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# **Levelling the playing field? The influence of national wind power planning instruments on conflicts of interests in a Swedish county**

Suggested running title: Levelling the playing field?

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## **Abstract**

Slow and complicated wind power planning and permitting procedures have been a large obstacle for wind power diffusion in Sweden and other countries. This paper complements previous siting-oriented literature with a planning perspective on these problems. The focus is two national planning instruments implemented in Sweden in the early 2000s: a national planning target and an appointment of areas of national interest for wind power. The paper identifies different types of conflicts of interest related to wind power – in addition to the conflict between wind power as a national public interest and various local private interests – and analyses the impact of the national planning instruments on the handling of these conflicts in the land-use planning process in the County of Östergötland. The analysis shows that the planning target actually made local planning officials even more inclined to treat wind power as a private rather than a public interest and that the method used to identify areas of national interest of wind power forced wind power to compete with the combined strengths of all other public interest. The planning instruments thus left wind power to fight an uphill battle rather than to meet other interests face-to-face on a level playing field.

Keywords: wind power; planning instruments; policy

## **1. Introduction**

In Sweden, as in many other countries, increased electricity production from wind power has been a government objective since the mid 1970s. Different estimates of a Swedish wind power potential of at least 10 TWh have been put forward by a number of different government commissions since 1975, and the importance of wind power for a renewal of the Swedish energy system has been emphasised repeatedly. The potential has, however, not been realised. In 2007, Swedish wind

power generation was a mere 1.4 TWh, corresponding to an installed capacity of approximately 831 MW (Swedish Energy Agency, 2008).

One of the main obstacles for increased wind power diffusion in Sweden has been slow and complicated wind power planning and permit processing procedures with local opposition (Bergek and Jacobsson, 2003; Michanek and Söderholm, 2006; Åstrand and Neij, 2006) and it has become obvious that wind power implies a great challenge to land-use planning (Khan, 2003). In order to take care of these planning-related problems, the Swedish Government in the early 2000s adopted a national “planning target” of 10 TWh of yearly wind power generation by 2015 and the Swedish Energy Agency identified and appointed areas of national interest for electricity generation from wind power. The overall aim of these two measures was to make wind power visible in the local/regional planning process and to level the playing field, i.e. strengthen the competitiveness of wind power in comparison to other interests.

Other countries have similar experiences. In the Netherlands, lengthy and complex planning processes and approval procedures have been mentioned as one cause of lagging wind power implementation (Agterbosch et al., 2004; Bergek and Jacobsson, 2003; Wolsink, 1996). The UK planning system has also had difficulties in handling wind power (Khan, 2003; Strachan and Lal, 2004; Toke, 2005), which has held up some wind power establishments (Simpson, 2004). The suggested solutions are also very much similar to the Swedish policy instruments. National targets (although usually for expansion rather than planning purposes) exist in most European countries and recently the UK Government required local authorities to set regional targets for renewables (Simpson, 2004).<sup>1</sup> In Denmark and Germany, government-

ordered identification of areas suitable for wind power has been used with some success (Krohn, 2002). Several researchers have also advocated for increased national level involvement in the wind power planning process (e.g. Bergek and Jacobsson, 2003; Khan, 2003; Krohn, 2002; Strachan and Lal, 2004). There are, however, examples of less successful implementation of such instruments as well; for example, the Dutch Government's attempt to break down the national target of 1,000 MW of wind power by 2000 to the regional level did not succeed to mobilise local planning authorities (Bergek and Jacobsson, 2003; Wolsink, 1996).

Understanding the conditions under which national planning instruments may be successfully applied to influence local planning processes thus seems to be of importance.

The focus of most previous literature has so far been issues related to the siting of specific wind power projects, for example the impact on perceptions of the fairness of planning procedures on the social acceptance of wind power (cf. Devine-Wright, 2005; Gross, 2007; Wüsterhagen et al., 2007). However, land-use planning follows a quite different logic than siting (Nadaï, 2007), not least in that it handles a broader portfolio of conflicts of interests than the conflict between wind power as a national public interest and various private interests on the local level that is emphasised in previous literature (cf. e.g. Agterbosch et al., 2007; Bell et al., 2005; Gross, 2007; Pasqualetti, 2000; Wolsink, 2000). Against this background, the contribution of the paper is to complement the primarily siting-oriented literature with a planning perspective that may shed some light on the logic of local land-use planning and the influence of national planning instrument on this process.

The specific purpose of the study is to illustrate how two Swedish national planning instruments have influenced the planning process in the Swedish County of Östergötland, as described by different stakeholders (most notably civil servants on county and municipality levels and wind power project developers). The paper identifies a number of different types of conflicts of interest related to wind power and the impact of the instruments on the handling of the identified conflicts of interest in the land-use planning process. This will give an indication of the extent to which the two policy instruments have had the intended effect on planning on the local level and provide a basis for a more general discussion concerning possible pitfalls of national planning instruments and the implications for policy makers when designing and implementing such instruments.

The paper is structured as follows. Section 2 contains a review of the previous literature and presents a typology of different types of conflicts of interest related to wind power. Section 3 describes the methodology used in the empirical study. The empirical case study is presented in Section 4. It starts with brief overviews of the historical development of wind power in Sweden and the Swedish planning system, after which the empirical material is presented and analysed. In Section 5, some of the main observations from the case study are discussed further together with some implications for policy.

## **2. Analytical framework**

### *2.1 Wind power planning in previous literature: an overview*

For more than half a century, land-use planning has been used as tool to reconcile the demand for goods and services with environmental constraints (Cowell and Owens, 2006). In the wind power field, however, planning seems to be a “complicated

matter” (Wolsink, 2007:2695) and “[a] growing number of studies show that achieving a positive local decision-making on wind power schemes is an uphill battle” (Toke et al., 2008:1135-1136). As a consequence, the need for supporting planning regimes in order to achieve successful large-scale deployment has been emphasised by several researchers (e.g. Bergek and Jacobsson, 2003, Toke et al., 2008; Wolsink, 2007). In previous literature, a number of studies aiming at better understanding the causes of these problems have been reported. Together, these studies cover two main, interrelated themes.

The first and most prevalent theme focuses the importance of local social acceptance for wind power projects to be carried out (e.g. Jobert et al., 2007; Wüsterhagen et al., 2007) and the process by which various opponents and proponents influence siting decisions at the local level (cf. Breukers and Wolsink, 2007; Wolsink, 2007). An important issue within this theme has been to explain the apparent contradiction between a generally positive public opinion towards wind power and local resistance to specific wind power projects (cf. Bell et al., 2005; Devine-Wright, 2005; Gross, 2007; Wolsink, 2000, 2007). The standard NIMBY (not-in-my-backyard)<sup>2</sup> explanation has been questioned repeatedly on the grounds that it paints a limited picture of the motives behind resistance of wind power (Wolsink, 2000).<sup>3</sup> In particular, the fact that support for wind power may be qualified (Bell et al., 2005) or conditional (Wolsink, 2007) has been emphasised; even strong supporters of wind power may very well believe that wind power development has to be subjected to some limits and controls.

Taking these insights as a starting point, the second theme includes more detailed investigations of the motives behind resistance to wind power projects. A large

number of studies have shown that the most important argument against wind power is the visual impact on the landscape (Agterbosch et al., 2007; Pasqualetti, 2000; Toke, 2005; Toke et al., 2008; Wolsink, 2007). Other factors include noise and shadows, landscape intrusion, environmental concerns and decreased value of neighbouring properties (see Table 1). Other studies highlight that negative perceptions of wind turbines may be motivated by dissatisfaction over land use planning processes as such (cf. Devine-Wright, 2005; Gross, 2007; Wüsterhagen et al., 2007) and suggest that the implementation of open and “collaborative” decision-making processes involving different stakeholders will result in less public opposition (Breukers and Wolsink, 2007; Wolsink, 2007; Wüsterhagen et al., 2007).

TABLE 1: *Motives for negative attitudes to wind power described in previous literature*

MOTIVES FOR NEGATIVE ATTITUDE TO WIND POWER	MENTIONED BY*
▪ Visual/aesthetical concerns	Agterbosch et al., 2007; Coles and Taylor, 1993; Devine-Wright, 2005; Jobert et al., 2007; Johansson & Laike, 2007; Kellett, 2003, Pasqualetti, 2000; Strachan & Lal, 2004, Toke et al., 2008; Wolsink, 2000; Woods, 2003
▪ Noice and shadows	Agterbosch et al., 2007; Coles and Taylor, 1993; Devine-Wright, 2005; Strachan & Lal, 2004; Toke et al., 2008; Wolsink, 2000; Woods, 2003
▪ Landscape intrusion (decreased value of natural and cultural landscape)	Breukers & Wolsink, 2007; Coles and Taylor, 1993; Devine-Wright, 2005; Johansson & Laike, 2007; Toke et al., 2008; Woods, 2003
▪ Environmental concerns (impact on wildlife, vegetation and soil etc.)	Agterbosch et al., 2007; Coles and Taylor, 1993; Strachan & Lal, 2004; Toke et al., 2008; Wolsink, 2000; Woods, 2003
▪ Decreased property values	Agterbosch et al., 2007; Coles and Taylor, 1993; Toke, 2005
▪ Safety concerns	Agterbosch et al., 2007; Coles and Taylor, 1993; Woods, 2003
▪ Detrimental effect on tourism	Strachan & Lal, 2004

\* Please note that some of these papers are overviews of previous literature and that there thus may be some overlaps.

Most of the abovementioned studies primarily focus on the ‘siting’ of specific wind power projects, i.e. typically some kind of permitting process (Agterbosch et al, 2007).<sup>4</sup> As recognised by Agterbosch et al. (2007) and Nadaï (2007), however, siting is only one of several institutional conditions that influence the implementation of wind turbines. In particular they emphasise the importance of local land-use planning, which refers to decisions concerning the use of land in time and space.

Planning involves identifying land areas that are suitable for different types of activities as well as areas that need to be protected from exploitation since they are of high public value in some sense. The process can be *rational*, i.e. top-down oriented, *communicative*, i.e. characterised by participation of different social groups, agencies and individuals (cf. Nadaï, 2007) or a mix of both.<sup>5</sup> The traditional result of (rational) planning is a set of maps for each interest (e.g. natural areas, housing areas and zones of particular biodiversity), that set the boundaries for subsequent siting decisions in specific cases; if an area has been identified as suitable for wind power, it tends to be easier to get a building permit in that area than in other areas and plans may also forbid wind power development in some areas (cf. Coles and Taylor, 1993).

This implies that wind power deployment cannot be understood only from the point of view of the handling of individual wind power projects but also has to take into consideration the land-use planning process that outlines the appropriate use of the local (municipal/regional) land area. Land-use planning is typically a matter of regulatory rather than public acceptance (cf. Carlman, 1984) and may follow quite a different logic than siting (Nadaï, 2007).

One particularly important difference between siting and planning is the difference in perspective with regards to conflicts of interests: Whereas the literature on siting

tends to describe conflicts as exogenous factors influencing the permit process, the balancing of different interests against each other is an inherent part of the land-use planning process. Indeed, planning is essentially about handling competition between different options for land-use (cf. Pasqualetti, 2000), both in terms of the ever-present tension between exploitation and conservation goals and in terms of competition between different incompatible exploitation purposes. In this paper, planning is thus seen as a mechanism for conflict resolution rather than as a barrier to renewables development (cf. Kellett, 2003). This implies that in order to understand the wind power planning process, we need to understand the multiple interests that may come in conflict with each other when wind power is concerned.

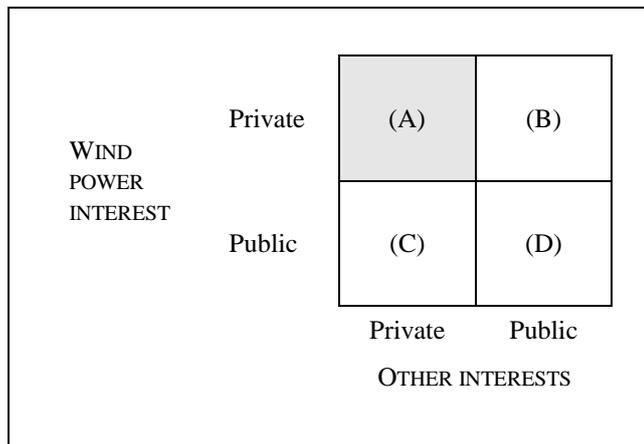
## *2.2 A framework for understanding competing interests related to wind power*

The previous literature's focus on social acceptance (or non-acceptance) of individual wind power projects has resulted in an emphasis of the conflict between wind power as a (inter)national public good and the various local, primarily private interests that give rise to negative public opinion (cf. e.g. Agterbosch et al., 2007; Bell et al., 2005; Breukers and Wolsink, 2007; Gross, 2007; Pasqualetti, 2000; Wolsink, 2000). This is, however, only one of several types of potential conflicts of interest with regards to wind power. In the following, a typology of four different types of conflicts of interest will be outlined, which takes into account (1) that wind power is not only of public interest but also of private interest and (2) that wind power may be in conflict not only with various private interests but also with public interests on the local level. The focus is on interests that may have an influence on local land-use planning practices, which implies that for example conflicting public interests on a national level will not be discussed.<sup>6</sup>

With regards to the arguments *in favour of* wind power, previous literature emphasises primarily the public interest of wind power in terms of its potential to reduce (a) CO<sub>2</sub> emissions in comparison to fossil fuels and (b) dependence on non-domestic energy sources, i.e. interests on a national (or even international) level. Local public interest in wind power is rarely mentioned in the literature, although some proponents of wind power argue that it may have positive effects on inward investments and tourism in rural communities (Strachan and Lal, 2004). Wind power is also of private interest to those who benefit from wind power investments, e.g. wind turbine owners and other stakeholders such as landowners that supply the land on which turbines are placed. These interests are normally related to specific wind power projects and are often of an economic nature, although wind power may also create other types of values (e.g. self-sufficiency in terms of electricity production for farmers or the personal satisfaction of contributing to a better environment).

With regards to arguments *against* wind power, the main reasons for opposing wind power projects (as described in previous literature) are summarised in Table 1. Many of these concern perceived negative effects on private interests, e.g. visual impact, noise and decreased property values.<sup>7</sup> Other conflicts of interest arise when wind power is seen to compete with various public interests, most notably environmental values, cultural values, social values and economic values. As indicated by Table 1, wind power may for example have negative effects on wildlife and vegetation, disturb cultural or historical landscapes, restrict city development, cause safety concerns, reduce the value of municipal property and have a detrimental effect on tourism.

Taken together, the arguments for and against wind power can be categorised into a matrix of four types of potential conflicts of interest, with the private – public interest dimension as the distinguishing factor on each axis (see Figure 1).



N.B. Type A is more a matter of siting than of planning, hence the grey shadow.

Figure 1: Four types of potential conflicts of interest related to wind power planning

(A) *Wind power as a private interest vs. other private interests.* For example, the economic interest of land owners to build wind turbines on their land may compete with some neighbours' interest of not having their view of the landscape disturbed by wind turbines. From a planning perspective, issues to consider with regards to this type of conflict of interest are to what extent wind turbine owners should be allowed to benefit on the expense of their neighbours and, vice versa, under what conditions the interests of individuals should be allowed to stop private investments in electricity production plants. However, as this type of conflict of interest tends to appear in relation to specific wind power projects, it is more a matter of siting than of planning.

(B) *Wind power as a private interest vs. various public interests.* For example, the economic interest of land owners to build wind turbines in an area may come into

conflict with municipal plans of city expansion into that area. From a planning perspective, issues to consider are to what extent private individuals should be allowed to benefit on the expense of common public values and, vice versa, under what circumstances public interests should be allowed to stop private investments. This type of conflict of interest is normally handled by taking land-use plans into consideration in the building permit (siting) process.

(C) *Wind power as a public interest vs. private interests.* For example, the public interest of reducing dependence on non-domestic energy sources could come in conflict with neighbours' interest of not having their view of the landscape disturbed by wind turbines. This is the type of conflict of interest emphasised in most previous research as described above. From a planning perspective, issues to consider are to what extent the public good should be prioritised over the interests of individuals and, vice versa, under what conditions the interests of individuals should be allowed to interfere with the public good. This type of conflict of interest is handled both proactively, i.e. by including wind power in land-use plans and by consulting private stakeholders in that process, and reactively, i.e. by taking the resulting land-use plans into consideration in the siting of private interest projects that require building permits or similar.

(D) *Wind power as a public interest vs. other public interests.* For example, the public interest of reducing dependence on non-domestic energy sources by building wind turbines in an area could come in conflict with municipal plans of city expansion into that area. From a planning perspective, issues to consider are how different public interests should be balanced against each other when in conflict. Hull (1995:15) describes the dilemmas involved:

“A basic dilemma ... is hitting the right balance between advancing the development and exploitation of renewable energy sources and furthering the purposes of areas designated for landscape and wildlife protection. /.../. Reconciling considerations of national economic growth and global sustainability with the equally ‘paramount considerations’ of local quality-of-life and national biodiversity is a trade-off local decision makers are having to make.”

As discussed above, one of the main roles of land-use planning is actually to provide the basis for making this kind of trade-off.

On the basis of this typology, the following research questions may be formulated for the empirical study:

- To what extent is wind power seen as a private interest and a public interest respectively? Has this view been influenced by the national planning instruments?
- How are different types of conflicts of interest handled in the local land-use planning process, i.e. how are public and/or private wind power interests balanced against other interests? Has the national planning instruments had an influence on this balancing process and, in that case, have they levelled the playing field for wind power in relation to other interests?

### **3. Methodology**

The empirical basis for this paper is a single-case study (Yin, 1998): The influence of two wind power planning instruments, implemented in a particular country (Sweden), is studied on the level of a particular Swedish county (the case of the County of Östergötland<sup>8</sup>).

This case was selected for three main reasons. First, at the point of study the wind power expansion in the County of Östergötland was about average in comparison to other Swedish counties,<sup>9</sup> implying that public planning officials had a large enough experience of wind power planning to have reflected on the balancing of conflicting interests in a systematic way. Second, the County was one of the two first counties to test the criteria for identifying areas of national interest of wind power suggested by the Swedish Energy Agency. Third, the County accommodates a particularly large number of areas of high cultural and environmental values and is also relatively densely populated and can therefore be considered an ‘extreme’ case with respect to the degree of potential conflicts of interest and, in consequence, with respect to the potential benefits of national planning instruments aiming at increasing the competitiveness of wind power in comparison to such interests.<sup>10</sup> Such extreme cases have the double benefits of making the phenomenon of interest easily observable (Eisenhardt, 1989) and of clarifying its deeper causes and consequences (Flyvbjerg, 2006).

The study is based on two main types of data. Descriptive data on the two national planning instruments were collected primarily from official documents (e.g. government bills and reports from central government agencies). For the most part, these were written in Swedish, which implies that most quotations are translations. Due to the use of official Swedish jargon in these documents, the wording may sometimes seem a bit awkward.

Data on the planning process in the County of Östergötland were collected primarily through semi-structured interviews with officials on county level and municipal level as well as with some wind power project developers (both local and national).<sup>11</sup> In

order to shed more light on the issue of competing environmental interests, interviews with representatives from some large environmental organisations were also included.

The interviews were first analysed using a qualitative descriptive method, in which themes were identified based on a scrutiny of interview transcripts. This process resembled the “open coding” procedure described by Strauss and Corbin (1990), but was guided by the researcher’s perception of which the most interesting issues were (primarily issues related to the official expectations of each planning instrument). Based on this analysis, the conflict of interest typology was developed, which was used in a second analysis.

Interviews were held in Swedish, which implies that all quotations are translations. To the degree possible, statements were translated word-for-word, preserving the tone of the spoken language. For example, if an interviewee used grammatically incorrect Swedish, no attempt was made to correct the flaws in the translation to English. However, many statements contained Swedish idioms, which would have made little sense in literal translation. In such cases, translations were formulated to capture the spirit of each statement rather than its exact wording. In some particularly complicated cases, a linguist was consulted.

#### **4. The influence of two Swedish national planning instruments on wind power planning in the County of Östergötland**

##### *4.1 Wind power in Sweden: A brief historical overview<sup>12</sup>*

Swedish wind power developments began in the mid-1970s with some company experiments and a government R&D programme. The focus was on MW-sized turbines and the main outcome was the erection of two large demonstration turbines.

The market developed very slowly. There were few incentives to build wind turbines, especially since electricity supply expanded greatly in the early 1980s when several new nuclear power plants were taken into operation. Although a delivery concession with an obligation for electricity distributors to accept electricity from small-scale producers at a reasonable price came into force in 1988 (European Commission, 1999), the total stock of wind turbine capacity only amounted to 8 MW in 1990.

In the early 1990s, however, a couple of market stimulation measures were put in place: an investment subsidy in 1991 and an environmental bonus in 1994.<sup>13</sup> These improved the economic conditions substantially. A small backlash came in 1999 when the delivery concession described above was discontinued. In compensation, however, the Government introduced a small, temporary production subsidy for grid-connected plants with a rated power of 1.5 MW or less (Swedish Government, 2002). As a result primarily of the market stimulation measures, the market expanded to almost 220 MW in 1999 (see Figure 2). In comparison to leading countries, this increase was, however, quite modest (see Table 2).

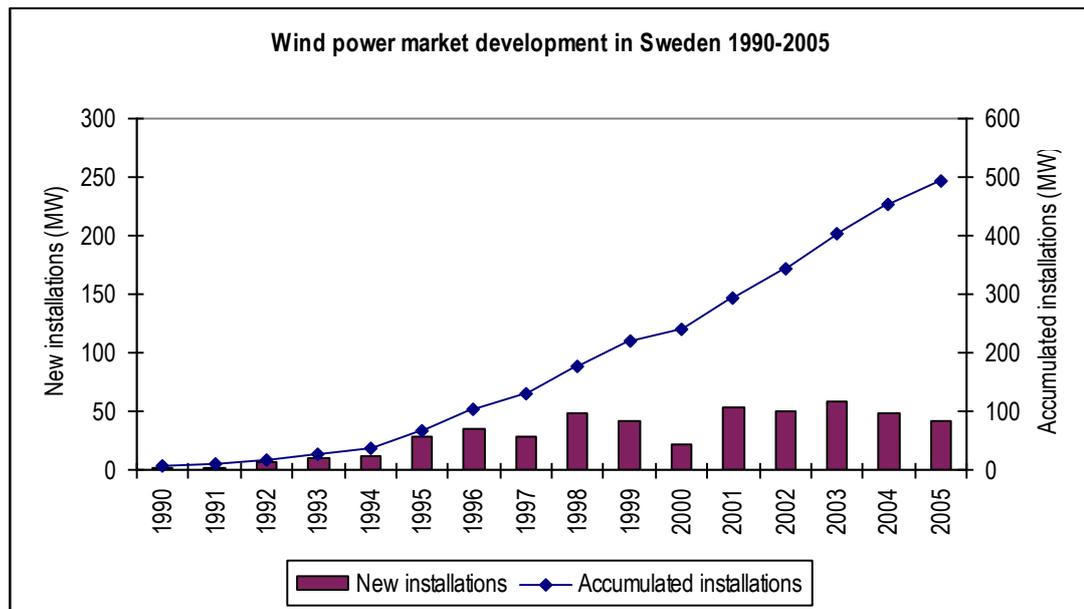


Figure 2: Wind power market development in Sweden 1990-2005. (Sources: Data from Elforsk (1997-2006) and Swedish Energy Agency (2001a))

TABLE 2: Accumulated installed wind power capacity 1990/1991 and 1999 (selected countries)

COUNTRY	1990/1991 (MW)	1999 (MW)	CHANGE 1990/91-1999 (MW)
Germany <sup>a</sup>	60	4,396	4,336
Spain <sup>b</sup>	5	1,584	1,579
Denmark <sup>c</sup>	342	1,775	1,433
India <sup>b</sup>	39	1,095	1,056
Sweden <sup>d</sup>	8	220	212

Sources:

<sup>a</sup> ISET (URL: [http://www.iset.uni-kassel.de:888/reisi/owa/www\\_page.show?p\\_name=121007&p\\_lang=eng](http://www.iset.uni-kassel.de:888/reisi/owa/www_page.show?p_name=121007&p_lang=eng) (Acc. 000223) + URL: [http://reisi.iset.uni-kassel.de/wind/reisi\\_dw.html](http://reisi.iset.uni-kassel.de/wind/reisi_dw.html) (frame address))

<sup>b</sup> Data for 1991 (nb) and 1999 from Earth Policy Institute (URL: [http://www.earth-policy.org/Indicators/indicator10\\_data2.htm](http://www.earth-policy.org/Indicators/indicator10_data2.htm) (Acc. 2006-05-22))

<sup>c</sup> EMD-online Vindkraft (URL: <http://www.emd.dk/emd-online/aktuellt/vindudbyg.htm> (Acc. 2001-06-01))

<sup>d</sup> Swedish Energy Agency (2001a)

The early 2000s saw some changes in the Swedish wind power market. Most notably, the Swedish parliament adopted a quota-based “green electricity certificate” system (Swedish Government, 2002). In this system, which was implemented in

January 2003, producers of renewable electricity were granted one certificate per megawatt of renewable electricity delivered to the electricity network, while electricity users were obligated to buy certificates corresponding to a certain percentage, or quota, of their total electricity use. The certificates were traded in a new electricity certificate market.

Under the certificate system, new investments were plagued by high levels of economic uncertainty. In the short term, uncertainty concerning certificate prices was added to already substantial uncertainty regarding electricity price levels. In addition, there was considerable uncertainty with regards to the long term economic conditions of wind power, since the certificate system had an end date of 2010. Project developers complained that the new electricity certificate system made it very difficult to obtain financing, especially for large wind power parks and offshore projects:

“No one knew what the electricity certificates would imply. It created an uncertainty and made it impossible for us to arrange financing.” (Magnus Rosenbäck, Managing Director of Eurowind, cited by Eriksson (2003))

This economic uncertainty was amplified by uncertainty related to the siting of wind turbines. Wind turbine project developers experienced problems in securing building and environmental permits, due to conflicts of interest and to parallel permit procedures which took a long time to complete (Khan, 2003; Åstrand and Neij, 2006).

As a consequence, wind power diffusion slowed down towards the mid-2000s. After a record year in 2003, when almost 60 MW of wind power were installed, yearly installations returned to the levels of the late 1990s, as further indicated by the 75% decrease in number of applications for environmental permits between 2001 and

2003 (Eriksson, 2003). Indeed, the average annual cumulative growth in installed capacity was only 15% in 2000-2005, to be compared with 44% in 1990-1999.<sup>14</sup> The gap to leading wind power countries was large and increasing (Vindbladet, 2003).

At the same time, there was a growing realisation that the off-shore wind power expansion was not going to meet expectations. Consequently, the need to deal with the problems related to land-use planning and permit procedures for land-based wind power projects became increasingly apparent. In particular, the absence of a national goal or vision was identified as a major obstacle hampering the planning process (SOU, 2003). Against this background, the Swedish Government adopted a national planning target and initiated a process to identify areas of national interest for wind power. As mentioned previously, these national planning instruments – and their influence on the local and regional planning levels – are the object of study in this paper.

#### 4.2 *Wind power planning in Sweden*<sup>15</sup>

In Sweden, wind power abides by the same legislation and rules as buildings and industrial activities, most notably the the Planning and Building Act and the Environmental Code. In contrast to e.g. Denmark (Khan, 2003), planning and localisation of buildings is primarily the responsibility of municipalities, although national targets and public interests have to be taken into account as well.

Municipal planning is exercised through different types of plans. Each municipality is required to have an up-to-date *comprehensive plan*, covering the entire municipality. In particular, areas of public interest should be identified.<sup>16</sup> The plan aids in the balancing of various interests against each other, but is not legally

binding. *Detailed development plans* and *Area regulations* cover limited parts of a municipality and are legally binding for authorities and individuals. When setting up plans, municipalities need to consult relevant stakeholders, such as central government authorities, associations and individuals. The Swedish planning process is thus a mix between the rational and communicative planning types described by Nadaï (2007).

It should be noted that there is a close relationship between land-use planning and siting in that the review of permits for buildings attaches great importance to the municipal plans. Projects that are not in agreement with detailed development plans and area regulations (if available) are rejected directly, as are usually projects that disagree with comprehensive plans.

With regards to wind power, the Swedish National Board of Housing, Building and Planning (2003) recommends municipalities to include wind power in their comprehensive plans, i.e. to identify areas that are suitable for wind power as well as areas in which wind power plants should be avoided. Some municipalities also use detailed development plans and/or area regulations to regulate wind power projects more in detail. These may, for instance, include issues such as the number of turbines allowed in an area and how these should be placed in relation to each other (plant design), the colour of turbines, maximum disturbance levels (e.g. noise) and the size of security areas around turbines.

The national government has, in principle, very little direct influence on the physical planning process. Although it, under certain conditions, has the right to direct municipalities to adopt, amend or annul detailed development plans or area regulations, such “planning injunctions” are very rarely used. Instead, the

Government's influence is exercised primarily through a number of central government agencies and the County Administrative Boards. The latter are responsible for regional co-ordination of planning and building administration. In particular, they are obliged to make sure that so-called 'national interests' (which are provided for in the Environmental Code) are taken into consideration in the local planning process. They are also involved in the review of environmental permits and in the appeal of building permits. With regards to the focus of this paper, it is important to note that the County Administrative Boards participated in the allocation of the national planning target to counties and were involved in the process to identify areas of national interest for wind power.

### *4.3 The national planning target*

#### *4.3.1 Background*

In 2000, the Swedish Energy Agency was commissioned by the Government to suggest a national planning target for wind power. Based on the agency's recommendations, the Government proposed a planning target of 10 TWh of electricity for wind power by 2015 (Swedish Government, 2002), which was accepted by the Parliament in 2002.

The official purpose of the target was to create "planning-related conditions" for an annual electricity generation of 10 TWh. It was emphasised that the target was not intended as a goal for future expansion of wind power in Sweden: "The target sets the limits for the national claim of the wind power interest on access to land and water areas and is, thus, not an expansion goal" (Swedish Government, 2005: 25). In other words, the planning target was to "be seen a manifestation [by the Government

and the Parliament] of the level of ambition with regards to creating necessary conditions for a future wind power expansion” (Swedish Government, 2002: 99).<sup>17</sup>

In order to make the national planning target practically useful as a planning tool for County Administrative Boards and municipalities, the Swedish Energy Agency initiated a process to break it down to county-level targets (Swedish Energy Agency, 2003). After workshops involving several government agencies and a majority of the Swedish County Administrative Boards,<sup>18</sup> planning targets were set for each county. The target for the County of Östergötland was set to 0.56 TWh per year by 2015, corresponding to 1.4% of the total allocation.

The expectations on the effects of the target seem to have been high. In government bills and reports from the Swedish Energy Agency, several benefits were stressed: The planning target would become the basis for regional/local planning (Swedish Energy Agency, 2001b), making the wind power interest visible in the general planning process and the review of permits (Swedish Government, 2002). More specifically, it would clarify the importance of planning activities on regional and local government levels (Swedish Government, 2002), induce planning bodies and decision-making authorities to assume responsibility for the realisation of the target (Swedish Energy Agency, 2003) and draw attention to the significance of wind power as a public interest (Swedish Energy Agency, 2003).

#### *4.3.2 The local reaction*

On a general level, local reactions to the national-level planning target seem to have been positive. In the interviews, several people said that the “top-level” attention for wind power was a good thing:

*“The target is a sensible idea in itself. It has confirmed wind power as a matter for the public sector to be involved in.” (Civil servant, county)*

*“It’s great to have targets and that Mona [Mona Sahlin, the Swedish Minister for Sustainable Development at that time] talks about it.” (Wind power project developer)*

*“It takes more of that!” (Wind power project developer)*

On the other hand, the target was perceived by some as a “paper tiger”, i.e. as somewhat unrealistic and possibly ineffectual:

*“A bit fuzzy, nothing concrete. Doesn’t say anything more than that it is a figure on a piece of paper” (Wind power project developer)*

*“The conditions have not been created.” (Wind power project developer)*

The target therefore seemed distant even for those who believed that the technical and economic potential for wind power expansion in Sweden was much larger. One wind power project developer even said that the target was “a utopia”.

The interviewees also emphasised that the target could not be expected to have anything but a limited effect on wind power investments, since these were guided primarily by economic incentives:

*“It is a micro-level process: People who build wind power do not glance at the target, but instead see to the economic benefits for the property.” (Civil servant, county)*

*“[T]he economic incentives ... are decisive. The people who want to build are not glancing at the target, but look at the economic benefits for the property.” (Civil servant, municipality)*

*“I don’t think that the target has meant much for the expansion so far – the projects that are planned now would have been developed anyhow.” (Civil servant, municipality)*

*“Targets are great, but the tricky thing is that we have a free market – no one is pointing his finger, saying ‘build!’. There has to be people who are interested in building wind power. If it works or not depends on the process and on whether companies dare to invest.” (Representative of environmental interest organisation)*

Thus, on the one hand the planning target strengthened the perception of wind power as a national public interest, but on the other hand the importance of having private wind power interests rather than public ones on the local level was emphasised.

However, as described above the planning target was not intended to stimulate expansion directly but to facilitate wind power planning in a number ways. With respect to whether the target clarified the importance of planning activities on regional and local government levels, it was quite clear from the interviews that the planning target was somewhat superfluous. There were other incentives for wind power planning, to which the national target did not add much. In particular, a growing number of applications for building permits for wind power had “forced” municipalities to appreciate the importance of wind power planning and had stimulated them to make wind power amendments to their comprehensive plans:

*“It is the reconciliation of different interests that have spurred the municipalities; they have discovered that if they don’t have a basic idea [of where to put wind power], it is impossible to handle individual projects.” (Civil servant, county)*

*“The appointed areas [in the comprehensive plan] were identified before the target was set. The target could possibly make you rise above yourself in your mind.” (Civil servant, municipality)*

*“The comprehensive plan for wind power was developed because of the large [application] pressure, which couldn’t be handled by building permits alone.” (Civil servant, municipality)*

The target was also expected to induce planning bodies and decision-making authorities to assume responsibility for the realisation of the target. The interviewees indicated that there was a gap between the national level and the regional and local levels in this respect:

*“What they say ‘up there’ never reaches the County Administrative Boards and the municipalities. They don’t care that someone says something up there.” (Wind power project developer)*

*“Some government authorities may perhaps take it into account when they make their judgements, but most of them have not turned talk into action.” (Wind power project developer)*

*“The target ... is not an incentive – the projects that are being realised are private projects and municipalities don’t care.” (Civil servant, county)*

This impression was confirmed in the interviews with municipal civil servants. With only one exception, municipalities had not estimated how much they could or should contribute to the county planning target. Neither did most of them see the planning target as an incentive to facilitate wind power planning. The main reason for this was that the County of Östergötland had already met its county target. Municipalities therefore did not see it as their responsibility to stimulate further wind power expansion:

*"Those who want to build use the target as an argument in the discussions with the municipality: 'Don't you know that there is a national planning target?' /.../ The municipalities respond that the County doesn't have a problem to meet its share of the target." (Civil servant, municipality)*

*"Östergötland is close to meeting its target – therefore it gives no incentive." (Civil servant, municipality)*

There was also very little sign of a felt responsibility for the national target as a whole in the interviews. None of the municipal civil servants expressed a will to contribute more to the national goal than stipulated by the county target, as exemplified by the following statement:

*"You could of course say that it may be positive to be able to contribute with more, but [pause] it does give an obvious change of the landscape." (Civil servant, municipality)*

The target, thus, does not seem to have drawn attention to the significance of wind power as a public interest in the County of Östergötland. Indeed, according to the interviews it seemed to have had almost the opposite effect; in the eyes of most civil servants at municipal and county levels, any expansion above the county target was of private rather than public interest:

*"There is an opinion that wind power is not of general interest." (Civil servant, municipality)*

*"[We] see wind power as a private exploitation interest, partly because we see that Östergötland will meet its target and that the public interest, therefore, is limited." (Civil servant, municipality)*

*“[With regards to general public goals such as renewable energy versus private exploitation interests], we see wind power as the latter ... Maybe if it was an acute situation, where you realised that you wouldn’t meet the target, but when you see that you will ... [pause]” (Civil servant, municipality)*

As a consequence, municipalities tended to treat wind power as one of many private interests on the local level. To facilitate wind power planning was thus a sensitive issue, since it was not considered legitimate to support a particular private interest, especially not on the expense of other interests or stakeholders. Civil servants on local and regional government levels therefore expressed some hesitation on this matter:

*“How generous are you supposed to be to those who own land?” (Civil servant, county)*

*“First and foremost no individual should be unduly affected” (Civil servant, municipality)*

In summary, the case of the County of Östergötland indicates that although the top level attention given to wind power as a result of the national planning target strengthened the perception of wind power as a public interest on the national level, it did not meet the expectations with regards to planning on the local level. Indeed, instead of drawing attention to the significance of wind power as a public interest on the local level, the target seems to have resulted in the general opinion that any wind power expansion above the county-level target was a matter of private rather than public interest. This was in part due to the fact that the county target was set on a too low level<sup>19</sup> – since the county target had already been met, local and regional planning officials concluded that further measures to stimulate wind power planning was not in the public interest. They, thus, had little incentive to take further responsibility for the realisation of the national target.

#### *4.4 The identification of areas of national interest for wind power*

##### *4.4.1 Background*

In 2002, the Swedish Energy Agency initiated a process to identify areas “of national interest for electricity production from wind power”.<sup>20</sup> In general, areas of national interest may be appointed for activities that are of national importance, are necessary for important and useful social public functions or are needed in order to fulfil the need for a certain type of production in the country (or part of the country). In the case of wind power, the first criterion was the most important one.

When an area is of national interest for a particular purpose, activities that may cause “significant adverse impact” to that purpose should not be approved (National Board of Housing, Building and Planning, 2005). Therefore, municipalities are required to account for areas of national interests in their land-use planning process. One purpose of the appointment of areas of national interest for wind power was, thus, to make local governments plan for wind power:

“If areas of national interest for wind power are appointed ..., the affected municipalities are required to show in their comprehensive plans how they intend to provide for this interest.” (SOU, 1999: 57)

If an area is of national interest for a particular purpose it also implies that municipalities and other government authorities should not plan for or give permits to activities within or in close proximity to such areas that could make significantly difficult their utilisation for the intended purpose (SOU, 1999). National interests are, thus, protected from infringement by other interests. A second purpose of the appointment was to provide wind power with this type of protection in relationship to other public interests.

The main purpose was, however, to improve the “competitiveness” of wind power in comparison to established national interests. It had been recognised that wind power projects often came into conflict with established national interests, such as nature conservation, conservation of the cultural environment and outdoor recreation, with which it could not compete unless it was a national interest itself:

“Unless areas of national interest for wind power are appointed, it is impossible to weigh wind power against other national interests in an area ...” (SOU, 1999:40)

“... in order for the wind power interest to be able to uphold itself in competition with other established national interests of conservative as well as exploitative nature” (Swedish Energy Agency, 2003:3)

Thus, the main purpose of the appointment was to level the playing field so that wind power could compete on equal terms with other national interests in selected areas.

Finally, in order to be of national interest, an area needs to be particularly suitable for the activity in question, either through its character or its location. It must also be able to offer natural resources which are specific for the location. In line with this, the appointment of areas of national interest for wind power was expected to send a signal that these areas were well suited for wind power expansion.

The first step in the process to identify areas of national interest for wind power was to set the criteria to be applied by the County Administrative Boards, which were expected to suggest areas for appointment. These criteria were discussed in workshops and tested by two counties (Skåne and Östergötland) before they were laid down by the Swedish Energy Agency (Swedish Energy Agency, 2003).<sup>21</sup> The criteria were sent to the County Administrative Boards that applied them and reported back to the Energy Agency. Based on their reports and on discussions with

several other central government agencies, the Energy Agency appointed 49 areas of national interest for wind power distributed over 13 Swedish counties.

Due to the design of this process, where the County Administrative Boards were involved in identifying potential areas of national interest for wind power, it is interesting to study both the identification process and the ex post facto influence of the areas that were actually appointed.

#### *4.4.2 The local reaction: identification and influence of areas of national interest for wind power*

As mentioned above, the County of Östergötland was one of the first counties to apply the criteria set by the Swedish Energy Agency. The County Administrative Board applied the criteria and identified a number of potential areas, but municipalities showed great concern that these were not suitable to be of national interest for wind power due to the large degree of conflict with other public interests.

In the interviews, municipal civil servants described how they assessed the suggested areas in the same way as they had earlier identified areas suitable for wind power in their comprehensive plans: the method of elimination. They started with areas with good wind conditions. From these, they eliminated areas with local public interests, especially established areas of national interest for the purpose of nature conservation, conservation of the cultural environment, fishing, outdoor recreation etc. and also more general public interests such as future expansion of city centres and landscape protection:

*“The national interests ... and the landscape seem to come first. Then plans for city expansion are added ... and then there is not much space left for wind power.” (Civil servant, municipality)*

The expansion of population centres seems to have been given especially high priority:

*“It is of greater importance.” (Civil servant, municipality)*

*“Everyone is perfectly aware that it is more important to protect the value of living and the possibilities of a future expansion than to build wind power.” (Civil servant, municipality)*

*“There is a strong municipal will to market seaside living as just that, and those kinds of interests carry greater weight.” (Civil servant, municipality)*

Thus, municipalities in the County of Östergötland did not want to allow wind power to co-exist with any other public interests. This was reported back to the Energy

Agency:

*“The areas in Östergötland that have good enough wind energy conditions are relatively few, six in total. Four of these areas are small and can probably house a maximum of 10 MW each. Here there are also strong competing public interests, of conservative as well as exploitative nature. The archipelago and Lake Vättern are of reasonable size, but are also to a large extent subject to competing public interests that may exclude wind power expansion entirely or partly, among other things areas with ancient remains, cultural environments, outdoor recreation or high natural values that are protected by nature reserve regulations and/or Natura 2000. /.../ The scope for the building of wind power plants within the areas that may constitute areas of national interest according to the stated criteria is, therefore, severely limited.” (County Administrative Board of Östergötland, 2004)*

The communication with the Energy Agency was described as follows by one of the county-level civil servants in charge:

*“We answered the Energy Agency that we had some areas that met the criteria, but that there were other interests of great weight in those areas. The Agency also asked us if we believed that the areas would contribute much to an increased wind power expansion in Sweden and we said ‘no’.” (Civil servant, county)*

In lack of official documentation of how the report from Östergötland was received by the Swedish Energy Agency and on what basis the Agency came to its decision on which areas to appoint as national interests for wind power, we can only say that the fact that none of the controversial areas in the County of Östergötland were

appointed indicates that the opinion of the County gained support by the Swedish Energy Agency. Indeed, only one of the 49 areas of national interest for wind power was located in the County of Östergötland (on the border to the County of Södermanland).

Most municipalities in the County of Östergötland seem to have been content with the decision:

*“Some probably thought that the County Administrative Board was overly cautious, but most municipalities were pleased.” (Civil servant, county)*

*“It was relieving that no areas of national interest for wind power were appointed in the municipality ...” (Civil servant, municipality)*

*“We liked the County Administrative Board’s statement, from our own little perspective.” (Civil servant, municipality)*

However, at the same time the interviewees seemed to be quite in agreement that the area that was appointed in the County of Östergötland was neither the one most interesting one from a wind power point of view, nor unproblematic from the point of view of other interests:

*”[T]he area that was appointed [in the County] was less interesting than that suggested in Lake Vättern.” (Civil servant, municipality)*

*“The area that finally was appointed is a seal sanctuary and an environmental protection area and other things ... It’s a bit difficult to understand why it wasn’t possible to have Lake Vättern when it was possible there.” (Civil servant, municipality)*

The fact that only one small area of national interest for wind power was appointed in the County obviously implies that the appointment did not affect actual planning practices to any greater extent. Nevertheless, the interviews gave some indication on the influence of the appointment on the balancing of wind power and other interests.

Some interviewees acknowledged that the appointment of areas of national interest for wind power may indeed have placed wind power on level with other national interests:

*“Good that they did the job. Then, wind power will really be taken into account, get a formal status and be able to compete with other national interests and will sometimes be judged to be more important than them.” (Civil servant, county council)*

*“It could, perhaps, be a support for the County Administrative Board so that they could accept, for example, an intrusion in the cultural environment interest.” (Civil servant, municipality)*

Most interviewees, however, seemed to agree that it would not have mattered much if there had been areas of national interest appointed for wind power in their municipality:

*“It wouldn’t influence our judgement ...” (Civil servant, municipality)*

*“I don’t think it would have mattered much in practice ...” (Civil servant, county)*

*“One may wonder what good it would do ...” (Civil servant, municipality)*

The primary reason was, according to the interviews, that other national interests would have been considered to be more important than wind power anyway.

*“It could have helped when national interests collide, but there are so many other interests that they, taken together, become much stronger than wind power.” (Civil servant, municipality)*

*“[It wouldn’t have increased the possibilities to build in the areas since they were small and wind power wouldn’t have won the competition with other national interests.” (Civil servant, county)*

*“[I]t seems like other national interests, generally speaking, are seen as more important than a potential national interest for wind power.” (Civil servant, county)*

*“[There is already a Natura 2000 area in Lake Vättern, which is more important than a national interest for wind power.” (Civil servant, municipality)*

These statements are quite interesting since the balancing of incompatible national interests in a particular area is required by law to give priority to the interest that is most likely to promote sustainable management of land, water and the physical

environment in general (Ds 2000:61). No such assessment was however done in this case – instead the method of elimination was used by municipalities.

In summary, the case of the County of Östergötland indicates that the appointment of areas of national interest for wind power did not have the intended effect in that it did not strengthen wind power in comparison to other public interests. Indeed, the method of elimination used in the identification of potential areas of national interest for wind power (and in the development of municipal comprehensive plans) rather forced wind power to yield not only to national interests but to all public interests as well. By allowing counties to exclude areas with large conflicts from becoming areas of national interest for wind power the Swedish Energy Agency further strengthened this effect by sending a signal to the municipalities that it was alright to treat wind power as less important than other national interests.<sup>22</sup> Moreover, although it is difficult to determine whether the appointment has provided protection for wind power in comparison to other public interests since only a small area was appointed in the County, municipality civil servants stated that they would not give wind power priority over other interests even if it was of national interest somewhere in their municipality. Instead, they would continue to put other public interests – especially other national interests – before wind power.

#### *4.5 National planning instruments and the balancing of competing interests in the County of Östergötland: a synthesis*

The purpose of this section is to interpret the results of the empirical study in terms of the typology presented in Section 2. With respect to the first research question, local planning officials interviewed for the case study saw wind power as a public interest on the national level, but primarily as a private interest at the local level. The

national planning target strengthened this view further, much due to the low commitment to the target. In contrast, the appointment of areas of national interest in wind power to some extent forced municipalities to consider wind power as a public interest in the planning process, although perhaps not with the intended outcome (as described above).

This has some effect on the handling of different types of conflicts of interest (the second research question). Since wind power is seen primarily as a matter of private interest on the local level, conflict types (A) and (C) are treated much in the same way, i.e. as a conflict between different private interests (see Figure 3). Such conflicts are handled on a case-to-case basis in the building permit (siting) process.

As described in Section 2, conflicts between private wind power interests and public interests on a local level (Type B conflicts) are handled by taking municipal comprehensive plans into consideration in the siting of specific wind power projects. The national planning instruments have not had any impact on this process since they were focused on strengthening the position of wind power as a public, not private, interest. An observation from the case study was, however, that in municipalities where there are many public interests, it may be tremendously difficult to find suitable areas for wind power when it is treated as a private interest in conflict with those public interests:

*“The County Administrative Board has placed the areas of national interest so that they lay a ‘dead hand’ over large areas ...” (Civil servant, municipality)*

The handling of Type B conflicts of interest is however also dependent on the handling of Type D conflicts, i.e. the balancing of wind power as a public interest and other public interests in the land-use planning process. If wind power was treated

as any other public interest in comprehensive plans, it would be easier for private wind power interests to find appropriate sites for specific wind power projects.

In the County of Östergötland, however, the handling of Type D conflicts of interest resulted in plans that seemed to restrict rather than enable access to suitable areas for wind power; since it was done through the method of elimination, the few areas that were identified were not necessarily either appropriate or available for wind power exploitation:

*”They didn’t identify areas in which the wind blows. Instead, they chose all areas in which there are no other interests and in which wind power may be accepted. [It] can end up in really strange areas that are supposed to be suitable, but in reality are only empty of everything else. There may be too little wind. They may be located at the border between municipalities, which causes conflicts. There may be conflicts between land owners.” (Project developer)*

Indeed, in the interviews several civil servants spoke in terms of finding “acceptable” rather than “suitable” areas for wind power, i.e. areas where wind power caused as little disturbance as possible to public interest such as the conservation of cultural or natural environments. In the words of one civil servant, the ambition was to find “areas in which the landscape has particularly high tolerance”.

Thus, due to this method of elimination the wind power interest was outcompeted by the combined strength of other public interests. Instead of strengthening wind power as a public interest, the low county target made local civil servants see wind power as a less important public interest (or even as a private interest) and this view was further strengthened as the method of elimination was at least indirectly sanctioned by the Swedish Energy Agency in the process of identifying areas of national interest for wind power.

WIND POWER INTEREST	Private	(A) <i>Handled through siting (building permit process);</i>	(B) <i>Handled through siting (building permit process);</i>

	<i>local opinion may cause project delays</i>	<i>plans restrict access to appropriate sites</i>
Public	(C) <i>Public interest of wind power not emphasised =&gt; handled as Type A</i>	(D) <i>Method of elimination; wind power outcompeted by the combination of other public interests</i>
	Private	Public
	OTHER INTERESTS	

Figure 3: The handling of different types of conflicts of interest in the county of Östergötland.

## 5. Conclusions and discussion

Previous literature on wind power planning has focused the conflict of interest between wind power as a national public interest and various, primarily private interests. It has highlighted the mismatch between on the one hand national policies and arguments used by wind power proponents who emphasise the public good nature of wind power in terms of environmental benefits and self-sufficiency in terms of electricity production and on the other hand the arguments from people opposing specific wind power projects who emphasise the impact on wind power on the local environment and private interests. This conflict of interest has been interpreted in terms of lack of social acceptance for wind power.

*A first conclusion* from this paper is however that several other types of conflicts of interest are related to wind power: wind power competes as a private interest with other private interests and with different public interests on the local level and also as a public interest with other public interests. Thus, the diffusion of wind power may not only be hindered by competition from private interests (lack of social acceptance), but also by competition from local public interest (lack of regulatory acceptance). From a planning perspective the second type of conflict of interest is the most interesting, since these are the conflicts of interest land-use planning are primarily supposed to handle.

In addition, whereas most previous studies seem to have taken the public good nature of wind power as a given, *a second conclusion* from this paper is that a national public interest for wind power does not necessarily translate to a local public interest. The case study revealed that the public good nature of wind power was de-emphasised on the local level, with the consequence that municipalities – quite in contradiction to the expectations on the national government level – did not consider wind power promotion according to the national planning target their responsibility. As will be discussed more in detail below, one implication of this was that wind power was not considered equally important as other public interests in the development of municipal comprehensive plans, which resulted in difficulties finding appropriate sites for wind power projects since wind power was rarely prioritised over competing public interests at the municipal level. Another implication was that most conflicts of interest between wind power and private interests were handled as conflicts between competing private interests. In this competition, local civil servants did not feel that they could benefit wind power on the expense on other private interests (such as those of other land owners).

This provides a complementary perspective on the siting problems described in previous literature: lack of public acceptance of wind power in the local land-use planning process may be an important factor to consider as well. The emphasis on wind power as a private interest in competition with other private interest could also provide a complementary explanation for the observation that locally owned wind power projects tend to get stronger support (cf. Breukers and Wolsink, 2007; Christensen and Lund, 1998; Jobert et al., 2007; Kellett, 2003; Strachan and Lal, 2004; Toke et al., 2008; Wusterhagen et al., 2007); not only are people less prone to

oppose wind power projects that they benefit from themselves, but it is also likely that the existence of strong local private interests for wind power would make it easier for local civil servants to justify approving wind power projects in competition with other competing private interests.

In light of these observations, the main purpose of the national planning instruments to strengthen wind power as a public interest in the local land-use planning process seems highly relevant. However, *a third conclusion* from the case study was that this purpose was not served as intended. With respect to the national planning target, civil servants even became more inclined to treat wind power as a private interest when the county target had been met. One reason for this was that the target was not set high enough to provide legitimacy for wind power as a public interest.

In contrast, the appointment of areas of national interest of wind power did force the County Administrative Board and the municipalities to consider wind power as a public interest. However, instead of treating wind power as equally important as other public interests they used the method of elimination employed in the comprehensive planning also in this process. Wind power could obviously not compete with the combined strength of all other competing public interest and, thus, the wind power interest was rather weakened than strengthened.

The main policy implications of these conclusions are the following. National governments need to acknowledge the existence of competing public interests on the local level and to ensure that wind power is made equal to other public interests, so that an assessment of the real impact of wind power projects on specific, competing public interests are made on a case-to-case basis instead of entire areas being exempted from wind power exploitation beforehand. There thus have to be strong

enough incentives for local governments to take on their part of the responsibility for wind power diffusion. Articulating (and perhaps also creating) local benefits from wind power projects may be one way forward; just like local ownership of wind turbines may overcome problems in the siting process, local public benefits may be a way to gain regulatory acceptance from local governments. However, the difficulties experienced by local governments when balancing these competing interests have to be acknowledged as well. It is certainly not a trivial matter to determine whether increasing renewable electricity generation or preserving the cultural landscape is more important in a specific situation! Local governments need tools to aid them in the balancing process, such as common guidelines on how to identify areas suitable for wind power and on how to assess the impact of wind turbines on different types of public interests.

As the case of the county of Östergötland demonstrates, the two Swedish national planning instruments – planning targets and areas of national interest for wind power – neither strengthened wind power as a public interest, nor provided any support for local governments with respect to how they should deal with conflicts of interests. Instead, they rather helped municipalities and the county to avoid handling these conflicts. In consequence, wind power was left to fight an uphill battle rather than meeting other interests face-to-face on a level playing field.

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<sup>1</sup> The UK Government has also issued planning policy guidance notes on a couple of occasions (cf. Toke, 2005).

<sup>2</sup> Bell et al. (2005: 460) describe the NIMBY syndrome as a proposed “gap between an attitude motivated by concern for the ‘common good’ and behaviour motivated by ‘self-interest’.”

<sup>3</sup> According to Wolsink (2000), less than 5% of the resistance against wind power projects can actually be explained by ‘true’ NIMBYism.

<sup>4</sup> An exception is Christensen and Lund (1998) who describe the Danish planning system, in which wind turbine planning was included in regional planning in the mid-1980s and in municipal planning in the early 1990s. Jobert et al. (2007) describe the use of national planning instruments in Germany and France, but do not include these instruments in their subsequent analysis.

<sup>5</sup> In some countries planning decisions concern primarily the national scale and are made by the state, whereas siting concerns small-scale decisions made on a non-state (municipal) level (cf. Bell et al., 2005; Nadai, 2007).

<sup>6</sup> E.g. conflicting use of financial resources, military considerations etc.

<sup>7</sup> It should here be noted that some researchers describe visual impact as a negative influence on a public good, i.e. the landscape. However, the public interest is generally not concerned with aesthetic values and as stated by Pasqualetti (2000:393), “just because wind-power generation is visible, it is not necessarily harmful.” Indeed, research has shown that people worried about the visual impact of wind turbines are usually concerned about the mere visibility of the landscape rather than of any effect on flora or fauna (Woods, 2003).

<sup>8</sup> The County of Östergötland is located in the south-east part of Sweden. It has approximately 412,000 inhabitants and covers an area of 10,562 km<sup>2</sup>. Linköping is the seat of government.

<sup>9</sup> When the planning instruments were implemented, there were roughly 50 wind turbines in the County, corresponding to an electricity generation of approximately 67 GWh per year, which implies that the County’s share of Swedish wind power was approximately 7-8% (elaboration on data supplied by Elforsk (1997-2006)), which was more than its share of the total population and land area.

<sup>10</sup> For example, the County houses many of Sweden’s oldest churches, dating back to the 1100s, and several of the lakes are well-known for their interesting bird life and have been designated Natura

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2000 sites in accordance with the European Council's Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

<sup>11</sup> The study is focused on those municipalities where it is possible to build wind power; some densely populated municipalities and woodland municipalities have, therefore, been excluded.

<sup>12</sup> This section draws heavily on Johnson and Jacobsson (1999) and Bergek and Jacobsson (2003). For more details on government subsidies and other policy instruments, see Åstrand and Neij (2006).

<sup>13</sup> The investment subsidy was in place 1991-2002, but with different levels of support (10-35% of the capital investment) (for more details, see Åstrand and Neij (2006)).

<sup>14</sup> Elaboration on data supplied by Elforsk (1997-2006) and the Swedish Energy Agency (2001a).

<sup>15</sup> This section is based primarily on information from the Swedish National Board of Housing, Building and Planning (2003, 2005).

<sup>16</sup> In practice, the comprehensive plan is often summarised as a map on which areas that are suitable or unsuitable for different types of activities are marked.

<sup>17</sup> The distinction between a planning target and an expansion goal is far from clear. However, according to the Swedish Government (2002) a planning target expresses higher level of ambition than an expansion goal.

<sup>18</sup> In addition to the Swedish Energy Agency, the National Board of Housing, Building and Planning, the Swedish Environmental Protection Agency and the National Heritage Board were involved.

<sup>19</sup> According to the County Administrative Board of Östergötland, even a conservative assessment would result in a potential of approximately 0.7 TWh. The County of Östergötland reached its county target more than ten years in advance, which also indicates that the target was quite low.

<sup>20</sup> It should be noted that this does not imply that wind power plants will be allowed in the area (SOU, 1999).

<sup>21</sup> The main criterion was that the wind energy should exceed 3,800 kWh/m<sup>2</sup> and year. Some areas were, however, excluded: some mountain areas, national parks, sea locations at large depths and areas with co-located buildings (Swedish Energy Agency, 2003). Areas smaller than 1.5 m<sup>2</sup> were also excluded.

<sup>22</sup> It should be noted that the Environmental Code provides that appointment of areas of national interest should be done without any consideration to other public interests (SOU, 1999).