# Local Politics of Renewable Energy: Project Planning, Siting Conflicts and Citizen Participation

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# Local Politics of Renewable Energy

## Project Planning, Siting Conflicts and Citizen Participation

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*To Carol*

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# Abstract

Renewable energy will play an important role in the transition to a sustainable energy system. With an increased maturity of renewable energy technologies, issues concerning implementation are becoming more important. The decisions and actions of municipalities and other local actors have a significant influence on the implementation of renewable energy.

In this thesis, challenges to implementation at the local level in Sweden are analysed for two types of renewable energy technologies: biogas and wind power. The thesis is based on six case studies where written documents and semi-structured qualitative interviews have been the main sources of material.

Two research themes are explored. Within the first theme the planning and management of locally based renewable energy projects is studied. It is shown that project planning, concerning biogas projects in particular, can be complex and that the conditions of planning can vary considerably between projects. The results indicate that different planning approaches are appropriate for different projects and flexibility is identified as a key aspect of project planning.

The second theme deals with conflicts related to the siting of renewable energy facilities, and how these are handled in land-use planning through citizen participation. It is shown that there are both differences and similarities when comparing traditional siting conflicts with those concerning renewable energy facilities. Different theoretical perspectives on siting conflicts and citizen participation are discussed, which have different, and sometimes opposing views, of the goals of participation. It is argued that the expectations of what can be achieved by citizen participation in the handling of siting conflicts must be realistic. More specifically, the results of the case studies show that public consultation, which is the dominating form of citizen participation in Sweden, has some important limitations that must be acknowledged.

*Keywords*: renewable energy, wind power, biogas, implementation, citizen participation, siting conflict, project planning, local politics, municipalities, Sweden.

# List of publications

This doctoral thesis is based on the following articles:

I Khan, J. (2004) "Siting conflicts in renewable energy projects in Sweden: a biogas case study", forthcoming in Å. Boholm and R. Löfstedt, (Eds.) *Facility Siting: Risk, Power and Identity in Land-Use Planning*, Earthscan, London.

II Khan, J. (2003) "Wind power planning in three Swedish municipalities", *Journal of Environmental Planning and Management*, Vol. 46, No. 4, pp. 563-581.

III Khan, J. (2004) "Public consultation in planning: experience from wind power planning in Sweden", submitted to *Environment and Planning A.*

IV Khan, J. (2004) "The importance of local context in the planning of environmental projects: examples from two biogas cases", revised version submitted to *Local Environment*.

# Contents

# 1. Introduction

The increased deployment of renewable energy technologies is a key factor in the transition towards a sustainable energy system. In Sweden, there is a long-standing political commitment to the increased development of renewable energy. Hydro power and biomass already contribute significantly to the energy supply, while other renewable energy sources still only play a marginal role. With increased maturity of technologies, issues concerning policy making and implementation have become more important. So far, research as well as policy efforts, have focused mainly on the national and international levels. However, local decision-making processes and local actors also have a significant influence on the implementation of renewable energy. This thesis analyses local implementation challenges for renewable energy and contributes to an increased understanding of the crucial importance of the local level.

## 1.1 Focus of the thesis

The point of departure for the research behind this thesis is the premise that there is a need for more renewable energy in the Swedish energy system, together with an observation that the implementation of renewable energy technologies involves a number of challenges. The first steps in the research process were to identify which renewable energy technologies are faced with urgent and challenging implementation issues, to determine the character of these issues and how they can best be studied. These decisions influenced such basic aspects of the research design as the aim of the research, the formulation of research questions, the choice of empirical material, the methodological approach and the use of theoretical perspectives.

The general research question discussed in this thesis is why it can be difficult to implement renewable energy at the local level. The aim of the research has been to increase the understanding of real and urgent issues and to contribute to means of handling them. The ambition has not only been to

study problems that already exist, but also to address issues before they turn into problems, and to identify measures and behaviour that will promote positive development. During the research process, interest converged on questions associated with the implementation of wind power and biogas at the local level in Sweden. In reaching this focus a number of choices and demarcations have been made.

Firstly, regarding the choice of technologies to study. Wind power and biogas are interesting to study for various reasons. They are both emerging technologies which have reached a relatively high level of technological maturity, even if much development remains to be done. Both technologies have been implemented extensively in a few countries where they have become commercially established, and they are expected to play a significant role in the Swedish energy system as well. In Sweden, however, the implementation process has only recently started, and it appears that there are a number of issues and potential obstacles regarding their introduction. Thus, the two technologies provide interesting examples of implementation challenges for renewable energy.

Secondly, the choice of level of analysis is an important issue. The reason for focusing on the local level is that municipalities, and other local actors, play an important role in Swedish energy policy, and much of the actual implementation of renewable energy takes place at the local level. Some of the crucial challenges to the implementation of the two technologies are found at the local level.

This brings us to the third demarcation, that regarding the type of issues to be studied. The ambition has not been to fully cover all local implementation issues for wind power and biogas, but to choose a limited number of topics that are considered critical and make a deeper analysis of these. The general research question can thus be narrowed down into two specific themes.

The first theme deals with the *planning and management of locally based renewable energy projects*, with biogas and wind power as the empirical cases. The planning of such projects can be complex, involving a variety of different actors, issues and decision arenas. One general aim of this research theme has, thus, been to increase the understanding of decision-making processes and interactions between key actors in project planning. Another aim has been to study the issues and challenges that projects are faced with and how these have been handled in different ways. An ambition has been to find an appropriate way to structure the analysis of how local renewable energy projects develop. This has been done by developing an analytical framework in which project planning is divided into three parallel processes, which must all be carried out for the successful completion of a project. A specific issue has been to study in what ways planning approaches differ between projects, both within the same technology and between the two types of renewable energy technologies. The reasons for differences in planning approaches have also been explored.

The second theme deals with *conflicts related to the siting of renewable energy facilities and how these are handled in land-use planning, through the use of citizen participation*. An initial issue was the study of the characteristics of siting conflicts, for renewable energy in general, and specifically for wind power and biogas in the Swedish context. Central questions concerned what the main issues are, how conflicts emerge and develop, and what form interactions between the actors involved take. A central aim of this research theme has been to study how siting conflicts can be dealt with through citizen participation. What are the possibilities, limitations and dilemmas of participation, and how are they related to the different forms of participation? What are the goals of participation, and are there any potential conflicts between them? These questions have been addressed by both empirical studies of real siting conflicts and through a discussion of different theoretical perspectives. A specific aim has been to study the limitations and potential of public consultation in the handling of siting conflicts, since this is the dominating model of participation in Swedish land-use planning.

An underlying issue in the research has been the implications of the results on planning practice, regarding both the planning and management of projects and the use of citizen participation in the handling of siting conflicts.

## 1.2 Theory and methodology[1]

The use of theory has been guided by the ambition to study practically relevant implementation issues. The research is not based on one theoretical perspective. Instead, different theoretical fields have been applied to the different empirical findings. Organisation studies, research on project planning and management, research on land-use planning, risk communication studies, environmental movement studies and theories on participatory and deliberative democracy, have all provided important theoretical input to the research. During the research, empirical data and theory have been repeatedly confronted with each other in an iterative process, which has generated new insights into the empirical material and indicated the need for modifications in the theoretical framework and the use of new perspectives.

The research described in this thesis has followed a multiple-case design. Six case studies were conducted in six different municipalities (see Tables 3 and 4 in the Appendix). The reasons for choosing a multiple-case design were: (i) that two types of technologies have been studied, (ii) that two research themes have been covered and (iii) to allow comparisons to be made between cases. Qualitative methods of collecting and analysing the empirical material were used. The main reason for using qualitative methods was that the objective of the research was to gain a thorough understanding of decision-making

[1] A more thorough discussion of theoretical and methodological considerations can be found in the Appendix at the end of this thesis.

processes and the interactions between actors, as well as an understanding of the perceptions and views of the people involved. Another reason for using qualitative methods was the aim to place the results and analysis in the context of each specific case, which necessitated a detailed reconstruction of the cases.

Written documents and interviews constituted the main sources of empirical material. In total, 36 semi-structured qualitative interviews were conducted with representatives of organisations involved in project planning, municipal officers and politicians, neighbouring residents and representatives of groups affected by projects. An initial analysis was made of the interviews to reconstruct the story lines and to identify possible inconsistencies and ambiguities. These were checked with other sources and in some cases respondents were contacted again for clarification. The interviews were then structured and processed in order to facilitate interpretation and analysis of the parts of interest for the two research themes described above.

## 1.3 Conceptual clarifications

Clarifications will be made of two concepts that are widely used in this thesis: planning and citizen participation. The word *planning* can be found in various contexts in this thesis with somewhat different meanings. On the one hand, the term *project planning* is used, referring to activities and decisions involved in the process of carrying out renewable energy projects. It is taken to include both project management, in a strict sense, but also political discussions and activities associated with obtaining a permit for a facility. On the other hand, there is the term *land-use planning*, which can be defined as "the systematic assessment of land and water potential, alternative patterns of land use and other physical, social and economic conditions, for the purpose of selecting and adopting land-use options." (FAO 1993). Land-use planning is carried out by public authorities but involves the participation of other actors in society. Related, and to some extent overlapping, terms are physical planning and spatial planning. The word planning is also used in other contexts, e.g. municipal wind power planning (where it refers to land-use planning as well as other municipal decisions affecting wind power). In general, when referring to planning activities in municipalities this implies decisions and considerations made by the local administration as well as political discussions and decisions.

C*itizen participation* refers to the direct involvement of citizens in public decision-making processes. As is clear from the discussions in this thesis, participation can be organised in many different forms and can entail different levels of activity and influence of citizens. Since this thesis is focused on land-use planning and environmental regulation at the local level, citizen participation to a large extent implies the involvement of neighbouring residents and local interest groups that are affected by the proposed developments. The official participation in the decision process of public

authorities and large organised interests, as in the Swedish system of 'circulation for comment' (remissystem), is, however not included in the definition of citizen participation in this thesis, despite the fact that it is important for citizen control over political decisions. A related term is public participation, which in my view can be used interchangeably with the term citizen participation.

## 1.4 Outline

This thesis consists of four articles as well a comprehensive introductory part. The introduction serves the purpose of placing the articles within a wider context and further exploring some of the central findings presented in the articles.

In Chapter 2, the work is placed in a wider research context. The chapter starts with a discussion on the role of renewable energy in a sustainable energy system, followed by a presentation of different types of research on the implementation of renewable energy. Chapter 2 concludes with an introduction to the two research themes, where related research is presented and commented.

In Chapter 3, background is given on the Swedish context. First, a general presentation of the situation for wind power and biogas in Sweden is given. This is followed by a section on the role of municipalities in Swedish energy policy, and on how municipal planning is related to, and influences, the implementation of renewable energy in different ways.

Chapters 4 and 5 are the core chapters of the introduction and are devoted to the two research themes. Chapter 4 deals with the first research theme: the planning and management of locally based renewable energy projects. Based on the findings presented in the articles, the aim of this chapter is to present and discuss an analytical framework, which is used to structure the analysis and comparison of how renewable energy projects are planned and managed. The chapter starts with an outline of the framework and it is shown how it can be applied to biogas and wind power. There then follows a discussion of the connections between projects and their external context, and how this influences the development of projects.

Chapter 5 deals with the second research theme: siting conflicts and citizen participation. In this chapter, there is a discussion on some findings from the articles that are of general significance regarding the role of citizen participation in the handling of siting conflicts. The first three sections of this chapter are mainly theoretical. In the first section, three theoretical perspectives, which have different views on the goals, dilemmas and issues of participation, are discussed and compared. This discussion is used to explore two common dilemmas in participation practices: (i) the relation between consensus and conflict in participatory decision-making and (ii) the degree of influence given

to citizens and the way this is related to the decision-making powers of elected representatives. In the last section of Chapter 5 the theoretical discussions are related to the empirical experience, and it is asked what the lessons are for the practice of citizen participation in the handling of siting conflicts over renewable energy facilities.

Chapter 6 is the last chapter, where the general conclusions of the research are discussed, concerning both the theoretical and practical relevance of the results. The chapter ends with some comments on possible areas for further research.

### *Summary of articles*

Article I studies a failed attempt to site a biogas plant and illustrates the dangers of an expert-oriented planning approach that does not allow for early and substantial citizen participation, and therefore risks exacerbation of an initially sceptical position of neighbouring residents to full-blown local opposition.

In Article II a comparison is made of how wind power planning in three Swedish municipalities affects three important aspects of wind power development: the siting of turbines, the ownership of turbines and citizen participation. It is shown that there are considerable differences between the municipalities and that this has important bearings on all three issues.

In Article III an analysis is made of the limitations and potential of public consultation (the dominating form of citizen participation) in municipal land-use planning for wind power in Sweden, both at the overall and project level. Looking at five key issues (scope of participation, type of dialogue, influence, inclusiveness, legitimacy) it is concluded that, while consultation has some important limitations at both levels of planning, it is still important to give the public the opportunity to influence decisions concerning siting.

In Article IV a comparison is made of the planning of biogas projects in two Swedish municipalities. The two projects faced different challenges and conditions, concerning both project-specific issues and the political situation, due to differences in the local context. This led to the development of distinct approaches for the planning and management of the projects. In the article it is argued that successful project management must be both flexible and sensitive to local context-specific conditions.

# 2. Implementing Renewable Energy

## 2.1 Renewable energy in a sustainable energy system

The supply and use of energy in the world today is not sustainable. Energy use, mainly based on fossil fuels, has negative environmental and health impacts on local, national and global levels, both in the short- and long-term perspectives. Climate change, acidification and health problems arising from air pollution are some of the most critical problems (UNDP 2000, IPCC 2001). At the same time, the use of energy is unevenly distributed, with large shares of the population depending on traditional biofuel (firewood) for cooking purposes and lacking access to electricity (UNDP 2000:7ff). If we follow the present trends in the supply and use of energy there is a clear risk of irreversible damage to ecological systems around the world, which in turn will have serious negative impact on societies and individuals. There are, however, alternative development paths.

Within energy systems analysis, a response has developed to the problems posed by the present use and supply of energy in the world. In this multidisciplinary research field, factors such as environmental effects, costs and advantages associated with different ways of supplying, distributing and using energy are analysed. Modelling and scenario analysis are central tools for studying the development of alternative energy futures. The starting point of the research is that the present energy systems are not sustainable in the long term, and there is thus an underlying value assumption that a change must come about. Researchers within energy systems analysis have made scenario studies, which illustrate that it is possible to achieve global energy systems that cover the needs of all countries and people for a sufficient and secure energy supply, while at the same time being environmentally sustainable. These sustainable energy scenarios can vary significantly, but they have some basic characteristics in common (Goldemberg et al. 1988, Lazarus et al. 1993, Nakicenovic et al. 1998, UNDP 2000). To start with, they assume that there

will be an increase in global energy use compared with today in order to guarantee that everyone has sufficient access to energy. At the same time, it is a precondition that energy use has a significantly lower environmental impact than today. Other things they have in common are that they entail a substantial decrease in the burning of fossil fuel and the use of nuclear energy,[2] that they require a considerably increased efficiency in the end use and conversion of energy, and that the supply of energy is mainly based on renewable energy sources. The successful development of renewable energy thus becomes one of the key strategies in our efforts to achieve a sustainable energy future.

Energy from renewable sources can be divided into biomass energy, hydropower, wind energy, direct solar energy (heating and electricity production), marine energy (e.g. wave and tidal energy) and geothermal energy. Renewable energy sources provided about 13.5 % of the primary energy consumption in the world in 2001[3] (IEA 2003:3). The majority of this (9 %) came from traditional biomass in developing countries, mostly firewood for cooking and heating. Large-scale hydro and modern biomass plants both contributed around 2 % each, while the remaining renewable energy sources (wind, solar, marine and geothermal) together accounted for only 0.5 % of global energy consumption. Although the contributions of renewable energy sources are today modest, their potentials are huge and they can meet many times the present energy demands. There are, however, a number of obstacles to the introduction of renewable energy sources and the trends regarding their implementation in the world vary depending on the region and the type of renewable energy source (UNDP 2000, IEA 2004).

It is important to keep in mind that the sustainable energy scenarios do not predict what *will* happen in the future but what *can* be achieved. They show that it is technically possible to achieve a sustainable energy future taking into account technological opportunities and energy demands. However, what will actually happen depends on the decisions and actions that are taken today and in the future, by the variety of actors that influence the development of energy systems. In fact, to reach a future congruent with the sustainable energy scenarios requires major changes in policies, actions and behaviour. "Business as usual" will, on the other hand, lead to energy futures that are far from sustainable. This means that questions of implementation become of prime importance in studies on how to achieve a sustainable energy future.

[2] There are exceptions, with some scenarios including fossil fuel with decarbonisation and sequestration of $CO_2$ and new technologies for nuclear energy that are considered clean and safe (UNDP 2000:335ff).

[3] The remaining energy wass supplied by fossil fuels (79.5 %) and nuclear energy (7 %) (IEA 2003:3).

## 2.2 Research on the implementation of renewable energy

Research on renewable energy has traditionally focused mainly on technology and cost reductions. With the growing maturity of technologies there has, however, been an increasing interest in questions of implementation, and this body of research has now grown quite large. In this section a general overview of research on the implementation of renewable energy is given. The purpose is to provide a background to the specific focus of this thesis, and to place it in a larger context.

In political science, implementation is referred to as the part of the policy process where policy decisions are carried into action (Hill and Hupe 2002:6ff). Although there is debate about how to describe the policy process and how to view the role of implementation in it, there is general agreement that implementation in some way has to do with the carrying out of public policy decisions.[4] In this thesis I will, however, use the term implementation in a wider sense, when referring to the implementation of renewable energy. The starting point is that there is general political consensus on the need for more energy from renewable energy sources in the energy system, which in Sweden, for example, is stated in various government bills on energy (Regeringskansliet 1997, 2002). The implementation of renewable energy is, however, in the view taken here, not limited to activities connected to the carrying out of specific policy decisions, but also includes a broader set of activities and issues (e.g. technology development, local politics, management and financing of projects, public perceptions and attitudes), which are often not included when studying the implementation process. Likewise, the definition of what constitutes research on the implementation of renewable energy becomes wide. It includes not only policy and implementation studies, but a number of different research fields, as will become clear from the discussion below.

In order to enter the market, new renewable energy technologies have to compete with existing technologies for energy conversion, based mainly on fossil fuels. Contrary to earlier assumptions (Meadows et al. 1972) increases in the cost of fossil fuels due to resource constraints are not expected in the near future (UNDP 2000:264). A transition to energy systems based on renewable energy will therefore, to a large extent, rely on: (i) cost reductions in renewable energy technologies making them more competitive and (ii) a political will to remove barriers to the implementation of renewable energy and to internalise

[4] The traditional linear view of the policy process, as divided into a series of stages (agenda setting, policy formulation and legitimisation, implementation, evaluation) which are assumed to follow each other chronologically, has been widely criticised. A main point of criticism is that such an approach is too simplistic and often descriptively inaccurate. Policy decisions can, for example, be modified considerably during implementation, and implementation can even precede policy formulation and actually create new policy. Another argument is that the approach has a legalistic and 'top-down' bias since it focuses on the implementation of major policy programmes and neglects piecemeal changes (Sabatier 1999:6f, Barrett 2004).

environmental costs in order to increase fossil fuel prices (ibid, p. 264). The *evaluation and comparison of different policy instruments* employed by governments to promote the development and introduction of renewable energy has, therefore, come to be a major subject of research.[5] Taxation and subsidies are common forms of policy instruments. They can either be targeted directly at renewable energy, or at competing alternatives by reducing subsidies or internalising their environmental costs (e.g. through carbon tax). In recent years governments have tried a different set of policy instruments to promote renewable energy, which imply some sort of market regulation. Three basic types of schemes can be distinguished: minimum price standards (where utilities are obliged to purchase electricity from renewable energy at a certain fixed price), renewable portfolio standards (where electricity suppliers or consumers are obliged to purchase a certain proportion of their electricity from renewable energy) and tender systems (where the government puts certain quantities of renewable energy out to tender, which suppliers purchase at a price determined in the tender) (Langniss 2003:55ff). Voluntary and negotiated agreements can also be used as an alternative to market regulation. Other policy instruments related to renewable energy include information (e.g. product labelling), R&D funding and education. Research on policy instruments typically adopts a macro- and national perspective and has mainly focused on evaluating and comparing different economic aspects of policy instruments, such as effects on the deployment of renewable energy, cost effectiveness, harmonisation of instruments and effects on market stability (see e.g. Haas et al 2001, Langniss 2003, Meyer 2003).

Another research field is directed towards processes of *technical change* involved in the transformation of energy systems. Technical change is a wide research field and has been developed to study emerging technologies in general (Dosi et al 1988, Grübler 1998). One field of research focuses on the *innovation and development process* for new technologies, which is divided into different phases (R&D, demonstration, niche markets, learning and cost reduction, market diffusion). From being viewed as a linear model, technical development is now seen as an interactive process where the phases can take place at the same time with important processes of learning between them (Lundvall 1992). This has bearings on government policy since "support all along the innovation chain is, to some extent needed, in all phases at the same time, not in sequential order" (Åhman 2003:23). The technical change perspective has been applied to research on the innovation and development of renewable energy technologies (see e.g. Bergek 2002, Foxon et al 2004). Concerning renewable energy, phenomena such as path dependency and lock-

[5] A recent report from the International Energy Agency (IEA) provides a comprehensive overview of the policy instruments used in a number of IEA member states in order to support renewable energy (IEA 2004).

in effects (Dosi 1982, Arthur 1988)[6] are particularly important because of the long transition times of energy supply systems, which is due to the fact that technologies tend to have long lifetimes, or are integrated in systems with long lifetimes (Kaijser et al 1988). There has in recent years been a specific interest in the concept of experience curves for renewable energy technologies, which can be used to study how unit costs for a technology decrease with cumulative production (Neij 1999, Neij et al 2003).

The technical change perspective not only considers technical and economic aspects but also *political, administrative and social factors,* that influence the implementation of new technologies (Bijker et al. 1987). Energy systems can be described as large socio-technical systems which, apart from technical features, also include the actors and interactions between them and the political, legal and economical framework (Kaijser et al. 1988, Åstrand and Neij 2003:11). Within mature socio-technical systems, different factors (sometimes in combination with each other) tend to reinforce the position of existing technologies and hamper the adoption of emerging ones (Kaijser et al. 1988). For example, the dominant system culture, which is shared by key actors, can render these actors unable to appreciate the benefits of new technological solutions. They can also see new technologies as a threat to the system and actively counteract them. The traditional focus within energy policy on few large-scale and highly technical facilities over a multitude of small-scale applications, which characterises renewable energy, is a case in point (ibid.). Other examples are situations where existing infrastructure may favour some technologies over others, where the legal framework is not appropriate for handling issues concerning new technologies, and where existing economic support systems have side-effects that are not acknowledged and which hamper new technologies.

Although the amount of research on political, administrative and social aspects is still moderate compared with that on economic aspects, studies have been made both for renewable energy in general (e.g. *Energy for Sustainable Development* 2002, 2004) and for specific technologies, such as bioenergy (e.g. Klass 1995, Roos et al 1999, Ericsson et al 2004, van der Horst 2004, Raven 2004) and wind power (e.g. Wolsink 1996, 2000, Brunt and Spooner 1998, Toke and Elliott 2000, Bjerrum Jensen 2002, Enzenberger et al 2002, Bergek and Jacobsson 2003, Åstrand and Neij 2003, Agterbosch et al 2004, Toke 2004).

[6] Path dependency means that the development of a technology tends to follow a certain direction depending on its historical development. Lock-in refers to a situation where technical development has become closely locked to an old technology creating a strong barrier to emerging technologies.

## 2.3 Local processes: an introduction to the research themes

The above section gives an overview of different types of research on the implementation of renewable energy. This research tends to have a predominantly national and macro-level focus. However, when it comes to actual implementation, local decision-making processes and local actors have an important role to play. There is a fair amount of research which looks at the role of municipalities and other local actors in related fields such as general energy policy and climate change (see e.g. Collier 1997, Coenen and Menkveld 2002, Allman et al 2004). There is, however, relatively little research on local and municipal decision-making processes from the specific perspective of renewable energy implementation. This thesis focuses on the importance of local processes and actors by studying two research themes which deal with implementation issues for renewable energy at the local level. The two research themes are introduced below.

### *Planning of local renewable energy projects*

The implementation of renewable energy is often carried out in the form of locally based projects. The planning of such projects can be complex, involving a variety of different actors, issues and arenas. In order to successfully carry out a project, a number of obstacles and challenges must be overcome.

Previous research on renewable energy projects has focused mainly on questions of financing and ownership. Because of a variety of factors – such as real and perceived project risks, the small size of the renewable energy industry and specific projects, and dependence on unpredictable government policies – financing for renewable energy is often more expensive than traditional energy investments (Wiser and Pickle 1997). The choice of financing scheme can have considerable consequences for the economic viability of a project, and one area of research has focused on evaluating and comparing the conditions and advantages of different financing schemes and ownership structures (Wiser and Pickle 1997, Langniss 1999, Enzenberger et al 2003).

Relatively little research with a clear focus on organisational and political aspects of the planning of renewable energy projects in a local context has been carried out. On the other hand, there is a significant body of literature on project planning and project management in general. Article IV contains a general theoretical introduction to project planning, where it is argued that recent research demonstrates that the actual planning of projects rarely fits into the rational and linear model described in handbooks on project management. Instead, projects evolve in a process of interactions between the different actors involved, where goals have to be continuously modified due to factors such as new information, unexpected events, changes in preferences and the outcome of negotiations between actors (Article IV:3ff, Engwall 2002). Based on earlier research, an analytical framework is introduced in Article IV, which is used in a

comparison of the planning of biogas projects in two Swedish municipalities. In Chapter 4, the analytical framework is further explained and a comparison and discussion of the conditions for the planning of biogas and wind power projects is made.

### *Renewable energy, siting conflicts and citizen participation*

Siting conflicts have for some time been a major issue in the construction of facilities which imply significant environmental and health impacts, and which are fraught with high degrees of uncertainty and risk (see e.g. Rabe 1994, Lidskog 1994). Conflicts over siting are increasingly occurring also for renewable energy projects. In Article I a comparison is made between conflicts over renewable energy facilities and other controversial issues that have traditionally been studied. Although renewable energy projects constitute a heterogeneous category, there are some common characteristics:[7] (i) renewable energy tends to have strong general public support meaning that conflicts have a distinctly local character, (ii) opposition is often led and organised by ad hoc groups, consisting of neighbours and other local actors, while established environmental groups tend to take a passive or supportive position and (iii) the impacts, uncertainties and risks of renewable energy projects are often not as pronounced as for other siting issues meaning that risk assessments are less complex and the role of experts less prominent (Article I:2ff).

Wind power is the type of renewable energy mostly associated with siting conflicts, but also for other technologies there are cases of local opposition to facilities (Article I, Sinclair and Löfstedt 2001, Upreti 2004, Upreti and van der Horst 2004). For wind power, much of the research has focused on public attitudes. The results show that, while there tends to be strong general public support for wind power and other types of renewable energy (Carlman 1990, Krohn and Damborg 1999, Holmberg 2000, Ek 2004), attitudes to specific developments in the local area are more uncertain and often sceptical (Wolsink 1990, van Erp 1996, Hammarlund 1997, Krohn and Damborg 1999, Kaldellis 2004).[8]

In his critique of the Nimby theory (not-in-my-backyard), Wolsink (1994, 2000) has made an important contribution in differentiating between different types of negative attitudes and showing that attitudes are not static. He argues that the true Nimby reaction – to be positive to the wind power in general but negative per se to turbines in one's own vicinity – is quite rare. Being opposed

[7] Large-scale hydro power is not included here even though it is indeed a renewable energy technology. The long-standing history, complex issues and large impact associated with that technology make it a special case, which has been much studied elsewhere (e.g. World Commission on Dams 2000, *Energy Policy* 2002).

[8] Visual impact on the landscape is the main effect of wind turbines and it is also the most common complaint of local residents. Other issues also exist, such as worries about noise and about the decrease of house prices (see Article II:566 for a further discussion).

to wind power in general (and therefore also to developments in one's own vicinity) is likewise less frequent. Instead, Wolsink argues that most people are generally positive to wind power, while they do not have a predetermined opinion about turbines in their vicinity, and he identifies two other types of resistance as more common. The first is a "positive attitude to wind power which becomes negative as a result of the discussion surrounding the proposed construction of a wind farm" (Wolsink 2000:57). The second is a resistance "created by the fact that particular projects are considered faulty, without a rejection of the technology as whole" (Wolsink 2000:57). Wolsink's findings highlight the prime importance of a competent and sensitive siting procedure and of transparent planning processes that involve the public at an early stage, giving them the opportunity to influence decisions. Similar reflections have been made by other observers (Gipe 1995, Krohn and Damborg 1999, Chambers 2000, Hammarlund 1997, 2002).

Work on citizen participation in wind power planning consists, on the one hand, of a type of applied research with the aim of developing methods for enhanced participation. This includes both the development of technical tools for improved presentations, such as visualisations and maps, and experiments with different forms of participation (Energimyndigheten 2001, 2002, Hammarlund 2002). On the other hand, a number of empirical studies have touched upon the theme of siting conflict and citizen participation but have not made it the focus of their attention (Hull 1995, McKenzie Hedger 1995, Wolsink 1996, 2000, Miles and Odell 2004). An exception is a study by van Erp (1996) on the relation between participation and public attitudes in the siting of wind turbines in Germany. Some of the main conclusions were that citizen participation tends to be limited in most projects, that participation was shown neither to limit nor exacerbate public opposition and that participation measures need to be introduced with care without exaggerated expectations of their benefits (van Erp 1996:91ff). Relatively few studies analyse in depth how siting conflicts over wind power (and other renewable energy) projects actually evolve, how authorities and developers react to local protests and the means of dealing with conflicts through citizen participation.

On the other hand, when it comes to research on siting conflicts in general and on environmental and land-use planning, there has been written much about the issue of citizen participation. The research in this thesis draws on the experience and knowledge from that body of research. The articles in this thesis deal with practical experience, in Sweden, of citizen participation in the handling of siting conflicts for biogas and wind power in municipal land-use planning. Chapter 5 includes a deeper discussion of some of the important themes raised in the empirical case studies.

# 3. The Swedish Context

Renewable energy accounts for a large share of the energy balance in Sweden compared with the situation globally. This is primarily due to the ample supply of hydro power and biomass. In 2002, the Swedish electricity production was 143 TWh. Nearly half of this came from hydro power (Energimyndigheten 2003a:14). Bioenergy constitutes around 16 % of the total energy supply, which in 2002 was 616 TWh (ibid., p. 10).[9] Other renewable energy sources, however, provide only a marginal part of the energy supply. The other half of electricity production comes from nuclear power, but a parliamentary decision has been made to phase out nuclear power. Fossil fuels are a dominant component of the energy system, making up 38 % of the total energy supply. Most of this is used in the transport sector but substantial amounts are also used for heating and other purposes. A pronounced aim of Swedish energy policy is a transition of the energy system towards long-term sustainability (Regeringskansliet 1997, 2002). There are national scenario studies showing that this is possible, and that, among other things, it will require a substantial increase in the deployment of renewable energy technologies (Naturvårdsverket 1999:43ff).

## 3.1 Wind power

At the beginning of 2004, there were, in Sweden, around 700 wind turbines, equivalent to an installed capacity of 400 MW and an annual electricity generation of 0.6 TWh (Elforsk 2004). Wind power thus accounts for less than 0.5 % of the Swedish electricity consumption and compared with Germany,

[9] Of the total energy supply, 216 TWh constitutes conversion and distribution losses, mainly in nuclear power production. The total end use of energy in 2002 was 400 TWh. Thus, the figures for the share of bioenergy in the energy mix would be higher if losses were taken into account (Energimyndigheten 2003a:10).

Denmark and Spain, which are the fore-runners in Europe[10], development has been slow. The potential of wind power is, however, much larger than the present use. A government study from 1988 estimated the theoretical potential for land-based wind power in the southern half of Sweden to be 35-70 TWh, taking into account only safety distances to houses (of 300 and 500 metres) (SOU 1988). After including other factors, such as assessments of technical-economic profitability and the consideration of conflicting interests, e.g. nature conservation, defence interests and development plans for houses, the estimated potential decreased to 3-7 TWh. In the same study the off-shore potential was estimated to be around 22 TWh (ibid.). The Swedish Government has decided on a planning goal of 10 TWh of wind power by the year 2015 (Regeringskansliet 2002). Although this goal is not binding, it says something about the ambitions regarding wind power in the coming years. Most of the new capacity is assumed to be installed off-shore, but a significant part will still be installed on land, and in the near future land-based wind power is likely to dominate the development.

The technological development of wind power has been impressive during the past two decades. Turbines have continuously become larger and more efficient, while noise has been reduced. Today, land-based wind power is an established and reliable technology. It is one of the most cost-effective technologies for new power generation and it can compete with other technologies such as coal condensing power plants and large bio-fuelled combined heat and power (CHP) plants (Bärring et al 2003:25ff). For many locations, off-shore wind power is still more expensive and the costs are highly dependent on sea depth and proximity to land. Still, economic and financial factors continue to be the most important issues in the implementation of wind power, especially in a country such as Sweden with traditionally low electricity prices. Wind power cannot compete with the relatively low variable costs of existing hydro and nuclear power and thus depends on subsidies in order to be a viable alternative on the market.

In Sweden, wind power has received economic support in the form of subsidies for electricity production and an investment grant for the installation of turbines (Åstrand and Neij 2003:24ff). The investment grant has in practice been the most important factor steering the development of wind power, since few turbines have been built without grants while the total amount of money devoted to grants has been fixed for each time period (ibid, p. 35). Compared to countries such as Denmark and Germany, economic support for wind power has been both smaller and less stable in Sweden, which is an important explanation for the slower development. In 2003, the electricity certificate system was introduced as a new scheme to support electricity production from

[10] In April 2004, these three countries accounted for 83 % of the installed capacity in Europe. Germany had 14,600 MW, Spain had 6,200 MW and Denmark had 3,100 MW. The total global installed capacity at the same time was 40,000 MW (*Wind Power Monthly* 2004:70).

renewable energy sources. In this system producers are given certificates for electricity from renewable energy sources, while consumers are obliged to buy certificates equivalent to a certain amount of their electricity consumption (Energimyndigheten 2003b). This amount increases every year so that new electricity production from renewable energy will be stimulated. It is not clear how the development of wind power will be affected by the certificate system. Due to uncertainties in the ability of for wind power to compete with other types of renewable energy, electricity production from wind power still receives some additional subsidies (0.02 EUR/kWh in 2003[11]), which are planned to be phased out by 2010 (Regeringskansliet 2002, Energimyndigheten 2004). According to some observers there is a risk of stagnation in the development of wind power due to, among other things, uncertainties about profits (*Ny Teknik* 2003a, 2004).

To achieve the government ambition of 10 TWh, would require an implementation rate far above the present one. Today, even with relatively modest development, it can be observed that wind power poses a significant challenge to the Swedish planning system. It should, however, be noted that planning systems with Swedish characteristics – locally based land-use planning, relatively high degrees of citizen participation and strict environmental regulation – do not necessarily constitute a barrier to wind power implementation. On the contrary, both Germany and Denmark have planning systems which resemble the Swedish one. Miles and Odell (2004) have shown how land-use planning for wind power in Denmark has managed to strike a balance between "the two goals of landscape protection and the implementation of wind energy policy" (Miles and Odell 2004:43). A preparedness to let local authorities shape actual planning and a focus on local citizen participation in decision-making were identified as important factors. Wolsink, on the other hand, argues that in the Netherlands a focus on electricity utilities as those responsible for implementation has contributed to a top-down planning approach where public involvement is not a priority and where siting conflicts have been common (Wolsink 2000:62ff).

However, the active role of central governments seems to be essential for any planning system to be able to deal with the challenges posed by wind power. Research in the UK has illustrated the difficulties of local planning authorities in handling conflicting interests arising from wind power. Lack of information and experience, lack of strategic guidelines from central authorities and a conflict between priorities of land-use policy and energy policy have been identified as some central explanations (Hull 1995, McKenzie Hedger 1995, Toke 2004). Similar findings have been made in the Netherlands (Wolsink 1996, Bjerrum Jensen 2002). In Denmark, on the other hand, the planning responsibility given to local authorities, has been combined with strong central policies regarding strategic issues, such as deciding on appropriate safety distances for turbines and requiring local authorities to identify sites for wind

[11] This is equivalent to 0.18 SEK/kWh.

turbines (Bjerrum Jensen 2002:35ff, Miles and Odell 2004:55ff). The situation in Sweden resembles the pictures from the UK and the Netherlands. Political attitudes towards wind power are ambiguous in Sweden. On the one hand, wind power is depicted, in official government documents, as an important new technology in the transformation of the Swedish energy system (Regeringskansliet 2002). On the other hand, the government has been reluctant to introduce measures that would ensure substantial support of the introduction of wind power, both in terms of economic support and through the use of planning regulation[12] (for a further discussion see Article II:569). There is thus a tendency for central government to shirk its responsibilities and leave many of the practical dilemmas of planning and implementation to local authorities and project developers. Meanwhile, there are large variations among regional and local authorities regarding both attitudes to wind power and the competence and resources available for wind power planning (Article II, Böhler 1998, SOU 1999).

Co-operative ownership and other forms of local economic involvement, are often argued to have been an important element in the development of wind power in Denmark and Germany. Local ownership has both increased local public support for wind power and ensured financing in critical phases of development (Brunt and Spooner 1998, Toke and Elliott 2000, Enzenberger et al 2003). Miles and Odell (2004:64) argue that the high degree of co-operative ownership in Denmark has contributed to reaching consensus decisions on the siting of turbines, since people who were affected were themselves directly involved in planning. In both Denmark and Germany, local ownership has been supported in different ways through government regulation and support schemes (Brunt and Spooner 1998, Toke and Elliott 2000, Enzenberger et al 2003). In Sweden, local economic involvement has been an important part of wind power development, but it has not been centrally supported. There is a tendency today for the wind power business in Sweden to become dominated by large commercial actors, making it more difficult for co-operatives and other local actors to compete.

Although siting conflicts are becoming a serious problem for wind power development in Sweden, with several individual projects having being stopped or delayed, it has not been a decisive factor in the comparatively slow implementation. However, with growing pressure to install turbines, siting conflicts can turn into a major obstacle. Furthermore, there is a risk of a negative spiral effect if wind power is increasingly associated with controversies

[12] A discussion has, for example, been going on for a long time about introducing 'areas of national interest' (riksintresse) for wind power, which would strengthen the position of wind power compared with other conflicting interests. A process to identify such areas has started but has not yet lead to binding political decisions. Another example is that, until recently, there was no official goal concerning the development of wind power, and the present goal of 10 TWh by 2015 is in no way binding (Article II).

at the local level. Today, wind power has strong general support among the public (Holmberg 2000), but it is far from certain that this support will last.

## 3.2 Biogas

During the past ten years there has been increased interest in Sweden in building biogas plants, which enable fast co-digestion of organic waste and animal manure and produce biogas and a digested residue that can be used as a fertiliser. In 2001, around ten large-scale biogas plants were in operation, while several others were in the planning stage (Khan 2001).

Biogas plants are environmentally interesting from several perspectives. Firstly, they provide a biological means of treatment of organic household waste, making urban plant nutrients available for recirculation. Digestion is thus attractive compared with other forms of waste treatment such as landfilling and incineration. A strong driving force behind the increased interest in building biogas plants is the parliamentary decisions to increase the fees for landfilling of organic waste and to forbid it from the year 2005 (Naturvårdsverket 2004a). Secondly, digestion of agricultural residues and manure provides an efficient use of their nutrients. Thirdly, biogas is interesting from an energy perspective. Since biogas is produced from organic material it is a renewable energy form that does in principle not contribute to any net emission of $CO_2$ to the atmosphere. Biogas can be used for different purposes, such as heating, electricity production, mixed in with natural gas or as a vehicle fuel. In Sweden, there is considerable interest in using biogas as a vehicle fuel since it is one of the few existing renewable fuels on the market.

In 2001, around 1.3 TWh was produced from the digestion of sewage water and from landfills, while the production from co-digestion of organic material was less than 0.1 TWh (SBGF 2004). Biogas, however, has the potential to make a substantial contribution to the energy supply. In a study by Nordberg et al (1998) the potential biogas production for the year 2008 was estimated to be 17 TWh, most of it (14 TWh) coming from the agricultural sector (ley crops, straw and manure). Nevertheless, even if all biogas is used as vehicle fuel it cannot come close to meeting the energy demand of the transport sector which today is around 90 TWh, most of which is derived from fossil fuels (Energimyndigheten 2003a). The main benefit of biogas instead comes from the fact that it combines an environmentally attractive waste treatment method with the production of a renewable fuel.

Although the introduction of biogas in Sweden is moving forward at a steady pace there are still some important issues of implementation to be tackled. Though biogas production through digestion is in general an established technology, the way in which it has been applied in Sweden – large-scale co-digestion of different kinds of organic matter – is fairly new. This means that the biogas plants that have been built so far have not been running

with fully optimised process technologies and different plants have employed different technologies. Research is ongoing in Sweden on improvement of the digestion process, with the results being tried in demonstration facilities. The lack of technological maturity has also led to problems such as shut-downs and odour from plants. While these issues are better dealt with in new biogas plants, there is still a lot to do to improve the operation of such facilities. The issue of odour is the most common worry of local residents and an issue that has in some cases contributed to local opposition. While the siting of biogas plants can cause conflicts with neighbouring residents, the problem is not as common as in the case of wind power.

Another important issue with regard to biogas, concerns the attitudes among farmers and the food industry to using the digested product as a fertiliser in food production. The use of the digested product is essential in order to achieve an ecological and economical system, and it is a key reason for involving farmers. However, the food industry has been hesitant in accepting the digested product because of concerns that this could cause public worries (Haid 2002, *Nytt om biogas* 2004). There is also the possibility of having the digested product environmentally certified, which increases its value by making it possible to use it in organic farming.

From an economic point of view, biogas is not yet a profitable business. While one of the main incentives to build wind power turbines is to make money, this is not the case for biogas. Biogas plants in Sweden have been built and financed mainly by public actors, such as regional (municipally owned) waste companies and municipal waste and energy companies, with the farming sector as co-owner in some cases. Substantial investment subsidies from the government have been given to biogas projects and even with economic support the projects are generally not profitable[13] (*Ny Teknik* 2003b). Instead of economic motives biogas plants are built mainly for other reasons, such as environmental concerns. Economic considerations are, nevertheless, of major importance precisely because the economic margins are so slim, together with the fact that a biogas project requires large investments and poses economic risks for municipalities and other actors.

The planning and building of a biogas plant is a large, complex project, particularly from the perspective of the municipal administration. It involves a variety of different actors, issues and planning processes and requires an appropriate organisational framework. The organisational challenge that a biogas project imposes at the local level is an important issue for research in this thesis.

[13] Subsidies to biogas projects have been given mainly through the Local Investment Programme, which is described in the next section (3.3).

## 3.3 Renewable energy and the municipalities

In Sweden, municipalities have played an active part in the development of important technical systems, such as those for water, sewage, waste and energy, which they still often own and operate. With the introduction of a law on municipal energy planning in 1977, the responsibilities and authority of municipalities over energy issues increased. The law obliges every municipality to have a plan for the supply, distribution and use of energy, in which the effects of the activity on the environment, health and natural resources is analysed. It can in theory be used by municipalities as a tool to promote a sustainable energy system. However, the actual effects of the law are uncertain since it is only a framework law and does not force municipalities to act in a certain way or give them the authority to influence the energy decisions of other actors (Olerup 2000).

Many municipalities have their own energy companies, which gives them direct influence over the supply and distribution of energy. The main activities of municipal energy companies are the production and distribution of district heating and the distribution of electricity, while some companies also have their own electricity generation. District heating accounts for 40 % of the Swedish heat market and the way it is produced has important effects on the environment (Energimyndigheten 2003a:21). During the 1980s and 90s there was a change in fuel use from fossil fuels to biomass, and today 60 % of district heating comes from biomass (ibid, p. 22). Traditionally, all district heating has been municipally owned but during the 1990s municipalities began to sell these installations to larger, state-owned or private energy companies, who now control around one third of the market (Energimyndigheten 2000, 2003a:22). Regarding electricity, municipalities have little means of directly influencing production. As mentioned earlier, Swedish electricity is produced almost exclusively from hydro and nuclear power, and it is concentrated to three large companies which control 86 % of the production (Energimyndigheten 2003c:19).[14] The municipalities used to play a bigger role, but since the deregulation of the electricity market in 1996 many municipalities have sold their energy companies, or at least the part of it concerned with the production and sale of electricity.

The connections between energy generation and the environment are close. Municipalities have an important role also when it comes to environmental policy. In the Earth Summit conference in Rio in 1992, the Agenda 21 programme was adopted. It describes how sustainable development can be achieved and focuses strongly on finding local solutions. In Sweden, a key role in the Agenda 21 process has been given to the municipalities. Much of the work has involved starting discussions with citizens, creating networks with

[14] The three companies are *Vattenfall* which is owned by the Swedish state, *Sydkraft* which is jointly owned by the German company E.ON and Norwegian Statkraft, and *Fortum* which is predominantly owned by the Finnish state (Energimyndigheten 2003c:19).

organisations and private companies, and promoting the integration of environmental considerations in different municipal sectors. Agenda 21 activities have also dealt with the environmental impact of energy activities. Thus, a new perspective was introduced in the energy policy arena within municipalities, which had earlier been dominated by the technical and economical considerations of the municipal energy companies (Palm 2004:28). Survey studies have shown that work within Agenda 21 has been fairly successful in Swedish municipalities (Svenska Kommunförbundet 1996, Brundin and Eckerberg 1999, Edström and Eckerberg 2002). Still, the actual impact of this work is limited in many municipalities and the interest shown by the political leadership is often fairly low. Furthermore, the integration of Agenda 21 into other municipal sectors has slowed down in recent years (Edström and Eckerberg 2002:22ff). A worrying trend is that there seems to be an increasing gap between municipalities, where some continue to develop their work with Agenda 21 and environmental policies in general, while there is a stagnation or decline in other municipalities (Edström and Eckerberg 2002:23).

Two government subsidy programmes with the aim of supporting environmental planning in municipalities have addressed the connections between energy and the environment, and the role of renewable energy. In the programmes, municipalities develop projects – alone or in co-operation with other actors – and apply for subsidies which cover a certain proportion of the investment costs. The aim of the first programme, the Local Investment Programme (LIP), was to support ecological sustainability in general, which implied projects within many areas, renewable energy (mostly biomass) being an important part (Naturvårdsverket 2003). The second programme, the Climate Investment Programme (KLIMP), has a more specific aim of reducing the emission of greenhouse gases. Projects within the energy sector receive the bulk of the subsidies and many of these involve renewable energy (Naturvårdsverket 2004b).[15]

An evaluation of the LIP programme has shown that it has been rather successful in supporting environmental work in the municipalities that have received subsidies. However, there was an unfair distribution of subsidies; large, industrial municipalities received more while small, rural municipalities received less (Berglund and Hanberger 2003:62ff). A difference was observed between municipalities that received subsidies and those that did not, regarding, for example, the progress of environmental protection and the view of how the state assumes its role of supporting local measures to protect the environment (Berglund and Hanberger 2003:63).

[15] The Local Investment Programme ran between 1998 and 2002 and a total of 6.2 billion Swedish crowns (670 million euros) was disbursed. The Climate Investment Programme will run for 2003-2004 and has an allocation of 820 million Swedish crowns (89 million euros) (Naturvårdsverket 2003, 2004b).

The developments described above have certainly been important and environmental considerations today influence energy decisions in municipalities to a considerable degree. Research has been carried out to increase our understanding of decision-making processes in municipalities both regarding the connection between energy and the environment, and specifically regarding renewable energy.

Summerton (1992) analysed the interactions and power relations between different actors concerning the introduction of district heating in a small municipality in the 1980s. She studied the role of system builders, who are responsible for initiating and planning change, and highlighted the importance of their capacity to mobilise support for the new system among important actors. Two studies have looked at municipal decisions regarding the choice between coal and biomass, which was a common situation in municipalities during the 1980s and 90s (Olerup 1994, Bardouille 2001). It was shown that the decision to opt for biomass was complex and involved a power struggle between different actors within the municipality. It also appeared that not only economic considerations were important in influencing decisions, but also other factors such as local environmental concerns. In an attempt to understand and compare processes of change, Ling et al (2002) studied three municipalities which had in common the fact that there was a political will to work towards a sustainable energy system and an increase in the use of renewable energy. The results showed that there is not one universal way of initiating and organising change. Instead, there are different models that can be equally appropriate depending on the prevailing conditions in each specific municipality.

Other research suggests that the integration of environmental and energy policy can sometimes be a slow process. Palm (2004) has shown how energy politics in two municipalities was divided into three independent policy areas, one dealing with supply, one with conservation and one with environmental issues. The supply perspective – where the assumption is a steadily increasing demand for heat end electricity and which focuses on an inexpensive and secure energy supply – was found in the municipal energy companies and among leading politicians and was the one that dominated energy policy in the municipalities. The other two perspectives were adopted by the municipal housing company, the municipal energy counsellor and the Agenda 21 office, but did not have a significant influence on the overall energy policy of the municipalities. In an earlier study, Lindquist (2000) found similar results. His study, however, also included municipalities without their own energy companies and in these it appeared that the integration of energy and environment was more successful.

Two other sectors with implications for renewable energy and where municipal influence is important are waste management and land-use planning. The management of sewage and household waste is entirely a municipal affair in Sweden and it is organised either by municipal companies or by regional

companies that are jointly owned by several municipalities (RVF 2003). The choices regarding waste treatment systems have important energy implications. Incineration and biogas production can, for example, contribute to energy production, while other systems, such as composting and landfilling have little or no energy gains.

The Planning and Building Act gives local authorities a monopoly on land-use planning, which means that state authorities can only override a municipal planning decision if a national interest has not been taken into account, if there has been a lack of co-operation between municipalities or if a project will threaten people's health and security (SFS 1987). The importance of land-use planning for renewable energy lies in the overall planning of the siting of facilities and in the permit-granting process for specific projects. Through their planning monopoly, municipalities have a powerful means of obstructing or promoting the establishment of new facilities.

# 4. Planning of Local Renewable Energy Projects

Based on the findings in the articles, the aim of this chapter is to present and discuss the analytical framework that has been used to structure the study and comparison of how renewable energy projects are planned and managed. The chapter starts with an outline of the framework and it is shown how it can be applied to biogas and wind power. A discussion then follows of the connections between projects and their external context, and how this affects the development of projects. The main conclusions that can be drawn from the chapter are summarised in Chapter 6.

## 4.1 Planning in parallel processes

Research on the planning of large, complex construction projects has shown that they are not carried out in the form of a coherent and rational planning process. Instead they develop through a number of separate processes where different questions are dealt with and where co-operation and negotiation between different actors, who have a stake in the project, are of crucial importance (Article IV, Sahlin-Andersson 1989, Jacobsson 1994, Blomberg 1998, Engwall 2002).[16]

In a study of the planning of a coal-fired combined heat and power (CHP) plant in Stockholm, Jacobsson (1994:86ff) divides project planning into three parallel processes, based on the concrete issues that were handled. A main finding of the study is that the planning of a project is too complicated to be able to handle within one single process. The processes identified by Jacobsson are the energy-political, the environmental-political and the technical. They deal with different types of issues: national energy and industrial politics, local environmental effects, and technical possibilities and limitations (ibid., p. 88f). Different actors were involved in the different processes. The energy-political

[16] See Article IV for a general introduction to recent research on project planning and management.

process involved leaders from government ministries, industry and the municipality. In the environmental-political process the main actors were municipal politicians and civil servants, the permit-granting authorities and environmental groups, while the technical process took place inside the municipal energy company. Jacobsson argues that the actors were on the whole unaware of the discussions that were going on in the other processes, even if these were decisive in realising the project. A project idea had to be accepted in all three processes to become successful, and it could happen that it 'died' in one process while it continued to be discussed in another (Jacobsson 1994:87). What appears is a complex picture of project planning, where the individual actor has difficulties taking stock of all the issues that influence the outcome of the project.

The approach in Jacobsson's study can also be applied to renewable energy and forms the basis of the analytical framework used to structure the analysis of the planning of locally based renewable energy projects. The planning of renewable energy projects can, generally speaking, be categorised into three parallel processes: the project-specific process, the political process and the permitting process. Table 1 summarises the main characteristics of the three processes. A detailed description of them is given in Article IV.

There are some important differences between the parallel processes in the study by Jacobsson and those of the planning of renewable energy projects. Firstly, the planning of a coal-fired CHP plant in Stockholm involved actors at the municipal and regional levels, but also those at the national level, which increased the complexity of the project (Jacobsson 1994:84ff). This is not normally the case in renewable energy projects, which instead tend to have a strictly local character. Secondly, the parallel processes in Jacobsson's study went on independent of each other, and the actors in each process were largely unaware of what was going on in the other processes. No single actor could have an overview of the complete planning process. This is not the situation in most renewable energy projects, where the project developer has an important role in all three processes (even if his ability to influence the outcome of the processes varies) and where the processes are interlinked and mutually influence each other. The question of connections between the parallel processes will be discussed later in this chapter.

With the above differences in mind, the model is well suited to help analyse the issues involved in the planning of renewable energy projects. An advantage of the model is that it facilitates comparison between projects, taking into account both similarities and differences. It also allows for deeper focus on those parts of the planning process that are most interesting in each specific case.

**Table 1.** Parallel processes for the planning of renewable energy projects: actors, arenas and issues (adapted from Jacobsson 1994:89).

| | Actors | Arenas | Issues |
|---|---|---|---|
| **Project-specific process** | Project developer and other actors directly involved in the project | Working groups and reference groups connected to project planning<br><br>Informal contacts | Technical, economic and environmental aspects of project design<br><br>Distribution of roles and resources between actors |
| **Political process** | Municipal politicians and civil servants<br><br>Project developer | Municipal meetings<br><br>Local press<br><br>Informal contacts | General discussion on arguments in favour of and against the project |
| **Permitting process** | Permit-granting authorities<br><br>Authorities and organisations giving comments<br><br>Neighbouring residents and other groups affected<br><br>Project developer | Consultation meetings and written comments connected to the permit-granting procedures<br><br>Local press<br><br>Informal contacts | Environmental and health impacts<br><br>Weighing of different interests |

The conditions of project planning vary considerably between renewable energy technologies depending on the specific characteristics of each technology. This becomes clear in the following comparison between biogas and wind power concerning differences in the application of the analytical model and the significance of the parallel processes.

### *Biogas*[17]

Biogas production concerns several sectors and policy areas, such as waste, energy, agriculture and transport. The planning of a biogas plant is thus a complex project involving several actors with different interests, as well as a number of different issues that have to be brought together into one common project (Article IV). However, the complexity varies considerably between different projects, and sometimes the project developer is less dependent on other actors. In Sweden, the municipalities – through their waste companies – often act as project developers of biogas plants. This means that political discussions and support becomes an important factor. The siting of biogas plants is normally not very controversial but in some cases substantial local opposition has developed (see Article I) . In sum, for a biogas project all three parallel processes can be of importance and can create challenges to project management, and the specific local context of the individual project plays a decisive role (Article IV).

### *Wind power*

For wind power the situation is somewhat different. To start with, relatively few actors tend to be directly involved in wind power projects – the owners of turbines, the project developer and land owners being the three most important actor categories. There are many different types of owners of wind power. In Sweden, the most common are individuals (often farmers), co-operatives, energy companies (municipal, state-owned or private) and specialised wind power companies (Åstrand and Neij 2003:73). The project developer may be a company that specialises in developing wind power projects, either on contract for a customer, to own the turbines themselves or to sell them when the project is completed. Energy companies or co-operatives can also act as project developers themselves. In a specific project one actor can at the same time have the role of owner of the turbines, project developer and land-owner, which reduces the number of actors involved. In most cases the project developer administers the project alone without involving other actors in the continuous planning activities, and this limits the complexity of the project-specific process.

Issues that can be salient in the project-specific process include: negotiations with the land-owner on compensation for using the land for turbines, negotiations with turbine manufacturers, the financing for the project and the design of ownership schemes in cases of joint ownership. Wind power projects can vary greatly in size, ranging from one or a few turbines to large-scale parks with hundreds of turbines. Obviously, the complexity of issues

[17] Here, only a summary is given of the issues involved in the planning of biogas projects and the relevance of the parallel processes. For a full analysis see Article IV.

depends on the size of the project, but the types of issues that need to be dealt with are largely the same.

In Sweden, wind power is usually developed by private actors and not by municipally owned companies, which means that one dimension of the political process – the decision to invest in the project or not, which is important for biogas – is often absent in wind power projects. As discussed in Articles II and III, local decision-making is still essential for the implementation of wind power, since the municipality has a monopoly over land-use planning. Political discussions are most pronounced at the overall level in the development of the municipal comprehensive plan, in which suitable locations for wind power are identified. The permit-granting of individual projects does not usually become a focus of political discussion or disagreement and is instead normally handled as a technical issue by the local administration. However, in the case of large or controversial projects political discussions can play an important role.

For wind power projects, the permitting process is often the most critical of the three parallel processes. As has been discussed in Chapter 2, the siting of wind power turbines is often controversial and increasingly meets with opposition from neighbouring residents and other affected groups. The issues dealt with in the permitting process are discussed in Articles II and III and in Chapter 5.

### *Connections between the processes*

It was mentioned above that a characteristic of renewable energy projects is that there can be important connections between the parallel processes. Two examples will be given here. Firstly, for projects where municipalities are involved as owners, the project-specific and political processes are often closely interlinked. On the one hand, project managers not only deal with project-specific issues but also act in the political arena if this is necessary in order to gain political support for the project (Article IV:14). On the other hand, the project-specific process becomes inherently political when there are politicians on the managing board of the company. It was, for example, a political decision in Falkenberg to introduce joint ownership of wind turbines in a wind park built by the municipal energy company (Article II:574ff). However, as noted in Chapter 3, municipal energy and waste companies tend to act quite independently of their political owners, which is often also the case for decisions concerning biogas and wind power.

Secondly, there can be significant connections between the political and permitting processes. An illustrative example of this is described in Article I, where initial firm political support for a biogas project changed to a political decision not to allow detailed development planning, which de facto meant the termination of the project. This decision was partly due to strong opposition among local residents. For wind power there are similar examples of the

reluctance of local politicians to award building permits or approve detailed development plans due to the existence of opposition among local residents. Local opposition, however, does not always lead to the withdrawal of political support, as is exemplified by the case study in Falkenberg described in Article III.

## 4.2 Project planning in a wider context

So far in this chapter the focus has been on the internal processes of project planning. While it has been acknowledged that each project is different because of differing contextual factors, projects have still been described primarily in terms of well-demarcated enterprises, and their relations to other projects and to the day-to-day activities of organisations has not been examined. Research on project planning shows that such a perspective is too narrow (Sahlin-Andersson and Söderholm 2002:13). The handbook definition of a project as a unique task separated from other activities, with a clearly visible beginning and end, well-defined goals and a specified amount of resources, is overly simplistic. On the contrary, a project is connected to the world outside in different ways, before, during and after its implementation (Blomberg 1998, Blomquist and Packendorff 1998, Newcombe 2000, Engwall 2003).

Firstly, all projects have a previous history which makes it difficult to define when a project actually starts and how it is separated from other activities. Often the actual project idea cannot be traced to one person or to a specific moment in time. Instead it slowly emerges on the basis of earlier, more or less precise, ideas and visions, and as an interaction between different people and organisations, until it takes a more concrete form and develops into a project (Blomberg 1998:19ff). Projects are often started and carried out by people and organisations who have a history of working together, which makes the individual project a link in an ongoing process of co-operation and change (Blomberg 1998:23, Engwall 2003).

Secondly, projects are linked in various ways to external events during the planning and implementation phase. Projects need material and financial resources which have to be obtained from somewhere and they compete for these resources, both with other projects and with the permanent activities of organisations. However, projects can also be complementary to other activities so that they mutually reinforce each other (Blomberg 1998:25ff). Projects are dependent on a myriad of decisions and developments that take place outside the actual project organisation, for example, the existence of a necessary technology, the suitability of a desired location or the availability of financial resources.

Thirdly, once completed, projects can have long-lasting (positive and negative) effects that can be both of a physical and organisational nature. Ideas and expectations among the actors involved regarding the future and the long-

term role of the project can influence actions and decisions during planning and implementation (Engwall 2003:791).

An important aspect of the connections between different projects and between projects and other activities concerns processes of learning (Lundin and Midler 1998). Projects are often aimed at completing tasks that go beyond the day-to-day activities of organisations. Thus, projects are generally good at creating new knowledge, questioning old solutions and promoting innovation. Because of the temporary character of projects, routines for learning and accumulating knowledge that exist in day-to-day activities of organisations are, however, more difficult to establish (Ibert 2004:8f). It is, however, important to distinguish between different types of projects. While some projects have a more unique character, others "are of a repetitive nature, with little deviation in relation to preceding projects within the organisation" (Engwall 2003:793). For the latter type of projects routine behaviour becomes more important and is also easier to create.

The remainder of this section will deal with the question of how biogas and wind power projects are related to external conditions, with examples from the empirical case studies.

### *Biogas*

From the three cases that have been studied it is clear that the planning of a biogas project cannot be viewed as an isolated event separated from other activities. It is true that the planning and construction of a biogas plant is normally a unique enterprise for the major actors involved in the project, meaning that it clearly lies outside the day-to-day activities of organisations. However, biogas projects have close connections to both other projects and to wider processes of change that are larger than the single project. Looking at the three cases, it can even be argued that the more the project was linked with external activities, either by chance or by the intentional actions of key persons, the greater was the possibility of carrying out the project successfully.

In Västerås, the biogas project had a long previous history and was linked to several, quite different, wider processes of change, which lay in the interest of each of the three key actors involved: the regional waste company, the farmers and the municipal energy company (Article IV). First, there was an ongoing process to reorganise the system for handling organic household waste, from landfilling to biological treatment. This transition began before the plans for a biogas plant were concretised, with the introduction of source separation of waste for households in Västerås. Thus, it was clear that some form of biological treatment was needed even if it was not certain that it would be a biogas plant. At the same time there was a parallel process among local farmers to find a financially attractive way to grow ley crops (clover), which was needed in order to improve the quality of the soil. A biogas plant was seen as one of the most interesting solutions since it would make it possible to digest the ley crops

and obtain both energy (in the form of gas) and a high-quality fertiliser. For the municipal energy company the project was interesting since it provided an environmentally friendly vehicle fuel. In Article IV, it is shown how this situation meant that project planning was carried out as a joint endeavour between the key actors where much effort was devoted to finding solutions that met the requirements of each actor. Another effect was that support for the project was strong among key actors since the biogas project was seen as an important part of larger processes of change (Khan 2003:43).

In Vänersborg, the biogas plant was in a similar way linked to wider agendas. The building of an infrastructure for biogas in vehicles had started before the planning of the biogas project, and in one of the municipalities the city buses were already using biogas. There was a political vision of extensive regional development of biogas for vehicles, and an increase in the capacity for production was seen as an important part of this vision (Khan 2003:36). As in Västerås, there was also an ongoing process of reorganising the handling of organic household waste and it was clear early on that some form of biological treatment would be necessary.

Comparing the case in Lund with those above, a different picture emerges. Even though the regional waste company managed to involve several key actors early on in the planning, and the political commitment in Lund was initially strong, the biogas project was not embedded in larger processes of change in the way they were in the first two cases. For example, although there were plans to include household waste in the biogas process at a later stage, this was not an essential part of the project. In Lund, most household waste is incinerated and there were no immediate plans to introduce source separation and biological treatment of household waste on a large scale. Furthermore, the biogas project was not linked to any particular vision concerning biogas for vehicles, even though this was seen as one alternative use of the gas. Finally, the farmers did not see the biogas project as something essential for their business, although they were prepared to deliver manure to a biogas plant and receive digested material. Thus, even though most actors had a positive attitude to the biogas plant, there were no strong connections between the project and other activities of the organisations involved. This helps to explain why the political support for the project could disappear so quickly when it became clear that there was opposition among local residents to the siting of the plant (Article I).

Apart from the general connections discussed above, there are many specific examples of how these biogas projects were dependent on actions and decisions outside the project itself. In Västerås, where project planning was characterised by a multitude of complex issues, external events had a significant impact on the development of the project. One example is that the original location of the plant had to be abandoned when it became clear that the municipal energy company was going to introduce district heating in the area, which would undermine the possibility of selling the gas to the households in the area (Khan 2003:24). The change of location, in turn, influenced the decision about how

to use the gas since, in the new location, it was more profitable to sell the gas as vehicle fuel. Another important external influence on the project was the attitude of the food industry to the use of digested material as fertiliser. The reaction of the project leaders to the sceptical and unclear position of leading organisations in the food industry was to incorporate these discussions into the project and make them an integrated part of the planning process (Haid 2002:32ff). Thus, by obtaining approval of the digested material before the building of the biogas plant, the security of the project was increased, not the least from the perspective of the farmers involved (Article IV, Khan 2003).

A crucial external factor is the dependence on government subsidies. All three projects received a grant from the Local Investment Programme (LIP), which contributed with between one third and half of the investment costs. In all cases the grant was considered crucial for the realisation of the project. In Västerås, uncertainties about subsidies caused significant delays in the project.[18] Apart from being economically essential, government subsidies also had the function of giving the projects increased legitimacy and strengthening the arguments of proponents on their environmental advantages (Khan 2003:44). Dependence on government subsidies is, in fact, something which most biogas projects in Sweden have in common, and government support seems to be a precondition for the implementation of biogas. This raises wider questions about the role of policy measures in the implementation of biogas and about the interactions between municipal action and state policies. Although it has not been possible to study these interactions here some observations can be made.

Unlike wind power, there is no manifest governmental aim to promote the development of biogas and there is no official goal for the production of biogas in the future. In the subsidy programmes directed towards municipalities (LIP and KLIMP), it is the municipalities themselves who decide which type of projects they want to implement. Thus, political initiatives regarding the implementation of biogas are mainly taken at the municipal level. The government, however, still maintains important control since they decide which projects to support and which to turn down. Furthermore, other national policy measures, such as the ban on landfilling of organic waste and tax exemptions on biogas as a vehicle fuel, affect local decisions. It seems that the current combination of policy measures has created fairly strong incentives in favour of biogas.

Another question is to what extent local decisions to invest in biogas have been shelved, or have not emerged, due to real or perceived difficulties in obtaining government subsidies. An underlying ambition of the subsidy

[18] Under an earlier subsidy programme, a grant covering 30 % of the investment costs was approved, but was judged to be too little to ensure the economy of the project. For this reason project planning stood still for over a year. Later a grant was approved from the Local Investment Programme, which led to the planning of the project being resumed (Khan 2003:26).

programmes has been to promote broader environmental activities at the local level, by starting change processes and by providing good examples for other municipalities. Evaluations imply that these aims have partly failed and that municipalities that have not received subsidies are instead increasingly loosing faith in the intentions of the state to promote local environmental investments on a broad scale (Berglund and Hanberger 2003:63). The question is to what extent this applies to biogas.

When it comes to processes of learning between biogas projects the picture is mixed. On the one hand, there are a number of companies that specialise in biogas technology and the actual construction of plants, and they are involved in many biogas projects. Thus, there is a continuous process of learning in the technological development of biogas plants, and the plants that are being built in Sweden today are improved thanks to the experience gained from earlier projects (concerning e.g. reduction of odour, effectiveness of the process and mixture of materials).[19] When it comes to organisational matters, on the other hand, key actors such as waste companies, do not normally engage in the building of more than one large-scale biogas plant since this is sufficient to cover their needs. This means that there is no natural process of learning in the planning and management of biogas projects, concerning e.g. organisational set-up, interactions and role assignment between actors, and the handling of critical and recurrent issues.

### *Wind power*

As discussed earlier, wind power projects differ considerably from biogas projects in that the project-specific and political processes are normally less complex, while the siting of turbines can be very controversial. Wind power projects are furthermore less unique than biogas projects, and normally the same developer carries out many projects, taking care of both organisational and technical matters. Thus, the connections between wind power projects are important, which can be seen in various ways.

Firstly, there are significant processes of learning between projects concerning, for example, the order in which different elements of project planning are carried out, communication with neighbouring residents and other affected group, and the making of the environmental impact assessment. To some extent, it is possible for developers to establish a model for the realisation of the project with standardised procedures as an aspect of project planning, although there is always a need to be prepared for the unexpected.

Secondly, learning also includes developing contacts with key actors such as land owners, permit-granting authorities, municipal officers and decision-makers, customer groups and the military. In Laholm, for example, the project

[19] Technological development also results from research on the biogas process carried out at universities and research institutes (*Nytt om biogas* 2003).

developer managed to create a network of contacts with local farmers which meant that he gained access to a large share of the market (Article II:574). Familiarity with local political and administrative conditions is particularly important since the way in which wind power is dealt with can differ considerably between municipalities.

Thirdly, co-ordination between projects in the same area is important in order to ensure appropriate siting of turbines, both with regard to optimising the available wind energy and concerning the visual impact of turbines. This is, however, the task of the municipal planners rather than of the individual project developer, and it is something that is best done at the overall planning level. Also here Laholm can serve as an example, this time, however, of how co-ordination between projects failed, leading to a dispersed siting of turbines (Article II:572ff). Learning, however, also occurs within municipalities as a result of experience gained within the municipality as well as the experience accumulated in other municipalities. Here handbooks, pilot projects and other information material from government agencies play an important role in the diffusion of knowledge and experience (e.g. Energimyndigheten 2001, 2002, Boverket 2003).

Fourthly, an important aspect of connections between projects has to do with the attitudes and reactions of local residents. Bad experience with earlier turbines or with the contacts with project developers and authorities will almost certainly mean a negative attitude to additional turbines in the area. This was observed in both Laholm and Falkenberg (Article II). In Falkenberg, the bad experience not only concerned earlier wind power projects, but the general industrial development of the area, which contributed to the fact that many residents strongly opposed the new wind power project (Article III:16).

As indicated above, the co-ordination between overall land-use planning in municipalities and the planning of specific projects is important. A thorough and well-thought-out municipal comprehensive plan that has been extensively discussed in an open process, can facilitate the implementation of specific projects, both because crucial issues are studied and dealt with in advance, and because the public has been consulted and has had the chance to influence strategic issues such as the selection of suitable locations for turbines. The lack of overall planning, or a badly carried out plan, can, on the other hand, make project planning more difficult, while a restrictive approach from the municipality can make it impossible to carry out projects at all.

Not only land-use planning affects the implementation of specific projects, but also general local policies concerning energy and the environment. In some municipalities, renewable energy has become a central policy issue, and it can lend considerable prestige to a municipality to be perceived as being at the forefront of the development of a sustainable energy system. The chances of carrying out wind power projects are improved under such circumstances. Attitudes of the local government affect, for example, decisions concerning land-use planning. As argued in Article II, political support does not, however,

necessarily lead to an ideal implementation of wind power, since there is a risk that regulations on siting become too lax and that the opportunities for people to participate become reduced (Article II:577f).

# 5. Renewable Energy, Siting Conflicts and Citizen Participation

In the articles presented in this thesis, practical experience of citizen participation in the handling of siting conflicts for biogas and wind power plants in Swedish municipal land-use planning, has been studied. Some of the findings raise questions that are of general significance regarding citizen participation in the handling of siting conflicts.

Firstly, it could be observed that there are different ways to look at the role of participation and the goals it should fulfil. Participation is viewed by most actors as an appropriate approach in the handling of conflicts. However, the concept tends to be used in an instrumental way, as a tool for each actor to reach their specific goals (e.g. to gain acceptance for the siting decision, to obtain input concerning different views, to show that the process is democratic or to stop the decision to build the facility). While this is understandable it is also overly simplistic, since it does not acknowledge that there are many different possible goals of citizen participation, which may even be conflicting.

Secondly, there are some recurring dilemmas which participation practices always have to deal with, which also seem to be salient for the siting of renewable energy facilities. Two of these are (i) the relation between processes of consensus and conflict in participatory practices and (ii) the degree of influence given to citizens and the way this is related to the decision-making powers of elected representatives.

The aim of this chapter is to study the significance of the questions mentioned above for the practical realities of participation in the planning of renewable energy facilities in Sweden. In order to do this, it is necessary to start with a fairly theoretical discussion, which is provided in the first three sections of this chapter. In the last section, the theoretical analysis is related to the empirical experience in the case studies. There is a discussion on the lessons that can be drawn from the theoretical analysis regarding the practice of citizen participation in the handling of siting conflicts over renewable energy facilities.

## 5.1 Three perspectives on participation

The topic of citizen participation in decision-making processes concerning local environmental conflicts has attracted the attention of researchers from a variety of theoretical perspectives, who have approached the issue from different starting points. Three perspectives, which are all influential, are risk communication studies, environmental movement studies and theories on participatory and deliberative democracy.[20] A common feature of these perspectives is that they argue for substantial participation which gives citizens increased access to, and influence over, decisions compared with traditional representative decision-making.[21] Despite this, these perspectives express markedly different views about some of the core issues of participation and environmental conflict. A discussion and comparison of the three perspectives, therefore, highlights some important principal differences in the way one can look at citizen participation.

### *Risk communication studies*

The practice of risk communication has its origins in the USA, in the efforts of authorities and industries to gain public confidence for expert risk assessments, both concerning general risks (e.g. GM food, chemicals and low-level radioactivity) and risks associated with the siting of facilities (e.g. hazardous waste, factories, infrastructure, landfills and energy plants). Risk communication has also developed into a specific research area, where academics from different disciplines study issues related to the communication and management of risks. In order to understand how citizen participation is viewed within the risk communication perspective it is necessary to know the reasons and arguments for embracing increased participation. The original problem from a risk communication perspective is that it is difficult to gain public acceptance for risk assessments made by experts and, more specifically, for the siting of facilities in locations that experts deem to be the most appropriate.

Fischoff (1995) and Leiss (1996) have described how this challenge has led to a gradual development of the practice of risk communication. In the first phase, risk communication was carried out from a purely technocratic perspective with the focus on expert assessments and information to the public. (Leiss 1996:87ff) In the second phase, it became clear that simple information was not enough, and communication techniques from marketing and advertising were used to package the message in an attractive way. In the third

[20] Examples of other perspectives are the environmental justice movement (Bryant 1995) and theories within planning research, such as collaborative planning (Healey 1997).

[21] Parallel with research, there has also been an increased focus on citizen participation in the planning process in different countries, primarily regarding the legal requirements on participation, but also regarding planning practice.

and present phase, it is acknowledged that in order to gain public trust it is not sufficient to provide information only, even if it is done in a persuasive form. It is also necessary to engage in a dialogue with the public and try to reach a consensus about how to handle risk issues, and to show in practice that the voice of the public is heard (ibid., pp. 90-91). The underlying goal of participation, even if not pronounced, is thus to increase the legitimacy and public acceptance of decisions related to risk.

Trust and consensus are two key concepts within risk communication, which are viewed as being closely related to participation. An important goal of participatory decision-making is to restore the constantly decreasing trust in authorities and industries (Cvetkovich and Löfstedt 1999:1ff). There is a strong belief in the possibility of reaching consensus decisions through the use of participatory processes especially designed for this purpose (Jaeger et al 2001). A further goal of participation is to make authorities and industries more aware of the views of local communities.

### *Environmental movement studies*

The study of environmental movements and environmental protest can be placed in the wider field of research on new social movements, where peace movements, feminist movements and civil rights movements are other examples. Social movement studies constitutes a large and heterogeneous research field. One important part of it looks at the issue of why social movements take the forms they do, focusing on issues such as the formation of collective identities and cultures (Della Porta and Diani 1999, Meyer et al 2002). Another topic, which is the most relevant in this context, concerns in what ways social movements can influence political and social changes in society. Here the focus is on issues such as resource mobilisation, political opportunity structures, protest capacity of organisations, interactions and networks, and the significance of different political institutional settings (Della Porta and Diani 1999).

Within environmental movement studies there is a field of research that focuses on the study of local environmental conflicts and protests, both when protests have been organised by established environmental organisations and when they have been initiated and driven by ad hoc groups formed in the local community (Gould et al 1996, Rootes 1999, 2003, Hayes 2002, Dryzek et al 2003). To understand how citizen participation in decision-making is viewed within environmental movement studies, it is crucial to recognize that a basic assumption of the perspective is that there often exists a fundamental conflict between environmental movements, on the one hand, and the state and industry, on the other hand, concerning the way in which environmental protection and the relationship between the environment and technological progress are regarded (Deudney 1995, Taylor 1995, Gould et al 1996). A main issue addressed by the research is the difficulties encountered by local

communities and environmental organisations in objecting to undesired developments that are seen as harmful to the environment.

There is an implicit view that there is a need for increased citizen participation with the goal of giving local communities real influence over decisions. However, unlike the two other perspectives, citizen participation in decision-making is not studied in itself, as a method of addressing conflicts and reaching collective decisions. On the contrary, there is often a scepticism towards formal participation processes which, to some extent, are seen as a way for authorities to co-opt or marginalise radical opposition (Gould et al 1996:82ff, Hayes 2002:147, Dryzek et al 2003:56ff). Citizen participation is instead interpreted in a wider sense. While the institutionalised and formal forms of participation are seen as one way for the public to gain influence, other forms of protest, both legal (demonstrations, petitions, lobbying, mass media coverage, boycotts) and illegal (sit-ins, occupations, damage) are also taken into account.

### *Participatory and deliberative democracy*

Normative democratic theory can to a large extent be described as a debate between protagonists of representative and participatory democratic models. The present liberal Western democracies are almost exclusively based upon a representative model of decision-making and within democratic theory there has been an ongoing critique of the deficiencies of such a model (Pateman 1970, Mansbridge 1983, DeSario and Langton 1987, Lundquist 2001). It should be noted that most participatory democrats still regard representative decision-making in popularly elected institutions as the foundation of a democratic system (Pateman 1970:109, Lundquist 2001:183). However, they argue that citizen participation is an equally vital element of a democratic system and that the level of such participation is far too low in today's democracies.

Recently there has been considerable interest in deliberative democracy within democratic theory, leading to a focus on the type of dialogue between participants in the decision-making process (Gutmann and Thompson 1996, Bohman 1996, Young 2000, Dryzek 2002). Deliberative democracy has much in common with the ideas of participatory democracy and the chief difference is the strong emphasis on discussion or deliberation as the truest expression of democratic decision-making.[22] The main argument is that collective decisions should be based on a free and fair discussion between citizens, where all views can be heard and where participants openly have to defend their arguments and listen to the arguments of others.

[22] Despite the similarities of the two perspectives it should be noted that participatory and deliberative models of democracy are generally seen as distinct ideals of democracy. For the purpose of my discussion the characteristics in common are, however, more important than the differences, which is the reason for discussing them together.

Research on participatory and deliberative democracy does not focus on local environmental conflicts and land-use planning, but is more generally interested in the transformation of the elitist decision-making structures of liberal democracies. The main research problem addressed in this perspective is thus the lack of citizen involvement and influence in existing liberal democracies and the lack of deliberative decision-making. From this perspective, the goals of participation are different from those in the previous two perspectives. An underlying goal of participation is to make decision-making more genuinely democratic by bringing decisions closer to the citizens. Another goal is to achieve fair communication and a deliberative dialogue between participants, with the aim of making it easier to reach common decisions. A third goal is to increase the knowledge and democratic capabilities of citizens.

Even though local environmental conflicts and land-use planning are not generally the subject of investigation, researchers who study these topics often use the perspectives of participatory and deliberative democracy in order to evaluate and analyse decision-making processes (Petts 2001, Hunold and Young 1998). Likewise, participatory and deliberative democrats identify decision-making concerning local environmental conflicts and land-use planning as areas suitable for citizen participation, where progress has been made to some extent (Dryzek 2000:164, SOU 2000:248).

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The above presentation of the three perspectives shows that they approach participation and local environmental conflicts from different starting points and have different views of the goals of participation. These basic differences also have bearings on other aspects, such as the focus of the research, the views on conflict and consensus, the views on power and influence and the views regarding the limits of participation (see Table 2).

The presentations should be viewed as schematic depictions of the perspectives, and it is acknowledged that there are differences and variations within each perspective, as well as connections and overlaps between them, that are not covered. The reason for discussing and comparing the three perspectives has not been to evaluate them in order to assess their relative strengths and weaknesses. This would require a much more thorough and comprehensive analysis than the one provided here. Instead, there have been two main purposes of the comparison.

One purpose has been to highlight some important principal differences in the way one can look at citizen participation and to show that these differences can be found, not only in practice, but also in the theoretical literature.

**Table 2.** Comparison of three theoretical perspectives and their views on citizen participation and local environmental conflicts.

| | Risk communication | Environmental movements studies | Participatory and deliberative democracy |
|---|---|---|---|
| **Scope of participation** | Should be substantial and give people real influence | Should be substantial and give people real influence | Should be substantial and give people real influence |
| **Main research problem** | Difficulty in gaining acceptance for the siting of facilities (or other risk issues) | Difficulties for local communities and environmental movement organisations in objecting to undesired developments | Lack of citizen involvement and influence<br><br>Lack of deliberative dialogue |
| **Goals of participation** | Increase acceptance of facilities<br><br>Increase public trust in authorities and industry<br><br>Make it possible to reach consensus decisions<br><br>Make authorities and industry more aware of the views of local communities | Give local communities and environmental organisations greater influence over developments that affect them | Give citizens greater influence<br><br>Increase knowledge and democratic capabilities of citizens<br><br>Increase fair communication between parties and make it easier to reach consensus |
| **Focus of research** | Methods of participation appropriate for dealing with conflicts and increase consensus<br><br>Good and bad cases of risk communication<br><br>The role of trust | Power struggles in local conflicts<br><br>Actions of local environmental movements: their relations to other actors, their capacity for resource mobilisation and their capacity for protest | Normative arguments in favour of participatory and deliberative democracy<br><br>Analysis of different methods of participation based on normative criteria (influence, scope of participation, inclusiveness, deliberation, etc.) |

| | Risk communication | Environmental movements studies | Participatory and deliberative democracy |
|---|---|---|---|
| **Focus of research (cont.)** | | Connections between local communities and local and national environmental organisations | Deficits of liberal democracy and traditional decision-making processes |
| **View of conflict and consensus** | Conflicts can often be solved by participation<br><br>Conflict often depends on a lack of knowledge or trust<br><br>Consensus is a goal of participation | Conflicting views of the issue are at the bottom line of the problem.<br><br>Conflict rarely disappears through participation<br><br>Consensus solutions are looked upon with scepticism | Conflicts can to some extent be dealt with through participation and deliberation. Possible to reach common agreement on the best decision |
| **View of power and influence** | Power relations are generally not problematised<br><br>Different opinions about the degree of influence that should be given to the public | Asymmetric power relations are a core area of research<br><br>Scepticism about the possibilities of public influence in formal participation<br><br>The public should be given a direct influence over decision-making | The distribution of power is a fundamental issue of discussion<br><br>Asymmetric power relations are a serious problem in participation<br><br>Different opinions about the degree of influence that should be given to the public |
| **Limits of participation** | Participation does not always lead to acceptance and consensus | Risk that participation leads to the co-opting and neutralisation of social movements<br><br>Formal participation does not exclude other protest activities | Representative democracy is still the main form of decision-making; participation is a complement not a substitute |

The perspective an observer chooses to use will fundamentally influence perceptions of the nature of siting conflicts, the role of citizen participation and the problems and opportunities associated with participation. An awareness of the different perspectives should therefore help observers to appreciate the multifaceted and complex character of siting conflicts and citizen participation.

It is, to some extent, possible to find a connection between the perspectives and the different actors who are involved in decision-making processes concerning the siting of controversial facilities. The risk communication perspective can often be found among project developers and, to some extent, among public authorities and decision-makers. The environmental movement perspective takes the view of local residents and other affected parties and of groups who act for the protection of the environment. The participatory and deliberative democracy perspective is more difficult to place. It can be found in public authorities and developers who try new forms of participation that go beyond traditional consultation, but also in the perspective of local citizens.

The second purpose of presenting and comparing the perspectives has been that it helps to shed light on the discussions in the following two sections about conflict and consensus and about the question of influence.

## 5.2 Participation, conflict and consensus

Does citizen participation make it easier to solve conflicts concerning the siting of facilities that will, or might, have negative environmental and health impacts at the local level? This is a key question from the risk communication perspective. It is also the question that developers, permit-granting authorities, land-use planners and decision-makers often ask when they consider increased participation in decision-making processes concerning siting issues.

To start with, we can see that a lack of participation can often make it more difficult to solve controversies and can contribute to situations of polarised conflict where the different participants have no inclination to listen to each other's views. An example of such a case is found in Article I, which follows a failed attempt to site a biogas plant. The case illustrates the dangers of an expert-oriented planning approach that does not allow for early and substantial citizen participation, and therefore may exacerbate the initially sceptical attitude of neighbouring residents to strong local opposition. There are similar examples in the history of siting conflicts, where a failure to involve the public has contributed to the development of local opposition. The fact that people in advanced democracies are more able to defend their rights and interests has made it difficult for developers and authorities to rely on the assumption that the siting of a risky facility will pass without public notice. In fact, as we have seen earlier, this is precisely the reason why the risk communication perspective has embraced increased participation in decision-making. In its most extreme form the DAD (Decide-Announce-Defend) strategy of developers and

authorities has been unanimously denounced, even if it may still be used in practice.

Drawing the conclusion that a lack of participation invariably provokes local action and protest is, however, too hasty. In Article IV, the case studies of the planning of two other biogas plants in Sweden show that a planning process with limited public involvement can very well be carried out without a rise of local opposition. Although the reasons for the absence of protests were not studied in detail, a comparison of Articles I and IV shows that similar projects with similar levels of participation can lead to quite different public reactions. There are other examples of siting issues that have aroused controversy in some places but have managed to find their way quietly through the planning system in others. The discussion within the environmental justice movement in the USA and elsewhere, that the siting of unwanted facilities tends to be directed towards poor and marginalised communities, certainly points in that direction (Bryant 1995).

These observations show the deficiencies of an instrumental argument for participation where it is mainly motivated by efforts to make it easier to solve or overcome siting conflicts. From the perspective of developers and authorities this could mean that participation will not be deemed necessary in situations where the local community is not expected to mobilise any effective opposition. Likewise, participation might be avoided if it is believed that it would in any case not help to solve the conflict and may even risk exacerbating it. Such an approach can be criticised for being guided by a cynical view on the role of democratic institutions. It can furthermore be argued that it is a counterproductive approach in the long run, since there is a risk that it will reduce public trust in the authentic intentions of developers and authorities to involve the public in decision-making. In order to avoid this situation, participation should be motivated mainly by its intrinsic values, such as improving the democratic qualities of decision-making, improving the quality of decisions, facilitating a deliberative dialogue and increasing the knowledge and capacities of those who participate.

After discussing the effects of a lack of participation we move to the question of what can be achieved by participation in relation to solving conflicts and reaching consensus decisions. The risk communication perspective takes an optimistic view in this regard. On the whole, the reasons behind local environmental conflicts are, in this perspective, thought to be of such a nature that it is possible to overcome them by dialogue and by a willingness to take the worries of the public seriously. To start with, it is assumed that many conflicts depend on a lack of information, on a lack of trust, or on a combination of both (Fischoff 1995, Leiss 1996, Cvetkovich and Löfstedt 1999:1f). We can thus think of simple and straightforward situations were increased participation can help to avoid unnecessary conflicts. For example, if people are involved at an early stage, public worries that are based on pure misunderstandings can be dealt with before they develop into a general

distrust of the developer and the project. Early involvement where the opinions of the public are heard can, likewise, make it possible to identify those aspects of the project that may be in conflict with the interests of the public. The developer can then make changes that do not come in conflict with other important objectives of the project, while authorities can adjust their requirements according to the views of the public. Early involvement can also make it possible for developers to identify controversial projects, which are likely to encounter significant public opposition. If this is done before substantial financial, or other, commitments to the project have been made, it will be easier to make major changes in the project or to cancel it, if this is judged as necessary.

The situations described above are fairly uncomplicated and participation can contribute positively there. In reality, however, most siting conflicts are a great deal more complex, including uncertainties about effects and risks, and differing opinions about how to value effects and risks and how to prioritise between conflicting interests. In such situations it is not possible to find obvious win-win solutions that can be accommodated without compromises. It is precisely in these situations we have to ask which role participation can play. For these situations as well, there is a strong belief within risk communication in the possibility of reaching consensus decisions. This view can be summarised in the following statements by leading researchers in the field.

> It [risk communication] is based on the presumption that, despite the controversial nature of many risk management issues, there are also forces at work that favor consensus building, meaningful stakeholder interaction, and acceptance of reasonable government regulatory frameworks (Leiss 1996:90).
>
> A demonstrated commitment to responsible risk communication by major organizational actors can put pressure on all players in risk management to act responsibly (Leiss 1996:91).
>
> The remarkable fact about public participation in risk management is that, if the procedure is properly followed, a consensus can often be reached (Jaeger et al 2001:284).

Questions of conflict and consensus lie at the heart of the discussions on deliberative democracy, and an important task of that research is to create decision-making processes that allow for an equal, fair and open discussion between all groups that are affected by the decision. A central argument is that in a deliberative dialogue participants are forced to justify their opinions by appealing to common interests (Bohman 1996:4). It is further argued that participants ought to enter into the process with the aim of trying to reach a consensus on the best decision (Gutmann and Thompson 1996, Bohman 1996:4f). As in the risk communication perspective, there is a belief in the possibility of reaching consensus through the use of participatory methods especially designed to facilitate a deliberative dialogue between participants.

There are a number of individual cases that can be presented as successful examples of deliberative processes, such as the siting of nuclear waste facilities in Canada (Rabe 1994, Kuhn and Ballard 1998) and the siting of waste disposal facilities in Switzerland (Jaeger et al 2001). While this research shows that, under the right circumstances, it can be possible to overcome conflicts through dialogue, it does not allow us to conclude that decision-making with consensus between all parties will provide a universal method of solving environmental and siting conflicts. There are important limitations on the possibility of reaching consensus which must be acknowledged.

A central aim of deliberation is that the different participants, by listening to each other's arguments, will feel they can make adjustments to their own standpoints and claims, if this is motivated by the persuasive arguments of the other participants (Gutmann and Thompson 1996, Bohman 1996). This could mean that a developer may take extra measures to reduce the impact of a project, that a public authority may demand stricter regulations or that a local community may accept a facility in its vicinity, if it has been judged to be the best site in a participatory and deliberative decision-making process in which it has been compared with other sites. However, at the end of such a process it is perfectly possible, and in deed likely, that unresolved conflicts will remain between the different parties. Even after participants have listened to each other's views and arguments, there may be differences in how risks and impacts are judged and evaluated and in the prioritisation of different interests (Bohman 1996:182ff, Dryzek 2000:170).

From the environmental movement perspective, conflict is seen as a normal state when environmentally harmful developments are planned or suggested. Conflict is furthermore seen as emanating from diametrically opposite views on the value attributed to the environment and the prioritisation between economic and technical progress and environmental protection. From this point of view it is much harder to reach consensus on local environmental conflicts, since it is not only the particular conflict that is at stake, but larger issues such as the kind of world we want to live in. Within the environmental movement perspective, there is therefore scepticism towards participation efforts whose main aim is to reach consensus. There is a risk that radical and opposing views will be neutralised if their representatives become involved in the process, or that they will be marginalised if they stay out of it (Gould et al 1996:82ff, Hayes 2002:147). Within the deliberative democracy perspective, there are different opinions about whether actually reaching consensus is a requirement, or if it is sufficient that all views have been heard and that the participants have seriously considered their own views and the views of others. There are also deliberative and participatory democrats who see conflict as something inherently positive, while a too strong focus on consensus is seen as dangerous since there is a risk that this will favour the views of the privileged (Mansbridge 1983:170f, Dryzek 2000:57ff, Young 2000:37ff).

If conflict between the parties remains, a decision still has to be made, which cannot be based on consensus and which unavoidably will go against the interests of one or more parties. A key issue then is *how* this decision will be made and *who* will make it. This means that the question of influence becomes central when discussing participatory decision-making and to this we will return in the next section. In relation to this, a distinction should be made between consensus on the decision and consensus on the legitimacy of the decision-making process. Even if it is not possible to reach a decision that all parties are happy with, this does not mean that there need to be sustained conflict where some parties do not accept the decision. If there is consensus that the decision-making process is fair, equal and democratically legitimate, participants will be able to accept that a decision goes against them, confident that they might have their way in another situation (Bohman 1996:183ff).

The discussion above has dealt with the possibility of reaching consensus in deliberative participation processes and it has been shown that the different theoretical perspectives give somewhat different answers. It should, however, be remembered that many of the decision-making processes that include citizen participation today are not aimed at creating a deliberative dialogue between participants. Instead they are carried out as a more traditional consultation, where the aim is to allow people to give their views on a proposal and particularly on how they themselves will be affected by it. The main aim of this type of participation is not to reach consensus between parties, but to give decision-makers input for the representative decision-making process.

## 5.3 Participation and influence

The question of the influence the public has on decisions is central in discussions on participatory decision-making. Influence is, to start with, closely connected to the question of power. There is general agreement between the three perspectives on the fact that equal opportunity to participate is a requirement for a fair decision-making process. In short, this means that uneven power relations should be counteracted and that weak and marginalised groups should be given extra support to participate.

However, the three perspectives differ regarding the weight they give to the question of equal opportunity and the extent to which they focus on the question of distribution of power. In the environmental movement perspective, asymmetric power relations are a central concern. The starting point is that protest movements often do not have the resources to participate on equal terms in the formal decision-making process and that they therefore also have to use informal channels and methods to bring their case to the attention of public authorities (Rootes 1999, 2003, Hayes 2002). While it is seen as desirable to create fairer decision-making processes, this is not perceived as an existing reality in most environmental conflict situations. Power is a

fundamental issue of discussion also within the participatory and deliberative democracy perspectives, and asymmetric power relations are seen as a serious obstacle in achieving a fair participatory decision-making process (Mansbridge 1983:233ff, Bohman 1996:106ff). Here the assumption is, however, that it is possible to counteract an uneven distribution of power and create fair decision-making processes. Much of the research, both normative and empirical, concerns questions of inclusion, representation and the avoidance of marginalisation. Within the risk communication perspective there is general recognition of the importance of equal opportunities to participate. However, questions of power are not the focus of the research, and power relations between participants are normally not problematised or analysed in depth. The three perspectives thus place different emphasis on issues of power. In planning practice, meanwhile, unequal opportunities and asymmetrical power relations continue to be a serious obstacle in the effort to create participatory decision-making that is fair and equal.

The question of the degree and scope of public influence is mainly explored within risk communication and participatory and deliberative democracy. The differences in opinion are as pronounced within the perspectives as they are between them. The following discussion will therefore not primarily be based on a distinction between the perspectives. Most advocates of participatory decision-making processes argue that it is important that citizens are given a real and substantial influence over decision-making. Participation without influence amounts to co-optation or even manipulation. There is a risk that it reduces the incentive for citizens to participate and it may decrease rather than increase the legitimacy of the decision-making process. There is, however, less agreement on how influence should be achieved and on whether it should be formally guaranteed. This question ultimately concerns a wider issue about the relation between the institutions of participatory decision-making and the existing representative democratic institutions.

Strictly speaking, two possible types of influence can emanate from citizen participation: direct and indirect (Lundquist 2001:122, Henecke and Khan 2002:13). In the former, the public is directly involved in the decision-making procedure meaning that the will of the public replaces decision-making in representative bodies. In the latter, participation is incorporated into representative decision-making and functions primarily as information to decision-makers about the will of the public. Indirect influence *can* give the public a substantial influence but there is no guarantee that this will be the case.

Participation models with indirect influence are the norm in planning legislation and planning practice, mainly in the form of public consultation. Models with direct influence have been tried in some places but mainly feature as normative ideals advocated by researchers within risk communication and

deliberative democracy.[23] Hunold and Young (1998) and Jaeger et al (2001:282ff) discuss different versions of deliberative participation processes where the public is given direct influence over decision-making. According to Hunold and Young the two criteria of shared decision-making authority and authoritative decision-making are imperative (Hunold and Young 1998:90f). Shared decision-making authority means that affected citizens and interest organisations, public officials and project developers together take part in the deliberative dialogue, as well as in the actual decision-making. Authoritative decision-making means that the decision has to be binding to the public body that normally has the decision-making power.

The model of Jaeger et al resembles that of Hunold and Young. However, only representatives of citizens engage in the deliberative process and influence is guaranteed at the start of the process, by the public authority committing itself to following the decision that is made by the participants. Jaeger et al (2001:282ff), furthermore, argue that in order to become binding the decision has to be made as the result of a consensus between all the participants in the process. If a consensus cannot be reached the decision will fall back on the public authority that originally had the decision-making power. Public influence is thus conditional and can be withdrawn by the elected representatives (see also Lidskog 1996:28ff).

### *Comparing models of direct and indirect influence*

The reason for comparing participation models of direct and indirect influence is not to decide which is the most suitable. This is probably not possible as the choice of model depends on contextual factors such as the issues at hand, the characteristics of existing political institutions and culture, as well as on one's perception of how democratic decision-making should be carried out. Instead the aim is to show that both types have advantages as well as problems and dilemmas that must be taken into account.

A general problem in participatory decision-making is the difficulty in *engaging people in the process*. For different reasons people are reluctant to become involved and the level of participation is often low (Miller et al 1982:27, SOU 2000:210ff). A number of practical measures can be introduced to encourage and facilitate participation. In the end, however, people need to feel that it is a meaningful activity. The decisive feature of participatory models with direct influence is of course the fact that citizens are given a direct control

[23] The clearest example of a model of direct citizen influence is perhaps binding referenda, which are used to various degrees at the local level to decide controversial issues. This model will, however, not be discussed here since it differs in important aspects from both traditional consultation and deliberative models of participation, which are the focus of this chapter. Compared to these, binding referenda do not involve citizens continuously throughout the decision-making process and they only allow citizens to choose between (normally) two alternatives rather than being able to influence the details of the decision.

over decisions. The assurance that participation will have a binding and direct impact can be a strongly motivating factor for people to become involved. Obviously, direct influence does not mean that the views of each participant will automatically be transformed into decisions, since the final outcome depends on the views of all who participate. Still, models of direct influence lead to a different situation from the one in models of indirect influence, where the views of the public only have the status of advice to the elected representatives.

If the aim of the process is *deliberation between participants*, the promise of influence can increase the incentive for participants to engage in a dialogue with others and look for joint solutions that provide benefits to all, or are in the common interest. Or, put differently, if there is a suspicion that the outcome of the process, i.e. the recommendation, will not be followed, there is little incentive for participants to become meaningfully engaged. In practice, models of indirect influence often tend to encourage participants to look strictly at their own interests (Henecke and Khan 2002:31). Two points should be made here, though. Firstly, this situation does not necessarily have to be seen as a problem. On the contrary, it can be argued that it *should* be the role of citizens and interest groups to speak for their own interests, while it is the elected representatives who consider the whole picture. Secondly, it is not necessarily the existence of indirect influence as such that inhibits a deliberative dialogue. This might instead be due to other aspects of the design of the participatory process. There are in fact models of indirect influence, such as working groups and citizen advisory committees, that explicitly aim to encourage a deliberative discussion between participants (Renn et al 1995). To conclude, deliberative dialogue between participants can be achieved in participatory models with both direct and indirect influence, but the incentives for deliberation are greater if the results of deliberation imply a direct influence on decisions.

The question of *who should be entitled to take part* in the decision-making process is important. This question is particularly crucial for models of direct influence since the participating groups are transformed into the decision-making authority, which means that there are no elected representatives to fall back on. It is normally not practically feasible that all affected citizens participate in the decision-making process, and there therefore have to be ways of deciding who should represent the public. In the end, models of direct influence are not as direct as they first seem, and they also rely on representation. Questions of *representativeness and inclusiveness* thus become fundamental. It is likewise necessary to create conditions *for fair and equal participation* between citizens. The extent to which it is possible to solve these issues satisfactorily is crucial for the success of models that give citizens direct decision-making power. Models of indirect influence rest on the principle that elected representatives have the responsibility of weighing different interests against each other, as part of the decision-making process. Citizens have the right, and are encouraged, to give their views on the issues, but it is the elected

representatives who make the final decision. It is argued that the elected representatives have a vital role in protecting public interests that are not furthered by any specific group, and the interests of marginal groups that are not able to participate on equal terms with others. However, it is far from certain that the institutions of representative democracy are actually good at protecting the interests of marginalised groups or making balanced judgements between different interests. Research has shown that elected representatives and civil servants are in fact often susceptible to pressure from the most articulate groups, and there is a risk that models of indirect influence serve to strengthen the bonds between decision-makers and other local elites, who use formal participation as yet another channel of influence (Miller 1980:79). Questions of equality, inclusiveness and fair representation are thus equally central for models of indirect influence.

When participants are given direct influence over decisions there is a risk of *accountability* becoming blurred, and the question of who is actually responsible for the decision that has been made is highlighted. Is it those citizens who took part in the process and made the decision? They are, however, not part of a permanent institution and cannot be called into account. Is it instead the elected representatives who delegated power to the citizens? There are no easy answers to these questions. For models of indirect influence the question of accountability is more straightforward since it is always the elected representatives who make the final decision. As we have seen earlier, some scholars argue for a combination of the two models in order to overcome the problems of accountability. If participants manage to reach a consensus it will be binding, but if disagreement persists the responsibility for the decision falls back on the formal authorities (Lidskog 1996:28ff, Jaeger et al 2001:284).

At the beginning of this section the question of how the two types of models affect people's motivation to participate was discussed. A related question concerns the *legitimacy of the decision-making process*. Legitimacy depends to a large extent on factors that are equally important for both types of participation, such as whether people perceive that the decision-making process has been just and fair and whether the opportunities to participate have been sufficient and evenly distributed. In addition to this, models of direct influence might make it easier for citizens to accept the outcome of decisions since they have had a real chance to influence them, and this may lead to a general increase in the legitimacy of the decision-making process. As long as there is no direct influence over decisions the possibility will always exist that the elected representatives will make decisions irrespective of the views of the public. Since it is impossible to satisfy the wishes and demands of all groups and perspectives, there is a clear risk that some groups will feel that decision-makers are insensitive to their concerns. This can lead to a situation where the outcome of the process is seen as legitimate by a participant only if the decision is in its favour, and it is probable that there will always be some groups who do not

accept the decision. In such a situation there is no general feeling among the public that the decision-making process is legitimate.

This comparison will conclude with the question of the *relation between representative and participatory institutions* of decision-making. As mentioned earlier the representative institutions have an absolute position in Western liberal democracies. A major advantage of participatory models with indirect public influence is therefore the fact that they are compatible with the traditions of representative democracy, and therefore easier to incorporate into existing institutions and practices for decision-making. If the view is that citizen participation is an important part of democratic decision-making but that it should not challenge the authority and responsibility of elected politicians, then models of indirect influence become the obvious choice. Even if the arguments are strong in favour of models of direct citizen influence, it is far from certain that such a development will be accepted in practice by public officials and elected representatives. It is instead likely that experiments with models of direct influence will be tried occasionally, but that the elected representatives will be reluctant to institutionalise this practice on a more permanent basis.

## 5.4 Lessons for the siting of renewable energy facilities

In the previous sections of this chapter it was shown that, although there may be agreement on the need for citizen participation in decision-making, there are quite different ways of looking at the purpose of participation and the different issues that are raised by participatory practices. Furthermore, a general discussion was presented on two such critical issues: the relation between conflict and consensus, and the relation between public influence and representative decision-making. Although it is hoped that the analysis in this chapter is of general interest to participatory decision-making, the prime motive for conducting it is its relevance in understanding the conditions for participation in the handling of conflicts concerning the siting of renewable energy facilities in Sweden. The following discussion is thus mainly directed to those actors responsible for organising participatory processes, i.e. planners and decision-makers in local authorities, project developers and civil servants in permit-granting authorities. It should also be of interest to central authorities concerned with policy making and the development of guidelines. The discussion is primarily relevant for wind power, since this is the technology mostly associated with local controversy.

The first thing that should be noted is that representative decision-making is the norm in Sweden and will most likely remain so for the foreseeable future (SOU 2000:240ff). Participation is thus mainly organised in the form of traditional public consultation, where the views of the public are voiced in reaction to draft plans and serve as input to decision-makers, and where

influence has a distinctly indirect character. It will not be argued here whether this type of participation is appropriate or whether there is a need for alternative forms of participation. The main point is instead that it is important to be aware of the limitations and problems of present forms of participation, and to have realistic expectations about what can be achieved through them. The discussion will be structured around four commonly stated objectives in Swedish land-use planning, which are related to participation, and which also apply to the siting of renewable energy facilities.

A general goal of participation in Swedish land-use planning is to give people *insight into the planning process and the possibility of influencing decisions* (SFS 1987). This is also supported by international agreements such as the Aarhus Convention from 1998, which states the right of citizens to participate in and influence public decision-making (Aarhus 1998). In the previous section a distinction was made between direct and indirect forms of influence. In Sweden, it is clearly stated that participation should not replace representative decision-making but be a complement to it. Indirect influence is thus the norm in planning legislation and practice. Although various measures can be taken in order to increase the likelihood of the views of the public being taken into account,[24] final decisions are in the hands of elected representatives[25] (SFS 1987). A main characteristic of participation concerning the siting of renewable energy facilities in Sweden is thus that there are no guarantees that public views will have any actual impact on decision-making. Civil servants and politicians, furthermore, tend to guard their decision-making authority and they are normally wary of changes that could threaten their position.

In the case studies on municipal wind power planning described in Article III, it was concluded that influence through the formal consultation process was limited at the project level as well as in municipal comprehensive planning. A reason contributing to the reduced influence in the case studies was the limited scope of participation, which included factors such as early or late involvement, continuity of participation, and the type of issues open to discussion (Article III:9f). The possibility of stopping unwanted projects can, however, be considerable if other forms of participation outside the formal consultation process are used, and if political support for the project is uncertain (Articles I and III).

It should be noted that there are decision-making practices that tend towards more direct forms of public influence. One example is the case of Härjedalen, where working groups were formed at the start of the planning process giving suggestions that served as a basis for the drawing up of the

[24] One example of such a measure is that public officials are obliged to reply to all comments submitted by citizens and, if they do not lead to changes, motivate why not (SFS 1987).

[25] Decisions regarding environmental permits are not made by elected representatives as this is a legal and not a political process. The permit decision is made by legal public bodies (an environmental court or county administration) that follows and interprets the regulations in the Environmental Code.

municipal comprehensive plan for wind power (Energimyndigheten 2002).[26] The model resembles the one proposed by Jaeger et al (2001:282ff) which was described in the previous section. A crucial difference is that in the Swedish case the public officials do not hand over decision-making authority to the working groups. While the intention is that participation in working groups will lead to increased influence compared with traditional consultation, and while the influence might be strong in practice, there is still no formal guarantee that the elected representatives will actually follow the suggestions of the working groups (Article III:20f).

The promotion of an *open and deliberative dialogue* with the prospect of reaching *consensus on decisions* regarding the siting of facilities, is an ambition in municipal comprehensive planning (Boverket 1996). As discussed in previous sections, the possibility of reaching consensus is enhanced by participatory processes that are specifically designed to promote a deliberative dialogue between participants and by processes that give people direct influence over decisions. However, even in such processes it is difficult to reach consensus. These goals are then, obviously, much more difficult to reach in present forms of participation, which are characterised by a reactive form of consultation and limited deliberation. This is clearly shown in Article III, in the process of developing an municipal comprehensive plan for wind power in Halmstad.

Consensus and deliberative dialogue are not official goals for the participation that is related to the planning of specific projects. Here, participation is rather intended to provide decision-makers with information about how citizens perceive their specific interests are being affected, and citizens are not expected to comment on the general effects of the development (Article III:15f). However, as is shown in Article III, neighbouring residents and other groups might still assume, or be of the opinion, that they are entitled to join in a wider discussion also at project level. This can cause frustration when they encounter what they perceive as a rigid attitude of local authorities, which limits the type of issues that are open to discussion (Article III:15).

An important reason for the existence of participation in land-use planning is to *increase the legitimacy of decisions,* in the view of the public. While several factors are important for legitimacy, it was argued in the previous section that models of indirect influence, like the one in Swedish land-use planning, have a disadvantage in this respect, since there is always a risk that there will be groups who feel that their views have been ignored. Lack of legitimacy was evident in the case studies described in Article III (Article III:16f). This shows that it is important that decision-makers demonstrate a genuine will to listen to the

[26] Another example is a local referendum in the municipality of Skurup in 2002 on the siting of an off-shore wind park within the boundaries of the municipality. The referendum was considered binding by elected representatives and resulted in a slight majority against the siting of turbines. It is, however, still possible that a wind park can become a reality if the central government decides that the area is a national interest for wind power (Abrahamsson and Raihle 2003, *Ystad Allehanda* 2004).

views of the public. It is also vital that the decision-making process is made transparent so that people can see how their views have been taken into account. It is, furthermore, crucial that decision-makers are clear about the limits of participation, e.g. concerning the fact that it is far from certain that a comment or proposal will have any real effect on the final decision. Otherwise there is an increased risk that the participatory process will counteract its aims and contribute to frustration and increased antagonism.

In addition to the three goals discussed above, there is also an ambition to *increase the efficiency of decision-making processes*, concerning both the time frame and the resources required. Wind power developers, for example, mention the complicated permit-granting procedures and long handling times for permits and appeals as important implementation problems (PBL-kommittén 2003). A general process is going on in Sweden to evaluate and improve the Planning and Building Act and the Environmental Code, in the form of two committees appointed by the government.[27] An important part of their work is to propose measures to make permit-granting procedures more effective and manageable. The committees have not regarded it necessary to make any changes in the legislation with the exclusive aim of facilitating the implementation of wind power or other types of renewable energy (PBL-kommittén 2003). They have, however, made general suggestions on how to increase efficiency, such as improving the co-ordination of the permit-granting and consultation procedures for building permits and environmental permits, speeding up the handling of appeals, reducing the number of consultation meetings required and limiting the mandatory government assessment to projects concerned with infrastructure only (PBL-kommittén 2003, SOU 2003).

There is, however, no explicit recognition of the potential contradiction between the parallel goals of increased participation and increased efficiency. Instead, participation is often put forward as a way of increasing efficiency by contributing to smoother processes and fewer appeals (Henecke and Khan 2002:34). In this way an implicit assumption that efficiency is more important than citizen participation is maintained, and in practical situations where there is a conflict between them there is a risk that participation will automatically be less prioritised. In Article II, it is, for example, shown that efforts of the local authorities to promote citizen participation were downplayed in the two municipalities were the development of wind power was seen as an important political goal (Article II:577). This relates to the discussion in Section 5.3 of an instrumental motivation for participation, which, it was argued, risks undermining trust in authorities and developers. It is therefore necessary to acknowledge that there is a potential dilemma between efficiency and participation and to make conscious and open choices about what to prioritise.

[27] The two committees are the Committee for the Evaluation of the Planning and Building Act (PBL-kommittén) and the Committee for the Evaluation of the Environmental Code (Miljöbalkskommittén).

Furthermore, efficiency does not have to be viewed only in the narrow sense of achieving a faster decision-making process. It could also include the aspect of reaching better decisions, taking into account that projects have long lasting effects (Henecke and Khan 2002:34f).

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To conclude the discussion, an increased awareness of the limitations and problems of public consultation as a way of dealing with siting conflicts, is essential. This is particularly important for wind power, since the main issue of importance is the siting of turbines, while other issues have a limited significance for the impact of the project. This means that the possibility of a meaningful dialogue is already limited compared with many other kinds of facilities and developments (Article III:9f). It must also be acknowledged that there are different goals of participation which can sometimes come into conflict with each other.

Despite the limitations discussed above, it should be remembered that public consultation is an indispensable part of the planning process, giving citizens the formal right of access to the planning process and a real, although limited, influence on decisions. The present system is furthermore clear regarding the accountability of decision-makers, which can be uncertain in processes with direct influence. However, if the ambition is to strive for greater public influence, deliberative dialogue, increased consensus over decisions and increased legitimacy, the present model of consultation is not sufficient. It is a mistake to believe that the advantages of alternative models of participation can be obtained without using them, and such a belief could have negative consequences, both for the legitimacy of the planning system and for the development of public attitudes towards wind power and other types of renewable energy.

# 6. Conclusions

A central standpoint in this thesis has been the need to acknowledge the importance of local decision-making processes for the implementation of renewable energy technologies. Two research themes have been explored, which address urgent and challenging issues regarding the implementation of biogas and wind power in Sweden.

The first theme concerned the complexities of the planning and management of locally based projects. Three main conclusions can be drawn. First, it has been shown that renewable energy projects can be quite complex, especially from the point of view of municipalities and other local actors. To obtain a clearer picture of how a project develops, planning can be described as taking place in parallel processes, which in this study have been labelled the project-specific, the political and the permit process. These processes develop simultaneously but involve different issues, actors and decision arenas.

Second, the research has demonstrated the significance of the local context in order to gain a more complete understanding of project planning. The projects that have been studied were not isolated events, but were, in various ways, connected to the day-to-day activities of organisations and other projects. Contextual factors significantly influence the conditions for project planning and the actual outcome of projects. A consequence of this is that there can be no universal approach to the planning of projects, even regarding projects within the same technology. On the contrary, for different projects quite different planning approaches and organisational set-ups may be appropriate. Likewise, the most critical issues and challenges can vary considerably between projects.

The first two conclusions discussed above are primarily relevant to biogas projects. Wind power projects tend to be less complex and less unique, facilitating processes of learning between projects and the use of standardised procedures. This illustrates the third conclusion: that there are important differences between biogas and wind power regarding the conditions for project planning, due to their different characteristics. Differences were also found

concerning the type of issues that prove to be decisive in project planning. For biogas, each of the three parallel processes can be complex and pose critical challenges to project management. For wind power, the permitting process is typically the most critical, while the project-specific and political processes are normally less difficult.

The second theme was concerned with siting conflicts, land-use planning and citizen participation. A first conclusion is that, although conflicts over the siting of renewable energy facilities have some distinguishing characteristics (e.g. strong general support, locally based opposition, few uncertainties and risks), many of the issues that are important for the siting of more controversial facilities are just as relevant for renewable energy. These issues include the way in which the impacts of the project are analysed and mitigated, the extent to which local concerns are taken into account, the level of public trust in developers and authorities, the design of the decision-making process and the extent to which citizens are invited to participate in, and influence, decision-making. The research confirmed earlier observations that there are clear deficiencies in the expert-oriented planning approach, both from a democratic point of view and regarding how it affects the possibility of dealing with siting conflicts.

Within this research theme the study of the conditions for dealing with siting conflicts through the use of citizen participation has been central. It was shown that there are different ways of looking at the nature of siting conflicts, the goals of participation and the dilemmas involved in participatory decision-making. Different perspectives can be found both in the theoretical literature and among actors involved in decision-making processes concerning the siting of facilities. The perspective one chooses affects one's view of the potential and limitations of participation. A thorough discussion was presented on two recurring dilemmas in participatory decision-making: the relation between conflict and consensus and the relation between citizen influence and representative decision-making. The implications of this discussion on the use of citizen participation in the handling of siting conflicts for renewable energy facilities in Sweden were discussed in Section 5.4.

### *Practical relevance of the results*

Above, some general conclusions have been highlighted. The results can also be viewed in relation to the practical relevance of the results. Below follows a discussion of some additional conclusions of this work, which have direct implications for actors involved in the planning and implementation of biogas and wind power in Sweden.

For biogas, the complexity of project planning and the fact that there can be significant differences between projects, mean that it is essential that project management be characterised by flexibility throughout the planning process. Flexibility implies a readiness to try different organisational solutions, an

awareness of the variety of issues that may appear and a readiness to make changes in the project plans if existing ideas prove unworkable. A specific problem related to biogas is that it is difficult to learn from one project to another, concerning organisational matters and the handling of critical issues, because of the considerable differences between projects. To this can be added the fact that there are no natural processes of learning, since key actors such as regional and municipal waste companies will only usually engage in the building of one biogas plant each. This indicates the need for measures to create arenas where learning between projects is facilitated. There already exist networks for the spreading of research and experience concerning mainly technical matters. These could be used in a more purposeful way for discussing organisational and other non-technical aspects of the planning of biogas projects.

Another finding with implications for project management is that it seems to be an advantage if the biogas plant is planned and presented as part of a larger ongoing development, instead of as a free-standing project. This increases the support of key actors and creates a perception of the project as being essential. It should, however, be remembered that if the project is related to the interests of several actors this will also increase the complexity of project planning.

Regarding wind power, the main research focus was on siting conflicts and citizen participation. As argued in Section 5.4, there is a need for realistic expectations of the potential of participation in the handling of siting conflicts, and an increased awareness of the limitations of public consultation, which is the dominating form of citizen participation. If the ambition is to address these limitations it might be worth trying alternative forms of participation as a complement to the formal consultation process. At the same time, the use of alternative methods, such as the planning in working groups that has been tried in Härjedalen, poses new challenges and dilemmas that must be identified and dealt with (see Section 5.4 and Article III:20f).

It should be remembered that siting conflicts are not at the moment a major obstacle for the implementation of wind power in Sweden, and that citizen participation is not the only factor of importance regarding the development of siting conflicts. It is thus important to understand the results of the research in a larger context. In Section 3.1, it was argued that countries with similar planning systems to the one in Sweden, have managed to combine extensive implementation of wind power with landscape preservation and local public support. It was further argued that the active role of the state has been essential in this development, including both substantial and stable economic support of wind power and clear directives and guidelines to local authorities regarding planning issues. This has been, and is still, lacking in Sweden. Another observation was that local economic involvement in wind power projects seems to contribute positively to public support, and that this has been promoted by the governments of both Denmark and Germany. It can be

argued that the strategy of local economic involvement has not been decisively pursued in Sweden and it does not seem to be on the agenda of central policy makers.

### *Theoretical implications of the research*

The use of theory in this work has been guided by the ambition to increase our understanding of practically relevant issues, and it has not been a main aim to contribute to theory development. The results of the research, however, have a number of theoretical implications. Existing theoretical perspectives have been confronted with new empirical situations, which has led to insight into the applicability of theories and modifications of theoretical models based on empirical findings (Alvesson and Sköldberg 1994:32f).

For example, the development of the analytical model for studying the planning of local renewable energy projects was based on a similar model, derived from a case study of the planning of a coal-fired combined heat and power plant. A few essential modifications had to be made to the earlier model in order for it to be applicable to the reality of the planning of biogas and wind power projects (see Section 4.1). This reflects some important differences between many renewable energy projects and traditional energy projects, regarding the conditions for planning and management, owing largely to the smaller size and more local character of the former.

Another example is that existing theoretical insights into the nature of siting conflicts were used in order to understand conflicts over renewable energy facilities. In this process, both differences and similarities were identified when comparing traditional siting conflicts with those over renewable energy facilities (see Article I and Section 2.3).

The discussion on citizen participation in Chapter 5 has general theoretical implications. First, the comparison of the positions of three influential theoretical perspectives in Section 5.1 clarified that there are significant differences in the way to look at the goals and dilemmas of participation. Second, the analysis in Sections 5.2 and 5.3 provided an input to the ongoing theoretical discussion on two important dilemmas of participation: the relation between conflict and consensus and the relation between citizen influence and representative decision-making.

### *Future research*

Based on the findings of this study, I will propose three possible areas for future research. First, to the extent that alternative models of participation will be used in the handling of siting conflicts over renewable energy facilities, it is essential to study their potential and limitations, as was done for public consultation in this thesis. This could be done using a similar research approach to the one used in Article III.

Second, this thesis has focused quite narrowly on local actors and local decision-making processes. However, the interplay between different levels of decision-making is of course an important aspect, and in various places in this thesis it can been seen how central policy making affects the conditions for local planning. The study of the relations between central and local levels in the politics of renewable energy is thus an interesting area for future research, where fruitful comparisons could be made with other policy areas in which central-local relations are significant.

Third, the comparison between biogas and wind power showed that there are both similarities and differences in the conditions for project planning, which has implications for the organisation and management of projects. The analytical model presented in this thesis can be used to study project planning for other types of renewable energy technologies as well. This would increase the understanding of the particular challenges and conditions that each technology faces. It would also point to the similarities between technologies and highlight the opportunities for learning across technologies.

# Appendix. Theoretical and Methodological Considerations

## Theoretical approach

The use of theory has been guided by the research approach adopted in this work, where the ambition has been to study existing and urgent problems, as they are perceived by societal actors, with the aim of increasing our understanding of these problems and, if possible, contributing to their solution. The research has not been based on one specific theoretical perspective. Instead insights from different theoretical fields have been used where they have been considered appropriate for the specific empirical situation. The use of quite different theoretical perspectives in the thesis was motivated by the fact that the identified empirical problem areas, i.e. the two research themes, also differ considerably. Concerning, the first theme (planning of renewable energy projects), organisation theory, in general, and research on project planning, in particular, have mainly been used. For the second theme (siting conflict and citizen participation), a number of different theoretical approaches have been used. Firstly, theories on land-use planning have been employed in order to understand the basic issues that are involved in the siting of facilities. Secondly, theoretical perspectives which, in different ways, discuss citizen participation have been discussed. These include publications within the fields of risk communication, environmental movement studies and participatory and deliberative democracy.

The actual use of theory in the research process and the relation between theory and empirical data resembled a method discussed by Alvesson and Sköldberg (1994:41ff), which they refer to as abduction. Problem formulation and research issues were identified by an initial assessment of the empirical material and this guided the choice of appropriate theoretical perspectives. A theoretical framework was then developed to structure the analysis of the material (e.g. the parallel processes for project planning and the different

theoretical perspectives on participation). The empirical material was analysed with the use of the theoretical framework, which led both to a deeper understanding of the observed phenomena and an increased awareness of factors that were not initially emphasized or observed. To some extent, it also led to a reframing of questions and research focus. The new, theoretically informed, analysis of the empirical material, in turn, called for modifications in the theoretical framework and, in some cases, the need to use new perspectives. The research thus progressed in an iterative process where theory and empirical findings were repeatedly confronted with each other.

Theory development has not been a principal aim of the thesis. However, the results have theoretical implications, most importantly in the sense that existing theoretical perspectives have been applied to new empirical material (Alvesson and Sköldberg 1994:32) (see Chapter 6 for a further discussion).

## Methodology

### *Multiple case studies*

The research design applied to this work was that of multiple case studies (Yin 1994:44ff). Qualitative methods of data collection and analysis were used, such as semi-structured interviews and interpretation of written documents. Six case studies were conducted in six different municipalities. These are listed in Table 3, where the main topics of each case study can be seen.

**Table 3.** The six case studies included in this thesis.

| | | |
|---|---|---|
| Lund | Local opposition to the siting of a biogas plant | Article I |
| Laholm | Municipal wind power planning | Article II |
| Halmstad | Municipal wind power planning<br>Public consultation in the siting of wind turbines | Article II<br>Article III |
| Falkenberg | Municipal wind power planning<br>Public consultation in the siting of wind turbines | Article II<br>Article III |
| Västerås | Planning of a biogas project in parallel processes | Article IV |
| Vänersborg | Planning of a biogas project in parallel processes | Article IV |

There were various reasons for choosing a multiple-case design. Firstly, two different types of renewable energy technologies have been studied: biogas and wind power. Secondly, the thesis deals with two different research themes: the

planning of local projects, and siting conflicts and participation. In Table 4, the six case studies are categorised according to research theme and type of technology. Three case studies followed the planning of biogas projects. Of these, two were focused on project planning while one analysed the development of a siting conflict. The other three case studies analysed wind power planning with the focus on siting conflicts and citizen participation. Cases in brackets indicate that the case study was not directly focused on the particular research theme, but that empirical information still has been of value.

**Table 4.** Research themes and technologies used in the case studies.

| | **Project planning** | **Siting conflict and participation** |
|---|---|---|
| **Biogas** | Västerås<br>Vänersborg<br>*(Lund)* | Lund<br>*(Västerås)*<br>*(Vänersborg)* |
| **Wind power** | *(Laholm)*<br>*(Halmstad)*<br>*(Falkenberg)* | Laholm<br>Halmstad<br>Falkenberg |

The third reason for the multiple-case design is that the ambition was to make comparisons between cases and confront different types of developments with each other (Merriam 1994:164ff). For example, the decision to include three cases in the study of municipal wind power planning in Article II, was motivated by the fact that there are significant differences between municipalities in the way they handle wind power planning. The focus of the study was on how these differences affected important aspects of the development of wind power, including the conditions for citizen participation. Likewise, the inclusion of two cases in the study of biogas projects in Article IV, came from the observation that there are different approaches regarding the planning and management of such projects. The inclusion of two cases in the study of public consultation in wind power planning in Article III, was not motivated by any observed differences between the cases. It was, however, judged important to study more than one case in order to allow comparisons. The fact that the case studies include both biogas and wind power, has enabled a comparison of differences and similarities between the technologies.

One way of illustrating the reasons for choosing the multiple-case design and discussing its advantages and limitations, is to contrast it with other possible approaches. One alternative would have been to study not only six cases, but to include a considerably larger sample of cases. This would have

necessitated the use of quantitative methods for collecting and analysing the empirical material. Quantitative methods are appropriate for describing and explaining behaviour and they are essential if the aim of the research is to obtain statistical generalisations about e.g. how frequent a specific phenomenon or relation is (Merriam 1994:20ff, Kvale 1997:67ff). The aim in this work was instead to gain a thorough understanding of decision-making processes and the interactions between actors, in relation to the two research themes. An important aspect was, being able to place the findings in the context of each specific case, which has made it vital to reconstruct a detailed picture of the cases. Qualitative methods were therefore more appropriate. It would have been possible to combine the qualitative approach in the multiple-case design with a quantitative study, with the aim of exploring the statistical frequency of certain results. While such a study could generate useful results it was not judged sufficiently interesting, considering limitations in time and resources.

Another possibility would have been to study only one or a few cases. The motivations for including six cases were discussed above. This approach, however, implies some limitations compared with studying fewer cases. Fewer cases would have had the advantage of allowing for a deeper investigation of the complexities of the cases and a more thorough analysis of their different aspects (Merriam 1994:164ff, Yin 1994:38ff). It would have made it possible to make more use of the empirical material of each case compared with the multiple-case design. The case studies included in this thesis instead focused in a fairly narrow way on the two research themes, which means that events and phenomena that were not of interest for the themes were given less attention. With this limitation in mind, the ambition was still to make comprehensive reconstructions of the cases.

### *The empirical material*

Written documents and interviews were the dominant sources of material. The written documents were in the form of project plans, application documents, municipal plans, minutes from project meetings and political meetings, consultation reports, written comments from neighbouring residents and other affected groups, permit decisions and newspaper articles. The written material was used to reconstruct the planning processes in order to obtain a picture of the chronology of the process, the actors involved, the issues that have been discussed and the different viewpoints of the actors. The material was also used for a comparison with the information that was gained in the interviews, both to check facts and to compare different interpretations of the same course of events.

Semi-structured qualitative interviews were the most important source of material in this thesis. In total, 36 interviews were carried out with representatives of organisations involved in project planning, municipal officers and politicians, neighbouring residents and representatives of groups affected

by projects. The interviews lasted between 45 minutes and two hours, and were conducted either in person or over the telephone. The selection of respondents for the interviews basically followed a snowball procedure. First key persons, such as the project manager, the most involved politician or the most active neighbouring residents, were interviewed. From these interviews and from the review of documents, other persons who could be expected to have valuable information and interesting perspectives, were identified and interviewed. For interviews with persons acting in an official position the name and title of the respondent has been written out. Interviews with private persons, such as neighbouring residents, have been regarded as confidential.

In semi-structured interviews, themes and question areas are written down in advance in an interview guide, while the exact phrasing of questions is decided during the course of the interview (Kvale 1997:121ff). This helps to make sure that the interviewer manages to cover central themes, while at the same time giving flexibility to follow up on questions that are considered particularly interesting. An important objective of semi-structured interviews is to give the respondent the possibility to provide his/her own view of a course of events, without being restricted to pre-formulated questions (Kvale 1997:117). Most of the interviews were recorded on tape and the entire interview was then transcribed. An initial analysis was made of the interviews to reconstruct the story lines and to identify possible inconsistencies and ambiguities. These were checked with other sources and in some cases respondents were contacted again for clarification. The interviews were then structured and processed in order to facilitate interpretation and analysis of the parts of interest for the two research themes.

Most respondents were asked to describe how the planning process in the specific case evolved, which enabled a comparison of the different stories and perspectives. Apart from that, the questions asked differed considerably. As an example, neighbouring residents were asked, among other things, questions about their perceptions of the project, about the developer and authorities, about how these perceptions changed during the planning process, about their means of participating in the planning process and influence decisions, and about their activities in protesting against undesirable projects. Interviews with civil servants, on the other hand, focused on questions about problems and dilemmas in planning, how these were handled in practical situations, what form citizen participation took in practice and their views on the role of participation.

### *Validity, reliability and generalisability*

Three issues that are important concerning methodology are validity, reliability and generalisability. *Validity*[28] has to do with whether the results of the case study actually correspond with the truth. In social science, the concept of truth is problematic and it can be argued that no objective truth exists in the case of societal phenomena, or if it exists, that we in any case can never find it (Lundquist 1993). Following this view, any study of societal phenomena constitutes *one* specific interpretation among many possible. The accurate way to increase validity is, therefore, not to try to demonstrate that the conclusions represent the truth, but to take measures in order to minimise implausible interpretations and to openly show how the conclusions have been reached (Merriam 1994:177). This enables readers to make their own judgements about the validity of the results.

Data triangulation was an important measure in increasing the validity of the research. One aspect of data triangulation is that both documents and interviews were used to reconstruct the planning process. A particular problem with the use of interviews about past events is that people forget details, that they might unconsciously reconstruct events to fit their own views, and that they intentionally tell their side of the story (Kvale 1997:197). For this reason the documents proved valuable in checking the answers of respondents. They have been used both to avoid factual mistakes and, more importantly, to reveal gaps and misunderstandings in the respondents' perceptions of the planning process. A second aspect of data triangulation is that various kinds of documents were used and that people representing different actors were interviewed. The choice of respondents was also guided by a wish to include different perspectives within the same actor category. Examples can be found in Articles I, II and IV where politicians from different political parties were interviewed and in Articles I and III, which included interviews with several neighbouring residents.

Another way to increase validity is to allow respondents to read draft versions of the case study reports and comment on how their statements have been interpreted. This was done in cases when the respondents explicitly asked to read a draft version and when I judged it important to receive feedback from a respondent. In total, around one third of the respondents had the opportunity to make comments on draft versions. Increased validity also comes from having a continuous dialogue with other researchers about interpretations and conclusions during the research process. This was done mainly through discussions with my supervisors, but also through seminars, conferences and comments from journal referees. Increased validity can also be achieved by applying different theoretical perspectives in the interpretation of the empirical

[28] Merriam (1994:183) distinguishes between internal and external validity. In her definition external validity has to do with whether the results of a case study can be generalised, i.e. what is referred to here as generalisability.

material and discussing possible alternative interpretations (Kvale 1997:218). As discussed earlier, different theoretical perspectives were used in different empirical contexts. In some cases different perspectives were also used to obtain a more detailed interpretation of the same empirical material, as in the discussion of three theoretical perspectives on siting conflict and citizen participation in Chapter 5. Another example can be found in Article IV, where the analysis was based on theories of project planning but where theories on leadership and public management were also discussed.

*Reliability* means that if another researcher follows the same procedures he or she would obtain the same results and reach the same conclusions. For qualitative case studies it is not possible to actually repeat the study. Measures to ensure as high reliability as possible include to openly account for the different steps in the progress of the research, and to document and present the empirical material (Merriam 1994:180ff, Yin 1994:36). The description of the case studies and of the reasons for choosing them, the presentation of the empirical material and the discussion of how it was selected and used, have all been aimed at increasing the reliability of the research. Many of the measures used to increase validity also improve the reliability of the research, such as triangulation, discussions with other researchers and the use of different theoretical perspectives.

Another way to facilitate for the reader to judge the reliability of the study is to describe basic standpoints which might influence the analysis. As mentioned in Chapter 1, an underlying premise of the research was a belief that there is a need for more renewable energy in the Swedish energy system and that a faster implementation is a key issue in this regard. Such a starting point could lead to a simplified view of the nature of the implementation process. However, another basic assumption has been that implementation is an inherently complex endeavour involving a multitude of actors with both conflicting and converging goals, who co-operate, negotiate and compete with each other. The call for more renewable energy could lead to a certain insensitivity concerning the conflicts and dilemmas that are an inherent part of the implementation process in a democratic society. However, a parallel standpoint has been that implementation should not be increased at the expense of other important values, such as a democratic decision-making process and respect for local concerns. The ambition in this thesis has been to create a balance between these two perspectives.

*Generalisability* concerns the question of whether it is possible to draw conclusions from the research that are of general relevance. It is necessary to distinguish between statistical generalisations, which characterise quantitative methods, and analytical generalisations, which are relevant for case studies and other types of qualitative research (Yin 1994:36). Analytical generalisations start out from the specific case but aim at analysing behaviour and phenomena which, in similar situations, can be assumed to be of a general nature. Analytical generalisations are closely connected to theory, since they depend on

the use of existing theories which are applied to, and confronted with, new empirical situations. In this way they also contribute to theory development.

Another way to approach the question of generalisability is to view it in relation to the reader or the end user of the results (Merriam 1994:187). From this perspective it is up to each reader to decide whether the results are applicable to his/her situation, irrespective of whether he/she is engaged in research or in practical applications. The questions of practical relevance, theoretical implications and analytical generalisations have been addressed in the conclusions in Chapter 6.

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# I

# Siting conflicts in renewable energy projects: A biogas case study

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## 1. Introduction

Conflicts sometimes arise over the siting of renewable energy facilities. This paper starts with a discussion on the differences and similarities in comparison with conflicts over other controversial issues, such as nuclear power plants, chemical factories and the construction of roads. The main part of the paper is concerned with the results from a case study of a failed attempt to site a biogas plant in southern Sweden. The results show that a lack of public participation in the early stages of planning and the local residents' negative perceptions of the developer and of their possibility to influence the decision, contributed to the development of opposition to the project and polarisation of the conflict. The role of planning legislation in shaping processes that mitigate or accentuate conflicts is also discussed. The paper concludes with the observation that the biogas case showed similarities to both traditional siting conflicts and other conflicts concerned with renewable energy.

Governments, industry, environmental groups and the public in general are all very positive to the increased exploitation of renewable energy sources, which are seen as a crucial element in the development towards a sustainable energy system (Government bill, 2001/02:143; Holmberg, 2000; Government bill, 1996/97:84). At the local level, however, specific renewable energy projects can be controversial. Previous research on environmental siting conflicts has mostly dealt with technologies that have a clear negative impact on the local area and few environmental benefits, such as hazardous waste facilities, chemical factories, waste incinerators and the development of infrastructure (Löfstedt, 1997; Dorshimer, 1996; Leiss, 1996; Lidskog, 1994; Rabe, 1994).[1] The increasing exploitation of renewable energy sources calls for research into the conflicts generated by the siting of renewable energy facilities and into the ways in which such conflicts can be handled. This paper seeks to contribute to this body of research.

This first section provides an introduction to different types of renewable energy and a discussion on differences between and similarities to other siting conflicts. The aim of the discussion is to outline an agenda for further empirical and theoretical research on the characteristics of siting conflicts involving renewable energy facilities. Empirical research in the form of case studies of specific renewable energy

[1] The study of the conflicts concerning the construction of railroads is an exception since this is generally seen as a way to increase the ecological sustainability of the transport system and here parallels might be found with renewable energy (Boholm et al., 1998 and *National Objectives—Local Objections,* 2001).

projects that have led to conflict is needed. The main part of the paper presents the results from one such case study, that of a failed attempt to site a biogas plant in southern Sweden. Section two gives an introduction to the case while sections three and four contain discussions of the main results. The final section presents concluding comments about the case and about its relation to other siting conflicts.

Renewable energy is the umbrella term for a heterogeneous group of energy sources (mainly bioenergy, wind power, hydro power, solar power and solar heating), that have in common the fact that they are not consumed once they are exploited, but can be replenished. They contribute little or nothing to the emission of greenhouse gases, such as $CO_2$, which means that switching from fossil fuels to renewable energy sources reduces the problem of global warming.

A central question concerning the siting of renewable energy facilities is whether such facilities are associated with new problems in comparison with traditional siting conflicts. First of all, it should be acknowledged that renewable energy projects are very heterogeneous and can mean anything from the installation of a solar heating system in a single-family house to the siting of a large wind park of several megawatts. Renewable energy projects differ regarding aspects such as the scale of the facility, the risks they imply in the local area, the uncertainties in those risks, type of ownership and the actors involved in the planning of the facility. Despite these differences, renewable energy facilities have many characteristics in common which distinguish them from the siting of other facilities, and it is useful to discuss them in general terms. Renewable energy tends to be strongly supported by public opinion, while activities such as the use of nuclear and fossil energy, the burning of waste, chemical factories and the construction of roads are often met with resistance. This has implications for the nature of local siting conflicts.

While conflicts over other facilities are often connected to the agendas and activities of established environmental organisations (Jiménez, 2001; Rootes et al, 2000; Lidskog, 1994), local opposition to renewable energy facilities is typically organised by ad hoc interest groups, consisting of neighbours and other people in the community, who feel that their local environment is being threatened. The major environmental organisations have a positive attitude towards renewable energy and see it as a key factor in the development towards a sustainable energy system. This means that environmental organisations working at the local level are faced with a dilemma, since they, in principle, support renewable energy but, at the same time, are confronted with the worries and opposition of local communities. This dilemma was evident in a study based on interviews with representatives of local environmental organisations in different municipalities on the Swedish west coast, about their views on wind power development (Böhler, 1998). All the organisations involved wanted to see an increase in wind power in their local area but none of them was actively working to promote it. They were furthermore sceptical to the large-scale exploitation of wind power. While established local environmental organisations are hesitant, new networks, as in the case of wind power, are being established that unite people who have had bad experiences in their local area and who are against the implementation of renewable energy facilities in their own areas.[2]

Since the literature on siting conflicts is mostly concerned with facilities characterised by high uncertainties and risks, work has been focused on the development of appropriate methods for the assessment and communication of risks.

[2] In Sweden the name of the network against wind power is Svenskt Landskapsskydd (Swedish Landscape Protection) (for their Internet home page address see the reference section). Similar networks exist in the United Kingdom, Denmark, Germany and France.

It can be argued that such a focus might be somewhat misplaced in the case of many renewable energy projects, where the uncertainties are not so pronounced and where the risks are less dramatic. For wind power, the main cause of conflict is the visual impact on the landscape, something that does not cause much uncertainty. For bioenergy and biogas plants the uncertainties in the risks are higher, even though they cannot be compared, for example, to radioactive waste or a chemical factory. This suggests that for many projects in renewable energy generation, there would be less need to use the more elaborate and sophisticated methods of risk analysis and communication developed within the field of risk research.[3] Considering the relatively small scale of many renewable energy projects, such a strategy would often prove impossible because of the limitations on time and resources.

However, we can still learn a great deal by comparisons with other siting conflicts, since some of the reasons for the development of local opposition are essentially the same, and stem from worries about the effects of the facility, lack of trust in the developer and the lack of opportunity for citizens to influence the outcome of the project (Leiss, 1996; Kasperson et al., 1992). A closer look at renewable energy siting conflicts shows that, in most cases people are genuinely worried about the possible effects of the facility and tend not to perceive the project as environmentally friendly. Regarding wind power, the visual impact on the landscape might be the most important environmental question for people who have lived for a long time in an area with an unspoiled landscape. From such a perspective, a large company wanting to build several wind turbines is not necessarily viewed as environmentally friendly and certainly not as working for the good of the local area.

The opposition against a specific project is often connected to local residents having a negative perception of the developer and of the limited opportunity they have to influence the planning process. In the discussion on the biogas case study, later on in this paper, I argue that an expert-oriented planning process which excluded public participation, contributed to the development of opposition to the biogas plant and to the highly polarised conflict between the developer and the opposition group. The same observation has been made in relation to wind power projects (Hammarlund, 1997; van Erp, 1996; Wolsink, 1990). The fact that a project is concerned with renewable energy does not mean that it will be automatically welcomed by everybody and the lessons concerning inclusive planning processes are as important here as in the siting of other facilities. The people who oppose a facility are not usually negative to renewable energy per se, even if they are critical of the location chosen and the way it has been selected.[4] Bad experience with specific projects can, however, lead to a more sceptical attitude towards the technology itself. The fact that renewable energy projects tend to be small-scale and are often initiated by actors at the local level, increases the possibility for the economic involvement of people from the local community, which can help to create a feeling of ownership in projects and thus increase the likelihood of acceptance. The development of wind power in Denmark is a good example of the potentials of economic involvement (Brunt and Spooner, 1998; Tooke and Elliot, 2000). Even without economic involvement, the small-scale of the projects may make it easier for the local population to become involved in the planning processes and to influence the decisions about the siting of a new facility.

[3] See *Earthscan Reader in Risk and Modern Society* (Löfstedt & Frewer, 1998) for an introduction to the research on risk analysis and risk communication.

[4] See Wolsink (1994) for a discussion about different possible local reactions to a new facility.

The discussion above has touched on some of the issues concerning renewable energy facility siting conflicts. Further empirical research is needed to obtain a more complete picture of this matter and to answer the question of whether renewable energy constitutes a special case in siting conflicts. The remainder of the paper is devoted to a discussion of the results from a case study, which deals with a failed attempt to site a biogas plant in southern Sweden. The findings are of course specific to this case and cannot form the basis of general conclusions regarding renewable energy facility siting conflicts. They can, however, indicate interesting questions for further research.

## 2. Biogas in Lund: An introduction to the case study

In January 2000, a political majority in the municipality of Lund in southern Sweden decided to abort plans for a biogas plant outside the village of Dalby; a decision that put a stop to a planning process that had been in progress for more than four years, and that had been met by heavy local public opposition and much political hesitation. The overall purpose of this case study is to reconstruct the planning process and the interactions of the actors involved in order to understand why the siting of the facility failed. One of the main areas of interest in the study is why opposition against the project developed, and this is discussed in relation to the form of the planning process and the lack of public participation. The importance of the local residents' perceptions of the planning process and of the developer is given particular attention. The discussion also covers other aspects such as different interpretations of the planning process and the role of relevant legislation in shaping constructive or destructive planning processes.

The empirical material for the case study consists of written documentation and interviews. The *written documentation* has been collected from various sources such as the developer, the authorities, the opposition group and newspapers. Since the case study focused on the interaction between the key actors and on how they interpreted the planning process and the actions of other actors, *interviews* have been the most important source of empirical information. Eleven semi-structured interviews were carried out with different key persons such as representatives of the developer, members of the opposition group, municipal politicians and civil servants.

### *Case background*

Biogas is a form of bioenergy that is derived from the digestion of organic matter, such as manure and animal and vegetable residues. The main purpose of a biogas plant is to make use of such organic waste instead of depositing it on landfills or burning it. The biogas process produces two end products: (1) biogas, which can be used to produce heat or as a substitute for natural gas in pipelines and vehicles, and (2) the digested product which can be returned to the land and used as a fertiliser. Biogas plants typically create concern among local communities regarding the risk of unpleasant odours.

The present case study followed a failed attempt to site a biogas plant in southern Sweden. The facility was planned to be located in the municipality of Lund, 2.5 kilometres away from the village of Dalby which has around 7,000 inhabitants. The planning and application process extended from 1995 to the beginning of 2000 and involved a variety of different actors. The key actors were the developer, the

municipality of Lund and the local opposition group. *The developer* was the regional waste management company. The company is jointly owned by nine municipalities in south-western Skåne (the southernmost county in Sweden) and is in charge of waste disposal and recycling in the area. The developer was in charge of the planning process and made the formal application to build the biogas plant. *The municipality of Lund* was a central actor throughout the process and its role was rather complex. Politicians and civil servants played different roles and that of the municipality as a whole varied in the different stages of the planning and application process. In short, the municipality initially worked actively to site the biogas plant in Lund, but later distanced itself from the plans and acted more as a critical authority in the application phase. At the end of the process a political majority within the municipality voted against the project. The *opposition group* consisted of neighbouring residents as well as households in the nearby village of Dalby, who worked actively to oppose the plans. Other significant actors were the County Administration, which administered the environmental permit for the biogas plant and the population of Dalby where strong public opinion against the plant developed.

The key issue in the conflict was the specific location of the biogas plant and the perceived negative impact it would have on the local environment and on the people living there. The main concerns were unpleasant odour, increased traffic, adverse effects on the landscape and that the use of water might affect an environmentally protected pond and the groundwater level (Letters from the public, comments by the authorities and interviews with members of the opposition group). It is difficult to judge who was right and who was wrong in the debate about environmental impact, since further studies on the suitability of the plant were blocked by a political decision. Such a judgement is beyond the scope of this paper and would demand a detailed analysis of the different arguments and of the environmental impact assessment. However, a few comments are possible to make.

In a study of siting conflicts, Carlman (1992) distinguishes between genuine and false conflicts of interest. *Genuine conflicts* are those where the parties agree about the actual effects of a facility but disagree about how to handle them and how serious they should be considered, while *false conflicts* appear when one of the parties has a mistaken idea about the effects of the facility. False conflicts should be possible to resolve through more information while genuine conflicts have to be resolved by other means, such as a legal decision, compensation or compromise. The picture becomes more complicated, however, when there is uncertainty associated with the effects, which allows for different interpretations and makes it unclear whether a conflict is genuine or false. Furthermore, distrust of the developer can mean that information which could potentially solve a false conflict is viewed as unreliable. The main issues of conflict in the biogas case, were either genuine or fraught with uncertainty. This was also the view of the authorities involved, who called repeatedly for supplementary information before considering themselves ready to make a decision. However, several false conflicts also existed and the opposition group used some arguments that were clearly wrong or exaggerated and brought up issues that had nothing to do with the environmental impact of the facility, simply in order to discredit the project.[5]

[5] Examples of incorrect arguments were claims that it was not possible to return the dry residue to the land and what seemed to be a deliberate misunderstanding about the amount of traffic that would be generated by the facility. Examples of arguments that did not concern the environment were claims that there was not sufficient supply of manure and that there would be problems selling the gas (1998-2000 Letters from the public).

*Two phases of the planning process*

The planning process for the biogas plant can be divided into two distinct phases, the early planning phase and the application phase. *The early planning phase*, started in 1995 and continued to June 1998, when the first consultation meeting was held with neighbours of the chosen site. The early planning phase started as two parallel processes, where both the developer and the municipality started planning for a biogas plant. In 1996 the developer completed the first location report in which six locations in its geographical region of activity were studied. One of the alternatives was the location 2.5 kilometres outside Dalby (hereafter called the Dalby location). The report did not state whether any of the locations was better than any other and it concluded that more research was necessary to determine this (1996-09-16 Lloyd). Since politicians in the municipality of Lund were very positive towards a biogas plant, it became natural for the developer to focus on Lund in the continued planning.

The final part of the early planning was carried out as a joint planning project between the developer and the municipality and was characterised by close co-operation between the two parties. The planning was done in working groups covering issues such as the location of the plant, technology and market, the use of the biogas and co-operation with farmers (1997-01-30 – 1997-09-01 Memoranda from the developer). Civil servants from several of the municipal departments were involved in the working groups and the most active politicians took part in the steering group that supervised the planning process.

The early planning also involved other actors who had an active interest in the project, such as farmer's organisations and the local energy company.[6] However, a striking feature of the early planning phase is that it only involved stakeholders who would benefit from the project, and therefore had a positive interest in it. The planning dealt primarily with technical aspects of the project and did not include a broader political discussion on issues that could be controversial, such as environmental aspects and the location of the facility. There was, for example, no working group dealing exclusively with environmental aspects and planning did not involve local environmental organisations. Likewise, the working group on location involved only civil servants and did not include consultations with the public or the local political representatives of the areas in which possible locations had been identified. The purpose of the working groups was not to reach a consensus which all parties would accept, although they partly served as a means of spreading information and gaining support for the project among the major stakeholders. Instead, their principal purpose was to make the planning process more efficient by including experts with different types of experience and knowledge (Interviews: 2000-05-09 Ekwall and 2000-06-27 Tufvesson).

[6] Farmers are vital to the biogas system, since they deliver animal manure which is an important raw material in the biogas process. They are also the recipients of the digested end product which is used as fertiliser. The local utility was involved in relation to the use of the biogas.

| | |
|---|---|
| *The Early Planning Phase* | |
| 1995 | Political discussions about the construction of a biogas plant start in Lund. The regional waste management company develops plans for a biogas plant somewhere in its region of activity. |
| October 1996 | The first location report is completed by the developer. |
| 1997 | Joint planning between the developer, the municipality and other stakeholders. |
| Autumn 1997 | The second location report is completed by the developer. |
| *The Application Phase* | |
| June 1998 | Consultation meeting with the neighbours of the site. |
| July 1998 | The application is submitted. Protests start from neighbours. |
| September 1998 | An opposition group consisting of neighbours to the site and residents in Dalby is formed. |
| November 1998 | Two public meetings are held in Dalby. There is strong opposition to the project. |
| January 1999 | The authorities ask the developer for supplementary information. |
| October 1999 | The developer supplies the supplementary information. |
| Autumn 1999 | The opposition group continues its activities to stop the project including personal lobbying of politicians. |
| January 2000 | A political majority of the Planning Committee decides not to allow detailed planning to take place. The project is stopped. |

*Table 1. Chronology of the planning and application process*

Although the working groups involved different parties, the developer was in charge of the planning process and made the final decisions about, for example, the location of the facility. One possible reason why nothing was done to involve the public in the early planning phase, or to encourage a broad political discussion, is that the project was not seen as controversial since all political parties were positive to biogas. The feeling of strong political support was expressed by the representative of the developer several times during the interview (Interview: 2000-05-09 Ekwall). At the end of 1997, the developer completed a report in which the Dalby location was declared as the chosen location and this later served as the basis for the legal application (1997-10-13 Ekwall and Lloyd).

*The application phase* started in June 1998 with the first public consultation meeting and ended in January 2000 with the political decision that put an end to the

project. The biogas plant needed a permit according to the Environmental Protection Act[7] and this application was sent to the County Administration in July 1998 (1998-09-16 Sysav AB). A building permit was also needed under the Planning and Building Act and this was handled by the Planning Office in Lund. While the early planning phase was characterised by an atmosphere of co-operation between the developer and the municipality, the application phase was marked by a polarised conflict between the developer and the local residents.

Project developers can use different approaches towards the public when they want to site facilities that imply risks to the local area. Leiss (1996) has distinguished between three main approaches: the expert, the market and the participatory approach. In the *expert approach*, risk management and project planning are seen as strictly technical tasks, which are best carried out by experts. Public worries are considered to be due to a lack of knowledge implying that the best way to avoid opposition is objective research and relevant and sufficient information. This approach is furthermore characterised by a disregard for public and local knowledge as being irrelevant. In the *market approach*, the developer is more aware of the importance of good communication and borrows communication methods from the marketing sector. However, the underlying view is still that planning is best carried out by experts alone which means that the public is not invited to take part in the decision-making process. The market approach, therefore, does not address the fundamental gap between the technical risk assessment of experts and the views and worries of the public. In both the above approaches, public participation is limited to information from the developer and to legally prescribed consultation, which tends to be interpreted in a restrictive way. The *participatory approach* recognises that public trust in the developer and in the project is fundamental for public acceptance and that trust can only be based on a planning strategy that takes into account the views of the public and allows them to influence the outcome of the project. This approach is characterised by the use of deliberative methods to involve the public in planning, and often strives to go beyond what is legally prescribed.

The siting approach of the developer in the biogas project was a typical example of an expert approach. The public was not involved at all in the early planning phase, and in the application phase the only forms of public participation organised by the developer were an information meeting and legally prescribed consultation. According to the Environmental Protection Act, the developer is obliged to hold a consultation meeting before the application is submitted, with those members of the public who will be affected by the facility. The consultation meeting was held with neighbours in June 1998 and this was the first time they had any notice whatsoever of the plans. People living in the nearby village of Dalby were not invited. The meeting was held one month before the application was submitted to the County Administration and at this point the technical description, as well as the environmental impact assessment, had already been completed. The meeting was strictly informational and although the neighbours had many questions and comments there was no possibility for these to be included in the application, since it had already been completed. During the first meeting people wondered whether there would be further meetings and the developer answered that no other informational activities had been planned (Interviews: 2000-05-30 and 2000-06-06 neighbours). Shortly after the consultation meeting, some neighbours started writing letters to the local authorities

[7] The Environmental Protection Act was replaced in 1999 by the Environmental Code but the application continued to be handled according to the former legislation.

where they criticised the plans, and when the application was submitted people in Dalby also started to question the plans. Soon, an opposition group with ten core members had formed, consisting of both neighbours to the site and residents of Dalby.

The members of the opposition group formed a homogeneous group, being middle-class, well educated, of middle age or older and mostly men (Interviews with members of the opposition group). The members of the group were very active and opposed the plans both by mobilising public opposition and by influencing decision-makers. They wrote letters to the local newspapers as well as formal petitions to the County Administration and the municipality. They had door-to-door discussions with people in Dalby, spread flyers criticising the biogas plant, collected signatures for a petition and organised public meetings. In response to the negative public opinion and as an effort to counter the intense informational activities of the opposition group, the developer organised an information meeting in November 1998 to which the residents of in Dalby were invited. By that time, however, there was already strong public opinion against the biogas plant, which could not be swayed. The County Administration was of the opinion that there was not enough information in the application to determine the environmental impact of the plant and requested supplementary information, which was submitted by the developer in the autumn of 1999 (1998-2000 County Administration, 1999-09-30 Sysav AB). Meanwhile, civil servants in the Planning Office had come to the conclusion that it was necessary to make a detailed plan of the site before a decision could be made about whether to grant a building permit according to the Planning and Building Act (Interviews: 2000-07-20 Aronsson, 2000-11-15 Källqvist).[8] It was then up to the politicians in the Planning Committee to decide whether they would allow a detailed plan to go ahead. These developments in the application process meant that the activities of the opposition group went into a new intensive phase at the end of 1999, with more letters to the editor, formal petitions to the authorities, the attending of official meetings and personal phone calls to politicians in the Environmental and Planning Committees.

The County Administration decided to call for a final consultation meeting concerning the suitability of the plant, which was to be held at the beginning of 2000. The meeting never took place, however, since a political majority of the Planning Committee decided, in January 2000, that they would not allow a detailed plan to be made (1998-2000 Minutes from the Planning Committee, Interviews: 2001-01-16 Brinck, 2001-01-11 Jönsson, 2001-12-01 Wadenbäck). This meant that the project was stopped on political grounds and that the decision was not the outcome of a full legislative process.

## 3. Perceptions of the developer and the planning process

One of the important aims of the case study was to explore the reasons why opposition developed to the project and the following chapter provides a discussion on this issue. It is of course very difficult to give a full account of all the reasons behind a siting conflict and the development of opposition, and any attempt will have to focus on certain aspects and disregard others. This study was focused on how

[8] The purpose of a detailed plan is to investigate whether an area is suitable for the construction of buildings or other facilities, and it is required when the new facility is expected to have a considerable impact or if there is a big demand for the land in the area. The planning procedure for a detailed plan is strictly regulated and involves extensive consultation with many parties, including neighbours and other people concerned.

people's perceptions of the developer, the planning process and their possibility to influence the outcome of the project, contributed to the development of opposition. Before going into this, I will briefly discuss people's perceptions of the possible environmental impact of the facility and the risks it implied to the local community, since such perceptions obviously played a significant role in the development of opposition.

The numerous letters to the newspapers and the authorities, and interviews with members of the opposition group, indicate that it was the environmental impact that was at the heart of the conflict (1998-2000 Letters from the public; Interviews with members of the opposition group). Regardless of whether the criticism from the public corresponded accurately to the actual risks and possible impact of the facility, it did reflect an authentic worry and the main issues were genuinely perceived as potential threats to the local environment and the local population. From the perspective of the activists themselves, the environmental impact was the single most important reason for their opposition. In contrast to this view, it can be noted that other biogas plants in Sweden have not created such opposition and in comparison with some of these, the plant near Dalby would not have been in a particularly bad location. There were four farms closer than the recommended safety distance of 500 metres, and the distance to Dalby was 2.5 kilometres. Some existing plants are located much closer to residential areas. Furthermore, within the municipality of Lund this was one of the best locations considering proximity to housing. Even though the perceived impact of the plant played an important role, there was no obvious reason why it should be seen as an unsuitable project and the chosen location was not necessarily destined to face such fierce opposition.

In the literature on risk communication and the siting of controversial facilities, the concept of trust is given a very important position, and lack of trust is stated as one of the key factors in public opposition and a major reason why it is often difficult to reach a solution acceptable to all parties (Löfstedt, 1999; Kasperson et al., 1992). There is a general consensus among risk researchers today that in order to gain the trust of the public regarding a project, it is important that planning processes are open and allow for early and substantial public participation. In the present case, we have instead a situation of an expert-oriented planning process with very little room for public participation and the underlying question in the following discussion is to what extent this had a negative effect on trust and thus contributed to the emergence of public opposition.

It is of course very difficult to determine a direct causal link between people's perceptions of the developer and the planning process, and their opposition to the project. Such a link can hardly be identified from the direct answers of respondents, and as mentioned above, the members of the opposition group said that the only real reason for their opposition was that they were of the opinion that the plant would be harmful to the local environment. The negative perception of the developer and the planning process was not seen by them as a crucial factor in their opposition. However, when people look back over their role in a process they tend to seek logical explanations of their own behaviour which, in this case, would mean opposing the project based strictly on objective motives, and they might play down, both to themselves and to others, the significance of negative perceptions of the developer and the planning process. The task of the researcher then becomes to try to read between the lines and interpret whether the perception of the developer and the planning process was of any significance, even if no causal explanation is evident. Because of these methodological complications no attempt was made to weigh the

importance of the perception of environmental impact in relation to the perception of the developer and the planning process. Instead, it is argued that these two factors are likely to reinforce each other, which means that in a siting case where potential conflicts may arise, it becomes even more important to use planning procedures that do not exacerbate conflicts and undermine public trust.

When the neighbours were called to the first consultation meeting they did not know anything about the plans and during the meeting there was no outright opposition to the project even if the atmosphere was tense and suspicious. The suspicion turned into a clearly negative attitude after the meeting had been held and this change had a lot to do with the neighbours' negative perception of the developer and the way the project was being handled. There was a perception that the developer wanted to carry out the application process with as little contact with the public as possible, and that the information given was neither comprehensive nor objective.

> They told us rather clearly that they had arranged this consultation meeting in order to fulfil the requirements of the law. We asked if they planned a further information meeting in Dalby and they said no, and that they had fulfilled the requirements placed on them. The purpose of the meeting was not to inform us or to hold a consultation with neighbours or those who saw themselves as being affected, it was that such a meeting had to be held. So they did (Interview: 2000-05-30 neighbour).

The impression of skewed information continued throughout the whole process. Both the opposition group and the authorities asked for supplementary information on several issues, which fed people's suspicions that the developer could be holding back information or did not itself have the required knowledge to begin with.

Apart from dissatisfaction with the information, there was an impression at the first meeting that the representatives of the developer had difficulties in answering questions about the project and particularly that they did not have good knowledge of the local conditions of the site, for example, how the facility would affect the ground water and a nearby environmentally protected pond (Interviews: 2000-05-30 and 2000-06-06 neighbours). The perception that the developer did not have enough knowledge about the specific conditions at the site was especially important since the crucial controversy was over the location itself. It may well have reinforced the impression of a big company coming from outside to build a facility in the local area without knowing or caring about how it might affect the people living there. The members of the opposition group acknowledged that their view of the competence of the developer improved as the process went on, and they also expressed respect for the competence and professionalism of the consultant appointed by the developer, who had written the technical and environmental report. However, the work of the consultant was ultimately seen as being dependent on the motives of the developer and their respect for his competence could not compensate for the lack of trust in the developer.

Another important perception that affected the attitude towards the project was that the developer acted as if the real decision had already been made and that there was no point in trying to do anything about it.

> At the consultation meeting they presented completed plans and they even said when building was going to start and when the plant would be ready, before the application had been sent to the authorities. So the fact that it was going through the County Administration and the Environmental Committee was really just a formality (Interview: 2000-05-30 neighbour).

The main conflict was about the specific location of the biogas plant and one issue that had considerable impact on public trust in the developer concerned the grounds on which the decision regarding the location of the site had been made. There was suspicion among the opposition members that the site was chosen simply because the developer had found a farm property for sale, that the location report was basically made after the site had been chosen and that the report was manipulated in order to show that the selected site was the best. A closer scrutiny of the planning process shows that this suspicion was unfounded and it is clear that the location decision was based on a great deal of prior analysis.[9] However, a few critical issues regarding the location decision fuelled people's suspicions.

First, there was some unclearness about two alternative locations that had been investigated in the first location study, but which were not presented in the application to the County Administration. The two alternative locations had advantages concerning economy and local environmental impact, but had the major disadvantage that it would be necessary to use sewage sludge, making it difficult to return the end product to the land (1996-09-16 Lloyd). The reason why the developer did not present these alternatives in the application was that they were located in the municipality of Malmö, while the plan was to locate a biogas plant in Lund. However, the developer later presented the two alternatives after the authorities had asked for supplementary information on other possible locations. The opposition group interpreted this as fear on the part of the developer that it would be obvious that the locations in Malmö were more suitable (Interviews with members of the opposition group).

Secondly, it was clear that political pressure from the municipality had influenced the decision to focus on finding a location in Lund, and this was interpreted by members of the opposition group as doubt as to whether it was suitable at all to site a biogas plant in Lund.

Thirdly, after the developer had made the decision regarding the location, it focused completely on showing that the chosen site was the best and was no longer interested in discussions about alternatives. This inflexibility on the part of the developer made it easier to believe that it wanted to avoid a discussion, knowing that this was perhaps not the best location. The discussion above shows the importance of an open and transparent planning process during all the different steps in order to avoid misunderstandings and to counteract the spreading of rumours.

All in all, the interviews with members of the opposition group show that trust in the developer was minimal and that this originated from the way in which the project had been presented and from a perception of the developer as arrogant and uninterested in the views of the public. This lack of trust meant that the negative attitudes to the project, and particularly to the specific location, were exacerbated, and the main objective of the opposition group early on became to stop the facility from being built at the chosen location. Since it was not possible to discuss any alternative locations they focused on trying to stop the project entirely and if this was not successful, their second aim was to achieve as strict environmental demands as possible on the facility. This meant that they were not interested in a dialogue with the developer, since they perceived that their objectives and that of the developer were impossible to reconcile (Interviews with members of the opposition group).

[9] The final location was mentioned as a possible alternative already in an early location report from 1996, which was completed long before the developer had any specific plans to buy a property (1996-09-16 Lloyd).

## 4. Lessons to be learnt from the case: Two themes of interest

An underlying question regarding a siting conflict such as this, is naturally whether it is an example of a sound project that has been stopped because of the influence of a small group of individuals guarding their selfish interests, or if it is an example of a bad project that has been avoided thanks to a working local democracy and active citizens. As I see it, this question is very difficult to answer since it depends on different interpretations of the possible effects of the facility. The different actors had diverging and sometimes contradictory perceptions of the planning process and it is impossible to say that one way of looking at it is more legitimate than the other. Instead, it is better to realise that the present case demonstrates a situation where *all* the key actors, to some extent, have lost something and that this could have been avoided. The members of the *opposition group* felt ignored and were worried that the project would be carried out without them being able to influence the situation, which made them feel forced to expend considerable time and effort throughout the application process on opposing the plans. The *municipality* lost the chance to build a biogas plant within its area, something that all political parties favoured, and it seems that the chance will not return within many years to come. The *developer* had been planning for many years in order to find a suitable place to locate a biogas plant and had invested a great deal of time and money in the Dalby location, which can be considered as largely wasted.

The most serious loss resulting from this case is that of trust. The public lost trust in the developer, who will find it even harder to site facilities in the future. Biogas technology as such might also have been affected by the loss of trust, making biogas appear more like a controversial technology and less like something that is beneficial for the environment. With regard to such a perspective it is more appropriate to ask what we can learn from this case about how to avoid planning processes that are perceived as negative by all parties involved, and how we can achieve processes that are both democratic and effective at the same time. In relation to this question I will discuss two themes that have been significant in this biogas facility planning process and which might be of interest regarding siting conflicts in general.

### *Different interpretations of the planning process*

An interesting result of the case study is that the actors involved show very different interpretations of the planning process, which are derived from their own position and from what they have been able to observe. It is noteworthy that the developer interpreted the planning process as being open and inclusive, while the opposition group perceived it as a typical example of a closed process where the aim had been to hurry through the project in secret. The lack of communication between the actors involved fostered misunderstanding and misinterpretation and enabled them to create images of each other's motives and actions that did not correspond with reality. This was most obvious in the relation between the developer and the opposition group, which was from the very start marked by mutual distrust. The developer saw the conflict as a typical NIMBY phenomenon (not in my back yard), where local people, out of purely selfish motives, manage to stop a project, which they would otherwise regard as positive since it benefits society as a whole as well as the environment. This view was reinforced since the opposition group was not interested in a discussion with the developer and organised public meetings without inviting the developer. The public opinion in Dalby was seen as being largely created by the opposition group by

the use of aggressive propaganda and information that manipulated the truth. The opposition group, on the other hand, was deeply suspicious of the motives of the developer and perceived the information coming from that source as being modified in order to show that the chosen site was the best. This negative view was based on the first meeting where representatives of the developer had difficulties in answering some of the questions, and where it became clear that they had not planned any further informational activities. The view was reinforced by the fact that the developer was not willing to contemplate any other locations. Distrust made it possible to question how the site had been chosen and even made people suspect that it was a more or less random decision. As we have seen, both views were highly exaggerated, although they contained some elements of truth on which the negative images were constructed and confirmed.

These findings are similar to those of an earlier study from the mid 1980s concerning conflicts surrounding the siting of energy facilities in Sweden (Sjöström, 1985). From a psychological perspective, the author illustrated the processes in which the actors created and reinforced the negative images of their counterpart, in order to maintain the image of themselves as fighting for a just cause. As in the present case, the main reason why these images could be sustained was a total lack of communication between the opposing parties. The solution advocated in that report was to strive for more democratic and participatory planning processes, where the different perspectives could meet, which would counteract decisions being based either on the influence of experts or on single-question opposition groups. In a later study from the early 1990s, which included case studies of several energy projects, the same conclusions about the importance of more participatory planning processes was reached (Carlman, 1993). And almost a decade later, in the present study, the same conclusions have once again been reached.

*Open and closed planning processes*

One of the most striking features of the decision-making process in the biogas project is the sharp contrast between the level of public involvement in the different phases of the process. The developer, the municipality and the direct stakeholders were the only ones involved in the initial planning of the project, which completely excluded any form of citizen involvement. When the developer had decided upon a location and the application was ready to be submitted, the neighbours of the site were still unaware of what was being planned in their vicinity. However, when the application entered the legal system, citizen involvement became very pronounced and took the form of active opposition to the project. The legal system allows for a certain influence from members of the public when a project with potential environmental impact is proposed and, for instance, gives people the right to submit official comments and opinions about an application, which the authorities must take into consideration. When official channels are combined with other ways of influencing the decision, as in the present case, active citizens have considerable opportunity to affect decisions and even to stop a project completely. Thus, we have a situation in which there is normally little incentive for project developers to involve the public in the planning of projects, while there are many opportunities for people to become involved in the legal process and influence whether the project is approved or not. As the present study has shown, this tends to lead to polarised conflicts between the different parties involved. This points to a shortcoming in the legal system, since it guarantees public involvement only in the later stages of the process and may thus contribute to

confrontation rather than serving as an instrument to deal with conflict and to mediate between different parties.

In Sweden, this problem has partly been addressed in the new Environmental Code (which came into effect in 1999), which stresses the importance of early consultation with the public and states that alternative locations should also be proposed when a new facility is to be built. It is, however, still unclear how much the new law can actually contribute to shaping planning processes and encouraging meaningful public participation, since the regulations concerning the type and aims of consultation are vague. Case studies of planning and application processes which follow the Environmental Code are needed to gain empirical knowledge about the possibility of increasing public participation and avoiding polarised conflicts.

## 5. Final comments

The present case study is one example of the shape a conflict regarding the siting of a renewable energy facility may take, and we can find similarities both with other renewable energy siting conflicts and with traditional siting conflicts. Concerning the nature of the opposition and the role of the local environmental organisations, there were clear parallels to other renewable energy siting conflicts. The opposition was organised by an ad hoc interest group whose members did not have ties to the environmental movement. The local environmental organisations remained passive throughout the planning and application process. They were positive to a biogas plant somewhere in Lund, but were unofficially critical of the specific site and the way in which the planning process was handled by the developer. Although they were critical of the same things as the opposition group, they did not voice this openly, since it would contradict their support for biogas.

In other ways the case resembled traditional siting conflicts: the facility was fairly large-scale, there was no economic involvement of the local community and there where unresolved uncertainties concerning the impact of the facility. Most strikingly, it showed how a project developer failed to involve the public in the crucial early stages of the planning process and the role this played in turning differences of opinion between the parties into a polarised conflict. This result is in line with earlier research, and the case serves as yet another reminder to project developers that the public can have a decisive influence on the outcome of a project, originating both from their legal rights and from the fact that people nowadays are more aware about environmental matters and better able to fight for their case (Löfstedt, 1997; Dorshimer, 1996; Leiss, 1996; Rabe, 1994). Planning strategies with the aim of hurrying through projects with a minimum of information and dialogue will be more and more difficult to pursue, and developers will face the risk of being discredited.

The reaction of the local population and their genuine concern about their local environment were also similar to other siting conflicts. The fact that biogas production is both an environmentally sound way of dealing with organic waste and a substitute for fossil fuels, did not mean that the local population saw the project as good for the environment. To some extent this might be explained by a lack of information and awareness about the nature of a biogas plant. However, some members of the opposition group were environmentally aware and were not against biogas in general, but still felt that the negative impact of the specific siting in the local environment would outweigh the positive ones. In this way the conflict can be viewed as a variant of the well-known dilemma, where the local community bears the burden while society in general reaps the benefit. From this perspective, it is not

surprising that it became difficult for the developer to make people listen to arguments affirming that the biogas plant was an environmentally friendly facility. Since these arguments where not followed up by a clear effort to mitigate the negative effects of the facility or a willingness to discuss the possibilities of compensation to the local community, they were not viewed as relevant or trustworthy by the opposition group.

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2001-01-11 Gunnar Jönsson, Member of the Planning Committee (Social Democrat), Municipality of Lund

2001-12-01 Cecilia Wadenbäck, Member of the Planning Committee (Left Party), Municipality of Lund

2001-01-16 Göran Brinck, Chairman of the Planning Committee (Conservative), Municipality of Lund

Civil servants:

2000-07-20 Bengt Aronsson, Planning Office, Municipality of Lund

2000-11-15 Christer Källqvist, Planning Office, Municipality of Lund

Representative of the developer:

2000-05-09 Kjerstin Ekwall, Executive Planner at Sysav AB

Members of the opposition group:

2000-05-30 Neighbour to the site (Confidential)

2000-06-06 Neighbour to the site (Confidential)

2000-06-13 Dalby resident (Confidential)

2000-11-22 Dalby resident (Confidential)

# II

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# Wind Power Planning in Three Swedish Municipalities

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ABSTRACT *The aim of the paper is to compare the planning for wind power in three municipalities and analyze how it has influenced three important aspects of the wind power development: the siting of turbines, the ownership of turbines and citizen participation. The paper shows that the planning strategies of the municipalities differed considerably and that this in turn has led to differences in the development of wind power. A general conclusion is that there seems to be a dilemma in municipal planning between, on the one hand, the promotion of wind power and, on the other hand, the organization of a planning that effectively regulates the siting of turbines and allows for citizen participation. The results show that there is a need to support and strengthen municipal planning capacities, and efforts in that direction are being undertaken by state and regional authorities in Sweden. The results, however, also imply the need for stronger policy measures in order to avoid large differences between the way wind power is handled at the municipal level.*

## Introduction

Wind power is commonly seen as an essential part of a sustainable energy system in many parts of the world. In Sweden, wind power has been growing at a fairly rapid pace over the last few years. Between 1996 and 2001 the number of turbines almost doubled from 300 to 570. The installed effect is almost 300 MW and annual electricity generation from wind power is now around 500 GWh. However, wind power only contributes 0.3% of the Swedish electricity generation and the level is small compared to forerunners such as Denmark, Germany and Spain. The Swedish government has recently announced an official goal of 10 000 GWh wind power by the year 2015, which would require an extraordinary development (Regeringskansliet, 2002). Most of the new wind power will be located offshore but a sizeable part will continue to be land based.

At the same time, it has become obvious that wind power poses a challenge to land-use planning, because of its specific characteristics. In Sweden, as in some other countries, the planning system has had difficulties in handling wind power with increasing public opposition to wind power projects, lengthy and complicated application procedures and inadequate planning at the municipal level (SOU, 1998; 1999). An important characteristic of the Swedish planning system is the high degree of autonomy of local governments, which

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gives them much influence over the siting of wind turbines. This situation, together with an ambiguous government policy towards wind power, has made the local government a key actor in the development of land based wind power. However, there are big differences between municipalities regarding both the capacity for planning and the political attitude towards wind power. This, in turn, has led to differences concerning the actual development of wind power in different municipalities. The fact that municipalities have a key role in planning has spurred efforts among central and regional authorities to support municipal planning. However, fairly little is known about the actual effects of different municipal planning approaches and the present paper seeks to address this.

The paper starts with a general discussion about wind power and land-use planning, in order to identify in what ways wind power poses a special challenge to land-use planning. There then follows a brief presentation of the Swedish planning system together with a discussion of how wind power planning is organized in Sweden. The main part of the paper is dedicated to a comparative case study of how wind power has been handled in land-use planning in three Swedish municipalities. The focus of the discussion is on how planning has influenced (i) the siting of turbines; (ii) the ownership of turbines; and (iii) citizen participation. As will be shown, all three aspects are important when it comes to the implementation of wind power. The results of the study show clearly that different municipal approaches lead to very different situations, regarding all three aspects. In the conclusion, the significance of the results is discussed, in the context of Swedish wind power planning and the general development of wind power in Sweden. Although the paper primarily sheds light on the particulars of the Swedish planning situation, it should also be helpful in understanding planning problems in other countries with a similar situation.

The study of the three municipalities is based on a comparative case study approach. Information has been collected about each of the three cases in order to get a full picture of the planning approach and the wind power situation in each municipality. The cases have continuously been compared to each other and in the final stages of the analysis a more thorough comparison has been made. The study has a qualitative approach, since the focus is on social processes and interactions between actors and not on statistical differences between the cases. The empirical material consists of semi-structured interviews and written material. The interviews were either made by telephone or in person and lasted between one and two hours. In total nine interviews were conducted with politicians, civil servants and wind power developers. The written material consisted of municipal and regional wind power plans, minutes from political meetings, articles from local newspapers and written comments from individuals, organizations and authorities.

## Wind Power and Land-use Planning

The development of modern wind power took off in Denmark and the US in the early 1980s and since then 27 257 MW has been installed around the world (*Wind Power Monthly*, 2002). Wind power is seen by many observers as an important part of the transition to a sustainable energy system since it has important environmental advantages compared to other energy forms. It does not contribute to the increase of climate gases in the atmosphere or to local and regional

pollution, it does not imply the risks of nuclear energy and it does not disrupt local ecosystems like large-scale hydro. The biggest development of wind power has been in Europe with almost 20 000 MW installed. The extent of the development has, however, varied a great deal between countries. Germany, Spain and Denmark together account for 85% of the wind power in Europe, while development has been much slower in other countries where wind conditions are just as good or better. The differences can be attributed mainly to the level of economic public support to wind power and the stability of support schemes (Brunt & Spooner, 1998; Toke & Elliot, 2000). However, other factors such as administrative problems and public opposition have played an important role. The development of wind power during the last 20 years has, in fact, posed a critical challenge to land-use planning.

Land-use planning, as well as politics in general, is fundamentally concerned with the handling of conflicts between different types of interests, actors and values. Three conflict dimensions that are central to most land-use planning, are of specific interest in connection to wind power. First, there are conflicts between public and private interests. One of the central aims of land-use planning is, therefore, to protect public interests, as defined by state and local authorities, and weigh these against the rights and interests of individuals and private organizations (Fabos, 1985; Boverket, 1996, 2002). For wind power, one example of the public-private dimension, is the interests of private land owners who want to build turbines on their own land against the public interest to protect the landscape and thus concentrate siting to a few locations. Another example is when the interests of neighbours, who might be worried about visual impact and falling house prices, are weighed against the public interest to increase renewable electricity generation. Second, many land use issues imply tensions between national (and global) interests, on the one hand, and local interests, on the other. Developments such as railways, roads, waste treatment facilities and energy facilities, can be highly desirable from a national point of view, while they pose risks and disturbances to local communities and environments (Fabos, 1985; Rabe, 1994; Lidskog, 1998; Boholm, 2000; Jay & Wood, 2002). One of the most characteristic features of wind power is how it clearly brings forward tensions between different levels in society, since the environmental benefits of wind power are seen on a global and national level, while the negative effects are exclusively local (see Table 1). Third, there is always a potential conflict between the different goals of environmental protection and economic growth, both of which are important components in the concept of sustainable development (Healey, 1997; van Lier, 1998; Gibbs *et al*., 2002). Although there are different views on the relationship and compatibility between the two goals, they frequently do come into conflict in concrete decision situations concerning land use options. For wind power the above mentioned conflict between different levels becomes more complicated considering the relationship between economy and environment. At the national level, wind power is primarily promoted out of environmental motives while it needs economic support to be implemented. At the local level, however, an important driving force can be the economic benefits of wind power for the community, while the (local) environmental effects are often seen as a threat.

Apart from what has been discussed above, wind power has some characteristics, which taken together makes it a special challenge to land-use planning (Carlman, 1990; Walker, 1995; Gipe, 1995; Chambers, 2000; Pasqualetti *et al*.,

**Table 1.** Environmental and health impacts of wind power*

| |
|---|
| *Visual impact*<br>Visual impact is the most problematic effect of wind power and also what most often causes objections from authorities and the public. The tall turbines are visually dominant in large areas of the landscape while the rotating blades further attract people's attention. The problems of visual impact are often exacerbated by the fact that the most attractive sites for wind turbines tend to be in open landscapes of natural beauty, relatively untouched by human interference. Visual impact cannot be solved by technical measures or regulations but a well-planned siting can reduce the effects on the landscape. How wind turbines should be sited depend on the characteristics of the landscape and on the meaning it has to the people inhabiting it. |
| *Noise*<br>There are two kinds of noise from wind turbines: a swishing sound from the rotating blades and noise coming from the machine house. The swishing sound is dominating and can create serious nuisance for neighbours. Basically, the problems of noise can be avoided by using sufficient safety distances between turbines and houses and the level of noise outside houses allowed by authorities vary between 40–45 dBA (the same levels allowed for industrial enterprises). However, there are cases where the regulations have not been followed or where the noise levels have turned out to be higher than expected, which has lead to complaints from people living close to turbines. |
| *Shadow and light effects*<br>When the weather is sunny, there can be periodical shadows as well as reflexes from the rotating blades, which can cause nuisance to people in the vicinity. Reflexes can be avoided by the choice of material while shadow effects can be minimised by the way turbines are sited in relation to houses, outdoor areas and working places. Although the problem increases with higher turbines, shadow effects is an issue that can normally be solved. |
| *Birds and other animal life*<br>There have been a number of studies on the impact of turbines on birds, especially migrating ones. Although collisions and deaths do occur, the studies suggest that the impact is fairly low, especially compared to other constructions such as electrical transmission lines. No effects have been observed on land living mammals. Concerning off-shore wind power, knowledge about the effects on marine life is still limited and more research is needed in this field. |
| *Other*<br>Wind turbines also have effects that are not directly linked to environmental or health issues. Turbines might come in conflict with military interests, since they can constitute physical obstacles to planes and artillery ranges and create electromagnetic interference which disturb radar signals and telecommunications. Turbines can also disturb civil telecommunications and television broadcasting. |

*Note:* *The information about the impact of turbines comes mainly from a newly published handbook about wind power planning in Sweden (Boverket, 2003).

2002; Boverket, 1995, 2003). First, a large degree of wind power in the energy system calls for a great number of turbines, which will be sited in many different locations. Each project is fairly small scale while the accumulative effect of all projects can be very big. This situation makes it complicated to implement a coherent national policy and turns local planning authorities into key actors. Second, visual impact on the landscape is the main effect of wind turbines. A special characteristic of visual impact is that there are no objective grounds to measure it and, therefore, the level of impact to a high degree depends on personal preferences. This makes decision making more complicated and highlights the importance of involving citizens to hear their preferences. Third, from an economic and efficiency perspective it is most suitable to site turbines in windy locations, which are often found in open areas with high landscape

values where conservation is traditionally a high priority for land-use planning (McKenzie Hedger, 1995; Christensen & Lund, 1998).

The characteristics of wind power call for a well-structured planning approach, from the national level down to the local level, while at the same time they contribute to making it more difficult to organize such an approach. In Sweden, as in for example the UK and the Netherlands, the planning administration has had apparent difficulties in handling wind power (Hull, 1995a, 1995b; SOU, 1999; Wolsink, 2000; Bjerrum Jensen, 2002). In these countries wind power is beginning to be perceived as a controversial technology *per se* and opposition from citizens, interest groups and local governments is increasingly common. Local opposition has been present in countries with significant amounts of wind power as well and has sometimes led to specific projects being denied permission, but it has not been of such a magnitude that it has halted the development of wind power. Experience from wind power planning has shown that three issues are of importance in order to achieve a development which meets environmental requirements and which can become accepted by local communities. First, an appropriate planning concerning the actual siting of turbines is crucial, since visual impact is the main effect of wind power and the principal cause for local public opposition. Second, local involvement in the ownership of turbines can play an important role, since it gives the local community benefits from wind power and not only burdens. Third, citizen participation, both in general planning and in the assessment of specific projects, should be an integral part of any planning approach, since it allows for a way both to avoid potential conflicts and to handle those conflicts that do arise. The main part of this paper deals with an analysis of how the planning approach in three municipalities in Sweden has affected each of the above issues differently. In that context a fuller account of the three issues and a discussion of their significance will be given later. Before that, however, it is necessary to give a brief description of the Swedish planning system and the general situation for wind power in Sweden.

## Wind Power in the Swedish Planning System

The development of wind power in Sweden has so far mainly been land based and concentrated on the two largest islands, Gotland and Öland, and the southern counties of Skåne and Halland.[1] The most important factor influencing the development of wind power has been the level of economic support from the government. Since electricity from new wind power is more expensive than electricity from existing power generation facilities (mainly hydro and nuclear in Sweden), economic support has been necessary in order to facilitate the development of wind power. The main forms of support have been an investment subsidy (varying between 15% and 35% of investment costs) and subsidies to the electricity produced from wind power. The total amount of money dedicated to the investment subsidy has been fixed for each time period and, since no turbines have been built without the subsidy, this amount has in effect determined the number of wind turbines installed in Sweden. Compared to countries such as Denmark and Germany, the economic support has been both lower and less stable, which to a large degree explains the differences in development (Åstrand & Neij, 2003).[2] However, it is clear that wind power also poses a challenge to the Swedish planning system, with increasing public opposition to

**Table 2.** Wind power in the Swedish planning system

| | Land use planning (Planning and Building Act) | Environmental application (Environmental Code) |
|---|---|---|
| State level | • Handbooks about municipal wind power planning (State Authorities).<br>• Wind energy measurements (State Authorities).<br>• Areas of national interest for wind power (have not yet been identified) (Government). | • Government permit for projects above 10 MW. |
| County level | • Regional plans for wind power (not binding for municipalities) (County Administration). | • Permit from County Administration for projects between 1 and 10 MW.<br>• Permit from Environmental Court for projects above 10 MW. |
| Municipal level | • Municipal Comprehensive Plan for wind power. The MCP is not legally binding. (Local Government).<br>• Detailed Development Plans and building permits for specific projects (Planning and Building Office). | • Notification to Environmental Office for projects less than 1 MW.<br>• Environmental Office gives comments on larger projects. |

wind power projects, lengthy and complicated application procedures and an inadequate planning at the municipal level. With a projected growth in the implementation of wind power these problems will most likely increase. Furthermore, the level of economic support cannot explain the differences in wind power development between municipalities, since the same conditions have applied to the whole country.

The planning and building of land based wind turbines is primarily regulated by two general laws. The Planning and Building Act (PBA) sets the framework for land-use planning and deals with the question of where to site turbines and how to make balances with conflicting interests (SFS, 1987). The Environmental Code deals with the management of natural resources and regulates how to assess the environmental and health impacts of wind turbines (SFS, 1998). Table 2 provides a brief description of the activities of public bodies at the state, county and municipal levels when it comes to wind power planning. The handling of the environmental application of specific projects is carried out on different levels depending on the size of the project. For projects above 1 MW the case is handled at the regional level, either by the County Administration[3] or the Environmental Court, and for projects above 10 MW a specific government permit is also needed.

Land-use planning is, in contrast, mainly carried out at the municipal level. The PBA gives local governments a monopoly over land-use planning, which means that state and county authorities can only override a municipal planning

decision if a national interest has not been taken into account, if there has been a lack of co-operation between municipalities or if a project will threaten people's health and security (Didón *et al.*, 1997). The overall instrument of municipal planning is the Municipal Comprehensive Plan (MCP), where the local government outlines its plans for the development of the use of land and water in the whole of the municipality. The MCP is not legally binding but still has an important function as a guiding principle for public and private actors. All new building projects need a building permit and in the case of projects with a significant environmental impact a Detailed Development Plan (DDP) is also required. The DDP, which is legally binding, is the most important planning tool since it gives the local government the possibility to regulate in detail the requirements of buildings and other facilities. It is the local government (often through the Building Office) which has the authority to decide if a DDP is needed or not.

Given the planning monopoly, the main tasks of state and county authorities are to bring forward the interests of the state, to make sure that the municipalities follow the intentions of the law and to provide planning support to municipalities. The possibilities to make binding plans or directives in order to influence municipal decisions concerning wind power are, thus, limited. The only possibility for such a legal influence would be if the government made wind power into a matter of national interest and identified geographical areas where this would apply. In such a case, wind power would be given the same weight as other national interests such as nature conservation, recreation and cultural values. A national interest for wind power has been discussed for a long time but has so far not been implemented. The situation in Sweden is quite different to the one in, for example, Denmark, where there are bigger legal possibilities for the state to regulate municipal planning. In Denmark, the government introduced land-use directives in 1994 and 1999, making it compulsory to include wind turbines in regional and municipal plans. Furthermore, the regional plans are binding for municipalities. The land-use directives both put pressure on municipalities to consider the wind power interest and make it possible for the state to set up common guidelines, for example, about safety distances, the height of turbines and how to site turbines in the landscape (Bjerrum Jensen, 2002).

The lack of legal possibilities for the state to influence municipal planning in Sweden has been coupled with a rather ambiguous government policy towards wind power. On the one hand, there is a general support for wind power and an acknowledgement that it is seen as an important part of a sustainable energy system. On the other hand, as has been seen above, the government has been reluctant to introduce measures that would ensure a substantial support to the introduction of wind power, both in terms of economic support and through the use of planning regulation. Furthermore, until recently there has not been any official goal concerning the development of wind power and the present goal of 10 000 GWh by 2015 is in no way binding. This situation has meant that local governments have become key actors when it comes to wind power planning. It can even be argued that the central government to some extent has withdrawn from its responsibilities and left difficult decisions concerning the siting of wind turbines to be handled at the municipal level. Without central guidance local governments have been left to plan by trial and error. The development of wind power at the local level has mainly been driven by private actors (such as

professional developers, co-operatives and energy companies), who have applied for projects where wind conditions have been good (Wizelius, 1999; 2002). Municipal planning was long carried out mainly as a reaction to such private interests, with local governments handling one application at a time. Local governments who wished to support wind power tended to give permits to most applications, sometimes without considering the larger picture, while those who were sceptical turned down applications without feeling the pressure to incorporate wind power in their land-use planning (Sou, 1998). Today the picture is changing and most municipalities with good wind conditions have included wind power in their MCP, though with varying degrees of thoroughness. However, there are still big differences between municipalities and it is therefore of interest to study how different planning approaches have affected the development of wind power.

## Three Municipal Approaches to Wind Power

The three municipalities of Laholm, Halmstad and Falkenberg are situated next to each other on the Swedish west coast. They have similar physical conditions for wind power concerning wind potentials and landscape characteristics. Despite this, they demonstrate markedly different wind power developments, depending to a large degree on the different planning approaches in each municipality. In Laholm, from the beginning there was a strong political support for wind power and the development is one of the most extensive in Sweden, with 45 turbines and 22 MW installed. Key features in the planning strategy have been a wish for simple and quick application procedures and an open policy to both single turbines and groups of turbines. In Halmstad, the development of wind power has not really started and there are only five turbines installed. In the early and mid-1990s, the attitude of the political leadership to wind power was rather negative, both because of the perceived negative impacts of wind turbines and because it was not seen as a technology that could contribute much to the production of electricity. The strategy of the local government was basically to approve as few applications as possible and to postpone overall planning. The political attitude has since shifted and in 2000 a Municipal Comprehensive Plan (MCP) for wind power was completed. Since then land owners and developers have started to show an interest in wind power but no new turbines have so far been installed. The development of wind power in Falkenberg has been fairly extensive and today there are 21 turbines with an installed effect of 10 MW. The municipal planning strategy for wind power has been guided by two underlying and equally strong political standpoints: (i) an early and substantial support for wind power and (ii) a conviction of the need to retain a strict control over where and how turbines are sited.

Table 3 summarizes some of the key characteristics of the municipalities concerning their wind power planning. On the one hand, Halmstad appears as the municipality with the most thorough planning approach, with an MCP for wind power coupled with obligatory DDPs for all specific projects. The other two municipalities have, in different ways, chosen a less thorough planning approach. In Laholm, there has been a decision not to require DDPs for specific projects and in Falkenberg there has been an informal study about wind power in the northern part of the municipality instead of a formal MCP. On the other hand, it is Halmstad that has been hesitant about wind power while both Laholm and Falkenberg have actively sought to support the development of

**Table 3.** Key characteristics of the three municipalities

| | Laholm | Halmstad | Falkenberg |
|---|---|---|---|
| Inhabitants | 23 000 | 85 000 | 40 000 |
| Area | 887 $km^2$ | 1018 $km^2$ | 1115 $km^2$ |
| No of turbines | 45 | 5 | 21 |
| Installed effect | 22 MW | 2 MW | 10 MW |
| Comprehensive planning for wind power | MCP from 1996. Eight areas identified as suitable for wind power.<br><br>Issues that are dealt with include: distance to houses, landscape and visual impact, noise, nature conservation, recreation, culture-historical values, defence interests and a preliminary assessment of number of turbines. | MCP from 2000. Seven areas identified as suitable for wind power.<br><br>Issues that are dealt with include: distance to houses, landscape and visual impact, noise, nature conservation, recreation, air traffic and a preliminary assessment of number of turbines. | Informal study from 1996 about wind power potentials in the northern part of the municipality. Fourteen areas identified as possible for wind power.<br><br>Issues that are dealt with include: distance to houses, noise and a preliminary assessment of number of turbines. |
| Planning for specific projects | No DDP required. Open to single turbines. | DDP required for all projects. Restrictive to single turbines. | DDP required for all projects. Restrictive to single turbines. |
| Public opinion | Substantial opposition, mainly from people living close to turbines. | No general public opinion. Substantial opposition against specific projects and areas. | No general public opinion. Some opposition to specific projects. |
| Current policy situation | Temporary stop on further wind power until the new MCP is ready.<br><br>Ongoing planning process for a new MCP (February 2003). | Applications allowed in identified areas. | Applications allowed in identified areas. |

wind power. As will be clear from the following discussion, these two features are a recurring theme concerning how the planning approaches in the three municipalities have influenced the siting of turbines, the ownership of turbines and citizen participation.

*Planning and the Siting of Turbines*

As discussed earlier, the main impact of wind turbines is their visual dominance in the landscape and this is the issue that most commonly causes conflicts with neighbouring residents and other stakeholders. A central task of municipal wind power planning thus concerns such questions as where and how turbines should be sited and how many turbines should be allowed. Several studies have been made on how to site turbines so that they blend in to the surrounding landscape and the choice of approach depends on factors such as the characteristics of the landscape (e.g. topography, scale, degree of industrialization, presence of cultural and natural landmarks), the vicinity to built-up areas, people's perceptions of the landscape and the size of the project (Miljøministeriet, 1994; Energimyndigheten, 1998; Wirtshaftsministerium, 2001; Pasqualetti *et al*., 2002; Boverket, 2003). A general rule is to try to minimize the visual dominance of turbines and to site them in ordered groups that follow the outlines of the landscape.

Two issues of debate in Sweden have been whether to site turbines individually or in groups and what the distance between different groups should be (Boverket, 2003). The tendency today is to strive to site turbines in ordered and coherent groups and concentrate siting in a few geographical areas that are clearly separated from each other, leaving the majority of the landscape free from turbines. The reason is that single turbines have a fairly big visual impact without producing much electricity and that groups of turbines sited too close to each other are often perceived by people as belonging to the same facility. In all three municipalities, from the start the planners[4] in the Building Office shared the above opinion about how siting should be carried out (Lönnerholm, 2001; Mill, 2001; Risholm, 2001). Furthermore, the three municipalities have similar landscapes with long coastlines, a 10–15 km wide corridor of agricultural flat country running from south to north and an inland covered with forests. Despite these similarities there are considerable differences between the municipalities concerning both the planning approach towards the siting of turbines and how turbines have actually been sited. In Halmstad and Falkenberg, the local authorities have used regulations strictly in order to carry through their views on how siting should look. A few areas have been identified as suitable for wind power while the rest of the municipality is kept free from turbines. Detailed Development Plans (DDP) have been made obligatory for all wind power projects, which makes it possible for the local authorities to put requirements on the shape and size of the project. The authorities have been restrictive about single turbines since they are considered to contribute little to electricity generation while having a considerable impact on the landscape. In Falkenberg, where the wind power development has come quite far, the siting policy of the local government has taken effect and today there are two wind power parks while the planning for several other parks is taking place. Only five turbines have been sited individually or in pairs. In Halmstad, still only a few turbines have been installed but the Municipal Comprehensive Plan (MCP) for wind power from 2000 gives a strong signal about the intentions of the local government. In Laholm, on the other hand, the planning approach of the local authorities has contributed to a siting picture that is quite different. Most of the 45 turbines in the municipality have been sited individually or in pairs. Turbines near to each other are often not sited in a coherent group and sometimes differ in size. Turbines have been sited in such a way that gives an impression that they are

scattered all over the land of the plains instead of being concentrated in a few areas. The siting situation in Laholm has been criticized and has contributed to an opposition against further wind power development, mainly among people living close to turbines.[5]

The main reason why it was possible to implement the siting policy in Halmstad and Falkenberg is that there was a general agreement between the planners in the Building Office and leading politicians in the local government. In Halmstad, the planners had a rather detached view concerning wind power and have seen it as one land use interest among others. In Falkenberg, where there was a strong political support for wind power, the planners have viewed planning partially as a way to support wind power. The agreement in goals meant that politicians were prepared to listen to the opinions of planners about strict regulations and restrictiveness towards single turbines (Sjögren, 2001). Another important factor was that the geographical conditions of the landscapes made it possible to find areas where larger groups of turbines could be sited.

In Laholm, a number a factors contributed to making the question of where and how turbines should be sited into a complicated issue. The countryside in Laholm is rather densely populated and it was obvious from the outset that there was no room for large wind parks. This meant that an extensive development of wind power invariably implied that turbines would have to be sited in large areas of the municipality, and it was thus a conscious political decision to promote such a development. However, the political goals to support wind power have contributed to making the siting picture more scattered than needed, since they often stood in contrast to the goals of regulating siting. One example is that there was an ambiguity concerning in which areas wind power should be sited. Even though the MCP had identified eight areas as suitable for wind power, many applications were actually granted permission outside these areas, which went against the attempt to create geographically separated areas (Laholm, 1997a; Mill, 2001). Another example is that there was no political will to demand Detailed Development Plans (DDP) for wind power projects, which made it difficult to put demands on the shape of projects. The wind power development was led by farmers, who installed one or two turbines on their own land, and a more coherent siting would therefore have required the use of DDPs in order to force farmers to co-ordinate their projects (Mill, 2001). Another reason why DDPs were not used is that the planners in Laholm had very little experience of wind power, since it was one of the first municipalities in Sweden that planned at all for wind power. This meant that they were uncertain what kind of requirements to put on projects (Mill, 2001).

### *Planning and the Ownership of Turbines*

The economic involvement of the local population in wind power projects has been put forward by observers as one of the success factors behind the wind power developments in Denmark and Germany, since it has contributed to a widespread acceptance of wind power also at the local levels. In Denmark, local co-operatives were a driving factor in the wind power development in the 1980s and early 1990s, while primarily individual farmers have installed turbines since the mid-1990s. In 2000, these two groups accounted for more than 80% of the turbines in Denmark (Brunt & Spooner, 1998; Toke & Elliott, 2000; IEA, 2001). In Germany, the most common forms of local economic involvement are wind

parks jointly owned by local farmers and schemes organized by commercial developers who sell shares to local people (Toke & Elliott, 2000). In both countries, local economic ownership has been actively supported by national authorities and municipal councils by various means (Brunt & Spooner, 1998; Christensen & Lund, 1998; Toke & Elliott, 2000). In Sweden, local economic involvement has been fairly common in the form of co-operatives, ownership by farmers and local shares in municipal wind energy projects (Wizelius, 1999). There are, however, no national policy measures to promote local ownership and it is up to local governments to decide whether to promote such a development or not. The discussion below aims to show that the planning approach of the local government has a considerable impact on the degree and structure of local economic involvement in wind power.

In Laholm, the wind power development has been dominated by farmers installing one or a few turbines on their own land and they account for around 35 of the 45 turbines in the municipality. Of the other 10 turbines, five are owned by the municipal energy company, while the other five are co-operatively owned. The local government did not actively encourage farmers to build and the development was instead due to an active promotion by a wind power developer coupled with internal dynamics among the farmers based on personal and professional contacts (Bengtsson, 2001; Eriksson, 2001; Wickman, 2001). However, there was a deliberate political strategy to make it as easy as possible to build turbines and the local government facilitated small-scale ownership of wind turbines (Fritzson, 2001; Mill, 2001). As was discussed above, the Municipal Comprehensive Plan (MCP) was open to single turbines and left it possible to apply in most of the areas where wind conditions were good. Furthermore, the decision not to require Detail Development Plans (DDPs) in potential wind power areas made the application process considerably easier and made it possible to develop small projects of one or two turbines. The planning approach of the local government, thus, clearly contributed to the fact that many farmers were able to install turbines. This did, however, not lead to an increased support for wind power among the local population since the same policies also contributed to the scattered siting picture discussed in the previous section.

In Halmstad, the strong focus in the MCP on finding areas suitable for wind parks will most probably have a considerable influence on determining who will be able to develop wind power. Large land owners and wind power companies will be favoured while smaller land owners and co-operatives will find it harder to build. This is due to two complementary circumstances. First, the areas that have been identified as suitable for wind power are those with few surrounding residential buildings and, for historical reasons, they are generally owned by large land owners. One planner at the municipality expressed this fact as a "very clear side effect of the planning strategy" (Lönnerholm, 2001). Second, the focus on large projects means that the costs of the DDP and the environmental application will become significant, which makes it more difficult for smaller actors to afford them. This does not mean that ownership of turbines in Halmstad will inevitably become restricted to large developers, since they can decide to sell shares to the local population, as has been common in Germany. However, the local government has not regarded it as their task to contribute to such a development.

In Falkenberg there is also a focus on wind parks in a few selected areas which favours bigger actors. However, here the local government has had an out-

spoken aim to support local ownership of wind turbines and has used its municipal energy company to implement this goal. The biggest park of 10 wind turbines was developed and financed by the municipal energy company, which then offered local companies and individuals the opportunity to buy shares in the park. Today the turbines are jointly owned by local companies, co-operatives and the energy company and further parks with the same scheme are being planned. This model has been used by several other municipalities in Sweden, primarily on the West coast, but the most common is that municipal energy companies either do not invest in wind power or decide to own the turbines themselves (Wizelius, 1999).

In Sweden today there is a trend towards bigger wind power projects and an increased professionalization of the wind power sector, which makes it more difficult for co-operatives and small landowners to develop projects on their own initiative (Wickman, 2001). Instead, it can be expected that the market will become more concentrated with a few larger actors, especially considering the forthcoming focus on off-shore wind power. At the same time, local economic involvement, or the lack of it, might play a crucial role in deciding whether wind power will become an accepted energy technology. The above discussion suggests that municipal planning can play an important role in this development.

### *Planning and Citizen Participation*

Citizen participation has today become a central issue in land-use planning, both in the theoretical debate, in the requirements of planning legislation and in planning practice. The arguments for citizen participation vary between different observers and some of the most important are: (1) to increase the democracy of decision making; (2) to contribute to better decisions by allowing for more perspectives; (3) to improve the acceptance and legitimacy of decisions; and (4) to develop the personal skills of those who participate (Renn *et al*., 1995; Healey, 1997, Petts, 2000). Since wind turbines have a direct and visible impact on the people who live in the local area, citizen participation becomes crucial. Many observers point to the fact that an early and substantial participation that takes local opinions into account can contribute to a more considerate siting and provide the tools to handle potential conflicts of interest (Wolsink, 1994; van Erp, 1996; Hammarlund, 1997; Pasqualetti *et al*., 2002). In Sweden, citizens have quite extensive legal rights to participate, both in land-use planning and in the handling of the environmental application for projects (SFS, 1987; SFS, 1998; Henecke & Khan, 2002). Consultation with individuals and organizations who will be affected by a plan or project is obligatory and they have the right to hand in written comments, which the local authorities are required to respond to. Local governments are relatively free to choose how to organize participation and normally it is carried out in the form of meetings, exhibitions and written comments, while more extensive modes, such as citizen juries and citizen advisory committees, are uncommon. The municipality has been identified as an important arena for citizen participation in the context of wind power planning (SOU, 1999; Boverket, 2003). However, little research has been done on how this actually works in practice. The following discussion shows how the planning approaches of the three local governments have allowed for quite different possibilities for citizens to have an influence on the

wind power development. It also points to some of the difficulties of participation.

In Laholm, citizen participation has been rather limited both in the development of the MCP and in connection to specific projects. Even though the local government made a specific MCP for wind power in 1997, following the legal requirements on citizen participation, actual participation in the process was very limited and hardly any citizens engaged in the process (Laholm, 1997b). According to planners and politicians, one important reason for the lack of participation was that people did not know much about wind power when the plan was being made, since it was a new phenomenon in Sweden (Mill, 2001; Vänneå, 2001). However, the local officials did not actively try to promote citizen participation by, for example, directly addressing people living in the areas identified as suitable for wind power. Since the local government did not require DDPs the possibilities for participation regarding specific projects became limited. The less thorough process of a simple building permit meant that neighbouring residents could not influence issues such as the location and size of turbines.[6] This was so even in cases where a number of small projects in the same area created an accumulated effect of a bigger project. The lack of participation has contributed to a negative attitude towards wind power, since people feel that they did not have the possibility of influencing the development. As a consequence, neighbouring residents have protested against projects on their own initiative, both after installation and during the application process.

In Falkenberg, the decision to make an informal siting study in the north of the municipality instead of a formal MCP has implied a limited citizen participation concerning the general wind power policy and the question of which areas should be regarded as suitable for wind power (Falkenberg, 1996). The reason for making an informal study was to make planning more flexible by avoiding making final decisions about only a few areas as being suitable. There is, however, an attempt to compensate for the lack of participation in comprehensive planning, with a more thorough approach for specific projects (Risholm, 2001; Sjögren, 2001). All larger projects require DDPs, while permits for single turbines are very difficult to obtain. The planners in charge put in a lot of time and effort in order to make sure that those who are concerned have the opportunity to comment on new wind power plans, which leads to lengthy planning processes. One example is an ongoing DDP-process in the harbour area, which has caused concern among neighbouring residents and local fishermen. The shape of the plan has been modified considerably throughout the planning process according to the comments of stakeholders.[7] Despite these efforts, the planning approach of the local government still raises some problematic questions. First, the lack of public debate about the selection of areas that are suitable for wind power means that the first time people can give their opinion is when they are faced with a specific project plan in their vicinity, something which might contribute to a polarized situation. Second, since no general study of conflicting interests has been done, there is an increased risk that conflicts will be discovered late in the process when a lot of effort, time and money has already been invested. Third, the fact that a big part of the area has been excluded from wind power without a public debate, might cause resentment among those living in areas that are chosen for wind power.

In Halmstad, both politicians and planners have emphasized the importance of participation as an input to its wind power planning. As in Falkenberg, there

has been a requirement on DDPs for all wind power projects and the making of the MCP for wind power, which started in 1998 and ended in April 2000, to include an extensive formal consultation process as well as a survey of people living in the areas that were initially suggested as suitable for wind power (Halmstad, 1999, 2000a). As mentioned above, both planners and politicians have been hesitant about wind power and it can be argued that the focus on citizen participation has been one way for the local government to prolong the planning process and shift the responsibility for decisions on the citizens. It has, however, been problematic to organize a sufficient and effective participation. A political decision midway in the planning process for the MCP, meant that two new areas were added to the plan. As a result the planning process for these two areas was less thorough and included less input from citizens.[8] One of the areas met with protests from the local community as well as the County Administration and was excluded from the plan, while the other area met with no reactions and remained (Halmstad, 2000b). Less than a year later an application was made for a park of five 2 MW turbines in the same area. This time, however, there were huge protests from the local population and the project was stopped by the Building Committee even before a DDP-process had started (Halmstad, 2001). The main argument for the decision was that the project was too big compared with the intentions in the MCP. However, there were no guidelines in the MCP about that specific area and the developer thus planned the project so that it would be as efficient as possible. The case points both to the dangers of a comprehensive planning that does not study the details of an area and to the difficulties of engaging citizens in comprehensive planning before an actual project is a fact.

## Conclusions

This paper has clearly shown how differences between municipalities, in the way the local government handles wind power in land-use planning, lead to different outcomes concerning the development of wind power. Not only does the municipal planning approach affect the extent of development, but also other important aspects such as the siting of turbines, the ownership of turbines and public participation in the planning process. A general conclusion is that there seems to be a dilemma in municipal planning between, on the one hand, the promotion of wind power and, on the other hand, the organization of a planning that effectively regulates the siting of turbines and allows for citizen participation. It can be argued that differences between municipalities is not a problem, since one of the main aims of the municipal planning monopoly in Sweden is precisely to allow for local governments, both to formulate their own policy aims and to find locally specific ways to achieve them. From this perspective, state and regional authorities should not be able to interfere with local decisions too much.

However, if the aim from a national perspective is to implement wind power in an efficient, environmentally friendly and democratic manner, it can be seen as problematic if the development differs a lot depending on the views and competencies of local politicians and civil servants. The case of Laholm, shows how the planning approach of a local government that is eager to support wind power can lead to a situation with a scattered siting of turbines and a lack of citizen participation. Similar developments can be found elsewhere in Sweden,

such as in the islands of Gotland and Öland. As in Laholm, there is a risk of a local opposition against wind power and a backlash for the development. The case of Halmstad, shows that it is possible for local governments that are sceptical or hesitant to delay the development of wind power by postponing planning and allowing for long planning processes. This situation is not uncommon in Sweden today.

For a technology like wind power, there are compelling arguments in favour of avoiding large variations in the way it is handled at the municipal level. Bad planning procedures that create local public resentment can lead to public suspicion in other municipalities, turning wind power into a controversial technology *per se*. If it is easy for local governments to neglect the wind power interest, many of the best sites for turbines might simply not be available, which can be questioned both from the point of view of efficiency and fairness between municipalities. There are efficiency gains to be made if municipalities can learn from each other and if there are regulations and guidelines that are used nationwide. One problem with the lack of common regulations and policies is that it makes it more complicated for wind power developers, who have to adapt their planning to the requirements in each municipality. Another problem is that the risk of arbitrariness increases, when decisions depend largely on the knowledge of the municipal administration.

Today there are various activities, among state and county authorities, to support municipal land-use planning for wind power. The Swedish Energy Agency (Energimyndigheten) has carried out three pilot case studies about how planning for wind power can be carried out in three different types of municipalities (plain land, coastal and mountain) (Energimyndigheten, 2001, 2002a, 2002b) and the National Board of Housing, Planning and Building (Boverket) has recently published a handbook about wind power planning, aimed mainly at local governments (Boverket, 2003). Furthermore, many of the County Administrations have made regional plans for wind power, which serve as a knowledge base for municipal planning (Länsstyrelsen i Halland, 1994; Länsstyrelsen i Västra Götaland, 1999; Länsstyrelsen i Skåne, 2002). These efforts can go a long way in helping to address the lack of knowledge and experience in municipalities and can help to introduce best practices, particularly since there is often a focus on methods for the siting of turbines and on how to increase citizen participation in planning. However, it can be argued that there is also a need for stronger policy measures at the state level. If the political will is to support a substantial development of wind power, official policy goals should be followed up by concrete measures to achieve this goal. Contradicting signals from the state serve only to create an uncertainty at the municipal level. Likewise, if local economic involvement is seen as important for the possibility of implementing wind power with public consent, there should be concrete measures at the state level to facilitate and support local ownership of wind turbines.

## Notes

1. In the year 2000 these regions together accounted for about 76% of the total wind power production (Elforsk, 2001).
2. In 2003, a new support system for all renewable electricity will replace the old one. In the new system all electricity consumers are obliged to have a fixed amount of electricity from renewable sources, which is proven by the use of electricity certificates. The government decides the

amount of renewable electricity needed and the aim is to steadily increase the amount. It is uncertain how the support system will affect wind power since it has to compete with, for example, biomass, which is cheaper in Sweden. Critics of the system point to the risk that it will stall the development of wind power.

3. The County Administration is a state authority which operates at the regional (county) level.
4. The term 'planner' refers to those civil servants responsible for land-use planning. In the three municipalities the civil servants in charge have been planning architects working for the municipal Building Office.
5. Apart from the visual impacts, some neighbours have complained about noise from some turbines. This disturbance has, however, not been confirmed when tests have been made by local and regional authorities.
6. Since most applications concerned single turbines with a capacity of less than 1 MW the process to obtain an environmental permit was also less thorough.
7. The two major modifications were (i) to opt for fewer but larger turbines in order to minimize the disturbance on the neighbours' view to the ocean (the original number was 12 turbines) and (ii) the decision not to place any turbines in the water area because of worries from local fishermen (Falkenberg, 1999; Risholm, 2001).
8. For example, there were no suggestions about the appropriate size and number of turbines, no visualizations were made and no survey was sent to people living in the areas (Halmstad, 2000b).

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III

# Public Consultation in Planning: Experience from Wind Power Planning in Sweden

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## Abstract

In this paper the limitations and potential of public consultation as a method of citizen participation, are analysed. Despite the development of alternative forms of participation, consultation continues to be the most common way to involve citizens in decision-making processes in local land-use and environmental planning. The analysis is based on five basic issues that are of importance in all types of participation processes: scope of participation, inclusiveness, influence, type of dialogue and legitimacy. The empirical material for the study comes from case studies of the planning of wind power in two Swedish municipalities. Consultation takes place both in the planning of specific projects and at the overall level, when the comprehensive plan for the siting of turbines is drawn up.

The results show that consultation, at the project level, has important limitations concerning all five of the issues, to a large extent because strategic decisions are made before the public becomes involved. For wind power this situation is even more pronounced since there are few issues to deliberate on, the most important being where to locate turbines. At the overall level, the potential of consultation is in theory greater. However, the empirical results show that this potential was, by and large, not met in practice, mainly because the public was let into the process when strategic decisions had already been made. In this sense consultation at the overall level resembled the one at the project level. Despite the limitations of consultation it can, however, still play an important role. At the project level, consultation can give citizens influence over important details of the project, and it opens the possibility to oppose the project through activities outside the formal planning process. At the overall level, there are possibilities to strengthen citizen participation through participation methods that complement the formal consultation process, e.g. planning in working groups.

## 1. Introduction

The question of citizen participation is a persistently relevant theme in research on land-use planning, siting controversies and environmental conflict resolution, and there is today a large body of literature on the subject (Renn et al, 1995; Chess and Purcell, 1999; Rowe and Frewer, 2000; Petts, 2001; Soneryd, 2002). Much research is focused on how to increase and improve participation through the use of innovative methods such as citizen juries and citizen advisory committees (Renn et al, 1995; Smith and Wales, 2000; Santos and Chess, 2003). Such methods go beyond everyday practice regarding the form and extent of participation, and sometimes also, the influence that the citizens are afforded. This research is important in order to investigate the possibility of truly participatory decision-making processes. Meanwhile, however, most planning that involves the public continues to be carried out in the traditional way through various forms of public consultation. Consultation is today the most common form of participation in land-use planning and is an integral part of the environmental impact assessment, which is required in industrialised countries for new facilities and developments that pose environmental and health risks.

The aim of this article is to analyse the limitations and potential of public consultation as a method of citizen participation. The focus is on how public consultation has been applied and interpreted in actual planning practice and not on the method as an ideal model. It is of interest to increase the understanding of the practical potential of consultation, since it will probably remain the dominant form of participation for some time to come, and since it facilitates appropriate comparisons with other methods of participation. The analysis is based on five basic issues that are of importance in all types of participation processes: scope of participation, inclusiveness, influence, type of dialogue and legitimacy.

Two limitations regarding the empirical material should be mentioned. First, the cases come from consultation processes in Swedish land-use planning. In Sweden, land-use planning is mainly a municipal responsibility and it is carried out both at the project level and at the overall municipal level. The consultation process consists of public meetings, exhibitions and written comments from the public. Second, the cases concern the planning of wind power. Wind power constitutes an interesting case for several reasons. (i) It is a relatively new issue in land-use planning since the development of wind power started seriously only around fifteen years ago. While it has many things in common with other land-use issues, there are also some characteristics that make it a special challenge to the planning system. (ii) Controversy with the local community over the siting of wind turbines is increasingly common and this problem can be expected to grow with an expansion of wind power. (iii) Wind power is an important component of the development towards a sustainable energy system in many

countries, making it important to learn how to handle conflicts regarding its implementation. Due to these limitations some of the results of the article will be specific to wind power and to the Swedish situation, while others will be of a more general relevance.

In the next section, a short background is given on earlier research into participation in land-use and environmental planning, and the five issues mentioned above are introduced. In section three, there is a general discussion on the special case of wind power in land-use planning and how it affects the opportunity for participation. Section four gives an introduction to the Swedish planning system, regarding both the situation for wind power and the regulations concerning public consultation. The empirical cases are also briefly presented. Section five is the central part of the article. Here, the limitations and potentials of consultation are discussed with reference to the five issues of participation. Each issue is also discussed in more general terms. Section six is the last section where the general conclusions of the article are summarised and discussed.

## 2. Participation and consultation

Citizen participation in public planning can be motivated in various ways. Some of the most frequent ones are that participation leads to more democratic decision-making, that it contributes to better decisions by allowing more, and local, perspectives, into the planning process, that it leads to an increase in the knowledge and competence of citizens, that it furthers democratic values among citizens, and that it leads to an increased legitimacy of decisions (Petts, 2001; Henecke and Khan, 2002). Research on participation covers both normative work on how to decide what good citizen participation is, and empirical studies that evaluate and compare different participation processes. Since there are many possible aims of participation a basic question concerns how to choose the criteria that are used to evaluate participation practices. Researchers put different emphasis on what is important in the participation process and there is consequently a substantial variation in the criteria that have been used.

One major distinction that can be made is that between outcome criteria and process criteria (Chess and Purcell, 1999). Outcome criteria (or user-based criteria) are based on the perceptions of the actors involved in the participation process. They can be very different for each actor and can imply such varied goals as stopping or changing a project, creating acceptance for a decision or giving participants increased knowledge. Outcome goals are important for evaluating the success of specific participation processes, but they are less useful for a general discussion of the limitations and potential of different models of participation and for comparisons between models. Process criteria instead focus on the actual design of the participation process and cover issues such as inclusiveness,

transparency, influence, equality and fairness (Hunold and Young, 1998; Chess and Purcell, 1999; Rowe and Frewer, 2000). Process criteria are essential in order to evaluate the egalitarian and participatory qualities of a decision-making process. Hunold and Young (1998), who discuss participation in the siting of hazardous industrial facilities, add what they call "substantive conditions" to the process criteria. The reason for this is to specify some basic aspects of siting that should be included in the participation process, such as other possible locations, the nature of the facility and alternative methods and technologies.

With the upsurge of deliberative democracy within democratic theory, one issue that has recently received much attention is the type of dialogue between participants in the decision-making process (Gutmann and Thompson, 1996; Bohman, 1996; Young, 2000; Dryzek, 2002). Deliberative democracy has much in common with the ideas of participatory democracy and what differs is the strong emphasis on discussion or deliberation as the truest expression of democratic decision-making. The basic concept is that collective decisions should be based on a free and equal discussion, where representatives of all views have the opportunity to participate, and where participants openly have to defend their arguments. The idea is that this will lead to a situation where the best argument is decisive. Interest in deliberative democracy has had a strong influence on both research in participation in land-use planning and environmental conflict management, and on the development of new models of participation (Webler, 1995; Smith and Wales, 2000; Petts, 2001; Soneryd, 2002).

Drawing on previous research, five basic issues regarding citizen participation will be considered in this article. These are: scope of participation, inclusiveness, influence, type of dialogue and legitimacy. The purpose of the article is not to engage in an argument about which criteria are the most appropriate for the evaluation of participation processes, and no claim is made that the five issues cover all aspects that are important regarding participation. Examples of aspects that are not covered are outcome criteria, knowledge and learning, and the economic efficiency of participation methods. However, they do include the most important questions and those that are most frequently discussed in the literature. It should also be noted that the issues are not normative in the sense that they stipulate criteria that have to be fulfilled in order to ensure a truly participatory process. Box 1 presents an introduction to the issues by listing some basic questions that can be asked in relation to each of them. The issues will be discussed in more detail later in the article in connection with the analysis of the limitations and potential of consultation in the planning of wind power in Sweden.

| | |
|---|---|
| **Scope of participation** | - Which issues are covered in the participation process?<br>- When does participation start?<br>- How continuous is participation? |
| **Inclusiveness** | - Which methods are used to ensure inclusiveness and fair representation of the public?<br>- How does inclusiveness work in practice? |
| **Influence** | - What effects do the views of the public have on the final decision? |
| **Type of dialogue** | - Is the dialogue between participants interest-based or deliberative? |
| **Legitimacy** | - Does participation lead to decisions that are seen as legitimate by the public?<br>- Is the decision-making process seen as legitimate? |

**Box 1.** Basic questions regarding the five issues of participation.

## 3. Wind power, land-use planning and participation

The planning of wind power involves many of the same basic conflicts as other land-use issues, such as those between public and private interests, between national and local interests, and between environmental protection and economic growth (Khan, 2003). There are, however, some characteristics which distinguish wind power from other issues. To start with, a large number of relatively small projects are needed to create a substantial energy contribution. Furthermore, the most suitable sites for wind turbines are often in open areas with high landscape values (McKenzie Hedger, 1995; Christensen and Lund, 1998).

When it comes to public participation, two questions can be highlighted where wind power differs from many other land-use issues. Firstly, the question of greatest interest from the public point of view is the location of the turbines, since this has the greatest impact on the project (SOU, 1999a; Pasqualetti et al, 2002; Boverket, 2003). Other questions, such as the size and number of turbines or the formation of the park, have a less important effect on the project. This means that the possibility of a meaningful dialogue is limited in wind power planning compared with other issues where the design of the facility also has important consequences. Secondly,

in wind power projects the scientific uncertainties regarding local and regional impact are relatively low compared, for example, with the construction of a waste treatment plant, a chemical factory or an airport. The main effects of wind power, such as visual impact on the landscape, noise and shadow effects can be measured and predicted in detail (Gipe, 1995; Energimyndigheten, 1998; Pasqualetti et al, 2002; Boverket, 2003).[1] Regarding noise and shadow effects, there are stipulated limits, and these can be complied with by adequate safety distances and well-thought-out siting of turbines (Boverket, 2003). However, a special characteristic of visual impact is that there are no objective grounds on which to determine the level and extent of the impact. This depends, to a high degree, on personal preferences and is open to different interpretations. The debate will therefore not be so much about different views of risks and impact[2] but more about what should be prioritised: wind power or local landscape values. A related problem is that people often have difficulty in imagining how they will be affected by turbines in their vicinity. Visualisations and visits to other sites give some help, but they cannot convey what it is like to actually live close to turbines (Hammarlund, 2002). This can lead to both excessively positive and negative perceptions of the effects.

## 4. The Swedish context

### *Consultation in Swedish land-use planning*

In Sweden, land-use planning is mainly a municipal responsibility and is carried out both at the project level and at the overall municipal level. For specific projects that imply considerable environmental and health impacts, a Detailed Development Plan (DDP) as well as an environmental permit is needed (SFS, 1987; SFS, 1998; Boverket, 2002). The procedures for the DDP and the environmental permit are similar, especially concerning public consultation, and there is often co-ordination of the two processes. The main difference between them is that the environmental permit is a strictly legal process (handled by the County Administration or the Environmental Court) while the DDP is politically decided by the local authorities. Another difference is that for the environmental permit it is the company applying for the permit that is responsible for organising public consultation, while this is organised by the local authorities in the DDP process. In this study the focus is on consultation in the DDP process, but references are made to

[1] One effect that is difficult to measure is the impact on house prices. This is a common worry among neighbouring residents and something which wind power has in common with other siting issues.

[2] It does, however, happen that neighbouring residents question the accuracy of calculations of, for example, noise levels.

the environmental permit process when this is relevant (Boverket, 1997). The minimum legal requirements on the consultation process are that it should be open to all those who will be affected by the development, that it should consist of a combination of public hearings, exhibition of plans and written comments, and that there have to be several rounds of consultation (Boverket, 2002). It is also possible for the local authorities to organise more thorough forms of participation as part of the consultation process, although this is not required by law. At the overall level, the Municipal Comprehensive Plan (MCP), which is prepared by the local authorities, regulates the general use of land and water in the municipality. The consultation procedures for the MCP are similar to those of the DDP, with the differences that the issues are broader and that participation is open to all residents and organisations in the municipality (Boverket, 1996).

The two planning levels have different functions which also has implications on the type of public participation in the consultation process. The main aim of the DDP and the environmental permit is to assess the suitability of the project proposal and to establish whether it is in conflict with other general or specific interests in the area. The main function of public consultation at this level is therefore to improve the basis for the decision and to make it possible for all those who will be affected by the project to give their opinions about how they will be affected by it (Boverket, 2002). The aim of the MCP, on the other hand, is to weigh all general interests against each other and to outline the strategic decisions concerning land use in the municipality. There is, thus, potential for a more general discussion, where the public becomes involved at an early stage in the identification and prioritisation of different land-use options (Boverket, 1996).

### *Wind power in Swedish land-use planning*

Wind power constitutes a relatively new challenge to land-use planners in Sweden. Planning in the municipalities was initially carried out mainly as a reaction to initiatives from private interests who have been leading the development, and permit applications were handled on an ad hoc basis (SOU, 1999a; Khan, 2003). Today, the picture is changing, and most municipalities with good wind conditions have included wind power in their MCP. Likewise, it is increasingly common that municipalities require DDPs prior to the building of wind power projects. However, there are considerable differences between municipalities, and public involvement in the consultation process is still limited in the majority of municipalities.

In this article, public consultation in wind power planning is analysed at both the project and overall levels. At the project level two case studies are included in the study, from the planning of two wind power projects in the municipalities of Falkenberg and Halmstad in south-western Sweden. In

Falkenberg the project concerns a wind park with six large turbines (capacity 2 MW, total height 110 metres) in the harbour area (Falkenberg, 2001c). The project in Halmstad is smaller than the one in Falkenberg and involves three medium-sized wind turbines (capacity 0.85 MW, total height 95 metres) in a farming area (Halmstad, 2003c).

The two cases are representative in the sense that participation has not extended beyond the legally prescribed consultation. In both cases, the planning authorities stated that they see consultation as an important part of the process, and for this reason the consultation processes are probably average, or more ambitious, than the typical case in Sweden. Both projects faced considerable opposition from the local community, which persisted throughout the consultation process. In Falkenberg, the DDP was approved in 2002, while the environmental permit was granted in December 2003 (Falkenberg, 2002a; Vänersborgs tingsrätt, 2003). A final decision from the national government is needed before the planning process reaches its end. In Halmstad, both the DDP and the environmental permit were approved in April 2003, and the turbines were installed in November 2003 (Halmstad, 2003d; Länsstyrelsen i Halland, 2003).

In Halmstad, planning was also studied at the overall level. The consultation process for the MCP in Halmstad was traditional. The legal requirements for consultation were followed but, apart from a survey carried out among households in identified wind power areas, no extra effort was made to involve the public. The MCP was approved in 2000 and is currently used as a guideline for wind power development in the municipality (Halmstad, 2000b). Falkenberg was not included at this level since they have not drawn up an MCP for wind power.

The empirical material from the case studies comes from interviews and written documentation. The interviews, which lasted for about one hour, were conducted in a semi-structured form leaving room for respondents to elaborate on their views and experiences. In total, nine interviews were carried out with neighbouring residents and other stakeholders and municipal planning architects. The written documentation consists of application documents, draft and final versions of wind power plans, reports on the consultation process and correspondence from the public.

## 5. The limitations and potential of consultation

As mentioned above, five issues are central when approaching the question of public participation in the decision process (see Box 1). In this section the limitations and potential of consultation will be analysed with reference to these five issues. Each issue will also be discussed in more general terms.

### *Scope of participation*

An important question concerning the scope of participation is at what stage citizens are invited to participate in the planning process. Early involvement means that the public can influence agenda setting and strategic decisions, instead of only reacting to existing proposals. Rowe and Frewer argue that the public should become involved "as soon as value judgements become salient" (Rowe and Frewer, 2000 p. 9). Hunold and Young (1998) add support to this view by stating that participation, in the case of the siting of facilities, should cover questions such as alternative locations, the nature of the facility (size, safety standards etc.) and alternative methods and technologies. The scope of participation also deals with the continuity and length of participation. Continuous participation makes it possible to influence changes that are made throughout the planning process, while a one-off participation effort is much more limited.

Public consultation at the project level in Sweden implies a limited scope of participation. The public enters into the planning process at a relatively late stage, when a draft plan for the project already exists. Even if the draft plan is in a preliminary form and many issues are open to change, the basic outline of the plan has been decided, meaning that the debate is not about which issues to discuss, but about how they should be resolved. This could be observed in both Falkenberg and Halmstad (Falkenberg, 1999a; 1999b; 2001a; 2001b; Halmstad 2002; 2003a; 2003b; 2003c).

Several rounds of consultation at different stages of the planning process increase the scope of participation and give the public the opportunity to influence planning throughout the project. In Falkenberg there were two public meetings and an exhibition plus the opportunity to hand in written comments in connection with the three consultation events. In Halmstad there was one meeting and one exhibition, since the area had been identified earlier in the MCP as suitable for wind power (Falkenberg, 2001b; Halmstad, 2003a). However, continuous participation is also conducted in a reactive form since planners and decision-makers make changes to the plan after each consultation round and present a modified version which participants once again react to (ibid.).

Something that especially reduces the scope of participation in wind power projects is that the public usually becomes involved after the crucial issue of where to site the turbines has in practice already been decided. The reason for this can be found in the specific circumstances surrounding the planning of wind power projects. Before starting the costly process of applying for an environmental permit and preparing the DDP, the developer must be assured of a number of issues that are fundamental to implementation, such as an agreement with the land owner, preliminary assurance from the military that their interests are not in conflict with the project, and the possibility of connection to the electricity grid. Because of such issues the developer tends to see the chosen location as the only realistic

one: if it can not be carried out here, the whole project will be abandoned. Even though there is a requirement in the Environmental Code (the Swedish environmental legislation) that alternative locations, when possible, should be considered and presented, this tends to be given a limited significance in the case of wind power (SFS, 1998).

The potential of an increase in the scope of participation is in theory greater in the planning of the MCP, since this is the level at which more strategic issues are determined. Increased scope of participation is also an outspoken aim in official documents on the function of consultation in the MCP process (Boverket, 1996). In practice, however, it can be difficult to achieve the goals. In Halmstad, the public became involved in the consultation process after the municipal planners had identified the locations that were potentially suitable for wind power in the municipality (Halmstad, 1999). This reduced the scope of participation since it made it impossible to discuss more general issues, such as the need for wind power, the total amount of wind power that the municipality should aim for, the grounds for selecting the identified locations and possible alternative locations in the municipality. Furthermore, the draft plan already included suggestions on how many turbines there was room for at each location (ibid.).

There was an intention to include the opinions of the public at an early stage of the planning process, and a questionnaire on attitudes to wind power was sent to residents living close to the identified locations (Interview F). The survey was conducted before the formal consultation process started and served as input to the first draft of the MCP (ibid.). However, this did not significantly increase the scope of participation, since the locations for wind power had already been chosen and since it was not possible for the respondents to give their views on more strategic issues.

### *Inclusiveness*

Except in the case of referenda, it is not practically feasible for all citizens to participate in the decision-making process and limitations are therefore necessary. Inclusiveness and fair representation are therefore important issues. Different strategies can be applied depending on how the aims of inclusiveness and representation are viewed. If the aim is to ensure that the perspectives of all social positions are heard, one possible strategy is for the organisers of the participation event to actively identify and include representatives of the groups and perspectives that will be affected by the decision. Hunold and Young (1998) argue that, for such a strategy to be fair, it is vital to include not only established groups and organisations, what they call local "consultation elites", but also groups that are unorganised and who do not normally take part in the planning process. This strategy implies that the participants will speak and act primarily as representatives for their groups.

Some observers argue that while fair representation is essential, it is also valuable if participating citizens act free from group interests with the possibility to reflect on issues in more general terms. One way to try to achieve this is through statistical representation by stratified random sampling among the whole population concerned (Smith and Wales, 2000).

It can be argued that, for some issues, it is not enough to include representatives of all perspectives or a random sample of the population. Yet another strategy concerning inclusiveness is, thus, to give all groups and individuals who will be affected by the decision the opportunity to participate. In the case of a geographically limited siting issue with relatively small impact it might be possible to include all those who are affected, but in many cases this strategy rests on the assumption that only those who are interested will actually participate. This strategy, therefore, implies a risk that participation will favour those with resources and knowledge, while more marginal groups will be underrepresented.

Researchers frequently underline the importance of active measures to ensure that all groups have the same opportunities to participate, not only in theory, but also in practice (Hunold and Young, 1998; Rowe and Frewer, 2000). Such measures include, for example, equal and sufficient access to information (Hunold and Young, 1998; Webler, 1995).

At the project level, the legal requirements on inclusion are that consultation has to be made possible for those individuals and organisations that will be affected by a development (Boverket, 2002).[3] There is some room for the municipal planners to interpret who should be regarded as being affected, but it usually means house owners, residents, resident and neighbourhood organisations, different types of interest organisations and private companies. There are no legal requirements regarding special measures to support or facilitate the participation of certain groups in the consultation process. Since the two projects considered here were controversial, participation was high in both cases.

The project in Falkenberg affected a few hundred households (both permanent residents and summer residents), local fishermen and a boat club in the harbour area. Although relatively few people were actively involved in the consultation process they represented a large share of the local community through the representatives of the local boat club and two neighbourhood organisations (Falkenberg, 2001b). In Halmstad, the project affected around twenty households and no specific interest groups. About five people were actively involved in consultation while the majority supported the actions by, for example, signing the written documents prepared by others (Halmstad, 2003a; 2003b).

[3] Apart from consultation with the public there is also a parallel consultation process with state authorities, other municipalities and different bodies within the same municipality (Boverket, 2002).

Concerning access to information the legal requirements are that the environmental impact assessment should have a non-technical part which is easily understood by the layman. Apart from this, no special effort was made in either case to facilitate access to information or support the participation of local residents. A common remark made by participants was that it was difficult to understand the complicated formalities of the planning process and the technical issues involved (Interviews B, C, D, E, H). Most participants had some earlier experience of dealing with public authorities in similar situations, which seems to be a prerequisite in order to participate effectively.

When drawing up an MCP, all individuals and organisations in the municipality are considered to be affected and thus have the right to participate by expressing their opinions of the plan (Boverket, 1996). As at the project level, there are, however, no requirements that the municipality should actively facilitate participation.

Apart from the questionnaire sent to households in the identified areas, the municipal planners in Halmstad did not go beyond the legal requirements for facilitating participation. The two consultation periods were announced in newspapers and the plan was available in the city hall, in libraries and on the internet (Halmstad, 1999). No meetings were held with the public. The level of public participation in the consultation process was, in general, low and it was unevenly distributed. For most of the identified areas few, or no, comments were made on the plan.

However, concerning one of the locations, identified late in the planning process, the municipality received many letters from local residents who were critical of wind power because of the landscape and cultural values of the area (ibid.). The cause of the differences in the level of participation between the areas has not been studied. It is therefore not possible to say whether people in the other areas remained passive because they approved of the plans, because they were not interested in the issue or because they did not have the opportunity or capacity to participate. Since the MCP has been adopted, two projects have been initiated in the municipality. The fact that there has been local opposition to both these projects implies that the low participation in the MCP process was, in any case, not due to a lack of concern about wind power in the local area[4] (Halmstad, 2001; 2003a).

[4] In one of the cases the project was stopped by the local authorities (Halmstad, 2001). In the other case (the project included in this article) the project was approved. Regarding this project a specific factor is also of importance, namely that the turbines are located close to the border with another municipality, in which many of the neighbouring residents live. They were, therefore, not involved in the consultation process for the MCP in Halmstad, and were not aware that the area had been identified as suitable for wind power (Interviews G, H).

### *Influence*

The possibility of influencing the decisions is an important factor motivating people to become involved in participatory planning processes. Influence is closely linked to the scope of participation since this determines the issues that the public can discuss. Influence is also related to the question of the extent to which the opinions and suggestions of the public have an impact on decision-making.

A general distinction can be made between direct and indirect influence. In methods of direct influence, citizens take part in the actual decision-making. The most typical example is binding referenda. In methods of indirect influence it is the elected representatives who make the final decision, while the public give their opinions and suggestions as input to decision-making. Hunold and Young (1998) argue for the importance of direct influence in their discussion of two conditions that are important regarding influence: shared decision-making authority (between officials and the public in the participation process) and authoritative decision-making (where decisions are binding for public authorities). In practice, direct forms of influence are less common since it is difficult to combine them with liberal democracies, where representative decision-making is a core function.

In Swedish land-use planning, the consultation process gives the public an indirect form of influencing decisions since the comments and opinions of the public are not binding for decision-makers (Boverket, 1996; 2002). There are, however, regulations aimed at enhancing the influence of citizens. For example, the planning authorities are required to keep a written account of all comments, questions and suggestions from stakeholders. They have to reply to each comment and, if a suggestions does not lead to any changes, this must be motivated. Participants also have the right to appeal against the final decision. The degree of influence participants actually have over the decision process can in practice vary and is something that needs to be determined empirically.

As we have seen earlier, at the project level the public can not influence the location of the wind park, since they enter into the process after this decision has in practice been made. Still, in Falkenberg, and to some extent in Halmstad, it was possible for neighbouring residents and other stakeholders to influence some aspects of the project design (Falkenberg, 1999a; 2001a; Halmstad, 2002, 2003a; 2003c).[5] Developers are, however, in general reluctant to make changes that are not required by the authorities, especially if these have negative effects on the economy and efficiency of the

[5] In Falkenberg the changes consisted of decreasing the number of turbines (from 12 to 6) while increasing their size, moving three turbines from the sea area to the harbours and increasing the distance to houses (Falkenberg, 1999a; 2001a). In Halmstad smaller turbines were chosen than those specified in the original plan (Halmstad, 2002; 2003a; 2003c).

project. The municipal planning authorities, on their part, do not normally demand changes if a disturbance does not obviously violate existing legal requirements and limits. This means that comments from the public tend to have a limited influence if they stand alone, and in both cases studied here other factors contributed to the changes that were made. Examples are that comments from the public were backed by the County Administration[6] and that changes were in any case economically motivated for the developer (Falkenberg, 2001a; Halmstad, 2003a; Interview G). In both cases there were also examples of comments from the public that were not supported from other quarters and that did not result in any changes in the project.[7] All in all, most of the participants saw the changes that were made as marginal and they were not satisfied with the level of influence they had had (Interviews B, C, D, E, H).[8]

In Halmstad, as has been shown above, the scope of participation in the MCP was limited, which reduced the possibility of the public to influence strategic issues, such as the identification of potential wind power areas. The things that were open to public influence were instead the details of each area (e.g. number of turbines, exact location, formation of the park) and whether a specific location should be considered as suitable or not (Halmstad, 1999). Since the level of participation was in general low in Halmstad it is not meaningful to discuss the actual possibility of the public to influence decision-making. The one example of a high level of participation, however, shows that the public can make a difference. The many protest letters from local residents contributed to the fact that the municipal decision-makers excluded the area from the MCP (Halmstad, 2000a; Interview F). As at the project level, the comments from the public did not, however, stand alone and an important contributing factor was that the County Administration also criticised the chosen location on the same grounds (Halmstad, 1999).

Taken together, the experiences from Halmstad point to the conclusion that the opportunities for public influence also tend to be limited on the overall level of planning. The public can, however, play an important role as a watch-dog in bringing poor proposals to light and stopping decisions that have no public support.

[6] The County Administration is a state agency at the regional level which among other thing is responsible for land-use planning and environmental protection.

[7] Examples are comments that the turbines should be located further away from houses (residents in Halmstad) and that individual turbines were badly located (boat club in Falkenberg) (Falkenberg, 2001b; Halmstad, 2003a).

[8] One exception is the local fishermen in Falkenberg who argued that there should be no turbines in the sea and whose claims were met (Falkenberg, 2001b).

### *Type of dialogue*

Dialogue between those involved in a participation process can be of quite different types depending on the participation model that is applied. It is possible to distinguish between two general types. On the one hand, dialogue can be strategic and interest-based, where the participants look to their own interests and raise arguments to further these. On the other hand, dialogue can be deliberative, where participants are encouraged to argue for their proposals in an open debate. The idea is that such a process will counteract an interest-based discussion since participants will have to try to convince the others that their proposal is the best, not only for them, but also in a more general sense (Webler, 1995; Hunold and Young, 1998). Consensus is sometimes an aim in deliberative processes, but it is not always a necessary criterion. The important thing is that each participant listens to, and takes into account, the opinions and perspectives of the other participants. A number of new methods of participation, such as citizen juries, citizen advisory committees and deliberative polling, have as a core aim to promote a deliberative dialogue among the participants (Renn et al, 1995; Smith and Wales, 2000; Petts, 2001).

The consultation process at the project level clearly encourages the participants to act strategically and provide arguments to promote and defend their own interests. The role granted to citizens, both by planning regulations and by the authorities, is to voice their opinions about how the project will affect them and, to some extent, make suggestions on how negative effects can be avoided (Boverket, 2002; Henecke and Khan, 2002). They are not expected to discuss the plan in general terms or to give alternative views about its nature.

The civil servants in the two cases studied here welcomed comments from the public but regarded them strictly as input to the decision-making process within the local authorities (Interviews A, G). Most of the participants conformed to this kind of interest-based and strategic dialogue but there were exceptions. In Falkenberg, a local boat club attempted to enter into a dialogue with the municipal planners in order to solve the problem of one turbine that was going to be sited close to the marina (Falkenberg, 2001a; 2001b). From the perspective of the planners there was, however, no room for such a dialogue, which left the representatives of the boat club with a feeling of resentment (Interviews A, B).

In the case of wind power, the possibility of a deliberative dialogue at the project level are further reduced, since there are few issues to deliberate upon. As we have seen earlier, the most important issue of siting is not on the agenda. Other issues are seen as less important to the public, while the developer for his part is reluctant to make changes. This can easily contribute to a polarised situation between the local community and the developer, where the main question becomes whether the project should be

stopped or not. In such a situation the possibility for any kind of dialogue at all is rather slim.

One of the outspoken aims of public consultation in the drawing up of the MCP is to facilitate an open dialogue on weighing different general interests against each other (Boverket, 1996). Compared with the project level the idea is that the public should be given a wider role than that of defending and arguing for their own specific interests. However, in the case of the of the MCP for wind power in Halmstad the public was in practice given the same kind of interest-based role as at the project level. The fact that the locations for wind turbines had already been identified at the start of the consultation process automatically put the public on the defensive. Only if they had objections to the locations was there any reason to participate, and in such a case the arguments were concerned with the negative effects a wind power project would have on them (Halmstad, 1999).

### *Legitimacy*

An important reason for the increase in participatory decision processes in land-use and environmental planning is the fact that public acceptance of decisions made by authorities has become increasingly lower. A common goal of participation practices among authorities, either explicit or implicit, is thus to increase the legitimacy of decisions. A distinction should be made between a person's approval of a decision and his perception of the legitimacy of the decision-making process. Lidskog (1996) argues that the main goal of participation practices should not be to try to reach decisions which all parties approve of, since this is often an impossible task. Instead of trying to create consensus for a decision, the goal of participation should be to give all groups a voice in the planning process and increase knowledge of the different perspectives. Bohman (1996) agrees with this standpoint but goes on to argue that it is, however, necessary that the participants perceive the process as fair, just and democratic. This means that even if they are not happy with the decision, as such, they would still accept it if they agreed that it has been taken through a democratically legitimate process. In this perspective legitimacy is closely connected to the other issues discussed in this article, such as the scope of participation, the possibility to influence a decision, the type of dialogue and the inclusiveness of the process.

In both Falkenberg and Halmstad, neighbouring residents and other stakeholders did not agree with the decision of the authorities to approve the wind power projects (Falkenberg, 2001b; Halmstad, 2002a). In Falkenberg, however, it was apparent that members of the public also did not perceive the decision process as democratic or legitimate, and they therefore appealed against the decision up to state level (Falkenberg, 2002b). For the neighbouring residents the perception of a non-legitimate decision process

was closely connected to a general lack of trust in the local authorities caused by earlier negative experiences (Interviews C, D). From being an area characterised by small-scale agriculture and an unspoilt coastline, there have been a number of gradual changes in land use in the area leading to deterioration for the local population (Interviews C, D).[9] Many residents are highly critical of the municipality. They feel that they have had to bear an unfair burden and that politicians and planners have totally ignored their views. They therefore saw the wind power project as yet another step in the deterioration of the area and from the start did not feel it was a legitimate project.

In Halmstad, there was no comparable antagonism between the local residents and the decision-makers, although they also did not perceive the decision process as legitimate. Even if they decided not to appeal against the granting of a permit by the local authorities, this decision was not based on the perception of a fair and democratic process. Instead, the reason they did not appeal was that they did not believe that they would be able to stop the project, together with the fact that the developer offered economic compensation for the disturbances that the turbines would cause (Interview H).

Among planning authorities, there is a hope that MCPs for wind power that have the support of the public will lead to smoother planning processes at the project level, since people have already decided whether they approve of wind power in their vicinity or not (SOU, 1999a; Boverket, 2003). From such a perspective it is crucial that the public sees the plan as a legitimate planning document and perceives that it has been produced in a democratic process.

At first sight, it may seem that the MCP in Halmstad had the support of the public. There were not many objections during the consultation process, and in the one case of negative comments the decision-makers listened to the public and excluded the disputed location. After the MCP was approved there were no appeals against it. However, the fact that the level of participation was low is problematic and casts doubts on the optimistic view of the legitimacy of the MCP. Later experience has accordingly shown that the MCP has not acted as a tool to avoid conflict. As mentioned earlier, two projects have been initiated in the municipality since the MCP was adopted, and in both cases the local residents opposed the plans.

[9] These changes include the establishment of disturbing industries, a waste dump in the sea leading to the filling up of parts of the sea and a changes in the coastline, a sewage treatment works and a composting plant both of which have caused problems due to odour), an industrial harbour and increased traffic (Interviews A, C, D).

## 6. Conclusions

The aim of this article was to study the limitations and potential of consultation in Swedish land-use planning. The focus was on wind power, and both the planning of specific projects and overall land-use planning have been studied.

The results show that consultation has some important limitations at the project level, specifically when it comes to the scope of participation and the possibility of the public to influence decision-making. The main reason for this is that the public enters into the planning process after important strategic decisions have been made. For wind power this particularly concerns the question of where to locate the wind park. Furthermore, the consultation process does not promote a deliberative dialogue between participants about the best solutions. Instead, participants are encouraged to argue for and defend their own interests without taking into account the views of other parties. In the case of wind power the possibility of dialogue is further reduced since there are few issues left to discuss.

It could be argued that the two projects that have been studied in this article are not ideal, cases and that it is possible to organise consultation processes that address the identified limitations. However, there are strong indications that such limitations are inherent in consultation at the project level. For example, limited scope and influence can only be addressed by public involvement at the overall level, before planning of specific projects starts. Interest-based communication is, further, an outspoken aim of consultation at the project level, and not something that authorities would wish to change. Finally, we have seen that consultation in project planning does not seem to bring about increased acceptance of the decision and, more problematically, neither does it lead to a situation where the decision-making process is perceived as legitimate by the public.

However, the discussion above does not automatically lead to the conclusion that consultation at the project level is a waste of time. Despite its limits, consultation still has an important role to play as a formal guarantee for neighbouring residents and other stakeholders that they will be informed about planned developments at an early stage. It also gives them some opportunity to influence the process. As we have seen, it is possible for the public to influence aspects and details of a project, something which has been observed in earlier studies on participation in the consultation process (Miller et al, 1982; Fog et al, 1992). These changes can have important effects on the impact of the project, even if they are seen as marginal by those involved. Furthermore, it is possible to stop unwanted projects, and there are examples of this, even if it did not happen in the two cases described in this article (Khan, 2003). Consultation can also give citizens the knowledge and competence to act against a project outside the formal decision process (Miller, 1980; Henecke and Khan, 2002). Since there are important limits regarding participation in the consultation process it is,

however, important that authorities give clear information about the aim and the scope of participation. A lack of clear rules can lead to unrealistic expectations of what can be achieved by participation and to disappointment (Boverket, 1998; Agger et al, 2000).

At the overall level of planning, there are other expectations on consultation regarding the scope of participation, the possibility of influencing the outcome and the type of dialogue between participants. The example in this article of the planning of the MCP for wind power in Halmstad, however, shows that when only the minimum legal requirements on consultation are fulfilled there is an obvious risk that the expectations on consultation are not met. In Halmstad, the consultation process instead led to a type of participation that more resembled that at the project level. Also here a crucial problem was that the public became involved in the process after strategic decisions had been made. The public was, for example, not involved in the decision about which locations were identified as suitable for wind power in the draft plan.

At the overall level, there is, however, a real possibility to involve the public from the very start before any bindings have been made. One reason why this was not done in Halmstad has to do with the practical design of the consultation process. The fact that consultation is open to all residents of the municipality implies that written communication between municipal planners and the public has to be the dominating form of participation, and in Halmstad it was in fact the only form, since no meetings were organised with the public. This, in turn, limits the possibility of an unbiased dialogue since there must be some kind of draft plan before consultation starts; otherwise the public has nothing to react to. Of course, the draft plan can be more or less detailed and it does not have to contain a pre-defined choice of preferred locations for wind power, as in Halmstad. However, the very existence of a draft plan will mean that important strategic issues are already put on the agenda while other questions will be excluded.

Another problem that was highlighted in Halmstad is the low level of public participation. Similar cases in Sweden show that this is a general problem in overall planning, not only associated with wind power (SOU, 1996; Khakee, 1999; Henecke and Khan, 2002). This indicates a dilemma concerning citizen participation at the two levels of planning, which has been highlighted by earlier observers (SOU, 1994). On the one hand, people perceive that the DDP is the most important process in which to be engaged in since it concerns a specific project or development in their vicinity, and since the decision will be legally binding. However, at this stage it is difficult to influence fundamental and strategic decisions. On the other hand, people are not engaged to the same extent in the drawing up of the MCP, since they see the issues involved as abstract and remote, and therefore feel that they are no affected by them. The fact that the MCP is not a legally binding

document further reinforces the perception that it is not worth participating in its preparation (SOU, 1994; Boverket, 1996).

The findings of low levels of participation are not unique to land-use planning in Sweden, but are in fact typical of participatory decision-making. The fact that most people decide not to become involved raises the question whether participatory models are too ambitious or naïve when they are confronted with the realities of people's lives. If citizens are expected to participate in the decision-making of too many public questions there is a risk of backlash, which might lead to frustration and apathy instead. Therefore, it is important to have an ongoing discussion about which issues are suitable for participatory decision-making and which are better left to the elected representatives to decide on. Furthermore, it is important to note that, especially in the case of low levels of participation, there is a risk that participatory models reinforce existing inequalities between groups of citizens, since it gives the privileged yet another channel of influence, while the marginalised remain outside the system (Mansbridge, 1983; Hildyard et al, 2001).

The preparation of the MCP in Halmstad can be seen as a fairly typical case, where the authorities saw the involvement of the public as valuable input with participation that followed the legal requirements. The above discussion, however, shows the need for participation methods that go beyond and complement the existing formal consultation process. One possible way to do this is to organise planning activities in working groups, prior to the formal consultation process, the aim of which is to provide an input to the first draft of the MCP. One advantage of this approach is that is allows time for the participants to understand and discuss the issues involved. They can discuss the issues in more general and strategic terms, which for wind power means for example the pros and cons of wind power, the total amount of wind power that is desirable in the municipality and the identification of possible locations for wind turbines. Planning in working groups can also facilitate a more deliberative dialogue between the participants, since more issues are open to discussion and since the participants are encouraged to argue not only for the interests of their own group.

Planning in working groups has been organised in different municipalities in Sweden (Boverket, 1998) and has, in one municipality (Härjedalen), been tried specifically for wind power (Energimyndigheten, 2002). Although the approach has several positive features it is not free from problems. The issue of inclusiveness, for example, is critical since working groups may only have a restricted number of participants if they are to function well. In Härjedalen, representatives of different local interests were

identified by the municipal planners and asked to participate.[10] This highlights the question raised earlier about making sure that no groups or interests are left out of the process. The focus on deliberative discussions also has some risks. For example, the aim of reaching consensus decisions might lead to mainstream decisions where more radical voices are ignored. The issue of influence is also uncertain. The suggestions of the working groups are only advisory, and even if the intention is that their views should be followed, the final decision still rests with the elected representatives in the municipality. There is therefore a risk that, in the end, participation will be only symbolic. Finally, despite the advantages of working groups, it should be remembered that the method is not intended to replace the formal consultation process but to complement it. Consultation will always remain essential in order to guarantee that all citizens have the formal opportunity to express their opinions about a plan.

This article concludes with some words about the role of trust in participatory planning processes. Trust has been highlighted by several observers as a crucial factor in order to create the necessary basis for a constructive dialogue between the public and decision-makers. It has further been shown that it is difficult to create trust while it can be easily eroded (Cvetkovich and Löfstedt, 1999). The experience gained from the empirical cases presented in this article is fully in line with these observations. Especially in Falkenberg, there was a situation of deep lack of trust among many local residents concerning the intentions and actions of the municipal representatives. This had primarily to do with earlier negative experience of dealings with the municipality. If there is a lack of trust at the outset of the planning process, one would think that the authorities would be more concerned about involving the public in order to regain some of the trust that was lost. This was, however, not the case in Falkenberg. The municipal planners and politicians instead acted strictly according to the legislation and maintained their exclusive right to make the final decisions between general and specific interests. The lack of trust was thus accentuated since local residents felt that they could not influence crucial decisions in the planning process.

One of the problems associated with lack of trust that has been highlighted by observers is that it makes it more difficult for authorities to gain public legitimacy for decisions and thus carry out their policies (Cvetkovich and Löfstedt, 1999). While this might sometimes be the case, the empirical evidence of this article shows that it is not always so. In both cases, the local authorities were able to go through with the decision to approve the wind power projects, despite the existence of opposition from

[10] Five working groups were created based on geographical boundaries in the municipality. About eight people participated in each group, representing, e.g. local tourism, neighbourhood organisations, local environmental groups and reindeer owner (Interview I).

local residents and other stakeholders. If local authorities are determined enough, and if the issue does not become too controversial it still seems to be possible to go against the will of local residents. Without expressing an opinion as to whether the authorities acted correctly or not in these specific cases, the findings of this study emphasize the notion that participatory decision-making should not be primarily motivated by wanting to obtain legitimacy of decisions. Instead, the key motivation should be to increase the democratic quality of the decision-making process.

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*Interviews*

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Interview E. Neighbouring resident in Falkenberg, personal interview, 2003-05-26.

Interview F. Planning architect in Halmstad, personal interview, 2001-11-12.

Interview G. Planning Architect in Halmstad, personal interview, 2003-05-08.

Interview H. Neighbouring resident in Halmstad, personal interview, 2003-07-01.

Interview I. Planning architect in Härjedalen, telephone interview, 2004-02-17.

# IV

# The Importance of Local Context in the Planning of Environmental Projects: Examples from Two Biogas Cases

*Revised version submitted to Local Environment*

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## Abstract

The planning of facilities to improve the environment is often carried through in the form of locally based construction projects. These projects can be complex, involving a variety of issues and a number of different actors from both the public and private sectors. By drawing on previous research on project planning, an analytical model for analysing the issues connected with the planning and implementation of environmental projects, is developed. The main argument of the paper is the importance of considering how context-specific factors affect project design and project management. The empirical material is taken from the planning of two biogas projects in Sweden and it is showed how differences in factors such as the actors involved, the organisational framework and the political setting lead to two markedly distinct planning approaches. The results of the paper, which also highlight the importance of a flexible planning approach, are relevant not only for biogas but also for other projects with similar characteristics.

## 1. Introduction

It is a common notion today that more and more activities and developments in our society are carried out in the form of projects. This is also the case for facilities and schemes that have important impact on human health and the environment. On the one hand, there are a multitude of projects that are mainly motivated by concerns other than the environment, which have different kinds of negative impact. On the other hand, there are an increasing number of projects, such as waste treatment plants and renewable energy facilities, an important aim of which is to achieve some kind of environmental improvement compared with the prevailing situation.

These projects can be characterised as examples of complex construction projects that are partly motivated by environmental concerns, but which can also have negative impact on health and the environment. They typically involve several actors from both the private and public sectors and they are often planned and implemented by locally based actors in local decision-making processes.

The planning of a project is a complicated and uncertain undertaking (Morris and Hough, 1987; Shenhar and Dvir, 1996; Miller and Lessard, 2000; Sahlin-Andersson and Söderholm, 2002). Drawing on previous research on project planning, the main aim of this paper is to argue for the importance of considering the specific context of a project, both in order to understand what is going on inside the planning process and to learn how to manage projects efficiently (Graham, 1985; Jacobsson, 1994; Newcombe, 2000; Engwall, 2003). Similar types of projects can vary considerably due to differences in contextual factors. This, in turn, means that different projects require different planning strategies and organisational solutions. The approach employed in this paper is a comparative analysis of two case studies which serves to demonstrate and discuss the processes by which contextual factors influence project planning. An analytical model is used in which project planning is divided into three equally important parallel processes: the project-specific, the political and the permitting process. An advantage of this model is that it facilitates comparison between projects, taking into account both similarities and differences. It also allows for a focus on those parts of the planning process that are interesting in each specific case.

The empirical cases that have been used in the study are taken from the planning of biogas plants in two municipalities in Sweden. Biogas is an interesting case for many reasons. Firstly, it is a typical example of a technology with both positive and negative environmental effects. The reasons for building a biogas plant are to treat organic waste biologically and to produce a vehicle fuel that does not contribute to emissions of greenhouse gases. On the other hand, biogas plants can cause problems due to odour in the local area. Secondly, biogas projects have the basic technology and purpose in common, while they can differ significantly concerning other factors such as the actors involved and the institutional conditions. This makes it interesting to compare different biogas projects in order to study the significance of context-specific factors. Thirdly, the planning of a biogas plant is fairly complex, involving actors of different kinds, as well as a diverse range of issues. Finally, biogas projects are increasing rapidly in Sweden, partly in response to changes in government incentives, making it a relevant case from a practical point of view.

The case studies are based on both interviews and written documentation. Eight semi-structured interviews have been carried out with key persons in the projects and with politicians. Most interviews were conducted over the telephone and lasted for about an hour. The written

documentation includes project plans, applications, minutes from meetings and newspaper articles.

The next section provides a theoretical introduction to previous research on project planning, where a central argument is that the rational model of planning is inadequate to understand what is taking place in the planning processes of a project. This leads to a discussion on the importance of context in project planning, and to a presentation of the analytical model with the three parallel processes. In the three following sections the significance of context is analysed in relation to each of the parallel processes and a comparison is made between the two cases. In the final section some general conclusions are discussed.

## 2. Theoretical perspectives on project planning

The concept of a project is, by nature, both broad and vague and a universal definition can not easily be given. However, some important characteristics are that projects are limited in time, require co-ordination of different activities and actors, each is to some degree unique, and oriented to some specific task (Frame, 1987; Engwall, 1995; Sahlin-Andersson & Söderholm, 2002a). Projects can vary from being small and fairly simple to being huge and highly complex endeavours that involve a great number of actors.

The literature on project planning can roughly be divided into two categories (Engwall, 1995; Shenhar and Dvir, 1996; Söderlund, 2004). On the one hand there are practically oriented handbooks, which have as an aim to provide universal guidelines for effective project management (Kerzner, 1995; Meredith and Mantel, 2000). They are typically characterised by a rational model of planning and decision making, where the project is categorised into distinct phases which are assumed to follow each other chronologically. Planning techniques and methods of project management constitute an important part of this literature (Söderlund, 2004). The focus is on organisation and implementation, while decision making and goal formulation are seen as unproblematic (Engwall, 1995).

On the other hand, there is a growing body of empirically and theoretically grounded studies on the nature of the actual project planning process. These studies are not intended as direct support for project managers, but are rather directed towards analysing different problematic aspects connected with planning in projects. They borrow a great deal from organisation theory and theories on decision making, and are typically constructed as case studies of one or several projects. The findings of such research reveal a rather complex picture of project planning compared with the assumptions made in the handbook literature.

On a general level, the rational model of decision making is called into question, since project planning is faced with the same constraints as all organisational decision making. Already in the 1950s Herbert Simon (1957)

coined the concept *administrative behaviour*, arguing that individuals and organisations cannot handle all the information necessary in order to act rationally. Instead, he claimed that decisions are highly influenced by pre-existing knowledge and values. Furthermore, instead of trying to optimise every decision, both individuals and organisations are often content with finding solutions that are "good enough". Other writers have gone even further in their critique of the rational model (Lindblom, 1959; Cohen, March and Olsen, 1972; Brunsson, 1985).

More specifically, empirical studies on projects reject many assumptions of the handbook literature. To start with, goal formulation is seen as a central activity of project planning and the result of an ongoing interaction between all parties participating in a project, involving both co-operation and negotiation (Engwall, 2002). In this view, projects cannot have well-defined and unchangeable goals, which are formulated at the start of the project and then steer the whole planning process (Sahlin-Andersson, 1989). During the planning process, goals and plans inevitably have to be changed due to factors such as new information, unexpected events, changes in preferences and the outcome of negotiations between actors (Engwall, 2002).

Researchers have also studied the relation between different projects and between a project and the day-to-day activities in organisations, and it appears that projects are not so well demarcated and isolated activities as is often assumed (Newcombe, 2000; Sahlin-Andersson & Söderholm, 2002b; Engwall 2003). On the contrary, projects depend in many ways on the external reality and correspondingly can have considerable influence on it (Blomberg, 1998). Differences between projects make it difficult to develop universal management guidelines and handbooks that will be relevant for all projects (Newcombe, 2000; Söderlund 2004). Shenhar and Dvir (1996) argue that different types of projects require different management styles, and in an attempt to facilitate such an analytical approach, they introduce a typology of projects according to the two dimensions technological uncertainty and different types of scope. Other researchers have made other classifications (Pinto and Covin, 1989; Wheelwright and Clark, 1992).

Differences between projects do, however, not only depend on the type of project in question. They are also a result of context specific factors, which is a central argument of this article (Graham, 1985; Blomberg, 1998; Blomquist and Packendorff, 1998; Newcombe, 2000; Engwall 2003). Since projects are dependent on external reality, i.e. their specific context, and since this reality invariably differs from one project to another, project planning must also differ in order to be effective. The context influences both *how* to plan a project, i.e. the organisational design and the form of decision making, and the *type of issues* that will have to be dealt with during the planning process (Engwall, 2003).

As mentioned earlier the empirical material for this paper is taken from case studies of the planning of two biogas projects in Sweden. Biogas projects have many basic features in common while they can differ considerably concerning contextual factors. For biogas projects, as well as other projects with similar characteristics, it is possible to divide the planning process into three parallel processes: the project-specific process, the political process and the permitting process.[1] Each of the processes involves different actors, issues and arenas. All three processes are essential in order to carry out a project and it is therefore important for project managers to pay attention to, and deal with them all. The importance and form of each process are, however, dependent on contextual factors and can vary considerably between projects. By focusing on each of the parallel processes, the following three sections will discuss in more detail the importance of context in project planning.

## 3. The project-specific process

The project-specific process consists, on the one hand, of a technical side were the aim is to optimise the facility according to technical, economic and environmental criteria. On the other hand, the project-specific process involves an interaction between those actors who are directly involved in the project. Co-operation and negotiations are central parts of this interaction and discussions will cover issues such as the nature of the project, the roles of the actors and their relations to each other. The arenas for interaction are working groups and informal contacts. In all projects, the project-specific process shares the above basic characteristics. However, the importance and complexity of the project-specific process can differ significantly. A comparison of the planning of two biogas projects in the two municipalities of Västerås and Vänersborg, in Sweden, will serve as an illustration.

All biogas projects share a basic similarity in that the aim is to digest organic material in order to produce two end products: (i) biogas, which can be used to produce heat or as a substitute for natural gas in pipelines and vehicles, and (ii) digested residues that can be used as a fertiliser in agriculture. They differ, however, in other aspects, such as the type of organic waste used in the process, the way in which the gas will be used, the actors involved in the biogas system, and the roles of and relations between these actors. These differences have important bearings both on the issues that the project leaders will have to deal with and on the requirements on the organisation of project planning. In the two cases discussed in this chapter, the project leaders were faced with quite different situations. In

[1] The analytical model used in this study has been borrowed and modified from a similar model used by Bengt Jacobsson, in a study on the planning of a coal-fired, combined heat and power plant (1994, p. 89).

Västerås, the project-specific process was complex as it involved several key actors and many difficult issues. In Vänersborg, on the other hand, the project manager was less dependent on other actors and the process was relatively simple and straightforward. As will be shown in the following discussion, two distinct planning approaches evolved for the two projects in order to handle the different situations.

### *Västerås*

The idea for the biogas project in Västerås initially had two different origins.[2] On the one hand, local farmers wanted to grow ley crops (clover) in order to improve the quality of their soil, and they therefore investigated the possibility of digesting the ley crops in a biogas plant. On the other hand, the regional waste company was working on a major restructuring of its waste management strategy towards increased biological treatment of organic household waste. Since the two ideas had much in common, a joint project started in 1995 for a plant that would co-digest ley crops and organic waste from households (Khan, 2003). A third actor, the municipal energy company, also participated in the planning from the start of the process. The three actors had their own reasons for participating in the project and the involvement of each actor was essential in order to realise the project (Persson, 2002; Strömberg, 2002). The regional waste company acted as the project leader and provided most of the expertise and resources for the project. The involvement of farmers was important both because it increased the input of organic material making the biogas plant economically feasible, and because it secured the market for the digested residue. The municipal energy company was responsible for the distribution and sale of the biogas.

The situation described above had several implications for project planning. Planning was conducted separately from the day-to-day activities of the organisations involved. A specific working group, including representatives from the different organisations, was created and met regularly throughout the planning process (Khan, 2003).[3] The project developed a distinct identity with an established project name which became well known to people outside the project.[4] The interaction between the participants in the working group was influenced by the situation of mutual

[2] The biogas plant in Västerås has, at the time of writing (July 2004), not yet been built. The final political decision was taken in September 2003 and the plant is planned to come into operation in 2005.

[3] Apart from the three main actors, the working group at times also included representatives from the regional bus company (in the first phase) and the national farmers' association (the last phase).

[4] The name of the project is Växtkraft. The name is difficult to translate into English since it is a play on words. "Växt" means plant or growth and "kraft" means power. The name can thus be interpreted as "power from growth".

dependence. According to Lax and Sebenius (1986), situations that involve some form of negotiation between two or more actors, will always contain a combination of co-operation and bargaining, since there are both common and conflicting interests. This, in turn, implies two types of interaction strategies: value creation, where the goal is to find common solutions that lead to joint gains for all actors, and value claiming, where the goal is for each actor to get the best deal possible at the expense of the others.

In Västerås, it appears that value creation was the dominating type of interaction. Lax and Sebenius write that opportunities for value creation can arise from either shared interests or from differences between actors (when each actor can contribute something that others want, but do not have) (Lax and Sebenius, 1986). The background to the project in Västerås was precisely that: a combination of shared interests and differences, which gave strong incentives for co-operation. This was further enhanced by the duration and continuity of the planning, which meant that personal bonds grew between members of the working group and that they developed a certain loyalty to the project itself. An important guiding principle for the working group was to find solutions that would satisfy the interests and needs of all actors (Växtkraft, 1995-2002; Persson, 2002).

A striking feature of the project-specific process was its complexity regarding the number of issues that had to be dealt with and how these issues evolved (Khan, 2003; Växtkraft, 1995-2002). The complexity was derived, on the one hand, from the fact that several actors with different interests had to co-operate, as has been discussed above. There were, however, also a number unforeseen developments outside the control of the project group which affected the direction of planning. This meant that the solutions to a number of issues, such as government funding, the location of the plant and the use of the biogas, were unclear for long periods, and that they were sometimes subject to sudden changes. For this reason, flexibility became a key characteristic of the planning approach in the working group. If one idea proved impossible, the project managers had to be prepared to let it go and focus on other alternatives.

### *Vänersborg*

The background to the biogas plant in Vänersborg, which started operation in April 2000, was that the regional waste company was looking for a way to move towards biological treatment of the organic household waste in the region. In contrast to the situation in Västerås, the waste company in Vänersborg was much less dependent on other actors in order to realise the project (Khan, 2003). In the first place, the only materials that were going to be used for anaerobic digestion were organic household waste and grease separator sludge from restaurants. This meant that farmers did not have a role as suppliers of organic material, such as manure or ley crops, which had

made them an essential actor in Västerås. Secondly, even before the biogas plant was constructed there was already an infrastructure and a market in the region for biogas as fuel in vehicles. The issue of the use of gas was thus unproblematic and no actor had to be involved in the planning for that reason.

In Vänersborg, the nature of the project, consequently, meant that most of the project-specific planning could be carried out within one single organisation: the regional waste company. Planning was mainly carried out within the existing organisational framework and no specific organisation for the project was created. Other actors than the waste company did, however, participate in discussions regarding specific issues. There was, for example, a dialogue with representatives from the public cleansing departments in the four municipalities concerned about how to design and co-ordinate the sorting and collection of waste from households. Likewise, farmers were involved in discussions concerning their role as receivers of the digested residue. As in Västerås, the discussions were characterised by both co-operation and negotiation, and the actors did indeed influence important aspects of the project (Molander, 2002; Davidsson, 2002). The crucial difference, however, was that they were not involved in the overall and continuous planning activities.

## 4. The political process

The political process concerns whether or not the project will receive political support. For projects of the size of biogas plants, the main political level of interest is the municipality or a group of municipalities. The main actors in the political process are politicians, civil servants, interest organisations and the project leader. The issues that are discussed concern general arguments for or against the project, such as economic costs and financing, environmental impact and gains and possible alternatives to the project. The arenas of the political process are meetings in local government, debates in local newspapers and informal contacts between actors. The political process obviously becomes more important if the municipality is directly involved in the project as an owner. It is, however, relevant in other cases as well, since political support greatly facilitates the chances of carrying out a project.

As in the case of the project-specific process, the form and importance of the political process were very different for the two projects in Västerås and Vänersborg, although here we had the opposite situation. In Västerås, the political process was rather unproblematic since the project received early support from all political parties, as well as from the local administration. In Vänersborg, however, the political process proved to be very complex since it required co-operation between several municipalities and since there was internal opposition to the project in some of the municipalities.

### *Vänersborg*

A factor that greatly influenced the planning of the biogas facility in Vänersborg was that the project depended on co-ordination between several municipalities, who all had different relations to the project, and who had their own internal discussions for and against it. The regional waste company in charge of the project was, at the time, jointly owned by four municipalities, and a decision to approve the project had to be passed by each local government council. When the waste company presented the idea for the project in 1997, everybody agreed that it was necessary to change the system of treatment of organic household waste, and that incineration was not an acceptable solution for the region (Traab, 1995; Molander, 1997). The debate was instead about which type of biological treatment was the most appropriate.

Opposition to the biogas project came mainly from politicians and civil servants in the environmental offices in two of the municipalities. An important reason for their opposition was that a biogas plant was seen as a threat to home composting, which had been promoted for some time in the two municipalities (Falk, 2002; Nilsson, 2002). In one of the municipalities, opposition continued throughout the planning process and a common view was never reached. This meant that the decision-making process became prolonged, and it was long uncertain whether the project would finally obtain political backing. In the end, the local government council decided to approve the project, against the advice of its own environmental office, something which is very unusual in Sweden (Khan, 2003).

An important feature of the political process was how the managing director of the regional waste company acted in a decisively political and strategic way in order to secure political support for the project. A key factor in the success of the project was that the political leadership in all municipalities backed it from an early stage. The first move of the managing director was to convince the company board, which consisted of top politicians from the owner municipalities. Interviews with the politicians involved showed that they felt it was a complicated decision, but that it soon became clear to them that a biogas plant was the best option (Larsson, 2002; Samuelsson, 2002). It is evident that the actions of the managing director were important in convincing the board (Molander, 2002). When the board had made its decision the politicians came to function as spokespeople for the project in their respective municipalities. The wider discussion in the municipalities did not start until after the board had made its decision to support the project, which meant that the political leadership, in principle, had already made up their mind. The managing director and other representatives of the waste company were also active during discussions in the different municipalities. They attended political meetings and tried, in particular, to convince those who were opposed to the project (Molander, 2002). The actions of the managing director have many similarities with

findings in leadership theory about how leaders in organisations should act in order to realise controversial ideas. Based on a number of studies by different scholars, Bolman and Deal (1997) identify four strategies of importance: (i) creating an agenda, (ii) mapping the political terrain, (iii) building networks and coalitions and (iv) bargaining and negotiating. The managing director and other proponents of the project, used all these strategies to varying degrees.

The role played by the managing director has similarities with the findings in a study by Agneta Blom (1994) of the democratic role of chief officers in the municipal administration in Sweden. Blom argues that it is becoming increasingly common that municipal chief officers act according to ideals borrowed from the private sector and management theories. In this role, the municipal officer is an expert at being a leader and he/she is expected to be able to formulate and implement goals, policies and visions concerning the activities of the administration. Even if politicians retain the formal responsibility of confirming goals, the municipal officer has a considerable influence by being in the position to formulate goals. Blom sees a potential democratic problem with this situation, since it ought to be the exclusive task of politicians to decide about goals and policies. Blom's study can be seen as an example of "public organizations becoming 'decoupled' from the relationship between service delivery and political control" (Barrett, 2004, p. 259), a development which has been of general significance in Western democracies during the 1990s (Hood, 1995).

Nils Brunsson (2002) discusses the different kinds of logic of the commercial firm and the political organisation. He argues that there is an ongoing trend towards institutional confusion, with 'politisation' of firms and 'commercialisation' of public administration. Firms are increasingly acting in a political way instead of only looking for profit, while public administration has borrowed concepts from the logic of the market, with goals of economic efficiency and a greater independence from political decision makers. The regional waste company can be interpreted as a physical embodiment of the institutional confusion that Brunsson writes about. It is neither a commercial firm nor a public organisation. It acts both commercially and politically at the same time. The fact that it is jointly owned by several municipalities gives the managing director more freedom than in the case of the typical municipal company. The reason for the existence of regional companies is, of course, the need for co-operation between municipalities. They allow for more efficient and comprehensive policies with a better view of the overall situation in a region. At the same time, however, they can make democratic steering more complicated.

*Västerås*

In Västerås, the political process was much less complicated and controversial. It is true that the regional waste company, also in this case, was jointly owned by several municipalities. However, the biogas project primarily concerned only Västerås, since it was here the farmers lived and since it was mainly from here the organic household waste was to be collected. The municipalities not directly involved in the project were, in principle, in favour of the plans. In Västerås, there was never a debate about the proposal as such. All political parties, as well as the administration, agreed on the environmental benefits of the project, and supported it either passively or actively during the main part of the planning process. The political discussions have instead mostly been concerned with economic issues. Building a biogas plant requires huge investment. In Västerås the costs have been estimated to be nearly 13 million Euros (115 million SEK), and even with a 50% grant from the government it is clear that the project will not make a profit, and at best only cover its own costs. During the final stages of the planning process the political opposition in Västerås argued against the project because of the economic risks it will bring to the municipality. The political majority, however, gave its final approval in September 2003.

Apart from a political debate in Västerås, discussions over economic issues have also included negotiations between the management of the waste company and politicians in Västerås, between politicians in the different owner municipalities and between politicians in Västerås and the owners of the regional transport company (Haid, 2002; Persson, 2002; Khan, 2003).

## 5. The permitting process

The permitting process involves the legal examination of the facility and, in Sweden, comprises both an environmental permit according to the Environmental Code and a building permit according to the Planning and Building Act. The main actors are the project developer who applies for the permit, the permit authorities, organisations and authorities who have a formal right to give their comments, and neighbouring residents and other groups who are affected. The permitting process is concerned with issues such as the environmental and health effects of the facility and weighing different interests against each other. The most important arenas are consultation meetings and written comments that are a formal part of the permitting process. However, informal contacts between the actors can also be important, as can news and debates in the local press.

For biogas plants, the main issue concerning the impact of the facility is the risk of odour emanating from the anaerobic digestion process.[5] Several of the early plants that were built in Sweden have had problems caused by odour, mostly due to complications in the running-in period and in the case of shut downs. For this reason, the permit authorities and other bodies, in both Vänersborg and Västerås, underlined the importance that the facility should not be allowed to release odours. In Vänersborg, the Environmental Court stated that if an odour were to arise the company was obliged to take measures in order to remedy the problem (Vänersborgs tingsrätt, 1999). In Västerås, the County Administration took a critical position and was not satisfied with the waste company's description of how odour would be avoided. There was also a discussion on the definition of limits for the level of odour permissible. This meant that the issue of odour was investigated more thoroughly than in previous cases in Sweden, and that comprehensive measures will be implemented in order to minimise the problem (Stockholms tingsrätt, 2002). In both cases, it was the public authorities who were responsible for emphasizing the question of odour and other issues. Although the processes were complex, it was clear that the applications would finally be approved, and the question was more about emission limits and the conditions for the permit.

For many construction projects today, an important aspect of the permitting process is the reactions of neighbouring residents and other groups that will be affected by the facility. For projects that are risky or have a considerable impact protests are today an expected part of the process (see e.g. Kasperson et al., 1992; Boholm and Löfstedt, 2004). In Sweden, protests against the building of biogas plants have occurred, although they are fairly uncommon (Khan, 2003, 2004).

For the two projects in Västerås and Vänersborg local opposition was, however, not an issue, and there were on the whole very few comments from neighbouring residents. One possible reason for the lack of opposition is that, in both Västerås and Vänersborg, the location of the biogas plant was on an existing site for waste deposition and other types of waste management, which meant that neighbouring residents were used to similar activities. On the other hand, the waste companies in Västerås and Vänersborg have had repeated problems due to odour from other waste-related activities (deposition and composting) causing complaints and protests from neighbours. However, both companies have been working seriously to solve the problems and they have maintained a constructive dialogue with neighbouring residents. For this reason they have been perceived as honest in their efforts to reduce negative effects. This, together with the fact that the biogas project was presented as a solution to earlier

[5] Other issues are increased traffic, handling of organic waste that cannot be digested and the visual impact of the plant.

problems caused by odour, may help explain the absence of protests (Khan, 2003).

## 6. Conclusion

The central theme of this paper has been to explore the importance of considering local context-specific factors in the management and planning of environmental projects. Using examples from the planning of two biogas plants in Sweden, the paper has demonstrated how similar types of projects develop markedly different planning organisations and approaches, in order to handle the different situations and challenges with which they are faced. Table 1 summarises and compares the planning approaches in Västerås and Vänersborg in the three parallel processes.

| | Västerås | Vänersborg |
|---|---|---|
| **Project-specific process** | • Specific project organisation<br>• Key actors involved throughout the planning process<br>• Planning mainly through dialogue, co-operation and negotiation<br>• Flexibility a key feature of planning | • Planning within existing organisational framework<br>• Planning mainly carried out by one actor alone<br>• Other actors involved only regarding specific issues |
| **Political process** | • Limited political debate<br>• Political discussions mostly concerned with economic negotiations<br>• Project managers not acting politically | • Extended political discussions<br>• Project manager acts strategically and politically to gain support for the project |
| **Permitting process** | • Fairly complicated technical investigations<br>• Limited local resident involvement<br>• No local opposition | • Fairly complicated technical investigations<br>• Limited local resident involvement<br>• No local opposition |

**Table 1.** Planning approaches in the three parallel processes

The inclusive, dialogue-oriented and flexible approach in the project-specific process in Västerås, was a result of the complex project situation involving several key actors and a number of difficult issues, the solutions to which were long unclear during the project. In Vänersborg, a much simpler approach was possible since the waste company could deal with most issues within its own organisation, without the involvement of other actors.

In Västerås, there was little political debate regarding the project as such, since it was not perceived as controversial by any of the actors concerned. Political discussions mostly took the form of negotiations on economic costs and the financing of the project. In Vänersborg, on the other hand, there was a complicated political situation, in which several municipalities were involved, some of which exposed opposition to the proposal. The planning of the project consequently revolved, to a large extent, around political discussions, and the managing director of the waste company acted strategically and politically in order to gain support for the project.

If there were significant differences between the two cases concerning the project-specific and the political processes, the permitting processes, on the other hand, showed many similarities, with fairly complicated technical investigations, active permitting authorities, moderate levels of local resident participation and no local opposition. One reason for the similarities is that the contextual factors were similar: location at an existing waste facility, awareness of the seriousness of the problems of odour and long-standing and constructive dialogue with neighbouring residents. The results of the study thus support evidence from earlier research about the importance of context (Graham, 1985; Blomquist and Packendorff, 1998; Newcombe, 2000; Engwall 2003).

It should be noted that it is not necessarily so that only one process becomes the most important or problematic in a specific project, as in the two cases in this study. It is perfectly possible that two, or all three, processes will be complex and involve issues that are difficult to handle. Furthermore, there are no watertight borders between the three processes, although they have been discussed separately in this paper. In fact, the processes overlap and interact to a considerable degree. A particularly interesting type of overlap, observed in the two cases, concerns the relation between the project-specific and the political processes. Though the two processes are in theory separate, dealing with different issues and involving different actors, they are in practice closely entwined. Project managers do not only deal with matters within the project-specific planning. When needed, they also act in the political process as politicians. Furthermore, gaining support and establishing networks with key actors also serves to strengthen political support for the project. Likewise, since the regional waste company in both cases was publicly owned with politicians on the managing board, the project-specific process was inherently political.

Another general conclusion that can be drawn from the two case studies, which also finds support in earlier literature, is that flexibility is paramount in the planning of projects (Blomberg, 1998; Newcombe, 2000; Miller and Floricel, 2000). Since it is not possible to know in advance which issues will be important or what type of organisational set-up will be the most appropriate, it is vital that project managers are open to experimentation throughout the planning process. This is especially important in the early stages of a project when many things are still uncertain. Another aspect of flexibility is the readiness to make changes in the project plans – may it be concerning technical, organisational or other aspects – if the existing ideas prove unworkable. This might sometimes also be necessary for matters that are seen as fundamental to the project or are dear to the persons and organisations involved.

The empirical material for the discussions in this paper was taken from case studies of the planning of two biogas projects in Sweden. The scope of the analysis is, however, broader and the ambition is that the results will be relevant for other projects with similar characteristics as well as for project planning in other national contexts. Some of the observations of the study are obviously quite unique to the cases e.g. the concrete issues and the constellations of actors involved. The fact that the main actors were publicly owned companies is also something that differs from many other construction projects. It should also be noted that Sweden has a tradition of local self-government with relatively strong municipalities vis-à-vis the state (Petersson, 2001). This means that the local level and local actors might be given more important roles than in other countries. Notwithstanding various practical differences, the discussion regarding the importance of context, and the conclusions that flexibility and different planning organisations are required from case to case, are of a general nature.

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