Düsseldorf Institute
for Competition Economics

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The Cost of the German Energy Transition and Who Is Bearing It?

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Germany‘s Energiewende

The Energiewende is, by and large, a disaster in all respects:

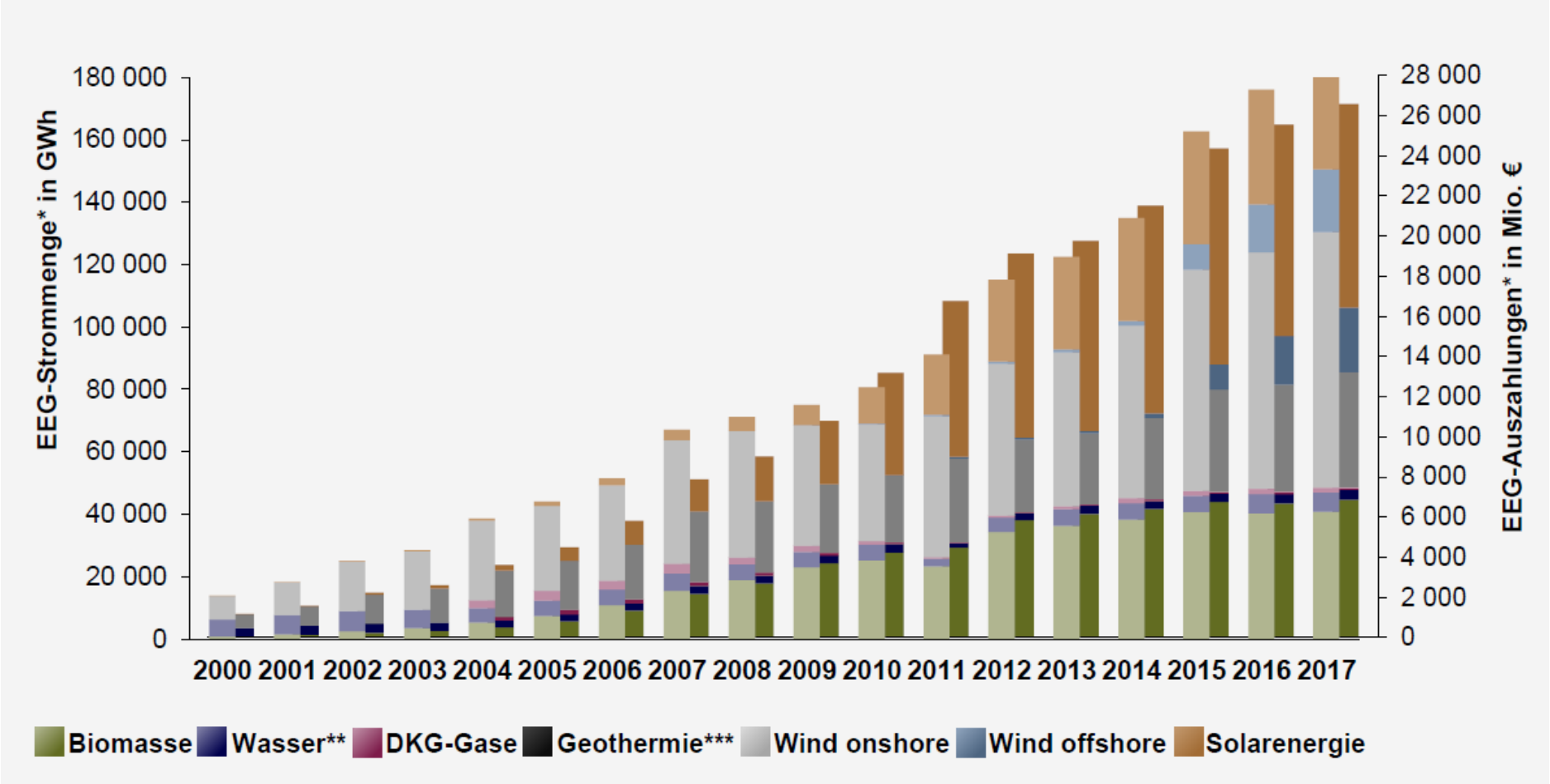
- no reduction in greenhouse gas emissions due to lack of coordination with EU ETS,
- incredibly expensive: 520 billion Euros from 2000-2025, with 150 billion Euros from 2000-2015 and 370 billion Euros from 2016-2025,
- responsible for the increasing fragmentation of Germany’s and its neighbours’ energy markets,
- problematic distributive consequences (poorer households tend to subsidise richer ones),
- market forces have largely been eliminated, model largely based on the idea of central planning, only without planning.

Germany‘s Energiewende

The Approach:

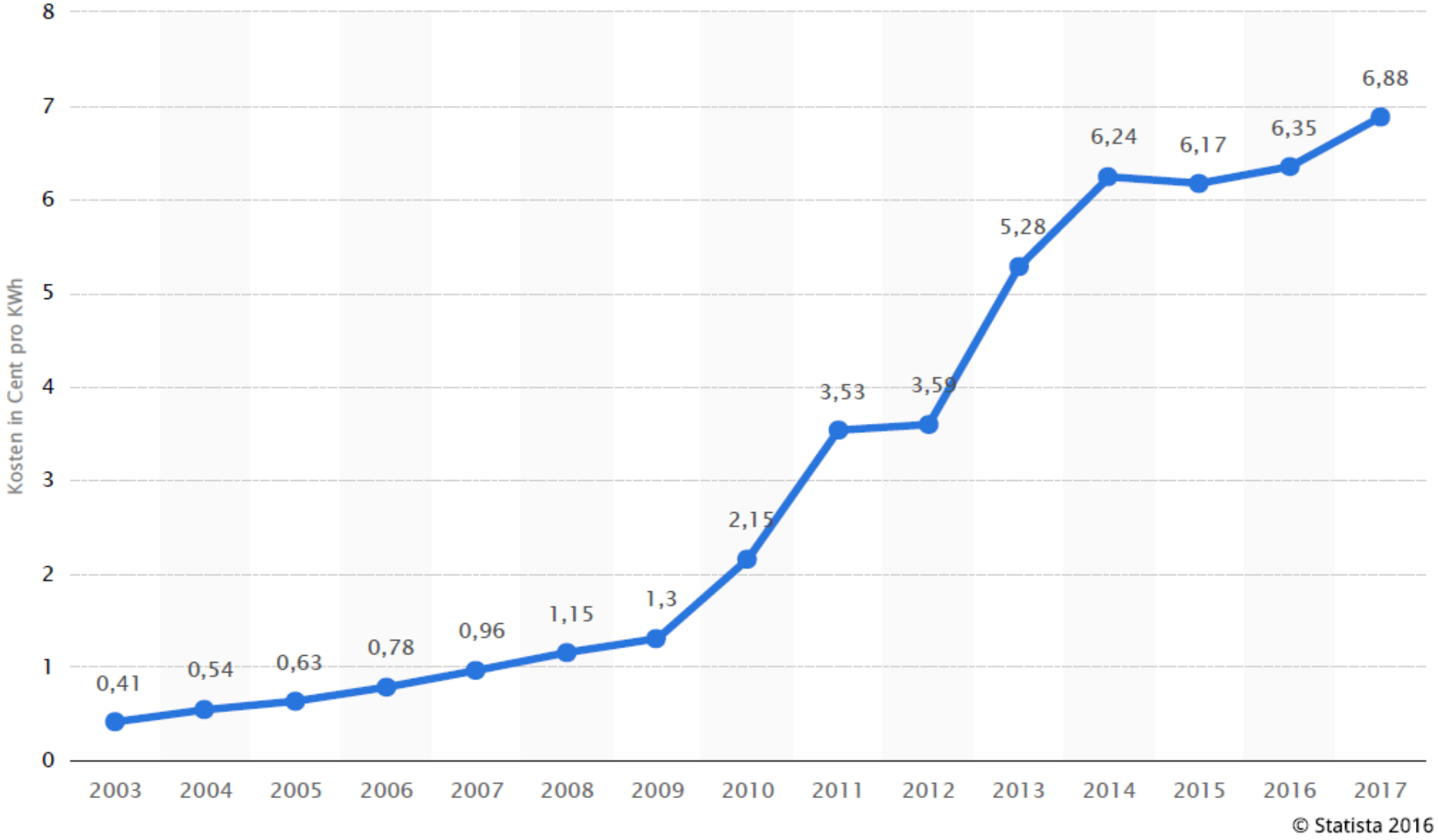
- About 5000 different feed-in-tariffs, jointly determined by two parliamentary chambers (Bundestag and Bundesrat),
- Differentiation according to technology (solar/PV, bio masses, wind, geothermal), plant size, plant location, date of installation,
- Until recently, there has been no element of competition or market in the renewable energy sector,
- due to the enormous rates of return the approach has been highly effective though,
- Cost explosion

Green Electricity Generation and Subsidies

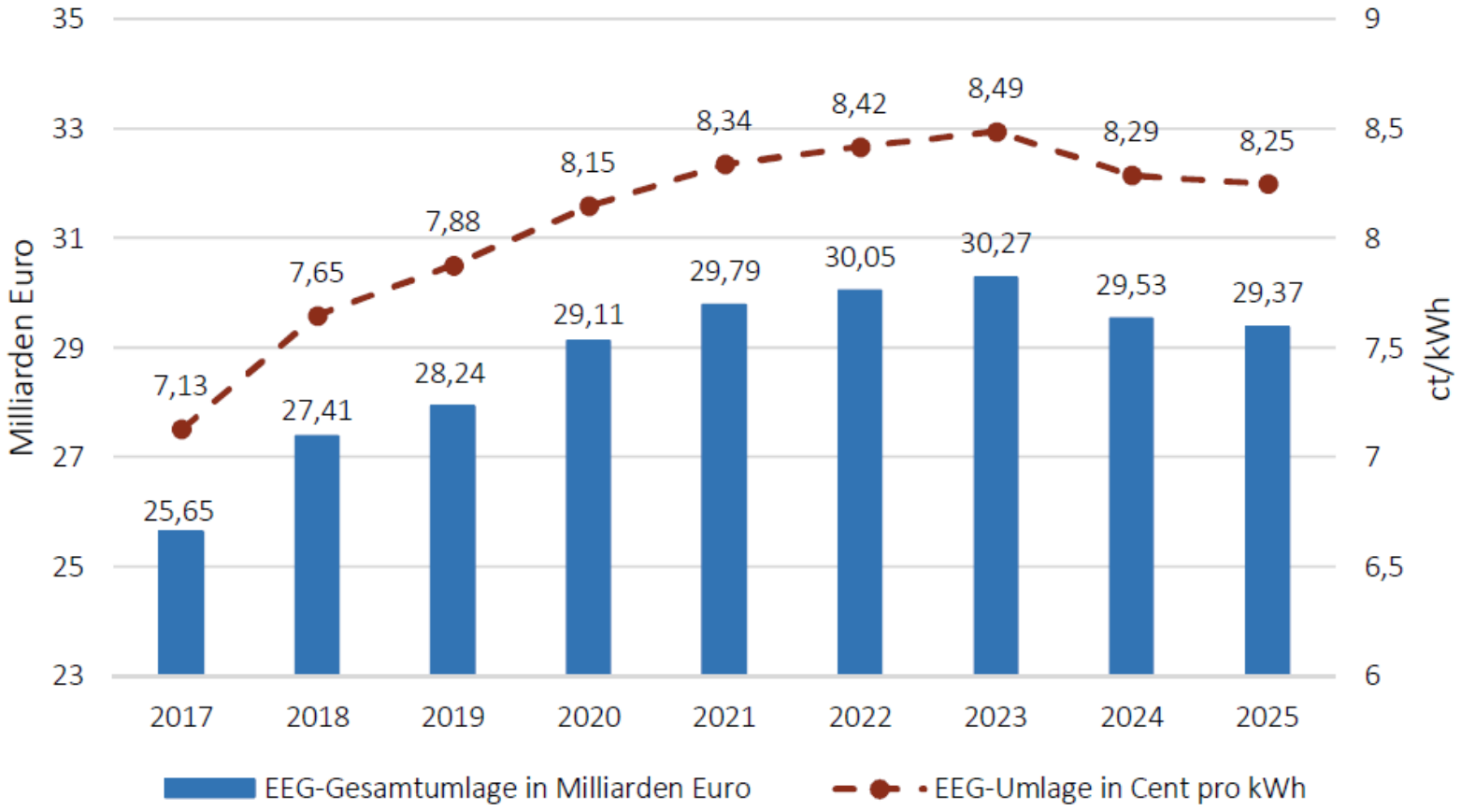


Source: BDEW (2017)

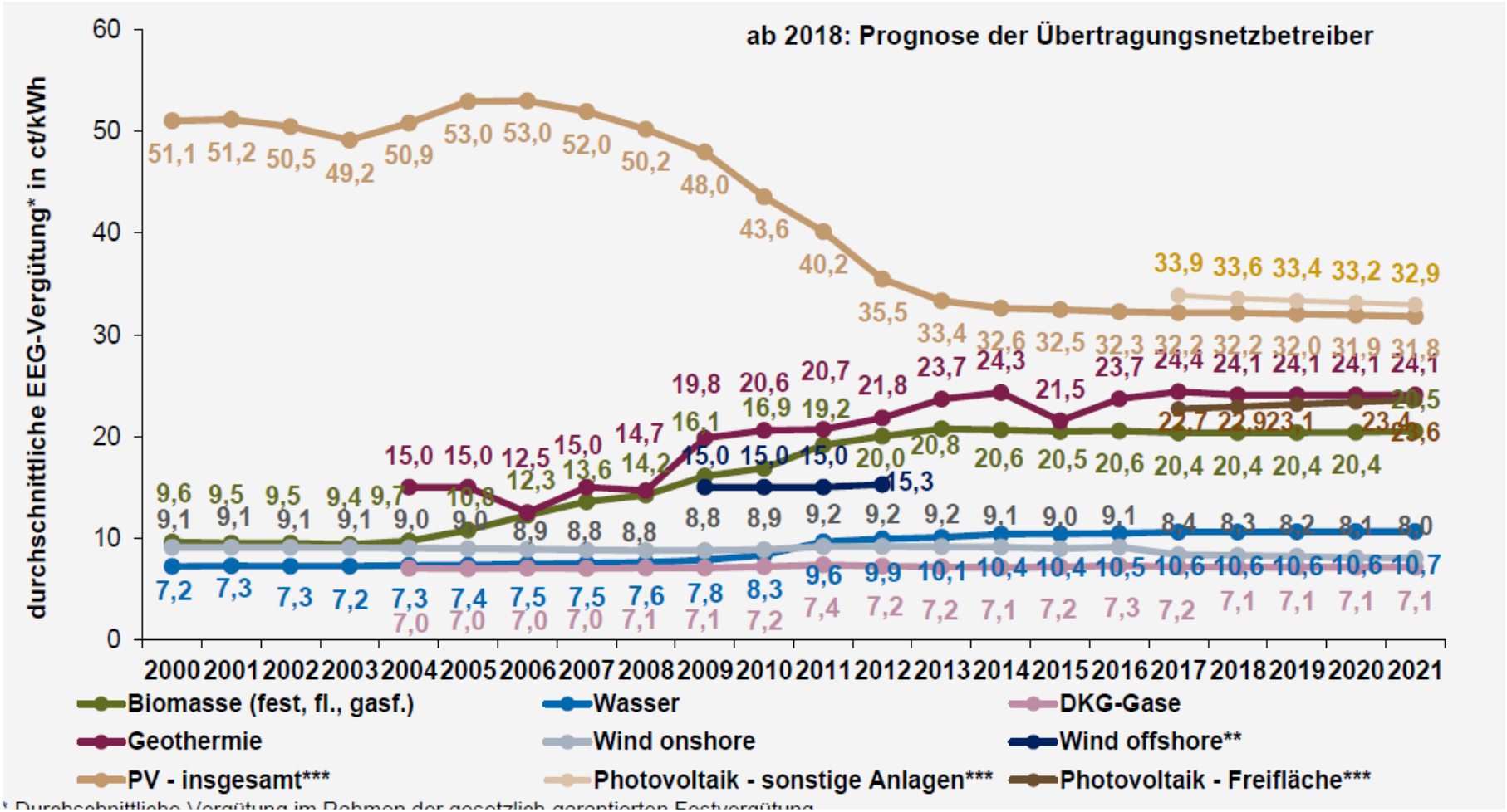
Development of the Levy for Renewables



Development of Subsidies for Renewables

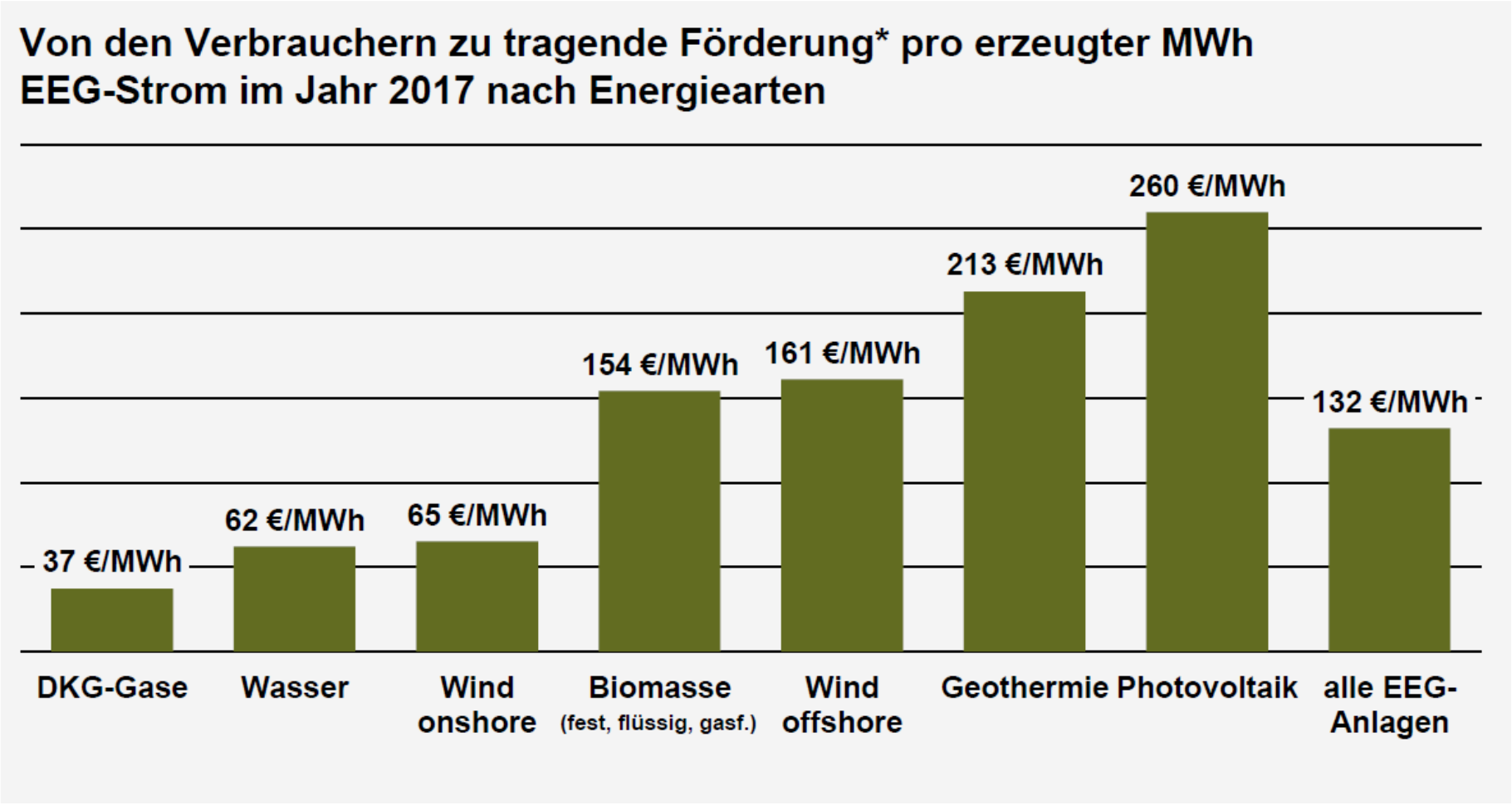


Green Electricity Subsidies



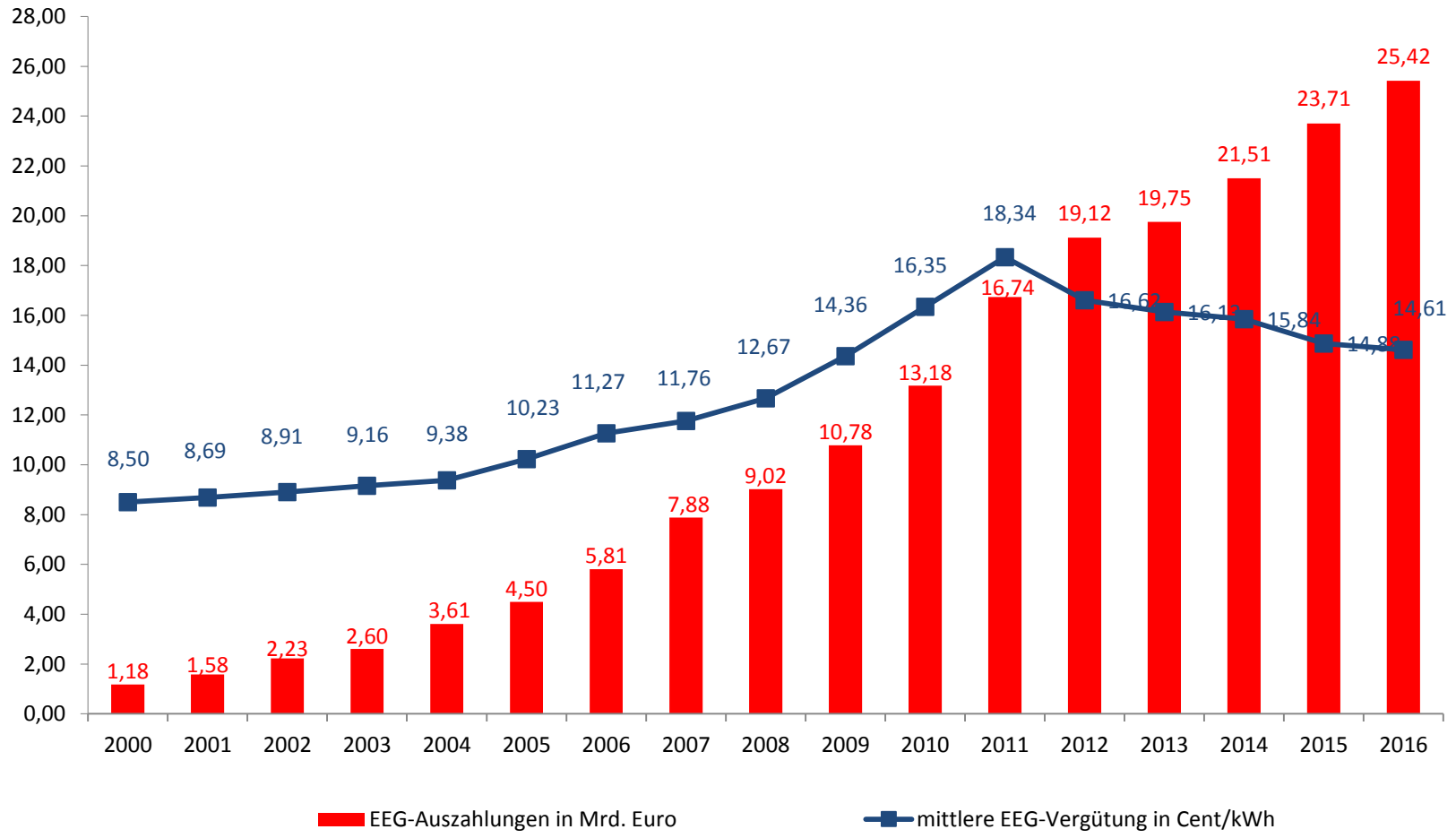
Source: BDEW (2017)

Renewable Energy Subsidies

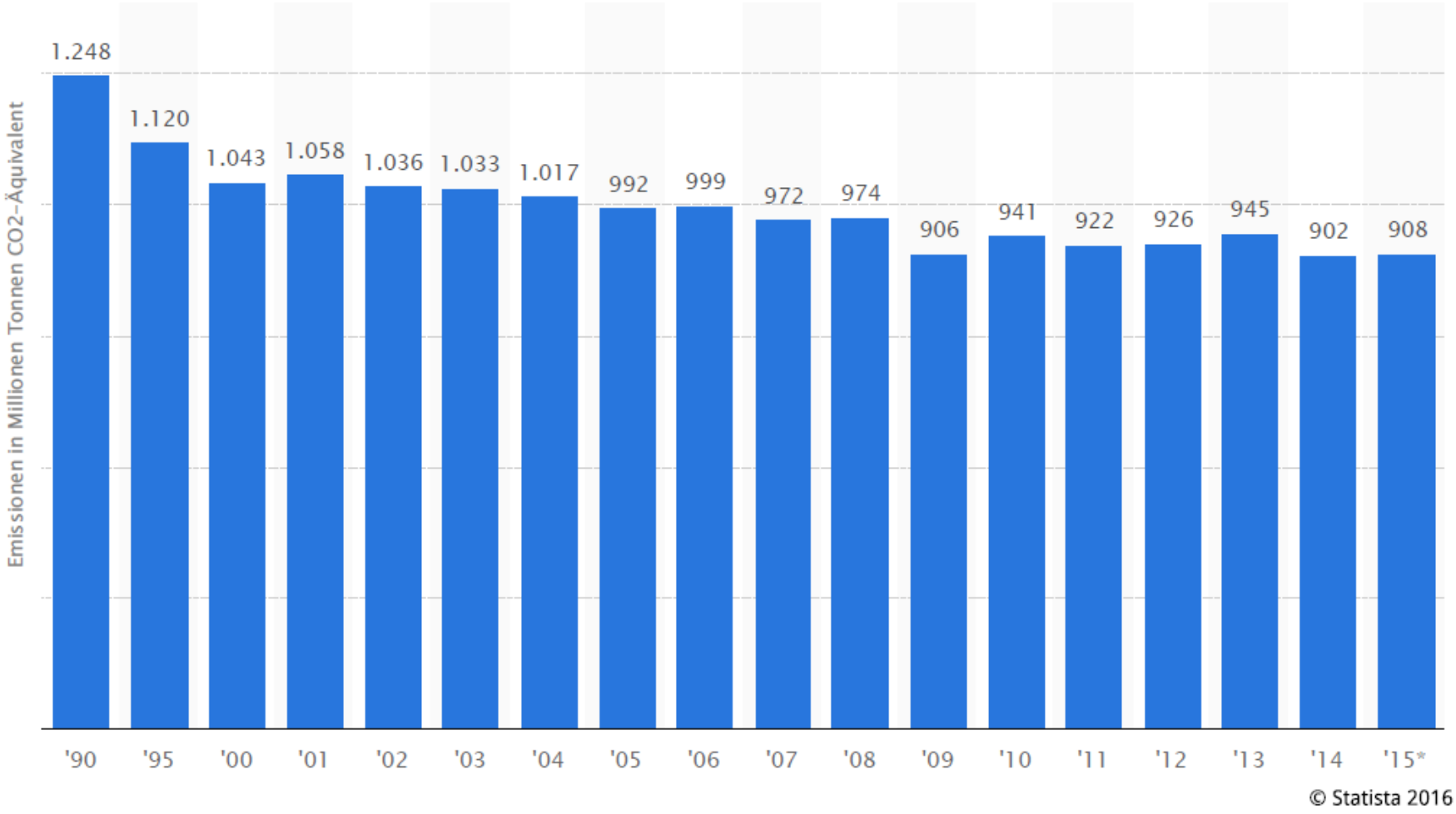


Source: BDEW (2017)

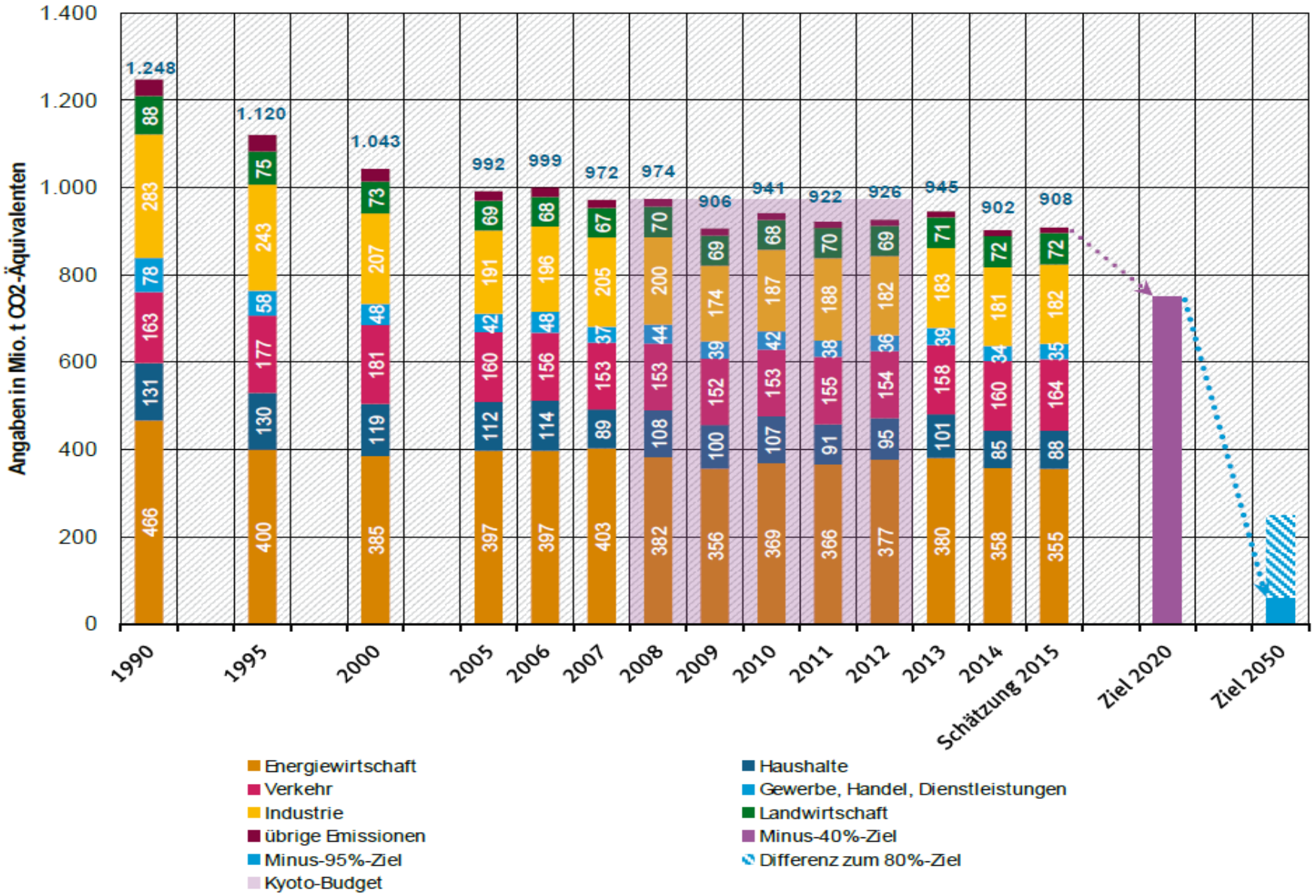
Development of Subsidies for Green Electricity



Greenhouse Gas Emissions



Greenhouse Gas Emissions



Direct and Indirect Costs of Transition

- The ***direct*** cost of the energy turnaround are the direct subsidies paid out to RE.
- From 2000 to 2015 these costs sum up to:
  125 billion € EEG + 8 billion € KWK = 133 billion €
- Until 2025 increase to 408 billion € + 17 billion € = 425 billion €
- ***Indirect*** cost:
  - Grid expansion: 56 billion €,
  - Offshore insurance, redispatch, reserve capacity, etc: 15 billion € until 2025 (3,7 billion until 2015)
  - Interest rate rebates: 6 billion € until 2025 (3,74 billion € until 2015)
  - Research funding: 12 billion € to 2025, 4 billion € to 2015.
  - Write downs of conventional plants: 6 billion €
  - Negative electricity prices: 500 m € to 2025, 199 m € to 2015.

Direct and Indirect Costs of Transition

Sum of **direct** and **indirect** cost:

- 2000-2015: 150 billion €
- 2000-2025: 520 billion €

Cost per capita:

- 2000-2025: More than 6300 € per capita, of which 1830 € until 2015 and more than 4500 € from 2016 to 2025

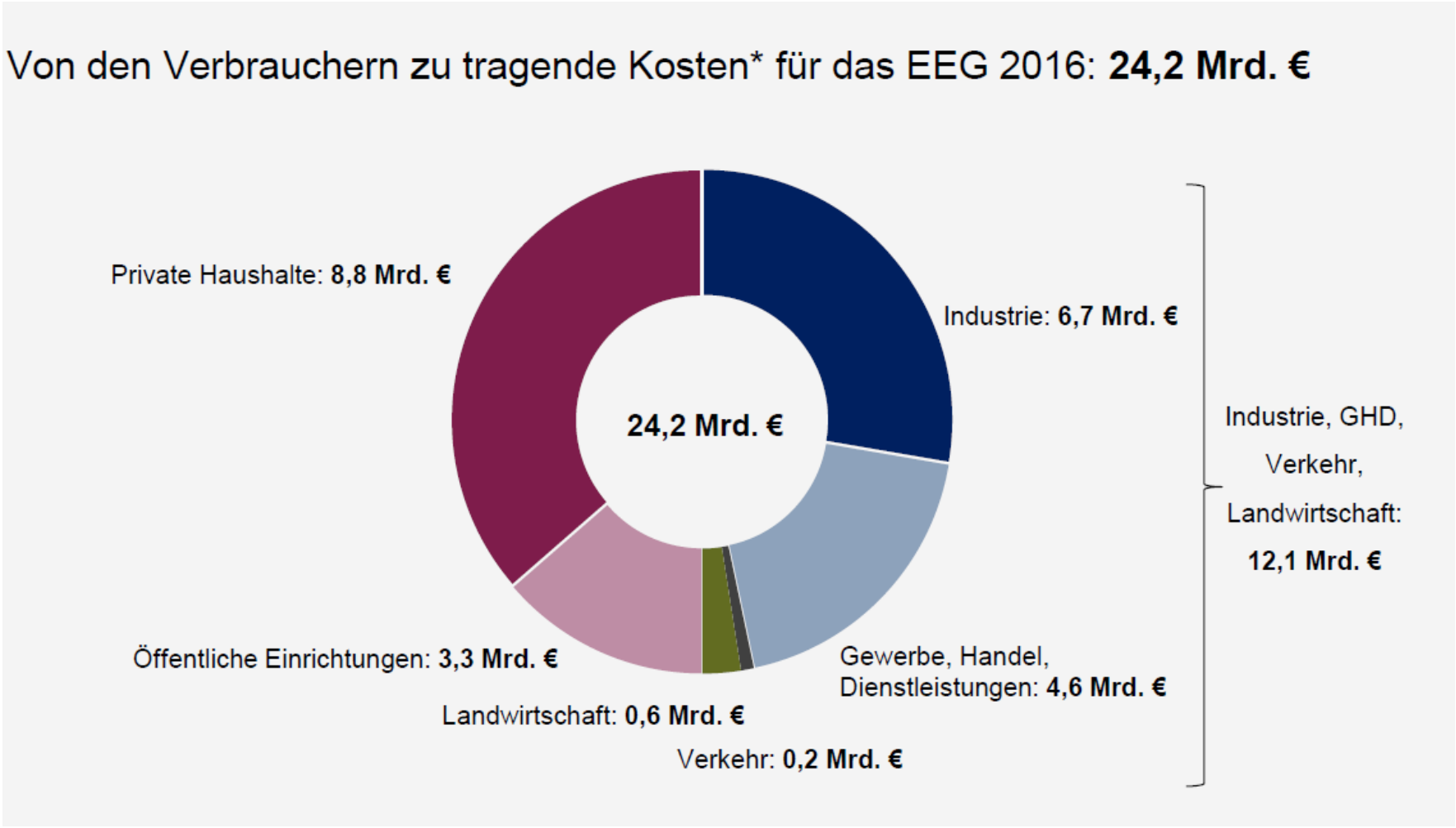
Cost per 4-person family:

- 2000-2025: 25.000 €, of which 18.000 € from 2016-2025.

Monthly cost:

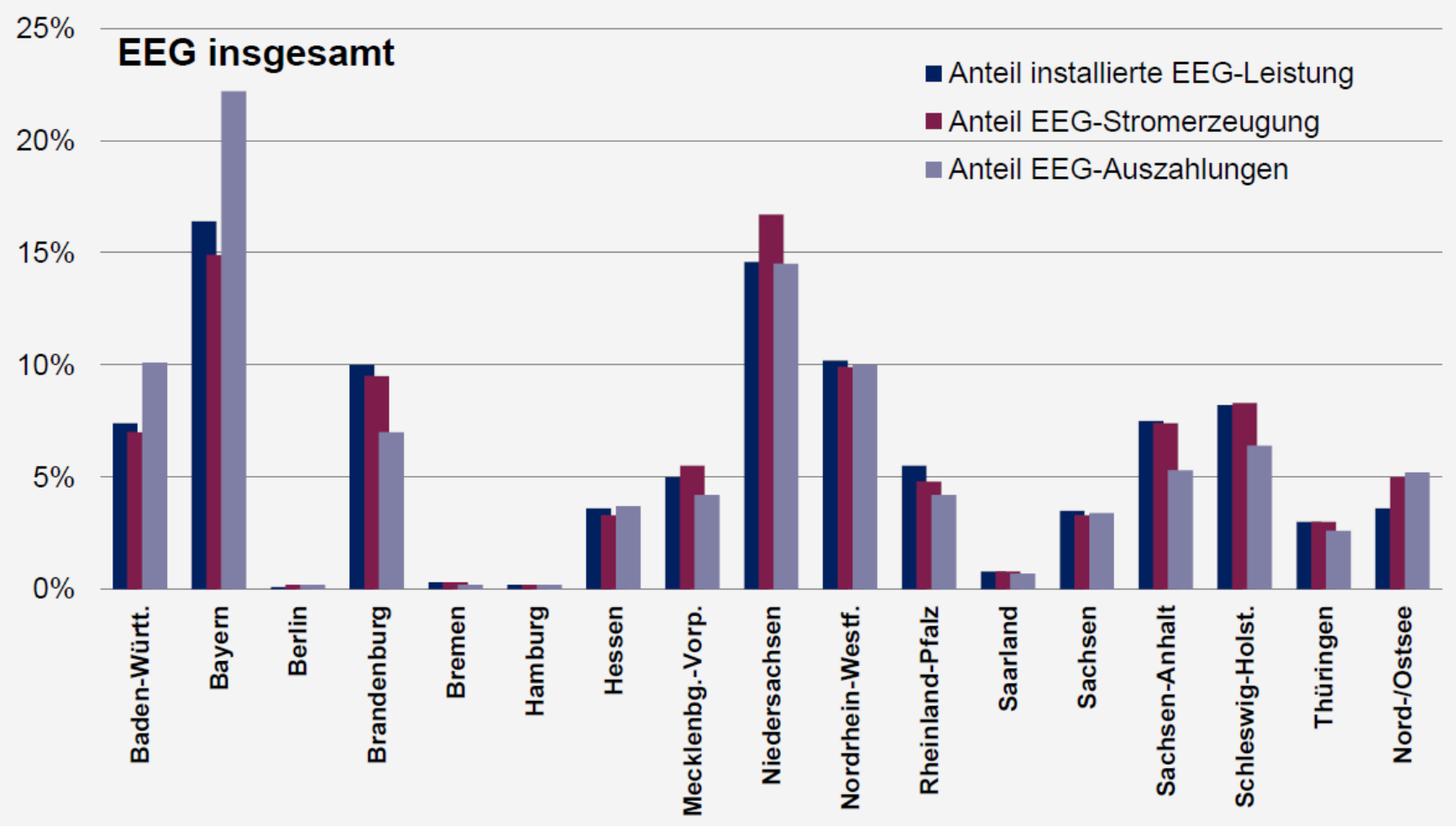
- 2000-2015: 10 € per capita per month, 2016-2025: 37,50 €
- 2000-2025: 20 € per capita per month

Who is Paying for it?



Source: BDEW (2017)

Who is Benefiting?

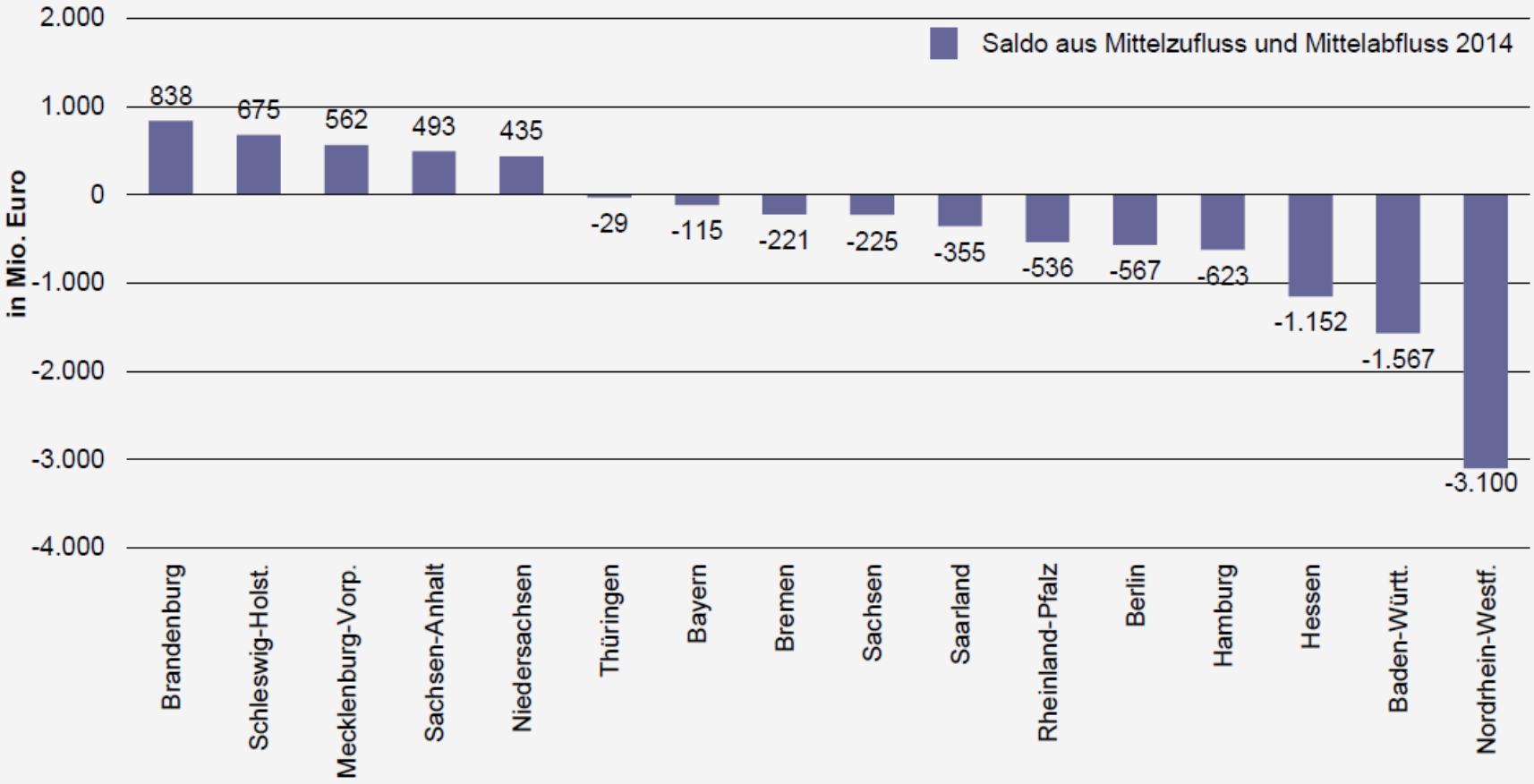


Source: BDEW (2017)

Who is Benefiting?

EEG 2014 gesamt: Salden der EEG-Zahlungsströme nach Bundesländern

bdew
Energie. Wasser. Leben.



Final Conclusions

- If the energy turnaround is to serve as a role model, cost efficiency needs to play a larger role.
- Competition between green technologies should play a larger role.
- The recently introduced tender processes for large-scale PV and (onshore and offshore) wind is encouraging. In contrast to predictions by many proponents of feed-in tariffs, subsidy levels have significantly decreased.
- More direct responsibility for marketing green electricity is needed (instead of produce and forget mentality).
- Urgent need to reconcile green electricity build-out with EU ETS in order to reduce CO2.

Thank you for your attention!

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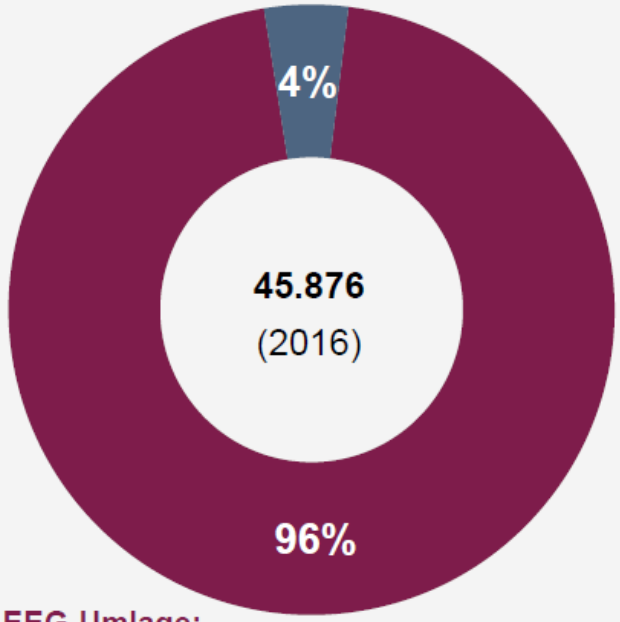
Back-up

Anzahl der Industriebetriebe

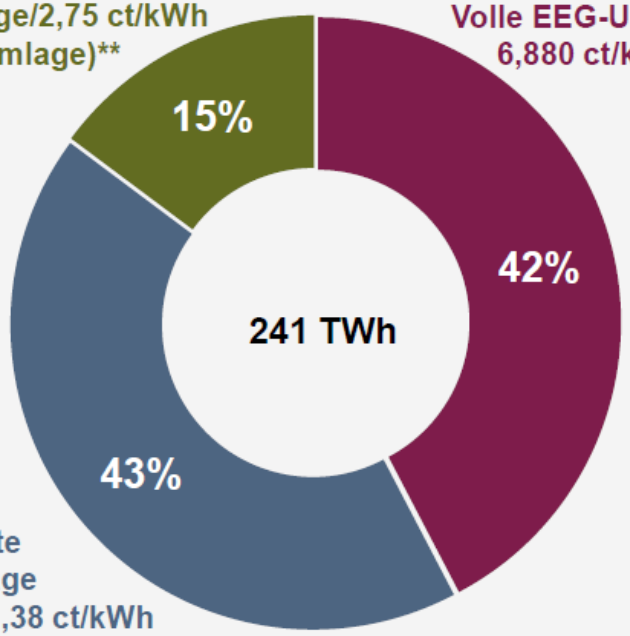
Begünstigt durch die Besondere Ausgleichsregelung nach § 64 EEG: rd. 4% der Industriebetriebe



Volle EEG-Umlage:
rd. 96% aller Industriebetriebe

Stromverbrauch der Industriebetriebe

Selbstverbrauch aus eigenen Stromerzeugungsanlagen (keine Umlage/2,75 ct/kWh oder volle Umlage)**



Volle EEG-Umlage: 6,880 ct/kWh

Geminderte EEG-Umlage von 0,05-1,38 ct/kWh (stromkostenintensive Unternehmen)

Back-up: Entwicklung der EEG-Differenzkosten ab 2017

EEG Differenzkosten in Mrd. Euro											
	Jahr	2017	2018	2019	2020	2021	2022	2023	2024	2025	Summe
Referenz-preis	25€ /MWh	25,61	27,41	28,24	29,11	29,79	30,05	30,27	29,53	29,37	259,38
mittel	45€ /MWh	21,75	24,05	24,81	25,54	26,10	26,30	26,42	25,60	25,38	225,94
hoch	60€ /MWh	18,87	21,52	22,24	22,86	23,33	23,48	23,54	22,64	22,38	200,87