



## Influence of wind energy plants on tourism in Germany

Prof. Dr. Heinz-Dieter Quack

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# Agenda

- 1. Thematic classification**
2. Current discourse
3. Results of the online survey
4. Discussion
5. Future prospects

## Wind turbines - impact on scenery aesthetics and nature experience

- Nature-loving forms of tourism require sensitivity
- General interest in nature-loving forms of tourism, ranking of the holidays types and activities surveyed:
  - Experience spectacular landscape (1., 72%, 41.5M\*)
  - Staying in the nature (2., 71%, 40.7M\*)
  - Hiking (16., 43%, 24.6M\*)
  - Riding the bicycle (18., 40%, 23.0M\*)
- Nature and landscape as space for deceleration and exploitation of physical and mental health
- e.g. focus on hiking as a health enhancing activity
- Particularly attractive landscapes, viewpoints, townscapes, certified qualitative hiking trails and sensitive areas under species-protection regulation and even areas beyond protected landscape are fundamentally affected

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## Overview of relevant present studies as of 2008

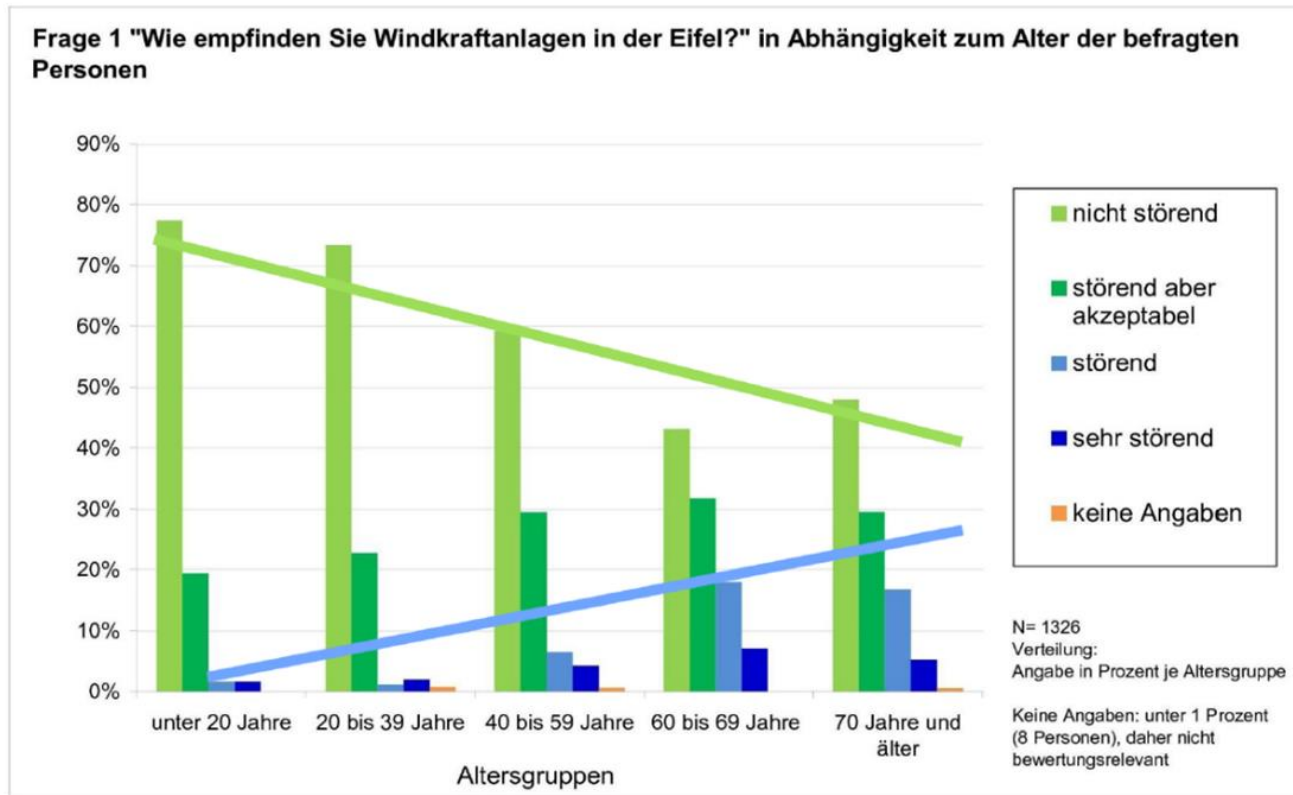
- Aitchison, C. (2012): Tourism Impact of Wind Farms. Submitted to Scottish Government Renewables Inquiry
- Aschenbrand, E. / Grebe, C. (2018): Erneuerbare Energien und `intakte´ Landschaft: Wie Naturtourismus und Energiewende zusammenpassen
- Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (BMU) (2012): Naturbewusstsein 2011. Bevölkerungsumfrage zu Natur und biologischer Vielfalt
- Braunová, V. (2013): Impact Study of Wind Power on Tourism on Gotland. Uppsala University Campus Gotland (MSc. in Wind Power Project Management)
- Broekel, T./ Alfken, C. (2015): Gone with the wind? The impact of wind turbines on tourism demand
- CenTouris (2013): Akzeptanz von Windenergieanlagen in deutschen Mittelgebirgen (2012)
- Frantál, B. / Kunc, J. (2011): Wind Turbines in Tourism Landscapes - Czech Experience
- Gardt, M. / Litmeyer, M.-L. (2017): Windenergie und Tourismusentwicklung im ländlichen Raum – Auswertung einer quantitativen Besucherbefragung im Vogelsbergkreis
- Glasgow Caledonian University (2008): The Economic Impacts of Wind Farms on Scottish Tourism. A report for the Scottish Government
- IG Windkraft (2014): Windkraft und Tourismus
- IfR Institut für Regionalmanagement (2012): Besucherbefragung zur Akzeptanz von Windkraftanlagen in der Eifel
- Landry, C. E./ Allen, T./ Cherry, T./ Whitehead, J. C. (2012): Wind turbines and coastal recreation demand. Resource and Energy Economics, 34(1), S. 93 - 111.
- Lilley, M. B./ Firestone, J./ Kempton, W. (2010): The Effect of Wind Power Installations on Coastal Tourism
- Liu, D. / Upchurch, R. S. / Curtis, C. (2016): Resident acceptance of wind farms – An emerging tourism market in China
- Massachusetts Department of Environmental Protection/ Massachusetts Department of Public Health (2012): Wind Turbine Health Impact Study
- Miller, D.R./ Bell, S./ McKeen, M./ Horne, P. L./ Morrice J. G./ Donnelly, D. (2010): Assessment of Landscape Sensitivity to Wind Turbine Development in Highland. Summary Report.
- NIT (2014) (Hrsg.): Einflussanalyse Erneuerbare Energien und Tourismus in Schleswig-Holstein
- Regeneris Consultig (2014): Study into the Potential Economic Impact of Wind Farms and Associated Grid Infrastructure on the Welsh Tourism Sector
- Smith, H. / Smythe, T. / Moore, A. / Bidwell, D. / McCann, J. (2018): The social dynamics of turbine tourism and recreation: Introducing a mixed-method approach to the study of the first U.S. offshore wind farm
- SOKO (2010): Studie Windkraft und Tourismus 2003 bis 2009
- The Mountaineering Council of Scotland (2014): Wind farms and changing mountaineering behaviour in Scotland
- Thiele, F./ Steinmark, C./ Quack, H.-D. (2015): Wandern und Windkraftanlagen Auswertung einer Langzeit-Onlineumfrage im Zeitraum 2013 bis 2015
- Westerberg, V./ Jacobsen, J. B./ Lifran, R. (2012): The case for offshore wind farms, artificial reefs and sustainable tourism in the French Mediterranean

## Comparable empirical studies on the acceptance of wind energy plants in tourism

Study	Year	Reference	Sample	Acceptance*
Institut CSA – Consumer Science & Analytics	08-09 2003	Languedoc-Roussillon	1,033	90-92%
Glasgow Caledonian University	2008	Scotland	700	93-99%
Frantál / Kunc	2009	Czech Republic	156	75%
SOKO	2009	Germany	2,000	71%
BMU	2011	Germany	2,031	79%
IfR	2012	Eifel, Germany	1,326	87%
CenTouris	2012	German low mountain ranges	977	72%
Landry et al.	2012	North Carolina Coast, USA	361	92%
Braunová	2013	Gotland, Sweden	611	92%
NIT	2014	Germany	6,070	91-98%
Institut für Geographie Gießen	2014	Vogelsbergkreis, Hesse, Germany	1,040	62%
Ostfalia University	2013-2015	German hiking destinations	643	55%
Aschenbrand / Grebe	2014-2015	Northern Hesse	257	72%

\* Acceptance = "I am not feeling bothered"

# The younger the participants, the higher the level of acceptance



How do you feel about wind turbines in the Eifel?

Subject to the age of the interviewees

not disturbing

disturbing but acceptable

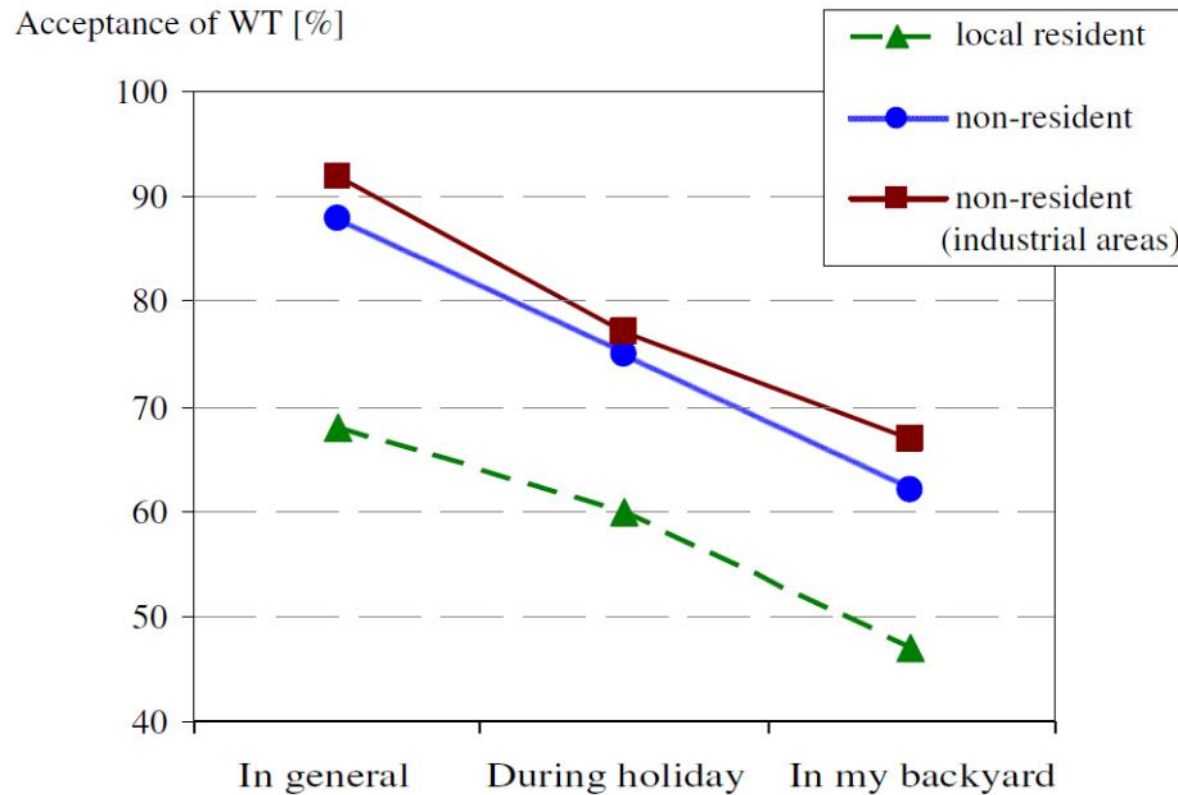
disturbing

very disturbing

not specified

# The acceptance in holidays destinations is lower than the acceptance in general

512 *B. Frantal, J. Kunc / Annals of Tourism Research 38 (2011) 499–519*

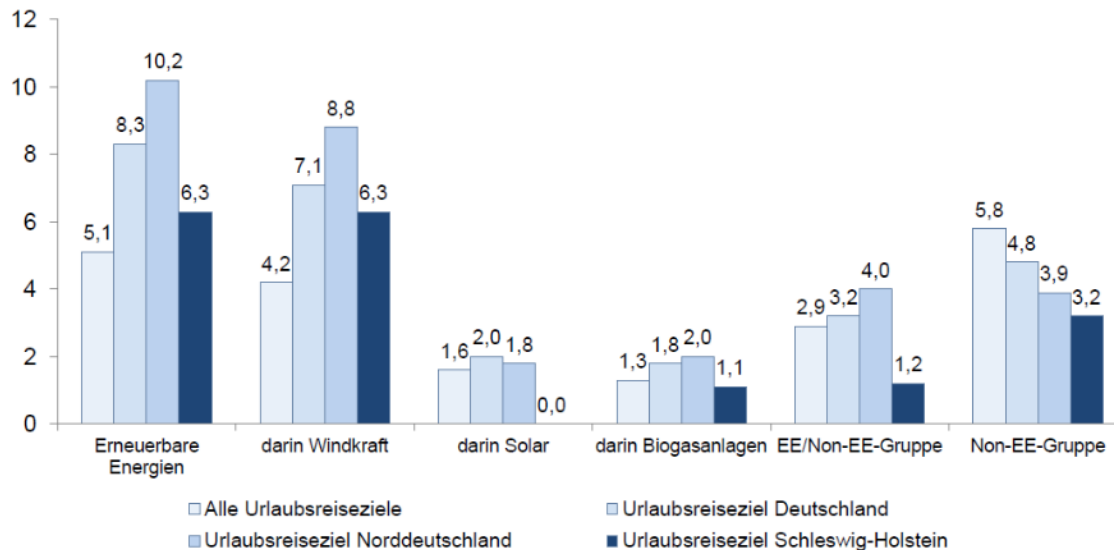


**Figure 3. Relationship Between Acceptance of WT and Respondents Domicile**



# The feeling of disturbance depends on the perception of the respective holiday region and the type of landscape

## Perceived as disturbing in the holiday destination



Frage: Welche dieser Dinge haben Sie in Ihrer Urlaubsregion als störend empfunden?  
Basis: Urlaubsreisende der deutschsprachigen Wohnbevölkerung ab 14 Jahre (54,8 Mio.; n=6.070)  
Angaben in %; Quelle: RA 2014 face-to-face

## Factors affecting the sensitivity of the landscape:

- Protection value / identity
- Aesthetic quality
- Land use / character

(cf. i.a. Broekel, T. / Alfken, C. 2015)

- All holiday destinations
- Holiday destination Germany
- Holiday destination northern Germany
- Holiday destination Schleswig-Holstein

Source: NIT 2014 based on the national survey Reiseanalyse

## Summary of the results

- The sensitivity of interference with wind turbines increases with increasing age, decreasing distance and growing number of turbines.
- Various studies show that the presence of wind turbines has little influence on the travel decision. According to these studies, tourists rarely decide against a holiday destination because of wind turbines being installed.
- The attitude towards a destination does not change even after the construction of further wind turbines.
- Wind turbines in holiday regions are less accepted than wind turbines in general, wind turbines are least accepted by the local population.
- So far, there is one study which proves that the installation of plants has a negative effect on tourism, in the sense of declining numbers of visitors. However, the statistically significant effects are manageable in terms of strength and impact.
- Direct effects of wind turbines on health have not yet been proven.

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## Wind turbines and its effects on the scenery

- According to 73% of the participants surveyed, wind turbines dominate the landscape, which makes it no. 2 after the cyclists / mountain biker (76%).
- Only half of them is feeling disturbed by wind turbines (45%). They are feeling a lot more disturbed by rubbish in the landscape (87%), nuclear or coal-fired power plants (79%), noise due to airplanes (75%) or regular traffic (74%).
- If there is a disturbance by wind turbines, it is above all the dominance in the landscape (98%) and the interference with the view (77%), followed by the noise (53%) and shadowing (42%).

## The embedding in the landscape is decisive

- 36% are feeling very disturbed and 13% rather disturbed if wind power plants are clustered by the wayside. 27% are feeling very disturbed and 18% rather disturbed if wind power plants are clustered in the distance or on the horizon. Having solitary wind power plants in the distance or by the wayside, less participants felt disturbed (60%).
- Along motorways, railway lines or high-voltage lines wind power plants are mostly accepted (90%). According to 53% wind turbines are disfiguring the landscape, but 56% do not mind hiking having wind turbines in sight. According to 48% wind turbines can be understood as a landmark visible from afar which helps to find their way on the hiking trail.
- 43% even think that due to wind power plants the landscape is more interesting and 40% experience the landscape as more diversified. According to 43% wind turbines blend harmoniously into the landscape.

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## It's the scientist who matters!

- Each study has its own research design, therefore the results are only comparable to a limited extent
- A generalization on the impact of wind energy on tourism is not possible
- The topic enjoys a high social and political relevance and is emotionally charged. Commissioned studies should therefore be critically scrutinized
- Landscape assessment is always a matter of subjectivity. Therefore, it is necessary to consider the context variables of the respective study

## It depends on the region!

- The effects of wind energy plants on tourism depend on the respective reference, the spatial conditions and the embedding in the landscape
- An evaluation of the specific embedding in the respective landscape is necessary in order to preserve the aesthetic quality and uniqueness of the landscape
- Tourism regions should conduct own surveys or market research analyses or commission a study.



## It's the perspective that matters!

- The intensity of the nature experience and sensitivity towards interferences in the landscape varies among tourism target groups, e.g. hikers vs. wellness vacationer
- In any case, a precise path optimization and visitor guidance is required, taking free visual axis and relevant viewing locations into account
- *„The findings of all tourism research should be seen within the context of tourism as a growth industry and thus any limited negative impact is likely to be an impact on growth rather than on current levels of tourism” (Aitchison 2012)*

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## Wind turbines as attractions?



Eye of the Wind,  
Grouse Mountain  
Canada



In the region of Lake Neusiedl (Austria-Hungary) a cycle path of more than 50 km can be found. The „Windradweg“ B29 leads from Lake Neusiedl through several wind farms. The experience with the integration of those wind farms into the tourism concept have been extremely positive.



**Erneuerbare Energien  
entdecken**

Travel guide „Discover  
Renewable Energies“

The Baedeker travel  
guide offers 160 travel  
destinations to  
discover renewable  
energy spots in  
Germany.





## Conclusion and recommendations

- The assumption that wind power plants have a priori negative effects on tourism is not sustainable from the point of view of tourism research
- The construction of new wind power plants requires a high degree of sensitivity in terms of economic, nature conservation regulation, landscape aesthetic and touristic concerns, e.g. zoning concept “Altmühltal”, visibility analysis UNESCO World Heritage Upper Middle Rhine Valley
- In addition, information and communication by addressing present and future target groups is of crucial importance for the acceptance of renewable energies.

# Thank you very much!

Prof. Dr. Heinz-Dieter Quack  
Ostfalia University of Applied Sciences

Institute for Tourism and Regional Research

- Hochschule Braunschweig/Wolfenbüttel -  
Karl-Scharfenberg-Fakultät Verkehr-Sport-Tourismus-Medien  
Karl-Scharfenberg-Straße 55/57  
D-38229 Salzgitter

Telefon: +49 (0)5341 875 52020

Telefax: +49 (0)5341 875 52022

E-Mail: [h-d.quack@ostfalia.de](mailto:h-d.quack@ostfalia.de)

Web: [www.ostfalia.de/fks](http://www.ostfalia.de/fks)