

”Die Energiewende”

Energy transition in Germany : Controversies to be expected !?

Matthias Kaiser
Senter for vitenskapsteori
Universitetet i Bergen



Energiewende nicht kentern lassen!

Berlin
10. Mai, 13 Uhr
Potsdamer Platz

Demo
zu Lande und
zu Wasser

**ATOMKRAFT
AUSSCHALTEN.**



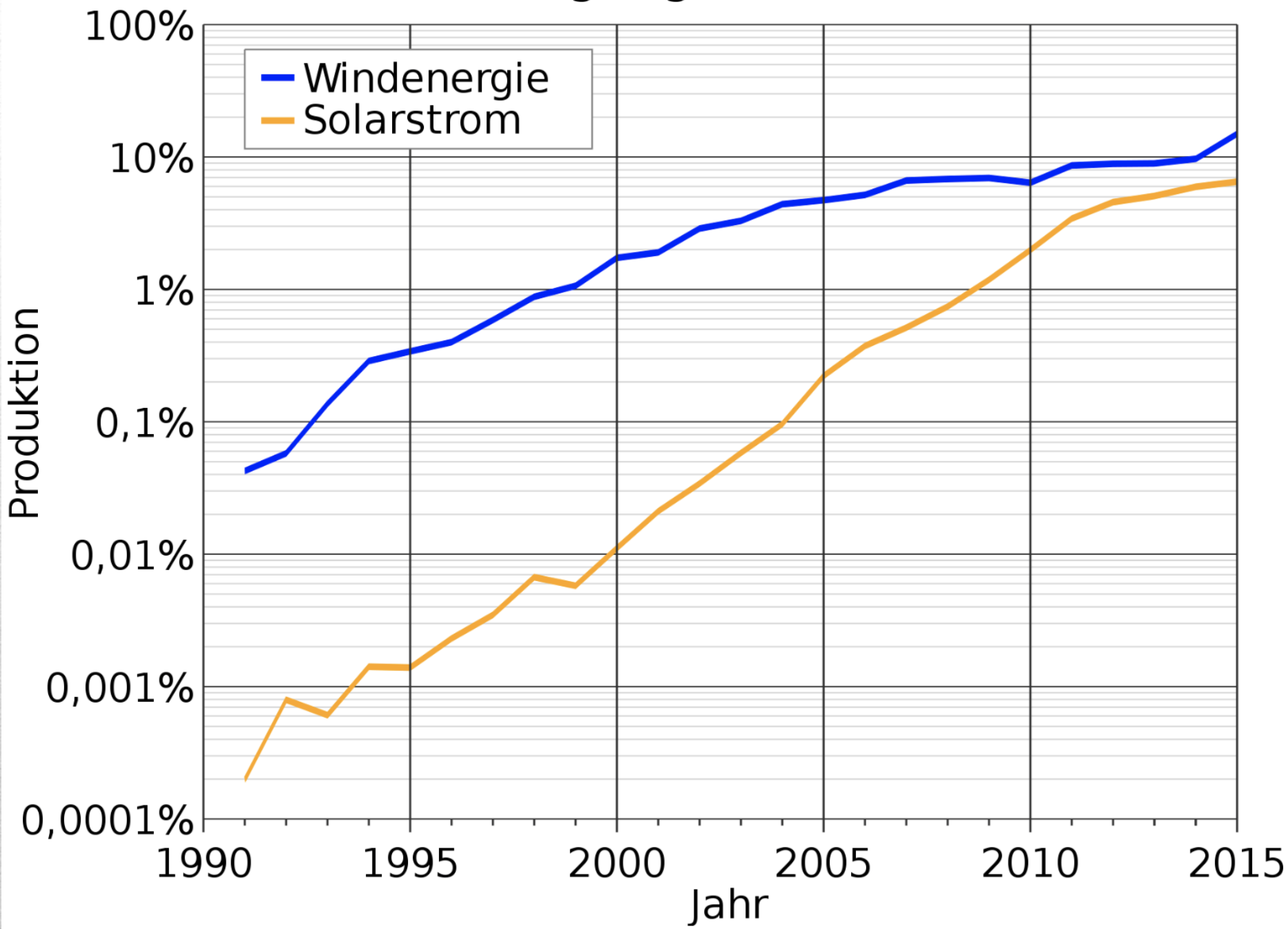
**ERNEUERBARE
EINSCHALTEN.**







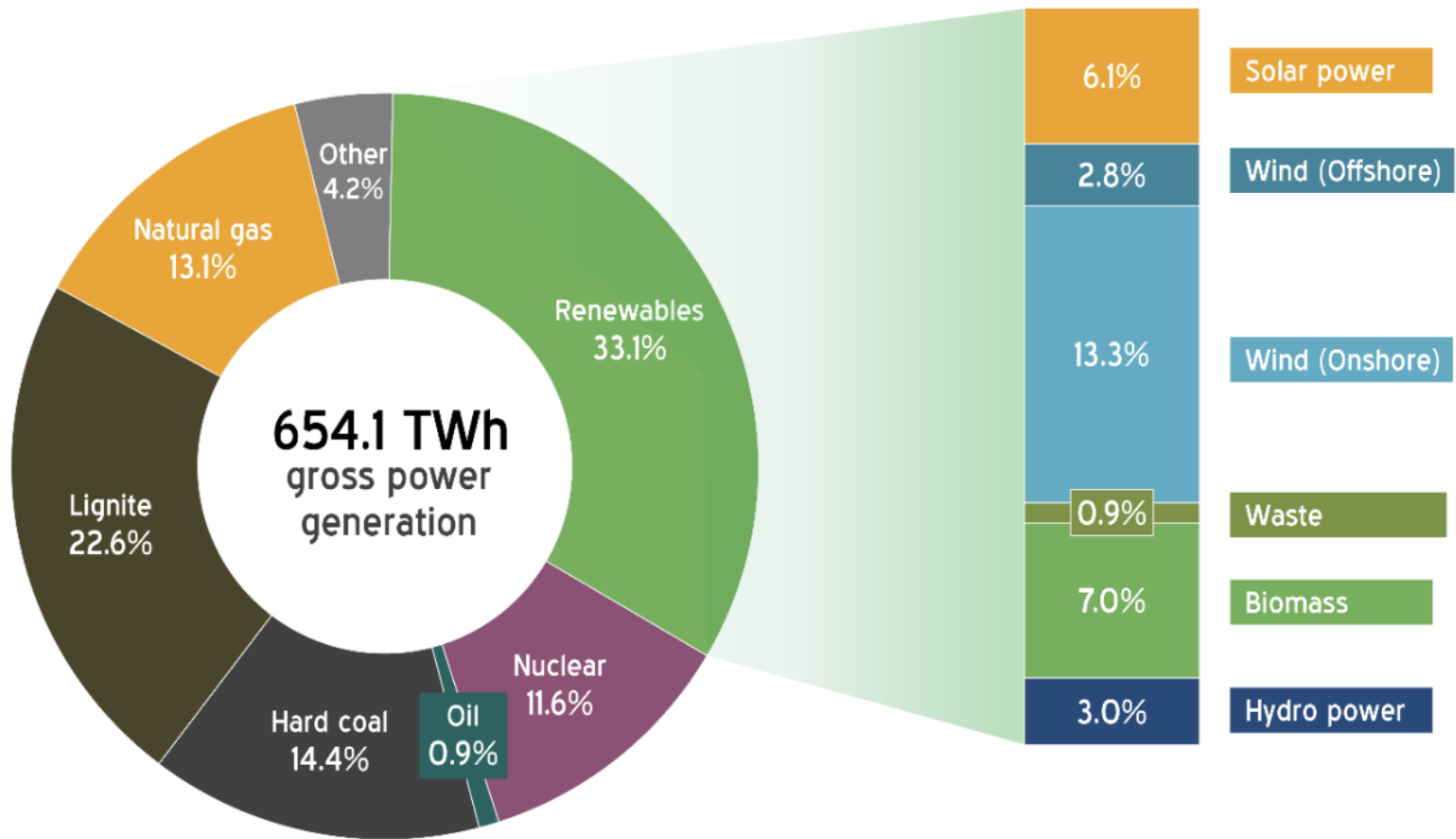
Prozent-Erzeugung aus Wind-und Solar



Germany reaches 33.1 percent renewable power in 2017

Gross power generation mix

Source: AGEB



- The electrical grid => need for substantial renewal and growth

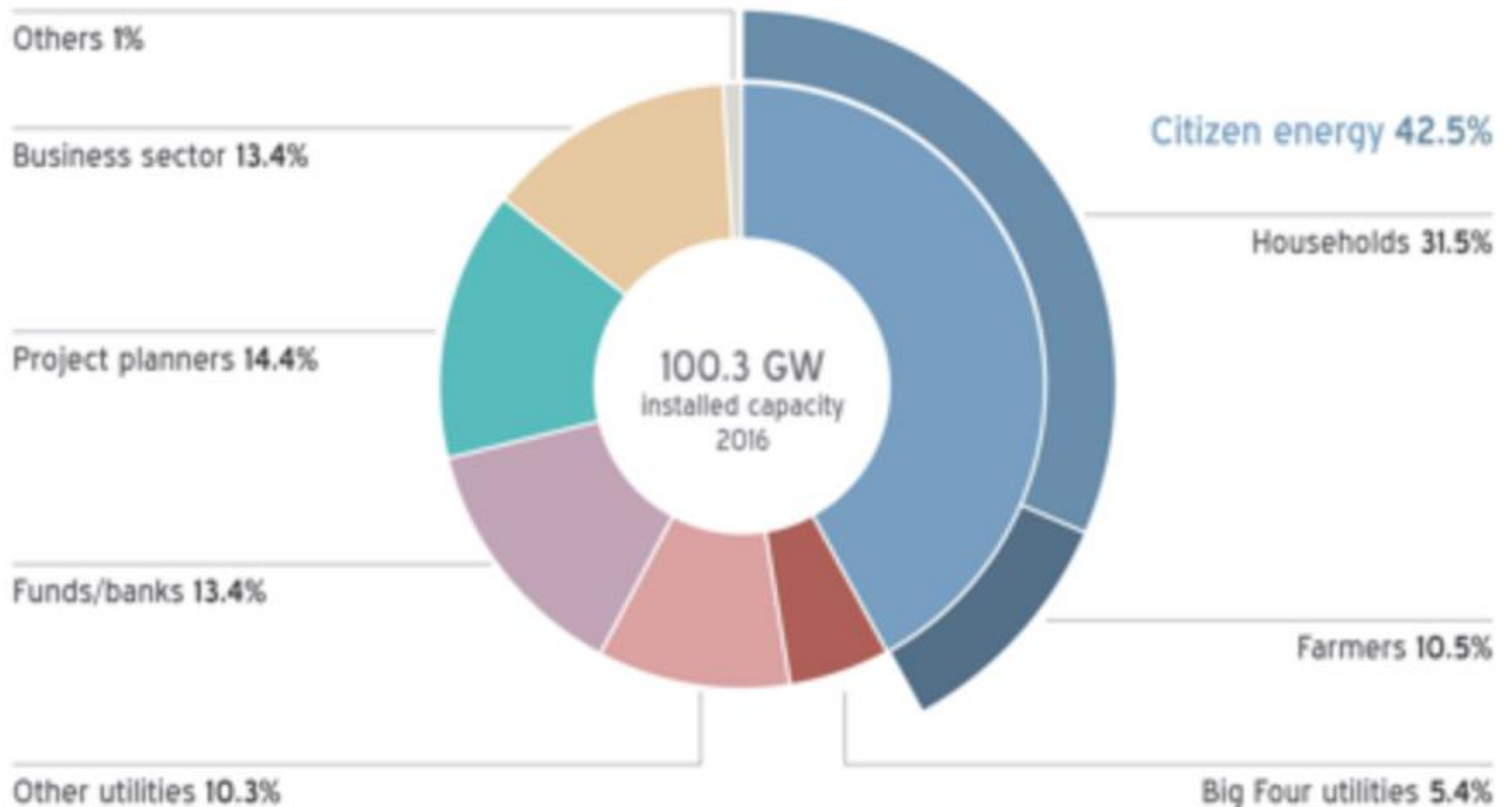


Strømnett utbygging

Investments in renewables are spread across many players

Ownership of renewable energy systems in Germany at the end of 2016

Source: trendresearch

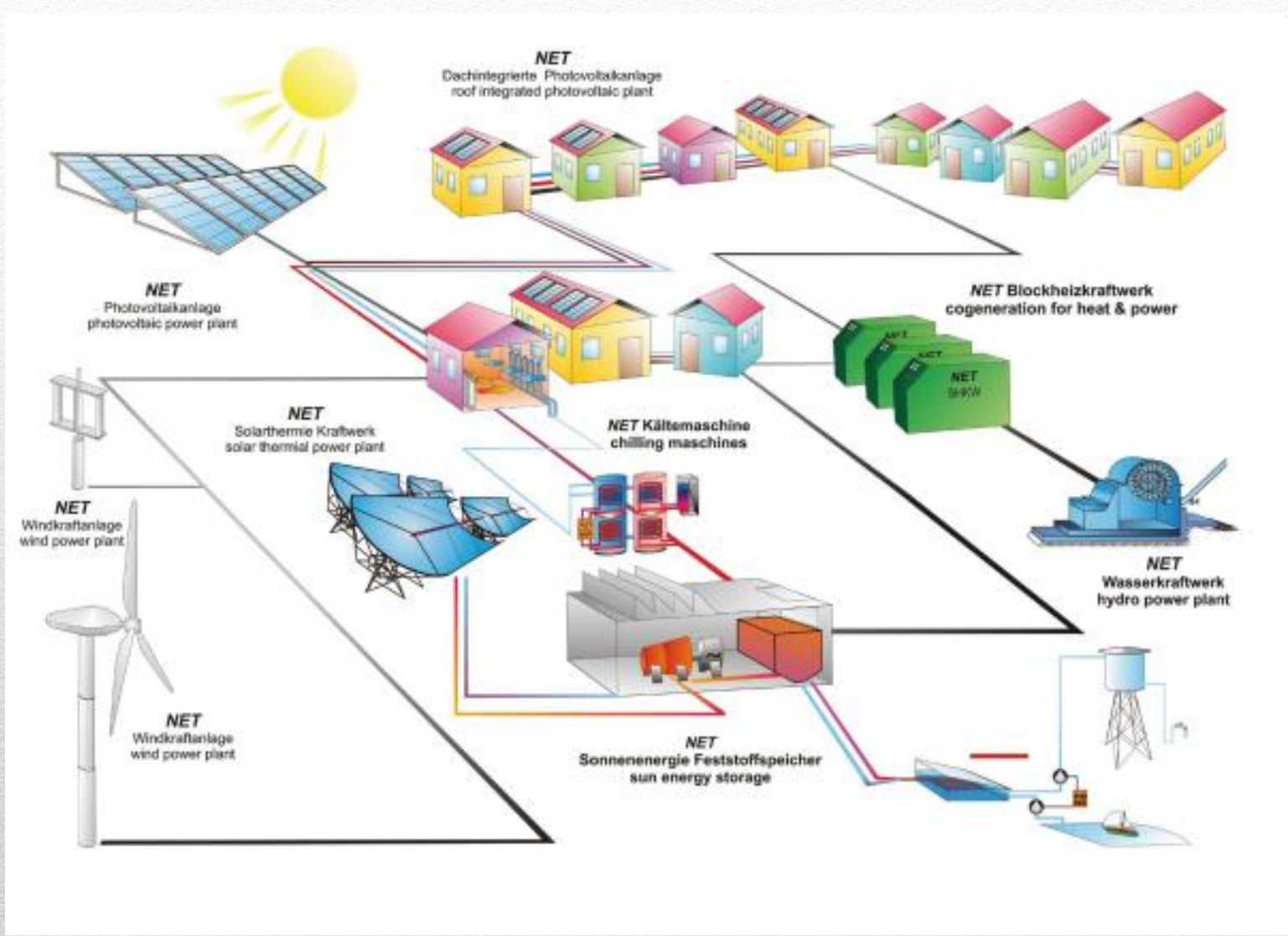


Energy Transition
The Global Energiewende

energytransition.org



Decreased citizen ownership in renewables since change of the law in 2014;



Self-sufficient energy systems

Targets

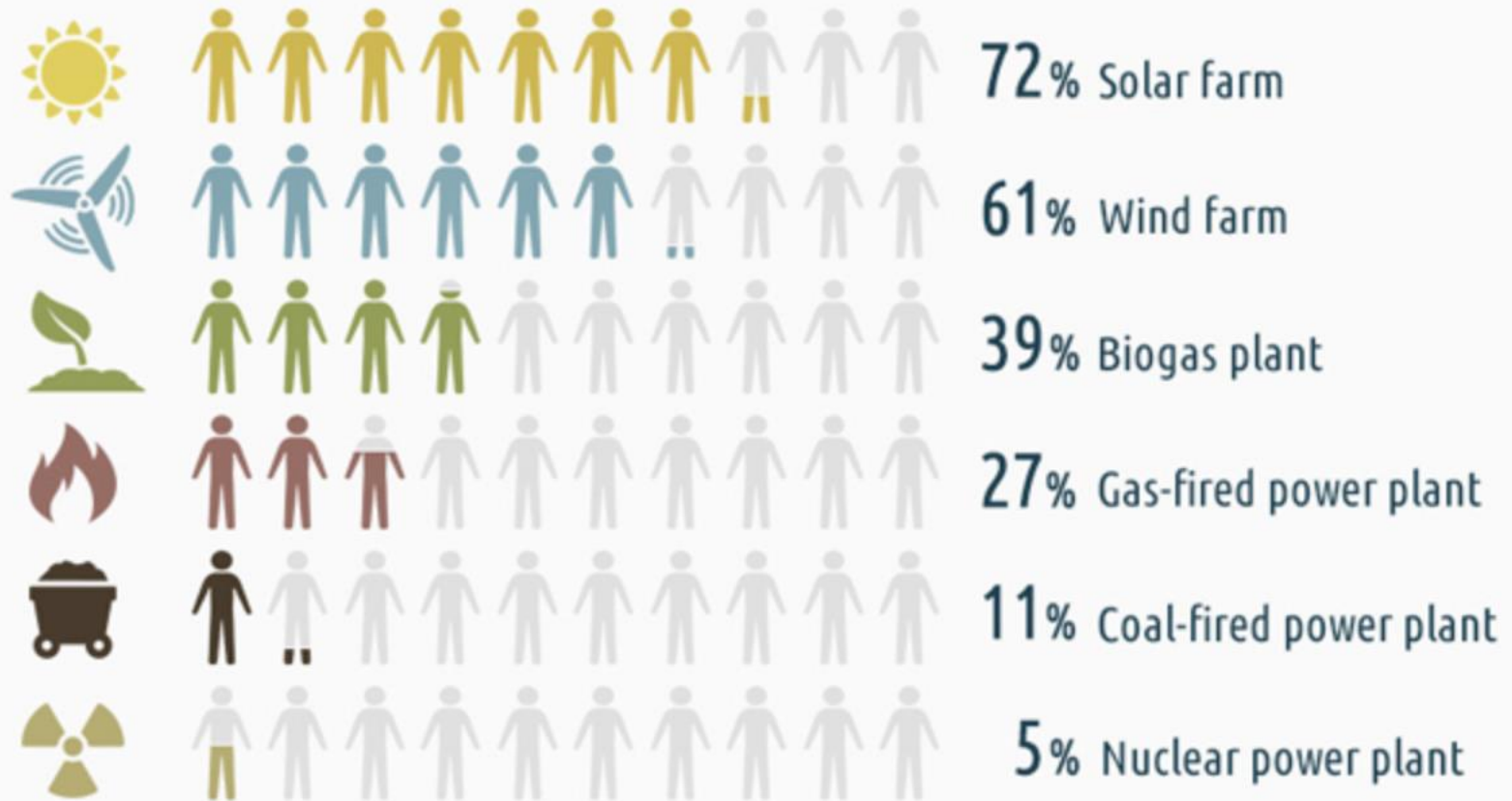
Key *Energiewende* policy targets (with actual figures for 2015)^[17]

Target	2015	2020	2030	2040	2050
Greenhouse gas emissions (base year 1990)*	-27.2%	-40%	-55%	-70%	-80% to -95%
Renewable energy share of gross final energy consumption	14.9%	18%	30%	45%	60%
Renewable energy share of gross electricity consumption	31.6%	≥35%	≥50%	≥65%	≥80%
Primary energy consumption (base year 2008)	-7.6%	-20%	up	to	-50%
Gross electricity consumption (base year 2008)	-4.0%	-10%	up	to	-25%

*Provisional figure for 2015

A POWER PLANT IN YOUR NEIGHBORHOOD?

Acceptance of power plants in the neighborhood [2014 in Germany]



Result of a survey conducted by TNS Emnid among 1015 respondents

Source: Renewable Energies Agency

 STROM-REPORT.DE

Citizen support for the *Energiewende* remains high, with recent surveys indicating that about 80–90% of the public are in favor.

Amelang, Sören; Wettengel, Julian (4 May 2016). "[Polls reveal citizens' support for Energiewende](#)". *Clean Energy Wire (CLEW)*. Berlin, Germany. Retrieved 2016-09-09.

Germans want clean energy, and a lot of them want to produce it themselves.

It has empowered local communities and their citizens to generate their own renewable energy.

The EEG requires grid operators (the electric utilities) to connect, on demand, any RE facility to their grid, and to do so in a way that minimizes the connection cost for the facility owner.

Roughly 334,000 Germans already work in the renewables sector – far more than in the conventional energy sector.

Citizens! Small communities

Regulations (e.g. Environment, Wildlife etc) and planning agencies do not always coincide with citizens and local authorities priorities.

»Endless» planning processes!

Politically impossible to shut down coal production?

NIMBY effects (not-in-my-back-yard) occur and delay constructions significantly.

Conflicts between different levels of government: municipality, region, state, federal !

Privacy rights in conflict with digitilization; smart grids?

Small and self-sufficient systems in conflict with energy security?

Industrial preferenes for large systemes

Obstacles and conflicts

Europäische Akademie in Ahrweiler / Bad Neuenahr

- Scenarios and main focus on ethics and participation =>

EnAHRgie: Conception of sustainable land use and energy supply at the municipal level. Implementation in the model region Ahrweiler

Funding: BMBF, Innovation groups
“Sustainable Land Management”

Duration: March 2015–August 2019

Co-ordination: [Dr. André Schaffrin](#)

Project Website: www.enahrgie.org

Improving Energy Decisions

Towards Better Scientific Policy
Advice for a Safe and Secure Future
Energy System

Bert Droste-Franke
Martin Carrier
Matthias Kaiser
Miranda Schreurs
Christoph Weber
Thomas Zieseimer

 Springer

A project (among many) in Germany



Ahrweiler.

Pop.: 28.000

- 11 days after Fukushima in March 2011 Angela Merkel announced the phasing-out of nuclear power in Germany and the energy transition to renewable energy!
- Klaus Töpfer: ”Die Energiewende ist in erster Linie ein ethisches Problem! ” = «Energy transition is first of all an ethical problem!»

Ethics on the agenda!



"It is rather that alternatives create new decision spaces. Also, the more decentralized and differentiated the energy supply will be, the more alternatives will be available. This increases the opportunity for citizens to participate in decisions and to participate, for example, in cooperatives and other models with which their own responsibility can be organized. It strengthens civil society. "

Table 2.1 Simplified ethical matrix for energy supply (see also Kaiser et al. 2007)

Ethical matrix energy supply:	Harm	Beneficence	Freedom/autonomy (options for action)	Dignity/justice/fairness (limits of action)
Small producers	Dependencies on local conditions, tariff regulations/market, grid access, credit conditions	Increase in revenues dependent on opportunities	Freedom in production technologies, autonomy to a certain extent, increase in economic and social power	Fair treatment in the realisation of revenues/trade, unequally distributed possibilities to contribute (e.g., single family homeowners vs. tenants)
Large producers	Higher dependencies on regulations (e.g., market, subventions/taxes, obligations due to system relevance of plants), decrease in planned revenues	Increase in revenues dependent on opportunities	Decrease in freedom of technology choice, decrease in economic and societal power	Challenges of enforced structural change dependent on existing energy mix
Consumers	Lower-quality of electricity, blackouts, higher prices	Options of environmental friendly products available	Freedom in choice of electricity products	Fairness of cost distribution, affordability
Environment, near and far	Potential known and unknown effects on wellbeing, human health, produced assets, ecological systems, resource availability and	Reduced fossil fuel depletion, fewer known negative environmental effects (particularly climate	Local restrictions on land use, change in societal and power structure	Fairness of shared burden

The many expert voices!

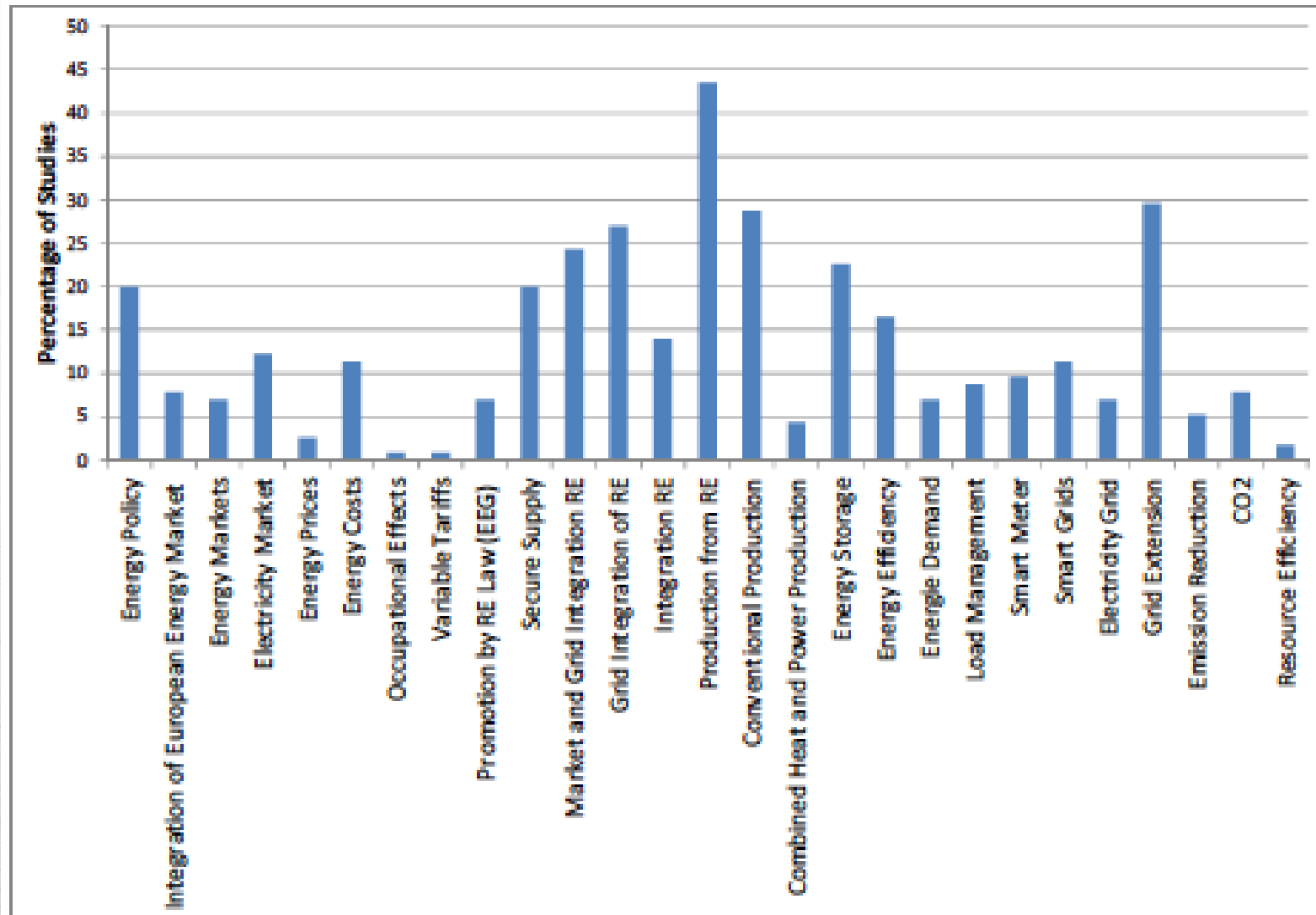
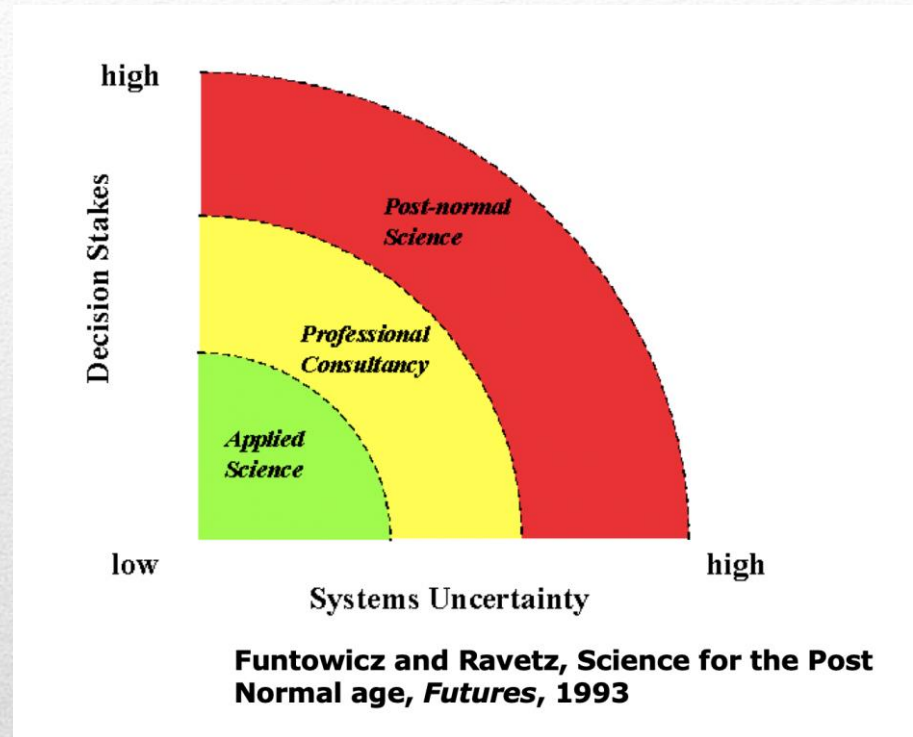


Figure 4.1 Percentages of studies listed by the dena covering the various themes (dena 2013) (RE: renewable energy)

- Facts are uncertain / high system uncertainty
- Values are disputed
- Stakes are high
- Decisions are urgent.

Framework for science advise to governments (ref Sir Peter Gluckman)



Post-normal science

- Face uncertainties
- Seek consensus and collaboration

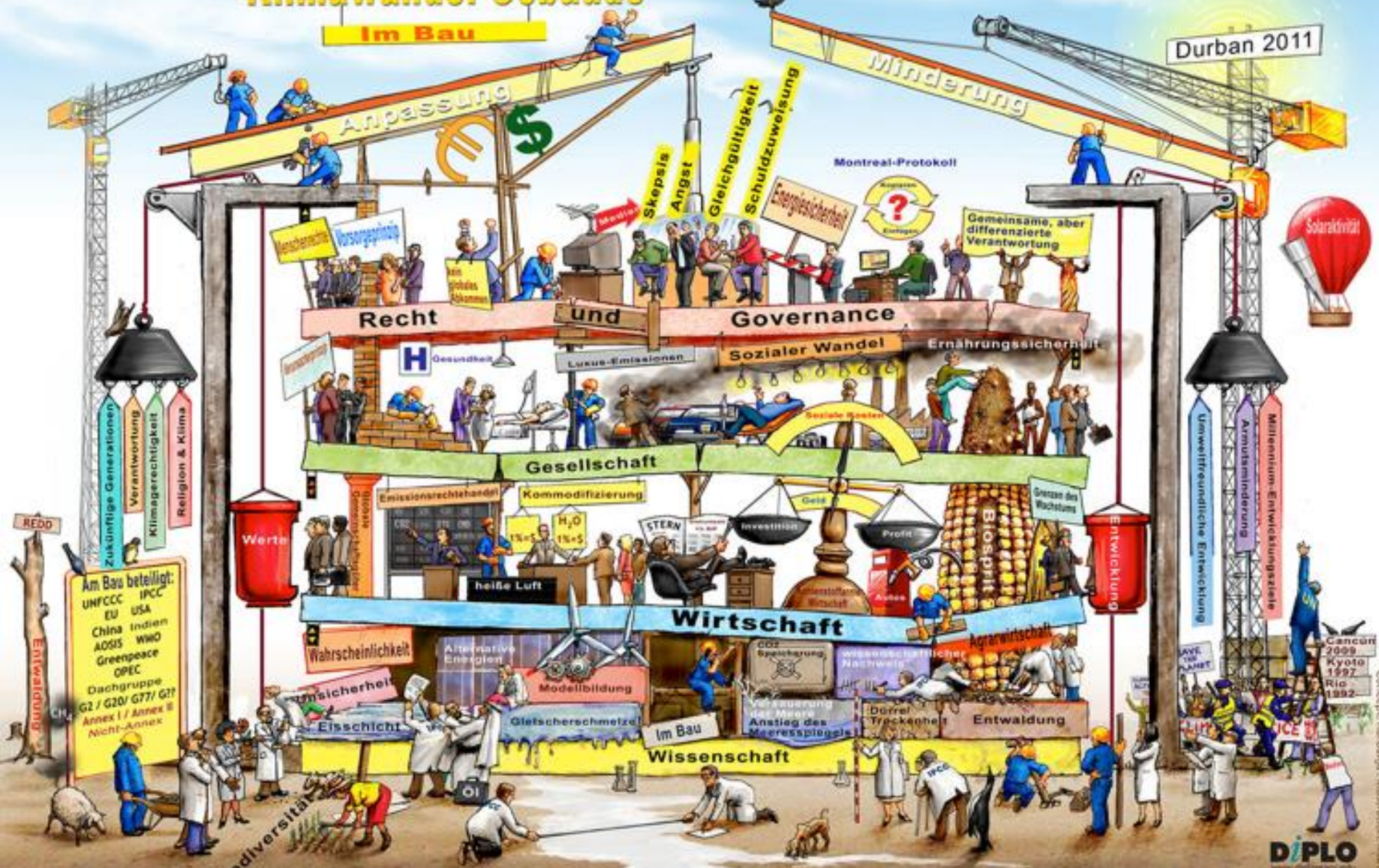


A broad, complex task of societal change!

Klimawandel Gebäude

Im Bau

Durban 2011



Diese Abbildung illustriert den Ansatz der DiploFoundation in Lehre und Forschung zum Klimawandel. Übersetzt von Katharina Hahn (DiploFoundation), mit Unterstützung von Andrea Schöningh und Oliver Haszlerang.

- Even ambitious goals can be realized in the long run! One needs to start early enough!
- The «right» goal may gather strong public support! Without that it is impossible.
- Multi-level governance and broad public engagement / participation become essential elements of progress.
- Legal regulations, financial incentives and small system designs have to follow technological innovation.
- Let ethics and values, particularly in pluralistic societies, provide the resonance of all measures and political choices.

A sort of conclusion?



Thanks for your kind attention!

matthias.kaiser@uib.no
