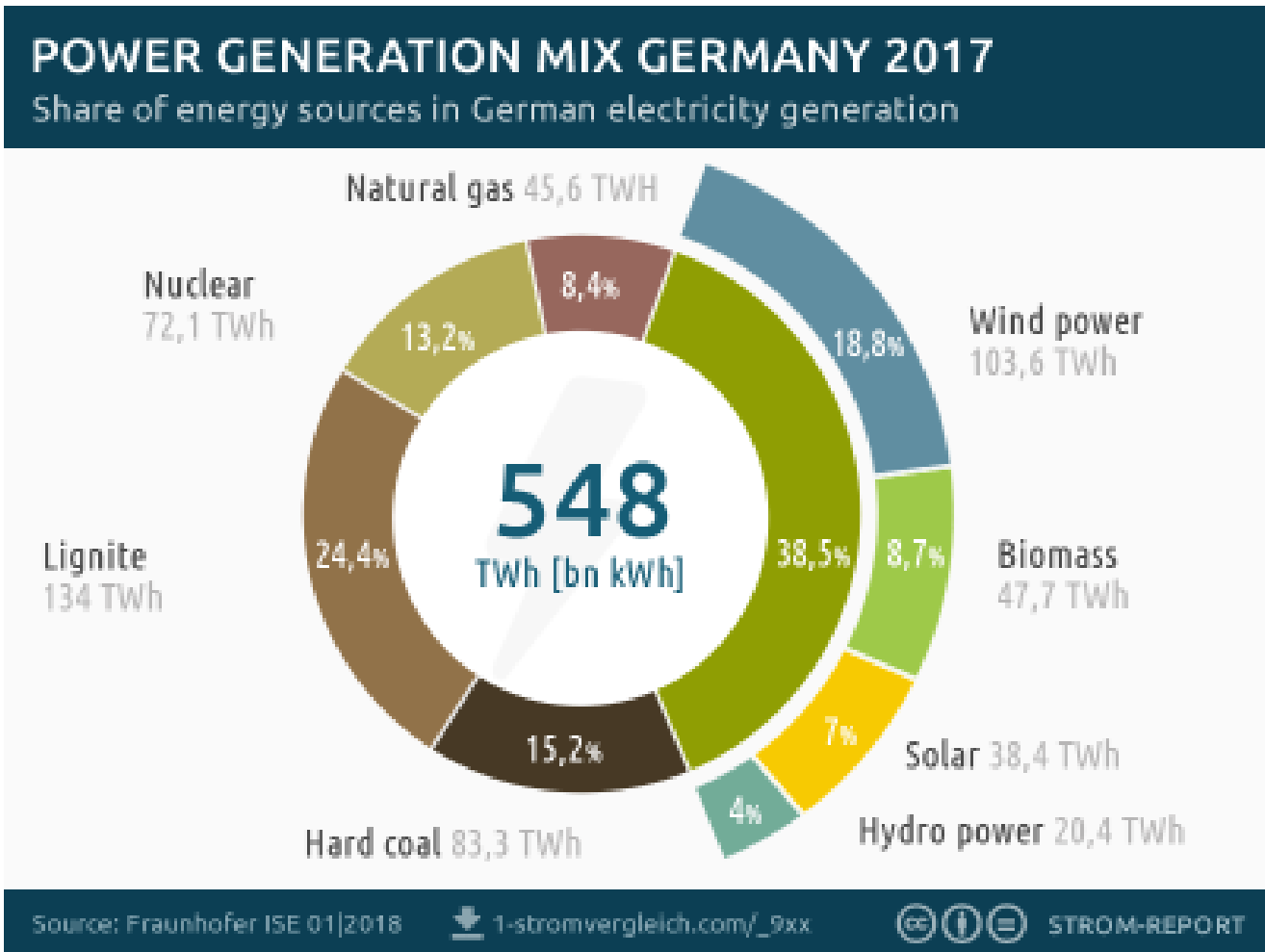
German/ EU targets		Status quo	2020	2025	2030	2035	2040	2050
Greenhouse gas emissions	Reduction of CO ₂ emissions in all sectors compared to 1990 levels	27% -2016	-40%		-55%		-70%	-80 – 95%
Nuclear phase-out	Gradual shut down of all nuclear power plants by 2022	11 units shut down (2015)	Gradual shut down of remaining 8 reactors					
Renewable energies	Share in final energy consumption	14,9% (2015)	18%		30%		45%	min. 60%
	Share in gross electricity consumption	32.3% (2016)		40 – 45%	EU: 32%	55 – 60%		min. 80%
Energy efficiency	Reduction of primary energy consumption compared to 2008 levels	-7,6% (2015)	-20%		EU: -32,5%			-50%
	Reduction of gross electricity consumption compared to 2008 levels	-4 % (2015)	-10%					-25%

German energy mix 2017: Energy sources' share in primary energy consumption.

Data: AG Energiebilanzen 2017 (preliminary).



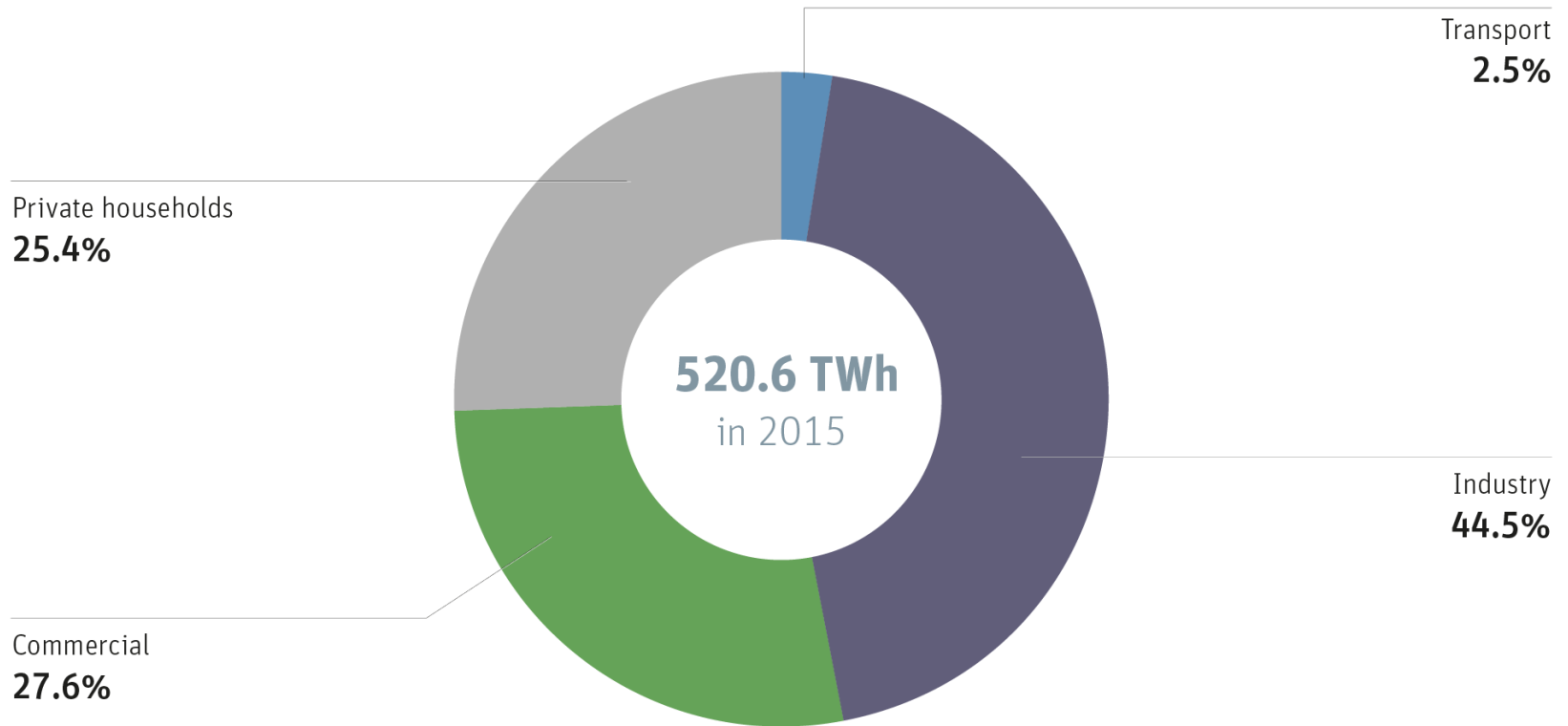
Note: Percentages add up to 101.5% as bottom line power exports (-194 PJ) are not visualised in this graph.



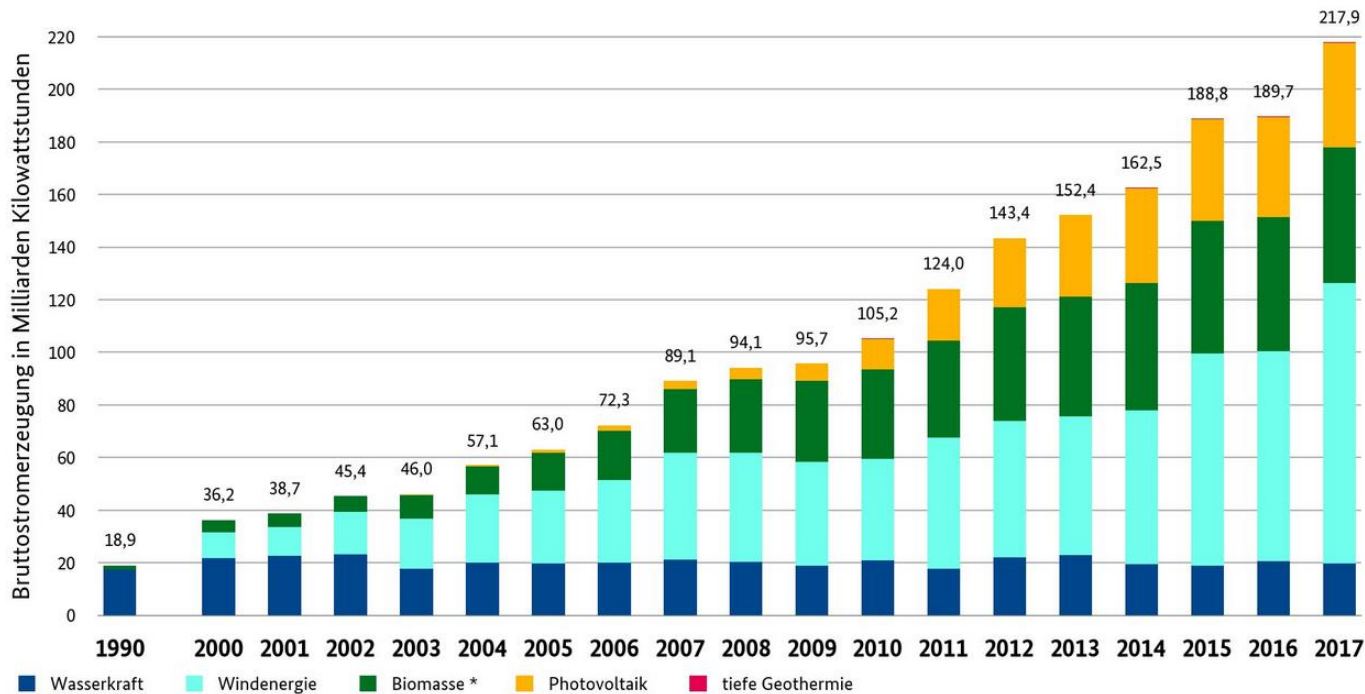
Industry by far biggest power consumer in Germany

Electricity consumption by sector, 2015

Source: BMWI, StBa



Entwicklung der Stromerzeugung aus erneuerbaren Energien in Deutschland

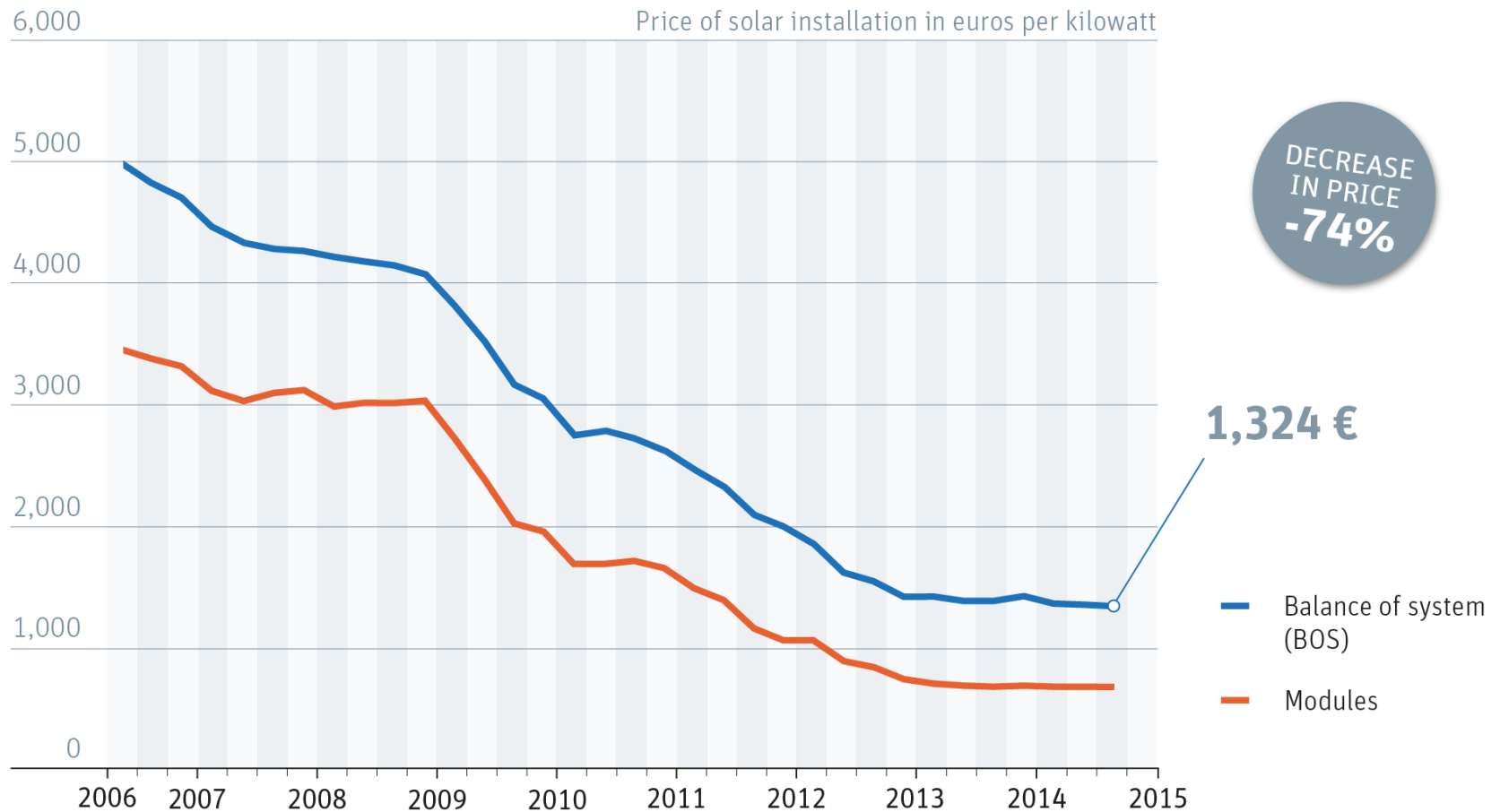


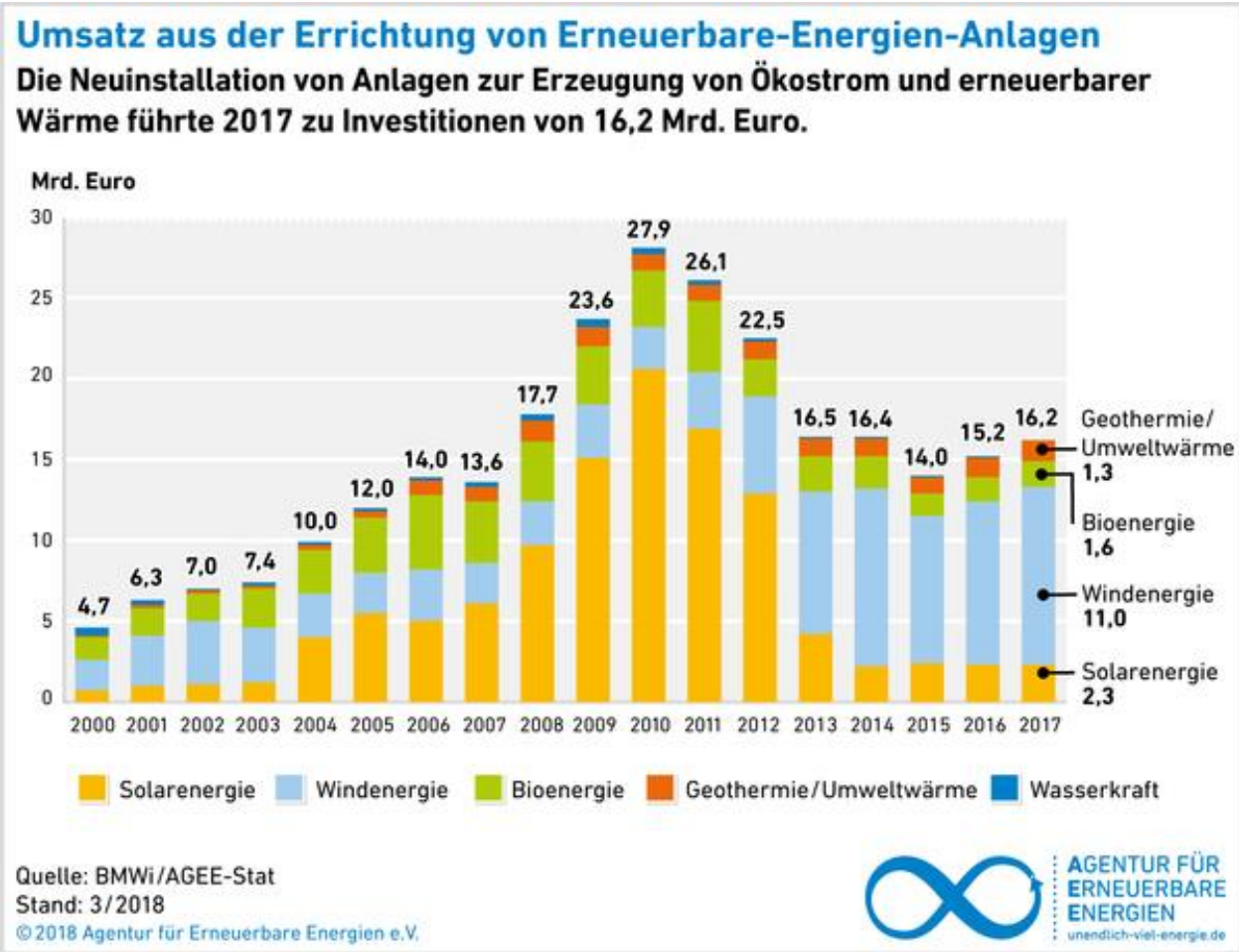
* inkl. feste und flüssige Biomasse, Biogas inkl. Biomethan, Klär- und Deponiegas und dem biogenen Anteil des Abfalls, ab 2010 inkl. Klärschlamm; BMWi auf Basis Arbeitsgruppe Erneuerbare Energien-Statistik (AGEE-Stat); Stand: Februar 2018; Angaben vorläufig

Price of solar down in Germany by 74 percent since 2006

Average system price for installed rooftop solar from 10 to 100 kilowatts

Source: EUPD Research and BSW-Solar





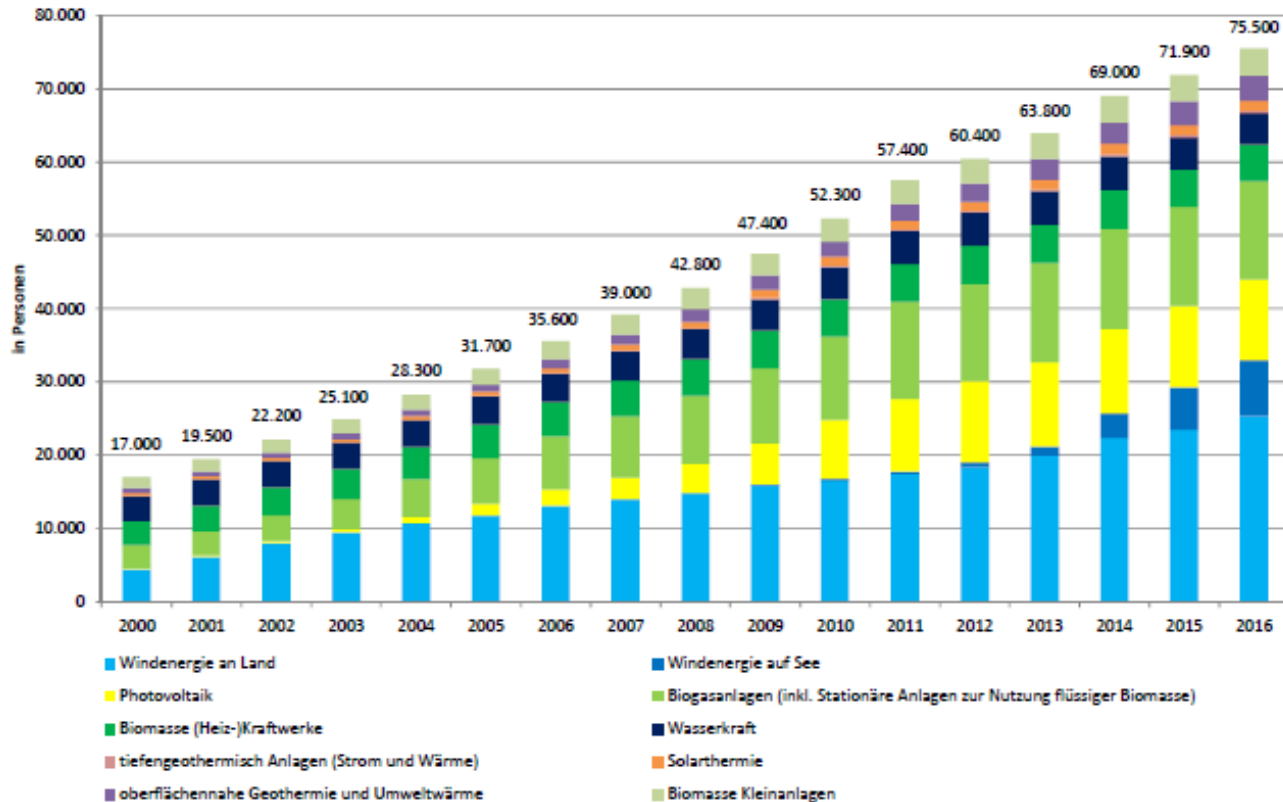


Abbildung 6: Beschäftigung in Betrieb und Wartung von EE-Anlagen, gerundet

Source: GWS Research Report 2018/01