WinWind

Increasing the acceptance of Wind Energy

Involving local communities in the planning and operation of wind farms

- good practice examples from Germany

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WinWind Second Thematic Workshop in Latvia

Wind parks – best practice case studies and examples

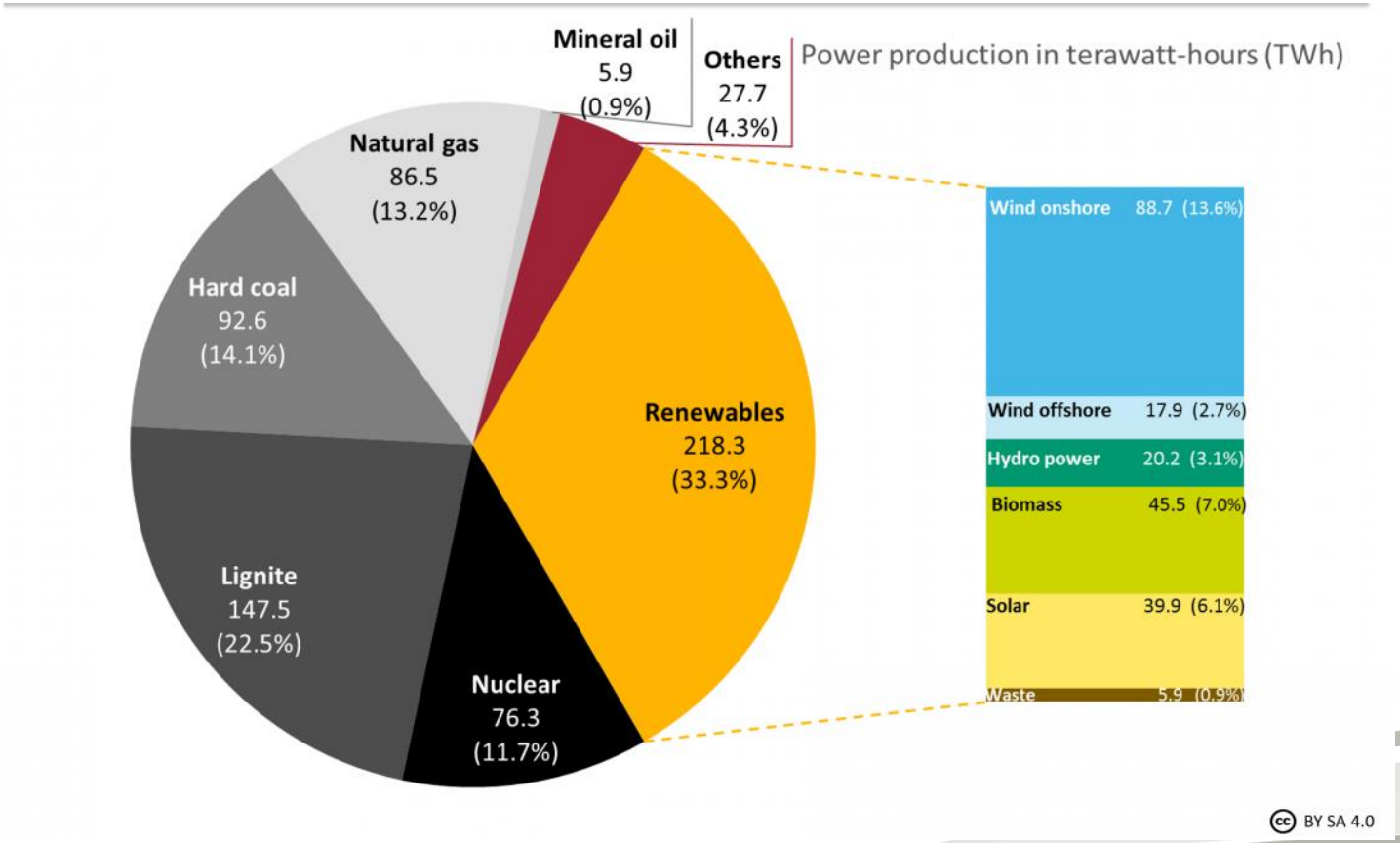
Riga, 14 November 2018

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.

Overview

1. Context and Actual Developments
2. Service Unit for Wind Energy and Guidelines for Fair Wind Energy (County of Steinfurt, North-Rhine-Westphalia)
3. Service Unit for Wind Energy and Quality Label for Project Developers (Thuringia)
4. Key Lessons
5. Community Wind Park and Benefit Sharing (Neuenkirchen, Schleswig Holstein)

Share of energy sources in gross power production in 2017

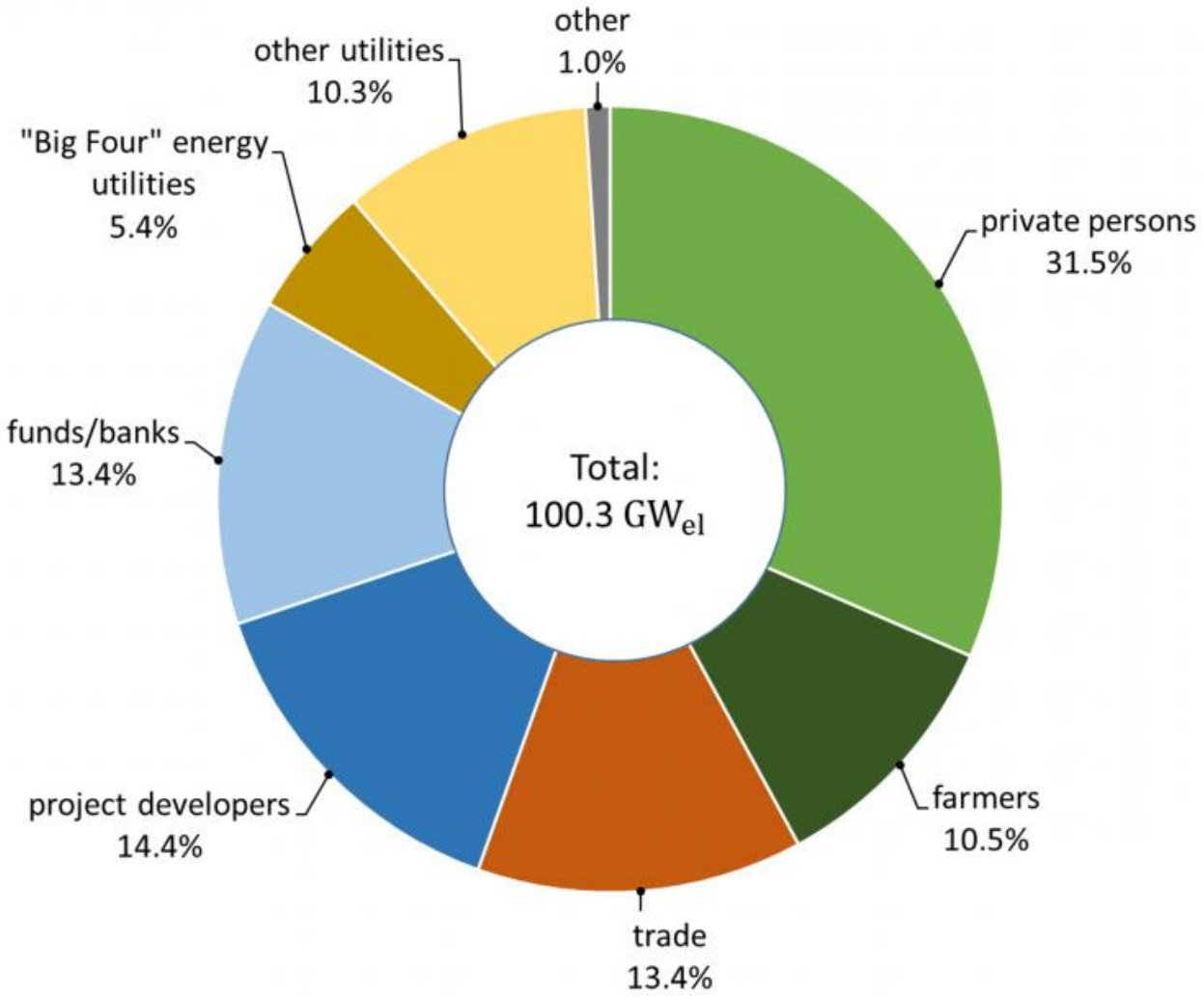


Source: Clean Energy Wire, data: AG Energiebilanzen 2017, 2017 data preliminary

Quantitative targets of the German Energiewende

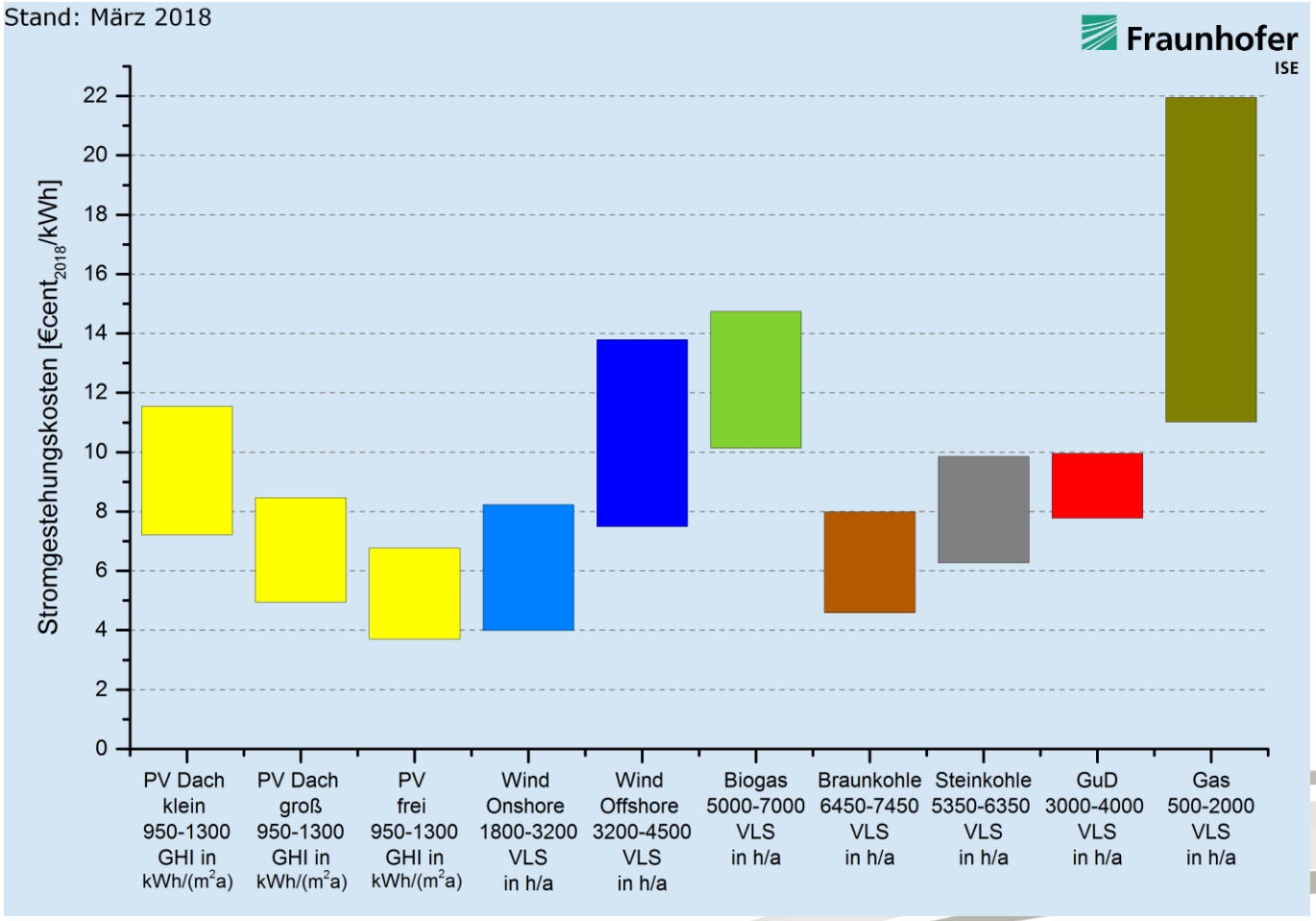
	2014	2015	2020	2030	2040	2050
Greenhouse gas emissions						
Greenhouse gas emissions (compared to 1990)	-27.7 %	-27.2 %	minimum -40 %	min -55 %	min -70 %	min -80 to 95 %
Increase in share of renewable energy in final energy consumption						
Share in gross final energy consumption	13.6 %	14.9 %	18 %	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 %

Ownership structure of installed renewable power generation capacity, 2016



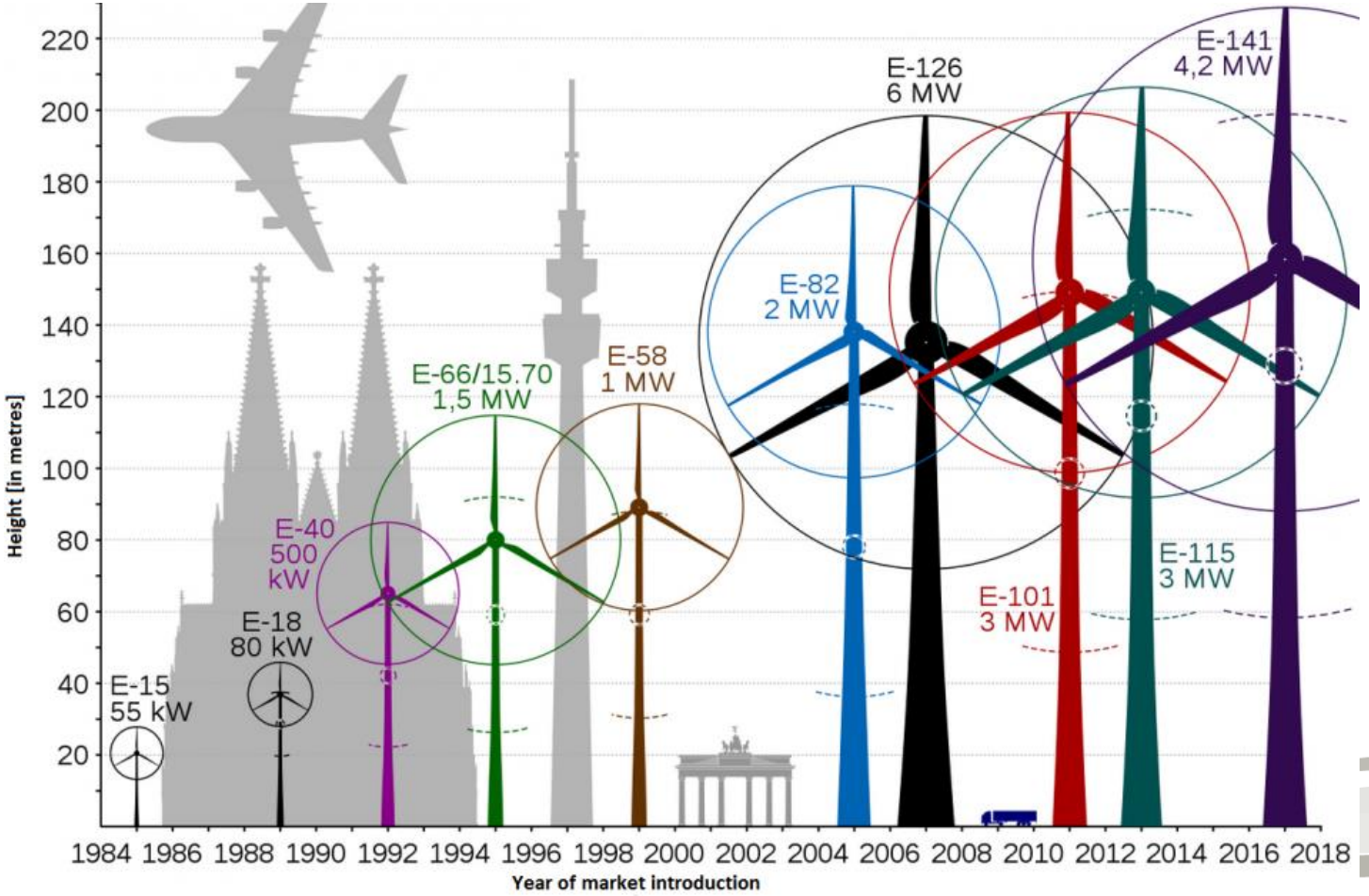
Source: Clean Energy Wire, Data: trend:research, AEE 2017

Levelized cost of electricity (March 2018)



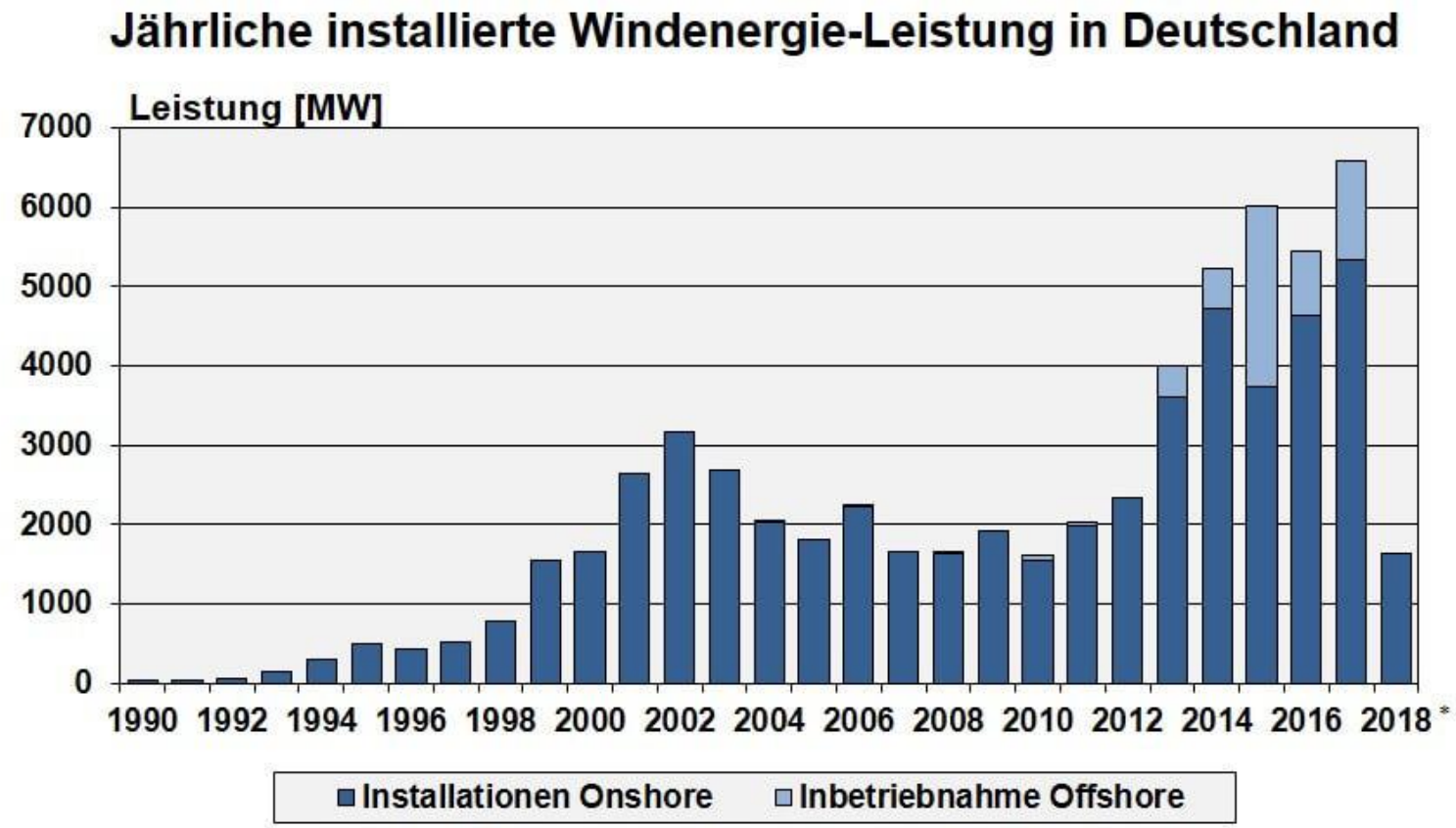
Source: Fraunhofer ISE 2018, https://www.bba-online.de

https://www.cleanenergywire.org/factsheets/german-onshore-wind-power-output-business-and-perspectives



Source: https://www.cleanenergywire.org/factsheets/german-onshore-wind-power-output-business-and-perspectives

Annually installed capacity of wind energy



Quelle: IWR, Daten: BWE, DEWI, IWR, WindGuard, * = 1. Halbjahr 2018 (Stand: 27.07.2018)

Reasons for slowdown

- 2017: Transition from FIT/FIP scheme to **competitive bidding and auctions**
- Reduced market volume due to **expansion cap**
- **Uncertainty for industry** due to privileges for community energy
- **Uncertainty** due to **pending designation of wind priority zones**
- **Increasing complexity** of planning and permitting
- **Decreasing number** of **approved projects** (2016: 3,100 → 2017: 450)
- **Decreasing acceptance**, increasing number of lawsuits
- Increasing number of lawsuits due to nature protection considerations
- Increasing **restrictions in spatial planning** (e.g. higher setback distances)
- Grid expansion and reinforcement slower than planned

Diminishing local acceptance

- In recent years **hundreds of anti-wind initiatives** were founded.
- Effective networking and professionalization
- National association "Vernunftkraft”
- Association speaks of 1,105 anti-wind citizens’ initiatives.
- Different motivations
- Populist parties try to ride the protest (e.g. AfD very active in East Germany)

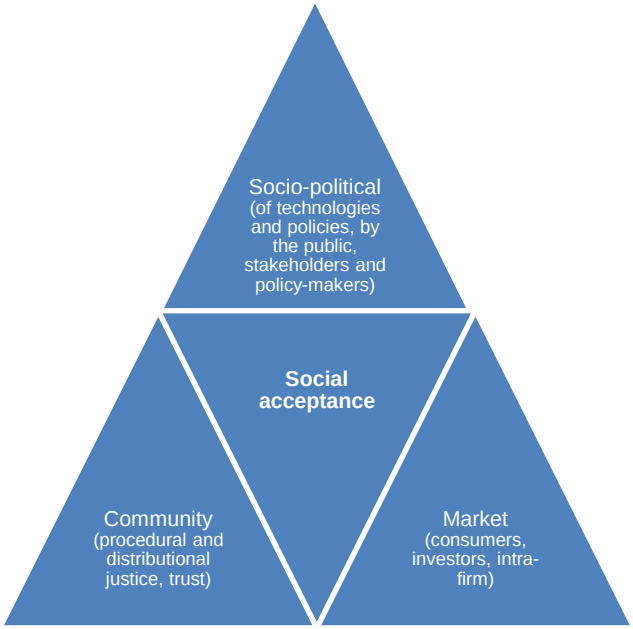
Photo: Krug

Source: https://muehlhausen.thueringer-allgemeine.de/web/muehlhausen/startseite/detail/-/specific/Mit-dem-Windpark-waechst-die-Wut-1536121245

Photo: Krug

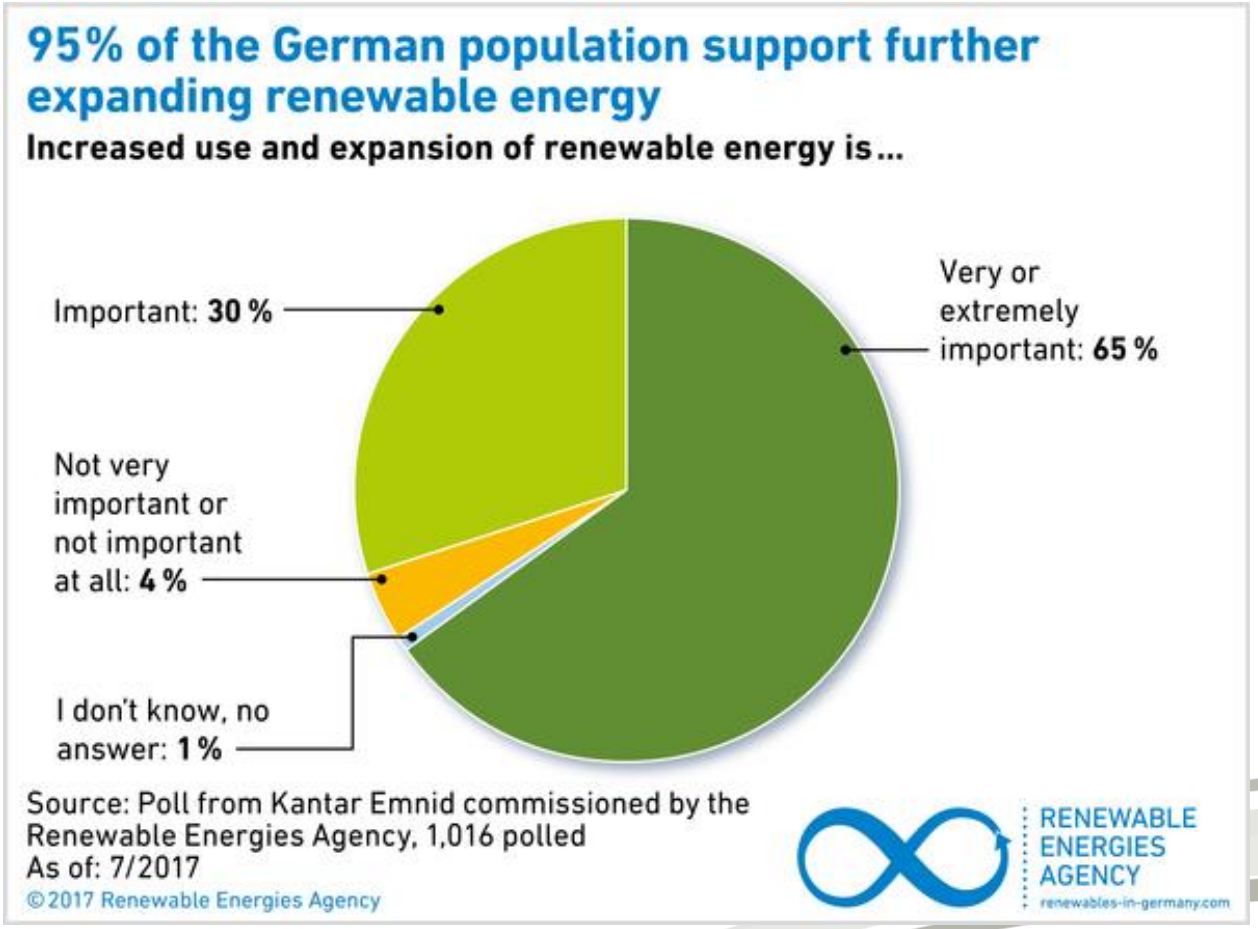
Levels of social acceptance

Forms	Acceptance object	Acceptance subject
Socio-political acceptance	RES-technology in general, Renewable Energy Legislation, „Energiewende“	General public, political decision makers etc.
Community acceptance	Concrete RES projects, grid projects	Local population and local communities; local politicians, stakeholders, etc.
Market acceptance	RES-“products“ or services (e.g. wind turbines, RES based electricity)	Investors, consumers, etc.

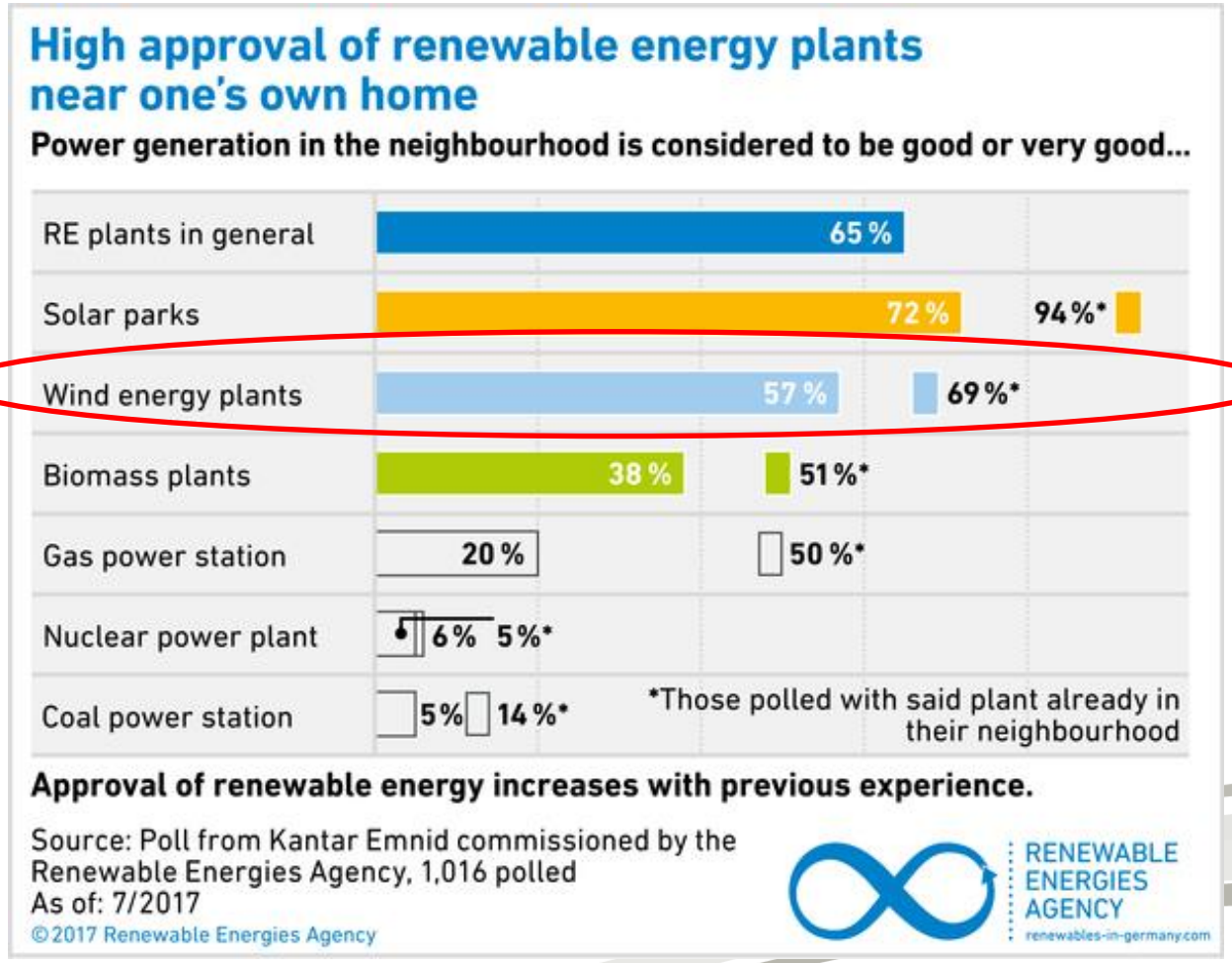


Source: based on Wüstenhagen et al. 2007, Forschungsgruppe Umweltpsychologie 2008, Wunderlich/AEE 2012

Socio-political acceptance



Community acceptance



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Case 1

Service Unit Wind Energy and Guidelines for Community Wind Energy in the County of Steinfurt

Location: Steinfurt (North-Rhine Westphalia)

Established in 2012

Status: *Ongoing*

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Context

Source: Ahlke

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County of Steinfurt: Key data

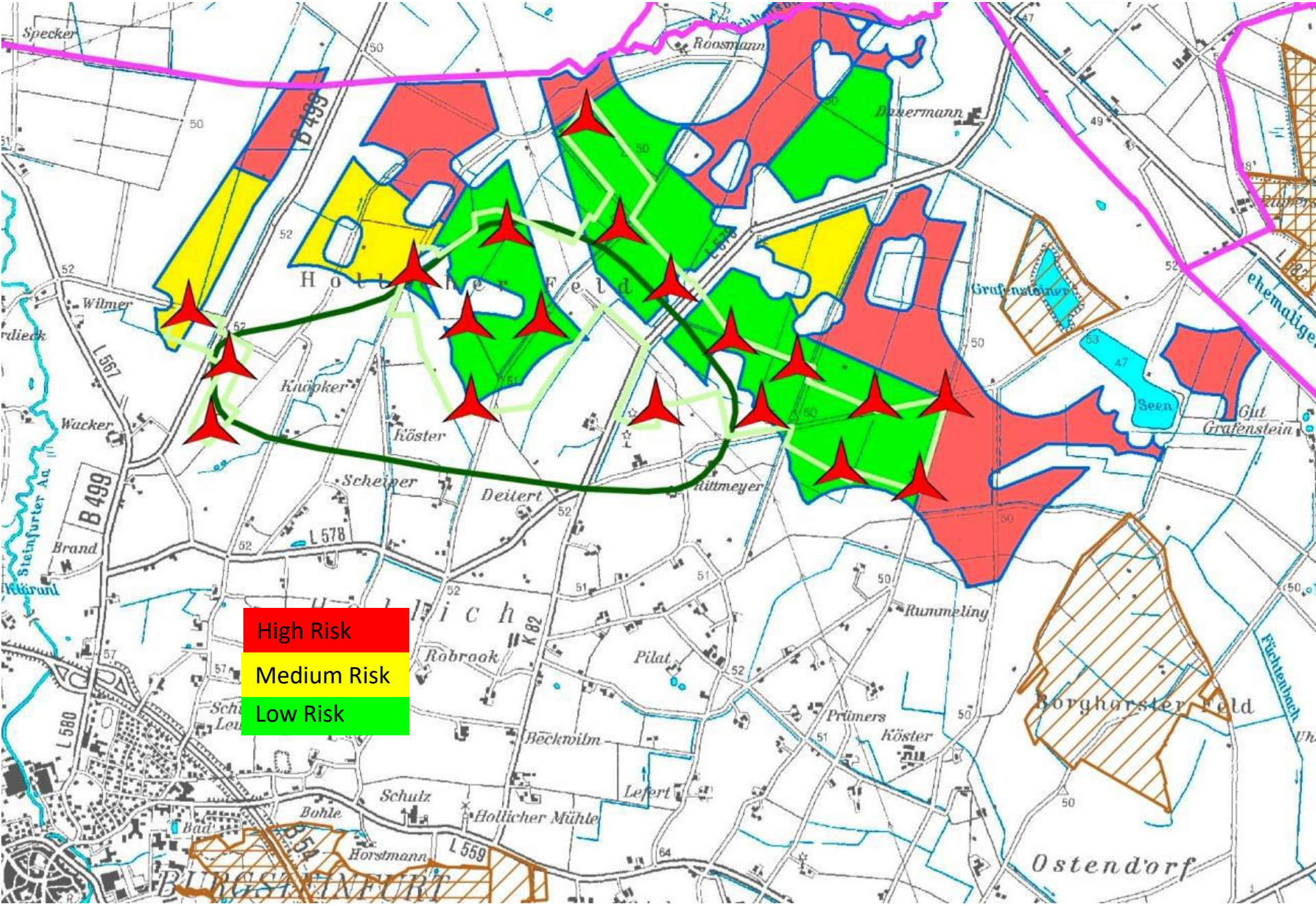
- Total area: 1,793 km2
- 444,000 inhabitants, 248 per km2
- 24 major towns and communities
- 120,000 ha agricultural land = 67 %
- 3,500 agricultural businesses
- 25,000 ha forest = 14 %

Development

- **Agenda 21 Office**→ County Office for Climate Protection and Sustainability (2013)
- **2010 County decision to become energy autonomous by 2050**
- **Masterplan 100 Prozent Klimaschutz**
- **Regional Wind Master Plan**
- Enterprise network “energieland 2050”
- Numerous projects

Regional Wind Master Plan

- 2010/2011: Assessment of **wind potential** and identification of **suitable wind energy zones**
- 2011: **Working Group** involving mayors, farmers, associations, municipal energy utilities and other stakeholders
- 2011: **Guidelines for Community Wind Energy**
- 2012: Foundation of the **Service Unit Wind Energy**
- 2012: **Roundtable Wind Energy**



Source: Ahlke

Service Unit Wind Energy

Zukunftskreis Steinfurt
Servicestelle Windenergie

Source: Ahlke

- Foundation: 2012
- Funding via the **LEADER programme** (50%) and county administration (50%)
- 1 full time employed person
- **Central contact point** for municipalities, citizens
- **Advisory services, networking**
- Transparency, balancing of interests
- **Conflict management (mediation)**
- Controlling **implementation of Guidelines** for Community Wind Energy
- Organization of **Roundtable Wind Energy**
- Pioneer in Germany

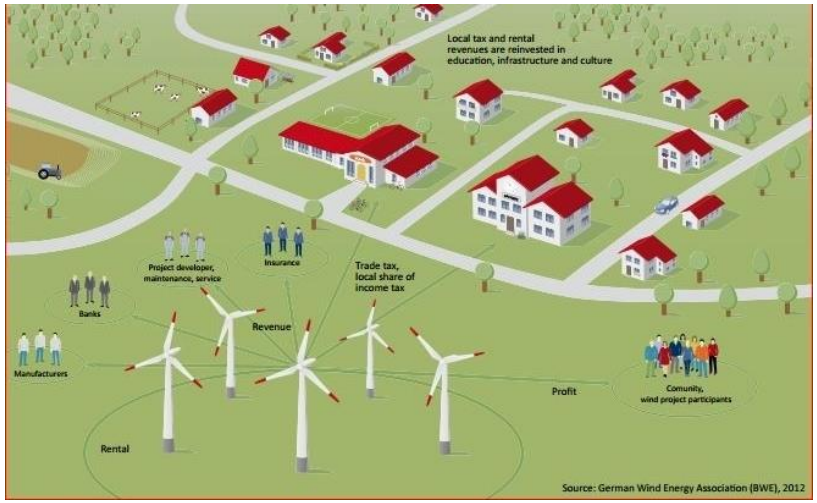
Guidelines for Community Wind Energy in the County of Steinfurt

- **Participation of all groups in the vicinity of the plant(s)**
- **Fair participation of land owners who do not benefit directly**
- **Direct conceptual and financial participation of citizens**
  →minimum 25% of equity owned by local citizens
- **Avoidance of majority shares**
- **Low financial participation thresholds (1,000 EUR)**
- **Co-operation with regional multi-utility companies**
- **Co-operation with regional banks**

Success story

- **Pro-active** and **integrated approach**
- **Embeddedness** in comprehensive regional energy strategy
- Builds upon of **existing institutional structures**
- Farmers convinced **not to sign preliminary land use contracts** with external developers
- Use of local competences
- **Engagement of stakeholders** (including nature protection organizations)
- Since foundation of the service unit **regional investments of 400 Mio €**
- **Number of community wind parks** increased from **3 (2010) to 25 (2018)**
- **High acceptance**, almost no anti-wind initiatives, almost no conflicts
- 15 additional community wind parks planned (80 turbines a 3 MW)

Success story (II)



- **Project developers locally rooted** (partly farmers, land owners, citizens)
- **Local firms** take part in construction (foundations, new access roads, etc.)
- **Local banks** provide financing
- **Many landowners benefit** due to pool model
- **Local citizens benefit** directly or indirectly
- Bulk of business **tax payments** remain in the region
- **Long-term jobs** are created for the servicing and maintenance of the wind turbines
- Local citizens handle technical and business management

Preliminary Evaluation

Service unit

Effectiveness	4
Feasibility	4
Innovativeness	5
Model character for wind energy scarce regions	3-4
Transferability	4-5
Relevance/model character for other WinWind partner countries	3-4

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Case 2

Service Unit Wind Energy and Quality Label "*Partner for Fair Wind Energy*" in Thuringia

Location: Federal state of Thuringia

Established in 2015/2016

Status: *Ongoing*

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Context

Ambitious goals of the Thuringian state government:

- Reduce import dependency of electricity
- 100 % RES share in total energy consumption by 2040 !
- 1 % of the total area to be used for wind energy (→ status quo: 0,3 %)

Implementation faces numerous acceptance barriers:

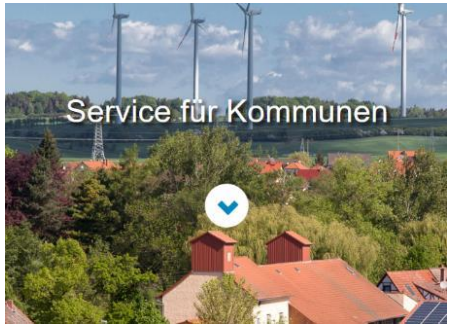
- Classical acceptance barriers (e.g. visual/acoustic impact)
- Dominance of **professional developers** and **external investors**, low level of local/regional value creation
- **Information asymmetry** between developers and municipalities/citizens
- **Low level of trust** in actors and processes
- **Planning process** perceived intransparent, top down
- Construction of three new high voltage transmission lines
- Since 2016: **forest areas partly open** for wind energy
- Insufficient synchronization of RES expansion policies and grid/storage
- Structural problems: **political alienation** of the population in rural areas

Service Unit Wind Energy

- Service Unit has been set up in 2015 under the Thuringian Energy and GreenTech Agency
- Inspiration by the example of Steinfurt (North-Rhine-Westphalia)
- Funding from state budget and ERFD
- 3,5 full time employed persons
- Comprehensive, free and neutral advice and technical assistance
- 3 target groups: Municipalities – citizens – project developers
- Increasing regional/local value creation through wind energy

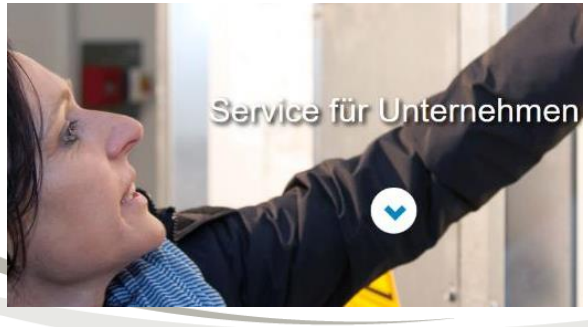
Activities undertaken

(Institution building, targeted advice, dialogue and support)



- *Initial advice on possibilities for municipalities to act*
- *Legal assistance on land lease agreements*
- *Organisation of stakeholder dialogues*
- *Support in case of local conflicts, moderation, mediation*
- *Guided tours, excursions to existing plants*

- *Consultation of land owners on land lease arrangements*
- *Initiation/support for associations of land owners*
- *Regular consultation of citizens*
- *Information about community/citizen participation models*



- *Quality label „Partner for fair wind energy“ for project developers*
- *Voluntary agreements with developers*
- *Guidelines for fair wind energy in Thuringia (in co-operation with developers)*

Partner für faire Wind-energie

Empfohlen von der Servicestelle Wind-energie Thüringen

Guidelines for Fair Wind Energy

- In 2016 the Service Unit started to award a **quality label (certificate)** for wind energy project developers.
- Issuance of the label is based on **compliance** with the **Guidelines for Fair Wind Energy.**
- **Voluntary agreement** between the service unit and project developers
- **Additional guidance** on how to practically implement the **guidelines**
- Developers are granted the label for 12 months.
- Continuous monitoring by Service Unit
- Service unit awards **best practice projects.**

Source: ThEGA

Guidelines for Fair Wind Energy

1. **Early involvement of all stakeholders** in the vicinity of a planned wind farm during the entire project planning phase

2. **Transparent handling of project-related information** by project planners; additional **information and transparency measures**

3. **Fair participation of all affected persons and residents**, including those not directly benefiting as site owners
   → e.g. land lease pool model, favourable business tax allocation (90 %/10%)

4. **Involvement of regional energy supply companies and financing institutions** as partners for **marketing and/or financing**
   → e.g. reduced electricity tariffs, direct or indirect financial participation

5. Development of **financial investment opportunities for communities**, citizens and enterprise
   → e.g. direct or indirect financial participation offers

Certified enterprises („Partners for Fair Wind Energy“)

Lessons

- **Strong commitment** of the service unit's leadership and management
- **Integrated approach** (fair procedural and financial participation of citizens)
- Service Unit involved in numerous projects as **intermediary** and **conflict manager**
- Service Unit helps to increase transparency.
- Service Unit helps to **strengthen procedural** and **distributional justice** and **local value creation.**
- Service Unit helps to **build trust** and create a **level playing field.**
- Service Unit has gained **broad attention** and **recognition** even beyond Thuringia.
- Label sets standards
- Several **initiatives to transfer/adapt the "Thuringian model"**
- Label enjoys the support of the industry
- But: Rather general provisions, few quantifiable minimum standards
- Effectiveness in terms of local acceptance? Need of **evaluation** and **impact analysis!**

Preliminary Evaluation

Service unit

Effectiveness	3
Feasibility	3-4
Innovativeness	3-4
Model character for wind energy scarce regions	3-4
Transferability	4
Relevance/model character for other WinWind partner countries	4

Labeling scheme

Effectiveness	3
Feasibility	3
Innovativeness	4
Model character for wind energy scarce regions	3
Transferability	4-5
Relevance/model character for other WinWind partner countries	3

Lessons so far

- **Procedural justice**, **distributional justice** and **trust** as key acceptance factors
- **Transparent information** and citizens' participation in all stages
- Provide **opportunities for direct and indirect financial participation**
- Promote **benefit sharing mechanisms**
- Promote **land lease pooling** models
- **Support municipalities and local communities** by **providing neutral information**, create a level playing field
- Establish **intermediary organisations** including conflict mediators
- **Disseminate lighthouse projects/good practices** (site visits!)
- Develop **communication strategies** addressing the "silent" group of supporters in local communities and the group of undecided persons

WinWind

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WinWind Project

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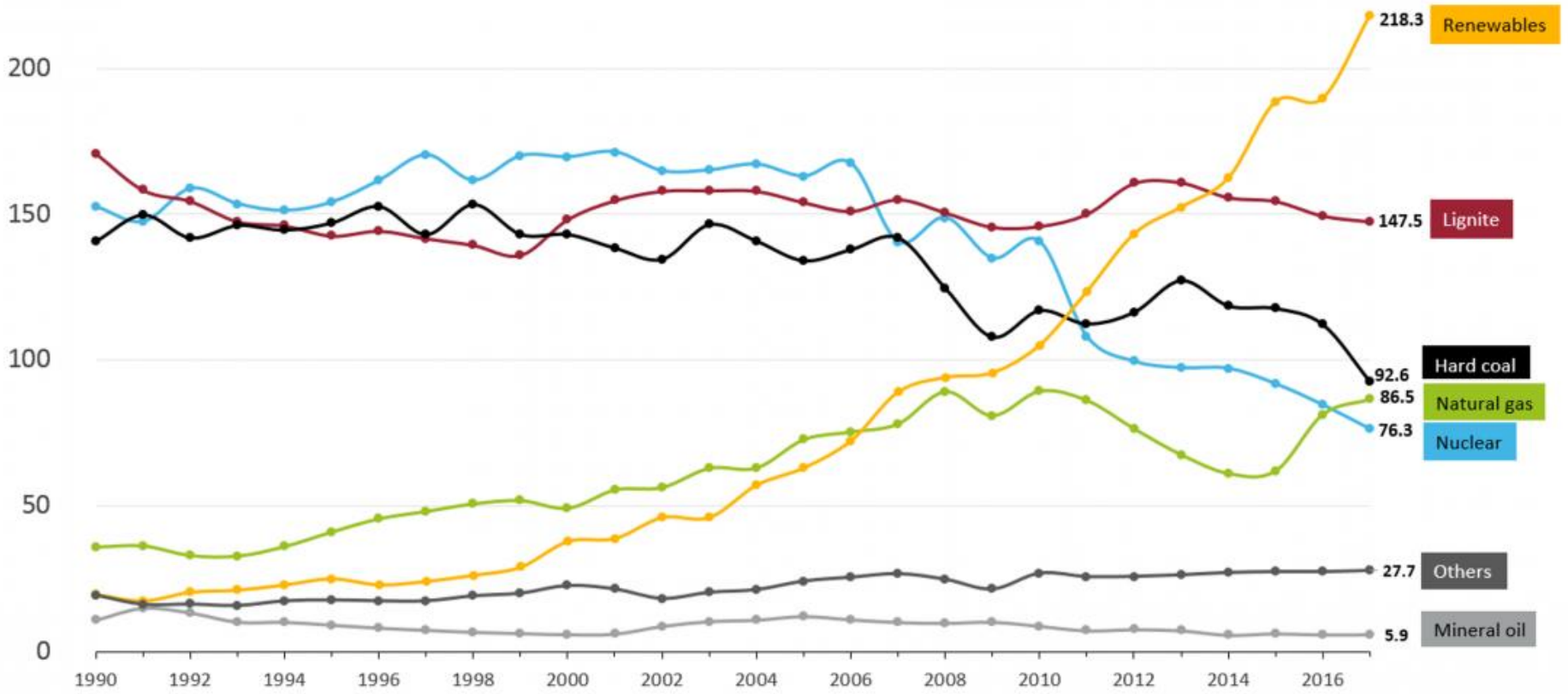
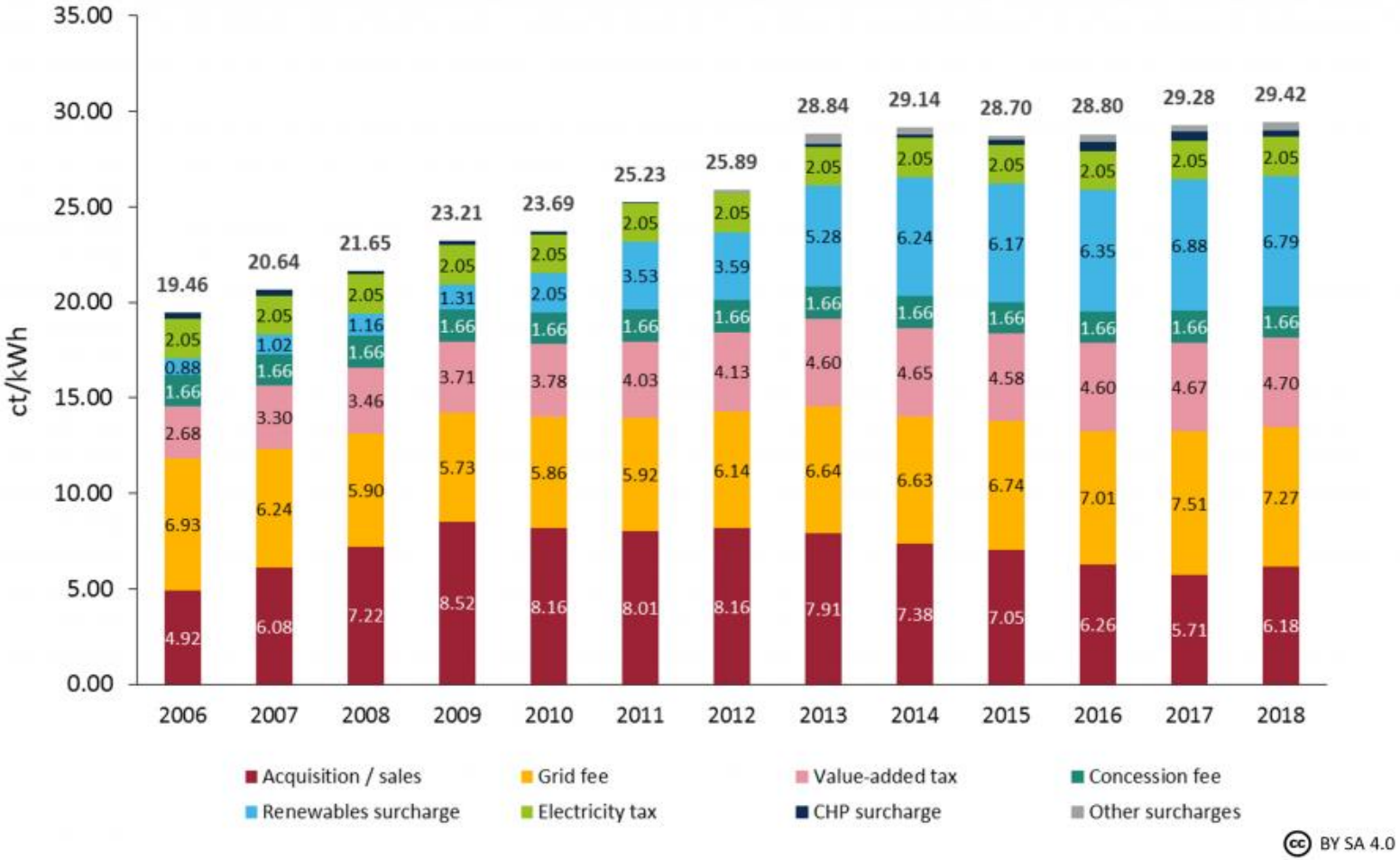
Additional slides

Gross power production in Germany 1990-2017 in TWh, by source



Source: Clean Energy Wire, data: AG Energiebilanzen 2017, 2017 data preliminary

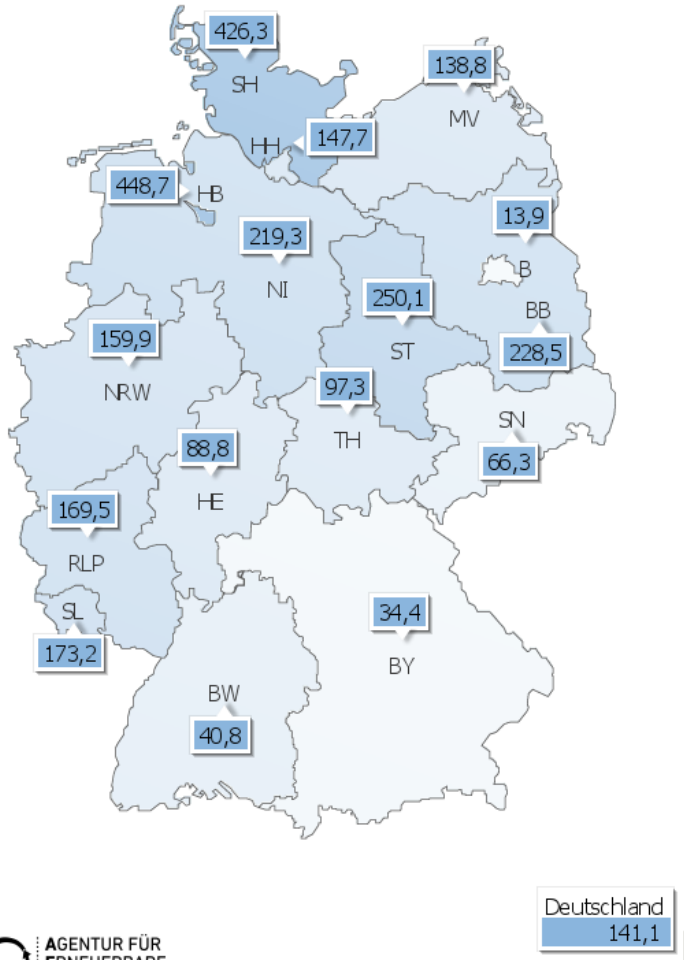
Composition of average electricity prices in €ct/kWh for German households*, 2006-2018



* Annual electricity consumption of 3,500 kWh

Source: Clean Energy Wire, Data: BDEW 2017

Installed wind energy capacity per square kilometer (2017, in kW)



Source: Agentur für Erneuerbare Energien, BNetzA 2018a, Statistische Ämter des Bundes und der Länder

AGENTUR FÜR ERNEUERBARE ENERGIEN

Auctions: Average rates (volume weighted)

Tender Date	Type of installation	€ct/ kWh	Highest successful bid	Lowest successful bid
5/2017	**Wind onshore**	**5,71**	5,78	5,25
8/2017	**Wind onshore**	**4,28**	4,29	4,16
10/2017	**Wind onshore**	**3,40**	3,82	2,20
2/2018	**Wind onshore**	**4,73**	5,28	3,80
5/2018	**Wind onshore**	**5,73**	6,28	4,65
8/2018	**Wind onshore**	**6,16**	6,30	5,30
10/2018	**Wind onshore**	**6,26**	6,30	6,12

Recommended setback distances for wind turbines in spatial planning

Category	Region/ federal state	Responsibility for designating priority/suitability zones	Setback distances for residential areas	Setback distances for individual dwellings, splinter settlements
Target region	Thuringia	Regional Planning Associations	Turbines <150m: 750 m Turbines >150m: 1,000 m	600 m
Target region	Saxony	Regional Planning Associations	No uniform setback distances	No uniform setback distances
Model region	Brandenburg	Regional Planning Communities	1,000 m	1,000 m (lower distances possible)
Model region	Schleswig-Holstein	State Planning Authority (state level)	800 m (planned: 1,000 m)	400 m (planned: 500 m)