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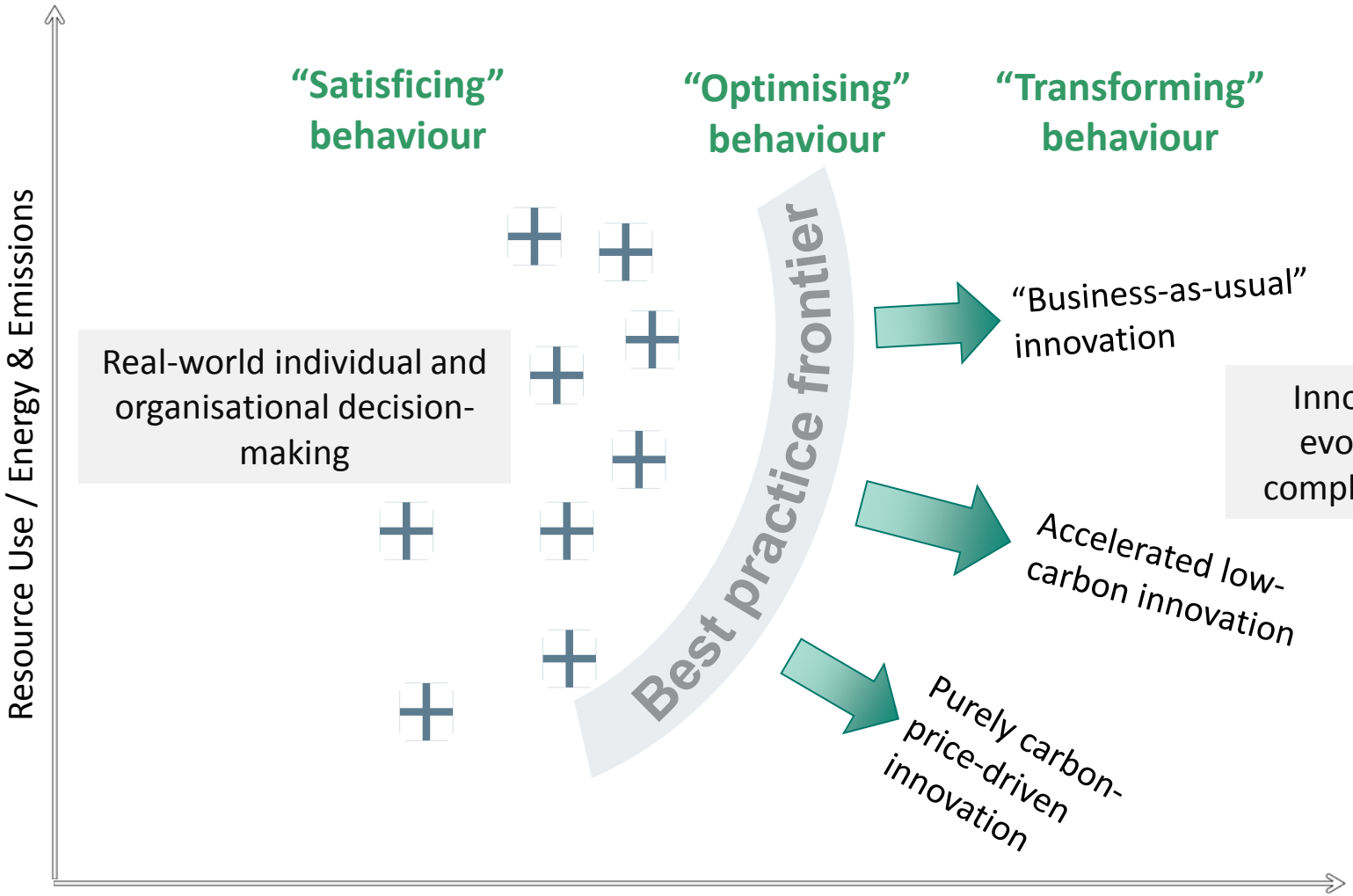
OECD Green Growth and Sustainable Development Forum

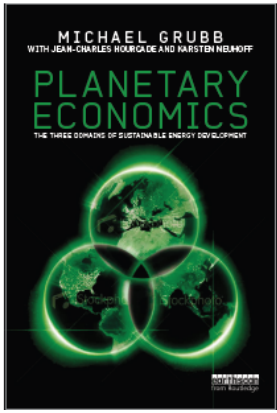
Germany's Energiewende: addressing socio-economic impacts of the energy transition

Karsten Neuhoff

Paris, 13.11.14

1 A framework for different elements of an energy transition





Source: Grubb, Hourcade & Neuhoff (2014): Planetary Economics, Energy, Climate Change and the three domains of sustainable development. *Routledge*.

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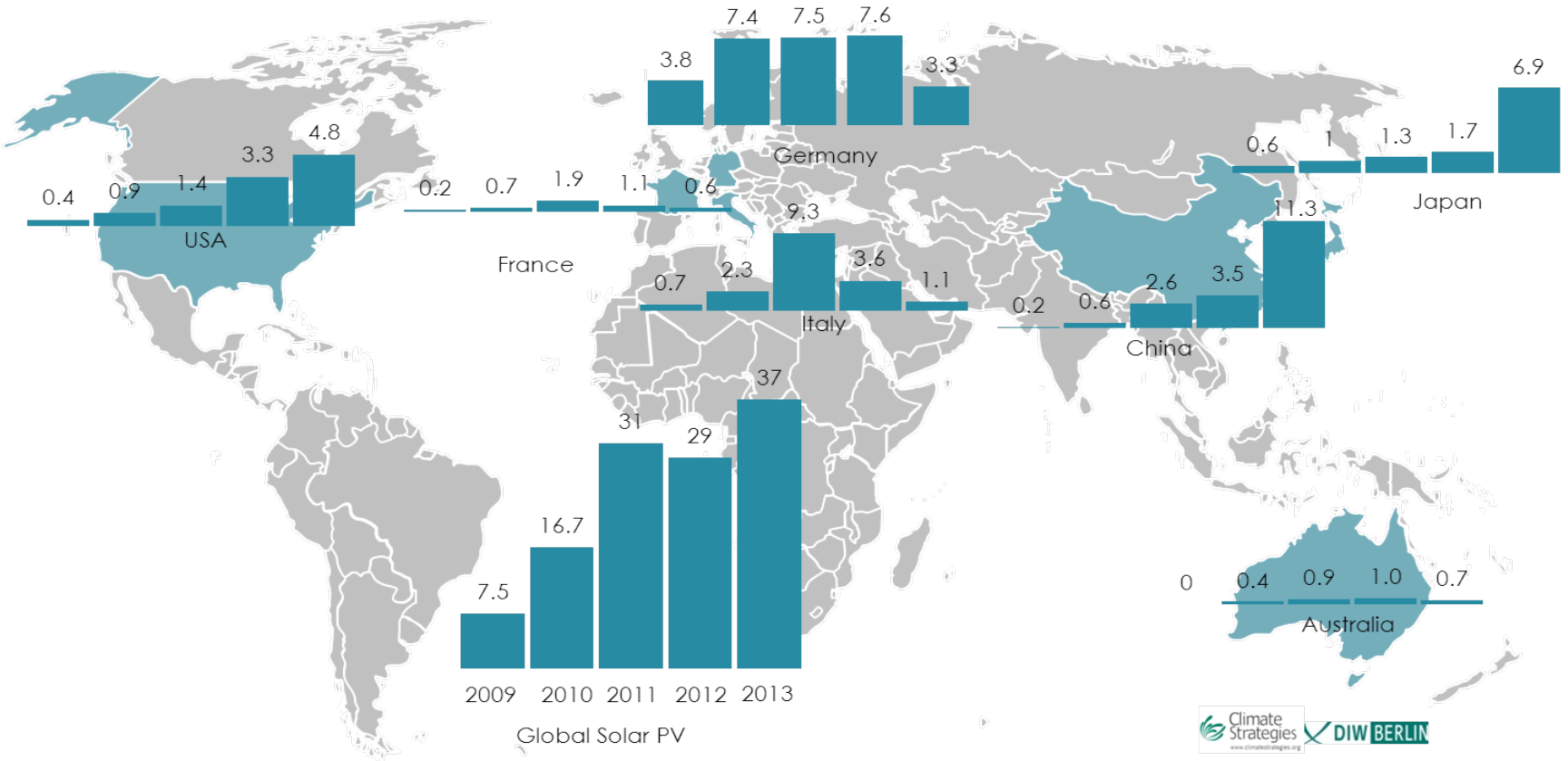
2 Transformation strategy: Early deployment to funding learning investment for PV

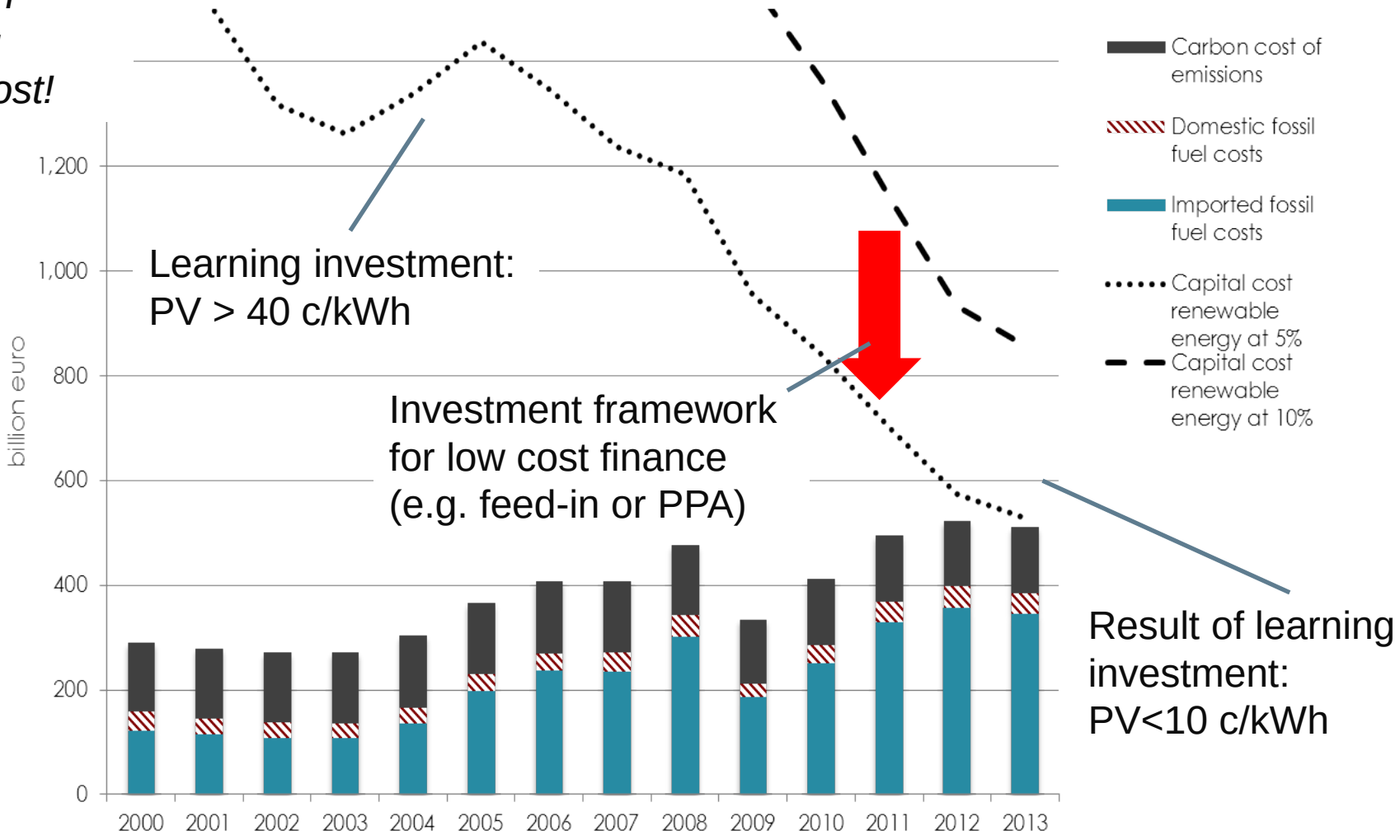


With technology progress PV became affordable for global large scale use - in 2013 70% of solar deployment was outside of Europe.

Source: Neuhoff et al. (2014): Staying with the Leaders: Europe's path to a low carbon economy. www.climatestrategies.org. DIW Berlin Calculations based on REN 21, 2013; EPIA, 2014; Clean Energy Regulator, 2014.

3 Technology success: - and importance of continued investment framework

Illustration excluding system cost!

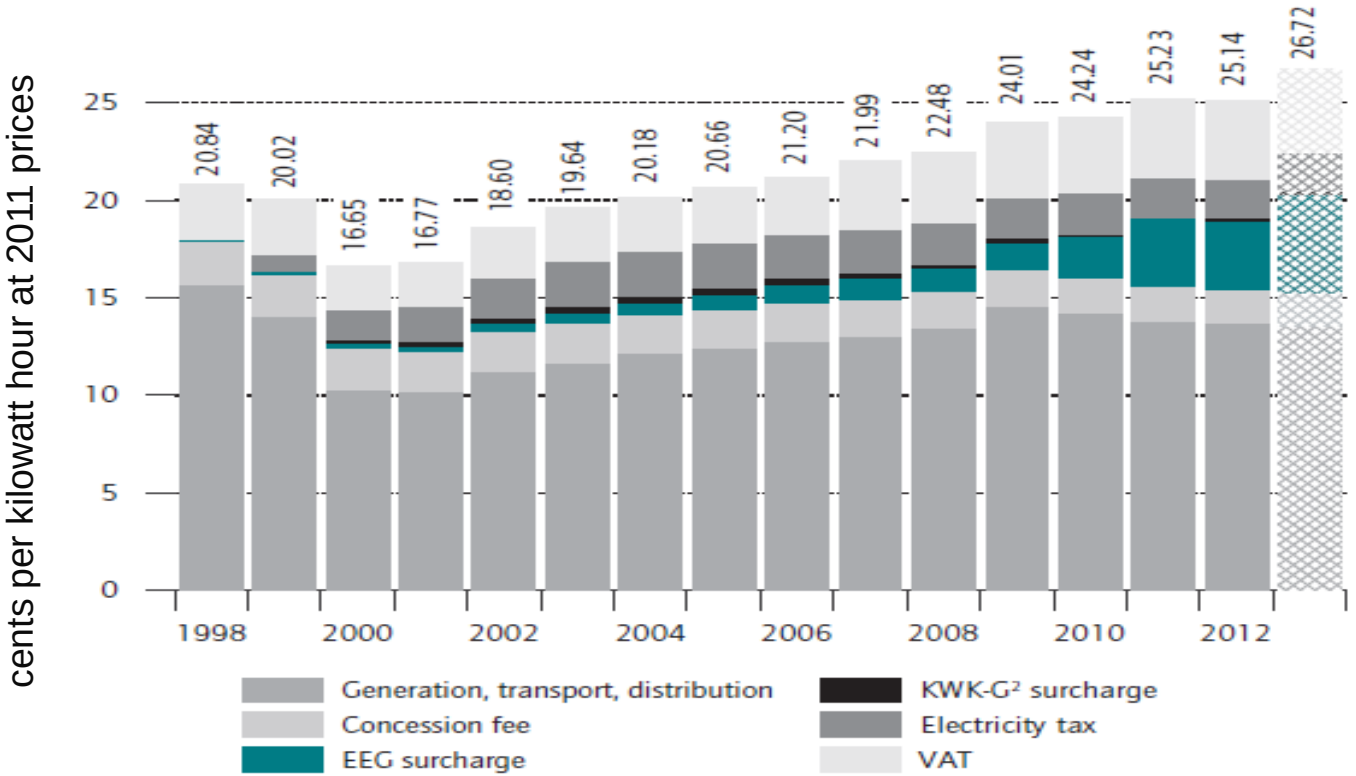


Assumptions: 2% Inflation, Fossil conversion losses 50% 66% of energy from on-shore Wind and 33% Solar

Source: Neuhoff et al. (2014): Staying with the Leaders: Europe's path to a low carbon economy. www.climatestrategies.org. DIW Berlin Calculations based on REN 21, 2013; EPIA, 2014; Clean Energy Regulator, 2014.

3 Allocation of cost of learning investment: Development of the Electricity Price for Households

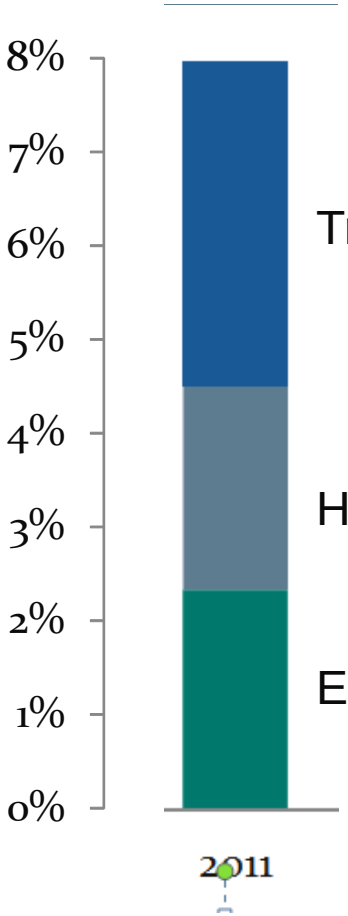
RE surcharge combines elements of learning investment in new technology, and nominally fixed long-term contracts above current spot prices.

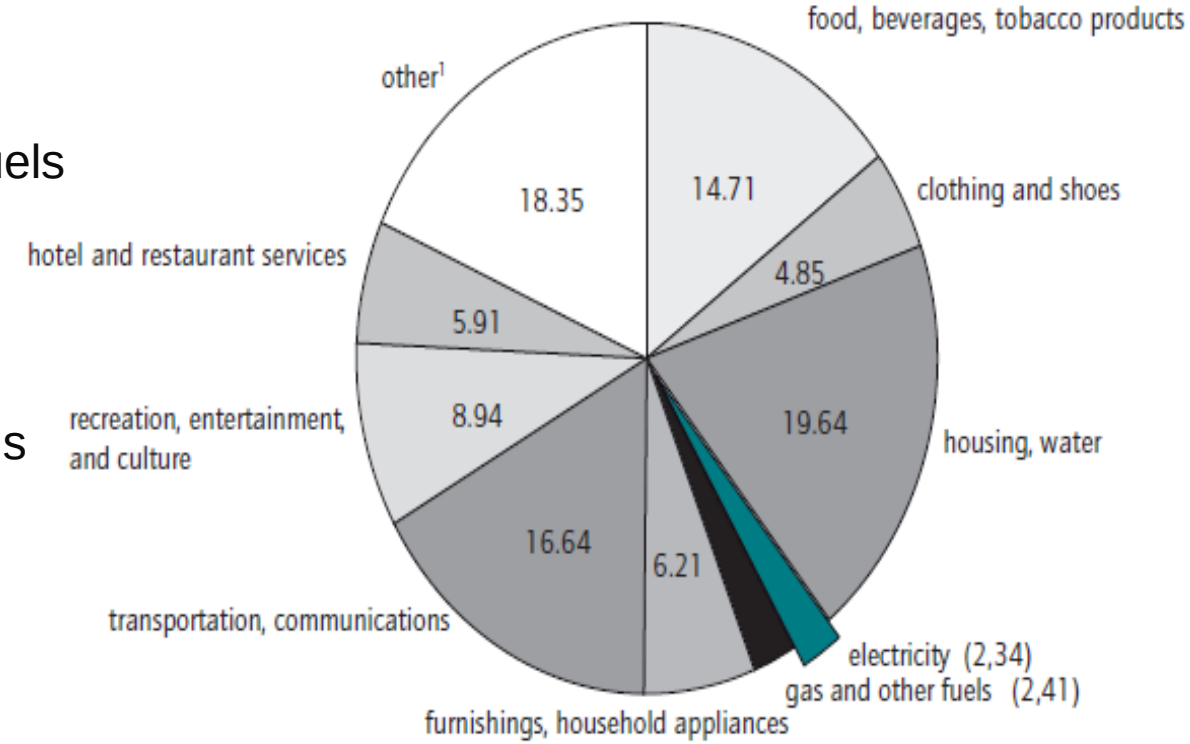


Cost reductions of PV imply that replicating RE deployment will **not** result in similar scale surcharges.

Source: Distributional Effects of Energy Transition Impacts of Renewable Electricity Support in Germany (Economics of Energy & Environmental Policy) Neuhoff , Bach, Diekmann, Beznoska, Tarik El-Laboudy

4 Electricity constitutes less than 1/3 of energy bill for HH

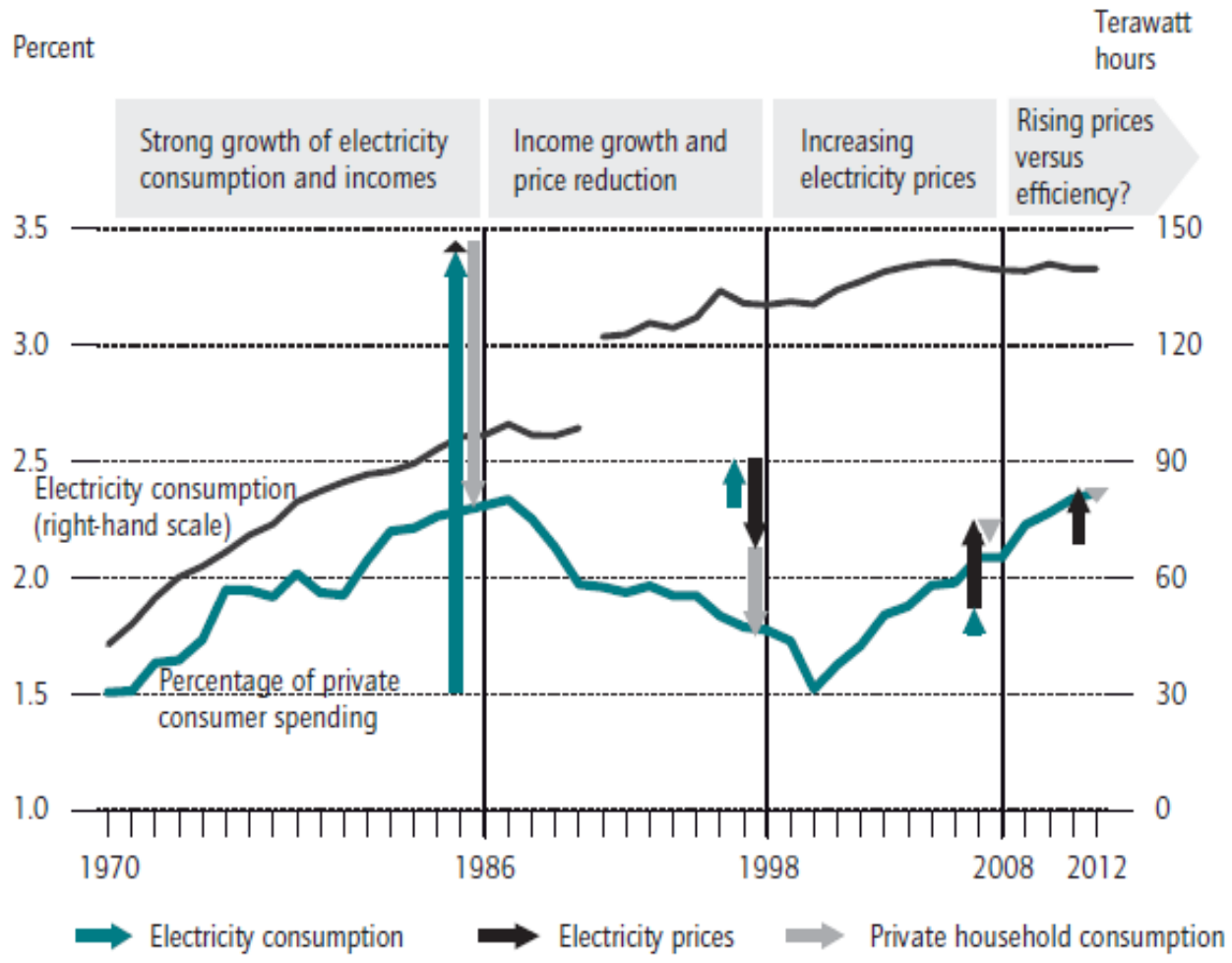




Berechnung für Brennstoffe aufbauend auf: AG Energiebilanz, IEA Energy Prices and Taxes, BMWi Energiestatistik, Stat. Bundesamt

Source: Distributional Effects of Energy Transition Impacts of Renewable Electricity Support in Germany (Economics of Energy & Environmental Policy) Neuhoff , Bach, Diekmann, Beznoska, Tarik El-Laboudy

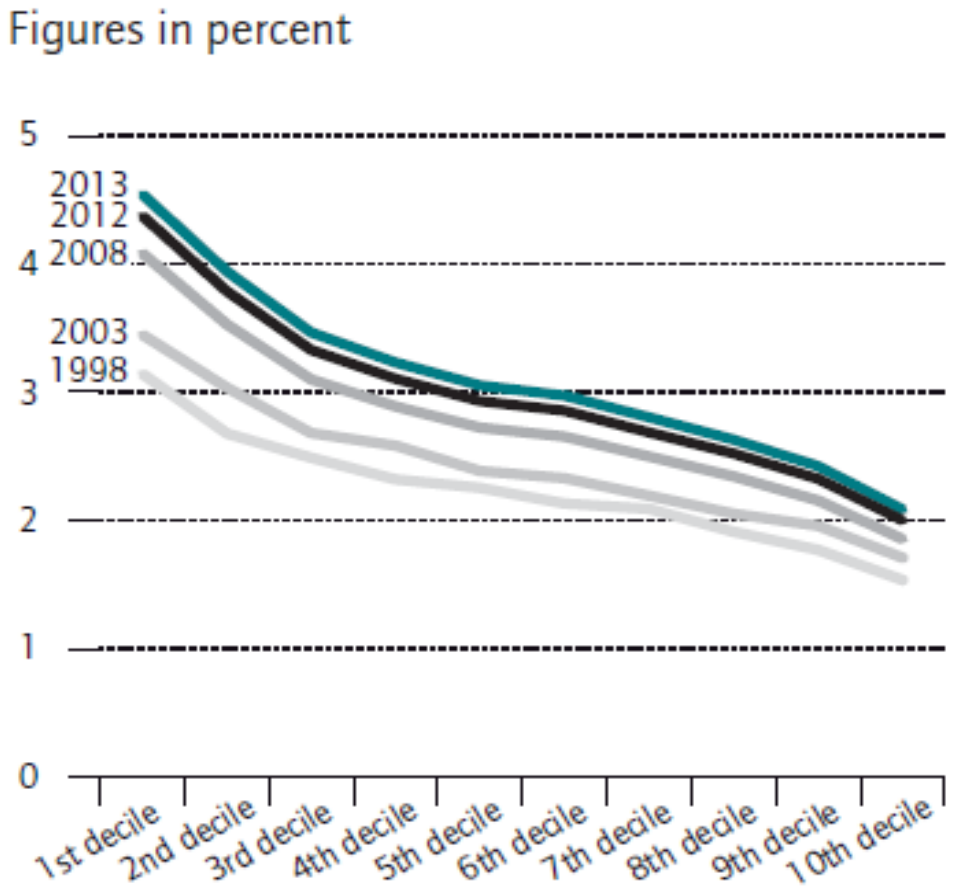
5 Electricity Consumption and share of Consumer Spending



Average surcharge for consumers is not the major concern.

Source: Distributional Effects of Energy Transition Impacts of Renewable Electricity Support in Germany (Economics of Energy & Environmental Policy) Neuhoff , Bach, Diekmann, Beznoska, Tarik El-Laboudy

6 Electricity's Share of Consumer Spending / Income Group



Main concern: Impact for poor houesholds with higher share of energy cost.

Source: Distributional Effects of Energy Transition Impacts of Renewable Electricity Support in Germany (Economics of Energy & Environmental Policy) Neuhoff , Bach, Diekmann, Beznoska, Tarik El-Laboudy

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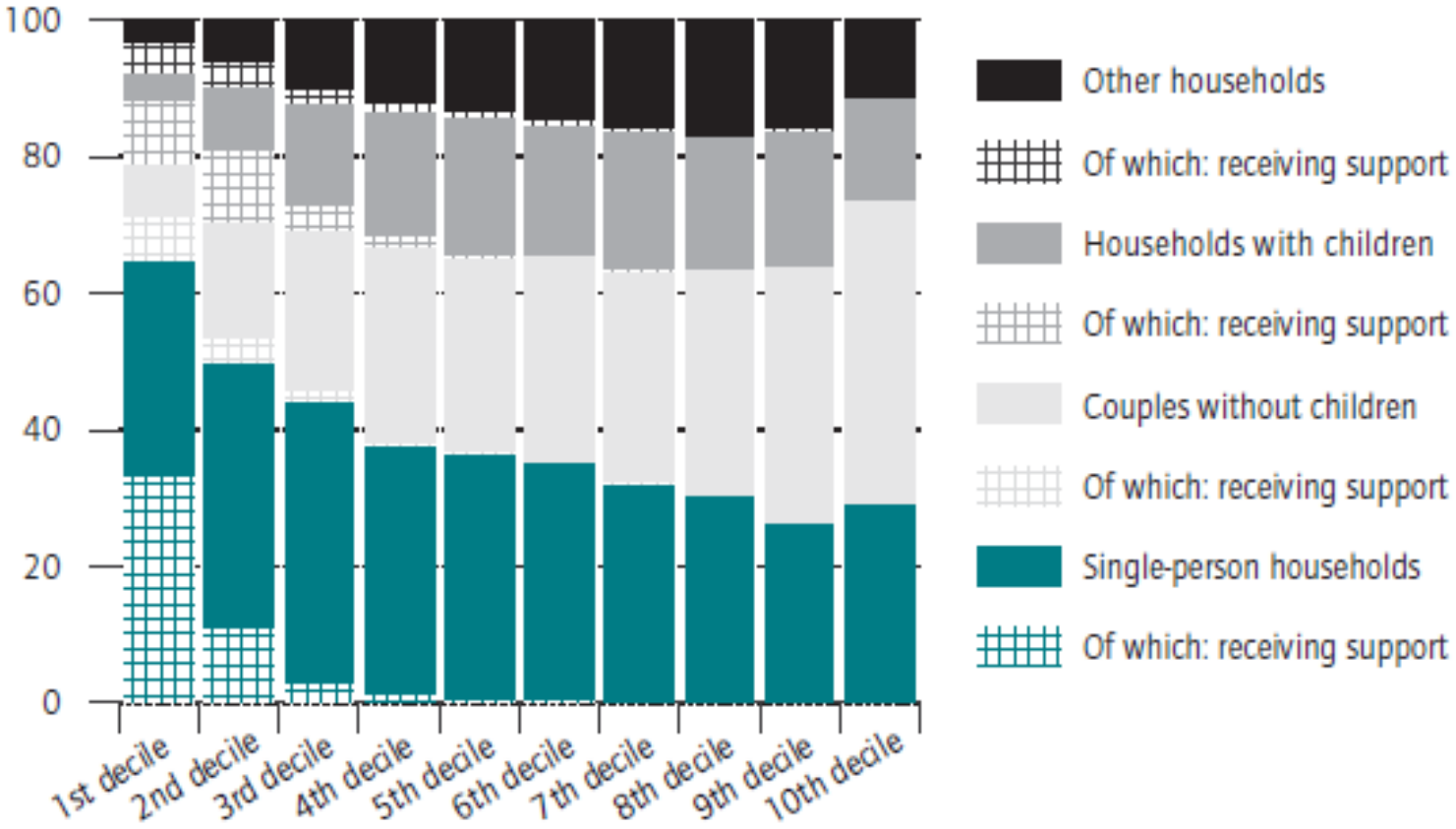
7 Policy option I: Adjusting social transfers

Structure of Households by Household Types and Income



Source: Distributional Effects of Energy Transition Impacts of Renewable Electricity Support in Germany (Economics of Energy & Environmental Policy) Neuhoff , Bach, Diekmann, Beznoska, Tarik El-Laboudy

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8 Option 2: Basic Tax-Free Allowance for Electricity Tax

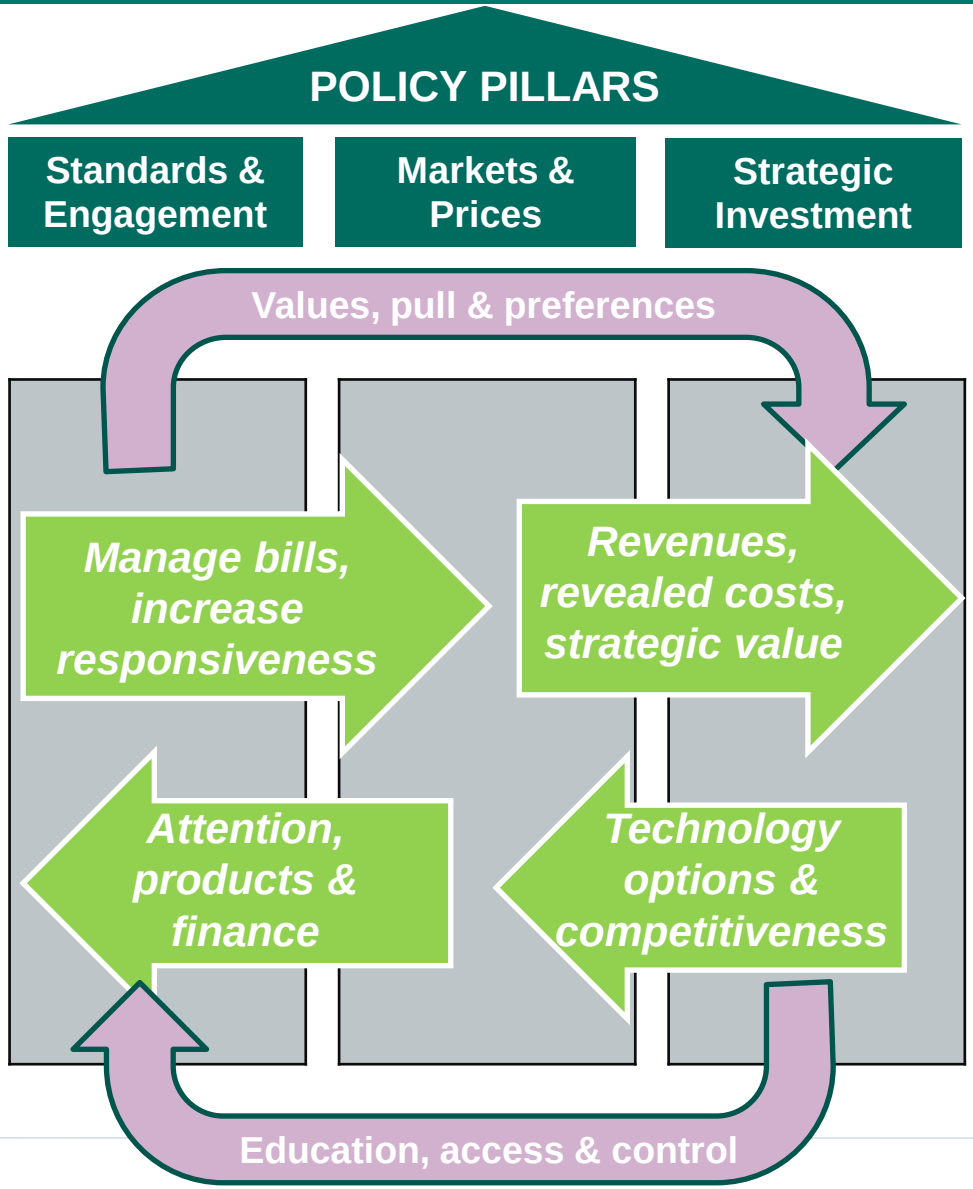
		Treshhold of (electricity-tax) free power		
		500 KWh/a	1000 KWh/a	1500 KWh/A
Compensate increase due to feed-in	Foregone electricity tax	404 Mio € (von 2,7 Mrd €)	792 Mio €	1,14 Mrd €
	Compensation 1st Dezile	-21,7 % (47,5 Mio €)	-41,7 % (91,2 Mio €)	-57,7 % (126,3 Mio €)
Compensate increase due to feed-in + Adjustment of Means tested benefits	Foregone electricity tax + extra costs	608,9 Mio €	953 Mio €	1,26 Mrd €
	Compensation 1st Dezile	-65,1 % (142,4 Mio €)	-74,1 % (162,1 Mio €)	-81,2 % (177,7 Mio €)

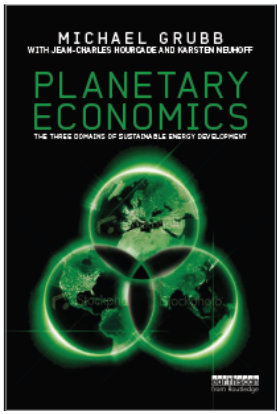
VAT Additional income on feed-in tariff: 2012 937 Mio. Euro
(BMF auf Kleine Anfrage der Linken)

9 Option 3: Supporting HH in Using Electricity Efficiently

- Energy advice – 16% savings
- Support poor HH with fridge replacement with A++
  - ¼ older than 9 years -> 70% power savings, 64 Euro/year
  - ¼ 5-9 years -> savings, 40 Euro/year
- 300 Euro investment costs pay back in 5 and 8 years
  - With 150 grant – pay back in 2.5 and 4 years
  - One-off public expenditure of 560 Mio E (½ of 7.6 Mio HH)

Distributional Effects of Energy Transition: Changing course requires a sustained package





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