FORSCHUNGSFORUM
1/99
ENERGY

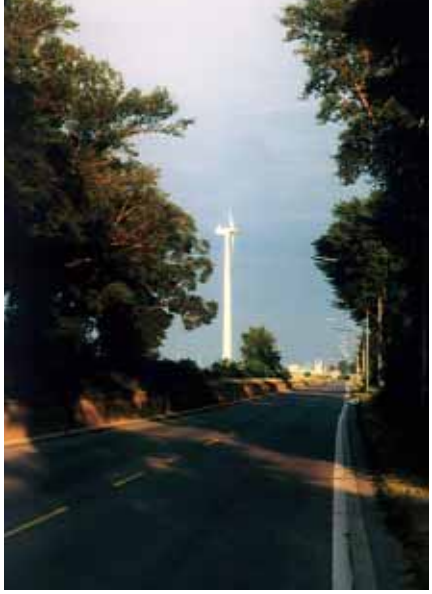
SOCIAL ACCEPTANCE OF WIND POWER IN AUSTRIA

AN ANALYSIS OF THE SOCIAL PROCESSES INVOLVED IN THE INSTALLATION OF WIND POWER PLANTS

bm:wv

P R O J E C T

WIND POWER IN AUSTRIA – ANALYSIS OF STRATEGIES AND PROBLEMS



Wind power will become a well established technology only if we succeed in creating stable economic framework conditions as well as in creating and maintaining social acceptance of the construction of wind power plants.

■ The use of wind power is one renewable form of energy, which, in combination with other sources of energy, may contribute to a sustainable energy supply system. At present, there are about 66 plants in Austria, which supply a total of approx. 27 MW.
An ecologically sound mix of different sources of energy should involve about 5% wind power for the generation of electricity according to advocates of this form of energy. In order to realize this goal several thousand wind power plants would be needed.

In Austria, there is an important potential for the utilization of wind power: Many projects are already in a planning stage, the wind power industry has reached a high level of qualification and professionalism, many private persons and public institutions are prepared to invest money in this new technology, and an overwhelming part of the population shows a positive attitude towards wind power plants. However, these generally positive prerequisites for the marketing of the technology on a broad base have not been matched with the necessary uniform and secure economic conditions as yet.

The successful realization of a wind power project depends, in addition to negotiating the economic framework conditions with the respective local utility companies and responsible politicians, above all on the interaction between the actors involved and on the decision process on a local level.
The study entitled "Untersuchung der sozialen Akzeptanz von Windkraftanlagen in Österreich" (Analysis of the Social Acceptance of Wind power Plants in Austria) commissioned by the Austrian Federal Ministry of Science and Transport and carried out by UMBERA Ges.m.b.H. analyzes the social dynamics at work in the construction of wind power plants in Austria. The study gives a comprehensive picture of social processes and identifies inhibiting and promoting factors as well as typical developments involved in the construction of wind power plants.

The study consists of 5 separate parts:
- Analysis of the state of theoretical research
- Analysis of materials
- Analysis of questionnaires
- Analysis of 4 case studies
- Evaluation of results and ensuing recommendations

Questionnaires were sent to persons involved in a total of about 40 wind power projects, the return quota was 40%, thus, 16 questionnaires were available for evaluation. Thus, the sample studied represents 31% of Austria's wind power projects, while the total number of plants in operation was 51 when the study was conducted in 1997.

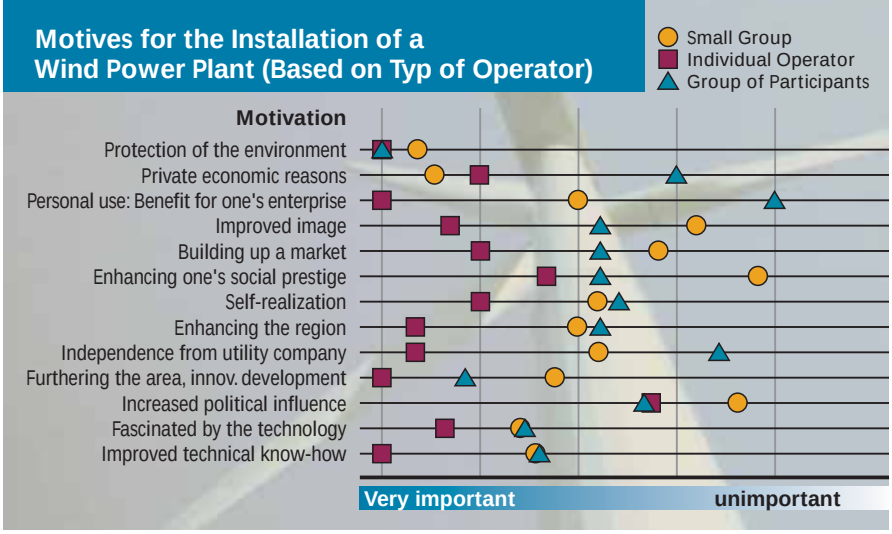
In selecting the individual case studies the authors aimed at a possibly wide spectrum of different projects.
The chosen projects were to be clearly different as to their location, their organizational structure, their rated power, and as to the way the project was implemented.

The analysis of the individual cases used an ***actor-centered analytical approach*** to social processes.
The process involved in the carrying through and realization of a wind power project has been studied from various perspectives, one of the focal points being the communication and decision structures.

One of the objectives of the study was to reconstruct the processes which had a part in the individual cases, to identify the main influencing factors as well as the various interactions of different factors and processes (e.g. certain strategies utilized by operators, set-up of actors, economic factors, potential for conflict), and, from this analysis, to deduce different types of implementation processes. A better knowledge of social processes and the interactions with regional and national framework conditions is to contribute to the formulation of approaches for the optimization of the diffusion of wind power and other sources of renewable energy.

Actor-centered analytical approach

Actor-centered models constitute a conceptual framework for the analysis of social processes, which makes possible to correlate structural aspects (institutions, framework conditions) with factors such as future-orientedness and capability of acting on the part of the actors as well as with other parameters such as contextual factors in the various combinations of actors and certain problems. The important thing is to correlate the aspects of structure and acting involved in social processes, and the factors reinforcing dependence or freedom.



Source: UMBERA

MOTIVATION, CONFLICT, STRATEGIES

The results of the analysis of the case studies as well as the evaluation of the questionnaires indicate that there are typical motivations, combination of actors, and processes. The installation of wind power plants involves a process, which typically begins with planning of the technical, economic, and social aspects of the installation. Social aspects are invariably involved as soon as more than one actor participates in the process.

ACTORS AND MOTIVES

Four different groups of operators can be identified taking into account the number of participants:

- ***Individual operators***
  e.g. companies installing a wind power generator on their premises

- ***Groups of operators***
  usually consist of 2 to 6 persons, such as a cooperation of farmers who have a suitable site at their disposal

- ***Groups of shareholders***
  Operators consisting of a large group (50 - 250 persons) that invests money in the project, which will usually be realized by a group of professional contractors

- ***Utility-sponsored projects***
  Plants for research purposes, projects sponsored or supported by a utility company

Other actors involved in the installation of a wind power plant are: the population concerned, the utility company responsible for grid-coupling, regional nature conservation organizations, authorities, and politicians.

In many cases the motivation of operators is multi-dimensional. On the one hand, investing in this technology may directly yield financial benefit, on the other hand it offers new perspectives for the future of a crisis-prone agriculture, and, last but not least, being a symbol of environmentally acceptable technologies it constitutes, for many operators, an opportunity to realize ecological and socially emancipationist objectives without having to neglect business management aspects.
In almost all wind power projects analyzed in the study the motivation to "do something for the environment" was in the foreground, followed by the intention to contribute to the development of the region, and the fascination with the new technology, and the increase in technical know-how. What is important for the process as a whole is the interaction of the specific motivations of the various participating actors.

POTENTIAL FOR CONFLICT

The case studies have shown that the conflicts arising usually reflect very complex processes and cannot easily be traced back to a single cause.

Frequent causes for conflict are:

- specific local conditions
- conflicts concerning location
- implementation strategy of the operators
- influence of regional and national structuring processes

The behavior of the population concerned can be characterized, in most cases, as passive acceptance. Negative feelings are caused, in some cases, by a conflict with the individual interests of the neighbors, such as noise level, shadow of the installation, interference with the landscape or appearance of the village, or negative effects on the bird population. One of the problems with these objections consists in the fact that the adverse side effects mentioned above cannot be clearly verified. In most cases, however, the problems could be solved by involving the persons concerned.

The relationship between utilities and operators is characterized by polarization on account of diverging economic interests. Operators of wind power plants have criticized the lack of reasonable economic framework conditions that would be needed for long term planning, another demand consists in acceptable supply tariffs for an economical operation of the plant. These tariffs would be based on political decisions and should take into account truth in costing of the supply of energy; a compensation via CO_2 taxa-

tion should be considered. However, the utilities do not want to engage in long-term agreements and rather favor an individual, limited promotion of individual wind power installations. The attitude of responsible politicians is not clear in this respect; at present, operators have to negotiate the economic framework conditions for each individual project. Advocates of wind power consider this fact one of the major obstacles impeding the marketing of the technology on a broad basis.

A solution of the problem satisfactory to both sides would pave the way for a cooperation between operators and utility companies and thus further the development of wind power installations.

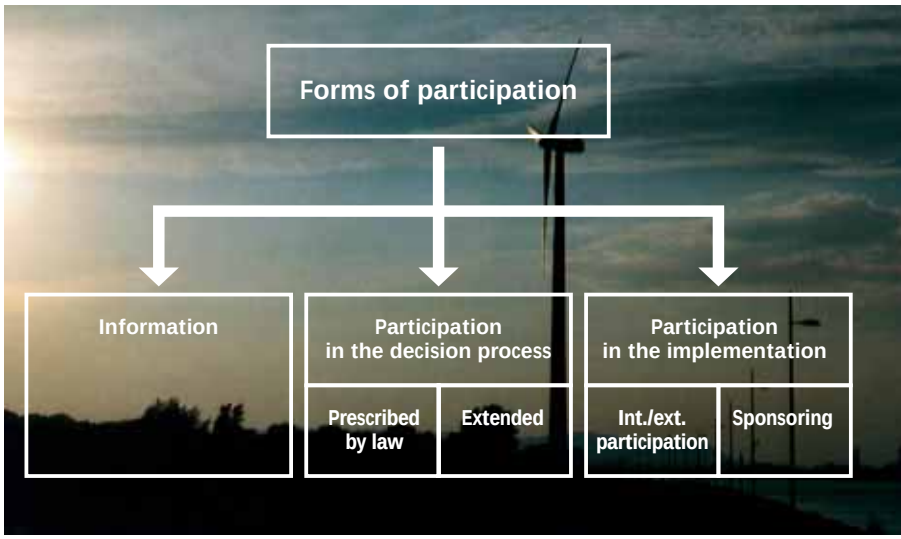
Lengthy negotiations and conflict on a regional or national level are apt to engender new conflict or to aggravate existing conflict on a local level, too. In this context, time is an important factor. Long delays in the phase of negotiation often cause extreme pressure in the phase of realization of the project. Frequent changes in the structure and the prospect of the project, and in the schedule of implementation on account of changing political prerequisites and conditions offered by the utilities cause uncertainty and doubts in the population concerned.

STRATEGIES

Apart from economic factors information and education of the population concerned have been identified as essential elements in the promotion of wind power. Information campaigns may contribute to the involvement of as many people as possible and, thus, improve cost-effectiveness. In the implementation process participation assumes a central part. An important question in this context is who is involved in the decision process and in what form can the different actors participate, i.e. whose interests are represented in the process. In literature, a solution for possible conflict has often been described as "broad-based participation in the implementation and decision processes".

This form of conflict management is characterized by the following features:

- Extension of the group of actors involved in the decision process (e.g. population concerned)
- Public processes, increased transparency



Source: UMBERA

- Negotiations and discussions instead of legal proceedings as a means of conflict management
- Management of dissent instead of fiction of consent

This approach is to help to avoid an escalation of conflict in two ways:

- Broad-based consensus in the decision process (by involvement of as many actors as possible)
- Improvement of the factual and political quality of the decision process by incorporating a large gamut of interests.

This theoretical approach has been evaluated in the study on the basis of the individual case studies and the analysis of the questionnaires. Two of the projects included in the case studies were realized without major conflict (apart from problems involving economic conditions) on a local level.

In one of the cases a "private" group of operators successfully realized the project acting relatively independent of the public thus avoiding potential for conflict. In another case a "core-team" established a large group of "public" operators. This project incorporated factors important for success, which were in line with the theory described above. What is important in this context is a broad basis in the local population, a clearly discernible local and global benefit, well founded local political support, as well as a strategy of early and continual participation in order to avoid potential conflict or to offer constructive solutions for such conflict.

THE PROCESS OF REALIZING A WIND POWER PROJECT

The case studies as well as the evaluation of questionnaires indicate that the implementation process shows a typical pattern. The individual phases of the process basically follow a logical temporal sequence; however, some elements of the various stages of the process overlap, happen at the same time, and in some cases the time sequence is even reversed, as it were.

Phase 1:

Idea and first steps

The idea to install a wind power plant usually originates within a group of environment-minded and innovative persons who look for like-minded supporters or who plan projects of their own. In most cases, the first concrete attempts at implementation are preceded by an extended period characterized by a pronounced interest and enthusiasm for this form of energy production. In many cases the construction of a wind power plant in the vicinity or an existing suitable location have been incentives for prospective operators.

Phase 2:

Self qualification and gathering of information

After the basic decision has been made detailed information as to possible locations, types of plant, companies, and technological principles will be gathered. In this phase persons interested in this technology usually also visit existing plants at home and abroad.

Phase 3

Putting the project into more concrete terms

The technical and organizational implementation (looking for a suitable site, wind speed measurements, rough cost-benefit calculations, invitation of tenders etc.) is being prepared and provisionally completed (technical planning completed to a large extent, application for permission filed with the authorities, application for investment aid-payments etc.).

Phase 4

First contacts with regional utility company

The operators contact the regional utility company as to the possibilities of grid-coupling. At this point, questions of technical feasibility and, above all, of the economic conditions arise (supply tariffs), which usually entail lengthy and difficult negotiations. Only in projects with clearly defined framework conditions (e.g. applicability of the "First General Agreement") that provide for an economical operation of the plant this phase passes without major problems.

Phase 5

Licensing by the authorities

Usually, the building permission and the licensing as to electricity related provisions do not constitute major problems. During this phase the operators are rather confronted with objections on the part of the neighbors and the ensuing settlement of legal conflict.

Phase 6

Stagnation of the implementation process

At this point a considerable number of projects begin to slacken in spite of existing licenses and permissions on account of the fact that the supply tariffs offered by the respective utility company do not safeguard an economical operation of the plant. Further negotiations with the goal to provide for economically acceptable conditions have to be initiated.

Phase 7

Involving politics

During the phase of stagnation many operators try to contact regional politicians and officials in order to overcome the stalemate. In many cases they are successful. What follows is a process of restructuring in which the previously unclear framework conditions will be negotiated again, either for an individual project or for a limited group of projects. This process usually results in the granting of factually and temporally limited promotion programs.

Phase 8

Installation and operation

If there were positive decisions in the preceding phases and if the utility company has granted favorable framework conditions the technical realization of the project is usually completed quickly and without major problems. After completion, the operators of almost all projects report successful operation of the plant.

CONCLUSIONS FOR FURTHER DEVELOPMENT

■ The study has shown that economic as well as social criteria play an important part in the installation and further development of wind power plants. The creation of secure conditions for investment and planning in addition to flexibility of the framework conditions constitute an essential factor in the development of wind power. A suitable background granting the necessary safe conditions for potential operators, which also offers flexibility for adaptation to changing conditions should be developed and embedded.

Clearly defined structures would be able to counteract local imbalances and a too fast development caused, for instance, by too generous financial support. In addition to mere financial support, criteria such as local embedding, the form of participation, and the number of persons involved play an important role in the process. The safeguarding of the social acceptance of wind power on a local and regional level as well as the distribution of the benefit of this technology to as many persons as possible constitute essential aspects in the development process. Therefore, it would be conducive to establish minimum standards concerning information and participation in the framework conditions (e.g. mandatory information, participation of the population concerned in the planning stage, support of advisory institutions, etc.). The role model of "controlled dynamics" is to serve as a concept for the further development of wind power, which combines a dynamic development – supported by more favorable supply tariffs – with the necessary tools of control. These control tools can take the form of a linking with criteria essential for investment aid. Such control tools can also be embedded in licensing procedures, which should concentrate above all on the local level.

F I G U R E S / D A T A / F A C T S

PROJECT SPONSORS

The study entitled *"Untersuchung der sozialen Akzeptanz von Windkraftanlagen in Österreich unter Berücksichtigung der Erfahrungen zur Verbreitung der Nutzung erneuerbarer Energieträger"*, was authored by Michael Stadlober and Brigitte Hahn, UMBERA, St. Pölten, Austria, 1998, and was commissioned by the Austrian Ministry of Science and Transport.

PUBLICATIONS

The study has been published within the series *"Berichte aus Energie- und Umweltforschung"* (Reports on Energy and Environment Research) by the Austrian Ministry of Science and Transport and is available from:
PROJEKTFABRIK,
Nedergasse 23, A-1190 Wien.

A complete list of the series can be found on the FORSCHUNGSFORUM HOMEPAGE:
http://www.forschungsforum.at

FORSCHUNGSFORUM in the Internet:
http://www.forschungsforum.at

FORSCHUNGSFORUM *provides information on selected projects within a BMWV-program focusing on "Future-oriented Energy and Environment Technologies". Published by the Federal Ministry of Science and Transport, Department of Public Relations; Director: Dr. W. Fingernagel; A-1014 Vienna, Minoritenplatz 5. Coordination: Department of Energy and Environment Technologies; Director: Dipl.Ing. M. Paula. Photos and Graphics: UMBERA Ges.m.b.H., DI Christof Flucher, Energiewerkstatt Ges.m.b.H.. Editors: Projektfabrik, A-1190 Vienna, Nedergasse 23. Layout: Grafik Design Wolfgang Bledl. Printed by AV-Druck, A-1140 Vienna, Sturzgasse 1A.*

FORSCHUNGSFORUM is published at least four times a year and is available for free at: Projektfabrik, A-1190 Vienna, Nedergasse 23.

P.b.b. Erscheinungsort Wien, Verlagspostamt A-1010 Wien. Zulassungsnummer: 349749W95U