

UFZ EnergyDays 2018:
Energy Landscapes of Today and Tomorrow,
25.09.2018

IKEM

Institute for Climate Protection, Energy and Mobility

**Design Options and Policy Recommendations
for Municipal Financial Participation in the
Expansion of Onshore Wind Energy**

Philine Wedell



Agenda

1. Status quo
2. Overview: Approaches for participation
3. Financial participation regulated on a national level
4. Wind energy information centers in federal states
5. Municipal investments in community wind energy
6. Results and further recommendations

1. Status quo

Wind energy – A phenomenon of North Germany

- ▶ Ongoing transformation of the German energy system (Energiewende) requires an expansion of renewable energies
- ▶ Especially onshore wind power will expand
- ▶ Wind energy was spatially concentrated to the north of Germany, especially Schleswig-Holstein and Niedersachsen
- ▶ Network charges electricity consumers have to pay might be higher in areas with a high density of wind turbines
- ▶ Local characteristic of northern Germany: A lot of people directly participate and benefit from wind energy, for example as operator in a private limited company
- ▶ Professionalization and expansion in wind lead to a market for planners operating in other regions than their headquarters
- ▶ Missing regional connection might lead to questions and lack of understanding of the people affected by the turbines not having an own economic profit
- ▶ Experiences of a lower regional value creation through the wind turbines than expected

Why participation will play a bigger role?

▶ Many questions arising for local citizen

- ▶ Negative external effects for citizens living close to wind farms → Who is affected?
- ▶ Financial distribution issues → Who profits?
- ▶ Approval and decision processes → How does the process works?

▶ Uncertainty might reduce the acceptance of wind energy

▶ Various possibilities for rising a higher acceptance

- ▶ Participation in planning
 - ▶ Information
 - ▶ Direct participation in planning and approval processes
- ▶ Local financial participation
 - ▶ Existing governmental instruments of financial participation less suitable to guarantee a local financial participation
 - ▶ Participation models on a voluntary basis exist, but not always implemented

2. Overview: Approaches for participation

Approaches for participation

Regulation on a...

national level (“Bundesebene”)

- Trade tax
- Property tax
- Compensation payment in building and nature protection laws
- Citizens energy companys („Bürgerenergiegesellschaften“) according to § 36g EEG
- Country clause („Länderöffnungsklausel“) according to § 36g Abs. 7 EEG

federal state level (“Landesebene”)

- Citizen and Municipal Participation Act in Mecklenburg-Vorpommern
- Dividend „WindEnergieDividende“ in Hessen
- Seal for wind energy projects in Thüringen „Faire Windenergie Thüringen“
- Country clause („Länderöffnungsklausel“) according to BauGB used in Bayern

... many other forms of participation on a voluntary basis.

Design options for financial participation

Basic considerations und assumptions

- ▶ Important for an effective implementation: Easy to understand, transparent and legally conform
- ▶ Preferably avoiding big impact on existing regulation

Details and questions of possible design options

- | | |
|--|--|
| 1) Type of financial participation | equity investment or direct payment |
| 2) Entitled person or institution | citizen or municipality (neighbor-municipality too?) |
| 3) Captured wind turbines | existing or only newly installed turbines |
| 4) Regulatory level | national or federal state |
| 5) Determination of compensation payment | blanket or specific |
| 6) Time structure of payments | once or ongoing |

Design options and policy recommendations

Type of financial participation

- ▶ Equity in wind energy projects can create a common identity, but it also means a highly complex (and risky or cost-intensive) institutionalisation
- ▶ Recommendation: Direct payment is transparent and has low cost

Entitled person or institution

- ▶ Who? Citizen or municipality (local municipality only or also neighbor-municipalities)
- ▶ How to capture?
 - ▶ Hardly possible to determine if somebody is affected stronger than another, very complex to find a fair system
 - ▶ Recommendation: Municipalities → Possibility to include the local citizens

Captured wind turbines

- ▶ Opportunities: existing/only newly installed turbines, onshore/offshore, installed capacity/height, type of authorisation
- ▶ Recommendation: All newly installed onshore wind turbines with operation permit according to the Federal Immission Control Act “BImSchG“

Design options and policy recommendations

Regulatory level

- ▶ Recommendation: Regulation on a national level (same regulatory basis for all projects in Germany)
- ▶ Additional regulation on a federal state level should be possible

Determination of compensation payment

- ▶ Recommendation: Easy and formula-based determination with different parameters
- ▶ To be considered: Influence of payments on the auction prices of wind (high transparency because easy to calculate)

Amount of compensation payment

- ▶ Recommendation: Easy and understandable determination
- ▶ In the end: Political regulation of compensation amount

Time structure of payments

- ▶ Duration of payments (once or ongoing/constantly) and time of commissioning
- ▶ Recommendation: One-time (date of commissioning) plus current payment

Three different approaches for participation

1. Financial participation regulated on a national level

2. Set up wind energy information centers

3. Municipal investments in community wind power

3. Financial participation
regulated on a national level

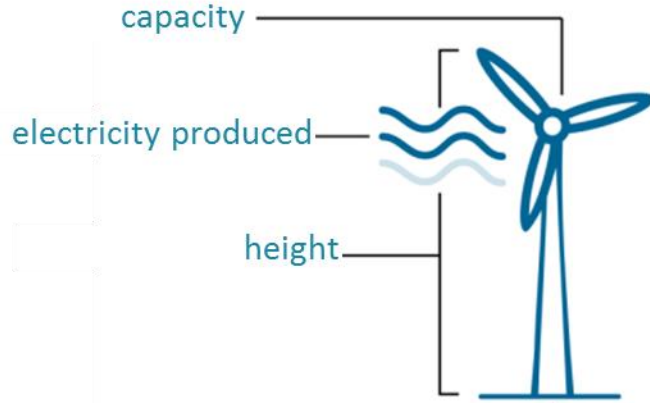
“Sonderabgabe” – Financial participation on national level

- ▶ „Sonderabgabe“ = special levy for all onshore wind turbines in Germany with operation permit according to the Federal Immission Control Act “BImSchG“
- ▶ Entitled institution: Municipalities according their proportion of the municipality area, measured as a radius around the location of the turbine
- ▶ Payment structure
 - ▶ One-time payment at the date of commissioning
 - ▶ Current payments during operation
- ▶ (More or less strict) Earmarking of revenues and therefore limitation of municipal employment opportunities of these revenues
- ▶ The aim is, that municipality uses financial earnings in line with local citizens interests
- ▶ Country clause („Länderöffnungsklausel“) acc. § 36g Abs. 7 EEG remains unchanged

Disclaimer to values on the following slides: merely hypothetical, exemplary values and parameter

Recommendations for design options

Basis of calculation



One-time payment

results from height and capacity,
paid at commissioning-date



+

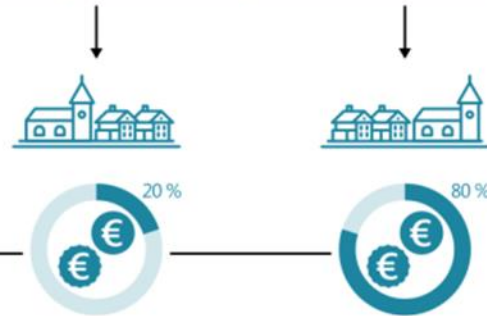
Annually payment

results from height and electricity,
paid annually



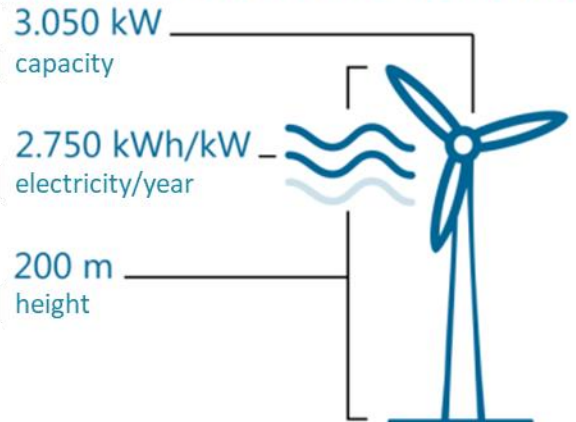
Municipalities around turbine

Share of payment results from share of a circle a municipality
owns around turbine (dependent from turbine height),
here 20 % vs. 80 %



Calculation with exemplary parameters

Typical values for wind turbines



wind farm (3 turbines)

9.150 kW capacity

25.162.500 kWh electricity/year

600 m height

One-time payment

100 €/m height

6 €/kW capacity

114.900 €

Current payment

10 €/m height

0,0004 €/kWh electricity produced

16.065 €

Additional income for municipalities



One-time

22.980 € 91.920

Annually

3.213 € 12.852

4. Wind energy information centers in federal states

Bundled information and advices for more transparency in planning phase

Basic idea of information centers (so-called „Servicestellen Windenergie“)

- ▶ Tasks: Information and creation of transparency, but also consultancy for citizens and municipalities in wind energy topics
- ▶ Setting up information centers basically expedient, but different designs possible

Experiences in Germany

- ▶ „Servicestelle Windenergie“ in Thüringen is a positive example
- ▶ Positive experiences also with different energy und climate agencies in other countries (such as Nordrhein-Westfalen, Mecklenburg-Vorpommern)

Approaches for design options

- ▶ Easy organisational structure or legal form
- ▶ Sufficient Ressources (staff and financial equipment)
- ▶ May be attached to federal state ministry or other local institution

5. Municipal investments in community wind energy

Investments in “Bürgerenergiegesellschaften” according to § 36g Abs. 3 EEG

Status quo – Participation regulated in German tender system

- ▶ Projects in tendering system in the year 2017 that won the tender as a so-called „Bürgerenergiegesellschaften“ (BEG) have to offer a share of 10% to the local municipality (§ 36g Abs. 3 Nr. 3 Lit. b) EEG)
- ▶ In Brandenburg alone, more than 50 BEG with around 800 MW won
- ▶ New chances to reach a higher participation also in countries where mostly private investors profit from wind energy
- ▶ High amount of equity and profits possible in different federal states

Recommendations

- ▶ Measures for a successful realization:
 - ▶ „Round Table“ to discuss and coordinate minimum requirements for offers of BEGs
 - ▶ Instruments to facilitate municipal approval
 - ▶ Support municipalities in evaluation and examination of the offers and afterwards negotiation with the project developers

6. Results and further recommendations

Implementation of a nation-wide „Sonderabgabe“ in EEG

- ▶ Already a lot of good instruments for participation existing
- ▶ Additional financial participation should be regulated on a national level
- ▶ Direct payments like the described „Sonderabgabe“ have a high efficiency and low transaction costs
- ▶ Participation model for municipalities („Sonderabgabe“) also takes neighbor-municipality into account
- ▶ Earmarking of revenues from wind energy
- ▶ Financial participation and/or compensation of the persons affected by wind turbines is one option to boost local acceptance

For further resulty see the study of IKEM together with **Agora Energiewende**, **team ewen**, **BBH** and **TU Berlin**

Agora Energiewende (2018):

Wie weiter mit dem Ausbau der Windenergie? Zwei Strategievorschläge zur Sicherung der Standortakzeptanz von Onshore Windenergie.

Basis of this study were considerations and research work within the BMBF-project **Dezentrale Beteiligung an der Planung und Finanzierung der Transformation des Energiesystems** (DZ-ES)

led by Prof. Dr. Thorsten Beckers, Technische Universität Berlin, Fachgebiet Wirtschafts- und Infrastrukturpolitik (WIP) together with FÖV, Universität Greifswald, BBH and BBH Consulting

Wie weiter mit dem Ausbau der Windenergie?

Zwei Strategievorschläge zur Sicherung der Standortakzeptanz von Onshore Windenergie

STUDIE

Agora
Energiewende



team ewen
Konflikt- und Prozessmanagement

IKEM

Can be downloaded at: <https://www.ikem.de/akzeptanz-fuer-die-windenergie/>

IKEM

IKEM – Institut für Klimaschutz,
Energie und Mobilität e. V.
Magazinstraße 15 – 16, 10179 Berlin

www.ikem.de