Energy transition
and the
Role of Enery Cooperatives in Germany

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- Energy transition
- Climate and energy goals of Germany
- Public participation
- Model of energy cooperatives
  - Development of cooperatives
  - Characteristics
  - Business models
  - Success factors
- Future Challenges

Energy Transition in Germany

- Broader than discussed:
  - Nuclear phase out,
  - Increase renewable energy and energy efficiency,
  - Reduction of CO_2,
  - Intelligent grid expansion
  - Energy storage
- Energy efficiency and energy saving: national action plan energy efficiency, 4.12.2014
- Economic: Added value and new jobs (400.000 jobs 2014)
- Legal framework: EEG, heating, mobility, fair cost allocation
- Technology: power to heat/gas/liquid, storage, photovoltaic
- Social/Public: is driven by citizens and communities
- Ecological: clean energy supply is possible and affordable
- Approx. 30% of electric energy production is renewable in 2015

Energy Transition

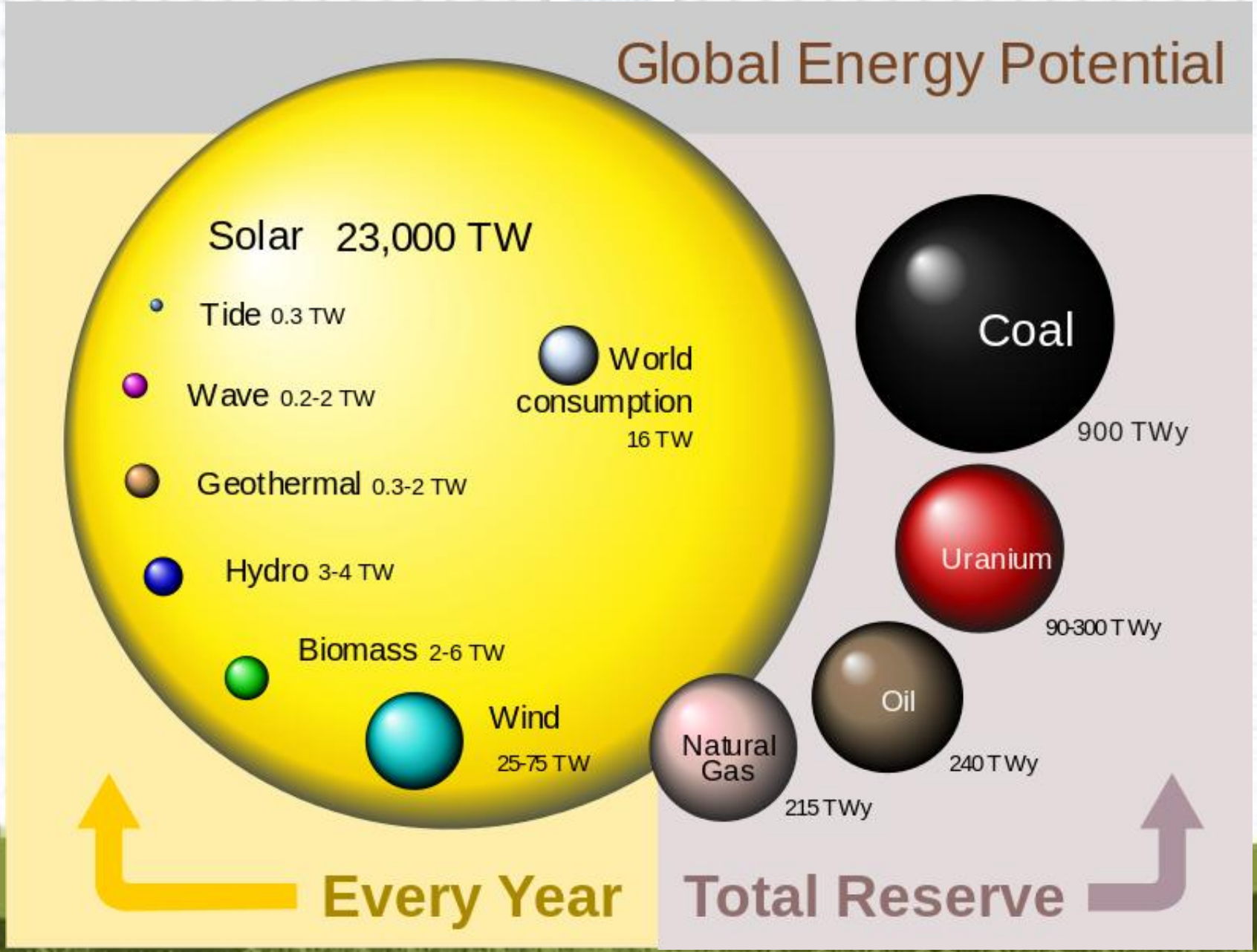
Save and ecolocial

Economics

Security of Supply

- ➔ Energy transition is Germany‘s largest post-war infrastructure project; strenghens economy and creates new jobs
- ➔ Public participation is a very important element of the turnaround: shows democratization with high acceptance for big transformation
- ➔ Interaction of participation and legal frame is THE success factor
- ➔ **BOTTOM UP and TOP DOWN**

Do we have enough Energy?

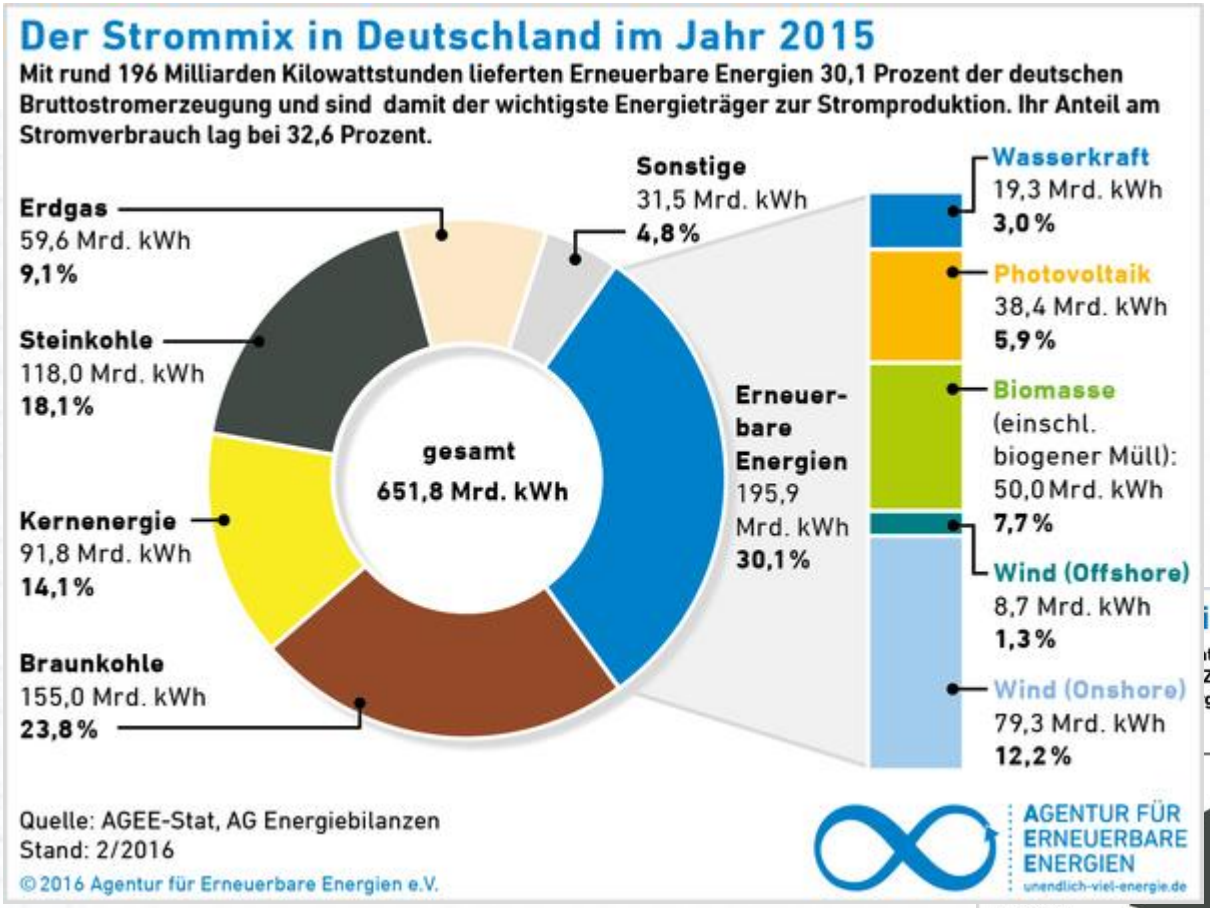


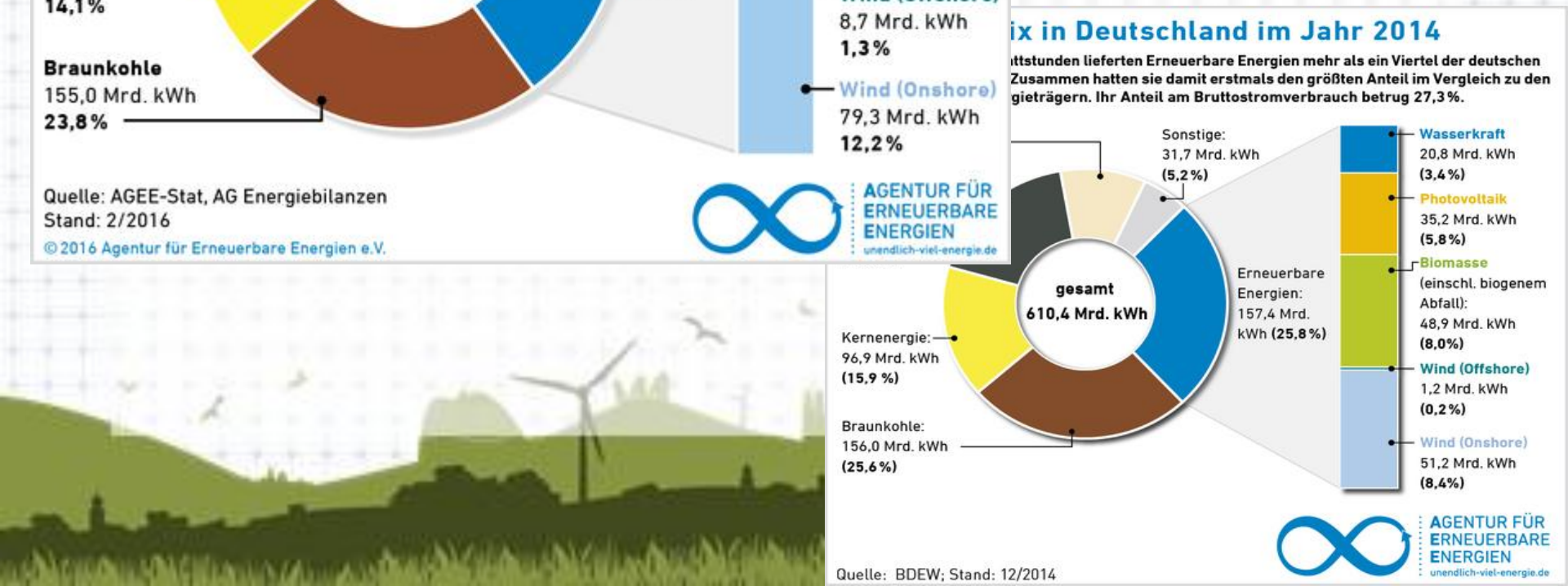
Quelle: Wikipedia

Climate and energy goals of Germany

	Klima	Erneuerbare Energien		Effizienz		
	THG-Ausstoß (vs. 1990)	Anteil Strom	Anteil gesamt	Primär-energie	Energie-produktivität	Gebäude-sanierung
2020	- 40 %	35%	18%	- 20%	steigern auf 2,1 % p.a.	Rate verdoppeln 1 % -> 2 % p.a.
2030	- 55 %	50%	30%			
2040	- 70 %	65%	45%			
2050	- 80 bis - 95 %	80%	60%	- 50%		

Electricity mix in Germany in 2014 / 2015





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WHAT IS CITIZEN‘s PARTICIPATION

Actors:
private, farmers, small companies

Type of participation:
Financial investment with equity mit votes to steer the project

Quote of participation:
More than 50% of the shares

Regional participation

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GOOD REASONS FOR CITIZEN‘s PARTICIPATION

Regional Value Added

Democratizing Energy Supply

Profit for all by common goods

The BOTTOM-UP energy revolution

Increasing of acceptance for local renewable powerplants

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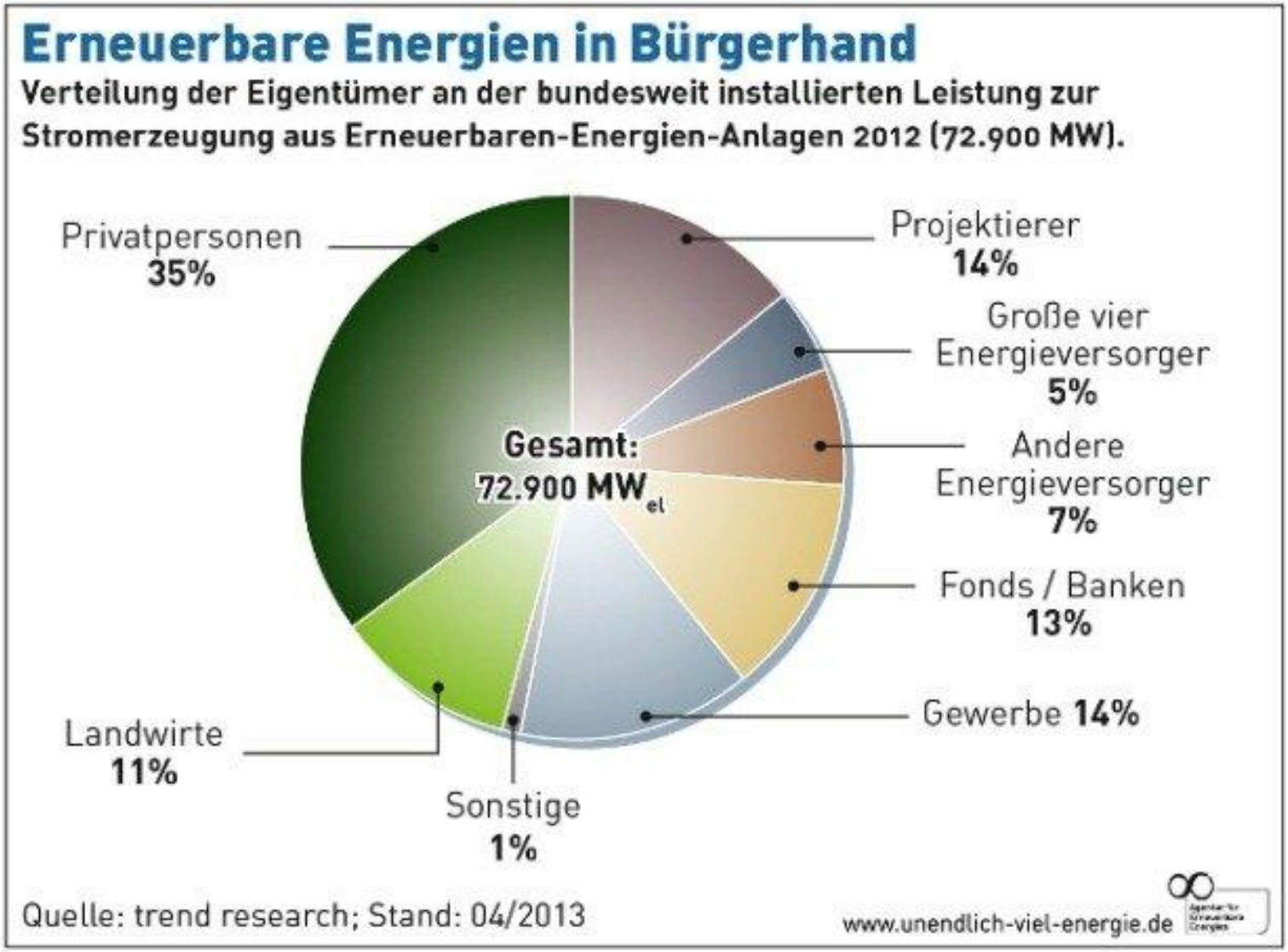
Citizen Participation

Citizens are the largest financial investors in the development of renewable energy!

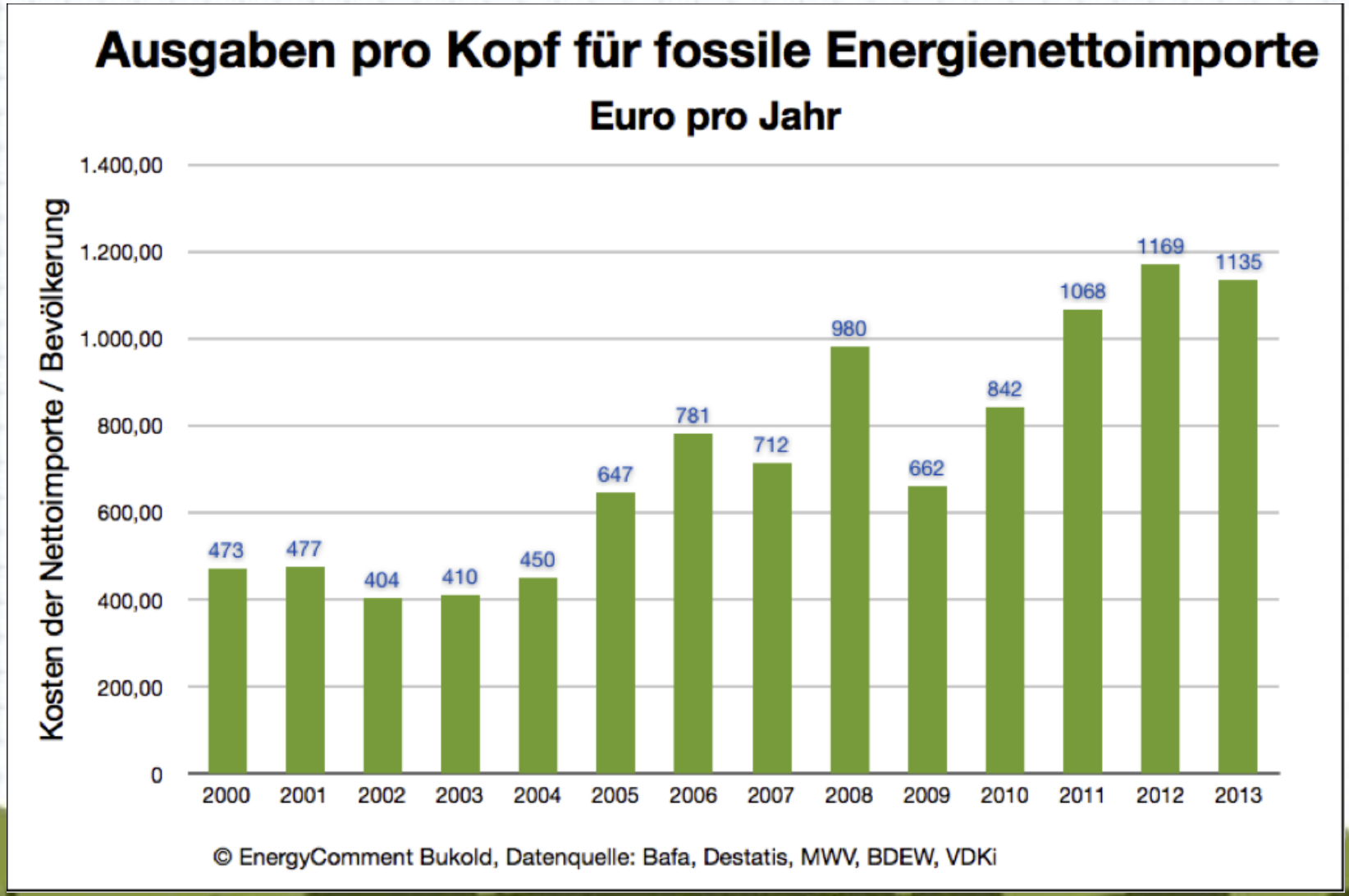
Currently, every German citizen transfers for energy imports more than € 1,130 p.a. for importing oil, natural gas and uranium export to large energy companies, which mainly invest abroad.

Citizens energy companies in Germany produce about half of the electricity from renewable energy sources.

Renewables in citizens ownership



Expenses for Fossil Fuels



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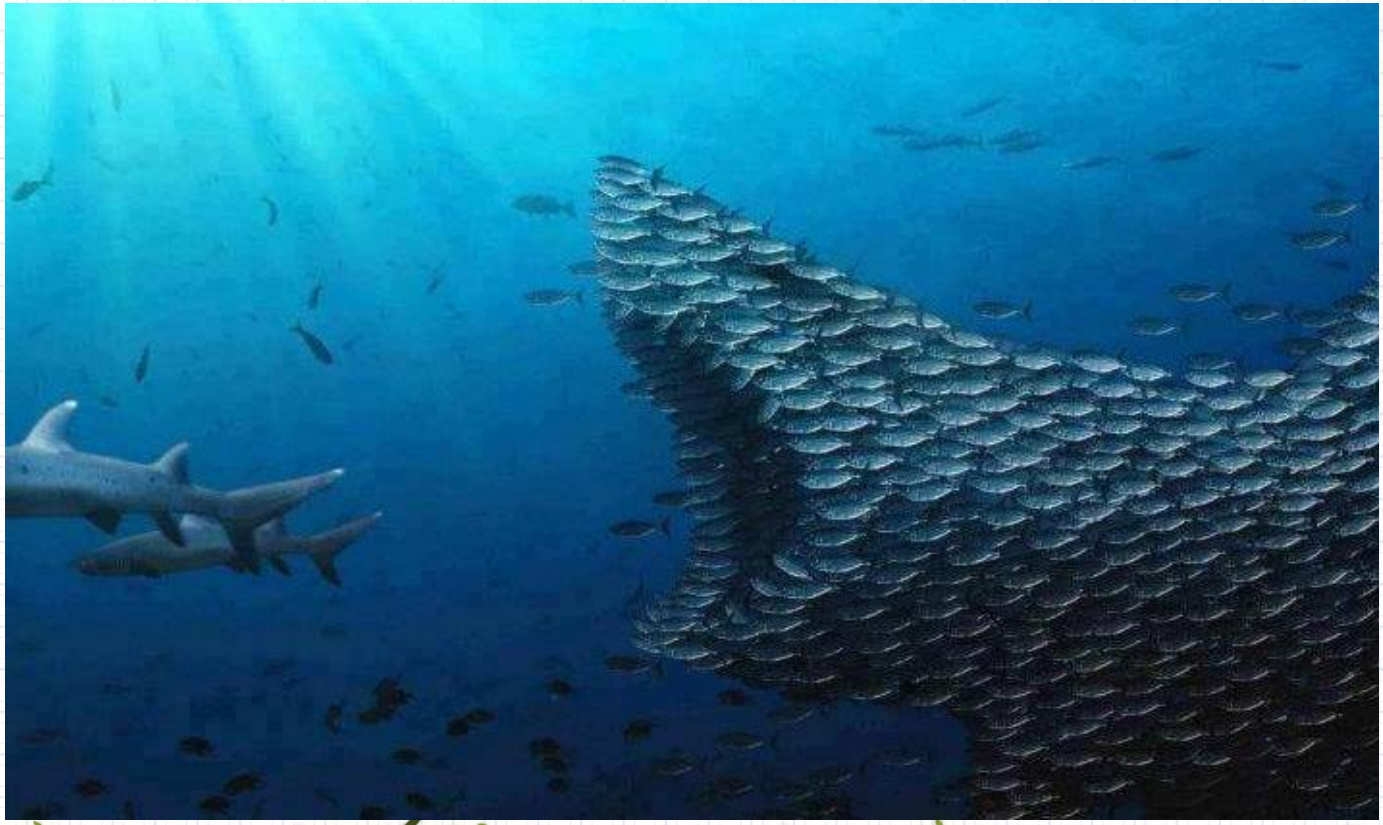
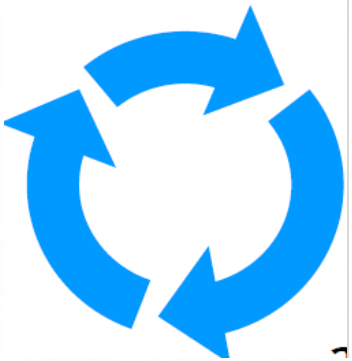
CITIZEN PARTICIPATION =



Important fields of Energy Transition

1. Renewable Energy

- rapid and continuous expansion
- Cost effective and ecological



2. Energy Efficiency

- Saving energy
- Increasing Energy efficiency

3. Grid Infrastructur / Storage

- Expansion and modernization
- Integration of Renewable Energy
- Technological development

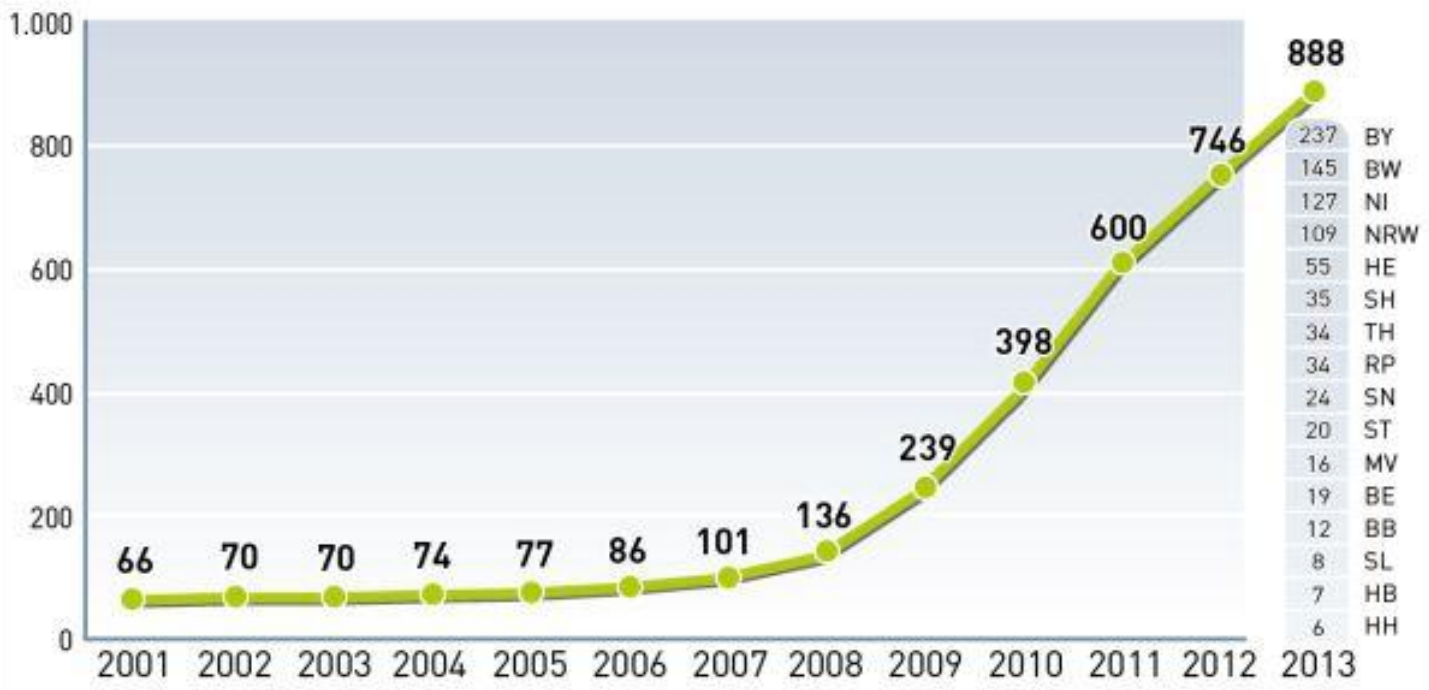
Energy Cooperatives in Germany

- Citizens = most important impetus for the energy turnaround
- Energy cooperatives as very democratic and realistic way of funding.

Potential for big transformation?

A big success story?

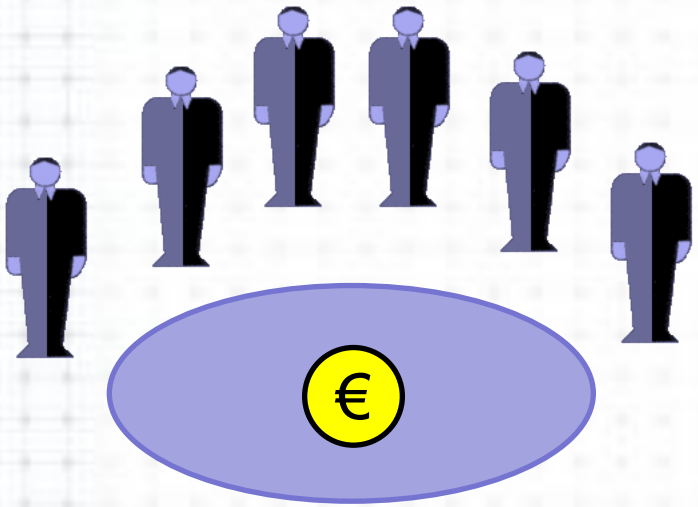
Developement of Energy cooperatives in Germany



Quelle: Klaus Novy Institut; Stand: 1/2014

www.unendlich-viel-energie.de

An Energy Cooperative is ...

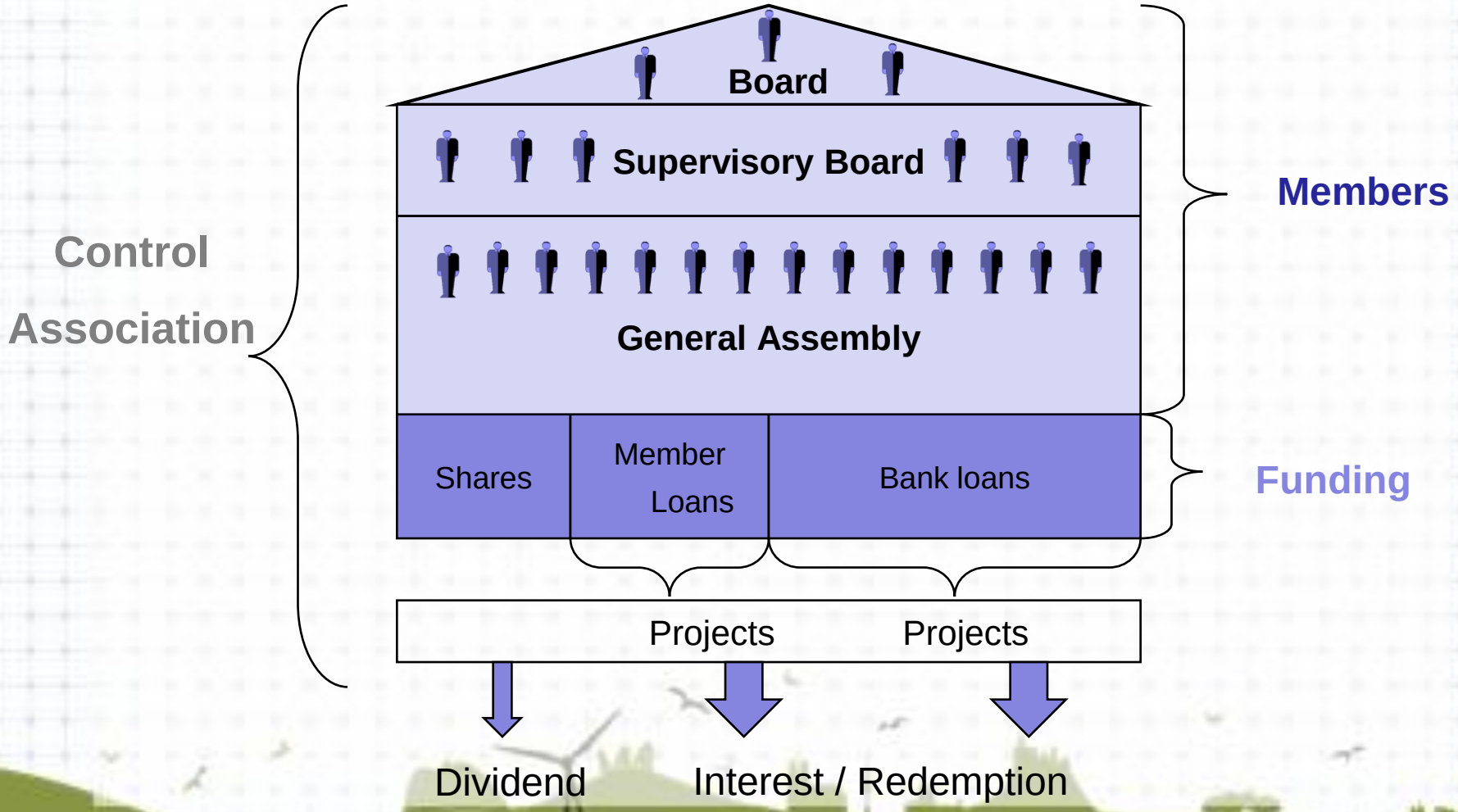


Potential for big transformation??

- no profit maximising
- flexibility for energy saving, direct consumption, e-mobility, condominiums
- flexibility to involve many stakeholders

- **… democratic:**
  each member has one vote, small-volume
- **… flexible**
  easy way to become a member and to exit
- **… secure:**
  nearly no insolvencies and risk diversion
- **… ethical:**
  as ecological investment
- **… expandable:**
  for more projects in the region
- **… economic:**
  attractive and ecological investment
- **… sustainable:**
  energy production free of nuclear and carbon
- … **participative and decentral**
  people can create the energy turnaround from bottom up with small amounts

Functional and Financial Structure



Motivation for Founding Energy cooperatives

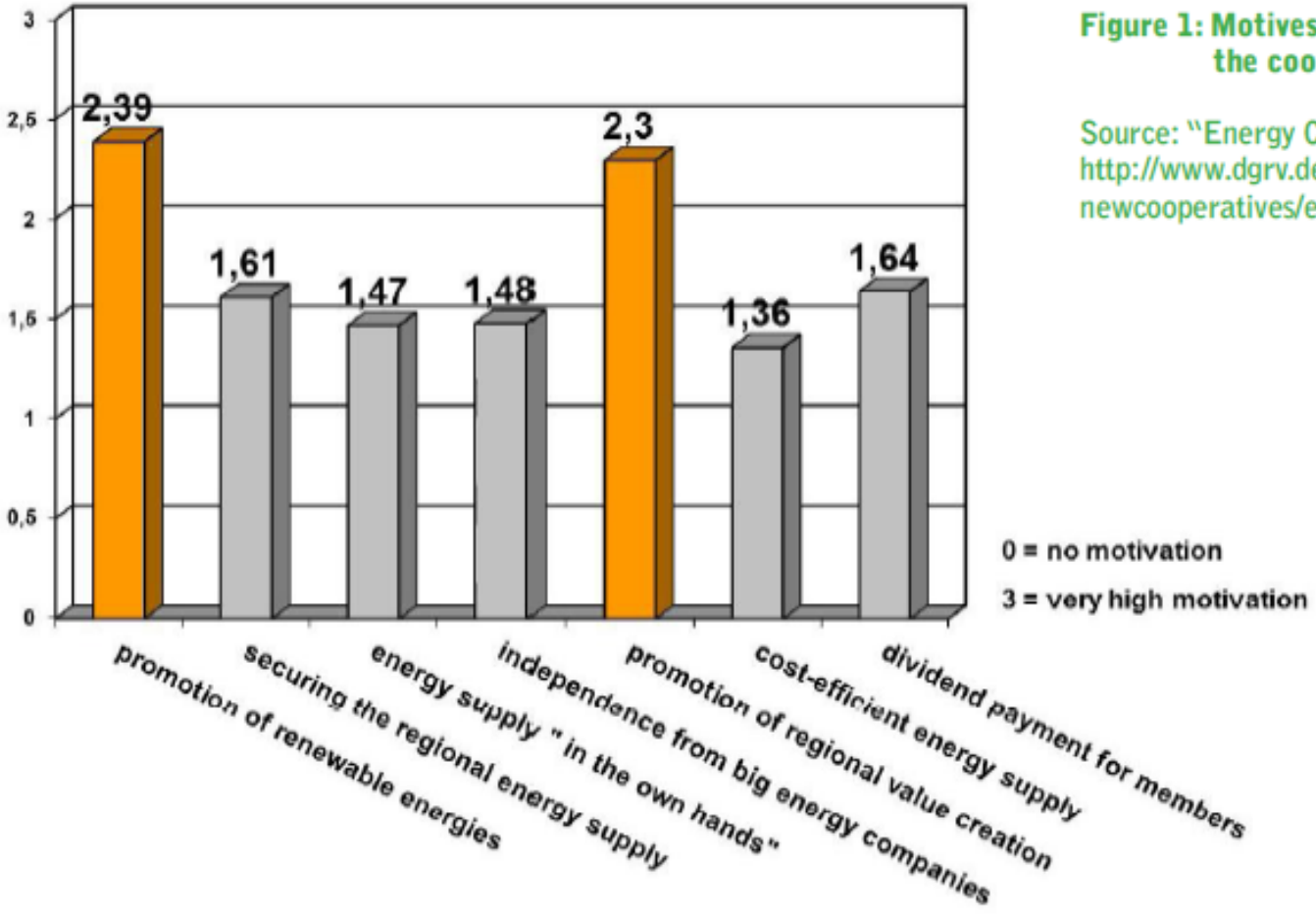


Figure 1: Motives for the foundation of the cooperative

Source: "Energy Cooperatives" by DGRV, http://www.dgrv.de/en/cooperatives/newcooperatives/energycooperatives.html

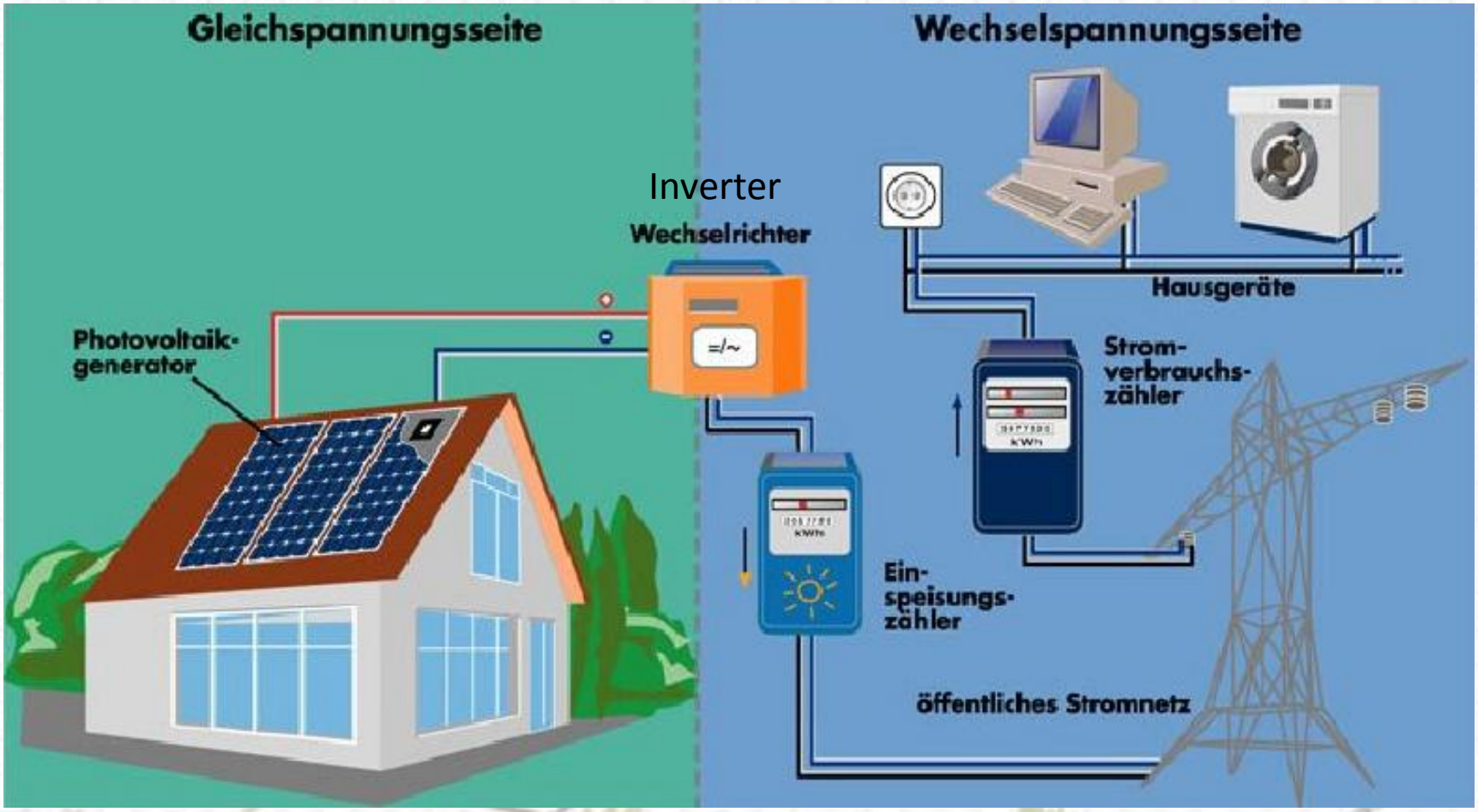
Energy cooperatives
Different business models

- **Producing** energy**:** planning, development, buying and operation of power plants
- **Trading and** distributing of energy
- **Consulting-model**: consulting, planning, training
- **Purchasing** cooperatives: cooperation with other partners to achieve advantages in terms of knowledge or prices, etc.
- **Funding-Model:** Investing in renewable energy power plants of public utilities, operating companies, etc.
- **Heat:** Decentralised heat supply
- **Own consumption** concepts for tenants or companies
- **Acquistion** of power grid systems

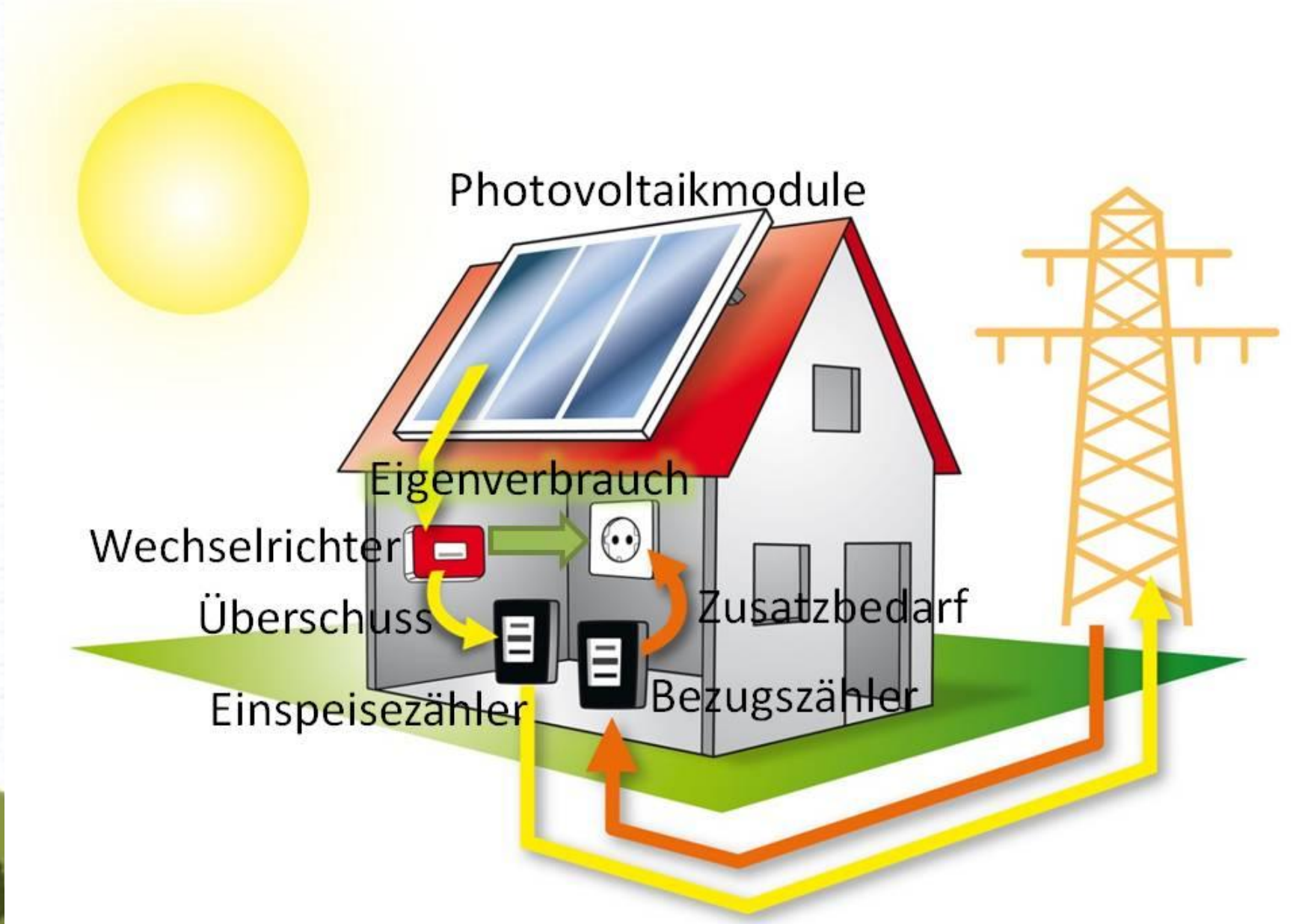
PV with Feed-in

Direct current

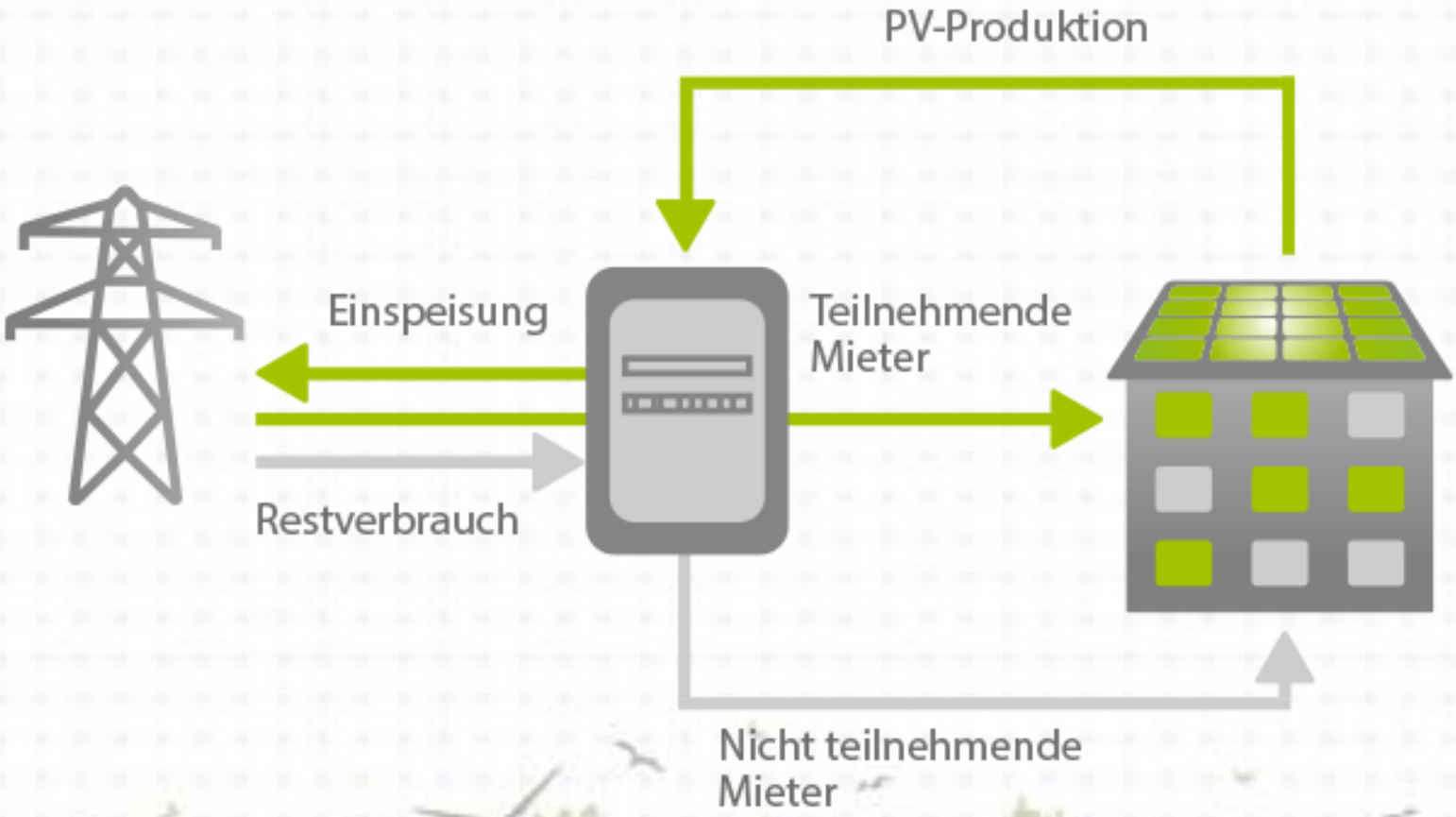
Alternating current



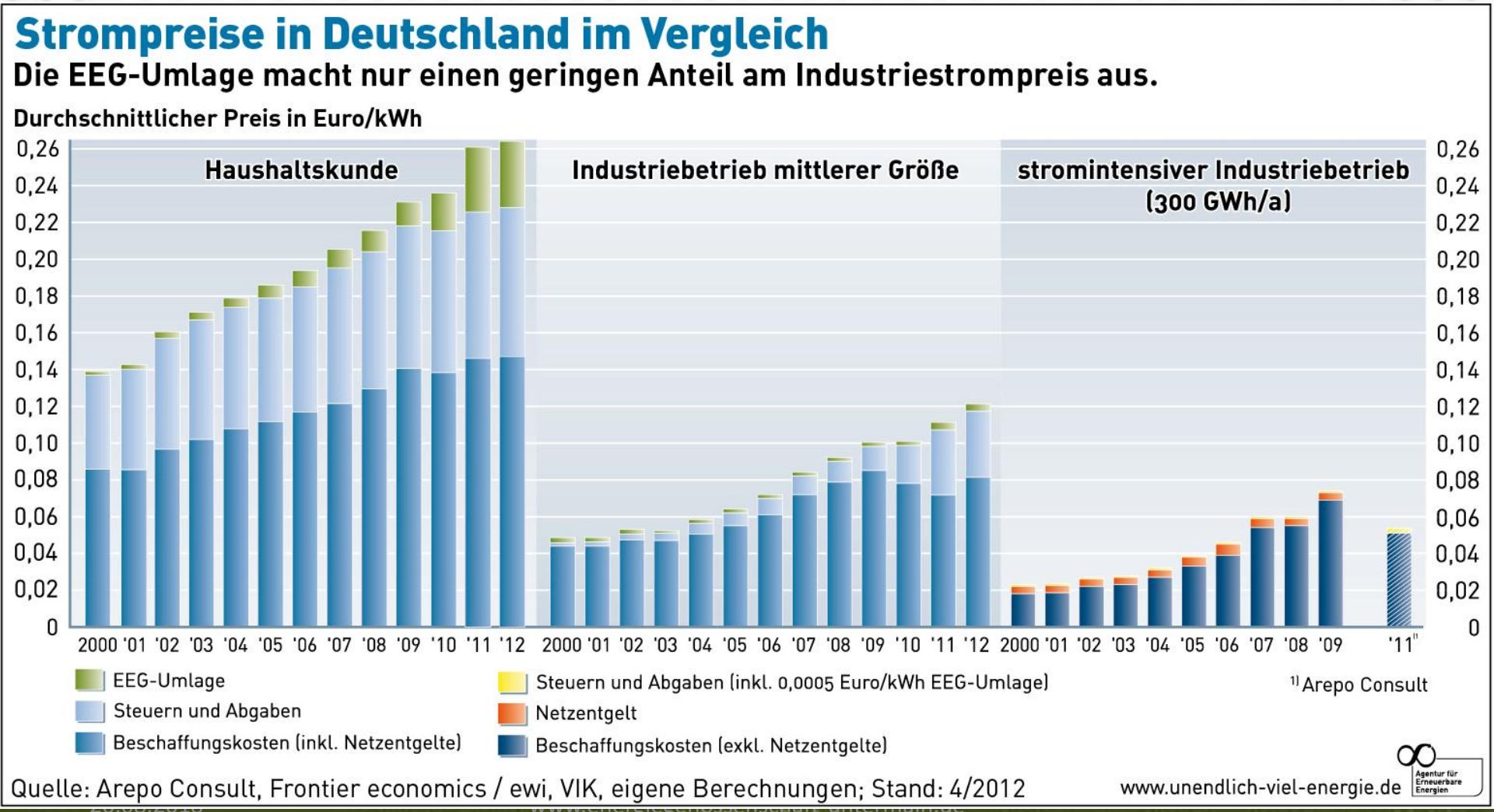
PV with own consumption and Feed-in



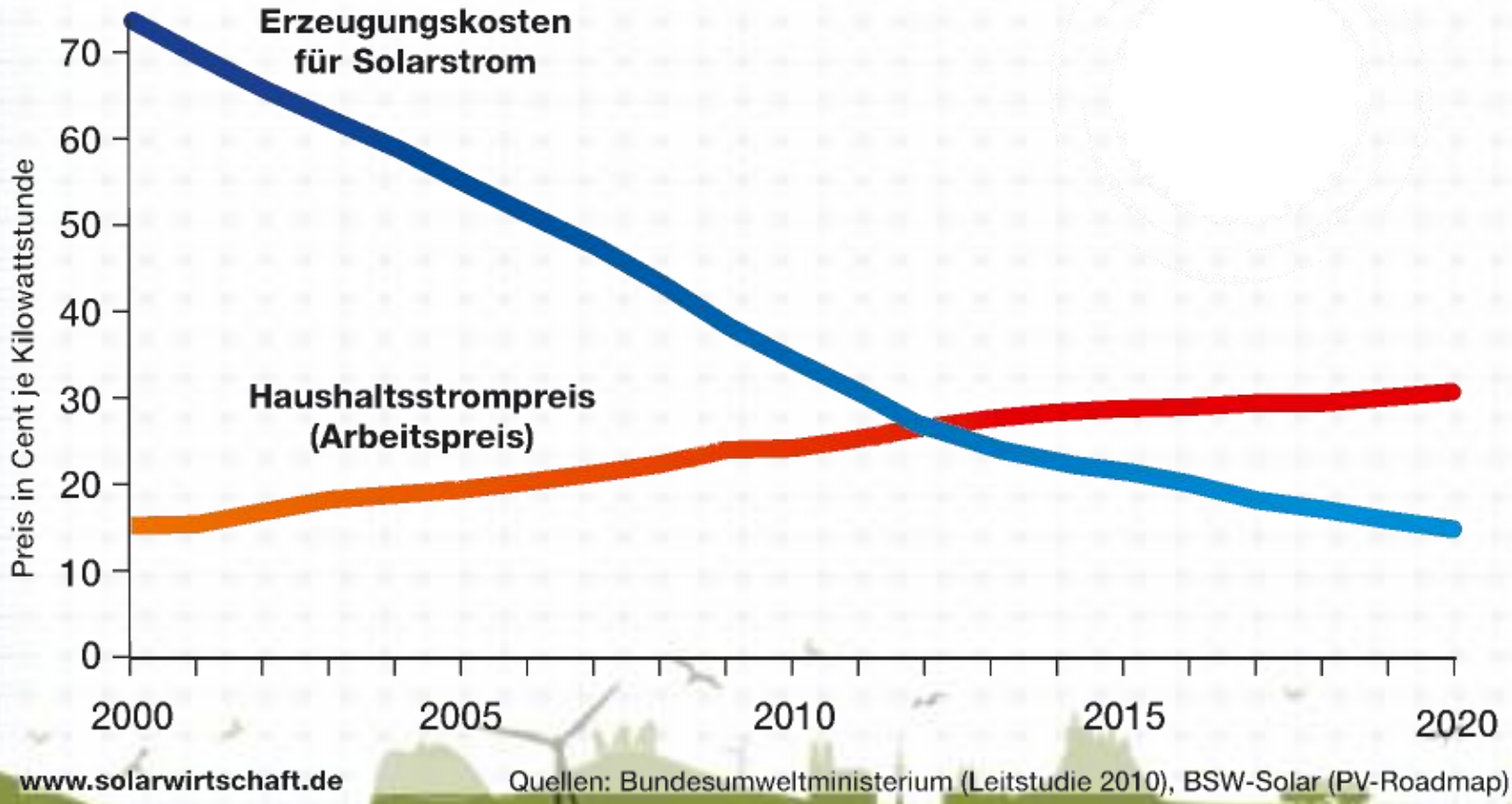
PV – Tenant Model



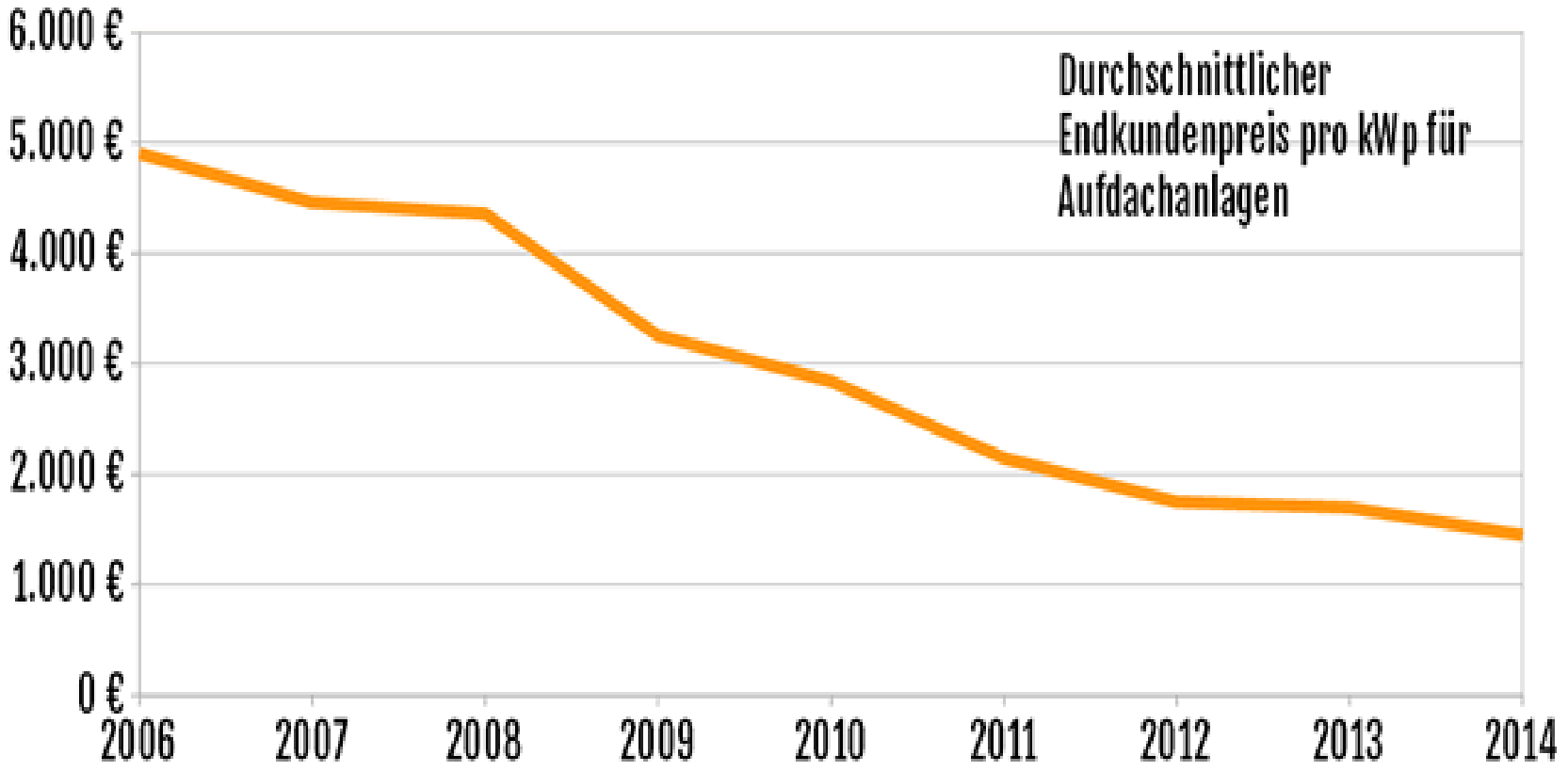
Electricity price in Germany



PV electricity cheaper than household price



Development Photovoltaik Technology



Regional Energy Tariff

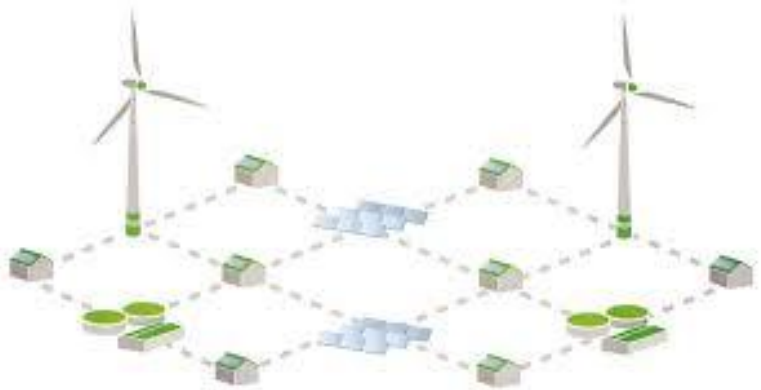
- Many citizens would like to use local and renewable electricity
- Common development and product of energy cooperatives:
- Bavarian ecological electricity – 100%
- Without any public grants
- Energy from citizens power plants – 25%

Success Factors of energy cooperatives

- Legal framework with grant programmes: Top down
- Technology: solar heater, photovoltaik, heating systems, etc.
- Qualification: energy networks, energy consulting, information, craft firms, etc.
- Funding possibilities because of small volume investments
- Interested civil society: bottom up
- Networking and new partnerships (e.g. with municipalities, etc.)
- Transparent information for everybody, clear targets
- Local added value for citizens, companies, municipalities, etc.
- Common planning und implementation

⇨ **Cooperatives goes for democratization, qualification, funding possibilies and strengthening civil society**

Future Challenges



Legal framework:

- Heating systems, retrofitting of buildings,
- No subsidising for fossils, fair cost distribution

Development and structuring of grids:

- Measures to decrease the grid demand
- Energy efficiency, storage, efficient power lines and intelligent grids

Dialogue with citizens

- Energy saving - Energy transition and protection of nature - Early participation and communication with civil society

⇨ **Renewable energy has nearly reached market readiness**

⇨ **Energy transition needs encouraged actors and decision makers**

⇨ **In the long term wind and solar will be the main energy producers**

⇨ **We have to continue the renewable energy way with public participation**

Questions or comments?

Thank you for your attention!

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DER ENERGIERIESE AUS DER NACHBARSCHAFT