

*The importance of community
power for a 100% Renewable
Energy World*

Bonn 28th May 2019

Hans-Josef Fell
President Energy Watch Group
Member German Parliament 1998-2013

Climate-Activist Greta Thunberg at the World Economic Forum in Davos

- „Our house [earth] is on fire“
- „the main answer is so simple that even a small child can understand it:
We have to stop the emissions of greenhouse gases.“
- „I want you to panic [...], to act as if it were a crisis.“

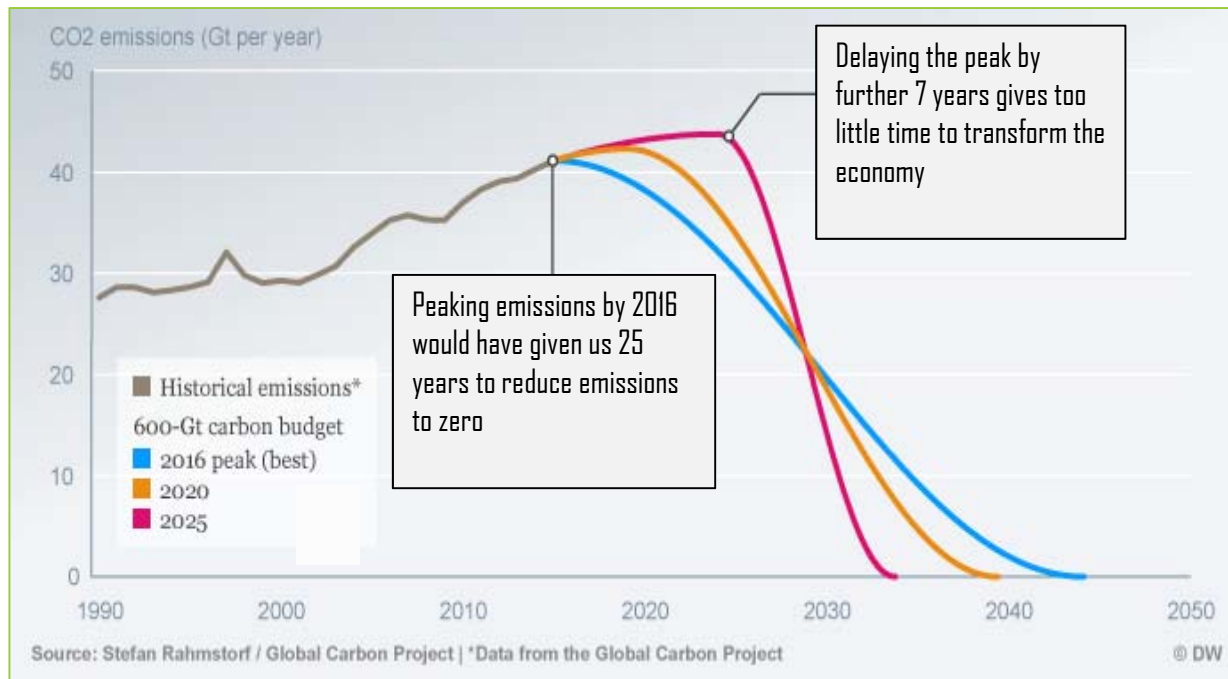


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Source: <https://www.youtube.com/watch?v=M7dVF9xylaw>

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Global GHG Emissions Must Come to Zero around 2030 to Reach the 1.5°C Paris Target



Greenhouse gas emissions

Nearly 70% of GHG emissions are traced back to the use of fossil fuels (mineral oil, natural gas, coal):



Power



**Intensive
agriculture**



Plastics



Traffic

The solution: A zero-emission economy

Crises of climate warming and energy dependencies can only be solved with two parallel strategies:

1. Stop greenhouse gas emissions (best by 2030)

(Not only reduction of emissions)

- Switch to 100% renewables
- Completely stop the use of fossil and nuclear energies in energy, chemistry, transport, agriculture

2. Take out carbon from the atmosphere

- Convert plants to humus soil (biocoal)
- Reforest big areas, green the deserts
- Organic agriculture

The target must be 330 ppm CO₂

This leads to global cooling instead of global warming and to energy independency

New Study

First Ever Hourly Simulation of Global Energy System Across All Sectors

100% Renewables are cheaper than current energy system

Hans-Josef Fell
Prof. Dr. Christian Breyer

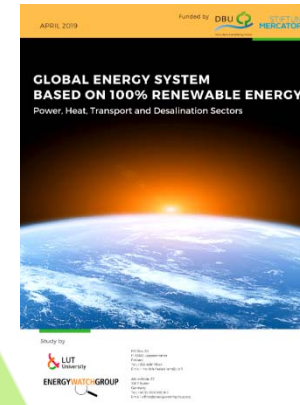
New Study by EWG & LUT Shows:



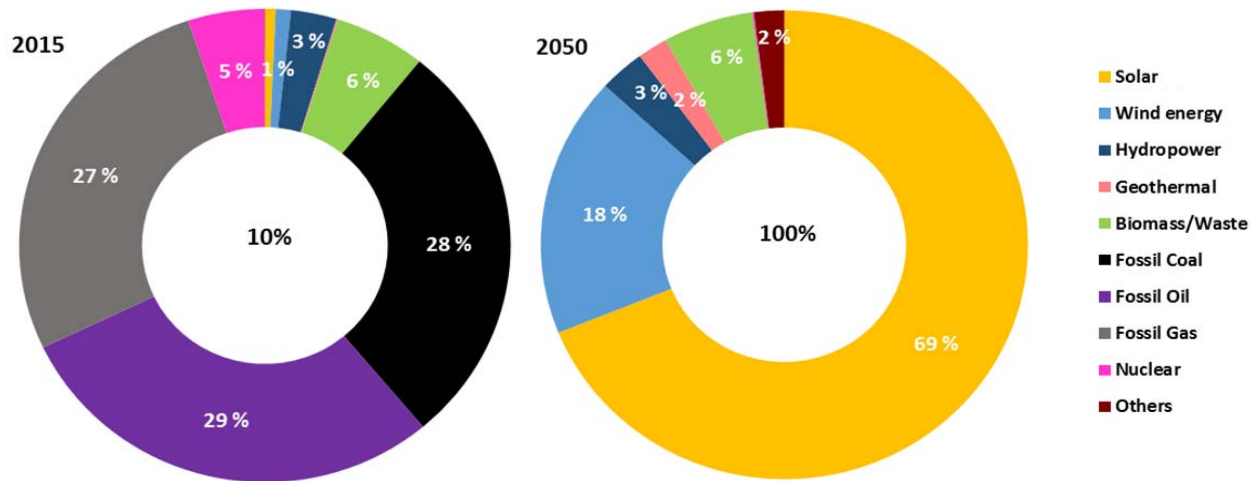
The energy transition is not a question of technical feasibility or economic viability, but one of political will.

100% renewable energy worldwide is more cost effective than the current energy system and leads to zero emissions before 2050.

Largely domestic energy systems based on 100% renewables will create energy independence and support millions of local jobs in the energy sector.



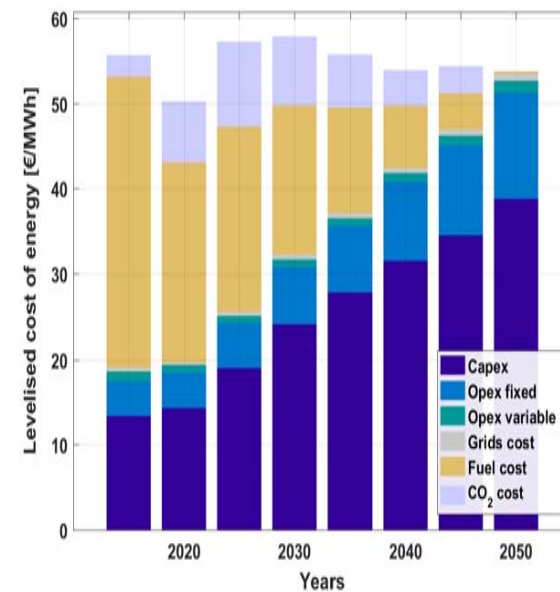
Solar and Wind Will Dominate the 100% Renewable World



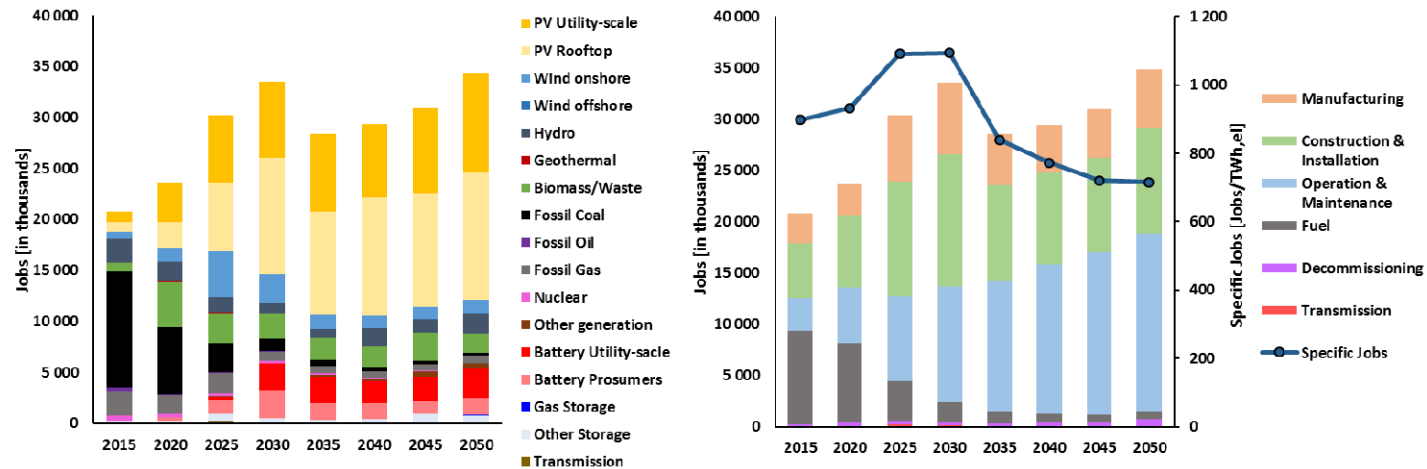
Primary energy source	Solar	Wind	Biomass/ Waste	Hydro	Geo-thermal
Share in 2050	69%	18%	6%	3%	2%

Energy System Costs

- Levelised cost of energy decline from 54 €/MWh (2015) to 53 €/MWh (2050)
- Fuel costs diminish through the transition period, while capital expenditures dominate
- Costs are well spread across a range of technologies with major investments for solar PV, wind energy, batteries, heat pumps and synthetic fuel conversion up to 2050
- The cumulative investment costs are about 67,200 b€



Jobs Prospects - Power Sector



- Total direct energy jobs are set to increase with the initial ramp up of installations from about 20 million in 2015 to around 35 million by 2050
- Loss of coal and other fossil fuel related jobs are more than compensated by new jobs
- Solar PV emerges as the prime job creator with over 22 million jobs by 2050
- Operation and maintenance jobs continue to grow through the transition period and become the major job segment by 2050 with 50% of total jobs

German District Rhein-Hunsrück: Energy Transition - A Success Story



1995

- Energy import ratio: 100%
- Costs: €300m (≈13% BIP)
- Almost 100% fossil energy
- Unemployment rate 1995: 8,3%



2018

- Unemployment rate 2018: 3,5%
- Financial Zero-Emissions-District across the sectors power, heat & waste
- Renewable energies provide over 300% of power demand
- Annual revenue of €44m due to renewables
- Reserves of €84m held by municipalities
- Lowest debt level in the whole state
- Approx. 53% GDP-growth since 1999 (5% above state-wide average)

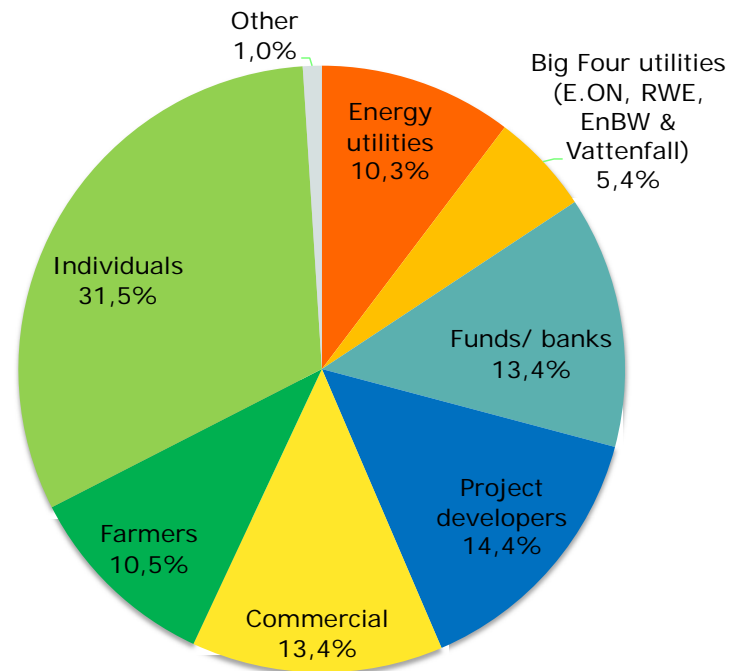


Sources: mueef.rlp.de, statistik.rlp.de (2017), statistik.rlp.de (2004), swr.de, dw.com, rhein-hunsrück.de

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Renewable energy in the hands of citizens

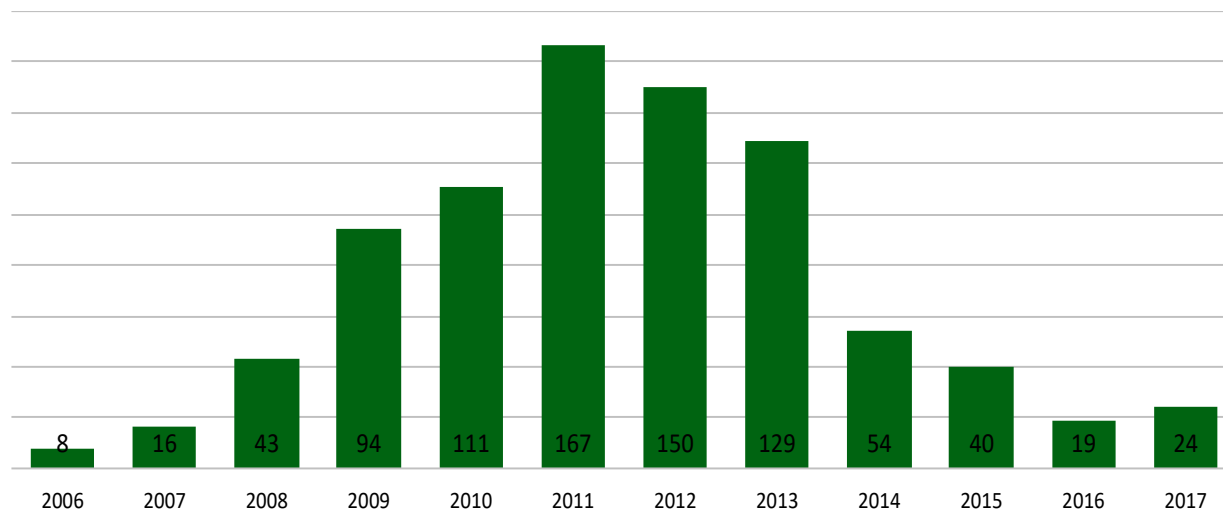
Distribution of owners of installed capacity for renewables-based electricity generation in Germany, 2016



Source: Agentur für Erneuerbare Energien e.V., trend:research, 12/2017

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Heavy decline in new establishments of energy cooperatives in Germany

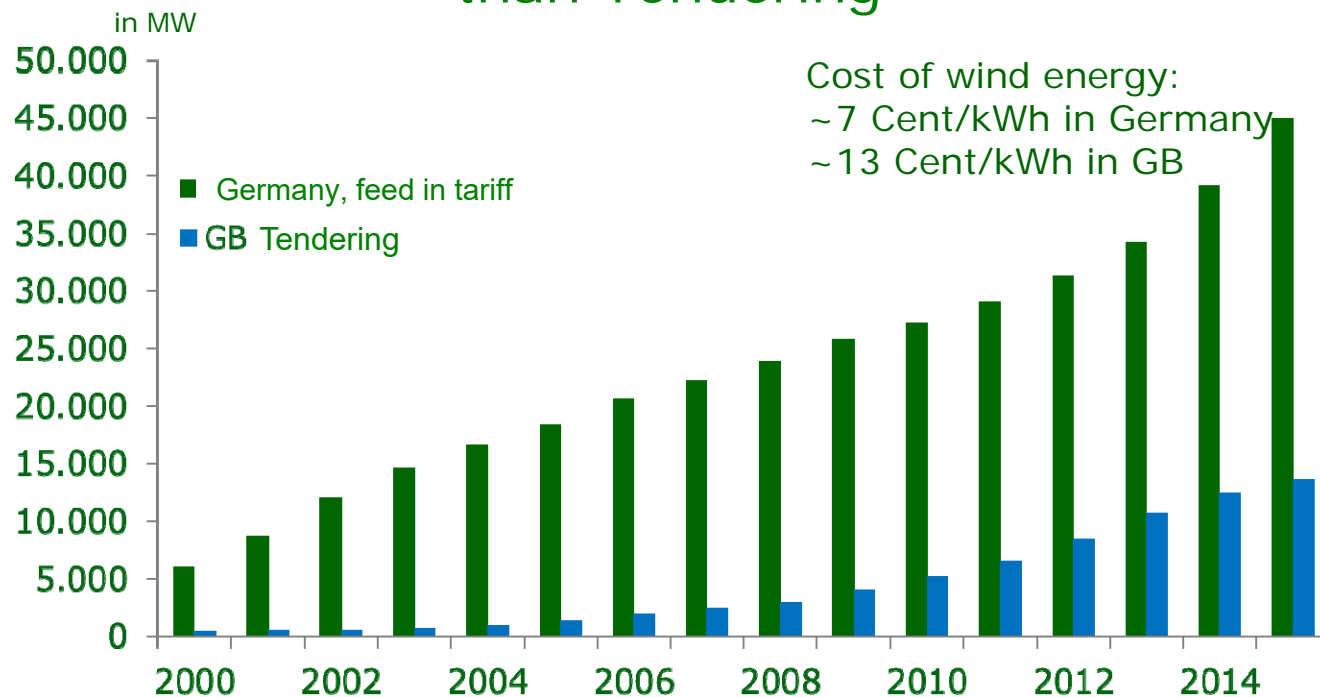


Main Reason: The switch from FIT to tender.

Quelle: DGRV, 2017
https://www.genossenschaften.de/sites/default/files/Umfrage_Energiegenossenschaften_2018_DGRV.pdf

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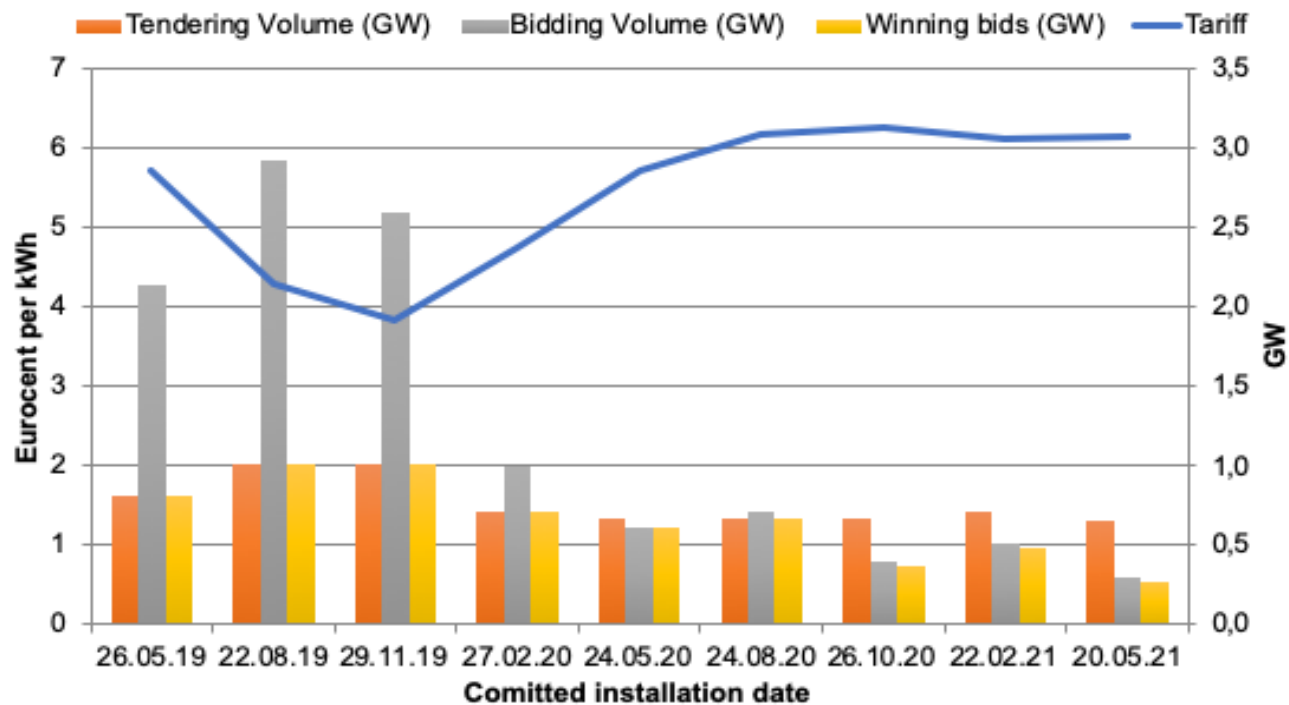
Installed Wind Capacity in G and GB shows: Feed in Tariff is more successful and cheaper than Tendering



Source: Volker Quaschnig, 2016:
<http://www.volker-quaschnig.de/datserv/windinst/index.php>

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German Switch 2017: FIT to Auctioning is calamity Windpower: Investment is falling; tariff is rising



Source:
BNetzA 2019, own depiction

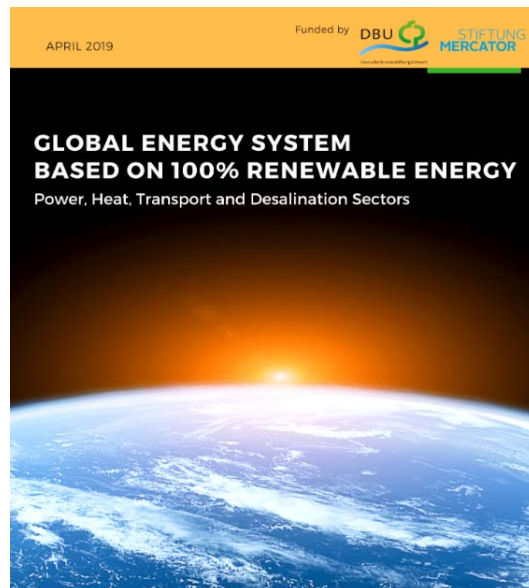
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Policy Recommendations

- **Feed-in-tariffs crucial until 40 MW (GET-FiT)**
- **Auctions for utility-scale projects**
- **Abolish fossil and nuclear subsidies**
- **Carbon, methane, radioactivity tax**
- **Research, education & campaigning**
- **Reducing licensing obstacles**

Not successful:

- Certificate systems
- Emission trading



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**GLOBAL ENERGY SYSTEM
BASED ON 100% RENEWABLE ENERGY**
Power, Heat, Transport and Desalination Sectors

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