IMPLEMENTING NATIONAL POLICY AND LOCAL PLANNING - Swedish wind power development and third generation mobile phone system as cases

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IMPLEMENTING NATIONAL POLICY AND LOCAL PLANNING

Swedish wind power development and third generation mobile phone system as cases[1]

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Abstract

The paper analyses the permit process for Swedish wind power development in terms of two paradigms of spatial planning and environmental management, and makes a comparison with the Swedish 3G mobile phone infrastructure development. Swedish Parliament has set a goal of 10 TWh annually wind electricity for 2015, and the Swedish Energy Agency has proposed 30 TWh from wind power by 2020. The present 900 windmills would have to increase to between 3000 and 6000. A government commission has examined the possibilities of making the permit processes more efficient to allow for rapid development. A proposal has recently been published. It has been criticised for letting environmental permit procedures replace local planning as the instrument of spatial planning of development. So, on one hand there is a national drive to increase the speed of wind power development, where legal changes is one measure taken, and on the other there is a strong tradition of local dominance in the spatial planning system.

Swedish wind power deployment — like the 3G infrastructure — is mainly governed by two sets of legislations with different histories and partly different purposes, the Planning and Building Act (PBA), and the Environmental Code. At present windmills require a building permit and in the case of a wind farm a municipal detailed development plan in accordance with the PBA. Under the Environmental Code larger generators require a permit and smaller ones need to be registered. The PBA processes are municipal whereas the environmental come under the County Administration or the Environmental Court.

These two sets of legislation can be seen as expressions of two competing paradigms of environmental governance, *the planning paradigm* and *the environmentalist paradigm* for short. They are theoretical constructions based in an analysis of professional cultures of planning and environmental management. They were

used also in the analysis of the Swedish 3G development. 3G was developed between 2000 and 2007, with four licence winning operators supposed to build competing systems each covering more than 99,98 percent of the population by 2003. The coverage at that time was substantially lower and the municipal permit handling was blamed and it was considered that this "could not have been foreseen", helping operators avoid sanctions for breach of licensing conditions. It has been shown that a slow municipal permit process can't explain the lack of coverage.

Development of wind power as well as of the 3G infrastructure in Sweden are interesting fields of conflict between national goals for technological development and local spatial planning and governance of land use. They are also instances of the legislative and paradigmatic struggle of the PBA and the Environmental Code. We examine the implications of the attempts to simplify permit processes as an element in this struggle.

The paper is based on a study, which includes the legal design as well as interviews with key figures in the Swedish wind power development and a study of the 3G development within the research programme "Tools for environmental assessment, MiSt".

Content

Introduction

Swedish wind power deployment – like the infrastructure for the third generation mobile phone system, 3G – is mainly governed by two legislations with different histories and partly different purposes, the Planning and Building Act (PBA), and the Environmental Code. At present windmills may require both planning and permits under both sets of legislation. The PBA processes are municipal whereas the environmental come under the County Administration or the Environmental Court. Sweden has a strong local dominance in the spatial planning system. The outcome of a national development agenda with land use implications will therefore rely on implementation in a local context.

Wind power development can be analysed from many angles such as energy policy, economics, sustainability etc. This article deals with a type of implementation dilemma, described in terms of two *paradigms* in the management of the spatial environment. The implementation of a national system of infrastructure entails changes in the local landscape – be it windmills or 3G masts – and the outcome of a national development agenda with land use implications will rely on implementation in a local context. This is a natural conflict between the national and the local level where local decisions will cumulatively determine whether a national policy goal can be reached or not. This raises the primary question of how to balance the control over spatial planning and the legitimacy of centrally governed development, which depends on dispersed deployment. The article discusses the role of wind power in terms of this conflict. A second question refers to which rationale that controls the decisions of national implementation. Should for instance windmills be located on the objectively best wind sites or where they are acceptable in a regional or local context? The case of 3G is then used as a further example, showing both similarities and

dissimilarities in relation to the case of wind power to draw lessons from.

Photo: Mats Pehrson.

Wind power deployment can have several impacts on regional and local landscapes. Decision making on localisation of individual structures that cumulatively determine the outcome of a national policy or programme is therefore an important question in implementation. Central to implementation are thus questions of who has the right to decide connected to what type of knowledge that is allowed to support these decisions. Both the wind power and the 3G infrastructure development in Sweden are instances of paradigmatic struggles in the governance of landscape. The PBA and the Environmental Code represent codifications of two paradigms of this governance that we identify. This conflict involves what knowledge is considered a legitimate basis of decisions, the relationship between the sets of legislation governing the landscape and the power distribution between the national and the local levels. We examine the implications of the attempts to simplify permit processes as an element in this struggle.

Within a framework of rational decision making a common conception of strategic decision-making is one of a hierarchical system with an in creasing level of detail as one move down to implementation and daily operation. This is termed *tiering* in the Strategic Environmental Assessment literature (Lee & Walsh 1992). The tiered system is assumed to be internally consistent, top-down and in the case of environmental issues based on a scientific, calculating rationality (Sager 1994, Emmelin & Kleven 1999). The higher levels are assumed to set clear limits to the degree of freedom of lower limits using for example binding and quantitative norms in the form of environmental standards and thresholds. The case of wind power deployment in Sweden illustrates problems of the

simplistic assumptions on which much of environmental assessment and governance is based. The development of wind power as well as of the 3G infrastructure in Sweden are interesting fields of conflict between national goals for technological development and local spatial planning and governance of land use.

The problems of local implementation of national policies have interested political scientists for a long time as exemplified by Wildavsky's (Pressman & Wildavsky 1973) ground-breaking studies and the concept of "street level bureaucrats" (Lipsky 1980). How implementation is enhanced, hindered or deflected by local decision makers within the same policy system has been the main focus. In infrastructure planning the environmental assessment system has in particular been blamed for delays and increasing costs of major road projects (Emmelin & Lerman 2004). This discussion has largely ignored the findings by Flyvbjerg at al (2005) that large infrastructure projects as a rule have dramatic cost increases due to optimistic – or as Flyvbjerg claims often fraudulent – initial cost estimates. Changing the permit system in order to reach the environmentally driven goal for wind power development would seem to open for changes of the systems that would be less acceptable to the environmental movements. Nilsson et al (in press) have recently studied similar mechanisms for local decisions on waste incineration in Sweden where national policy is implemented at local level and in conflict with other local concerns.

The paper is based on a study which includes the legal design as well as interviews with key figures in the Swedish wind power development made by Larsson (in prep) and a study of the 3G development (Larsson 2008) within the research programme "Tools for environmental assessment, MiSt" funded by the Swedish Environment Protection Agency.

Wind power in Sweden

Swedish wind power development has fallen behind the development in countries such as Denmark, Germany and Spain during the last decade or two, even if Sweden collected about the same amount of energy from wind power in the early 1990's (Söderholm et al. 2007, p 369-270, Vindkraftshandboken 2008, p 12). Carlman concludes that in Denmark and USA there were early investments made through governmental funding, in unlike, for instance in Great Britain. The British attitude towards wind power was in the 1970's and 1980's similar to the combination of energy politics and lack of drive for wind power that was the case in Sweden during the same time (Carlman 1990 p 39-40). In recent years the political will and actions to speed up the development of wind power has grown, which also has resulted in an increase of the development of installed wind power stations (see figure 1).

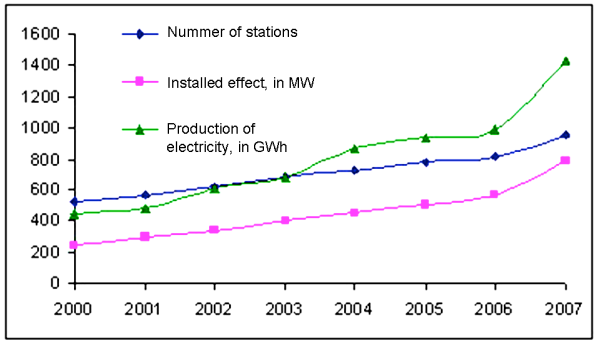

Figure 1: Diagram over the Swedish development of number of wind power stations, production of electricity and installed effect since the year 2000. From the Energy Agency's web page, 25 August 2008.

In order to create economic incentives for reaching the national wind power development objective, the electricity certificate system was introduced 2003 (bills. 2002/03: 40, bit. 2002/03: NU6, rskr. 2002/03: 133). The Swedish parliament has

decided that the use of renewable electricity will increase with 10 TWh to year 2010 from 2002 and 17 TWh to year 2016.[2] In late 2007, the Swedish Energy Agency has proposed a 30 TWh planning goal for the energy received from wind power by the year 2020. This would mean that the present 900 windmills would have to increase to somewhere between 3000 and 6000, depending on their effect, according to estimates of the Energy Agency (ER 2007:45 p 13). The Energy agency concludes that this means that between 150 and 400 wind power plants will have to be built per year. The government budgeted for SEK 30 millions (about € 2,88 millions) each year during 2007 and 2008 for the benefit of the wind power planning in municipalities and County Administrations (§1 Förordning (2007:160) om stöd till planeringsinsatser för vindkraft).

Criticism has been levelled in recent years against the planning system for being an obstacle to many different types of infrastructure development, including the critique that handling of wind power station permits is too slow and ineffective, partly as a result of "double examination", under both the PBL and the EC (See Dir. 2007:184, SOU 2008:86, ER 2007:45 p 18). A government commission has examined the possibilities of making the permit processes more efficient to allow for rapid development. A proposal was recently published (SOU 2006:86, 6 October 2008). It has, on its hand, been criticised for letting environmental permit procedures replace local planning as the instrument of spatial planning of development – see below under 'proposed legal changes'.

The permit regulation

Swedish wind power deployment – like the 3G infrastructure – is as mentioned mainly governed by two legislations with different histories and partly different purposes, the Planning and Building Act (1987:10), PBA, and the Environmental Code (1998:808). At present windmills require a building permit and in the case of a wind farm a municipal detailed development plan in accordance with the PBA.

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2 See governmental bill 2001/02: 143, bit. 2001/02: NU17, rskr. 2001/02: 317 and governmental bill 2005/06: 154, bit. 2005/06: NU17, rskr. 2005/06: 361.

Under the Environmental Code larger generators require a permit and smaller ones need to be registered. The PBA processes are municipal whereas the environmental come under the County Administration or the Environmental Court. Sweden has a strong local dominance in the spatial planning system. The permits required both under the PBA and the Environmental Code are tied mainly to the installed effect of the planned wind power stations. Groups are rated as a sum of the effect of each turbine (although with a minimum size for when building permit is required).

A *building permit* according to the PBA is needed if the turbine diameter is bigger than 2 metres, if the wind power station is to be constructed closer to a property than the height of the power station or if it is to be mounted on a building (8 ch. 2 §, 1 s. 6 PBA). This means that most wind power stations require a building permit. The decision can be appealed according to the following hierarchy: County Administration, the County Administrative Court, the Administrative Court of Appeal and the Supreme Administrative Court, if the court grants leave to appeal.

Single wind power stations or group stations in an offshore location with three or more power units with a total effect on more than 1 MW require a *permit* from the Environmental Court (9 and 11 ch. Environmental Code). The decision can be appealed to the Environmental Court of Appeal.

Single wind power stations or group stations on land with three or more power units with a collective effect on more than 25 MW require a *permit* from the County Administration (9 ch. Environmental Code). The decision can be appealed to the Environmental Court and then to the Environmental Court of Appeal if it is accepted.

Single power stations or group stations on land with a total effect of more than 125 kW but not more than 25 MW has to be *reported* to the municipality (9 ch. Environmental Code). The decision can be appealed to the County Administration – the Environmental Court and then to the Environmental Court of Appeal, if the court grants leave to appeal.

A *consultation* according to the Environmental Code 12:6 has to be made for the wind power stations that do not require to be reported to the municipal committee or need the permit from the Environmental Court or the County Administration if they can be

expected to have a “significant impact on the natural Environment”. The decision can be appealed to the Environmental Court and then to the Environmental Court of Appeal if it is accepted. The 12:6 consultation instrument has been criticized in the case of 3G mast construction for seeming to be more participatory than what the actual process entails (Larsson 2009).

Thus the planning and permit processes for wind power development are complex and difficult for both the public and developers to understand.

The planning regulation

A *detailed development plan* is wit present regulations required for all wind power stations today, which has been criticized for being too time-consuming and rigorous for sparsely populated areas without conflicting interests over land use (see SOU 2008:86 p 226, 228). The demand for a detailed development plan arises when the power stations are considered to “cause a significant impact on surroundings”, are “new continuous development” or “to be located in an area where a considerable demand exists for building sites” (5 ch. 1 § PBA, translated by the National Board of Housing, Building and Planning, 2006). The decision can be appealed to the Country Administration, and then to the Government and, if the decision made by the government is in contravention of a rule of law, the Supreme Administrative Court can make a *legal review*.

When a proposal for a new development plan is made, the municipality shall *consult* with the Country Administration, and concerned parties and others that have a significant interest in the proposal. The purpose of this consultation is to improve the basic information for decision making and to give citizens insight in the procedure, as a form of local democracy (Ebbesson 2003), 5 ch. 20-21§§ PBA. A detailed development plan that involves activities with a significant environmental impact require an environmental impact assessment, an EIA.

It is a municipal responsibility to establish a detailed development plan, but it when the planning initiative comes from a developer it is the developer who pays for the planning. A municipality must have a *comprehensive plan* covering the entire

area of the municipality. The purpose of the comprehensive plan is to form a basis for location decisions and an instrument for controlling development and preservation. It is important in providing information to other authorities and private interests regarding what claims are directed towards a specific area. The comprehensive plan is not binding, but has a guiding function for other legally binding decisions such as detailed development plans, area regulations and building permits (regulated in chapter 4 of the PBA). The comprehensive plan is also an important reference for environmental permits.

"Areas of national interest"

The Environmental Code designates especially valuable areas as *areas of national interest* to different sectors. There are several central sector authorities that designate areas of national interest, such as the Swedish Environmental Protection Agency, SEPA, the Energy Agency and the Swedish Civil Aviation Authority. For instance about one third of Sweden's surface is designated by the SEPA as being of national interest for nature conservation and outdoor recreation (www.naturvardsverket.se visited 24 Nov 2008). Sector authorities will sometimes designate overlapping areas as being of national interest to their specific sector. It is the municipalitites that in the comprehensive plan have to decide how to handle these sectorial claims from the authorities. There are misconceptions concerning the nature of these claims, the most common probably being that they have a stronger, perhaps even binding nature for planning and permit processes. The legal status of the areas of national interests is however not as strong as for instance formally protected areas such as nature reserves. The understanding that they are just claims seems not to be general. (SOU 2005:77, p 174, Emmelin & Lerman 2006, p 123-126).

The Energy Agency has the task of designating areas of national interest for wind power. The decision of the Energy Agency thus influences the municipalities comprehensive planning and later decisions concerning wind power (12 ch. 1-7 §§ PBA, see also Vindkraftshandboken 2008 p 67). During 2004 the Energy Agency designated 49 areas in 13 counties as areas of national interst for

wind power (Vindkraftshandboken 2008, p 68). During 2008 423 areas was designated. There are indications that the location and extent of such areas has been negotiated with municipalities, which seems contrary to the logic of areas of national interest. These should be designated on the basis of a national overview of a specific sectoral interst. The weighting against other intersts should then be made in the municipal comprehensive plan.

Proposed legal changes

A government commission was appointed to make the system of planning and permit processes more efficient to allow for rapid development. A proposal was published in October 2008 (SOU 2006:86, 6 October 2008). The proposal is at present referred for comments to relevant agencies and others, such as the SEPA, The National Board of Housing, Building and Planning, NBHBP, and the Swedish Association of Local Authorities and Regions, SALAR.

The most important regulatory changes for Swedish wind power development in the proposal regards the balance between the detailed development plan procedure according to the PBA and the permit granting process under the Environmental Code. These are claimed to be the most cumbersome procedures. The proposal means that the degree of stringency of the control should be tied to the physical size of the wind power stations and not to the installed electric effect, as in the present regulations. The environmental *permit* would be required for wind power stations with a height including the turbine blades over 150 metres or a group of seven or more with a height over 50 metres. The duty to *report* to the environmental authorities is suggested to apply to group stations or single stations with a total height of more than 50 metres. Given these levels, the proposal further suggests

…that the building permit should not be necessary if there already is an environmental permit at hand.

…that when it comes to larger wind power stations in sparsely populated areas there will only be necessary to have an environmental permit examination, and no detailed development plan process.

…an obligation for the municipalities to *coordinate* the handling of a *reporting* of a wind power activity and an application for building permit.

The commission concludes in its summary that

> "…the proposals are assumed to bring simplifications in form of a smaller number of processes, shorter handling time and lower costs for companies and authorities. The municipal influence over land use is not affected in practice." (SOU 2008:86 p 17).

Several experts from central authorities were heard during the process of preparing the proposal. Especially NBHBP and SALAR representatives have criticised the proposal either for the way the proposal is letting environmental permit procedures replace local planning as the instrument of spatial planning, as in the case with NBHBP (interview and letter to the commission), or from the perspective of that the local democracy loses strength, as in the case with SALAR (interview and SALAR weekly news 8 Oct 2008).

Interviews and data

The data for this study mainly consists of the legal documents on one side and interviews and other documents on the other. The legal sources are found in references in the text. Interviews have been made with representatives for

- The Swedish Association of Local Authorities and Regions, SALAR
- The Energy Agency
- The National Board of Housing, Building and Planning, NBHBP

A legal expert, Peggy Lerman, Lagtolken AB, experienced environmental lawyer, and earlier at the NBHBP and judge at Göta Court of Appeal has also been interviewed. One of the authors of this paper participated in a two day wind power seminar with about 80 participants from municipalities, County Administartions, mentioned representatives from central agencies and more, in November 2008. Other studies on decision making, wind power issues or else are referred to in the text as well (for instance Larsson 2009, in Swedish).

The contrasting example: infrastructure for 3G

The infrastructure for 3G in Sweden was developed between 2000 and 2007, with four licence winning operators supposed to build competing systems each covering more than 99,98 percent of the population by 2003. The coverage by the time of the deadline was substantially lower and the handling of municipal building permits was accused of being too slow. It was considered by the responsible regulatory authorities that this obstacle "could not have been foreseen". This seemingly spurious argument helped the operators avoid sanctions for breach of licensing conditions. Larsson's thesis (2008) shows that a slow municipal permit process can not explain the lack of coverage.

Tiering issues are of relevance to both wind power and 3G infrastructure development. In the case of 3G it was clear that there were conflicting interests related to the speed of roll out and coverage and having four competing separate systems versus environmental considerations. On one hand the pressure from a national growth policy, a political will to stimulate a technologically high national profile where Sweden was seen as a leading nation in the connected global society, and on the other hand landscape interest over conservation and heritage and over constructing the extensive infrastructure sustainably. The development was administered through a complex legislation with some inconsistent features regarding for example fear of radiation, information to confused or obstructive municipalities, negative local opinion etc. following in the trails of the infrastructure development (Larsson 2008, p 148 – 150).

Both the wind power and the 3G case are instances of the legislative and paradigmatic struggle of the PBA and the Environmental Code. In the case of 3G this is most clearly seen in the

radiation issue. Fear of the electromagnetic radiation from transmitters has been expressed and was involved in several appeals against building permits (see Larsson, in prep.). The precautionary principle was invoked to argue for moving masts away from the vicinity of schools or homes or more generally. This principle is said to be a cornerstone of Swedish environmental policy and essentially says that when in doubt a permit should not be given. However since the responsible national authority had determined that there was nor health hazard from transmitters neither the fear as a negative factor per se or the application of minimum distances based on the precautionary principle was accepted. The experts determining that there was no scientific uncertainty meant that the precautionary principle was not considered applicable.

Two paradigms of governance of the landscape

The Swedish system for environmental governance can basically be said to contain two principal elements: environmental management and spatial planning with their respective sets of legislation – the Environmental Code and the Planning and Building Act – administrations and the constituent professions and professional cultures. It is useful to distinguish between two paradigms governing the respective elements.

These two sets of legislation can be seen as expressions of two competing paradigms of environmental governance, *the environmentalist paradigm* and *the planning paradigm* for short. They are theoretical constructions based in an analysis of professional cultures of planning and environmental management (Emmelin & Kleven 1999, Emmelin & Lerman 2008). They were used also in the analysis of the Swedish 3G development (Larsson 2008, Larsson & Emmelin 2007).

The *"environmentalist paradigm"* springs out of the natural sciences. A decision is legitimate if it rests on sound scientific evidence. Expert knowledge and central overview is critical to "correct" decisions; indeed the notion of "correct decisions" in cases of conflicts of interest is one important figure of thought in the paradigm. Nature as a reference base in the sense of such figures of thought as "natural" or ""pristine" ecosystems and "natural conditions". These figures of thought reach into the pollution and environmental health discourses and are not confined to nature conservation. Preservation of natural states is another figure of thought, often complemented with the notion of "restoration" to "original" or "undisturbed" conditions underlying the conservation discourse. The paradigm leads to regulation taking its point of departure in nature and "natural states". The limits to what nature

can tolerate is an important concept in the Swedish environmental quality objectives.

The basis for the *"plan paradigm"* is that governance of changes in land use and natural resource management should rest on the weighting or balancing of legitimate but not necessarily compatible interests. A central conflict of interest is thus the one between public and private interests in land use. A decision is seen as good and legitimate if it is reached in a process where interests are explicit and weighted. Although methods may vary over a wide scale from strictly rationalist to deliberative the ultimate decisions in spatial planning are political. Their proximate legitimacy is a claim to "fairness" and their ultimate legitimacy is democratic decision making.

These two paradigms can be construed as a function of two dimensions. One is the administrative cum geographic dimension of central versus local. The tension between centre and periphery or between centralised overview and local knowledge is a well-established dichotomy and has been the focus of much research in e.g. geography and political science. The other is the poles of decision rationality defined by Sager (1990, 1994) as between "calculating" and "communicative". This defines the different forms of legitimacy of respectively scientific knowledge and a deliberative political system. The paradigms are basic to respectively the Environmental Code and the Planning and Building Act. Many of the problems and complexities of Scandinavian planning and environmental management can be analysed in terms of the tensions between the two paradigms (Emmelin & Kleven 1999, Emmelin & Lerman 2006, 2008) The two paradigms are also of use in understanding differences in perceptions of the role of environmental assessment and how this in turn influences implementation of directives and national legislation. (Emmelin 1998a).

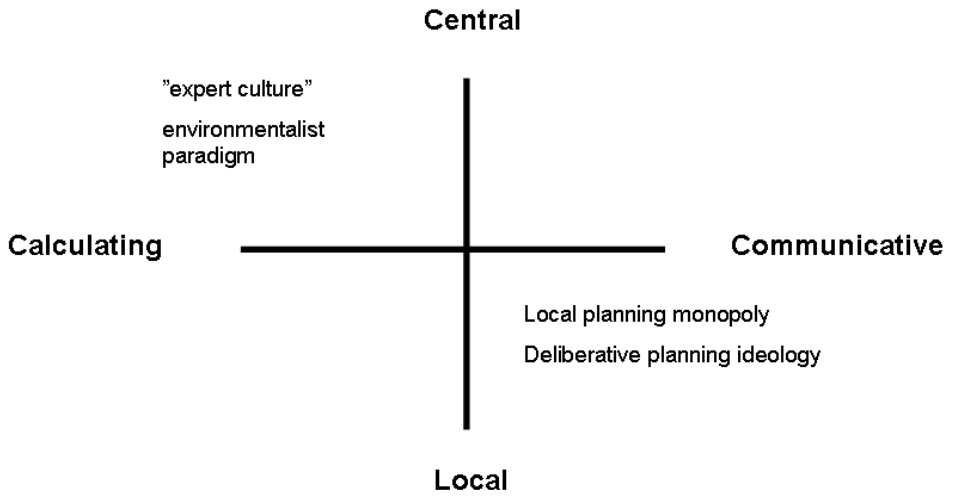

Figure: Two dimension that define the two paradigms of ”environmentalist” and ”plan”. From Emmelin and Lerman 2006, p 27.

An important difference in the expressions of the two paradigms is a distinct difference in perspectives on sustainable development. Whereas the environmentalist paradigm regards sustainable development as a state which can essentially be determined scientifically the plan paradigm will see it as an ongoing balancing of the three components of sustainability: ecological, economic and social. The relative weight given to the three will ultimately be politically determined.

A basic reason for the problems encountered in large scale, nationally driven developments such as wind power or the 3G system is that both paradigms are in fact geared to controlling and balancing on the one hand short term economic interests of industry with long term environmental concern and on the other conflicting land uses, not least public versus private interests. This may make both, but especially the decentralised/devolved planning, an obstacle to the rapid implementation of national, sectoral policies. This would in particular be the case with any technical system with a widespread landscape impact. The parallels between wind power and 3G are striking but historically also with for example the building of railways and the national electric power grid.

The problem of implementing national goals for technological development through a highly decentralised system of planning is not unique to Sweden. The UK government is at present struggling

with the problems of developing both wind & nuclear in the face of "Britain's cumbersome planning system" This has in the case of wind power been described in terms of governmental and industrial aims of resolving 'the planning problem' through strengthened national control (Cowell 2007).

Discussion

The wind power and 3G developments can be examined in relation to both the constituent dimensions as well as the two paradigms. Our problem is in important ways different from the classical studies of local implementation. We examine two cases of national policy that entail permit processes for a dispersed infrastructure in the landscape. The implementation is here dependent on decision-making not directly involved with the specific policies and programmes but rather with planning and environmental governance in the regional and local landscape. Spatial planning is explicitly an activity to determine the PBA calls "appropriate" land use and to arbitrate between public and private interests in the exploitation of the landscape while the environmental legislation primarily deals with the permissibility of activities in relation to the impact they have on the environment. Planning and environmental governance are based in what we see as two different paradigms (Emmelin & Kleven 1999, Emmelin & Lerman 2008). Examining the effects of having two paradigms determining the deployment of infrastructures in the landscape is central to our analysis. While the problems of reaching a national goal for wind power is the central issue in this paper it is interesting to compare wind power development with the development of the third generation mobile telephone system in Sweden.

Calculating versus communicative

At the central level there is a tension between the calculating and the deliberative rationalities in both cases. This is the tension that is supposed to be resolved with the logic of strategic environmental assessment, SEA. However national goals for wind power have not been subjected to any thorough examination for their compatibility with other national goals concerning environment or landscape. The

estimates for feasible wind power development are based on relatively rough technical estimates of what is defined as “how much wind power that would be possible to handle in spatial planning” (Energy Agency proposal, ER 2007:45, p 5, authors' translation). This planning goal is then defined as to ”by spatial planning create conditions for an annual production of electricity from wind power to a certain TWh”(ER 2007:45, p 8). The proposal for a planning goal initially mentions that ”a reasonable level of ambition for a planning goal for 2020 depends on how the attainment of the EU goals for renewable energy and the implementation of these of is distributed between member countries”.

The instrumental rationality is evident in that “availability” is not seen as a function of the willingness of land owners or local interests to have wind power in the landscape. The planning goal for what share of renewable energy comes top-down but it is somewhat unclear as to whether it expresses what would be politically desirable or what is seen as feasible by the responsible sector agency.

In the case of the 3G-development no SEA was made of the system defined by the licensing conditions. General political goals for economic growth and regional development, the latter partly in the guise of “social cohesion”, were translated into concrete licensing conditions where competition was a more important factor than environment without any assessment of conflicts with national environmental goals (Larsson 2008). As we have argued elsewhere an environmental assessment might have uncovered some of the problems inherent in requiring four competing systems of infrastructure (Larsson & Emmelin 2007, Emmelin & Söderblom 2002).

This dimension can also be used to examine a “horizontal” conflict at the local level. The planning system is designed to weigh conflicts of land use, especially public against private interests. Environmentally harmful activities that need a detailed development plan also need an environmental impact assessment, EIA, of the plan. If wind power is effectively removed from the planning system the tension at local and regional level between expertise on environment and land use on the one hand and the political, deliberative decision-making will be cut out. Handling wind power deployment in the landscape would become a matter of environmental permit process.

Part of the functions of a detailed development plan might be taken over by the EIA.

National versus local

The third way in which the problems can be analysed is in the "vertical" dimension of the relation between the national political decision-making and local power over the landscape. Sweden claims to have a model of environmental governance where thresholds and environmental standards as well as a set of sixteen national environmental objectives, NEOs, play an important role. The legally binding thresholds and standards can be understood as the environmental paradigm determining the degree of freedom for local land use planning; traffic planning may not cause for example standards for levels of particles and nitrogen oxides to rise above certain levels. The NEOs on the other hand are claimed to be a system of management by objectives. The basic principle of management by objectives is that underlying levels of governance should be free to choose the means of reaching the goals. In a situation with conflicting claims on land use this would also include the freedom to weigh the goals against each other (Emmelin & Lerman 2008).The struggle for control of the landscape for various technical developments with an environmental impact can be seen as a struggle both at the central level with other conflicting interests and as a struggle between a national sector interest and the complexity of weighting many different legitimate interests competing for the local landscape. One of the basic weaknesses of the Swedish planning system is the lack of coordination and arbitration between sector interests at levels above the local (Emmelin & Lerman 2006).

Environmentalist versus Plan paradigm

The case of the precautionary principle in the case of developing 3G infrastructure illustrates the paradigmatic battle that can occur between the application of the PBA planning and the Environmental Code permits. The handling of the precautionary principle in the 3G case lies with the calculating, expert based, rather than the

deliberative, communicative paradigm. The legal system contributes in defining what knowledge is to be used, pointing at the environmentalist paradigms, which decides the adequate knowledge as basis for the decision making. This is an expression of a power struggle over whose version of reality that should apply, and reach legal legitimacy. The precautionary principle, it seems, could have been applied in the 3G case, but was not.

The interdependence of the two systems (PBA and Environmental Code) seems largely to be neglected except by seeing it as an unnecessary complication. The permit system under the Environmental Code does in fact when it comes to landscape effects presuppose that the municipality has done its homework in the form of comprehensive planning. Locating wind power should relate to the comprehensive plans in that both a permit and a detailed plan for a wind farm should be compatible with the land use designated for the area in the comprehensive plan. "National interests" are as noted above the means for different sectors at the national level to make their claims on the landscape known. Thus the same landscape may be designated as combinations of for example national interest for forestry, agriculture, conservation, recreation or, most recently, wind power. However it is up to the municipality to plan for how these national interests are to be weighted against each other and against other land use interests. In theory this means that the two paradigms are required to meet: the national authorities designate the interests from their respective overview and rationalities while local deliberation arbitrates. The landscape is the arena for this meeting and the regional authorities are charged with overseeing how the municipality does in fact take national interests into account. In practice the function is less ideal. Around half of Sweden's municipalities do not have a comprehensive plan that is reasonably up to date. Although some municipalities are working on comprehensive planning for wind power a large, but unknown, number have little or no planning to cope with wind power. Doing away with the requirement for detailed development plans and building permits for wind power development will leave these municipalities with little influence over the landscape pattern of wind power. However it is also an open question what land use planning the permit process in this case can lean against. If a designated national interest exists either for wind power or for any

conflicting purpose this would seem to shift power over local landscapes to the national agencies.

The proposed legal simplifications mean that some decisions over the construction of windmills are moved from the municipal realm to the regional administrations. The environmental examination rather than detailed development plans will decide the outcome of many wind power projects. Even though the municipal comprehensive planning is an instrument to steer the wind power development in the local context the specific actual decisions will rely on the professions of the regional administrations and the legal provision governing these decisions. The initial statement in the proposal regarding that "in practice the municipal influence over land use is not affected" is rhetorical, not factual (SOU 2008:86, p 17). The proposal can therefore be interpreted as playing a part in a "vertical" power struggle between the central and the local level of who should decide over land and environment and what type of knowledge should be allowed to form the base for the decision. The 3G case illustrates a similar type of central and calculating decision of what the nation needs. When the decision is made, actions are taken to avoid an inherent function of the planning system to include people and ask what they want.

The paradigmatic conflict between a central policy based on calculating rationality and local, political power over the landscape is succinctly expressed by the report suggesting changes to increase the efficiency of wind power development by removing much of the local planning of wind power.

> "In addition, there is a risk that an extensive use of the detailed development plan instrument will mean that wind power development in Sweden will depend on different municipal values of what is regarded as appropriate in the particular municipality and that wind power will not be developed in the areas that objectively seen are the most suitable from a general perspective" (SOU 2008:86 p 229, authors' translation).

The proposals for increasing efficiency of the system by removing much of the planning influence over wind power seem to be based not on solid evidence of the actual obstacles to wind power development. Are the planning processes in themselves cumbersome or inefficient?

Concluding remarks

Comparing the Swedish wind power development with the Swedish 3G development is fruitful in several aspects, but particularly with regards to how local land planning affects the implementation of a national decision, and how the battle of the paradigms takes part in the transformations of the legal system. The discussion has addressed the following main issues concerning the Swedish wind power development.

- There seems to have been too strong a focus on the legal design in the legal dogmatic perspective of the investigators, as opposed to the practice and outcome of the regulations.
- Efficiency or effectiveness? The struggle for efficiency is end-focused rather than means-focused and likely an expression of the centralistic, calculating and politically oriented will to control the development of wind power. This leads to legal proposals of changing the balance between the two main laws for a particular energy type to the loss of local governance and planning.
- There is a problem with the sectorisation and piecemeal revisions of a system that in many respects would benefit from a more holistic sight.
- The need for revisions of the planning and permit systems seems not to be based on thorough empirical investigations on the nature of the assumed obstacles to development that they present.
- The discussions concerning efficiency in the planning and permit systems seem to be based mainly in a perception of local planning processes and the right to appeal permit decisions as technical obstacles to the implementation of a national development – be it reaching politically set goals for wind power or administratively determined modes of coverage for mobile telephony.

- The paradigmatic conflict between a central policy based on calculating rationality and local, political power over the landscape is succinctly expressed by the governmental legal proposal suggesting changes to increase the efficiency of wind power development by removing much of the local planning of wind power. The attitude of the Energy Agency in stressing local understanding and acceptance of wind power development as opposed to local self-determination over the landscape is consistent with this shift in paradigmatic power over the landscape.
- If wind power is effectively removed from the planning system the tension at local and regional level between expertise on environment and land use on the one hand and the political, deliberative decision-making will be cut out. Handling wind power deployment in the landscape would become a matter of environmental permit process.

An important theoretical and practical reason for our studies has been the claims that local and regional planning and permit systems are a major hindrance to technological development and sustainability (Emmelin & Lerman 2004). Changes to legislation and permit systems are being proposed in a piecemeal fashion. Some of these have far-reaching implications for central issues such as public participation and the right to appeal decisions while being presented as minor technical adjustments. Both with the 3G-system and with wind power we observe that the claims that the permit and planning systems are a hindrance seems to be based on fragmented and anecdotic evidence rather than systematic studies.

In infrastructure planning the environmental assessment system has in particular been blamed for delays and increasing costs of major road projects. This discussion has largely ignored the findings by Flyvbjerg at al (2005) that large infrastructure projects as a rule have dramatic cost increases due to optimistic – or as Flyvbjerg claims often fraudulent – initial cost estimates. Changing the permit system in order to reach the environmentally driven goal for wind power development would seem to open for changes of the systems that would be less acceptable to the environmental movements.

As noted above the social or political availability of land for wind power development or for the competing infrastructures for 3G was not an issue initially. With other infrastructure systems such as railroads or the electricity grid, the legal mechanisms for coping with the basic problem of land availability have been developed over a long period of time. Legal institutes such as expropriation and utility easement are used as powerful tools for making land available in the name of public interest. Recent concern with health effects of the magnetic fields from high voltage transmission has to some extent brought these problems back into the conflict resolving of spatial planning; cables are re-routed or planning for activities such as housing and schools adapted to existing cable routes. Existing transmission lines have also been put underground and fanciful projects started to make high voltage pylons and lines aesthetically more acceptable.

In the case of 3G the operators claimed that the system was "rigid" in that transmitters were interdependent; if one mast had to be moved others might also have to be moved. This path dependency in the infrastructure roll out both resulted in conflicts in particularly sensitive areas as well as the sense that many masts from different operators ended up closer than 100 metres from each other. In the case of wind power the path dependency is not as high interdependently but the stations are of course depending on possibilities for connecting to the electricity grid as well as wind energy.

Behind the central initiatives for a faster wind power development there seems to be a one sided perception of the "inefficiency" in the planning and permit system. This is shown in the directives for the commission that recently proposed legal simplifications and in the proposal itself (Dir. 2007:184, SOU 2008:86). The risk with defining an inefficient system too much in terms of a "slow process" is that it can lead to the perception that a quick process by definition is also a good process. This limited view of processes equates simple quantitative measures of efficiency in for example turn-over with qualitatively effective processes.

The wider issues of the multiple roles and tasks of planning and systems of permit do not seem to enter into these discussions. The search for efficiency may lead to lowered effectiveness – the democratic legitimacy of a governance system is an inherent

component of its effectiveness. This is the case also in what Lundquist (2004) terms “environmentally rational governance” where criteria for local involvement and democratic decision-making – as opposed to technocratic policymaking – are central. What is presented as technical and legal issues of clearing up inefficiencies are in fact major shifts in the power over the landscape from the local level to the national, with a shift also from political to decision making by courts and administrative agencies. The attitude of the Energy Agency in stressing local understanding and acceptance of wind power development as opposed to local self-determination over the landscape is consistent with this shift in paradigmatic power over the landscape. One risk is the one of lessened public legitimacy for the national development. McLaren Loring shows in a study regarding wind power in England, Wales and Denmark that projects with a higher degree of participatory planning are more likely to be successful through it's acceptance from the public (McLaren Loring 2007). This risk is further emphasized by the conclusions of Wolsink, who states: "Hence, for wind power, local involvement to represent the local values of site-specific landscapes is crucial" (Wolsink 2007). This can be compared to what Cowell (2007) studies in terms of why certain states are inclined to resolve ‘the planning problem’ for wind through strengthened national control, where the spatial planning has been a way to avoid conflicts and in a more sensible and deliberative way steer wind power to areas of less conflict.

In the 3G infrastructure development the argument that municipal planning was an obstacle to rapid development was voiced at a very early stage of the development with limited actual evidence. As Larsson (2008) has shown the municipal planning is in fact not an obstacle but a very convenient excuse for the operators to get out of the commitments made in the licensing process at the height of the IT-bubble. Furthermore the data shows that in a large number of cases delays were caused by incomplete applications. Or are the examples of extremely protracted processes rather the result of the right to appeal? In this streamlining the process would seem to have wider implications for the legitimacy and accountability of both a development process and for the combined system of planning and permit giving. Furthermore there seems to be no evidence that the environmental permit system under the Environmental Code could

in fact cope better or faster with a large number of windmills. If their location in the landscape is controversial such permit decisions could also be appealed. If it is not well demonstrated whether it is a cumbersome planning process or appeals based on local resistance then proposals for making the process more efficient seem to be thinly grounded.

Finally there is the problem of piecemeal changes of the system. Both the Environmental Code and the PBA are undergoing reform. The system of regional administration is also under scrutiny. Rational environmental governance presupposes an efficient and effective working of both paradigms rather than ad hoc interventions to facilitate certain sectoral interests or give one paradigm supremacy over the other.

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