

## Public perception of renewable energies – a Bavarian – Czech comparison

"Cross boarder education center for renewable energies  
and a careful treatment of energy resources"

### Executive Summary

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## **Abstract**

The use of renewable energies depends not only on economic, but is influenced by numerous social conditions, particularly the acceptance of the technology, the knowledge of the population and the legal framework. In this study, social aspects related to renewable energies are compared in Bavaria and Czech Republic from the perspective of regions and citizens. A quantitative survey in Bavaria and the Czech Republic as well as qualitative interviews with both, citizens as well as with experts in the Czech Republic, provide the data basis.

Comparing the two countries shows significant differences in the acceptance of various renewable energy technologies, but also in the extent of awareness of the topic in general. While a great skepticism about nuclear power is noted in Germany, in the Czech Republic it is seen as a necessary energy source to ensure the power supply. Although in both countries approaches are taken to promote renewable energies and efficiency measures, there is considerable variation in the population with regard to the assessment of possible uses and the willingness to undertake investments. It can be concluded that in addition to the availability of technologies and potentials and the economic conditions, a set of other factors have a relevant impact on new technological approaches and its breakthrough. A broad informational basis seems to be necessary, for example environmental education, policy initiatives from the national down to the local level to implement policies, flagship projects on public and private level, and participatory elements and in the case of the energy transition regionalized planning methods.

## **Literature**

The introduction of renewable energies and their acceptance by the population in general, as well as at regional and local levels is subject of several research projects. The focus of these works is usually a national one (Bosch & Peyke, 2011; Zoellner, Schweizer-Ries, & Wemheuer, 2008). Few studies carry out analysis on an international level. More interesting insights into the possible evolution as a function of national factors is given by the situation in Germany. Despite the general conditions that are defined by the EEG (Erneuerbare Energien Gesetz - Renewable Energy Act), there are at the country level significant differences in the acceptance and use of renewable energies (Diekmann et al 2014).

For Germany generally high acceptance values can be recorded. Four-fifths of respondents to a survey with regard to the acceptance of biomass as an energy source are in favor of the objective of a local self-sufficiency from renewable sources as well as their development (Kress & Landwehr, 2012 p.18). Clearer differences seem to arise in regard to the level of activity or the stakeholder role. Kortsch, Hildebrand, & Swiss-Ries (2015) found these differences in perception of renewable energies, in particular biomass, with the key players in comparison to the general population. In

addition to income and type of involvement, influencing factors can be identified that may influence introducing renewable energy and the acceptance of these technologies in general.

The case of the Federal Republic of Germany shows that in spite of uniform legal and technical requirements with regard to the energy system, funding policy and design framework in the use of renewable energies substantial regional differences can be shown, like the comparison of the federal states shows (Diekmann et al 2014). This may on the one hand be attributed to the impact of national legislation in the countries and on different funding requirements, on the other hand on the further political conditions in the field of municipal planning, information policy and the non-monetary promotion of renewable energy expansion.

The development of regional and local projects as well as projects of the public sector, addressing a broad public, can have a significant impact (Diekmann et al 2014). After Kress & Landwehr (2012) a critical factor, that affects the acceptability of renewable energies, seems to be especially the environmental impact of technologies. The impact on the landscape or development of monocultures are given as examples. These are factors that are questioned in advance by the citizens or during the introduction of technologies. Aas et al. mention knowledge as a key differentiator and critical influencing factor (2014, p.36). An instrument regarding the impact of this perception is the involvement of the population in the planning and decision process (Aas et al., 2014).

### **Survey and Interviews - methodology**

Within the project, the social acceptance of renewable energies in the Czech Republic was studied and compared with the impact of energy policies on society in Bavaria. Quantitative as well as qualitative methods were applied. Using a survey, predefined criteria were analyzed. On the German side the questionnaires were distributed to participants of workshops, as part of the development of energy concepts in Bavarian municipalities. On the Czech side the survey was done during the energy conference in Volyně, being also part of the project. In addition, there was an opportunity to complete the questionnaire online. 185 Bavarian and 148 Czech questionnaires were evaluated.

Additionally, interviews completed the study from a qualitative side. Representatives from industry, research and politics were interviewed in an approximately half-hour interviews about personal, political and social considerations regarding the use of renewable energies and the energy transition. A total of 39 people were mainly questioned in individual interviews, some in groups. Both subject-specific experts as well as people from other disciplines were interviewed. The energy sector, energy and environment consultancy, efficient building design, sustainability, biology and ecosystems, architecture and timber construction, agriculture, civil engineering, chemistry, IT, regional development, technology transfer and economic development should be named. Approximately 10 percent of the interviewees are political representatives which are mainly active at the local level. Every second interview participant works in the research and education sector. The interviews were conducted in the period from April 1 to June 10, 2015 in Volyně, České Budějovice, Praha, Plzeň, Písek, Brno and Bratislava.

The evaluation is to shed light on a fundamental experimental positions and opinions on the subject of energy technologies and energy supply. By 39 interviews conducted, only an approximate trend can be estimated. However, the survey and interviews nevertheless contribute to the explanation of certain behavior patterns and trends and reflect the personal view of the citizens. The present results are a summary of individual statements. Individual views can deviate and reveal the more divergent opinion expressed by the respondents.

## Results, Conclusion and further research

The aim of this study was to analyze the perception and acceptance of renewable energies in the Czech Republic and to compare it with the perception or conception of the energy transition in Germany. Particularly is in focus, whether and how the German energy transition can be replicated abroad, whether the tools of energy planning can be applied in the Czech Republic and what national aspects would influence this planning paradigm.

The study shows that the German energy transition is perceived in the Czech Republic very well. It indicates that the increased use of renewable energies is also conceivable in the Czech Republic and would be accepted by a broad majority of the population. With regard to a timely implementation, there are skeptical opinions. Germany is seen as a pioneer and the Czechs want to learn from the experience there. But critical voices are also concerned about the German dominance on energy related issues at a European level and the use of renewable energy on a large scale.

The perception of renewable energies in the cross-border comparison shows both: similarities and significant differences. While a general awareness can be found for the needs of alternative technologies on both sides of the border and also a skepticism about the general applicability, Bavarian respondents show a greater openness and willingness to use renewables, to invest in these kind of projects or generally to encourage such projects. The majority of Czech participants sees especially in photovoltaic modules on roofs and in bioenergy plants interesting solutions, but quite often missing regional potentials are mentioned as a concern.

With regard to the development of the differences the study indicated possible reasons. In addition to the problems with the introduction of renewable energies supported by a legal framework to promote it, negative developments as well as conceptual problems of funding damaged the open-mindedness regarding the different technologies. Wrong incentives have thus probably not only led to an undesirable development in the markets, but also to increased skepticism about a nationwide introduction of individual forms of energy. The significantly lower knowledge of respondents on the Czech side in comparison to the Bavarian audience shows that renewable energy sources in Bavaria experienced a greater attention in the public perception. While the responses concerning renewable energy sources in the Czech Republic are focused on the solar energy, a greater knowledge not only regarding possible forms of energy can be stated in Bavaria, but also with regard to their operational conditions, potentials and risks. The question is how this difference can be explained. Possible and closer to be examined approaches could be founded in the broader political debate in Bavaria and Germany, in a generally higher attention to environmental issues, in the focus on a more comprehensive education and information policy supported by the government as well as lobbying organizations.

The mentioned lack of natural regional potentials for renewable energies was in the interviews an often addressed restriction for their expansion in the Czech Republic. This raises the question of whether these potentials have not been sufficiently studied and identified, or whether there is a lack of information among the population. Especially the application of the concept of regional energy plans in the context of case studies could provide information on whether regional potentials can be identified and how the perception of these potential changes is accepted by the public. It is noticeable that landscape is addressed less often as a reason against the installation of renewable plants in Czech Republic in comparison to Bavaria. One possible explanation could be the high penetration through renewable energies and an accompanying awareness of the consequences of further development of these technologies from scenic and spatial perspective in Bavaria. It is also

possible that the landscape in the public perception receives a different priority than in Bavaria, where it is often listed as a relevant restriction. Future investigations should therefore focus in depth on the territory of a municipality and apply a case for a local energy plan using studying specific sites and investments.

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