

## Who we are: An independent and non-partisan Think Tank & Policy Lab



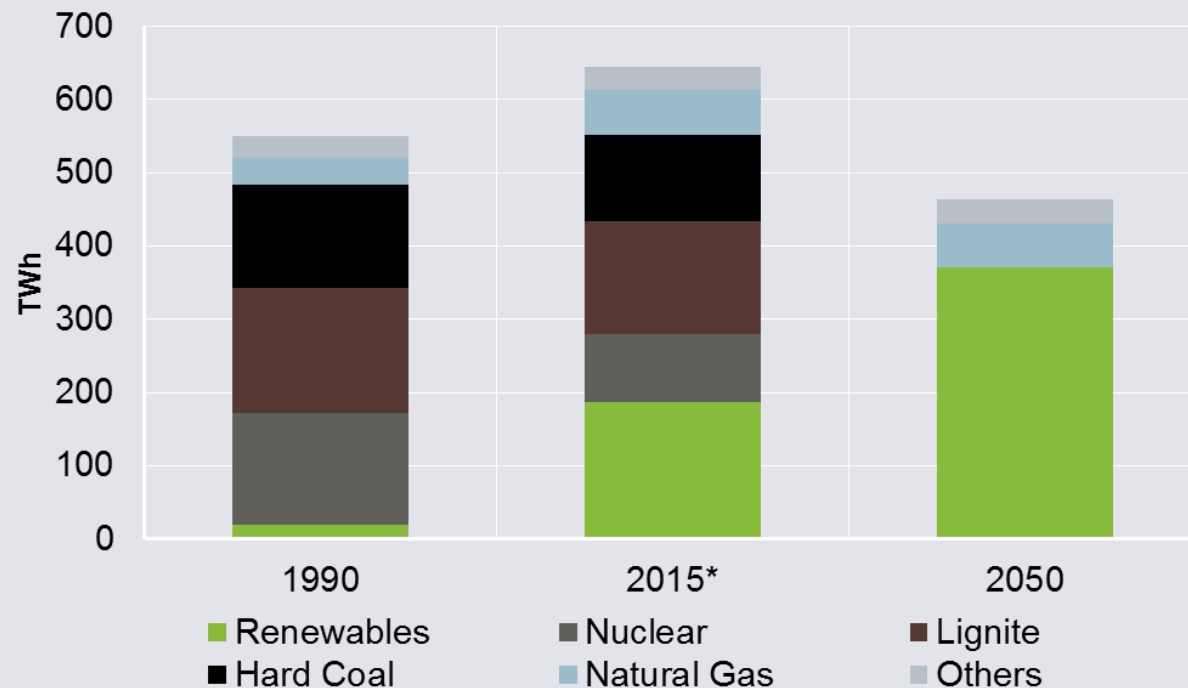
- currently 25 experts on power system transformation in Germany, Europe and the World
- Financed by the philanthropy (Mercator Foundation and European Climate Foundation)
- Mission: Making the energy transition(s) in Germany, Europe and worldwide a success
- Approach: Combining research and dialogue to provide sound basis for decision makers



**Decentralised generation  
as a driver for the  
Energy Transition**

# The Energiewende means fundamentally changing the power system

Gross electricity generation 1990, 2016 and 2050



AGEB (2016), BReg (2010), EEG (2014), own calculations \* preliminary

## Phase out of Nuclear Power

Gradual shut down of all nuclear power plants until 2022

## Reduction of Greenhouse Gas Emissions

Reduction targets below 1990 levels:

- 40% by 2020; - 55% by 2030; - 70% by 2040;
- 80% to - 95% by 2050

## Development of renewable energies

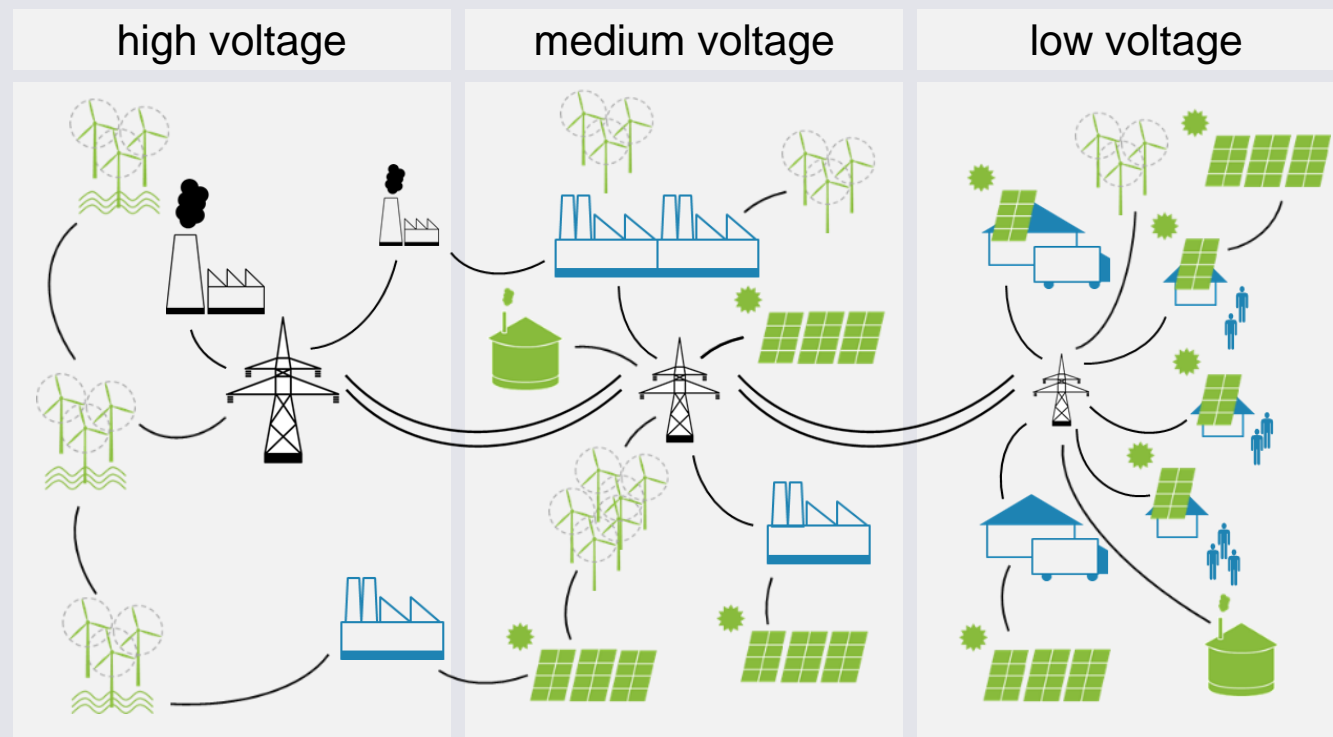
Share in power consumption to increase to:  
40 - 45% in 2025; 55 - 60% in 2035;  $\geq$  80% in 2050

## Increase in efficiency

Reduction of power consumption compared to 2008 levels: - 10% in 2020; - 25% in 2050

# The Energiewende implies a new energy world – characterized by flexibility, decentralized structures and a wide variety of actors

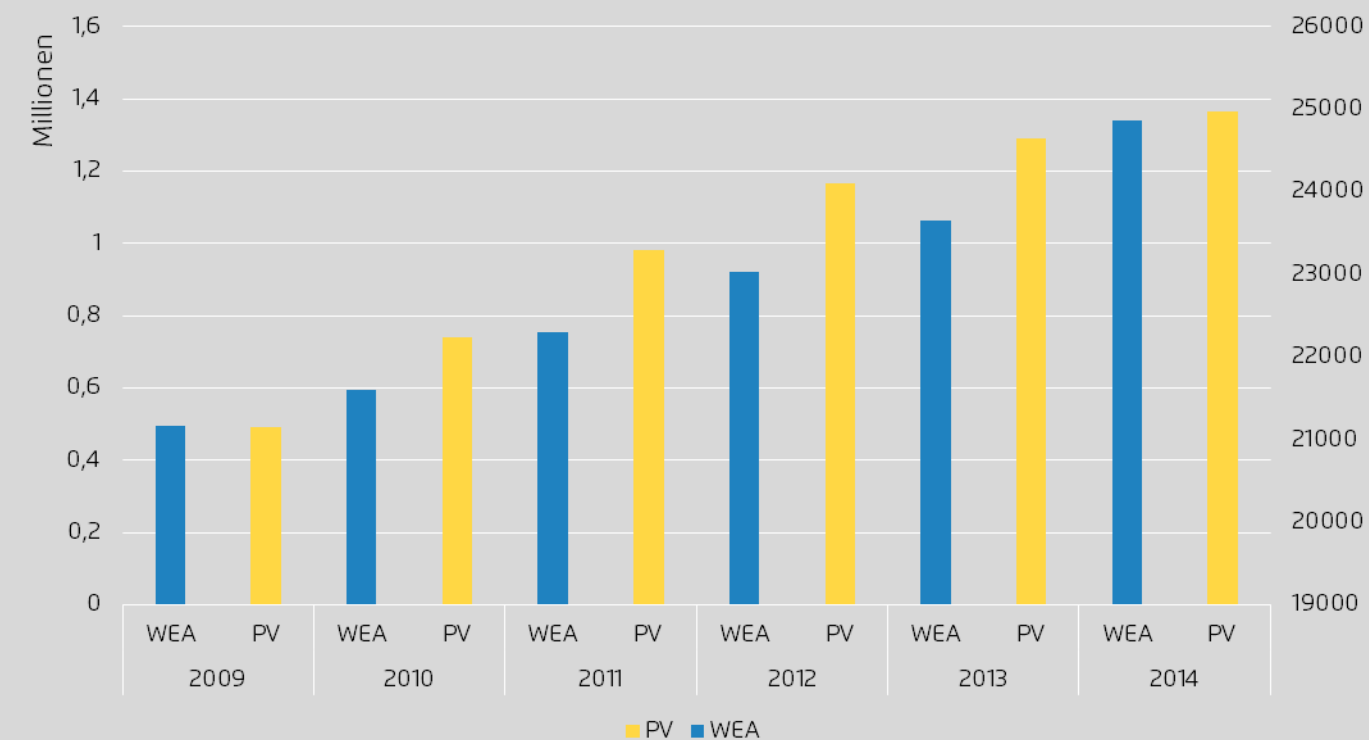
Illustrative visualisation of the old and the new electricity system



Own illustration

## Increasing number of actors - Coordination between producers, consumers and prosumers needed

Wind turbines (right axis) and solar PV installations (left axis)



→ **Generation:** Increase in wind energy, solar PV, back-up capacity – and emergence of new actors such as prosumers.

→ **Grid planning and operation:** 880 distribution system operators and 4 transmission system operators.

→ **Demand:** 18 million residential buildings with 40 million housing units, increasing autoconsumption.

→ **Role of information and communications technology (ICT).**

Bundesnetzagentur 2015, BWE 2015

## Auto-consumption increasingly becomes a driver for the energy transition

---

- High Feed-In-Tariffs for small scale renewables (PV, biomass, small wind) → strong driver 2000-2012
- Feed-in tariffs reduced drastically, particularly for solar PV, due to cost pressure
- For small scale PV (residential) auto-consumption becomes increasingly attractive → reduces electricity purchased from utility at ~30 c€/kWh

## New business models through self-consumption

---

- Most people in Germany rent therefore so there is no incentive to install a PV system
- New regulation under discussion („Mieterstrom“- Tenant electricity) which allows the owner (or third party) to sell electricity produced close to the building to the tenants → No grid charges and other fees apply
- Strong push through digitalisation, we see new players entering the market and challenging utility's traditional business model of centralised generation

## Key Messages

---

- The Energy Transition in Germany is a transition to a highly decentralised energy system;
- The energy Transition was mainly driven by small players: private persons and energy co-operatives (Bürgerenergie)
- To create acceptance (which is crucial), any energy transition should focus on decentralised generation → if people benefit from it, they will support it
- Energy Subsidies reduce the incentive for consumers to switch to renewable energy or to invest in energy efficiency at residential level



More information and studies available at our website  
[www.agora-energiewende.org](http://www.agora-energiewende.org)

12 Insights on  
Germany's  
*Energiewende*

February 2013

Agora  
Energiewende

Current and Future  
Cost of Photovoltaics

Long-term Scenarios for Market Development,  
System Prices and LCOE of Utility-Scale PV Systems

STUDY

Agora  
Energiewende

Understanding the  
*Energiewende*



FAQ on the ongoing transition of the  
German power system

BACKGROUND

Agora  
Energiewende

**Agora Energiewende**  
Anna-Louisa-Karsch-Str.2  
10178 Berlin

**T** +49 (0)30 700 1435 - 000  
**F** +49 (0)30 700 1435 - 129  
  
[www.agora-energiewende.de](http://www.agora-energiewende.de)

 Please subscribe to our newsletter via  
[www.agora-energiewende.de](http://www.agora-energiewende.de)  
 [www.twitter.com/AgoraEW](https://www.twitter.com/AgoraEW)



# Thank you for your attention!

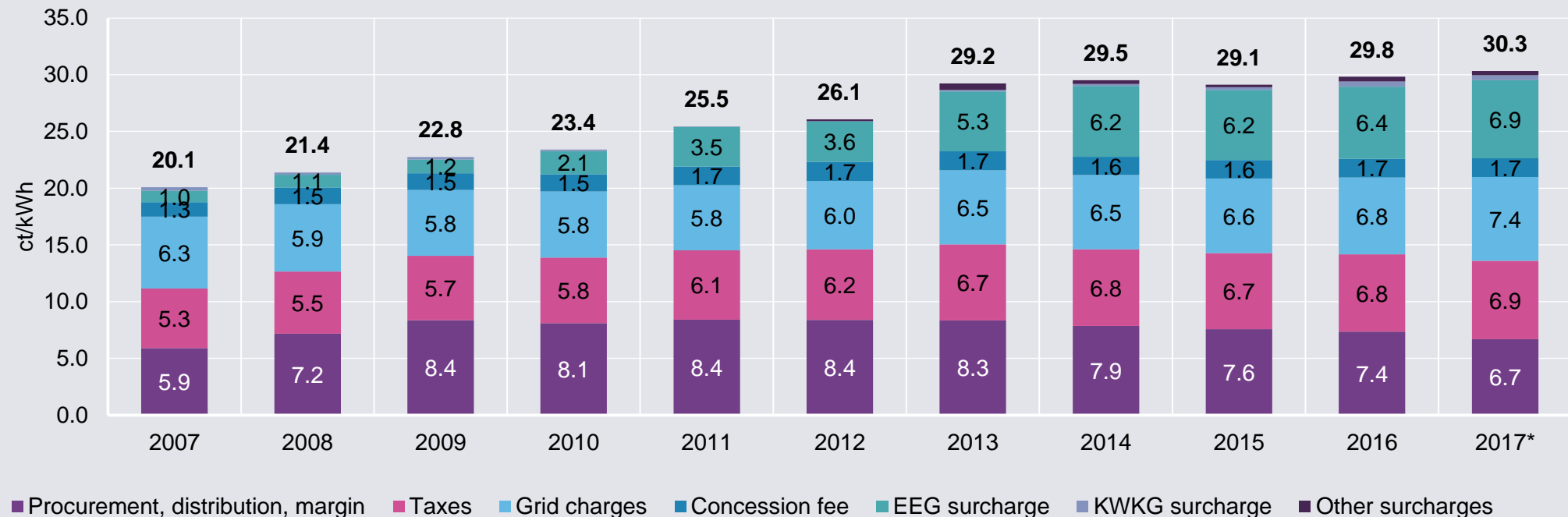
Questions or Comments? Feel free to contact me:  
[Daniel.argyropoulos@agora-energiewende.de](mailto:Daniel.argyropoulos@agora-energiewende.de)

Agora Energiewende is a joint initiative of the Mercator Foundation and the European Climate Foundation.



# Household power prices in 2016 to exceed 30 c€ due to increased EEG surcharge and high sales margins

Average electricity prices for a 4-person household (3500 kWh annual use), 2007-2017



BNetzA 2016, \*own estimates