



Introduction to the Community Wind Farm in Neuenkirchen

Michael Krug

Freie Universität Berlin

Environmental Policy Research Centre

WinWind Transfer Workshop –
“Community Owned Wind Farms in Latvia –
Possibilities and obstacles”
Riga, 10 October 2019



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 764717. The sole responsibility for the content of this presentation lies with its author and in no way reflects the views of the European Union.



Mentoring Experts (via Skype)



Reimer Schoof

- Managing director of the community wind farm in Neuenkirchen



Horst Leithoff

- Chairman of the regional branch of the German Wind Energy Association in Schleswig-Holstein
- Managing director of 4 community wind farms in the region of Northern Friesland

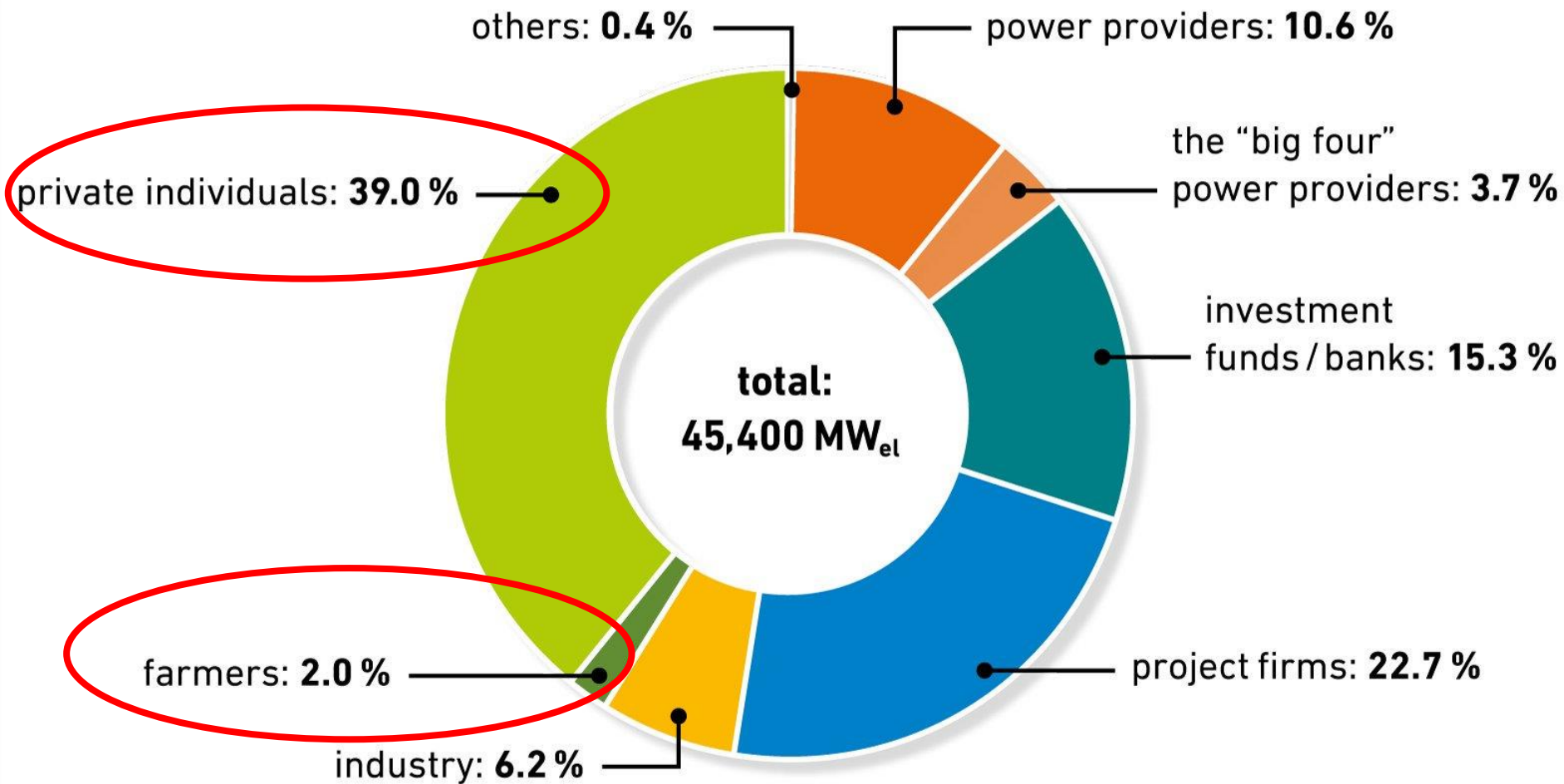


Definition of „Community energy“

The **economic and operational participation** and/or **ownership by citizens or members of a defined community** in a renewable energy project (IRENA 2018)

Ownership structure of onshore wind power installations

Distribution of owners of installed capacity for power production in Germany in 2016



Source: trend:research
as of 12/2017

© 2018 Renewable Energies Agency



RENEWABLE
ENERGIES
AGENCY

renewables-in-germany.com



Key drivers of community wind farms

- Supportive legal and policy framework
- Before 2017: Renewable Energy Sources Act provides **guaranteed minimum remuneration** via **feed-in tariffs** and **feed in premiums**
 - Low market risks and high investment security
 - Farmers, landowners, individuals, communities and cooperatives can relatively easily access financing
 - Operators of the community wind farm in Neuenkirchen benefit from attractive feed in premiums
 - 2017 transition to auctioning system (→ tendency to favour large players!)
- Region-specific drivers



Community wind farm Neuenkirchen – key facts

- Commissioned in 2015
- 12 x 3 MW *Senvion* turbines on **3 sites**
 - Later: 1 x 3 MW *Enercon* turbine (repowering project)
- Total investment cost: 56.5 million EUR
- Initiators: local farmers, landowners
- Financial participation of citizens as limited partners (*Kommanditisten*)
- Land lease pool model (*Flächenpoolmodell*)
- Benefit sharing via civic association (*Bürgerverein*)
- <http://www.buergerwindpark-neuenkirchen.de/projekt/infos/>





Community wind farm Neuenkirchen - key technical and economical data

Technical data

Manufacturer:	Senvion SE (former REpower)
Type:	3.2 M 114
Nominal capacity:	38,4 MW (12 x 3,200 kW)
Rotor diameter:	114 m
Hub height:	93 m
Total height:	150 m

Setback distances

Distance to church:	2,000 m (voluntary self-commitment)
Distance to single houses:	450 m
Distance to settlements:	800 m

Economical data

Investment:	56.5 mEUR
Revenues (2017):	10.83 mEUR
Annual profit (2017):	5.13 mEUR
Business tax payments:	0.64 mEUR



What was the motivation?

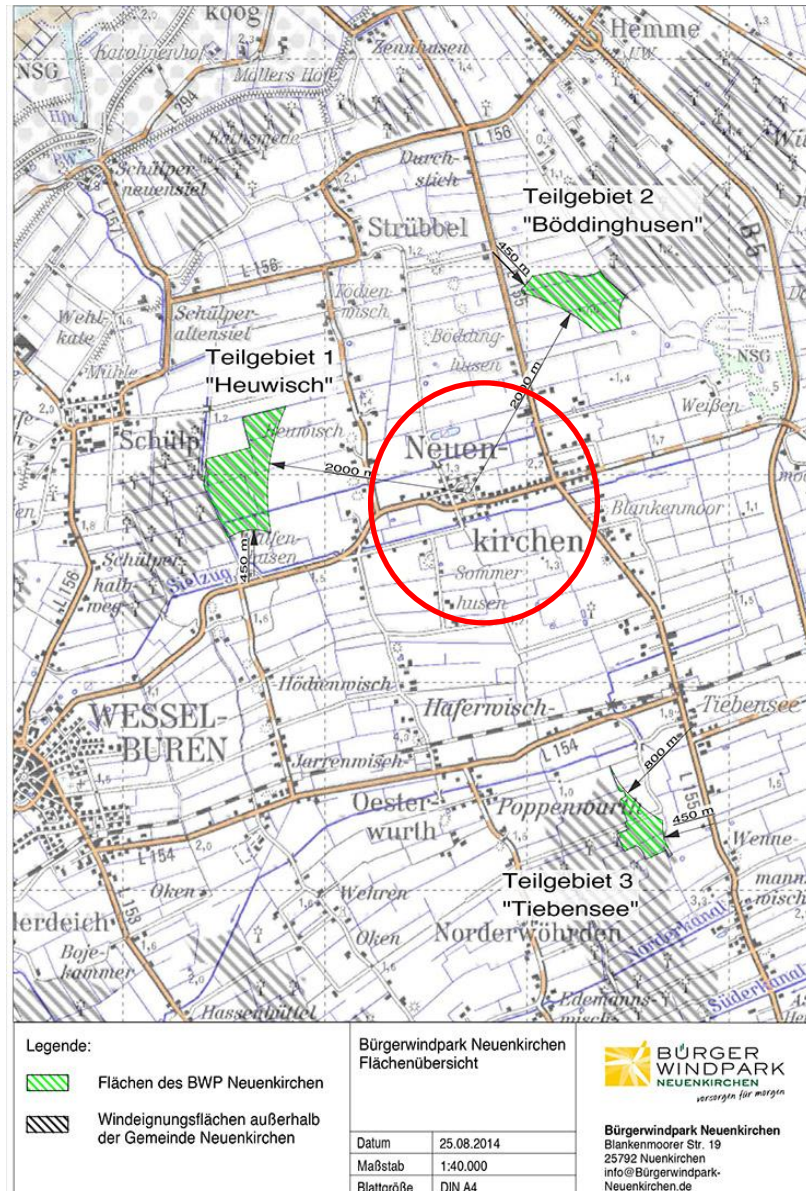
- Income diversification for farmers and landowners
- Local creation of added value (local profits, taxes, employment)
- Generation of additional benefits for the community



Chronology

Year	Steps
Before 2008	Plans by local land owners to develop a community wind farm Negative attitude by mayor/municipal council
2008	Municipal elections, change of mayor
2009	Council decides to propose wind energy suitable areas to the district administration
2009	Foundation of a local citizen action group opposing the wind farm plans
2009	→ 1st referendum negative (council decision rejected)
2011	Mayor and council initiate a 2nd referendum about the notification of 4 suitable areas → 2nd referendum positive → Council proposes to include 4 wind energy suitable areas in the regional plan
2012	Regional plan takes effect (includes 3 of the 4 proposed suitable areas)
2013	Foundation of the operating company <i>Bürgerwindpark Neuenkirchen UG (haftungsbeschränkt) & Co. KG</i>
2014-2015	Construction works
2015	Commissioning of the plant
2016	Foundation of a civic non profit association (receives 1% of the annual revenues as donations)

Wind energy suitable zones (Windeignungsflächen)





Active financial participation of citizens

- 20% of the total investment cost to be covered by equity capital (11 million EUR), later reduced to 10%
- **Direct financial participation of citizens as limited partners**
 - Minimum deposit 500 EUR, maximum deposit 124,000 EUR
 - No investor owns more than 25% of voting rights
 - 145 citizens registered as limited partners (July 2014)
 - Municipality also obtained shares (20,000 EUR)
 - Majority of municipal councilors obtain shares



Land lease pool model

- 5% of the annual remuneration for the electricity fed into the grid distributed to landowners as financial compensation
- 34 land owners receive financial compensation for the use of their land

Land owner group	Share
All land owners in the wind energy suitable zone	70%
Land owners on whose land the 12 turbines are installed	20%
Owners of land used for road transport and other infrastructure measures	10%



Benefits for the municipality (I)

Tax revenues

- Municipal trade tax (*Gewerbesteuer*)
- **Community wind farm: 100% of trade tax** flow to the host municipality
 - **2014:** 250,000 EUR (without wind farm)
 - **2017:** 640,000 EUR (with wind farm)
 - Problem: Municipal fiscal equalization scheme (*kommunaler Finanzausgleich*)



Thies Wellnitz, Mayor of Neuenkirchen



Benefits for the municipality (II)

2016: Foundation of a civic non-profit association (*Bürgerverein Neuenkirchen e.V.*)

Association receives **1 %** of the wind farm's **annual gross remuneration** as **donations**

- Use of the donations for charitable/non-profit purposes
- Beneficiaries: local associations, clubs, school, kindergarden, church etc.
- Examples: Purchase of 2 community busses, PC-equipment for school, community building, sports facilities, church renovation etc.





Environmental compensations



- **Compensation payments for the intrusion of nature and landscape**
 - **408.000 €** for the **interference with nature** (→ paid to the regional *Dyke and Sluice Association* for earmarked nature protection measures „*Schülper Kanal*“)
 - **630,000 €** for the **intrusion of the landscape** (→ paid to the nature conservation authority of the district, partly used for the regional nature conservation fund „*Mehr Natur für Dithmarschen*“)



Acceptance drivers





Acceptance drivers (II)



Liels paldies par Jūsu uzmanību

mikru@zedat.fu-berlin.de

winwind-project.eu

info-winwind@PolSoz.FU-Berlin.de

 @winwind_eu

 WinWind Project



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 764717. The sole responsibility for the content of this presentation lies with its author and in no way reflects the views of the European Union.



Additional slides



Community wind farms in Germany

- Most common legal forms: **limited partnerships, cooperatives**
- Most common type: **limited partnership** in which **the general partner is a limited liability company** (*Gesellschaft mit beschränkter Haftung & Compagnie Kommanditgesellschaft – GmbH & Co. KG*)
 - Hybrid of a **limited liability company** (GmbH) and a **limited partnership** (KG)



Limited partnership with a limited company as general partner (*GmbH & Co. KG*)

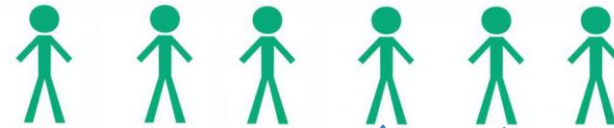
General partner (*Komplementär*)

Limited company, e.g.

- Limited liability company (*GmbH*)
 - Entrepreneurial company with limited liability (*UG haftungsbeschränkt*)
- Liability limited to company's share capital

Limited partners (*Kommanditisten*)

→ Liability limited to each partner's share capital





Neuenkirchen – regional context

- 950 inhabitants
- Location close to the North Sea coast
- Rural, peripheral region
- Low population density, large number of small municipalities
- Flat, open, forest poor marsh landscape
- Intensive agricultural use
- Located in one of the wind energy pioneer regions of Germany (Dithmarschen)
- Very high density of wind turbines
- Neuenkirchen is a latecomer regarding wind energy





Land lease pool model

- Area 1 ca. 300 ha with 6 WTG (+ 5x Enercon WTG)
- Area 2 ca. 300 ha with 4 WTG (+ 1 WTG planned)
- Area 3 ca. 100 ha with 2 WTG

Total: ca. 700 ha

Calculationn of land please payments:

12 x Senvion WEA

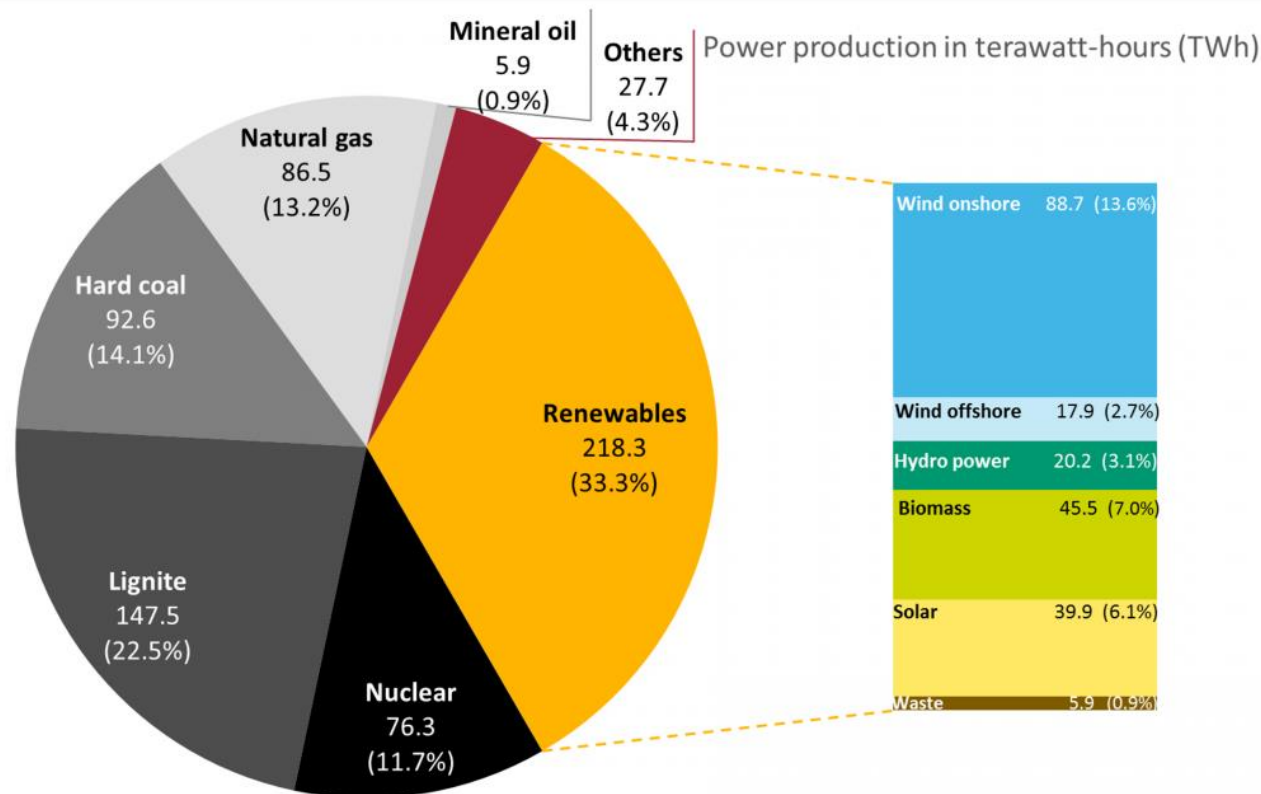
Revenues from electricity production: **10,000,000 €**

5 % for land lease payments: **= 500,000 €**

- 70 % for area **= 350,000 € : 700 ha = 500 €/ha**
- 20 % for WTG sites **= 100,000 € : 12 WTG = 8,300 €/WTG**
- 10 % for roads, crane parking area **= 50.000 € : 5,8 ha = 0,86 €/m²**



Share of energy sources in gross German power production in 2017



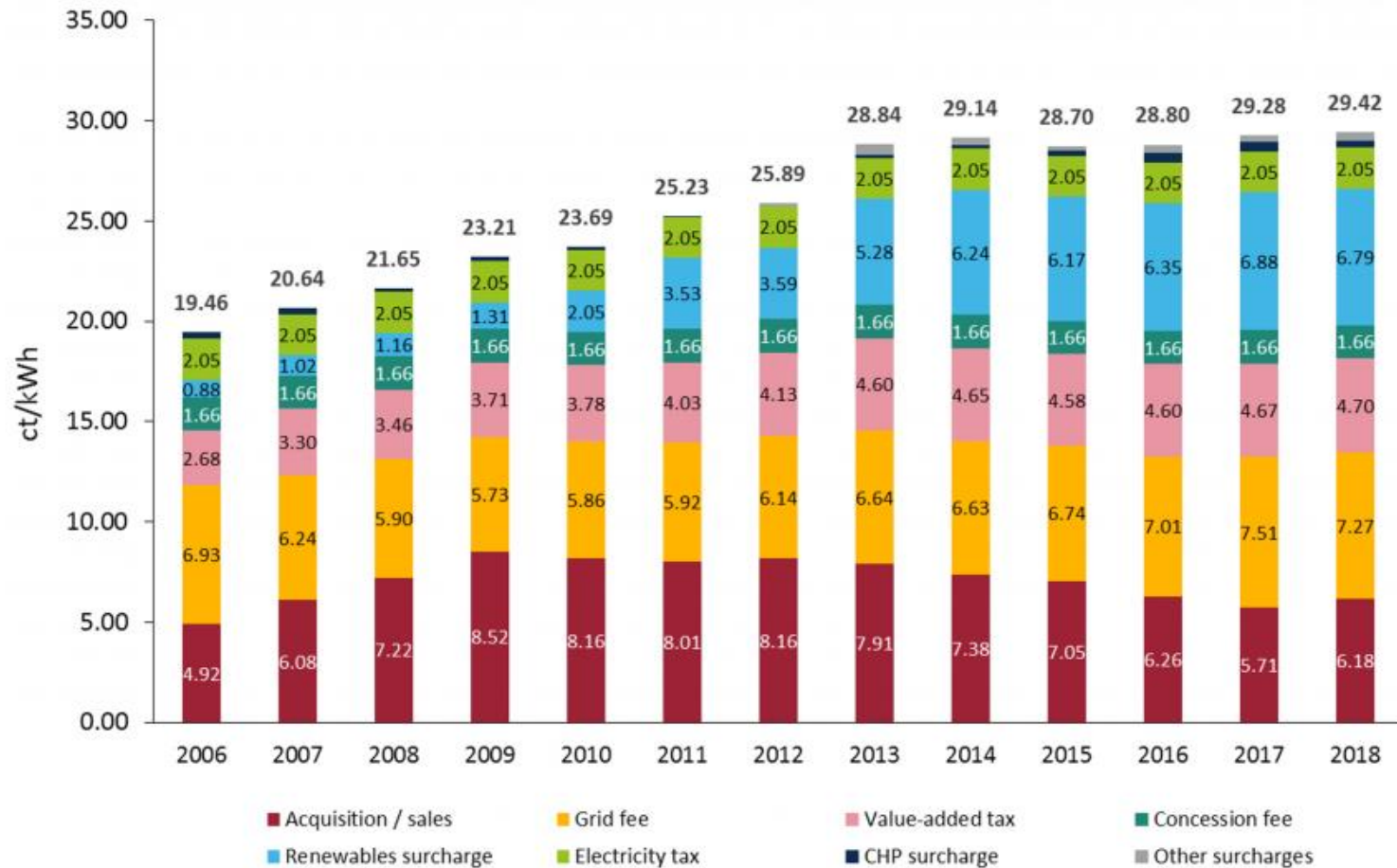


Quantitative targets of the German Energiewende

	2014	2015	2020	2030	2040	2050
Greenhouse gas emissions						
Greenhouse gas emissions (compared to 1990)	-27.7 %	-27.2 %	minimum -40 %	min -55 %	min -70 %	min -80 to 95 %
Increase in share of renewable energy in final energy consumption						
Share in gross final energy consumption	13.6 %	14.9 %	18 %	30 %	45 %	60 %
Share in gross power consumption	27.3 %	31.6 %	min 35 %	min 50 % (2025: 40-45 %)	min 65 % (2035: 55-60 %)	min 80 %
Share in heat consumption	12.5 %	13.2 %	14 %			
Share in transport sector	5.6 %	5.2 %	10 % (EU goal)			
Reduction of energy consumption and increase in energy efficiency						
Primary energy consumption (compared to 2008)	-8.3 %	-7.6 %	-20 %			-50 %
Final energy productivity	1.6 % per year (2008-2014)	1.3 % per year (2008-2015)		2.1 % per year (2008-2050)		
Gross electricity consumption (compared to 2008)	-4.2 %	-4 %	-10 %			-25 %
Primary energy demand buildings (compared to 2008)	-19.2 %	-15.9 %				around -80 %
Heat demand buildings (compared to 2008)	-14.7 %	-11.1 %	-20 %			
Final energy consumption transport (compared to 2005)	1.1 %	1.3 %	-10 %			-40 %



Composition of average electricity prices in €ct/kWh for German households*, 2006-2018

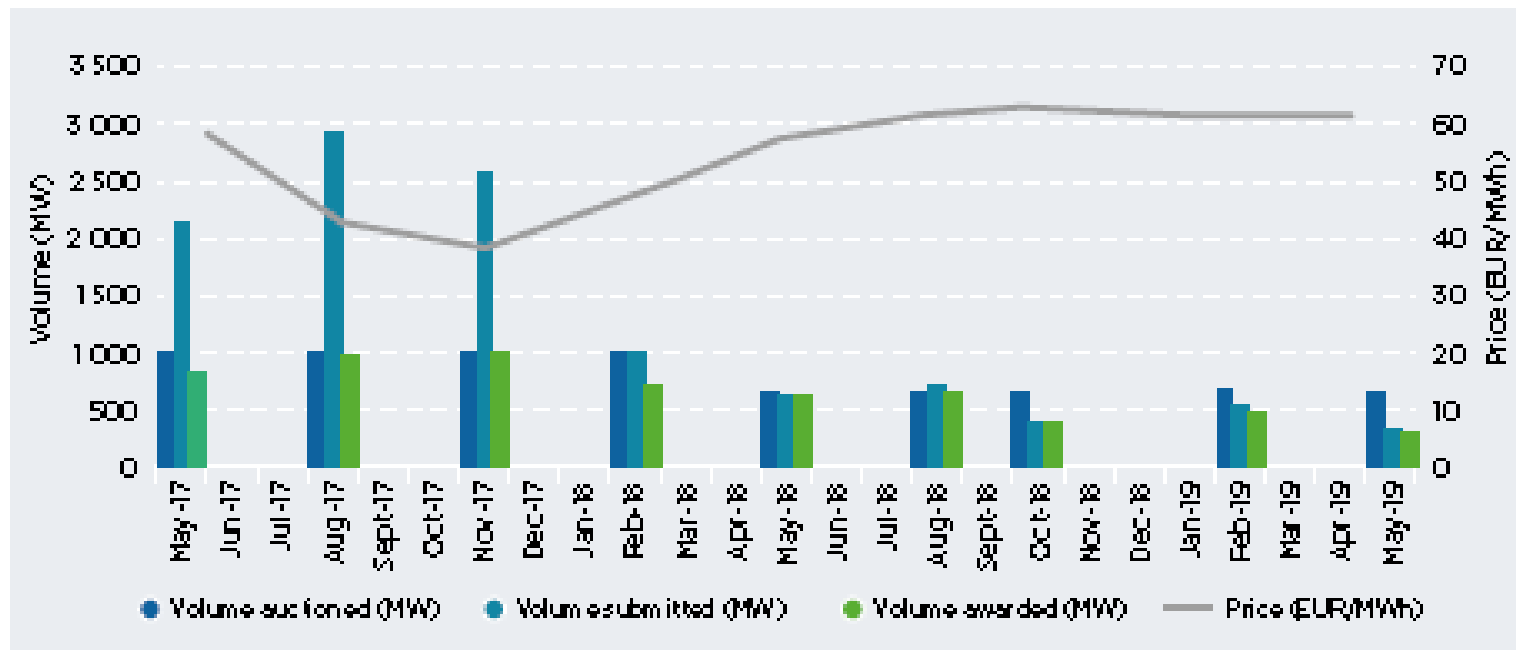


* Annual electricity consumption of 3,500 kWh

Source: Clean Energy Wire, Data: BDEW 2017



Undersubscription in German onshore wind auctions May 2017- May 2019

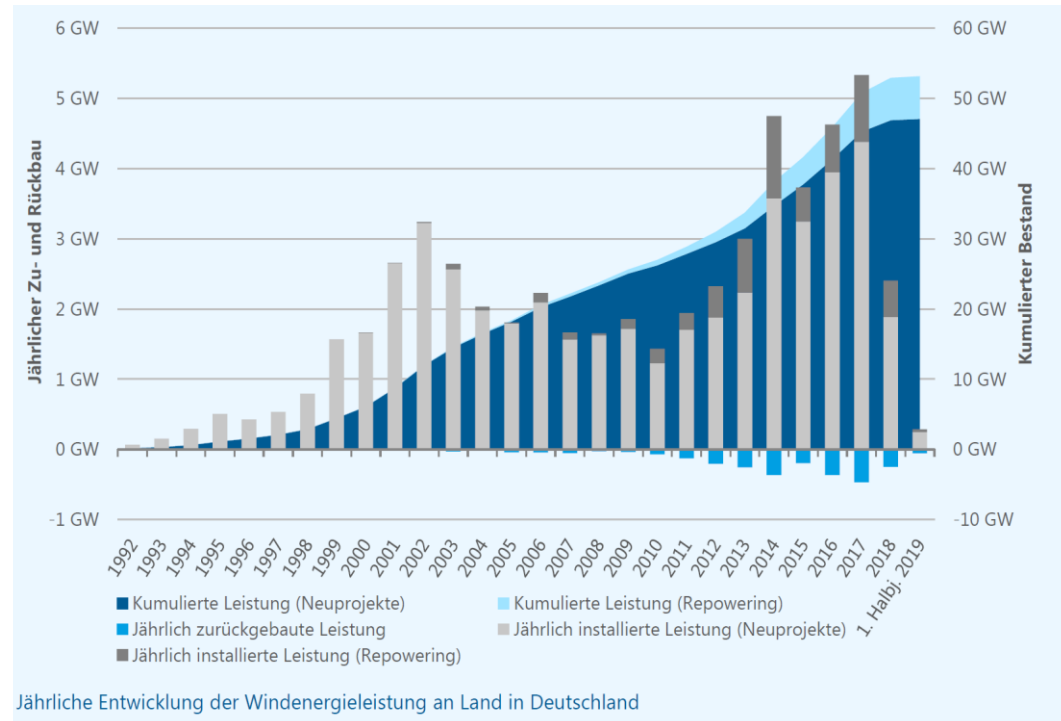


Source: IRENA 2019



Immense market slowdown for onshore wind in Germany

- 1st half 2019: net capacity additions at the lowest level since 2000 (35 WTG, 231 MW)
- Permitting of new wind farms faces backlog
- Last three onshore wind auctions undersubscribed
- 325 WTG (> 1,000 MW) are subject of lawsuits
- 75% of lawsuits due to nature/species protection concerns



Source: Deutsche WindGuard 2019



Renewable Energy Directive II, Article 2 (Definitions)

(16) **'Renewable energy community'** means a **legal entity**:

(a) which, (...) is based on **open and voluntary participation**, is **autonomous**, and is **effectively controlled by shareholders or members** that are **located in the proximity** of the renewable energy projects that are owned and developed by that legal entity;

(b) the shareholders or members of which are **natural persons, SMEs or local authorities**, including municipalities;

(c) the **primary purpose** of which is to provide **environmental, economic or social community benefits** for its shareholders or members or for the local areas where it operates, **rather than financial profits**;



Renewable Energy Directive II, Article 22 (Renewable Energy Communities)

3. MS to carry out an **assessment of the existing barriers and potential of development of REC** in their territories.
4. MS to **provide an enabling framework** to promote and facilitate the development of REC
 - Reduction of unjustified regulatory and administrative barriers
 - Non-discriminatory treatment
 - Fair, proportionate, and transparent licensing and registration procedures and charges
 - Access to finance and information
 - Regulatory and capacity-building support to public authorities in enabling and setting up REC
5. The main elements of the **enabling framework (...)** shall be **part of the updates of the Member States' integrated national energy and climate plans (...)**
7. (...) MS shall **take into account specificities of REC when designing support schemes** in order to allow them to compete for support on an **equal footing**.



Drivers of community wind energy in Schleswig-Holstein

- Long standing tradition and high share of community wind farms in Northern Friesland
- Favourable wind conditions
- Early attempts of pioneering farmers to become energy autonomous (“wind farmers”, wind millers”)
- Structural weakness of the coastal regions and rural depopulation
- Inspiration from early community wind projects in Denmark
- Political commitment and continuous policy support
- Early technology and industry development





Community energy fund in the federal state of Schleswig-Holstein

Revolving fund

Supports projects in
the start up phase

Provides risk capital up to €
200,000 for each project



7 natural persons, legal
persons may join

Renewable heat,
renewable
electricity, new
mobility and energy
efficiency



Community energy fund in the federal state of Schleswig-Holstein

- Problem: **Upfront costs** in start-up phase, when financing partners are not yet available
- Fund provides **risk capital** for preparing community energy projects
(→ Grants max. 200,000 EUR)
- Beneficiaries: Mergers of at least **7 natural persons**
 - Legal persons may join, but natural persons must have a majority of votes or veto rights
 - 7 natural persons must have primary residence in municipality where project shall be located
- Feasibility studies, site analyses, EIA, legal/tax consultancy services etc.
- PR work including measures for citizen/stakeholder participation up to 25,000 EUR
- Provision for 2 years free of interest
- Money **must be repaid** when the overall project is implemented.
- If the project will not be implemented, repayment can be waived.



Selected wind energy data for Dithmarschen

	Dithmarschen	Northern Friesland	Federal State of Schleswig-Holstein
Number of wind turbines (in operation or before operation) (as of 03.07.2018)	838	846	3,074
Installed Capacity (in operation or before operation) (as of 03.07.2018)	1,808 MW	2,211 MW	6,875 MW
Wind turbine density (number of turbines/km ²)	0.6	0.4	0.2
Wind turbine density (number of turbines/1,000 persons)	6,3	5.1	1.1
Planned share of total area to be reserved for wind energy*	4.4%	3.4%	1.95%
Share of community wind farms	15%	90%	No information
Number of local/regional citizens' initiative groups opposing wind energy projects	Approx. 30	Approx. 10	Approx. 115

(* according to the 2nd draft of the regional plans)