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Larsson, Stefan; Emmelin, Lars

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PO Box 117  
221 00 Lund  
+46 46-222 00 00

## Objectively best or most acceptable? Expert and lay knowledge in Swedish wind power permit processes

Stefan Larsson<sup>a\*</sup> and Lars Emmelin<sup>b</sup>

<sup>a</sup>*Centre for Work, Technology and Social Change, Lund University, Sweden;* <sup>b</sup>*The Swedish School of Planning, Blekinge Institute of Technology, Karlskrona, Sweden*

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This article analyses legal aspects of the Swedish wind power development, theoretically based on how different types of knowledge are represented in legal contexts, mainly in the courts. A sample of appealed wind power permits is analysed, a handful of relevant informants are interviewed – including two judges in the Land and Environment Court and the appeal court – and the legal setting is analysed. Of key interest here is the interplay between expert and lay statements in the court cases, which here is related to the concepts of calculating and communicative rationalities that are developed in the planning literature. The results indicate that the juridification – which takes place as a permit issue is appealed in the judiciary system – supports the calculating rationality more than the communicative, and that the plaintiffs often attempt to adapt in how they shape their argumentation.

**Keywords:** wind power; spatial planning; knowledge types; expert/lay; juridification

### 1. Introduction – analysing Swedish wind power policies

This article deals with the question of how different types of knowledge are represented in the legally regulated control and planning of the spatial environment, with particular focus on the planning and permit-giving of Swedish wind power development. This can be described in terms of the difference between expert and lay knowledge, but also in terms of two different approaches towards decision-making that can be seen as a calculating rationality, on the one hand, and a communicative, on the other (Sager 1994). The expert and lay types of knowledge have recently been addressed in terms of how “new relations between expertise and citizens can be negotiated and designed” in risk regulation (Lidskog 2008, 69). The challenge of how to balance expert and lay knowledge has also been addressed in wind power research (Aitken 2009). There are case studies dealing with attitudes and the complex set of issues around renewable energy and wind power (Peel and Lloyd 2007). Peel and Lloyd (2007) highlight the “emerging experiential learning of state, market and civil interests in this new infrastructure age” (2007, 344) and mainly refer to the UK situation.

Much of the motivation to study and analyse how expert and lay knowledge is played out in the development of wind power can be found in the fact that there is a quite significant resistance at the local level, which needs to be better understood, including the role of the public in policy implementation in a spatial context. A number of studies have targeted local opposition to wind turbines and wind farms (Ek 2005; Petrova 2013; Devine-Wright 2005), for example, regarding noise and shadows (Agterbosch, Meertens,

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\*Corresponding author. Email: [Stefan.larsson@luii.lu.se](mailto:Stefan.larsson@luii.lu.se)

and Vermeulen 2009; Devine-Wright 2005; Strachan and Lal 2004; Wolsink 2000) or environmental and animal concern (Agterbosch, Meertens, and Vermeulen 2009; Strachan and Lal 2004; Toke, Breukers, and Wolsink 2008). These are issues that are of interest also when it comes to how knowledge is presented, reproduced and negotiated in relation to a legal permit assessment.

First of all, the Swedish planning system has its base in the planning by local authorities, which poses an interesting challenge from a national policy perspective. In fact, one could argue that the Swedish legal framework is unique in relation to the siting of wind turbines and the granting of permits. The Swedish municipalities are the main authority when it comes to the implementation of landscape planning, a fact often referred to as the “municipal planning monopoly” (cf. Pettersson *et al.* 2010, 3118). Spatial planning at the national and regional levels is, in practice, confined to sectors of which infrastructure is the most important. National influence on local planning is exercised through the process legislation for spatial planning and through instruments such as standards and thresholds or “soft norms” such as the National Environmental Objectives and other goal structures (Emmelin and Lerman 2008). Granting of wind power permits is governed by the legislation for spatial planning through the Planning and Building Act, but also by the Environmental Code. These two legislations need to be balanced, which is not necessarily always easy, an aspect perhaps further underlined by the fact that there are two separate administrative bodies – the municipality versus the County Administrative Board (and its independent arm the regional permit authority) – that are the main operators under these two legislations, and that they also operate at two administratively and spatially different levels (local versus the regional).<sup>1</sup> The difference is also seen in that the County Administrative Board is a regional arm of central government to coordinate administration with national political goals for the county, whereas a locally elected assembly governs the municipality. This creates a complexity that in itself can be detrimental to participation and access to justice (Larsson 2013b) and it signifies a type of challenge in the Swedish system that deals with handling the governance of different levels and – arguably – different types of rationalities which, compounded with other factors, can be described as separate paradigms of governance (Emmelin and Kleven 1999; Emmelin and Lerman 2006; Larsson 2014a, 2014b). In addition, the Swedish permit process for wind power was criticised for being inefficient and slow and containing superfluous “double permit processes” in the two sets of legislation and administration. A major revision in 2009 was meant to let environmental permit procedures also replace local planning as the instrument of spatial planning of wind power development. To what extent this changes the conditions for public participation is a question of interest, and how concerned citizens interact with courts in terms of what knowledge and what narratives that are accepted regarding the construction of wind turbines, as the permit process becomes an appeal case, are central questions in this study. In another Swedish large-scale infrastructure implementation, the 3G mobile telephony which demanded a large number of local building permits, it has been shown that the way concerned parties were involved changed when the cases reached the appeal courts (Larsson 2014b). The institutionalised demands on which knowledge was deemed relevant changed as the process became “juridified”. In the cases of the specific topic of electromagnetic radiation from telecommunication base stations, with regards to the alleged hazardousness and the fear that was a common reason for appeal in the Swedish 3G development, Larsson shows how the deliberative and communicative aspects faded as the appeals reach the higher courts, how the “‘black box’ of law closes in on the decision-making and expert knowledge takes over as the more heavily weighted

knowledge” (Larsson 2014b, 178). Similar results are found by Aitken (2009) in a study on wind power development in Scotland. Aitken concludes that the planning application process had two separate stages, which structured the roles of lay and expert knowledge differently:

Local objectors were able to influence the early planning application stage, where the decision-making power lay with the local authority. This resulted in an appeals process which was beyond the influence of lay people, and within which lay knowledge played only a marginal role. (Aitken 2009, 61)

This is not likely to be the outcome of a consciously controlled and policy-based development, but rather a consequence of how the process is structured. It can be related to what Lidskog (2008, 78) describes as a “clash between science’s universal and ‘decontextualised’ character and lay people’s local understandings”. To what extent this characteristic can be seen in the wind power appeal cases forms part of this study.

The conflict in rationalities between the often centralistic view of the expert-based perspective and the often more local lay approach can also be seen in the legal revisions made in 2009 in terms of a conflict between a central policy based on calculating rationality and local, political power over the landscape. This is succinctly expressed by the preparatory work for the legal changes that entered into force on 1 August 2009 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 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 which, from an objective perspective, are seen as the most suitable from an overarching perspective (SOU 2008:86, 229, authors’ translation).<sup>2</sup>

The noticeable positioning towards the calculating paradigm is clear: the “municipal values” threaten the expansion of wind power at the “objectively” most favourable locations. This is expressed at a legislative level, and can be seen as a background to the purpose of this study that focuses on the court proceedings following from the legal setting.

### ***1.1. Purpose and research questions***

The main purpose of this study is to better understand how different types of knowledge or rationalities are negotiated and taken into account in the face of the legal regulation controlling the Swedish wind power development. A particular focus here is placed on the judiciary processes relating to permits and their appeal. In line with this purpose, the following research questions are asked:

- (1) What reasons for appeal are common and how are they handled in the appeal process?
- (2) How does the permit process structure relations between “lay” and “expert” roles?
- (3) How do participants respond to those lay/expert structures in attempting to influence outcomes of the permit process?

- (4) How does the handling of lay and expert knowledge in appealed cases determine public participation?

The expert/lay divide is here mainly studied through court cases of wind turbine permits that have been appealed and how different arguments relating to subjective values, as well as expert-statements, are played out in court. The material used for the study comes from three main sources: (1) A sample of appeal court cases from southern Sweden, i.e. the Land and Environmental Court (LEC) and the Land and Environmental Court of Appeal (LECA); (2) Interviews with a handful of key persons such as two expert judges<sup>3</sup>, regional administrators and a regional wind power coordinator appointed by the Government; (3) Legal documents such as the preparatory work for the 2009 revision of the legislation and from permit process.

## 1.2. Background

The development of wind power in Sweden is an interesting case of conflict between *national* goals for technological development and *local* spatial planning and governance of land use (Larsson, Emmelin, and Vindelstam 2014). On the one hand there is, in Sweden, a national policy to increase the pace of wind power development, where legal change is one measure taken, and on the other hand there is the spatial planning system which is based on a local planning monopoly. As already mentioned, this conflict between central and local power is further emphasised by what can be seen as a paradigmatic conflict relating to what type of knowledge should control decision-making; on the one hand, there is a calculating rationality, where expert-based knowledge is held as the defining paradigm, and on the other hand, there is a communicative or deliberative approach that deals with balancing legitimate but not necessarily compatible interests.

Swedish wind power development has fallen behind the development of countries such as Denmark, Germany and Spain in recent decades, although Sweden produced about the same amount of energy from wind power in the early 1990s as these countries (Söderholm, Ek, and Pettersson 2007, 369–270). In recent years, the political actions to speed up the development of wind power have increased – for example through subsidies, planning grants and the adoption of a “planning frame” for 2020 – which have resulted in an increase in installed capacity. The Swedish national “planning frame” (replacing what was termed a “goal” of 10 TWh annually) is to produce 30 TWh annually of wind power by 2020, of which 10 TWh should be offshore wind power. The purpose or assumption of this policy is that the municipalities would prepare for such a development, for example through addressing wind power in their comprehensive plans (Prop. 2008/09:163, 42–44; cf. Prop. 2008/09:162). Formally this is not a “production goal”, which is clearly stated in both bills, but the legislated terminology is still elusive in how it should, de facto, be understood, who or what institutions it addresses and to what extent it is a useful measure for steering towards an actual production.

Criticism has been levelled in recent years against the spatial planning system for being an obstacle to many different types of infrastructure development, including the critique that handling of wind power plant permits is too slow and ineffective, partly as a result of “double permit process”, under both the planning and the environmental legislation (see Dir. 2007:184, SOU 2008:86, Energimyndigheten 2007:18; Larsson 2009b). A government commission examined the possibilities of making the permit processes more efficient to allow for rapid development of the use of wind as an energy source. The application process was changed in 2009 from requiring both planning and

permission under the two regulatory bodies to primarily depending on the environmental trial under the regional administration regulated under the Environmental Code. One of the revisions means that, as a rule, a municipal detailed development plan is not required for wind power permitting, although it is still required for cases where there are clearly conflicting land uses. Another significant outcome of the legal amendment process was the so-called municipal veto right, which has been the topic of much debate. The municipality in which a planned wind turbine is located has to approve the project, even though it is the regional permit authority (the county administration) that decides on a permit. The various involved parties and stakeholders perceive the municipal veto differently (Larsson, Emmelin, and Vindelstam 2014). For example, the wind power companies tend to regard the veto as increasing uncertainty, making it harder to foresee the outcome of the permit processes. Thus, the 2009 amendments seem to have failed to create a swifter and more predictable siting process (Larsson 2014a, 78).

## 2. Knowledge types and the expert/lay divide

In the theoretical planning literature, the difference between “calculating” and “communicative” rationality is often brought up (Sager 1994; cf. Tewdwr-Jones and Allmendinger 2002), for example, in a narrative of a historical, post-war development in planning (Amdam and Veggeland 1998). As a reaction to the more centralised and expert-based planning profession, the “communicative” response grew, and developed terminology and theory of “communicative planning” (Forester 1989), “argumentative planning” (Forester 1993), and “collaborative planning” (Healey 1997, 1998). If we use these two strands as a dichotomy – calculating versus communicative – the goal here becomes to be able to use them as an analytical tool in the case studied. For example, the calculating is often seen as expert-based, as opposed to a more communicative and/or lay approach to knowledge (Emmelin 1997; Emmelin and Kleven 1999). Thus these two perspectives on rationality, or these different types of knowledge, are both legitimate and necessary for land use planning, and the challenge is how to balance and negotiate between them: the appropriate type of knowledge to the issue at hand. This is sometimes described in terms of an expert/lay divide (Lidskog 2008). In spatial planning, for example, environmental concerns are often framed with an expert-based bias which means that lay input often has to be phrased in the expert’s terms. Aitken (2009), in discussing this problem, draws an interesting parallel with Epstein’s work on “lay” AIDS treatment activists who managed to present themselves as “credible” by adapting their approach and ways of communicating in order to be accepted by scientists. On a similar account, Collins and Evans (2002) suggest that this is a method that could also be used by others who seek to be credible in “scientised” areas. Such arguments, according to Aitken (2009), imply that it is lay people who need to change or adapt if they wish to be taken seriously by experts:

Thus the notion that lay knowledge might provide valuable contributions, and hence that experts should proactively endeavour to access this knowledge-base, is ignored. The onus is on lay people to be flexible and learn new styles of communication, despite the fact that it is expert knowledge which currently has a privileged status and position within decision-making processes. (Aitken 2009, 49)

Aitken, McDonald, and Strachan (2008, 793) elaborate on the problem that policy is seen as immutable, or what they call the “unquestionable nature of policy within public

inquiries” in which they see a rationalistic thought structure that underpins how participatory processes can be set up, “restricting the range of possible arguments that participants can make”. Consequently, individuals or types of evidence that challenge or deviate from this set of assumptions, can be easily disregarded. This can be related to an “agenda-setting power” (Aitken, McDonald, and Strachan 2008). This relates to what sociologists of law sometimes discuss in terms of “juridification”, that is, some sort of formalisation of the social sphere (Teubner 1987). How the legal order shapes the negotiations between rationalities in wind power issues could be addressed in terms of a “juridification of social phenomena” (Teubner 1992) or even “the legal distortion of social realities” (Teubner 1992, 1455; cf. Larsson 2014a).

The dialectic perspective between expert and lay is, however, very much a challenge in the legally regulated control and planning of the spatial environment, a fact sometimes described as one of its more dysfunctional characteristics. As put by Darier *et al.* (1999):

[T]he nature of the relationship between ‘expert’ knowledges and ‘lay’ publics is at least as much about the ‘public(s) understanding of scientific knowledges’ as about the general (mis) understanding of the ‘publics’ – and their ‘lay knowledges’ – by those who have specialized scientific knowledges. (Darier *et al.* 1999, 105)

Not surprisingly, empirical studies of lay judgments of judicial decision-making show that public opinion on court judgements is “outcome-dominated”; that is, participants gave favourable evaluations of the judges and their decisions when they agreed with the judges’ rulings (Simon and Scurich 2013). Similarly, lay people’s reactions to experts attending in court follow a similar pattern. The experts are “deemed competent and their commentaries are deemed reliable when the participants agree with the outcomes propounded by the experts, but the opposite is true when the participants’ preferred outcomes are incongruent with the outcomes endorsed by the experts” (Simon and Scurich 2013, 797).

### **2.1. Resistance and participation in wind power development**

As mentioned in the introduction, much has been written on local opposition to wind turbines and wind farms from a number of perspectives, such as: (1) noise, shadows and flickering (Agterbosch, Meertens, and Vermeulen 2009; Devine-Wright 2005; Strachan and Lal 2004; Wolsink 2000); (2) decreased property values (Larsson, Emmelin, and Vindelstam 2014; Toke 2005); (3) detrimental effect on tourism (Vuorio 2003; Strachan and Lal 2004); (4) environmental concerns, including animal concerns (Agterbosch, Meertens, and Vermeulen 2009; Strachan and Lal 2004; Toke, Breukers, and Wolsink 2008); and (5) visual and aesthetical concerns (Agterbosch, Meertens, and Vermeulen 2009; Carlman 1986; 1988; Devine-Wright 2005; Johansson and Laike 2007; Toke, Breukers, and Wolsink 2008; Wolsink 2000).

The literature on opposition to wind power discusses, on the one hand, different concrete issues such as aesthetics and, on the other hand, a more general phenomenon termed NIMBYism. NIMBYism or the “not in my back yard” syndrome is described by Bell, Gray, and Haggatt (2005, 460) as a proposed “gap between an attitude motivated by concern for the ‘common good’ and behaviour motivated by ‘self-interest’”. While there generally seems to be support for the idea of renewable energy through wind power at the national level of most countries, this does not always filter down to the same level of support at the local level which often allocates the sites for wind farms

(Jobert, Laborgne, and Mimler 2007). The local opposition to wind farms no doubt has an effect on the decision process of permit granting by local authorities. Much of the literature has focused on addressing the issue of local opposition, while one strand focuses on overcoming the opposition and creating acceptance. As a general concept, local support seems to be premised on community involvement throughout the permit handling process and/or community ownership, for example, as indicated in a study on community ownership in South-west Scotland (Warren and McFadyen 2010).

As Breukers and Wolsink suggest, positive relationships occur when wind power implementation begins locally and support is mobilised bottom up, and involving local wind energy projects and local ownership (2007). This is something that Spain has managed to achieve through its insistent local wind power policies and is also the premise of Denmark's early and continued success in the implementation of wind power. In a comparative study focusing on England, Wales and Denmark, Loring (2007, 2659) identified that local public involvement in wind energy planning was an important variable for project success, factoring Denmark's encouragement of local, cooperative ownership of such projects in the 70s and 80s as contributing to strong wind energy development in Denmark, which can be seen as a type of self-regulation. There is also research to suggest that early and sustained community involvement in the decision and planning process generates local support, making the application and permit granting process more effective (Khan 2003; Krohn and Damborg 1999).

Wolsink (2007) argues that the perception among both planners and developers is that the challenge primarily lies in spreading information and knowledge in order to encourage people to be more sympathetic to wind power development. Wolsink argues for a deliberative and "fair" decision-making when it comes to issues of the landscape, rather than blaming the public for being unwilling to cooperate. This is in contrast with what Cowell (2007) describes as the governmental and developer solution to the "planning problem", namely an even further withdrawal of participatory elements for the public in the process.

The sanctions and actions of governing authorities and policy-makers will not only define the character of their position on wind power development, but also how they define the role of the public in the development (cf. Bell, Gray, and Haggett 2005). If we consider the fact that the public is merely consulted in the process of wind power development in Sweden, one approach to explaining the resistance can be found in what Bell, Gray, and Haggett (2005) describe as a "democracy deficit". If so, a policy-related option would be to "change the underlying character of the planning process from confrontation to collaboration" (Bell, Gray, and Haggett 2005, 467, with reference to Healey 1996, 1997). Such a collaborative approach is, according to Bell, Gray, and Haggett (2005) grounded in the claim that "deliberative" rather than "technical" rationality should be the basis for environmental decision-making (cf. Owens, Rayner, and Bina 2004):

Collaborative planning shifts the emphasis from competitive interest bargaining to consensus building; it recognises and includes all stakeholders; and seeks to identify diverse interests and the mechanisms of power that may work to subordinate some of them. The aim is public participation rather than public consultation; it does not aim to 'educate', but to create opportunities for discussion. A collaborative process might overcome the democratic deficit by encouraging (some of) the 'silent majority' to participate in decision-making. If the siting process involves the local community from the very beginning – even before a specific site is chosen – there may be more incentive for local people to participate. (Bell, Gray, and Haggett 2005, 467–468)

The Swedish model mostly means a consultation approach, where the public in various degrees are an active part. To what extent the municipalities and developers are “hearing but not listening” – to use the terminology of Conrad *et al.* (2011) – is hard to tell. Since wind power siting may to a considerable degree be determined by land ownership and availability to wind companies, the idealised conditions for a participatory and non-confrontational planning process may perhaps not be as easily obtained as planning theorists assume. Siting in Sweden is not so much a planned process – be it technical/rational or communicative – as an ad hoc development based on entrepreneurial initiatives and individual permits. The tension between this and a planned development is part of our object of enquiry.

### 3. Material and data sources

The material used is drawn from three main sources that are combined in the analysis:

- (1) A sample of court cases from southern Sweden where permits have been appealed, both to the Land and Environment Court (LEC) and to the Land and Environment Court of Appeals (LECA – the “supreme” environmental court);
- (2) Interviews with a handful of key persons, such as two expert judges in LEC and LECA, regional handling officers assessing power plant applications, and the wind power coordinator appointed by the government in order to facilitate the development in southern Sweden;
- (3) Legal documents such as preparatory work regarding the revision of how wind power is assessed and how the permits for the turbines are considered, where an important legal revision was made in 2009.

For the analysis, a sample of appeal permit cases was collected from the LEC of Växjö [Mark- och Miljödomstolen] as well as the LECA [Mark- och Miljööverdomstolen]. These two courts were created on 2 May 2011 in the current arrangement. There are five LECs in Sweden that divide the country into five jurisdictional areas and one LECA, which accepts a case after approval in the “supreme court” sense, after granting permit review. The sample of judgements from both the LEC and LECA are selected from decisions passed since 2 May 2011 due to the complexity that would follow from comparing different court systems, which would risk obscuring our analysis. Therefore, cases analysed from LEC have been selected from between 2 May 2011 and November 2013.<sup>4</sup> There are 20 cases in the sample from LEC and nine cases in LECA of which only three received permit review and were tried by the appeals court. Given that the LEC is one of five of its type in Swedish jurisdiction and the LECA the only of its kind, in combination with the fact that the legal setting is the same for the entire country – the appeal structure and content, as well as the municipal veto, is the same – the results from this type of qualitative analysis of the handlings in court may be analytically generalised to speak for the case of Sweden (cf. Yin 2014, on generalisation). Even if the southern parts of Sweden are more saturated with wind power and the establishments in the north tend to be bigger, the issues to be negotiated upon are the same or similar – such as noise and disturbance, landscape aesthetics and impact on fauna.

The possible generalisation also depends on the theoretical foundation (Yin 2014, 40), and when looking at the international literature we see similar challenges between local knowledge and the institutionalised means for handling wind power (as in Aitken, McDonald, and Strachan 2008), both from the perspective of agenda-setting power as

well as the juridification of siting permits in appeal (for mobile telephony masts in Sweden, see Larsson 2014b). “Juridification” of local concern, based in the environment or else, ties to participative issues and to the field of access to justice that are dealt with in a number of fields, not the least spatial planning and sociology of law. In other words, it is likely that this study, albeit conducted on a sample of cases in Southern Sweden, is of relevance to similar clashes or aspects of negotiation between lay and expert knowledge in relation to legal structures and court processes also in a number of other jurisdictions. This goes for the specific case of wind, but also the broader notion of interplay or struggle between types of knowledge in wind (Aitken 2009) and for other developments (Wynne 1996).

The study includes four interviews conducted in order to complement and elucidate the results we have received from the analysis of the other sources: (1) expert judge in LEC; (2) expert judge in LECA; (3) administrator at the regional permit authority (the county administration); (4) the regional “wind power coordinator” which has the role of supporting and facilitating wind power development in southern Sweden and is one of four regional coordinators appointed by the government.

Apart from the appeal cases, the legal material that has been used for the study has primarily regarded the directives and reports concerned with the legal revisions made during 2009. This constitutes the proposal that was drafted by the Environmental Process Commission (Miljöprocessutredningen) in late 2008 (SOU 2008:86) and the subsequent governmental bill that followed in the spring of 2009 (Prop. 2008/09:146), as well as the main directive for the wind power commission (Dir. 2007:94) and the supplementing directive of most interest to the wind power processes (Dir. 2007:184). The actual legislations are a natural part of this too, such as the Planning and Building Act (that was revised in May 2011, from 1987:10 to 2010:900) and the Environmental Code (1998:808), but also of the regulation for economic support for wind power planning (2007:160).<sup>5</sup>

#### **4. Results and analysis**

Given the type of study, some of the results need interpretative comments in order to be understandable, which is why the results and the discussion are here treated under the same heading. Common topics (cf. RQ1) found in the argument against wind power permits in appeal cases are, according to the sample of appeal cases as well as the expert judges:

- (1) Noise/disturbance/intermittent shadowing from the moving rotors;
- (2) Visual aspects/landscape aesthetics;
- (3) Potential impacts on fauna (in particular birds and bats);
- (4) Risks of decreasing property values;
- (5) Fear and feeling of uncertainty regarding a number of factors, including decreasing property values.

The single most common concern according to the sample of appeal cases is noise from wind turbines, or fear of what the noise level and type of disturbance will be like. It seems that a central concern regards how to clearly express the more vague feelings, worries and fears that many plaintiffs share regarding wind power. Types of self-regulation, such as benefit-sharing from wind energy developers to local communities or cooperative ownership, are not common in the context of this study, albeit sometimes pointed out as part

of a success story for Danish wind power development (Loring 2007). Such measures could possibly lead to less appeal of siting permits, but the particular focus here is on what happens when cases are in fact appealed, with regard to representation of types of knowledge or rationalities. In the Swedish wind power debate appeals have been made regarding a wider distribution of money for lease of land than to the actual property owner, since the turbines affect a wider group than just the landowner, and even block neighbouring initiatives. When applied, the wider distribution has varied from case to case, and an NGO has sought to develop a model agreement (Hela Sverige ska leva 2012).

The interviews and court case analysis conducted for this study point to the fact that it is hard to pinpoint the actual driving forces behind appeal and resistance. As pointed out by Bell, Gray, and Haggett (2005):

There may be good grounds for thinking that self-interested reasons for opposing a development will be 'hidden' behind principled arguments but we should not automatically assume that opponents of local developments do not genuinely hold a general principle of qualified support for wind energy. If we want to determine whether or not people are qualified supporters, we will (at least) need to look beyond their public arguments to the reasons they offer in private for opposing a development. (Bell, Gray, and Haggett 2005, 464)

Nevertheless, from the perspective of how rationalities are negotiated in court, we can conclude that noise is a topic often present in court cases dealing with permit processes, and a topic of clear interest in terms of how it expresses a battle between expert and lay knowledge, as well as its relation to how the appeal courts treat it. First of all, a noise level of 40 dB(A) at the outer wall of a residential building, which is a recommended value or "soft norm" (Emmelin and Lerman 2008), has become central to conflicts and appeals. This is confirmed by appeal cases, as well as the interviews with both the expert judges and the environmental permit official at the regional permit authority. The issue of noise, as well as the aesthetic concerns in appealed permit processes, can serve as an explanatory example of how the permit process structures relations between "lay" and "expert roles" and how participants respond to those structures, as inquired in RQ2 and RQ3. The interviewed official claimed that the issue of noise has become more common in appeal cases. The reason for this may be the increased development in forest areas where local residents experience that they live in an especially quiet environment which would be significantly impacted, or even where there is a perceived shortage of silence. For example, in the conflictual case of Linderödsåsen (LEC case M 1492-11, 30 January 2012), which we elaborate on below, the ridge where a group station had received permission to be constructed was described by several complainants as a quiet, noise-free area, which some argued is a more and more uncommon characteristic in the densely-populated south of Sweden (LEC case M 1492-11,4–6).

The environmental permit official interviewed for this study described how some residents distrust the prediction methods used for concluding the levels of noise from a windmill when it reaches the proximity of their residence, and stated that actual measurements were questioned to a lesser degree. He also saw problems in how some anti-wind power lobby groups accepted ongoing cases for local people in court:

Some associations will accept handling local residents' issues, but argue the wrong details. They have made their own calculations, but do not take the precautions defined in our decisions into consideration. These cases are dismissed directly by the Land and Environment court. When some associations step in, there is a risk of missing the actual issues of importance for local residents.

Additionally, the issue of noise is particularly interesting here, because the court cases reveal a constant battle around “threshold values”, what they mean, to what extent they are treated as guidelines or binding norms, who has made the assessment of the expected noise levels for the particular turbine to be erected and even how the models for measurement are constructed, as in a case in Tomelilla (M3665-10, LEC 26 November, 2011) or a case from Linderödsåsen in Kristianstad, where the plaintiffs living in the area used a research report from Aalborg University to support their claims on the unreliability of noise measurements (M 1492-11, LEC 30 January 2012). These figures, which originate from guidelines for external industrial noise drawn up by the Swedish Environmental Protection Agency in the 1970s, have become more rigidly applied in court praxis for wind turbines over the years. Interestingly enough, the expert judge in the LECA claims that there is an exaggerated focus on threshold levels at the local level, and that there are several conjunctive issues to take into more holistic consideration at the appeal court level.

Almost all of the appeals initiated by plaintiffs include aesthetic concerns as a reason why wind power permits should be denied. At the same time, the judge in the LEC, which is the first level of appeal after the regional permit authority’s decisions, states that the court only considers these place specific concerns to a limited extent. The same is stated with regard to other, more vaguely formulated fears. This can be seen as an indication that the plaintiffs need to adjust the formulation of their complaints to better fit the arguments and reasoning in court. Consequently, the “landscape analysis” that sometimes is conducted by some municipalities can be a method to “scientise” aesthetic concerns and to narratively adjust them to court proceedings. Statements are made in a seemingly objective form concerning “what the landscape can tolerate” and this is often related to statements concerning perceived scale and openness of the landscape. How to formulate arguments, then, is through a normative but passive parlance in which conditions are not expressed as statements but as facts that are “taken-for-granted”. One case in LEC with 27 plaintiffs from an area between Helsingborg and Ängelholm in southern Sweden concerned an appeal of an environmental permit for 8 wind turbines with a hub height between 80–105 m. (Case M 1180-11, 1 March, 2012). Here, the company argued that the two wind farms to be combined have a “cohesive and harmonious design” and thus will not “cause impermissible interference on the landscape” (20). The scenery and the landscape are “assessed as visually durable” (23).<sup>6</sup>

Another example can be taken from how the planning board in the local authority issued a statement in a LEC case regarding a wind turbine permit for a location in Trelleborg (M 1861-11, 18 November 2011, 3):

The visual importance of traditional structures, which are often part of the horizon, is sensitive to several large vertical structures on the landscape and as such involves a disturbance in the substantially horizontal landscape and takes the focus away from the level horizon. Particularly vertical elements, unrelated to agriculture, can affect large areas.

This can be described as a sort of translation of aesthetic issues from being based in the individual spectator’s values (“in the eyes of the beholder”) to becoming a matter of expert assessment of a value considered to be intrinsic in the landscape. The battle over the locus of landscape aesthetic values has been a recurring theme in landscape analysis for decades (cf. Emmelin 1982).

The property value argument is common in appeal cases and relates to a concern that many people have of wind power establishment leading to a decrease in the value of

adjacent properties. This is seen in the appeal cases. Interestingly enough, this is expressed by the expert judge (of the LEC) as a topic that “everyone addresses”, but that the court “never considers”. The basis for the trial the courts are doing is if there is a “significant inconvenience” (2 Ch. 9 § PBL)<sup>7</sup> for the complainant or not. According to the expert judge of LECA the term “significant” is legally rather strong, requiring substantial evidence, which in practice means that the depreciation of property values is disregarded in the court’s decision. No matter the legal conditions for the courts not to include this question in their judgements, it is of interest to see that several of the complainants in our sample raise this issue. Some as directly as, “how much will we be compensated for the decrease in property value?” (as in Case M 4332-10, 16 August 2011, LEC, Växjö). There are, to our knowledge, no Swedish studies on the relationship between wind power turbines and property value, even though there are a number of studies from markets such as in the UK (Sims, Dent and Oskrochi 2008), the USA (Hoen *et al.* 2009) and Denmark (Hartvigsen 2008). In Denmark a right to compensation for value depreciation for some types of properties has been introduced. If the connection between decreases in property value and wind turbine siting can be clearly shown in Sweden and the amount of complainants raising compensatory claims would increase it would be of interest to see to what extent court’s practice will change with regard to what is regarded “significant inconveniences” or if there will be proposals for a change in legislation. The LECA judge, on the other hand, also raised the opposite point of view of how protective legislations and court orders often are a factor in increasing the value of already present property – for example protection of shores in Sweden – without any monetary benefits going back to the public administration.

The role of birds, particularly nesting sites for raptors, and of bats is strongly positioned as an argument against turbine permits. The LEC expert judge indicates this in his statement that “eagle owls, bats and eagles are very much taken into account”. This is seen, for example, in the debate on to what extent a wind turbine establishment in Hallabjär, Kristiandstad, would be inappropriate due to the presence of a “very rare bat” – *Barbastella barbastellus* (Case M 2687-12, LEC 18 December 2012). Another example of a strategically formulated argument can be exemplified by the Linderödsåsen case mentioned above:

The golden eagle is probably not nesting in the area yet, but the nearest known breeding site is only a few kilometres away and a new establishment of territory is to be expected if the area remains undisturbed. (M 1492-11, LEC 30 January 2012)

Alternatively, as argued by plaintiffs in a case from Helsingborg: “[t]he golden eagle and the eagle owl are about to establish in the area” (Case M 1180-11, LEC 1 March 2012). This indicates that plaintiffs sometimes adopt, or even construct, arguments that they may think will benefit their appeal. As put by the environmental permit-official at the regional permit authority:

[It happens] in some cases, but there are few examples of this. You suddenly find an eyrie. This only happens, however, in exceptional cases. What is more typical is noise, shadows, and effects on the landscape.

The Helsingborg/Ängelholm case mentioned above deals with the issues of noise and birds, among other issues (M 1180-11, 1 March, 2012). One of the plaintiff’s statements highlights how expertise on birds is negotiated and challenged:

The information presented by the company regarding the impact of wind turbines on bird life deserves to be questioned. When the company's hired expert Leif Nilsson expresses his opinion on the proposed activity's impact on twelve species of raptors, he chooses to reject the material available regarding raptors, while citing studies of a species of diving ducks. (Case M 1180-11, 11)<sup>8</sup>

Many of the plaintiffs issued statements on the situation for birds and bats in the area, and many made references to a statement by some ornithological association. For example, one resident claimed that “[t]here are plenty of bats in the area, no inventory of these has been carried out, and through contacts with scientists [it has become clear that] the knowledge of rare species in the area has not been mapped” (M1180, 6).

The division between “lay” and the more trusted “expert” knowledge quite obviously plays a significant role in how the public may participate in the wind development at the appeal stage (as inquired in RQ4). A closer reading of the more complicated cases provides further insights into the interplay between expert and lay statements – as with the case regarding a group station of 18 wind turbines on what is called the Linderödsåsen in the municipality of Kristianstad (LEC case M 1492-11, 30 January 2012). The regional permit authority approved the environmental permit, and seven individuals living in the area appealed the permit. In this case, we can see the interaction between the use of expert knowledge, i.e. references to the specific noise measurements and general noise studies and the authoritative arguments contained in the guidelines from governmental authorities (such as the National Board of Health and Welfare, Socialstyrelsen), as well as anxiety and aesthetic considerations. There is a dialectic relationship between the threshold levels and the residents' concern for how the noise will be experienced. The residents fear that the quiet environment they see as characteristic of the area will be destroyed. The plaintiffs wish to speak in defence of an area, the area they feel is their territory, while the defendant (the company) argues that their rights to participation relate only to the immediate environment of the properties (8–9) – i.e. “the plaintiffs' substantive right of action, as concerned parties” (8).

## **5. Conclusions**

One way to understand the particular results of how different types of knowledge are received, negotiated and formulated within the legal setting of court disputes over wind turbine permit-giving is to relate them to the two paradigms of governance mentioned above. If there is, on the one hand, an “environmental paradigm” in which the calculating rationality or logic is emphasised parallel to a concentration or centralisation of the decision-making, there may be, at least analytically, a “plan paradigm” on the other. The latter would then emphasise a communicative rationality, which not uncommonly is regarded as a more locally based feature. In the specific case of wind power, noise is mainly treated, at least at the lower instances and first level of appeal, as a matter of calculating rationality based on the extent the measured level is in compliance with the 40 dB(A) “threshold”. Therefore, much argument is directed towards issues such as the methods of measurement and calculation and the importance of remaining below the 40 dB(A) level. The wildlife concern is treated in a similar fashion, particularly with regard to eagles and bats, where the court argumentation relies on expert statements from ornithological associations or external authorities in the field. Individuals' fear or worries (for property value depreciation, health, “destruction” of the landscape etc.) are often expressed in the appeal documentation, but appear to constitute a type of value that

courts cannot seriously consider. This indicates that the communicative aspects of the permit appeal is, at least to a large extent, controlled by a more calculating and expert-based logic that is found in the “environmental paradigm”. Furthermore, the appeal in court can be described in terms of a *juridification* that entails a formalisation. As such, it also functions as a sorting tool that defines and categorises the information, arguments and statements made by the concerned parties in the process (on the significance of categorisation for law and norms, see Larsson 2013a). At best, this serves as a means to sort amongst formally legitimate concerns in order to arrive at a justified decision. At worst, the juridification merely becomes a “distortion” of social realities (as outlined by Teubner 1992) that shape an authoritative decision-making process perceived as illegitimate. Thus, there is a shift from the relevance, quality and power of argument to what the system regards as an acceptable category of argument.

It seems that improving the permit handling process in relation to wind energy is a multi-faceted agenda. While there are bureaucratic processes that can be improved to streamline and make the decision-making process more effective, the interest of the local public also has to be addressed. This responsibility not only befalls the national government when setting renewable energy targets but must also start from the bottom through wind energy producers engaging with local communities to illustrate the likely appearance of proposed developments and to include the local public in the planning and siting of wind power plants (Lange and Hehl-Lange 2005; Klintman and Waldo 2008; Peel and Lloyd 2007).

As mentioned above, there is a strand of critique in the literature on expert and lay knowledges in decision-making that states that the lay side often has to adjust to the expert modes of communication to be heard at all (Aitken 2009; Collins and Evans 2002). On a similar note, the endeavour to be considered a credible party and express legitimate statements in the appeal process could most likely be strengthened by support from an already existing organisation, such as an ornithological association. Similarly, the anti-wind power lobby associations seek to reach similar credibility on overall wind power questions, but seem to be regarded as less legitimate in court than their ornithological counterparts. A component of this lack of legitimacy may possibly stem from the fact that they have been developed specifically as lobbying organisations against wind power, whereas the ornithological associations at the national or regional level are seen as organisations that exist irrespective of the wind power issue, and represent a specific and recognised category of expertise.

The results indicate that the juridification that takes place when a permit issue is appealed in the judiciary system supports the calculating rationality more than the communicative, and that the plaintiffs often attempt to adapt through the formulation of their arguments. It leads to an increase in the strength of scientific or at least “scientised”, meaning “science-like”, language use and references to expertise.

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No potential conflict of interest was reported by the authors.

## Notes

1. There are 290 municipalities and 21 county administrations/regions in Sweden.
2. "Det kan dessutom finnas en risk för att en omfattande användning av detaljplaneinstitutet medför att vindkraftsutbyggnaden i Sverige blir beroende av olika kommunala värderingar om vad som är lämpligt i just den egna kommunen och att vindkraftsutbyggnaden inte sker på de platser som objektivet sett är mest gynnsamma ur ett helhetsperspektiv."
3. The Swedish term is "tekniskt råd", which roughly translates to "technical judge", meaning that they should have experience and knowledge of the specific issues the Court examines, such as of a technical or natural scientific character.
4. LEC in Växjö, that is, and the sample regards cases appealed from the area/region of Skåne.
5. Förordning (2007:160) om stöd till planeringsinsatser för vindkraft.
6. "en sammanhållen och harmonisk utformning. Att de inte har samma höjd eller utformning kommer därför inte medföra otillåtna störningar på landskapsbilden."  
"Landskapsbilden i området bedöms däri som visuellt tålig."
7. "betydande olägenhet".
8. "Det underlag som redovisats från bolaget beträffande vindkraftverkens påverkan på fågellivet förtjänar att ifrågasättas. När den av Bolaget anlitate experten Leif Nilsson uttalar sig om den tänkta verksamhetens inverkan på tolv arter av rovfåglar väljer han att underkänna det material som finns tillgängligt beträffande rovfåglar samtidigt som han åberopar studier av en art dykänder."

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