Energy Policy 48 (2012) 167–175

Contents lists available at SciVerse ScienceDirect

Energy Policy

journal homepage: www.elsevier.com/locate/enpol

Wind power—An assault on local landscapes or an opportunity for modernization?

Bente Johnsen Rygg*

Norwegian University of Science and Technology, Department of interdisciplinary studies of culture, 7491 Trondheim, Norway and Sogn and Fjordane University College, PO Box 133, 6851 Sogndal, Norway

HIGHLIGHTS

- Local governments views on the possibilities concerning local wind power development.
- Identification of positive and negative arguments towards wind power development.
- Description of the controversies related to wind power development.
- The 'actor-networks' role in the process.

ARTICLE INFO

Article history:
Received 10 January 2011
Accepted 3 May 2012
Available online 8 June 2012

Keywords:
Wind power development
Local communities
Controversies

ABSTRACT

Wind power development has produced controversies in many places. Some people see wind power as a sustainable source of energy, others see it as destroying nature and landscapes. The opposition to wind power is often asserted to be from local forces and NIMBYism, and support to be based on the national and global benefits of increased supply of renewable energy. In this paper, I challenge this view by analyzing how local communities with established or planned wind power parks went through the process of developing wind power, what arguments they used and how they think about the wind power technology and its expected local effects. I found that most of the arguments in favor of wind power development addressed local concerns regarding the economy, modernization, and employment opportunities and not a need for sustainable energy. The opposition to wind power development was not based on NIMBYism. Rather, many different arguments were used, and the features of the controversies were distinct to each community.

1. Introduction

Increasing the production of energy from renewable sources is being emphasized throughout the world. These sources include wind power, which has become controversial. While proponents of wind power see it as a sustainable source of energy, opponents see it as destroying landscapes and spoiling natural settings. Bye and Solli (2007) and others have argued that a shift in opinion has taken place—from the long-held perception that wind power is environmentally friendly to the perception that it represents an unwanted intervention in nature. Also, resistance to wind power is often asserted to be local (Wolsink, 2000), while support is mainly offered in terms of the national or global benefits of an increased supply of sustainable energy. In this paper, I will challenge this view by analyzing how local communities with either existing or proposed wind parks conceive of this technology and its potential local effects. A main finding is that most arguments in favor of as well as against wind power had local references.

Denmark is a prime example of a country where many wind power plants have been built without controversy. This country has a long tradition of wind power development, dating from the 1890s. Many farmers had their own wind turbine, as did other farmers in north-western Europe (Vermeylen, 2010). After the oil crisis in 1973, Denmark embarked on developing wind power on a fairly large scale. Danish development started with installations that generated between 20 and 50 kW as opposed to countries like Germany and the United States where they tried to construct large wind turbines. As Danish technology improved and their wind turbines increased in size (Meyer, 1995), Denmark succeeded in establishing a world-class wind turbine industry (Jørgensen and Karnøe, 1995; Buen, 2006).

Denmark's history of wind power development, in addition to a large degree of local control and an active government

* Tel.: +4757676033.
E-mail address: bente.johnsen.rygg@hisf.no

0301-4215/$ - see front matter © 2012 Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.enpol.2012.05.004

promotion of wind power, laid the foundation for establishing the wind power industry that Denmark has today. Eventually, however, wind power became controversial in Denmark. Conflicts centre around noise, land use, and the visual impact of wind turbines. The Danish government has attempted to resolve these conflicts by increasing pressure on local communities and by developing offshore sites for wind power parks (Meyer, 1995).

Today, wind power development is increasing in many countries. People who were not used to seeing energy production are being confronted with the visual and environmental aspects of wind power production. Wind power parks require large amounts of space, and the turbines are visible from a great distance. These negative aspects of wind power are apparent at the same location where production takes place and may cause negative attitudes towards wind power development. Pasqualetti (2000) suggests that the opposition to wind power is related to the history of energy production. In the beginning, people used local resources, such as chopped wood or a single wind turbine, to supply their energy needs. Thus, they saw the production of the energy they used as well as the impact of this production on nature. As the demand for energy increased, energy production increased in scale, and was located farther away from where people lived. People did not see the consequences of increased energy demand and were alienated from the consequences of energy production.

The fast growth in wind power installations has resulted in an increasing number of conflicts between wind power developers and interest groups (Swofford and Slattery, 2010; Kemption et al., 2005). What is the nature of these conflicts, who takes part in them, and what are the consequences? The increased number of conflicts is described as being a result of uninformed resistance and is often explained by invoking the Not In My Back Yard (NIMBY) concept, pointing to the apparent paradox between the overall positive attitude towards wind power and the protests that occur over the actual location of wind power parks (Wolsink, 2000). However, the opposition to wind power is complex, and the NIMBY diagnosis has been argued to be incorrect (Aitken, 2010a) and to belittle potentially rational arguments against certain locations (Devine-Wright, 2005). Moreover, local attitudes may be positive. A survey in Texas found that 46.6% of all respondents were willing to support a wind farm on their property (Swofford and Slattery, 2010: 2516). For those with positive attitudes towards the project, this might be motivated by economic benefits in terms of leases to local landowners. This suggests a need to analyze more carefully the arguments that produce positive attitudes.

Some studies find that opposition to wind power development has increased in local communities. Wind power planning is, to a large degree, top-down based, and the general trend is to prioritize the common good and fight climate change over local concerns. The burden is then put on the local communities, in terms of the local consequences to nature, to the landscape (Breukers and Wolsink, 2007), and to wildlife (Solli, 2010). A national interest in wind power development does not automatically translate to a local interest, which in turn makes it difficult to find appropriate locations for wind power projects (Bergek, 2010).

The main conflict around wind power development relates to land use. Pasqualetti (2000) suggested that the conflict between developer and society can be resolved if the wind power industry would listen to the public and settle public opposition by making technical improvements. These improvements would include fewer wind turbines, which would be more efficient and quieter. The second step would be to place the wind turbines in the landscape so that the visible impact is reduced. The wind power developer has to consider the symmetry of the park, the construction of roads, and general maintenance in the park. Dialog between wind power developer and the local community is important. A recent Norwegian survey showed that inhabitants in smaller communities overall was more satisfied with the level of community service. One possible reason for this difference is the smaller distance between inhabitants and politicians than in large communities. The population also tends to be more homogenous in small local communities than in larger ones (Monkerud and Sørensen, 2010).

Wind power development is a complicated and controversial process. Previous studies have shown that the controversies mainly revolve around land use and changes to the landscape, and actually, most of the research has focused on such conflicts in the wake of wind power development. Fewer efforts have been made to analyze positive motives behind establishing wind power parks. Why do some local communities welcome the establishment of such a park? What arguments are used to justify the visual effect on the landscape and the area used for the park? We need to know more about the support of wind power development to answer these questions. In this respect, local communities play an important role. In the Norwegian context, they have the last word in the process due to the present regime of license permits, which emphasizes local points of view. Consequently, the arguments used in local communities' deliberation play a vital role in the final decision to grant permits or not (Gjerald, 2012). Studying local communities and the arguments they use to support the development of wind power parks will provide new insights into the discussions about wind power development and why there may be a strong local support for wind power parks. Studies in the UK suggests the importance of participatory arrangements as well as compensation schemes (Aitken, 2010b; Cass et al., 2010; Walker et al., 2010). Does this mean that local supporters of wind energy are motivated mainly by economic gains, while those opposing wind power are doing so because of environmental concerns?

2. From controversy to assemblages: Analyzing technology dynamics

Frequently, projects involving technology development have a potential for conflicts. The study of controversies plays an important role in the study of science and technology. I draw upon Nelkin (1992), the SCOT (social construction of technology) model (Bijker and Pinch, 1984), and actor-network theory (ANT) (Latour, 2005). These three perspectives provide a theoretical framework for studying how local communities think about wind power development and its expected effects. Based on her own research, Nelkin proposes a classification of controversies according to the underlying concerns, the SCOT model looks at how controversies may be stabilized and closed by shaping and reshaping technology, and finally, ANT looks at how controversies can be managed by constructing wind turbines as sociotechnical objects, emphasizing technological as well as social features of wind power.

To understand the underlying issues that shape wind power controversies, Nelkin's (1992) categorization of controversies are helpful. Her categorization was not intended as a theoretical framework, but it provides an understanding of the dynamics inherent in different forms of controversies. Nelkin lists the following four main types, which are not to be seen as mutually exclusive:

1. Controversies that arise when science seems to challenge or threaten social or moral values.
2. Controversies that arise from tension between environmental values and political or economic priorities.