Where the Wind Blows

The socio-political geography of wind power development in Finland, Norway and Sweden

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"The secret of change is to focus all of your energy, not on fighting the old, but on building the new"

Socrates

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Well, this was fun! And inspiring, exhausting, enlightening, frustrating, though-provoking, terrifying, stimulating, confusing, empowering, and, ultimately, very rewarding. In essence, writing a PhD-thesis is a roller coaster ride of experiences, thoughts and emotions. It is a time when you want and need to have good people around you who will join you in celebrating your victories, advice you on how to progress in your work, and support you when you are stuck. I have had the privileged and the pleasure of having many such people around me during the process of writing this thesis.

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Table of Contents

Appendices

Paper I: Liljenfeldt, J. (2013) Legitimacy and Efficiency in Planning Processes – (How) Does Wind Power Change the Situation?, *European Planning Studies*, 23:4, p 811-827

Paper II: Liljenfeldt, J. (submitted) The power of the people: Why managing wind power disputes by marginalizing local oppositional groups in planning processes may backfire

Paper III: Liljenfeldt, J. and Pettersson, Ö. (submitted) Distributional justice in Swedish wind power development – an odds ratio analysis of windmill localization and local residents' socio-economic characteristics

Paper IV: Liljenfeldt, J. (2013) Wind power development as a means to local economic development. In: Lundmark, L. and Sandström, C. (eds.), Natural resources and regional development theory, *Gerum Kulturgeografisk arbetsrapport*, Umeå: Department of geography and economic history, Umeå University, p 124-141

Appendix: Interview guide

Introduction

This thesis explores the negotiation, planning and development of large-scale wind power development in Finland, Norway and Sweden, and the new power relations and socio-economic dynamics that are emerging in relation to this development. The analysis is structured through an energy justice framework that aims to capture both possible inequalities in power between different stakeholders as concerns influence over and participation in the development process ('procedural inequalities'), and inequalities concerning how the potential positive and negative outcomes of these processes impact different stakeholders in society ('distributional inequalities'). Throughout the thesis, wind power is seen as a case study in itself for understanding how these kinds of processes may work themselves out in the larger context of low-carbon energy transition.

The point of departure for the thesis is that, for a few years now, wind power development has been on the rise in the Nordic countries as well as in the rest of Europe and many other parts of the world (EWEA, 2014; GWEC, 2014). Vast areas of land and water are being claimed and transformed in order to make room for wind farms, which not only affect their immediate surroundings but, because of their height and need for supporting infrastructure like roads and electricity grids, have far-reaching landscape effects. This development is part of a process of building a new energy landscape that on the international and national scale is expressed as an energy transition from dependency on fossil fuels and, to some extent, nuclear energy, to renewable energies. On the regional and local scale, the process takes its material form through land-use change and transformed sceneries. This transition is no small undertaking. In fact, if performed thoroughly, it may very well be one of the largest post-Second-World-War infrastructure projects for many countries – which has been asserted concerning, for instance, the German Energiewende (Graupner, 2013; see also Quitzow et al., 2016)).

Building this new energy landscape, however, does not only entail physical, environmental or technical changes. From an understanding that space and society are co-productive of each other (Massey, 2005) – that is, not only is space produced through social relations but social relations are likewise produced through space – it follows that large-scale infrastructural changes like these will also undoubtedly have social and political implications. Socially, for example, issues of fairness and justice can be raised between those who are burdened by this new development and those

who can benefit from it (be it through a better climate or through economic or other direct benefits). Politically, policies as well as land use need to be renegotiated and planned for, entailing a great deal of deliberation and cooperation between large numbers of stakeholders in all sectors (public, private and civil) and all levels of society (supranational, national, regional, local and individual). Power relations will play an important role here, as different stakeholders will try to reposition themselves in relation to others in order to exert influence over the development process and the new energy landscape – at the cost or to the benefit of other stakeholders. Considering the rigidity and often path-dependent nature of infrastructural projects (with old infrastructure being replaced by new after a lifetime), and the consequent impacts of longstanding social effects, there is reason to try to, so to say, 'get it right from the beginning' in the process and work to avoid creating or aggravating existing social inequalities. A possible way to do this is by bringing attention to these inequalities and how they are produced.

The emerging field of energy justice, which builds on the environmental and climate justice literature (Bickerstaff et al., 2013), is a framework that tries to capture the social implications described above. This relates both to differentiated socio-economic impacts of the building of energy infrastructure in space (known as 'distributional justice') and to unequal opportunities to participate in and decide over the processes that create these changes ('procedural justice'). In the former case, there is a tradition within the environmental justice literature to structure enquiries around the geographical proximity between problematic infrastructures and the population in the vicinity. This is intuitive in the sense that feeling, seeing, hearing or smelling the impact of a specific facility most often requires being near the facility itself; this type of study is discussed in this thesis as well (see Paper III). However, through material and social flows and interconnections, the burdens as well as the benefits of these developments can be dispersed far away in space, which means that there is also reason to be attuned to the social and material ties that stretch out in space far from the site of the facility or infrastructure (Massey, 2005).

In the case of 'procedural justice', enquiries into the spatial planning system play a key role, as it is largely within the planning process that new land use is suggested, contested and decided upon. Furthermore, as Nadaï and van der Horst have argued in the case of wind power, "planning processes are a crucial forum for the framing and subsequent production of wind power landscapes that reflect the conflicts, powers and priorities of socio-technical change" (2010, p 184). Which stakeholders and claims are recognized in these processes are of interest here, as well as who is able to participate in (and at what stage) and decide upon these processes

(Schlosberg, 2009, Walker, 2012). However, as all social relations have the possibility to influence the production of space, it is also important to pay attention to how stakeholders try to use more informal ways of influencing these processes, such as direct lobbying or writing articles in newspapers or social media, in order to get the result they want out of the process.

As concerns the focus on wind power in this thesis, it can be argued that, although different kinds of large-scale renewable energies may differ concerning technical and natural requirements as well as the possible environmental and health effects of the development, there are still similar political and social complexities surrounding the development of these technologies. Whether it is hydropower or solar power plants, new vegetation patterns for biofuel, or wind power farms that are being planned, it always implies an alteration of land use in large areas, with smaller or larger consequences for the people living in their proximity, or for other types of land use in the area. However, the example that has probably drawn the most interest from both politicians and the public, as well as the market (at least in Europe during the last few years) is the development of wind power. Over 25 per cent of new energy capacity installed in Europe since the year 2000 has been wind power, accounting for about half of all renewables installed during the period (EWEA, 2014). At the same time, windmills have grown notably; not only in power generation capacity but also in size (Kaldellis & Zafirakis, 2011), with the implication that larger areas will be impacted by individual projects. Added to this is also the tendency today to build wind farms instead of one, two or three windmills at a time, as the case tends to be when the first windmills are built in a country.

A consequence of fast and large-scale development is that voices are being raised, on the level of the European Union (the EU) as well as on national and local levels, as to wind power's compatibility with and/or privileged position over other types of land use, such as housing, environmental protection, or tourism and outdoor recreation. Such contestations are often also accompanied by a more general questioning of the economic and energy efficiency of wind power as compared to alternative energy infrastructures. Furthermore, many countries have seen contestations regarding how the development process for wind power projects has unfolded. Here, some stakeholders have questioned the democratic legitimacy of the process (Breukers & Wolsink, 2007; Toke et al., 2008) on the one hand and its efficiency on the other (Ellis et al., 2009; EWEA, 2013), as well as the fairness and justice of both the process and the final outcome (Aitken, 2010a; Gross, 2007; Wolsink, 2007). A way of trying to cushion these concerns, on a local scale, has entailed trying to spread the returns from individual projects to a wider set of stakeholders, for instance in the form of

community benefits (Cass et al., 2010; Munday et al., 2011). Some have considered this a fair trade-off, while others have considered it a bribe (either seen as project developers trying to bribe affected communities, or local politicians pressing project developers for money in order for the project to be cleared for development; Cass et al., 2010; Cowell et al., 2011; Aitken 2010a). At the policy level, the approach to mitigating 'barriers' to wind power development has instead, among other things, involved carrying out different kinds of reforms to the planning systems that are thought to speed up procedures (Baltas & Dervos, 2012; Nadaï, 2007; Pettersson & Söderholm, 2011, Szarka, 2007b). Taken together, the features of wind power development mentioned here make for a good representation, or case study, for exploring the socio-economic and political characteristics that can be expected in a new renewable energy landscape, and the policy and planning process related to this development.

Aim and Research Questions

The aim of this thesis is to explore and analyse the emerging power relations and socio-economic dynamics, changes and effects in society of the negotiation, planning and realization of new wind power developments. More specifically, the thesis employs an energy justice framework to highlight the opportunities different stakeholders have to take part in and influence wind power development processes ('procedural justice'), and how the potential benefits and burdens of wind power development are divided between stakeholders ('distributional justice'). Throughout the thesis, wind power will be regarded as a case study in itself in relation to the energy transition as a whole, in order to illustrate where the political and socio-economic pitfalls and opportunities may lie when it comes to developing a new low-carbon energy landscape. The research questions that structure the study are as follows:

a) What kind of power relations structure participation in and influence over wind power planning processes?
b) How do these power relations affect the inclusion and exclusion of different stakeholders in planning and decision-making processes concerning wind power development?
c) How are the material impacts of wind power development distributed between different socio-economic and demographic groups in society?
d) What are the ways in which the impacts of wind power developments can be redistributed between those who benefit from and those who are burdened by these developments?

The focus of the thesis will be delimited to the power relations and socio-economic dynamics related to the planning aspects of wind power development and the energy transition – including the power relations that influence the participation in and outcome of such processes. This delimitation excludes, for instance, power relations inherent in the political processes for deciding on national energy policies, as well as new power relations between 'old' and 'new' energy producers. Instead, the study concentrates on the socio-spatial processes through which these policies are set to be realized in space. The idea here is that it is the national planning systems that function as the formal arena for negotiating space, and as such, it is within this forum that both procedures for participation in such negotiations are set and the final decisions on land use are made. From a technology perspective, the study is also delimited in time, as the focus is exclusively on the site where windmills will potentially be erected. This means, for instance, that extraction sites for materials used in the construction of windmills, or sites where windmills are dismateled, are not included in the analysis.

The setup for the study is an embedded sequential mixed methods design (Creswell & Plano Clark, 2011), meaning that both qualitative and quantitative methods are used but that the emphasis (in this case) is on the qualitative methods. The geographical focus of the study targets wind power development in Finland, Norway and Sweden. These countries have similar institutional, social and environmental backgrounds, with politicians in recent years pushing for the expansion of wind power, but the initiatives have achieved different levels of results in terms of wind power output. However, as Sweden has a somewhat longer history of large-scale wind power development than the other countries (for instance, broad financial support schemes were introduced in Sweden already in 2003, while Finland did so in 2011 and Norway in 2012), and as some of the empirical material (primarily for Paper III) could only be gathered for Sweden, more weight will be given to the Swedish case, especially concerning the last two research questions.

Outline of the Thesis

The thesis comprises an introductory section (kappa) and four papers. The kappa includes the theoretical, methodological and contextual frameworks for the thesis, and the four papers present most of the empirical material analysed here.

The following part of the kappa starts with a presentation of the geographical context within which the thesis is set. This is followed by a

theoretical section, which begins with a review of how energy issues have been approached within geographical research up to this point (2016). In order to position the spatial perspective of the thesis theoretically, the discussion then moves on to consider how space, and thus wind power developments, can be understood as being relationally produced. After this, energy justice is introduced as a frame for analysing both the opportunities and limitations that different stakeholders and social groups have to participate in and influence wind power development processes ('procedural justice'), and the benefits and burdens of the developments that impact them ('distributional justice'). The theoretical section concludes by presenting insights from planning theory concerning processes of inclusion and exclusion, as well as how power can be exercised in relation to planning processes. In the next section, the energy justice frame is utilized to present a review of previous studies on the topic of wind power development and the concerns related to procedural and distributional justice that can be found there. Thereafter follows first a section presenting an account of the methodology and the empirical data sources used in the study, and then a section summarizing the findings of each of the four papers in the thesis. In the final section of the kappa, key results and conclusions from the papers are discussed both specifically in relation to the development of wind power, and more generally in relation to the low-carbon energy transition.

Of the papers presented in the thesis, the first two concentrate on procedural concerns, such as stakeholder participation in the planning process for wind power development, while the last two shift the focus to distributional issues concerning the impact of the benefits and burdens of wind power development (see Table 1). Paper I scrutinizes the overall planning framework for wind power development in Finland, Norway and Sweden, and discusses the inherent tension in the process between input legitimacy and output efficiency. Paper II zooms in on actual wind power siting situations, and on how local oppositional interest groups obtain information about the projects and try to influence their outcome through formal and informal channels. Paper III sheds light on the socio-economic background of people living in areas where windmills have been approved or built, and compares this population to people living in areas where windmill proposals have been rejected. Finally, Paper IV focuses on how different types of community benefits connected to wind power development projects are formulated and negotiated between project developers and local communities, and what opportunities this presents for local economic development.

Table 1: Theoretical and methodological details for the papers

Paper	I	II	III	IV
Aim	To investigate how the issue of legitimacy versus efficiency is managed within national planning systems when faced with the expansion of large-scale wind power	To explore how local oppositional interest groups engage with wind power planning processes through formal and informal channels, in order to both obtain information and influence the process	To analyse the extent to which decisions to approve or reject windmill proposals in Sweden can be related to the socio-economic characteristics of people living in surrounding areas	To explore how wind power developers handle issues of local economic development in the framework of their projects and how different kinds of community benefits are used in negotiations concerning wind power projects
Theoretical contribution: Energy justice	Procedural justice	Procedural justice	Distributive justice	Distributive justice
Theoretical themes in the paper	Legitimacy and efficiency in the wind power planning process	Formal and informal participation in wind power planning processes	Distributive justice in relation to windmill siting	Local economic development and community benefits from wind power
Material/ method	Semi-structured interviews, reviews of EU and national policy documents	Semi-structured interviews	Register data, GIS-based overlay analysis, binary logistic regression	Reviews of planning documents and observations
Analysis	Content analysis and thematic analysis	Thematic analysis	Odds ratio analysis	Thematic analysis
Study area	EU, Finland, Norway and Sweden, as well as two case-study areas in each country	Two case-study areas in Sweden, Finland and Norway, respectively (same as Paper I)	Sweden	Two case-study areas in Sweden alone (same as Papers I and II)

7

Setting the Scene

The three countries in focus in this thesis are Finland, Norway and Sweden. Compared to other European countries, these three are large in size but have low population density (16-22 inhabitants/km², compared to EU's 119 inhabitants/km²; the Nordic Council, 2014; see also Figure 1). Of the three, Sweden has the largest size, the most inhabitants, and the highest population density. With an ongoing urbanization trend in all three countries, the majority of their inhabitants can be found in urban areas, which are mostly located in the costal and more southern parts of the countries, and about a fifth of each country's inhabitants live in the capital areas (see Table 2; Smas & Grunfelder, 2016). Because of migration to these regions the more rural areas, which largely consist of forested land, are under pressure from depopulation and a rising old-age dependency ratio, as well as a gender imbalance, with fewer women in relation to men (Grunfelder et al., 2016b).

Table 2: Country statistics for Finland, Norway and Sweden

	Finland	Norway	Sweden
Area size (km²)	340 010	323 771	447 435
Forests (% of total area)	67	39	63
Arable land (% of total area)	7	2	6
Population in millions (end of 2014)	5.5	5.2	9.7
Inhabitants/km²	16	16	22
Inhab. in capital area (% of total)	20	24	23
Inhab. in urban area (% of total)	~ 66	~ 58	~ 66

Source: the Nordic council, 2014, 2015; Grunfelder, et al., 2016a

The skewed population distribution has resulted in a large share of the countries' electricity being consumed in their southern parts (Weber & Smith, 2016). The large, electricity-demanding industries in the countries, found mostly in the south but also further north along the coastline in Sweden and Finland, further contribute to the high electricity consumption in these parts of the countries. In Norway, it is the country's households and the service sector that account for most of the electricity consumption, while in Finland the industry sector is generally the largest electricity consumer (Weber & Smith, 2016). In Sweden, the most electricity is consumed
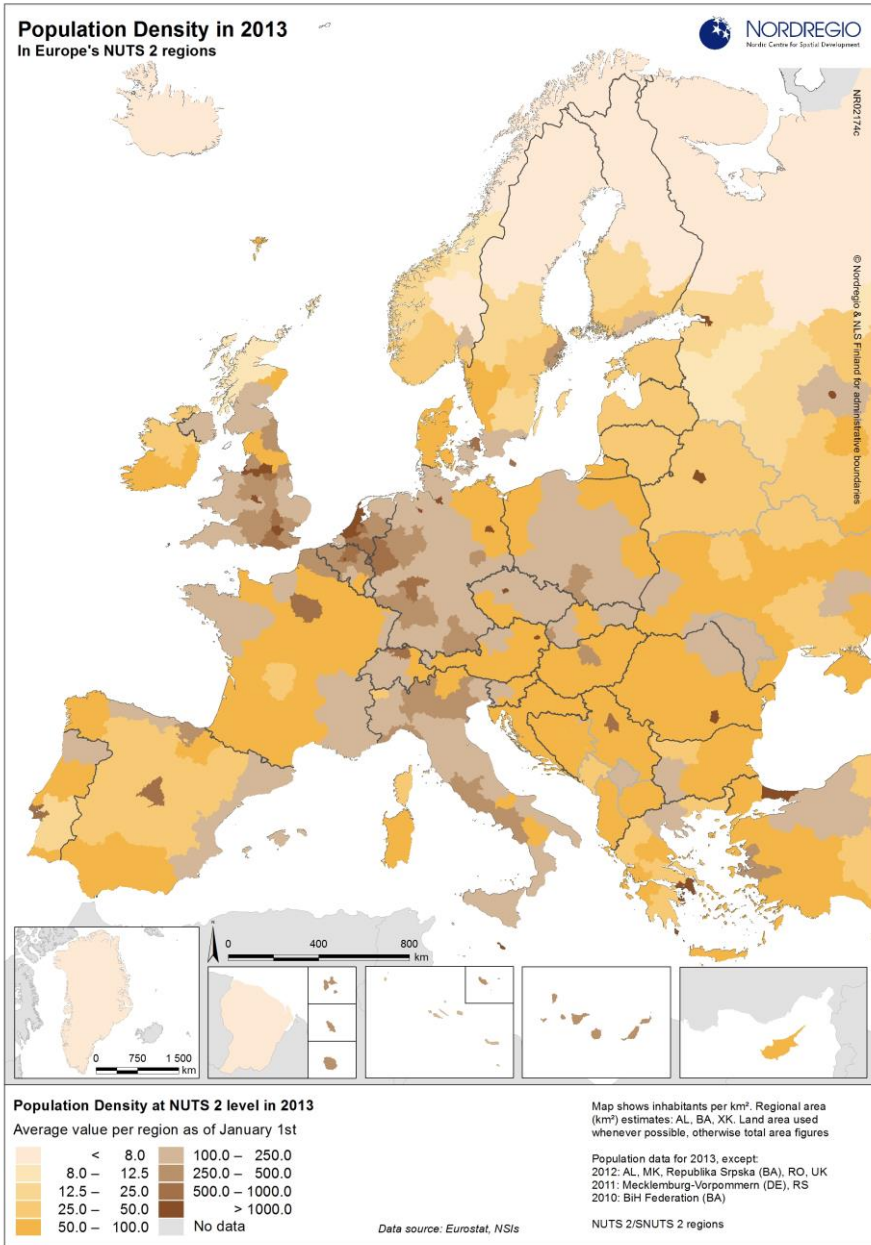
Figure 1: Population density (inhabitants/km²) in Europe, 2013. Source: Nordregio, 2014

by households and the service sector in the southern part of the country, while the industry sector is the main consumer in the north (electricity consumption as a whole, though, is still larger in the south than in the north).

From a political perspective, Finland, Norway and Sweden share a long history together and have a high degree of political, social and economic cooperation (Jones & Hansen, 2008). Going back in time, both Finland and Sweden (from the 1200s until 1809) and Norway and Sweden (between 1814 and 1905) have comprised the same country, thus laying the groundwork for a shared cultural and political development. Over the years, the ties between the three countries, along with the other Nordic states, have led to the development of a distinct governance model, known as the Nordic Welfare Model, as well as distinct municipal and planning systems, as compared to other European countries. The Nordic Welfare Model includes a combination of a strong public welfare system and a free market economy. The public welfare system, set up to ensure universal and equal social benefits to the countries' inhabitants, is characterized by high tax levels and a large degree of social redistribution via taxation and public-sector spending (Norden, 2016).

The governmental system is highly decentralized and, to a large extent, it is the municipalities that have the responsibility for realizing the welfare politics (Lidström, 2003). In relation to the state, here the municipalities are mandated a great deal of self-determination (Böhme, 2002; Lidström, 2003). For instance, the locally elected municipal councils have the right to collect a local tax for their activities, and have the final say in local land-use changes and spatial planning (Böhme, 2002; Lidström, 2003). This strong position of the local level in matters of governance has a long history in the Nordic region. For instance, Kenneth Olwig's research shows that, historically, the regional governance divisions of the Nordic countries into different 'landscapes' have been intimately connected to matters of regional self-rule: "landscape was understood above all as referring to a political community of people – a polity – and the set of customary, local laws through which they administer themselves" (Olwig, 2002; Whylie, 2007, p 196).

Today, the three countries cooperate both formally and informally in several political areas, for example concerning economic, labour-market, environment and energy issues, through cross-national institutions such as

the Nordic Council[1] (Jones & Hansen, 2008). In relation to energy, Norway and Sweden established a common electricity market – 'Nord Pool' – as early as 1996 (Blindheim, 2013). Finland joined a few years later and subsequently the market expanded to a number of other countries, and now constitutes the largest market for electricity in Europe. Through Finland and Sweden's membership in the EU, and through Norway's cooperation with the EU by being a member of the European Economic Area (EEA), the three countries also share overarching energy policies originating from the EU. This includes, for instance, shared commitments to mitigate climate change (COM (2010)), compliance with the EU's renewable energy directives (Directives (2001)/77/EC and (2009)/28/EC), and strategies for facilitating the development of the Energy Union (COM (2015)).

Energy and Wind Power Policy

From the perspective of wind power development, some of Finland, Norway and Sweden's geographical characteristics offer good preconditions for wind power expansion. All countries exhibit strong wind resources and vast, sparsely populated areas, as well as well-developed supporting infrastructure for wind energy, such as nationwide electricity grids and hydropower that can function as balancing power for wind turbines. However, despite these conditions, the wind power sectors in Finland, Norway and Sweden have historically not constituted any larger part of the national electricity production. In order to supply the countries' energy-intensive industries with electricity, the focus has instead been on large-scale energy production from hydro, nuclear and coal power plants. By 2014 this development had resulted in an electricity mix made up mostly of hydropower in Norway, an equal division of hydro and nuclear power in Sweden, and a mix of hydropower, nuclear power and combustible fuels[2] in Finland (Figure 2). In all three countries, the share of electricity from wind power remains small compared to the other sources of electricity production.

To some extent the national electricity compositions, especially for Norway and Sweden, do not facilitate wind power development. This is because the combination of hydropower and nuclear power ensures that there is both a high degree of renewable energy and a limited emission of greenhouse gases in the production of electricity as compared to other countries. However, in line with discussions in recent decades about mitigating climate change, the expansion of wind power has come up on the

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[1] The Nordic Council also includes Denmark and Iceland, as well as the autonomous areas of the Faroe Islands, Greenland and the Åland Islands.

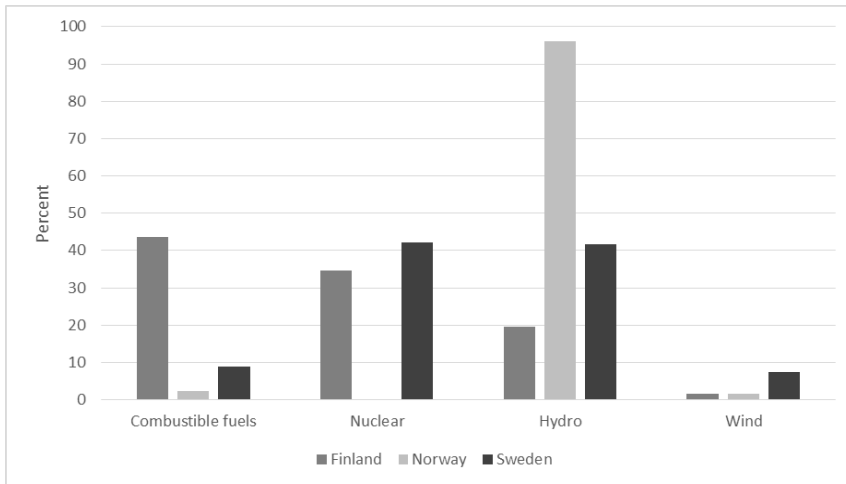[2] The combustible fuels consist mostly of coal, waste and biofuels.

Figure 2: The national electricity mix in Finland, Norway and Sweden in 2014. Source: International Energy Agency, 2016 a,b,c

agenda. This is partly related to the EU's climate and energy strategy from 2007, which also applies to Norway through the country's involvement in the EEA. The strategy states, among other things, that 20 per cent of energy in the EU should come from renewable energy sources by 2020. This overarching goal was translated into national renewables targets for each country in the EU/EEA. The main criterion for setting the national targets was the level of GDP per capita in the different countries. This means that countries such as Norway and Sweden, which already had a high level of renewable energy in their energy consumption, were still assigned relatively high target levels in relation to the other countries. For Finland, the target is an increase of the share of renewable energy sources in gross final consumption[3] from 28.5 per cent in 2005 to 38.0 per cent in 2020, while Sweden's equivalent is an increase from 39.8 per cent to 49.0 per cent. Norway, which took a bit longer to negotiate its target levels, is set to increase from 61.0 per cent in 2010 to 67.5 per cent in 2020. Today, both Finland and Sweden have already reached and surpassed their targets (Weber & Smith, 2016). However, as the EU's new climate and energy strategy from 2014 establishes even higher renewable energy targets for the

[3] It should be noted here that energy targets and statistics are often expressed in two words that are interlinked, but have inherently different meanings. The first pair is 'consumption' and 'production'. EU targets are expressed as the consumption of energy, but national targets are more often expressed as the production of energy. The other pair is 'energy' and 'electricity'. Renewable energy infrastructure that produces electricity, such as wind power, is but a subpart of all renewable energy sources. It is thus important to separate targets and statistics that focus on renewable energies in general and those that focus on electricity specifically.

year 2030 – at least a 27.0 per cent share of renewable energy in final consumption in the EU – there is reason to still push for an expansion of renewable energy in the countries; at least if they want to continue to comply with the directives of the EU/EEA.

In line with the EU/EEA targets, Finland, Norway and Sweden have all established goals to increase the amount of energy produced from renewable sources. For Finland and Sweden, this also includes specific targets for wind power. In Finland, a goal was set in 2008 to produce 6 TWh of electricity from wind power by 2020 (Ministry of Employment and the Economy, 2010). In 2013, this goal was raised to 9 TWh by 2025 (Ministry of Employment and the Economy, 2013). Currently (2016), the Finnish government is again looking over this target in the preparation of a new national energy and climate strategy (Ministry of Employment and the Economy, 2016). Already in 1999, Norway adopted a 3 TWh production target for onshore wind power by 2010 (Blindheim, 2013). This target was never met, however, and no new target specifically for wind power development has been issued since then. Instead, since 2006 Norway has had the goal to increase the amount of renewable energy production and energy efficiency by 30 TWh/year between 2001 and 2016, and here wind power is regarded as important for reaching the goal (Ministry of the Environment & of Petroleum and Energy, 2007). Sweden was also early to set a goal for wind power expansion. In 2002, the country established a production goal for renewable energy of 10 TWh by 2010, as well as a planning framework for wind power amounting to 10 TWh installed capacity by 2015 (Proposition 2001/02:143). The planning framework meant that there should be *land-use plans* prepared for the instalment of this capacity by 2015, but not necessarily physically installed windmills. The target for wind power was raised in 2009, to a planning framework for 30 TWh wind power by 2020 (Proposition 2008/09:163).

To support these goals, all three countries have also introduced financial support schemes. Since 2003 Sweden has had an electricity certificate system[4] targeting all renewable energy sources, which Norway joined in 2012 (the Swedish Energy Agency, 2016a). Together, the countries are expected to increase the production capacity within the area by 28.4 TWh renewable electricity by 2020 (the Swedish Energy Agency, 2016b). Finland has chosen

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[4] A number of different subsidization systems for promoting renewable energy infrastrucutres exist, but renewable portfolio standards, such as the Swedish-Norwegian electricity certificate system, and renewable energy feed-in tariffs, which Finland uses, may be the most often occurring (Lewis & Wiser, 2007; Szarka, 2006). The first is a quota-based system whereby "a particular quantity of the national output (often expressed as a percentage) comes from defined sources [for instance wind power], and puts in place market mechanisms (usually tradable certificates) to attain that quota" (Szarka, 2006, p 3043). In the second system, a certain "price per kilowatt hour is guaranteed to all targeted suppliers" (Szarka, 2006, p 3043).

a market-based feed-in tariff scheme, which came into full effect in 2011. However, in 2015 the Finnish government halted further subsidies through the system, and is currently planning for a new subsidy scheme (Holttinen & Rissanen, 2016). The countries have also taken other policy measures in order to facilitate wind power development, including national mapping of wind speeds (all countries), R&D funding related to wind power (all countries), and national information programmes focused on wind power (Sweden; see Paper I). The country policies also targeted the planning area. This has entailed, for instance, issuing national guidelines for wind power planning (all countries), appointing national strategic areas for wind power development (all countries, but in Norway it only applied to offshore development), funding for local land-use planning endeavours (Finland and Sweden), and making changes to laws governing the planning process in order to speed up both planning and permit procedures (all countries; see Paper I).

Wind Power Development

Turning to the actual development of wind power, it should initially be stated that wind energy, on a global scale, is currently not a very large source of electricity. In 2015, it accounted for slightly under four per cent of the global electricity consumption (U.S. Department of Energy, 2016). However, its share of the electricity production is growing rapidly. For instance, 2015 saw a record-breaking instalment of 63 GW[5] of wind energy globally, adding up to a total of 433 GW of installed capacity (U.S. Department of Energy, 2016). In the EU wind power is the leading source of new power generation capacity, and has overtaken hydropower as the third largest source of power generation (EWEA, 2016). Within the EU, 73 per cent of all *new* wind energy capacity in 2015 was installed in the top four markets: Germany, Poland, France and the UK (EWEA, 2016). Sweden had the fifth largest share of new installed wind power capacity, with Finland following in seventh place (EWEA, 2016). Norway, however, was among the countries with the least new wind power instalments in the EU/EEA area.

   As seen in Figure 3, the accumulated installed wind power capacity in Finland was 1005 MW in 2015, while in Norway it was 873 MW and in Sweden it was 6029 MW. Sweden's early push for wind power development, with early policy goals and monetary incentives, has resulted in a rapid

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[5] GW, or gigawatt, is a measurement of maximum electricity production capacity. The measurement can also be expressed as megawatt (MW) or terawatt (TW), whereby 1000 MW is the same as 1 GW and 1000 GW is the same as 1 TW. Another measurement that is commonly used in relation to electricity production and consumption is mega- giga- and terawatt hours, abbreviated as MWh, GWh and TWh. This is a measurement of the produced or consumed amount of electricity during a specific period. As with the other measurement, 1000 MWh is the same as 1 GWh and 1000 GWh is the same as 1 TWh.

expansion of wind power since 2006. To date, the wind power development in Sweden far exceeds the levels of development in Finland and Norway. However, since 2011-2012 (the same years monetary incentives were established in Finland and Norway), there has been an increase in development in these countries as well – especially Finland.
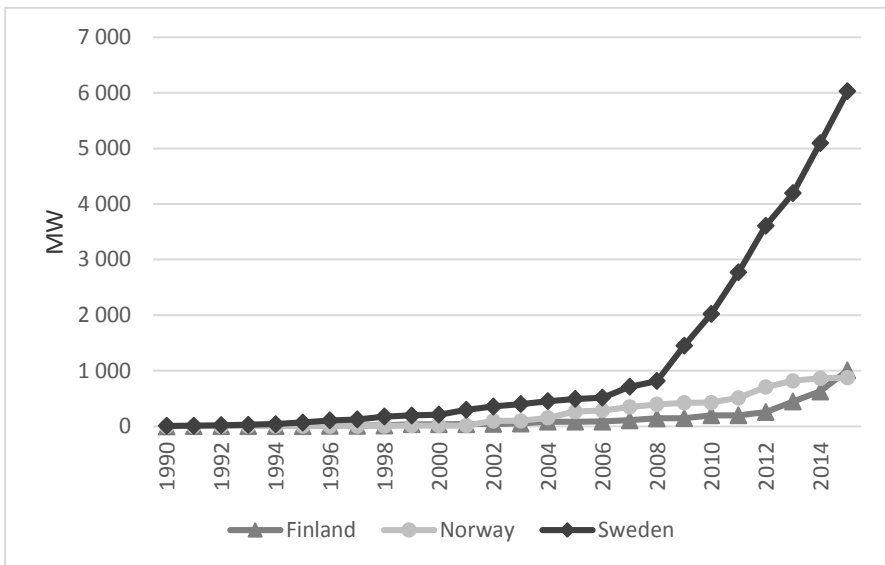
Figure 3: Finland, Norway and Sweden's installed wind power capacity (MW), 1990-2015 Source: Eurostat, 2016; Gustafsson, 2016; Holttinen & Rissanen, 2016; Rikheim, 2016

The distribution of wind energy production in the three countries can be seen in Figure 4. The regional differentiation shown in the figure, with higher energy production along the coastlines, can to some extent be explained by the fact that the highest wind speeds in the countries are found in these areas (the Swedish Energy Agency, 2016b; NVE, 2016; Finnish Wind Atlas, 2016). In line with this, large-scale wind power development first took off in the southern parts of Sweden, along the coastline and on the agricultural plains and large lakes in this area, and along the coastline in Finland (Holttinen & Rissanen, 2016; the Swedish Energy Agency, 2015). However, in both Sweden and Finland, technological improvements to windmills have meant that it has become possible to also utilize the wind resources in the forested areas of the central and northern parts of Sweden and in the inland areas in Finland (Holttinen & Rissanen, 2016; the Swedish Energy Agency, 2015). Thus, an increasing share of the two countries' wind energy production is now generated in these areas. The new phase of

Figure 4: Regional wind energy production in Finland, Norway and Sweden in 2014 (GWh) Source: SCB, 2016; SSB, 2016; Finsk energiindustri, 2016

development is noteworthy from the perspective of planning and land-use development, as the windmills in these areas need to be larger in both size and quantity if they are to be economically feasible. Consequently, the newer wind power developments often have a relatively larger physical impact on the areas where they are placed than the windmills built in the initial phase of wind power expansion.

Planning and Permit Processes

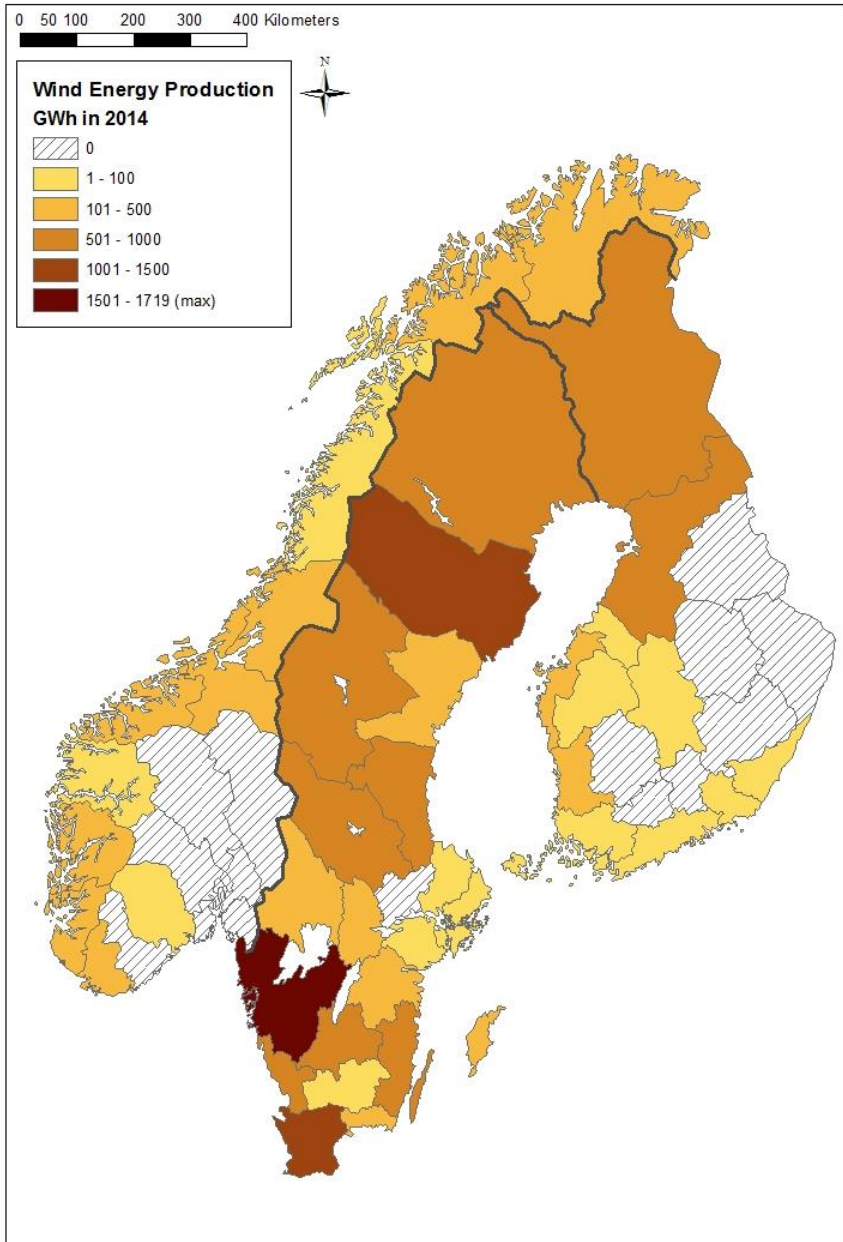Finland, Norway and Sweden all belong to the same planning community, as compared to other planning systems in the European countries (Böhme, 2002, 2003). An important difference is that planning in the Nordic countries has traditionally focused mostly on land use or physical planning, whereas spatial planning in other European settings is a much broader concept, closely connected to strategic regional development issues (Böhme, 2003). Moreover, with a focus on local self-government and local democracy, the Nordic planning system is much more decentralized compared to other countries in Europe (Böhme, 2002). The emphasis on local self-determination is manifested through the leading role of municipalities in planning and permit processes, but there is also a strong legal emphasis on public participation in such processes (Böhme, 2002; Mäntysalo et al., 2011). The countries' commitments to the Aarhus Convention (UNECE, 1999) and the European Landscape Convention (Council of Europe, 2000) have further strengthened this focus. The former aims to guarantee every person (present and future) "the rights of access to information, public participation in decision-making, and access to justice in environmental matters" (Article 1); the latter has at its core an ambition to strengthen the focus on both hard and soft landscape values in land-use planning processes, as well as open up these processes to extensive public participation (Jones, 2009).

On the more practical side, the planning systems in Finland, Norway and Sweden can be seen as quite bureaucratic and as taking a rational approach to planning, whereby one planning phase logically leads to the next and the development of higher-order plans must precede more detailed ones (Böhme, 2002; Mäntysalo et al., 2011). Compulsory elements in the planning systems include, for instance, publically announcing the start of planning processes, opening up for public participation through public hearings, and conducting surveys and assessments of the plans' impacts (Mäntysalo et al., 2011). The rigidness of the systems can at times be time-consuming, and Mäntysalo et al. (2011) have argued that in recent years this fact has led to a situation in the countries whereby development projects are initially discussed and planned in more informal ways between the developers and public officials. Such 'managerial' approaches open up for more flexibility in

the planning system, which better meets the demands of the fast-moving market, but also potentially constrain deliberations with the public as it can happen that developers and authorities are already in agreement as to the direction of the development when the participatory process begins. To some extent, this could be an extension of what Böhme (2002) calls a 'neo-corporatist' decision-making culture in the Nordic countries, whereby interest groups cooperate with authorities on different policy issues, both to represent the members' interests and to help carry out the policies.

In order to offer an understanding of how wind power development plays out in practice, the following paragraphs will describe the planning and permit system that steers the localization of wind power in the three countries. There are multiple planning levels with several different land-use plans in each country, as well as several slightly different permit procedures for wind power projects, depending on aspects such as project size and the features of the intended location. For this reason, it is hard to describe all these processes without getting into lengthy, detailed descriptions of how the procedures differ between one land-use plan or wind power project and another. In order to limit the length of the description, the following text will not go into procedural detail for each level of the countries' different land-use plans, but will instead give a general overview of how they are created and decided upon. Similarly, the procedures of the permit processes will be delimited to large-scale wind power projects[6], which are the kinds of projects that are in focus in this thesis.

Finland

The land-use planning process in Finland (see Table 3) is divided between the state, the 19 regional councils, and the 313 municipalities. First, the government steers land-use development by establishing national land-use goals for issues considered to be of national importance. Since 2008, the development of wind power has been one of these goals. The national goals, together with municipal goals, are then incorporated into regional land-use plans[7] (landskapsplan), which are plans of a strategic nature that aim to

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[6] Naturally, precisely what a 'large-scale' project entails is relative. In the national permit processes, however, there are indications of what this might be. In Finland, if a project consists of at least ten windmills or has a total effect of 30 MW, it will by default require an environmental impact assessment (EIA), which is not always required otherwise. In Norway, any project of more than 10 MW, or more than 5 MW but with major effect on the local environment, becomes a national concession issue instead of a local permit issue. Lastly, in Sweden, projects with two or more windmills taller than 150 meters, or seven or more windmills taller than 120 meters, are considered large projects that by default require an EIA.

[7] The accurate translation of the Finnish landskapsplan into English is not "regional land-use plan". However, in order to simply the comparison between the different plans in the three countries, all plans on the regional level will be called regional land-use plans in English. Similarly, all municipal-level plans will be called "local

facilitate local cooperation. The regional plans are accepted by the regional council, which consists of representatives elected by the municipalities. Based on the landscape plans, the municipalities then develop a local master plan (generalplan), which indicates the general course of land-use development in the municipality. The legal compliance of the planning processes and the local master plan is inspected by the regional ELY centres, which preside under the Ministry of the Environment, but it is ultimately the locally elected Municipal Council that approves the local master plan. The master plan is then further developed into detail plans (detaljplan), on the basis of which building permits, for instance for windmills, can be granted. However, as of 2011, local master plans can also be used as base for granting building permits for windmills if the master plan was prepared with this intention.

To obtain a building permit in Finland for any kind of development project, the project first needs to be in line with the legally binding regional and local land-use plans. If it is, the local authorities (in general) are responsible for its approval. If the project is not in line with the plans, the first step to obtaining a permit would be to start new land-use planning processes at one or both levels. If, however, the project is in line with the land-use plans, the developer can go ahead and apply for a permit for the project from the municipality. In order to get the permit, the developer will also need to produce an Environmental Impact Assessment (EIA) for the project; and, depending on the project's placement and effects, the developer might furthermore have to undergo other permit procedures, for instance if the development is close to an environmentally protected area. It is the regional ELY centres that determine whether the project's EIA is in line with the demands of the law.

Norway

The planning system in Norway is similar to that in Finland, with the national, regional (19 county councils) and local (428 municipalities) levels of government all involved in the planning process. There are some noticeable differences, however. One is that the state has stronger steering mechanisms in Norway than in Finland, in that they not only establish goals and guidelines for regional and local planning but also can issue national land-use plans which outrank other plans. The national plans are used to facilitate the development of nationally or regionally important projects. Accordingly, if a wind power project is deemed to be of such importance, it

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master plans" (for the more general plans) and "detailed plans" (for the more specific plans). For an accurate English translation of the plans , see Böhme 2002.

Table 3: Planning and permit systems related to wind power development in Finland, Norway and Sweden

	Finland		Norway		Sweden	
	Planning	Permits	Planning	Permits	Planning	Permits
National	Government decides on national land-use goals		Government decides on regional and local land-use goals and *can* issue national land-use plans; National authorities inspect local plans	NVE is in charge of concession process incl. EIA and decides on concession	Government decides on national areas of interest	Government can overrule municipal decision
Regional	Regional council approves regional land-use plan; ELY centre inspects local plans	ELY centre approves EIA	County council approves regional land-use plan; Regional authorities inspect local plans	Regional authorities deliberate in the concession process	County administrative board inspects local plans	County administrative board approves EIA and permit
Local	Municipality approves local land-use plans	Municipality grants building permit	Municipality approves local land-use plans	Municipality deliberates in the concession process	Municipality approves local land-use plans	Municipality approves or rejects project
Developer		In charge of permit and EIA process		Takes initiative for the concession process		In charge of permit and EIA-process

can be approved through the national land-use plan even if the affected municipality has not planned for or does not want the development. On the regional level, the regionally elected county councils approve the region's land-use plan (fylkesplan). This plan is of a strategic nature and is not legally binding like it is in Finland, instead guiding the municipalities' development of local master plans (kommuneplan). The kommuneplan is comprised of a strategic part (samfunnsdel) and a specific land-use part (arealplan), the latter of which serves as the foundation for the municipal detail plans (reguleringsplan). Both the arealplan and the reguleringsplan are legally binding. Although the municipalities themselves are the entities that approve local plans, the state has evident power over the plans. Besides the already mentioned state guidelines and national plans, state authorities can also repeal or change municipal plans if the plans do not properly consider the national interest under a national or regional authority's supervision.

In most development projects, the process of obtaining a building permit in Norway would be similar to that in Finland; that is, the municipality decides on permits if the proposed development is in line with local plans. However, in the case of energy projects, the situation is different. In Norway, all large-scale energy projects are decided upon, or given concession, by the national Norwegian Water Resources and Energy Directorate (NVE). Another difference is that, with such large-scale projects, there does not need to be a local land-use plan in place for concession to be granted. The concession process is initiated by the developer but it is the NVE that is in charge of the concession process, which includes developing a consultation programme with authorities (including the county councils and the municipalities) and stakeholders as well as developing an EIA. Based on the results of the consultations and the EIA, it is also the NVE that decides whether the development project will be granted concession. If a conflict should arise between a municipal plan (or the opinion of the municipality) and the concession decision by the NVE, the final decision regarding development will be made by the Ministry of Petroleum and Energy. Here, the Ministry has the possibility to allow the development through a national land-use plan.

Sweden

Comparing the three countries, Sweden probably has the most decentralized planning system. The country's 290 municipalities have a so-called planning monopoly; that is, it is chiefly the municipality that decides how land should be used within its own territory. The state does have some input in this decision, but in contrast to Finland and Norway, there are no land-use plans

on the regional level. The state decides on areas of national interest (riksintresse), which are sectorally and geographically assigned areas that the government regards as being of interest for the whole of the country. Since 2004, important potential sites for wind power development have been pinpointed as areas of national interest. Whenever land use is changed in these areas, due consideration needs to be taken so that these interests do not come to 'significant harm'. However, there is no clear-cut process for determining which national interest takes precedent if different competing, but incompatible, interests overlap in one area. The national interest has to be considered, for instance, when municipalities develop local master plans (översiktsplan) or detail plans (detaljplan). Locally elected politicians approve the local plans, of which the former has a guiding function and the latter is legally binding. However, the regional county administrative boards (21 in number), which are an extension of the state, inspect the plans to ensure that they are in compliance with national laws and that they sufficiently consider the areas of national interest.

As in Finland, permits for new developments, which need to be in line with the land-use plans, are normally granted by the municipalities. If the project might be considered hazardous to the environment or to public health, a permit application including an EIA also needs to be submitted to the county administrative boards. However, as in Norway, in the case of large-scale wind power development this process looks somewhat different, with the main difference that the permit only needs to be issued by the county administrative board. The municipal input in the permit process today is instead simply to approve or reject the project. This consists of a simple 'yes' or 'no' from the municipality; that is, no demands can be made regarding how the windmills will be sited. However, if the municipality already has a master plan in which sites for windmills are assigned, the wind power project has to be in line with these plans. A final note is that the government has the possibility to overrule a negative decision by the municipality if the development is deemed to be important from a national perspective. However, this possibility is seldom – if ever – used.

Theoretical Framework

This section presents the theoretical framework of the thesis, beginning by embedding energy research within the geographical setting. In the next part, the geographical perspective underlying the spatial thinking in the thesis is further elaborated upon. The discussion here is specifically focused on how space can be understood relationally, and how this can shed light on how space and society are transformed. As these discussions are on a somewhat abstract level, the next part of the text presents a framework, 'the energy justice framework', which will be used to more practically operationalize the analysis of the socio-spatial transformations involved in the development of new energy infrastructure. In the last part of the section a complementary body of literature, that of 'planning theory', is added to the ideas of the energy justice framework. The two bodies of literature are similar, in the sense that they are both concerned with the link between planning and decision-making procedures and their outcomes concerning new land-use developments. However, they are also complementary in the sense that energy justice theory is focused on the development of energy systems and on the people and places affected by these systems, while planning theory centres on land-use changes and the procedural problems faced by people in charge of such processes. As such, the two theoretical strands add different dimensions to the analysis of the power relations and socio-economic processes involved in processes of development of new energy infrastructure.

Energy and the Geographical Research Context

Much like the public and political debate, research concerning energy technologies – wind power included – often centres on issues of available resources and technologies, and economics feasibility: What resources are available? What is the best technology and infrastructure for the production, distribution and consumption of energy? What are the costs and returns, and how can it be financed? As Sovacool (2014) has shown, methods, concepts, and topics from social sciences disciplines (other than economics) are often surprisingly absent in these discussions. However, research on energy production, distribution and consumption is not only an issue for the natural sciences or economics. In fact, Spreng (2014) argues that this dominant role of technological and economic research on the topic of energy has led to an incomplete discussion of how energy technologies interact with the natural and human world, which in turn has led to problems when it comes to implementing these technologies. Spreng contends that "Our energy problems have less to do with technological knowhow than the knowledge of why, where, how much and for whom the energy should or should not flow.

In particular, we lack institutional, societal and political knowhow" (2014, p 65; see also Calvert, 2016). The author's remedy for this situation is to promote transdisciplinary energy research, in which the social sciences specifically should be more involved. For the field of geography, then – being a subject that is focused on the interface between individuals, and the social and material world we inhabit – there seems to be a good opportunity to add relevant perspectives to energy research. Indeed, in recent years many geographers have highlighted the appropriateness and importance of a geographical perspective in energy research and have called for more engagement in the issue by geographers (Bridge *et al.*, 2013; Calvert, 2016; Eames & Hunt, 2013; Graham & Rudolph, 2014; Pasqualetti & Brown, 2014).

Despite the marginality of energy research outside the technical or economic fields mentioned above, geographical research on energy issues has not been entirely absent (although the focus on energy has not always been explicit; Pasqualetti, 2011). Early research focused on regional energy studies, the relative location of energy resources (for instance, in relation to transportation or supply and demand), or the examination of individual resources (Pasqualetti, 2011; Pasqualetti & Brown, 2014). The interlinkage between energy and society was not very strong in these early studies (Pasqualetti & Brown, 2014). However, in the 1970s the geographical research perspective started moving away from a more containerized or relative view on energy and space, towards a more relational approach – that is, towards a view that "physical entities are socially constructed as energy resources through political-economic and cultural processes but also a primary agent in the spatialization of social activities" (Calvert, 2016, p 4). The change in perspective was a consequence of a number of economic, social, and political problems related to energy that emerged in society during the 1970s-80s. These problems included, for instance, a general rise in energy demand and rapid population growth, the vulnerabilities in the energy supply systems that were highlighted not least by the 1973 OAPEC[8] oil embargo, and a greater attention to environmental, health, and safety issues generally, and especially as a consequence of the Three Mile Island and Chernobyl nuclear accidents (Pasqualetti & Brown, 2014). The questions that arose here demanded attention to geographically grounded enquiries concerning the interaction between physical and environmental processes and social processes. As time has moved on and new problems have emerged, most notably in connection to energy security, climate change, and low-carbon energy transition, the complexity of this interaction – especially involving the social aspects – has become increasingly evident (Pasqualetti & Brown, 2014):

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[8] OAPEC consist of the Arab members of OPEC as well as Egypt and Syria.

Energy is more than a sector, policy, or field; it is instead a cross cutting issue area that envelops a distinct set of governance challenges … energy is the lifeblood of the economy and human existence, in that, energy is deeply embedded in other sectoral and policy contexts. (Goldthau & Sovacool, 2012, p 232)

Focusing on the issue of the energy transition, including wind power development, the possibilities for geographical enquiries seem to be abundant. In an article highlighting the relevance and centrality of concepts such as "location, landscape, territoriality, spatial differentiation, scaling, and spatial embeddedness" for understanding this transition process, Bridge et al. (2013, 331) have stated that the energy transition is "fundamentally a *geographical process*". Moreover, though, and continuing along the line of geographical thought of recent decades, the energy transition can be seen as a specifically relational spatial process, in which energy and society are co-productive of socio-spatial relationships (Calvert, 2016). On the one hand, it involves material changes concerning energy technologies, infrastructure and facilities, as well as changes in land use. Decisions regarding what these new energy technologies will be and where they will be located in space will be based on political debates, negotiations and, most likely, conflicts between different social groups concerning the benefits and burdens of different technologies and locations, as well as the necessary ethical and political considerations (Bridge et al., 2013; Calvert, 2016). Power relations between different actors and groups play a large part in the outcome of these discussions (Nadaï & van der Horst, 2010). How these power relations play out can be seen, for instance, in which issues are framed as relevant in the discussions, who is given a voice, and whose needs and opinions are recognized as important, as well as who is allowed to participate in and exert influence over the process (these issues will be further elaborated upon in the *Energy Justice* section). On the other hand, these material changes of energy infrastructure and of land use will in turn involve a "reconfiguring [of] current spatial patterns of economic and social activity" (Bridge et al. 2013, p 331). People in some places will benefit from the new energy infrastructure, for instance through new work opportunities or greater influence over energy generation, while others will be burdened by it, for example through altered living conditions and an intrusion of industrial infrastructure in the landscape (Bridge et al., 2013; Calvert, 2016). At the same time, some places will increase in significance in society as they become the sites of new energy production, while others will diminish in importance, as old power plants such as coal plants are decommissioned (Bridge et al., 2013; Calvert, 2016).

From a geographical perspective, the discussion above highlights how the emerging energy landscape can be seen as relationally constituted, i.e. as a development that transforms space and in the process affects and is affected by material and social relations in space. In the following, geographical thinking concerning such issues, and by extension the spatial thinking underlying this thesis, will be further elaborated upon. Specific focus will be placed on the power relations inherent in socio-spatial transformations.

Relational Space and Power

The evolution of the spatial perspective in energy geographical research, from absolute/containerized space, via relative space to relational space, is part of a more general shift in perspective in geographical research. However, this has not been a chronological process in which one perspective has been left behind as a new one has emerged. Depending on the ontological outlook, some geographers may advocate one of the perspectives over the others or even argue that the perspectives are incompatible with each other, while yet others have no problem combining the three understandings of space in their research (Rönnlund & Tollefsen, 2016). The last, more pluralist (see the methodological discussion) approach, is the one that underlies this thesis. That is, although the main concern in the thesis is the connection and co-production of energy, space and society (relational space), some of the questions asked in order to understand these processes need to initially be approached in more relative terms (for instance, concerning what socio-economic characteristics people living in proximity to windmills have).

Of course, saying that a relative or relational view on space is utilized in a study is not an unambiguous statement. A relational understanding of space can mean many different things. For instance, Harvey applied Marxist theory in order to describe socio-spatial transformation; Wallerstein developed a 'world-system analysis' based on ideas of 'cores' and 'peripheries'; and Lefebvre explained 'the production of space' through a unified theory of routine practices, representations and imaginations (Rönnlund & Tollefsen, 2016). Thus, to clarify this point and lay the groundwork for the empirical analysis, the following text will describe in more detail the spatial imagination underlying this thesis; that is, a spatial understanding which first and foremost departs form the spatial theorization as formulated by Massey (2005). In essence, this is an idea of space that sees it as relationally constituted, always under production, and imbued with multiplicity (this will be explained in the following text). Furthermore, it is an idea that specifically elaborates on how different relations of power are intertwined with spatial development – which thus makes Massey's spatial

theories particularly apt for discussing the issues under investigation in this thesis.

If the complexity of wind power development were only related to developing good technology and ensuring economic feasibility, and the siting process were simply a matter of finding suitable wind resources, the development process would be quite simple. The developer would consult a wind speed map, find a good 'windy' location, and start building the windmills. Of course, this is not how the process unfolds in reality. First, a number of other material aspects will affect the location decision, for instance connections to appropriate supporting infrastructure, stable ground to support the windmills, the distance between the sites of production and consumption, and distances to sensitive environmental or cultural values. Second, and possibly more complex, with any choice of location, a developer will have to deal with the social and political realities already embedded in that location. Some people may welcome the development while others may not, and still others may condition their support on how it affects the area (Bell *et al.* 2005, 2013; Breukers & Wolsink, 2007). Certain existing and planned land uses in the location may be compatible with the development, while others may not be. Driving the project through, then, will include negotiations with those who have an interest in the land concerning what effects from the new development are acceptable, and whose interests and which land uses should be favoured over others. Some of the stakeholders involved here might be local to the area, such as landowners, homeowners and local community members, or local politicians, business owners and local interest organizations. Still others may have a more distant relationship to the area, such as second-home owners and tourists, national and international authorities, companies, or non-governmental organizations with an interest in or authority over the area.

If the situation above is described in more theoretical terms, it can be said that any location that is of interest for wind power development already has a history of production. That is, human and non-human agents (animals, plants etc.) together have affected, transformed or 'produced' the location into what it is at the moment the wind power developer becomes interested in it. Here, each agent has a direction – 'a trajectory' (Massey, 2005) – in which it is moving, developing or hoping to go. This can entail, for example, forest transitions or birds choosing nesting grounds, as well as humans endeavouring in agricultural or industrial businesses, road developments, or recreational activities in an area. These trajectories stretch out in time, for instance through the memory of the labour that was invested in building a home or through the dreams of how the future will be, which may affect people's willingness to accept new development, such as wind power parks.

Perhaps more importantly, though, the trajectories stretch out in space. Through a complexity of material and social networks and links, the trajectories of agents both near and far, and on different social levels, become part of the always ongoing construction of the bundles of trajectories that we call place. Just as the decision by a landowner to rent out land to a wind power developer may affect the future development of a specific locality, the decisions by EU politicians to facilitate these types of infrastructural projects will have played a part in this development's taking place. In other words, "any nation, region, city, as well as being internally multiple, is also a product of relations which spread out way beyond it" (Massey, 2004, p 6). The process here naturally goes in the reverse direction as well. That is, through these same kinds of networks and links, the trajectories of local agents affect how spaces are produced both in the near and the far. An example of this could be if local wind power protests were to transform national wind power policies in a more restrictive direction, thus affecting wind power developments in other localities. Together, this is what Massey calls a 'global sense of place' (Massey, 2005). It is an understanding of place, not as a bounded area in space with inherent meaning, but as a 'node of relations' (Massey, 2009) in which different trajectories intersect with each other and continually transform the material, social and imagined circumstances of space.

In this understanding, space is 'the sphere of the possibility of the existence of multiplicity' (Massey, 2005, p 9). That is, it is in space as a dimension that different trajectories can coexist at the same time. This remark should be understood in relation to the dimension of time as the sphere of succession and change in which processes evolve in a specific way, one step after another. An example of the time dimension could be a theory that the form of primary energy sources used in a society changes with the level of development of that society, for instance from wood burning, via coal or nuclear power, to renewable energies. Another example could be the belief that if a renewable energy technology, such as wind power, can generate enough energy to be economically feasible, there will be a political and social interest in endorsing it, which in turn will mean that the technology will be implemented in society. These examples of how energy transition can occur are not necessarily wrong, but are rather limited and one-dimensional understandings of the processes involved and do not account for the possibility of other trajectories. Adding on the dimension of space instead highlights that these examples are just some of the many ways in which energy transition or energy innovation diffusion can unfold (or not unfold) in space. In one locality, change as regards these processes may play out as described above, but at the same time in other localities events may evolve in completely different ways:

'General processes' never work themselves out in pure form. There are always specific circumstances, a particular history, a particular place or location. What is at issue – and to put it in geographical terms – is the articulation of the general with the local (the particular) to produce qualitatively different outcomes in different localities. (Massey, 1984, p 9)

This is not in opposition to the occurrence of universal processes or structures affecting the development of society, but rather an underlining of the genuine openness of space to the future and the fact that these processes will take different forms in different localities. In accordance with this line of thought, then, policy commitments to low-carbon energy transition or to wind power development cannot be expected to be translated into a smooth and uniform technology diffusion in a region or country. It should instead be expected that it will be adopted in different ways in different localities (including non-adoption), depending on the prevalent social and material context.

The understanding explained above, that space is relationally constituted through socio-spatial interaction, is continuously being produced through this ongoing interaction, and is the sphere of a multiplicity of actors and development paths, means by extension that space is always political (Massey, 2005, 2009):

It is space as a dimension that poses to us that most fundamental of socio-political questions: how are we going to live together? It is space as a dimension that offers up the challenge, the pleasure and the responsibility of the existence of 'others', and of our relationship to them. (Massey, 2009, p 18)

When different trajectories intersect in space we are confronted by 'the other' and, whether we like it or not, it then becomes necessary to negotiate the shared areas of interest: how it should be used, who should be allowed to use it, and how the space should be understood (for example, a piece of forest can be seen as an unspoiled area fit for recreational use or as an empty area open to development). This negotiation can be explicit and formalized, for example when politicians or public officials discuss and decide on the outlines of land-use plans, or it can be more implicit and informal, for instance when someone takes a detour on their Sunday walk through the forest because their neighbour does not like people walking on his property.

Again, these negotiations are not only 'local' in character. Through material and social networks and linkages, agents in both near and far

localities influence these negotiations, and in turn can be affected by the process. As "different social groups and different individuals are placed in very distinct ways in relation to these flows and interconnections" (Massey, 1993, p 61), some social groups and individuals will have more influence or power over the negotiations of space than others will. The same is true for different places, as the quantity and quality of connections differ between places. 'Global cities', for instance Brussels, are at the focus of many relations of power involving different social formations (economic, political, cultural etc.), while smaller communities may have a harder time tapping into these interconnections. These different relations of power that stretch out in space are what Massey has called 'power-geometries' (Massey, 1993, 2005, 2009).

The concept of power-geometry refers to a two-sided understanding of power[9]: "not only is space utterly imbued with and a product of relations of power, but power itself has a geography" (Massey, 2009, p 18). This mirrors the relationality of space, and as with space, these relations should be seen as processes that are always under construction rather than as static formations. As such, the concept does not suggest any specific form for these geometries of power, but rather merely highlights that the absence or concentration of power relations in relation to different localities or people, and the connections between them, can be used as a way of analysing the world in order to explain space (Massey, 2009; Saldanha, 2013). At its core, "the concept of power-geometry is fundamentally about patterns of unequal relationship" (Saldanha, 2013, p 48). It highlights socio-political differences between places and people to tap into or mobilize resources into power relations in different social formations; but it also relates this to the outcome of these power relations, to possibly unequal or problematic social and material effects in space. In the former case, Massey offers as a suggestion that an analysis through the lens of power-geometry could, for instance, be used to detect deficiencies in democracy as well as be an instrument for correcting these deficiencies (Massey, 2009). In the latter case, by drawing connections between the local outcomes of the production of space and the social relations across space that have produced them, Massey also argues that the concept can be used to call attention to the shared responsibility between places and people for the specific effects in space.

Thus, if we are to understand the social and geographical implications of developing new wind power and energy landscapes, there is a need not only to look at the material and social outcomes of these processes in space, but also to untangle the social formations and the power relations that produce

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[9] Power relations should be understood here in a very wide sense of the term - not simply as authority and domination but as the ability to manipulate, coerce, seduce, negotiate, persuade etc. someone into doing something (see John Allen, 2003, for a discussion on the different modalities of power).

them. The idea of power-geometry, described above, is helpful here to use as a way of conceptualizing how these processes can be understood in relation to the production of space. However, as power-geometries take different forms and work in different ways from one social setting to the next, the way the concept should be operationalized for practical analysis is not self-evident. For this reason, the next parts of the text will introduce two other bodies of literature that explicitly aim to capture the relationship between planning and decision-making processes for land-use development on the one hand, and the outcome of these processes on the other. The first strand of literature concerns the energy justice framework, which is a framework that analyses energy-related procedural and distributional inequalities from the perspective of those impacted by energy systems. The concepts of 'procedural justice' and 'distributional justice' found within the framework will be used in the rest of the thesis to structure the analysis. The second strand of literature concerns planning theory, which moves the analytical focus to the people in charge of planning and decision-making processes for land-use developments, and to ideas about different ways of making plans and taking decisions.

Energy Justice

In relation to the idea of power-geometry, energy justice is a kind of reversed analysis of power, as the framework highlights the absence of power and influence and its effects rather than the presence of power. Energy justice departs from a recognition that "transformations in (low-carbon) energy infrastructures and policies may be perpetuating, or producing anew, forms of inequality and vulnerability – or they may be providing opportunities for change for the better" (Bickerstaff et al., 2013, p 7). In order to avoid the former development and promote the latter, the aim of energy justice analysis is to capture inequalities and possible injustices in the distribution of the benefits and burdens of energy systems in society, as well as to evaluate how these inequalities emerge and which claims or sections of society are ignored in decision-making processes (Jenkins et al., 2016). Social relations affecting the development of energy policy and energy systems, and the material outcome of these processes, are thus usually analysed within the energy justice framework through the core tenets of 'distributional justice', 'procedural justice', and 'justice as recognition' (more on this below; Bickerstaff et al., 2013; Jenkins et al., 2016; McCauley et al., 2013). A whole-systems analysis, whereby the production and consumption of energy services are simultaneously included in the enquiry, is often advocated here as injustices in, for instance, energy consumption can emanate from the production of energy services (Jenkins et al., 2016; Sovacool and Dworkin, 2014). In this thesis, however, the analysis will be

delimited to the production of energy services, and further, will only take into account processes specifically related to the planning and siting of new energy infrastructure such as windmills.

   'Equality' and 'justice' in relation to the energy justice frame are of course not entirely straightforward concepts. From a spatial perspective, "[p]erfectly even development, complete socio-spatial equality, pure distributional justice, as well as universal human rights are never achievable" (Soja, 2009, p 3), and are furthermore perhaps not always desirable, as it can be argued that without difference there is no geography. In other words, unequal developments do not by default constitute bad, unfair or unjust developments (Eames & Hunt, 2013; Walker, 2012). Stating that something is equal or unequal is more of a descriptive term that, while it is never neutral, simply describes "a condition of difference or unevenness of something … between different groups of people" (Walker, 2012). For an inequality to become an injustice, there must be some form of claim of unfair treatment or argument asserting the severity or immorality of an unequal situation. This makes 'justice' both a normative term and an "inherently political and contested concept" whereby what is just for one group or person, may not be just for another (Eames & Hunt, 2013, p 48; Walker, 2012). Bearing this distinction in mind, between (in)equality as a more descriptive term and (in)justice as a more normative term, the intention in this thesis is to focus more on the former in the empirical analysis and only discuss the latter as a potential, but not necessary, outcome of possible inequalities in procedure or distribution related to wind power development.

The History of Energy Justice

Energy justice as a research agenda is fairly new, with some of the more elaborate scholarly explorations of the concept only having been published since 2010 (such as Bickerstaff et al., 2013; Fuller & McCauley, 2016; Jenkins et al., 2016; McCauley et al., 2013; Sovacool & Dworkin, 2014, 2015). However, there are multiple connections between the energy justice frame and other more established justice frames, as concerns philosophy, conceptualization and practical analytical approaches, which lend some theoretical history and stability to energy justice research. These include 'social justice' (Fraser, 1997; Young, 1990), 'spatial justice' (Bromberg et al., 2007; Soja, 2010), 'environmental justice' (Bullard, 1996; Schlosberg, 2009; Walker, 2012), 'just sustainability' (Agyeman & Evans, 2004; Eames & Hunt, 2013) and 'climate justice' (Fuller & Bulkeley, 2013; Hayward, 2007). The theoretical discussion for these frames usually starts from political scholar John Rawl's foundational book "A Theory of Justice" (1971), and then spans out in different directions depending on the particular focus of the frame.

From a more practical perspective, a common denominator for several of the frames is that they show a concern for (in)equality and (in)justice in relation to the distribution of benefits and burdens on the one hand, and the procedural matters of, for example, decision-making on the other. Of the frames mentioned above, those that are most closely linked to energy justice are the environmental justice and climate justice ones (McCauley et al., 2013). In many aspects, an energy justice analysis is quite similar to an analysis conducted from the perspective of environmental and climate justice, and in line with this, in this thesis ideas from the two frames (especially environmental justice) will be intertwined with ideas from the energy justice literature. Theoretical and analytical ideas are borrowed from the already extensive environmental justice literature, while the climate justice literature contributes ideas concerning the 'whole-system' thinking described above and subject-specific matters (that is, mitigation efforts discussed in relation to climate change are of course directly linked to the low-carbon energy transition).

The environmental justice literature emanates from the 1960s social justice movements in the US, where links were first drawn between socio-economic inequalities based on race, gender and class, and higher exposure to harmful activities (for instance, the use of pesticides or toxins) or to discriminatory land-use planning (for example concerning the siting of waste treatment plants; Bullard, 1996; Taylor, 2000). The argument was that unequal divisions of (risks of) exposure to environmental harm "were simply another example of social injustice" (Schlosberg, 2013, p 38). Under the heading 'environmental racism' the Civil Rights movement, focused on the unjust treatment of communities of colour in the US, extended their social concerns to include inequalities and disadvantages concerning the local, everyday environmental conditions of these communities (Schlosberg, 2013; Taylor, 2000). With time, other groups, such as the anti-toxic movement, Native American rights groups, the labour movement, and more traditional environmentalist groups, contributed to the development (for instance, by including a wider set of social justice concerns and new methods of activism) and a dispersion of the environmental justice frame (Cole et al., 2000). The idea also attracted academic interest, and scholars started investigating the theoretical concepts of 'environment' and 'justice' in the specific framework context as well as examining whether there was any evidence supporting the activists' claims (Schlosberg, 2013; Taylor, 2000). Two early, non-academic studies by the U.S. General Office and the United Church of Christ, using a proximity-based approach, found that communities of colour were at higher risk of exposure to environmental hazards than 'white' communities were. The studies gained political traction, which led to the environmental justice concept being integrated into US policy. Although these studies, and similar

ones, have since been criticized for lacking in methodological rigour (Bowen, 2002), these kinds of (Cartesian) proximity studies, between environmental risks and exposed communities, have come to be a common approach to investigating environmental justice concerns (Holifield et al., 2010).

In the mid-1990s, environmental justice activism, policy and research were still mostly focused on, and found in, the US (Holifield et al., 2010). Since then, however, the field has grown markedly in spatial and theoretical scope (Schlosberg, 2013; Walker, 2012). Spatially, the framework has been adopted in a number of other countries around the world, and the issues of concern are now discussed in more global, transnational settings (Walker, 2010, 2012). This in turn has led to a number of new issues and conceptualizations of environmental justice being included in or developed from the environmental justice framework:

> It is evident that issues of environmental justice ... manifest differently in different spatial and social contexts ... a diversity of environmental goods and bads interacting with various forms of social difference ... working across and between multiple scales. (Holifield et al., 2010, p 7)

Two of the new framings that have emerged here are 'just sustainability' and 'climate justice', which both move the environmental justice concerns away from the local environmental setting to include a more globalized way of thinking about justice as well as material and social interdependencies (Schlosberg, 2013). Beyond these two frames, the meaning of 'justice' has also been interpreted in many new and diverse ways, depending on the contextual setting where environmental justice activists have engaged with the framework (Walker, 2010). Theoretically, this has shifted the scholarly discussion away from a previous preoccupation with finding a common definition of 'justice' in order to measure it (for instance, in relation to the proximity studies mentioned earlier), towards a more pluralist idea of justice (Schlosberg, 2009); that is, an understanding of the idea of 'justice' that is relative and contextualized, and that is "more focused on understanding and addressing the problem than on constructing an ideal" (Schlosberg, 2013, p 47; Walker, 2012). Moreover, environmental justice analysis is now more clearly focused not only on distributional justice ideas, but also on the inequalities and injustices that produce these outcomes (although this idea was always to some extent part of the environmental justice frame; see Schlosberg, 2013). 'Procedural justice' (sometimes called 'participatory justice') and 'justice as recognition' are the concepts most often mentioned here. The former "is conceived in terms of the ways in which decisions are made, who is involved and has influence", while the latter "is conceived in

terms of who is given respect and who is and isn't valued"(Walker, 2012, p 10). This entails a broadening of not only how environmental justice is approached analytically (with greater focus on process than simply outcomes), but also of the spatial perspective of the environmental justice frame:

> The procedural dimension of environmental justice demands that we take account of still more geographies, from the restricted flows and networks of power and decision-making to which participation requires access, to the ambiguous and contested constitution of the "affected community". (Holifield et al., 2010, p 10)

In line with the relational production of space presented in this thesis, Walker (2012) argues that environmental justice and space are co-productive, and that research in the field needs to take into account more than simple local proximities and include the differing spatialities of social relations that are responsible for producing inequalities.

From these new developments of the environmental justice framework, energy justice emerges as one of the latest framings in the field. Here, energy justice can be seen as "a way of bounding and separating out energy concerns from the wider range of topics addressed within both environmental and climate justice analysis" (Bickerstaff et al., 2013, p 2). As with environmental and climate justice, the energy justice frame has developed from ideas both within social movements and within the research community (Fuller & McCauley, 2016; Heffron et al., 2015). And as with environmental and climate justice, the analytical focus is both on the potential inequalities and injustices in distribution of benefits and burdens, and on processes that produce these outcomes. However, the focus throughout is specifically on energy systems and the production and consumption of energy services. In the following sections, these analytical themes will be explored in further detail.

Procedural and Distributional Justice

With the intention of capturing possible unequal distributions of the impacts of energy systems as well as the processes that can create these circumstances, distributional justice and procedural justice (including just recognition) are at the core of energy justice analysis (Jenkins et al., 2016; McCauley et al., 2013). *The distributional aspect* here includes a division of benefits (resources and opportunities) and burdens (costs and risks), and refers to tangible features such as land-use change or environmental

degradation, as well as more intangible ones, for instance perceptions of living in 'healthy' environments or the distribution of revenues from energy production. The essential idea here is that if the benefits or burdens from an energy system fall unevenly on different social groups – for example defined by income, ethnicity, gender, or class – there is reason to be concerned about the social implications of the energy system. If windmills, for instance, are mostly erected in low-income areas with high unemployment, with no benefits or revenues coming back to these areas, there may be reason to question the fairness of the development. It may very well be that people in these areas have welcomed the new development, and in such cases there might be no cause for concern. But if this is not the case, or if any claims of (in)justice arise as to how a development has come about or who is burdened or benefits from it, the matter should be further investigated within the realm of the processes that created this outcome.

Of course, an uneven development of energy systems is to some extent unavoidable, as different resources needed for these systems (for example, wind resources) can be unevenly distributed in space (Jenkins et al., 2016). However, even if it turns out that uneven impacts of an energy system are caused by the physical geography and not by unjust procedural factors, an energy justice analysis can still be helpful in creating a fairer energy system. For instance, an evaluation of how the benefits from these systems are distributed and how they can possibly be re-distributed to the areas they impact can enforce a sense of fairness surrounding them.

The procedural aspects of energy justice analysis include both representation and involvement in decision-making processes, as well as the cultural and political recognition of different social groups or individuals and their claims in these processes. Some scholars argue that these two areas should be treated as two distinctly different parts of an analysis, with the former labelled 'procedural justice' and the latter 'just recognition' (Jenkins et al., 2016; McCauley et al., 2013; Schlosberg, 2009). However, in this thesis, just recognition will rather be treated as a subtheme of procedural justice, as the fair treatment and recognition of different stakeholders can be seen as an integrated part of the laws governing the procedures of and participation in wind power development processes in Finland, Norway and Sweden. However, there is reason to elaborate more on both these aspects from a theoretical perspective.

Procedural justice is concerned with how decisions are made, as well as who is involved and has influence over the decision-making (Sovacool & Dworkin, 2014; Walker, 2012). The underlying idea here – in line with the spatial perspective of this thesis – is that there are key reasons for

distributional inequalities, and that these reasons can often be found in the social relations involved in producing these inequalities. Procedural justice includes an analysis of both opportunities for meaningful participation and access to information – for all stakeholders (Jenkins et al. 2016; McCauley et al., 2013). The analysis focuses on, for instance, how accessible participatory processes are (what language is used and when meetings are held), whether public input has any possibility to influence decisions, and whether pre-existing power inequalities are addressed in participatory procedures (Ottinger et al., 2014). The procedures of interest can be both formal and informal, with the former including procedures within multiple levels of legal systems, and the latter focusing on "softer non-regulatory influences such as practices, norms, values and behaviours" (Jenkins et al., 2016, p 178). This includes looking at not only different kinds of decision-making settings, but also different decision-makers, including policy-makers and public officials as well as non-officials such as homeowners, project developers and interest groups (Sovacool & Dworkin, 2014, p 26). The reason for not simply delimiting the analysis to the formal processes and the formal decision-makers is that "vital outcomes can be driven by labeled and unlabeled, public and internal, and conscious and unconscious decisions" alike (Sovacool & Dworkin, 2014). Thus, if an analysis were restricted to the formal setting, there would be a risk of missing the processes that actually create the unequal outcomes. Again, this reflects the spatial thinking in this thesis that all types of social relations, all types of trajectories, are part of the production of space.

That people are treated fairly and respectfully in relation to development procedures (just recognition) is seen as a prerequisite for participation in planning processes. Schlosberg has argued that there is a "direct link between a lack of respect and recognition and a decline in a person's membership and participation in the greater community, including the political and institutional order" (Schlosberg, 2009, p 26). In this context, recognition is understood to be more than simply tolerance, but rather the respectful treatment of people without insult, threat or degradation devaluing certain people or groups in relation to others (Jenkins et al., 2016). It is an acknowledgement of the fact that different groups or individuals can have divergent perspectives on a specific matter, and that this should not be dismissed or suppressed during a development process but should instead be seen as an important knowledge base for the final development decision. Three main categories of misrecognition are usually mentioned in the literature as the basis for unjust recognition: cultural domination, non-recognition, and disrespect (Fraser, 1999; Jenkins et al., 2016; Schlosberg, 2009). The first of these refers to the structural process of domination, whereby a group in society routinely exerts power over another.

Non-recognition involves actions in which specific groups are actively ignored or made invisible in development procedures. Finally, disrespect focuses on slander or misrepresentation in order to reduce the credibility or status of groups or individuals in a process. The aim of the energy justice analysis here is to point out where groups or individuals may be mistreated in this way, and how this can be the root of distributional inequalities further down the line.

In summary, the energy justice framework is focused on creating energy systems that do not affect individuals or groups in unfair ways, and asks whether the impacts of these systems are fairly distributed between people and places. The point of investigation is to tease out both existing and possible future distributional inequalities as well as the processes that produce such inequalities. In the latter case, the focus has been on highlighting where undemocratic or excluding procedures or disrespectful treatment of people may be the cause of unfair distributional outcomes. As such, the framework gives an understanding of the power relations, or power-geometries, to take note of when specifically exploring the development of energy systems such as wind power; for instance, who is (or feels) included or excluded from development processes, who has the power to include or exclude stakeholders, and who sets the rules of engagement. The framework furthermore links these relations of power to the socio-economic and material outcome of such development processes.

However, despite the framework's focus on uneven outcomes as a consequence of unfair processes, it does not offer much guidance on a practical level in how procedures perceived as unfair can be changed and what implications such changes may have; especially concerning procedures related to planning processes, as energy justice research is not only focused on infrastructural siting decisions but rather spans all kinds of decision-making processes. A more suitable body of literature for understanding such things can instead be found in the field of planning theory. The planning literature, just as with energy justice, is concerned with the link between procedures and outcomes, but the theoretical focus is more on the former than has been the case so far in the energy justice literature. Thus, linking planning theory to energy justice can offer additional insight into the procedural aspects of energy justice. The two frameworks also shed light on two different perspectives within the development process: that of 'the affected' (energy justice) and that of those running the process (planning theory). This is important, as it can offer an understanding of the injustice claims made by different stakeholders about the development process on the one hand, and of the problems involved in trying to construct a fair process on the other.

Planning Theory

With the help of the planning process, developments in a society can be steered, coordinated and balanced between different interests. Power is intimately connected to such planning practice (Sager, 1994). Van Assche et al. (2014) have categorized the relationship between power and planning in three different groups: the power *in* planning, the power *on* planning, and the power *of* planning. Power *in* planning refers to the different relationships within planning processes whereby actors can exert influence over each other by, for instance, pushing for their own cause or blocking someone else's. Power *on* planning relates to the impact of broader society on these relations. This can concern, for example, changes in what kind of knowledge is seen as legitimate or important in decision-making processes, or be more about general changes in social outlook or trust as regards planning, which in turn affects the dynamic of the planning process. Lastly, power *of* planning entails the direct impacts of the implementation of plans, as well as the indirect effects of a political, economic, social or cultural nature. Together, these three groups mirror the relational understanding of how space is produced, as described earlier, and structure the 'power-geometries' involved in planning processes. The following sections, developed from the theoretical sections of Papers I-II, will elaborate on these power-geometries in more detail by discussing how different ways of doing planning can award actors with different roles in the process, as well as work to open up or close down the process for different actors. Thus, the focus will be on power *in* planning, but with the background understanding that this will be affected by power *on* planning, as well as in itself affect the power *of* planning. Importantly, it should be noted that power can be used here as a way to suppress and hinder, but also to emancipate and enable (Sager, 1994).

Formal Planning Procedures

In the 'Western' planning tradition, there are a number of different ways of doing planning, or planning models. Friedmann (1987), for instance, distinguished between four different planning models: social reform, policy analysis, social learning, and social mobilization. The models differed depending on the roles of the state, planners and public stakeholders in the process, the view on knowledge and action, as well as whether the focus was on bureaucratic routines or practical action (Nyström & Tonell, 2012). In a similar attempt at categorization, Sandercook (1998) found up to six planning models which were differentiated both along the same lines as Friedmann's models, and also in relation to more radical political action in which planning can be used to contest the established political system and the distribution of power in the broader society (Nyström & Tonell, 2012).

Sandercook's planning categories include rational comprehensive planning, advocacy planning, the radical political economy model, equity planning, the social learning and communicative action model, and the radical planning model. These are of course theoretical models; in real life, a planning process will most often be made up of a mix of different modes of planning. However, a general shift in recent decades can be distinguished as concerns how planning is conducted; that is, a shift from a technocratic, expert-driven process (rational planning) to one that is more deliberative and participatory (communicative planning). The implications of this shift will be discussed further in the following text.

The rational planning process essentially entails that decision-makers set goals for land-use plans and then give public planners the task of gathering value-free and objective facts concerning different planning choices and presenting them to the decision-makers, who in turn can proceed to the political considerations in the matter. The role of the planner is thus that of an objective expert who gathers and analyses scientific data in relation to the planned areas and the future planning goals. A few decades ago, after having been the principal approach to planning, such rational approaches started being criticized, and a shift to more communicative methods began taking form. In essence, the criticism of the rational approach was that planners and the information they produce are never value-free, but are rather always political and bound by the partial information and individual prioritizations of those involved in the planning process (Bäcklund & Mäntysalo, 2010; Lane, 2005). This in turn meant that the views, knowledge and values of those left out of the process might not have been factored into planning decisions. In order, then, to give stakeholders other than public officials a voice in the planning process, participatory and communicative planning methods were suggested as an alternative to, or at least an addition to, the rational planning methods (Innes & Booher, 2004).

Who 'the stakeholders' are that are to be given a voice in the planning process is a matter of debate and somewhat of a contextual issue. However, 'stakeholders' are often interpreted to be 'locals' or 'community members'. This is an idea that is frequently related to a belief that local processes are more democratic than, for instance, regional or national ones (Purcell, 2006). Such an assumption, however, risks falling into 'the local trap' whereby the localization of deliberative processes is treated "as an end in itself (since it is conflated with the good), rather than as a means to an end such as democracy, justice or sustainability" (Purcell, 2006, p 1927). There is nothing that says that 'local' planning processes are inherently democratic, or that processes on other levels are inherently undemocratic. Local processes can be just as undemocratic as those on any other level. An

example could be, for instance, different individuals or groups in a 'local community' exercising peer pressure or bullying other individuals or groups in the same community into taking a specific stand in a planning process. Therefore, caution against such simplistic lines of thinking should be exercised. With that said, however, there are a number of arguments for why 'the public' (in the broad sense of the term) and 'the local public' (defined as the people who may be directly affected by a development) should participate in planning processes – arguments that focus on deliberations with such stakeholders as a 'means to an end' rather than the 'end in itself'.

An argument for including the broader public in planning processes is that, by considering the public's preferences concerning different land uses and the local knowledge of an area under planning, decision-makers will have a better understanding of the potential consequences of a specific development (Innes & Booher, 2004). From the perspective of the public, an inclusive planning process can also strengthen the sense of legitimacy, fairness and justice in the process, as well as the level of trust between the public and those who are in charge of the development process (Innes & Booher, 2004; Mels, 2016). Ultimately, this can lead to a higher acceptance of the development in question. It is also thought that, when the public is provided with information and local people are included in planning processes, civil society will be strengthened and better equipped to deal with complex problems that may occur, for instance concerning climate change adaptation (Innes & Booher, 2004). Further arguments have also been made for the importance of the 'subversive' role that public enquiries play in planning processes (Cowell & Owens, 2006); that is, the opportunities the public has to raise awkward questions and contest 'given truths' concerning 'essential projects', and thus reframe ideas about problems and potential solutions and contribute to policy learning. An example of this could be public contestations of the political beliefs that wind power development is a productive way of mitigating climate change.

The idea of opening up the planning process to a larger public has generated a number of planning theories concerned with how to understand and approach public participation (see for instance Lane, 2005, for an overview). One such theory, which has generated a great deal of attention since the 1980s, is the communicative planning theory (Bäcklund & Mäntysalo, 2010; Healey, 2012; Innes & Booher, 2015; Lane, 2005). Closely related to collaborative, consensus-building and argumentative planning, the theory builds on Habermas' notion of communicative rationality (Healey, 1993; Innes & Booth, 2015). As opposed to more rational planning approaches, in which planning is formed through individualized, subject-object ideas of reason, planning through communicative rationality centres

on reasoning as it is formed through communication between people. The idea is that the perception of the planning problem by those involved in the planning process is shaped through communication, argumentation and debate within the planning process (Innes, 1998; Innes & Booher, 2015). Through the discussions, the stakeholders get a better understanding of other people's interests and points of view regarding the planning problem, and can negotiate and collaborate with each other in order to find common ground concerning both the problem and its potential solutions. Ultimately, the belief is that this can generate more consensual, or at least more generally accepted, planning outcomes (Healey, 1993; Innes & Booher, 2004, 2015).

In communicative planning theory the power lies in the exchange of information and knowledge (Forester, 1989; Healey, 2003; Innes & Booher, 2004, 2015), as exposure to new information and new arguments have the potential to change the views and actions of those involved in planning processes (Innes, 1998). In order for communicative planning to work, all stakeholders should have an equal opportunity to contribute to and influence the planning process. This means that unequal power relations outside the planning process that might privilege certain stakeholders over others should not be allowed to affect the formal participatory dialogue. In order to achieve this, procedural issues become important (Innes & Booher, 2004, 2015). The procedures should be structured in a way that allows everyone involved in a planning process equal access to information and equal opportunity to be represented, to speak, and to be heard in the process (Innes & Booher, 2004, 2015). Moreover, and just as important, the planning process needs to be permeated by principles of openness, transparency, and respect (Healey, 1993; Hillier, 2002; Sager, 2009). This means that the participants should be committed to listening to and valuing other stakeholders' points of view and be open to opportunities for collaboration and negotiation concerning the planning problem.

Facilitating the communicative planning process gives the planner a very different role compared to the pure rational planning approach (Sager, 1994, 2009). Instead of being mainly a technical expert, the planner becomes more of a mediator of debate and deliberation:

> The role of the communicative planner is to make stakeholders and affected groups collaborate with each other in a creative process generating opportunities that offer each participating group more than it would have been able to achieve for itself in alternative processes. The planner facilitates the process,

mediates conflicts, and exposes domination by recognizing and
avoiding distortions. (Sager, 2009, p 68)

Similarly, the roles of the public and the decision-makers change. Instead of being the recipient of the effects of plans and development decisions, the public become political actors in the process of making such decisions. Elected decision-makers, on the other hand, relinquish some of their power to the public in relation to land-use planning, instead having the possibility to gain democratic legitimacy in the eyes of the electorate.

Planning in Practice

The procedural ideal for communicative planning processes is of course just that – an ideal (Flyvbjerg & Richardson, 2002; Innes & Booher, 2004; Hillier, 2003). In reality, a number of constraints can affect the possibility to participate and deliberate in planning processes. On a personal level, there is the matter of having the capacity, in terms of time and resources as well as perhaps physical ability, to participate in meetings and debates. As the material discussed in planning processes can be fairly technical, and as planning procedures can be rather complex, there can furthermore be a knowledge barrier to equal participation in planning processes. Moreover, although the theoretical understanding of participatory procedures entails a heavy involvement by stakeholders, the translation into actual legal procedures can leave a great deal of room for planners to interpret and open up or close down the opportunities for such involvement in practice (see for instance Mels, 2016).

Arnstein's (1969) classical 'ladder of citizen participation' illustrates the range between 'empty participation' and having real power to affect outcomes in planning procedures. The ladder starts with two levels of non-participation, 'manipulation' and 'therapy', whereby the objective is not to enable participation but rather to 'educate' or 'cure' the participants. Steps 3 to 5, 'informing', 'consultation' and 'placation', leave greater room for participants to hear and be heard, but there is no guarantee that this will actually affect the outcome. The final three steps, 'partnership', 'delegated power', and 'citizen control', are the levels closest to the vision of the communicative planning theory. There, participants can negotiate with the decision-makers or even obtain a majority of control over the decision-making. The difference between the eight levels is not always self-evident; what is labelled a consultation meeting with the public can in practice take on more the character of manipulation and therapy.

A further point that should be made is that procedural attempts to promote respectful, responsive and transformative dialogue does not eliminate power differences; it is but an attempt to regulate them (Flyvbjerg & Richards, 2002). The difficulties of regulating the influence of such power differences have been discussed in a number of studies (Flyvbjerg, 1998; Fox-Rogers & Murphy, 2014; Hillier, 2000, 2002; Innes & Booher, 2015). Together, these studies show that there are plenty of ways in which stakeholders can try to manipulate and circumvent the formal planning procedures. On the one hand, researchers like Flyvbjerg (1998) and Fox-Rogers and Murphy (2014) have highlighted how seemingly 'powerful' stakeholders in the planning process – such as planning officials, project developers and 'elite' groups in society – can use their position to influence planning outcomes. For instance, Flyvbjerg's study (1998:193) showed how industry interest organizations in Aalborg used tactics like "overt politization, pulling strings, making undocumented assertions, manipulation of facts, outright lying, using the press, personal letters to key persons, drawing on outside parties to use their muscles" to influence planning decisions. Similarly, Fox-Rogers and Murphy (2014) demonstrated how "key holders of power", especially economic power, can access decision-makers and planners through informal channels ahead of formal planning procedures, thus being able to set the agenda and the direction of the subsequent dialogue in the planning process.

On the other hand, researchers like Hillier (2000) and Metzger et al. (2016) have demonstrated that it is not only the already powerful who can use these tactics. Different forms of direct action and lobbying, such as letter-writing, telephone calls, petitions, the use of media and demonstrations, are measures that are available to any interest group wanting to influence decision-makers. How successful such measures are in influencing the planning process is based not primarily on social position or material resources, but rather on an actor's or group's ability to network and communicate with other actors, not least decision-makers (Hillier, 2000). It is through interpersonal networks, as well as between different such networks, that actors have the opportunity not only to obtain information about the planning process that might not otherwise be available to them, but also to give information to other actors in attempts to persuade them to consider certain views (Hillier, 2000).

Opportunities for informal stakeholder interaction with the planning process, like the actions described above, can in some ways be seen as positive for the planning process as they can help facilitate the inclusion of a broader set of stakeholders in the process. For instance, informal direct action can be a way to empower groups that would otherwise be

marginalized in the planning process (Hillier, 2000, 2002). However, this also poses concerns about transparency and legitimacy in relation to planning decisions. When plans are prepared outside the formal planning system, these processes will also "lack the legal guarantee for openness, fairness and accountability" (Mäntysalo et al., 2015:349). Moreover, from the perspective of wind power developers, opportunities for informal action can also mean that the planning process becomes less predictable – something developers often see as a problem (Mäntysalo et al., 2011) – as it is not always clear how the process is unfolding, which concerns and claims are raised, or whether there is anything to be done to handle these concerns.

Besides these actor-centred constraints on participation and deliberation in planning processes, there are also larger, more structural pressures that challenge the possibility and effect of such procedures. Lengthy (and consequently expensive) planning processes, such as those associated with productive and meaningful communicative planning, have come into question in recent years as they can be seen as placing "undue burdens on economic growth and competitiveness" (Cowell & Owens, 2006, p 407; Mäntysalo et al., 2011). To adhere to fast-moving market conditions, the importance of simple, streamlined and predictable processes are instead emphasized (Mäntysalo et al., 2011; Sager, 2009). Here, lower priority is given to rigid rules and processes as well as political control (Sager, 2009). To accommodate such demands, Sager argues that:

> [r]ecent managerial restructuring of government [in the Nordic countries] has aimed at depoliticing decisions by making them a matter of operational management. … Social and political issues are reduced to technical and procedural matters; they are translated into problems to be managed. (Sager, 2009, p 73)

Mäntysalo et al. (2011) adds to this, contending that new planning models are shifting planning procedures away from traditional public planning structures, which are tied by laws and norms, towards private-sector management models, realized for instance through public-private partnerships. Taken together, these new values and changes in the focus of planning create a tension in the planning system in relation to the values and procedures emphasized in communicative planning. Mäntysalo et al. (2011) have defined this tension as the struggle between 'input-oriented legitimacy' and 'output-oriented efficiency'.

To conclude, whereas the energy justice framework emphasizes the importance of inclusive and democratic planning and decision-making

processes as a means to develop fairer outcomes of such processes, the insights from planning theory highlight the possibilities for different planning approaches to create participatory processes in relation to formal planning practice. The communicative theory was discussed here as one way of opening up planning processes to stakeholders other than planners and formal decision-makers. However, the planning literature also shows the difficulties involved in conducting inclusive planning processes, as well as the possible discrepancies between the intent of planning procedures and the practical reality. Three overarching points were discussed. First, no matter how planning and decision-making procedures are structured, power relations between different actors or groups of actors will always have the possibility to affect the level of participation and influence of different stakeholders. This leads to the second point, which is that stakeholders can circumvent formal procedures by using various informal methods to try to tap into and affect planning processes and their outcomes. Finally, it was highlighted that participatory planning procedures are also under pressure on a more structural level from the economic market, which has a need for more predictable and speedy planning procedures.

Previous Research on Wind Power

Departing from the ideas of the energy justice framework, this section presents a review of previous studies on the topic of wind power and the insights related to procedural and distributional justice that can be found there. The text is structured in two parts, the first part focusing on procedural issues and the second on distributional issues.

Procedural Justice and Wind Power Development

As stated before, procedural justice issues relate to how decisions are made and who is included or excluded in these decision-making processes. Information-sharing and meaningful participation, as well as the fair and respectful treatment of all stakeholders in these processes, are central ideas for achieving just procedures. The following text will start by presenting how the issue of participation has been discussed in relation to wind power development. Then, the attention turns to the more practical issues of how planning procedures have been approached in practice in wind power development processes. In the final part, issues related to justice as recognition are discussed.

Participation

Participatory procedures are a central part of land-use planning endeavours in many countries today. From the perspective of energy justice, meaningful stakeholder participation and access to information are furthermore an integral part of creating just procedures. In line with this, research on wind power development has shown the importance of participatory planning procedures for installing a sense of fairness in the process, which in turn is important in order for wind power projects to gain acceptance and be approved (Gross, 2007; Haggett, 2011; Wüstenhagen et al., 2007). For instance, Breukers and Wolsink (2007) have shown that opposition to wind power projects can arise or be strengthened due to discontent with decision-making processes or the management of facilities. Other research has also shown a connection between negative attitudes to wind power schemes and dissatisfaction with the overall planning process (Bergek, 2010). For wind power developers, here it is said that it is important that local communities be included in participatory processes in the development of the project if they are to succeed (Söderholm et al., 2007; Toke et al., 2008). To achieve this, an inclusive, respectful, broad dialogue and an open exchange of information play a prominent part (Hall et al., 2013; Mels, 2016; Parks & Theobald, 2011).

A local connection of some sort is generally perceived as being in favour of project development. That the owners of the wind turbines have a local connection, or that there is actual local ownership or control, or even "sense of ownership", is said to work in favour of the project (Wüstenhagen et al., 2007, p 2690; Breukers & Wolsink, 2007; Meyer, 2007). This type of ownership model is to be understood in contrast to remote, large, corporate ownership, which has the opposite effect (Breukers & Wolsink, 2007; Toke et al., 2008). The underlying issue here is trust. People and corporations wanting to erect wind turbines are often regarded with suspicion by local stakeholders, and when investors and facility owners are community outsiders, trust in their aims, attitudes and competence becomes an issue (Haggett, 2011; Söderholm et al., 2007; Wüstenhagen et al., 2007). If the investor is an outsider, or if it is "higher tiers of government" that are siting wind turbines, community involvement comes to be of the utmost importance; not only to enhance the level of trust, but also so that the siting process will not be perceived as unfair (Toke et al., 2008, p 1136) - because, as Wüstenhagen et al. (2007, p 2687) say, "outcomes that are perceived to be unfair can result in protest".

Participation is also important in relation to creating community benefits from wind power developments. Negotiating community benefits is not part of the formal planning process, but it is nonetheless important to consider this process; both because it can be argued to be part of the negotiations of space, and as it can be a way of enhancing the local connection and a sense of fairness in relation to wind power developments (Aitken, 2010a). In some countries, opportunities for community benefits from wind power projects are, so to say, built into the system. Examples of this include tax systems that increase local tax revenues (France) or formal agreements by companies to invest in the regional economy (Spain; Cowell et al., 2011). However, in other countries – for instance the UK – this is not the case. Instead, it is up to the developers to propose and negotiate community benefits with the stakeholders.

Community benefits can be proposed to, for instance, 'communities of localities' (those with a specific geographical position) or 'communities of interest' (those that share a common ethnicity or interest) (Centre for Sustainable Energy, 2009). This can mean that there are only a few individuals in a wider community of interest who receive benefits (Munday et al., 2011), or that a community of locality can include a range of different communities of interest (Aitken, 2010a; Cowell et al., 2011). When there are many different interests in the community, who is or is not allowed to take part in the decision-making processes, and whose interests are or are not considered, can cause conflicts (Cowell et al., 2011). For example, Aitken

writes that the developers and community members in her study "shared a common concern with generating meaningful, long-term benefits from the community fund, but this common concern did not translate into agreement about what would constitute a worth-while outcome or project" (2010a, p 6073). In the worst case, differences in views on fair process and the following distribution can create tensions and feelings of unfair treatment (Aitken, 2010a Gross, 2007).

Procedure

As argued above, inclusive and meaningful participatory procedures are integral to wind power development processes; not only to instate a sense of fairness in the process but also to gain support for the projects. In practice, however, this knowledge has not always been considered in planning processes, as there are a number of other considerations that can come into play here. This will be shown in the following.

In many areas, when the first applications for wind power projects have started appearing, permits have been granted on an ad hoc basis without official guidelines for how wind power should be planned for or sited (Gradén, 2011; Jobert et al., 2007; Khan, 2003; Power & Cowell, 2012; Szarka, 2007b). Here, the wind power development has been driven by the project developers, with local authorities mostly reacting to individual permit requests. In these cases, decisions on the permits have been based on, for example, existing, more general policies for landscape protection and noise (Power & Cowell, 2012) and on general policies and practices for making and judging EIA (Szarka, 2007b). However, studies also show that, under these circumstances, permits have been somewhat arbitrarily granted or refused, based on the local political climate and the general public attitudes towards wind power at a specific point in time and place (Gradén, 2011; Jobert et al., 2007, Khan, 2003).

This type of ad hoc and opinion-based approach can have significant consequences on where wind turbines are sited and how wind power landscapes are developed (Khan, 2003), on site-specific and general attitudes towards wind power (Khan, 2003; Jobert et al., 2007), and on attitudes towards national planning and permit systems (Khan, 2003). In a case study from 2003, Khan describes a situation in which the politicians in one of the studied municipalities were hesitant regarding wind power. In this municipality the permit process took a long time and, although the wind turbines came to be well planned for and situated in the landscape, a general dissatisfaction with the perceived slow, complicated and vague planning and

permit system arose amongst the project developers[10]. In another of the municipalities, there was a more positive local political climate concerning wind power. This led to a situation in which most permits were granted, which in turn led to an unfavourable dispersion of wind turbines in relation to both efficiency and landscape effects. In time, this development led to a growing local opposition to wind power. This kind of disordered development can also fuel opposition to wind power schemes in other areas, as well as on the national level (Khan, 2003; Jobert et al., 2007).

To some extent, this ad hoc process might be explained by the fact that large-scale wind power in many places is a fairly new phenomenon that has not previously been processed in planning systems, entailing a need for guidance and an adaptation of planning laws in order to better deal with these issues. In an article on wind energy policy in the EU, Meyer states that the development of renewable energy "will require new forms of societal planning and regulation of energy development at national and EU level" (2007, p 359). On the one hand, this can be seen in light of Szarka's (2007b) argument that changes in land use as well as in values and interests make it inevitable that planning criteria will change over time. On the other hand, it can be seen as more direct political manoeuvres in line with the argument that "planning regimes that are positive towards wind power and supportive of wind power (or renewable) policy are necessities for successful wind power deployment programmes" (Toke et al., 2008, p 1142). In many EU member states (and other countries), large-scale wind power development has indeed led to changes in national planning and permit legislation (Baltas & Dervos, 2012; Larsson, 2009; Nadaï, 2007; Pettersson & Söderholm, 2011; Szarka, 2007b). As Szarka (2007b) has argued, these legislation reforms can be seen as part of a national policy learning process; a process that, in the case of wind power, due to the unique planning challenges of the technology (scale and nature of impact), has involved a lengthy social learning process.

However, the learning processes and the planning and permit reforms that have taken place in different countries do not necessarily harmonize with the more theoretical learning processes within the field of wind power research. As stated above, studies have shown that the 'local connection' is particularly important for the success of specific wind power schemes. Contrary to this, Breukers and Wolsink argue that there is a general trend in planning "to prioritise the 'common good' (fighting climate change) over and above local concerns" (2007, p 2748). Some researchers also say that in several countries there is a tendency towards a growing top-down,

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[10] The dragged out - and consequently expensive - process also favoured large-scale turbine ownership over local, small-scale ownership, indicating a shift away from the aforementioned important 'local connection' as concerns local attitudes towards wind power schemes.

technocratic, hierarchical way of thinking about how planning systems should be shaped at the level of central government (Cowell & Owens, 2006; Ottinger et al., 2014; Wüstenhagen et al., 2007). Incentives for moving planning procedures away from more inclusive forms of planning have been connected to intentions of trying to speed up wind power development (Cowell, 2010; Power & Cowell, 2012; Ottinger et al., 2014). However, if the national goal is to expand the wind power sector, this type of method and focus may not be very effective:

> An approach that focuses on implementing as much wind power as possible, relying on technocratic reasoning and hierarchical policies is in practice the least successful, whereas collaborative perspectives with more emphasis on local issues and less on the interests of the conventional energy sector were particularly dominant in the most successful case. (Wolsink & Breukers, 2010, p 535)

Similar results have also been found in relation to the success rate of local consultation models in relation to wind power developments. When developers and planners consult with local stakeholder on new wind power developments, Mels (2016) has found that consultation models which focus on local issues, either through local participation or negotiation with local stakeholders, are more successful in generating legitimacy, trust and acceptance of the projects than top-down, technocratic consultation models are.

Why then has this perhaps counterintuitive development in planning legislations come about? Cowell and Strachan (2007; see also Ellis et al., 2009) have raised the idea that national targets for wind power expansion are often "framed through the perspective of 'technological potential'" (Ellis et al., 2009, p 543), which ignores relevant social contexts and processes (such as planning procedures) that affect the implementation of the targets. In France, Ellis et al. (2009) describe a situation in which the state focused on target-setting in this manner but failed to offer guidance in how to achieve these objectives, instead placing this responsibility on the local level. The problem Cowell and Strachan see here is that when "targets are derived from the abstract assessment of technological and resource potential, … then any failures to achieve them are represented as downstream, non-technical 'barriers' in society" (Shove, 1998, quoted in Cowell & Strachan, 2007, p 287). One of these non-technical 'barriers' that often appear on the agenda when large-scale wind power development is taking off in different countries is the idea that planning procedures are slow, complicated and/or unclear (Bergek, 2010; Frisén, 2010; Pettersson et al., 2010). However, issues with

planning procedures might go deeper than just administrative complaints, and also entail issues with the planning system as an idea:

> Time and time again the discussion came back to perceived problems with planning systems, with different stakeholders clearly having very different perceptions of what planning should be delivering in terms of wind power. Indeed, this seems to have been conflated into a multi-faceted 'planning problem' that is played out in government policy and the popular media through a discourse of 'planning barriers'. (Ellis et al., 2009, p 521)

Thus, planning, including participatory procedure, is not only possibly 'forgotten' in target-setting but also seems to be considered an obstacle to development.

Recognition

As stated in the section on energy justice, procedural justice does not only focus on participation and on how planning and decision-making procedures are constructed to enhance inclusion, but also includes how people are treated more generally in these processes, for instance in relation to recognition and respect. The argument here is that misrecognition, non-recognition or lack of respect in the treatment of different groups can impede their participation in the planning process. In relation to this, the rhetorical analysis of wind power debates by Barry et al. (2008) is an excellent presentation of how groups opposing and supporting wind power developments represent each other in unfavourable ways in order to undermine the other group's position in the process. On the one hand, the study shows how various oppositional groups have indicated that pro-wind actors are alien outsiders, colonizers, or big business allied with the government, or that they are only out to make a quick profit from wind power projects without concern for the 'sacrifice' of the local landscape or the people in it. On the other hand, according to the study, supporters of wind power have a tendency to describe anti-wind actors as uninformed, ignorant, old-fashioned, or selfish NIMBYists (Not In My Back Yard).

Research focusing on the statements by the oppositional groups mentioned above is rather limited, but in relation to the supporters' claims, especially concerning NIMBYism, there are more studies to be found. The NIMBY label indicates a belief that "some people oppose local wind energy development for self-interested reasons but are willing to support developments elsewhere that might affect other people in the same way"

(Bell et al., 2013, p 124). A number of wind power studies have focused on or discussed this term (for instance, Aitken, 2010b; Bell et al., 2013; Devine-Wright, 2005; van der Horst, 2007; Wolsink, 2000, 2006, 2007). What the research in summary indicates is that, although there might be a small group of people who could fit the NIMBY definition, this label is most often a misrepresentation of oppositional groups with legitimate concerns in relation to wind power projects, for example regarding impacts on people and the environment or concerning procedural discrepancies. In essence, the NIMBY label is said to be overly simplistic in capturing and explaining the various underlying motivations and reasons for why people oppose specific wind power projects (Aitken, 2010b; Wolsink, 2000). Moreover, Aitken (2010b; see also Jenkins et al., 2016) has argued that the use of the NIMBY concept has become a way of exerting power over oppositional groups in local wind power conflicts. Problems involving recognition in wind power planning processes thus seem to be a real concern.

Distributional Justice and Wind Power Development

Distributional justice issues in relation to wind power developments are concerned with how the benefits and burdens of these developments are distributed between different social groups, with the underlying idea that uneven impacts can imply distributional injustices. Based on previous research, this section clarifies the argument in relation to wind power development – what the burdens and benefits of wind power development are – and discusses whether there is reason to believe that there is a case for distributional injustice in relation to wind power development.

Benefits and Burdens

The political argument for developing wind power most often involves improving a country's energy security while simultaneously reducing its greenhouse gas emissions. The benefits of improving energy security and lowering greenhouse gas emissions can serve the good of all the inhabitants of a certain country, as well as people living in other places. However, while these benefits can be shared among all members of society, the possible burdens associated with wind power will predominantly be felt in the local context of the wind farms, thus including a noticeable scalar dimension in the distribution of benefits and burdens (Haggett, 2011). The effects on the local level can be of both a material and a social nature. As concerns possible material effects, examples include changes in landscape, risk of noise, shadow or light disturbances, and ice throwing, as well as more indirect effects, for example on wildlife and vegetation or on tourism, and changes in property value (see Bergek, 2010, for a literature review). In relation to the

social effects, for example, Gross (2007) has argued that if the outcome of wind power development processes is seen as unfair, the end result for a host community can be damaged relationships and divisions within the community. On a broader spatial scale, some research has also indicated that wind power development can spark or reinforce rural-urban conflicts (Cowell, 2010; Gradén, 2016), as people in sparsely populated, rural areas feel they are losing their pristine landscapes to the 'urban invasion' of windmills in order to accommodate the electricity needs of the urban areas (Cowell, 2010; Gradén, 2016).

The local effects are not all intrusive, though. Different kinds of local economic and material benefits can also come from wind power developments, for instance through a redistribution of benefits between the developers and the host community. Examples include employment opportunities, taxes, land-lease income, local ownership, community benefit funds, and benefits-in-kind, such as infrastructural or environmental improvements (Brannstrom et al., 2011; Cass et al., 2010; Ejdemo & Söderholm, 2015; Gradén, 2011; Henningsson et al., 2012; Lantz & Tegen, 2008; Munday et al., 2012; Pedden, 2006; Persson & Fernqvist, 2016; Phimister & Roberts, 2012; Wizelius, 2010). This redistribution of benefits between the project developers and the host community is not self-evident, however; in practice, it is contingent on the outcomes of negotiations between the developers and the other stakeholders (Gradén, 2011). Thus, whether a person benefits from or is burdened by (or both) a wind power development depends both on whether or not this person is part of a host community, and on how wind power projects have been negotiated within local settings.

However, the line between burdens and benefits is not as straightforward as it is presented here. In practice, both the former and the latter can be problematized further, and in addition, both have been contested in local wind turbine siting situations. In relation to the burdens, the most common reason for opposition to wind power development has been said to be connected to perceived visual and audial impacts (Breukers & Wolsink, 2007; Larsson, 2009; Söderholm et al., 2007; Wolsink, 2000). The concerns here are not necessarily based on simple aesthetics, "but reflect the experience of living or spending time in a particular place" (Bell et al., 2013, p 123). The argument, then, does not always target the wind farms themselves but rather the threat of change to a landscape to which people have strong connections (Devine-Wright, 2005, 2011; Hammarlund, 2010). This reflects the idea of how different actors' trajectories play a part in and influence how space is negotiated. This influence is particularly strong if there are established landscape protection organizations in the development

areas, with Toke *et al.* stating that 'strong and effective opposition to wind developments is always primarily rooted in landscape values' (2008, p 1129; Breukers & Wolsink, 2007). In contrast, the influence of organizations and people who focus on the protection of natural values is not as one-sided. Although interference with natural areas (particularly bird endangerment) can generate opposition to wind power (Wolsink, 2000), nature protection organizations and people acting in an environmentally friendly manner generally tend to be positive towards wind power developments (Söderholm et al., 2007; Toke et al., 2008). Thus, issues mentioned as negative impacts (such as visual effects) may in actuality involve other concerns (landscape change), and overarching positive impacts (such as mitigation of greenhouse gas emissions) may overshadow more small-scale negative impacts in relation to developments.

The aforementioned benefits can also be, and have been, debated and contested. Dealing with energy insecurity and greenhouse gas emissions by developing wind power may have its benefits, but not everyone believes it is the *most* beneficial way of dealing with these issues. For instance, Barry et al. (2008) have shown how a common discourse among wind power opponents is the belief that governments have been bought by the wind power industry, and thus ignore other viable energy solutions. Other contestations of the benefits of wind power concern, for instance, issues of unreliability of the energy system and the costs of wind energy as compared to other energies (Wolsink, 2000). Whether wind power is seen as a feasible energy solution is to some extent connected to path dependencies and the dominant energy technology and policy in a country. On the one hand, this includes examples of the prominence of nuclear power in France as a consequence of being institutionalized in national frameworks and industry structures (Szarka, 2007a), or historically hierarchical electricity regimes in Sweden and Norway counteracting the expansion of small-scale and bottom-up electricity generation from wind power (Pettersson et al., 2010). On the other hand, countries with a tradition of local energy activism, grassroots activities and anti-nuclear movements, such as Denmark and Germany, seem to favour locally owned and decentralized energy production systems such as wind power (Breukers & Wolsink, 2007; Toke et al., 2008; Pettersson et al., 2010).

Moving on to the more local benefits of wind power, it can be argued that local economic benefit opportunities can be a way of enhancing a sense of fairness in wind power projects (Aitken, 2010a) or a way of 'paying compensation' for the negative externalities, such as landscape effects, of wind power developments (Centre for Sustainable Energy, 2009; Munday et al., 2011). However, the relationship between wind power development and local economic development is not necessarily an easy one. Research has

shown that proposals by wind power developers concerning different kinds of community benefits are often interpreted by those who are sceptical of the developments as bribes "to silence local opposition" (Cass et al., 2010, p 267; Cowell et al., 2011; Aitken, 2010a). Local job creation and contracting, however, are seen here as less controversial than if developers suggest community funds or benefits-in-kind (Cass et al., 2010). There are also concerns that these kinds of schemes can undermine formal planning systems, since it can be perceived that planning permissions can be bought and sold or that developers can "be held to ransom by local authorities" (Department for Communities and Local Government, 2008, p 15, quoted in Aitken, 2010a).

Wanted or Unwanted Development

The fact that there are different conceptions of what constitutes a burden or a benefit related to wind power developments poses a challenge to any investigation of the distributional justice argument as concerns wind power. A further challenge derives from the fact that wind power is not necessarily an unwanted development – which is often the prerequisite for distributional justice enquires. Indeed, on a national level, surveys in many countries suggest that wind power as an energy source is well liked in comparison to other sources; and on a local scale, studies have suggested that there is often a segment of the population that more or less unconditionally supports wind power projects (Brannstrom et al. 2011; Breukers & Wolsink, 2007). However, when comparing the attitudes at the local level with those at the national level it has also become clear to researchers that there is a 'gap' between the national level of support for wind power and the support (or lack thereof) found 'on the ground' (Bell et al., 2005; Bell et al., 2013). In essence, it can be said that "public attitudes towards wind power are fundamentally different from attitudes towards wind farms" (Wolsink, 2007, p 1188); i.e., that suggestions for wind power development in relation to energy policy are perceived differently than those for wind power development in relation to local land-use changes.

   The NIMBY argument is often raised in relation to the 'gap' between general support for wind power and opposition to wind farms. However, as discussed earlier in this text, if this group exists it is likely relatively rare (Bell et al., 2013); furthermore, the label is considered to be an oversimplification and mischaracterization of local opposition to wind power (Aitken, 2010b; Bell et al., 2013; Wolsink, 2000). In contrast, whether a wind power scheme will be supported or opposed – whether the project is wanted or unwanted – has been argued to often be a conditioned matter, dependent on what the local effects of the project will be, rather than a

straightforward yes or no issue (Bell et al. 2005; Breukers & Wolsink, 2007). What is more, the perception of wind power that different people have is not static but is rather something that can, and most likely will, change over time (Hammarlund, 1997). The aspects that conditional supporters require acceptable wind power developments to meet involve, for example, noise restrictions, the size and number of windmills, protection of bird populations or other natural values, the conditions for community involvement in planning procedures, and how economic benefits are distributed (Bell et al., 2013). For some the condition might be that the harms are as small as possible, while for others it may be an issue of weighing benefits against burdens to determine whether one trumps the other. Whichever way this reasoning goes, if the conditions for development are met in relation to the stakeholders, in the planning process or in what follows from the actual development, the argument for distributional injustice is curtailed.

Claims and Evidence

Taking into account both the unclear nature of what can be considered benefits and burdens in relation to wind power development, and the fact that wind power does not have to be an unwanted development, there seem to be some challenges as to how to approach and interpret distributional justice issues in relation to wind power. It is important to keep these challenges in mind when evaluating the merit of a distributional justice argument; however, the argument does not rest solely on these issues. As stated in the *Energy Justice* section, the distributional justice argument has two important aspects: first, there must be evidence that the impact of a specific development falls unevenly on different social groups (both possible benefits and burdens are considered here); and second, there needs to be a claim of or connection to unfairness concerning the division or how it has come about.

As concerns the latter – claims or evidence of unfair processes – some research has looked into these issues. For instance, studies have shown that oppositional groups often question the fairness of how benefits and burdens are divided between different stakeholders as well as different places (Barry et al., 2008; Jobert et al., 2007). Other studies have shown that claims of an unfair distribution of burdens and benefits are often linked to claims of unfair decision-making processes (Aitken, 2010a; Gross, 2007). Moreover, some research indicates that there are connections between how much resource and social capital different groups in wind power siting areas have and the formal decisions to approve or reject wind power developments. For instance, it has been argued that it is easier to carry out wind power projects in stigmatized places (van der Horst, 2007; Wüstenhagen et al., 2007).

Anderson (2013) has furthermore shown how high social capital in local community groups, for example in the form of connections to institutional and political networks, can help the groups fruitfully resist or support wind power developments. However, perhaps the most straightforward account of local socio-economic characteristics and their relation to wind power siting is a study by van der Horst and Toke (2010), in which they compare refusal rates for wind power permits in England with 117 variables related to education, health, demography, employment and housing. The results indicate that it is more likely for planning permissions to be refused in areas with higher social capital, such as higher voter turnout, higher life expectancy and lower criminality rates, compared to an area with lower social capital. These results have led the authors to believe that the emerging wind energy landscape, at least in England where the study was conducted, is uneven and inequitable. Whether the same is true for other geographical settings, however, remains to be seen.

Although the studies mentioned above show some evidence of distributional injustice in relation to wind power development, this should not lead to the assumption that wind power development in general has problems with distributional justice. Such broad generalizations cannot be drawn on the basis of these studies. Rather, what the studies show is that wind power is not immune to distributional problems and that these problems are expressed both through claims of distributional injustice and through material and social processes in space.

Materials and Methods

This section presents the materials and methods used in the thesis. The overall design of the thesis is an embedded sequential mixed method. What this means is further elaborated upon in the first part of this section. However, in essence, the design means that a mix of qualitative and quantitative methods are used, but that the different methods are employed first in different sequences (in the papers) and are only combined in the final part of the study (in the kappa). The next three parts of the section are thus divided into presenting the methodology, methods and materials of: first, the qualitative sequences; second, the quantitative sequence; and finally, the mixed sequence. The qualitative sequences relate to Papers I, II and IV, and the quantitative sequence to Paper III[11].

Embedded Sequential Mixed Methods

The chosen setup for this study is an embedded sequential mixed methods design (Creswell & Plano Clark, 2011), meaning that both qualitative and quantitative methods are used but that the emphasis (in this case) is on the qualitative methods. From the outset it may seem more appropriate to choose a purely qualitative research design for the study as its overall purpose, as well as the majority of the research questions (a, b and d), are explorative and process-oriented in nature. However, as Question c was added to the study in order to get a better sense of the broader societal structures that underpin and result from wind power planning processes, a quantitative study was incorporated into the research design. Thus, in accordance with the statement by Creswell and Plano Clarke that an embedded mixed methods design is fruitful to use "when the researcher has different questions that require different types of data in order to enhance the application of a quantitative or qualitative design to address the primary purpose of the study" (2011, p 91), the embedded mixed methods design was chosen. That it is a sequential design means that the qualitative parts of the research (consisting of three separate studies related to questions a, b and d) have been undertaken first and then followed by the quantitative part (a single study related to Question c). The different parts are not in themselves dependent on the other parts (that is, the separate studies could be ordered differently), but due to funding reasons and data availability this was the chosen timing of the studies. After the results from the three studies are

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[11] The fact that the papers in the first sequence are numbered I, II and IV instead of I-III has to do with the idea that (the qualitative) Paper IV, which deals with the *re*-distribution of burdens and benefits, more logically follows upon (the quantitative) Paper III, which deals with the initial or direct distribution of the impact from windmills, in the *Paper Summaries* section.

analysed separately, they are compared and contrasted against each other in a new analysis in order to gain a better understanding of how the process issues and the more general structures in society either converge or diverge from each other. It is essentially in this final step that the different methods are merged.

From a philosophical point of view, it is of course not an uncontroversial issue to blend techniques with divergent ontological and epistemological backgrounds as suggested here. From a purist standpoint, qualitative and quantitative methods relate to paradigms (for instance, constructivism or positivism) that are so fundamentally different that they should not be mixed; methods should only be used within the set guidelines for their specific paradigms (Teddlie & Tashakkori, 2010). However, the literature on mixed methods research (also known as mixed approach, multiple methods, multi-methods research etc.) has rejected this so-called 'incompatibility of methods thesis' (Teddlie & Tashakkori, 2010, p 8). The argument for this differs between practitioners, with some, for instance, arguing that theoretical orientations (for example, political ecology) are of greater concern to a research project than philosophical paradigm (the substantive theory stance; Teddlie & Tashakkori, 2010). Others are more oriented towards methodological arguments, whereby 'the dialectic stance', for example, holds that interactions and tensions caused by using methods from different paradigms in a single study can result in a greater understanding of the phenomenon under investigation (Teddlie & Tashakkori, 2010). However, one of the more innovative and emerging standpoints here is that of the 'single or alternative paradigm stance', whereby both qualitative and quantitative methods are seen as being part of the same paradigm (Teddlie & Tashakkori, 2010). This stance seems to encompass many of the characteristics that Teddlie and Tashakkori (2010) attribute to mixed methods research, for instance emphasis on continua instead of either/or, the centrality of the research question/problem for choice of methods, and methodological eclecticism. What exactly this single paradigm will be is currently under debate, but one contender, which is in line with the thinking underpinning this thesis, is the pragmatic approach. Here, it is held that the starting point for any study should be the research questions and that any philosophical activity should be used primarily as a tool to help address problems (Biesta, 2010). Furthermore, the different outcomes from using different types of approaches should be judged not on the common dualistic scale of objective or subjective knowledge, but simply based on "the processes and procedures through which the knowledge has been generated so as not to make any assertions that cannot be warranted on the basis of the particular methods and methodology used" (Biesta, 2010, p 113). From a pragmatic point of view, then, the research questions will lead the way for

the research design of a given study, which is in essence how the research design of this thesis came about.

The Qualitative Sequences – Papers I, II and IV

Papers I and II (related to Questions a and b of the thesis) and Paper IV (related to Question d) all use methods that can be found on the more qualitative side of the method spectrum, and are all to some degree linked to a set of six case-study areas in Västerbotten in Sweden, Ostrobothnia in Finland, and Nordland in Norway. Paper I is based on a case-oriented comparative qualitative analysis (della Porta, 2008) of Sweden, Finland and Norway, with methods encompassing both policy reviews (from the EU level to the national levels) as well as semi-structured interviews with respondents involved in wind power development processes in six case-study areas in the countries (two in each country). In Paper II the geographical focus on the national (and EU) level is excluded, and instead it is the interviews from the six case-study areas that are of sole interest. Paper IV narrows the focus even further, concentrating only on the two Swedish case-study areas. Instead of using the interviews, Paper IV is based on a review of planning documents from wind power development processes in the case-study areas as well as non-participant observations from public hearings within the processes. In all three papers, the material is analysed thematically.

In the text below, the sampling of case-study areas and interview respondents, as well as the methods employed, will be presented in more detail.

A Case-Oriented Comparative Qualitative Analysis

The idea behind a case-oriented comparative qualitative analysis is to contrast and compare, and learn from, the different policy strategies and (political) ideas that have evolved in different areas. This kind of research strategy has a long tradition within the research community at large (Béland, 2011), and within human geography this kind of cross-cultural research and learning can be said to historically have been at the very heart of the research (Howitt & Stevens, 2005).

Case-oriented comparative qualitative analysis promotes transnational learning, offering the possibility to imagine alternative paths of development for a country – in a sense, 'if they can do it, we can do it'. The aim is not to generate scientific laws, but instead to create an understanding of the process in a more general sense and tease out the different aspects affecting, and affected by, the processes that are the same or different between the

countries. However, depending on the end result, there might be potentials for using the knowledge that results from the study to get an idea of how large-scale wind power development might occur in and affect other countries under similar circumstances – again, not in the form of scientific laws but more highlighting path-dependent processes. Results like these are possible because this kind of research strategy allows for the use of several different and complementary methods and materials. In the end this forms a thick description of the variables that influence, transform and are affected by the reform process following large-scale wind power development, which shows, if not the whole, at least a large part of the context needed for understanding alternative development paths.

The countries compared in Paper I – Finland, Norway and Sweden – have been chosen, in accordance with Mills' method of difference (see e.g. Lijphart, 1971), because they have many environmental, infrastructural, historical, cultural and political similarities but still differ somewhat when it comes to the extent of wind power development in the countries as well as the systems governing it. The similarities of special interest for wind power development are the fact that all countries exhibit strong, untapped wind resources and low population density in many areas, as well as well-developed supporting infrastructure (nationwide energy grids and hydro and/or nuclear power that can function as balancing power for wind turbines). Similarities of interest from the perspective of the study are the fact that the countries have historically had close political connections and cooperation, which has meant that their respective national political direction has been similar over the years (in essence, some form of transnational learning). A point of interest here is that all countries have a tradition, affirmed by national regulations, of focusing on the local level, self-determination and public participation as concerns land-use issues (see the *Setting the Scene* section). Although these kinds of policies are supported by European directives and conventions today, this high status and power delegated to the countries' municipalities is unique in the EU. The interesting part for this study is to explore what types of changes and consequences the nuance differences between these systems can result in. Some of the differences that might be important here are the level of political importance given to wind power development in the countries, the formal and informal differences authorities at different levels can make in the planning and permit systems, and the way different actors such as project developers and local residents interpret and relate to wind power development and to the planning and permit systems.

There are some difficulties involved in conducting a comparative qualitative study of this kind. One is related to the very thing that makes the

comparison interesting – the nuance differences between the countries' policy and legislation. Because of historical events and developments within different contexts, something that was initially the same – and that today formally looks the same – may in actuality have a very different meaning and function. An example related to the study presented here could be that a public hearing in the planning process in the respective countries may be organized and conducted in different ways and have different statuses, although formally, in the legislation, it is presented as a similar event. If this difference is discovered, it can of course function as a result and an explaining factor in the study, but if it is not discovered it can lead to serious misunderstandings of how the whole system works. The tools available within the comparative qualitative research study design for tackling this issue, is the opportunity to combination different research methods and materials; that which is hidden in formal policy reviews may instead become clear if it is combined with interviews.

The second difficulty that will be mentioned here is an extension of the former: namely, the problem of comparing countries with different languages. Language differences leave room for misunderstandings, in the sense that even though two people may be using the same words they may ascribe different meanings to them due to the historical context in which they have become familiar with them (Béland, 2011). It may also be that a word that exists in one language does not exist as such in the other, making it difficult to, for instance, use the same interview guide in different countries. In this study, the languages of concern are Swedish, Norwegian and Finnish. Since Swedish and Norwegian are quite similar languages, and since Swedish is also an official language in Finland[12] (spoken frequently in the case-study areas), there is a better possibility to avoid misunderstandings due to language differences than in many other transnational studies. However, there are still many words that are used differently or that do not exist in all the areas. This is handled in the study by using different materials in an attempt to form the correct picture of the situation, taking time during interview to sort out the meaning of unfamiliar words or causal connections that are hard to grasp, as well as conducting meetings with researchers active in and native to the different countries in the field of interest in order to sort out how to interpret various issues.

The Case Studies

According to Lijphart, "the case study method can and should be closely connected with the comparative method" (1971, p 691); and this is how it will

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[12] The author of the thesis also has a basic knowledge of the Finnish language.

be done in this study. The advantage of using case studies is that this helps reduce and focus an otherwise vast and unmanageable body of material. It also offers the possibility to study how formal guidelines, such as planning and permit policy and legislation, play out in the context of 'the real world'. Based on this, the focus for the case studies is six different wind power project development processes, involving everything from official planning and permit procedures to the privately run project development process, that have taken or are taking place in the countries (two in each country; see Figures 5-8). All six areas are of interest in Papers I and II, while only the two Swedish cases are in focus in Paper IV. The sampling area is to some extent a form of convenience sampling, in that the funding for the project only covered expenses within the Botnia-Atlantica Interreg region (basically the Ostrobothnia region in Finland, Nordland Fylke in Norway, and Västerbotten County in Sweden; these areas will be presented later in the text). However, these areas are of interest for the research purpose because they exhibit good wind and infrastructural conditions for developing wind power, and because there is strong industrial interest in building wind power in these areas.

Within these areas, the specific cases chosen for further investigation were selected based on a purposive sampling method: "the sample units are chosen because they have particular features or characteristics which will enable detailed exploration and understanding of central themes and puzzles which the researcher wishes to study" (Ritchie et al., 2003, p 78). Three of the cases (one in each country) were selected based on intensity sampling, which focuses on 'cases which strongly represent the phenomena of interest', while the three others (also one in each country) were selected based on extreme case sampling, which entails their being 'chosen because they are unusual or special and therefore potentially enlightening' (Ritchie et al., 2003, p 79).

The three cases selected through intensity sampling are Sidlandet in Finland, Nygårdsfjellet in Norway, and Gabrielsberget in Sweden. These projects are of interest because they have been running for a long time (at least relative to the area). This means that the actors involved in the processes have had the chance to be involved in the different stages of project development (from planning to, or up until, the erection of wind turbines) and have thereby gained insight into the process and hopefully formed more developed thoughts and ideas about the format of the process.

Figure 5: Overview map of case-study areas.
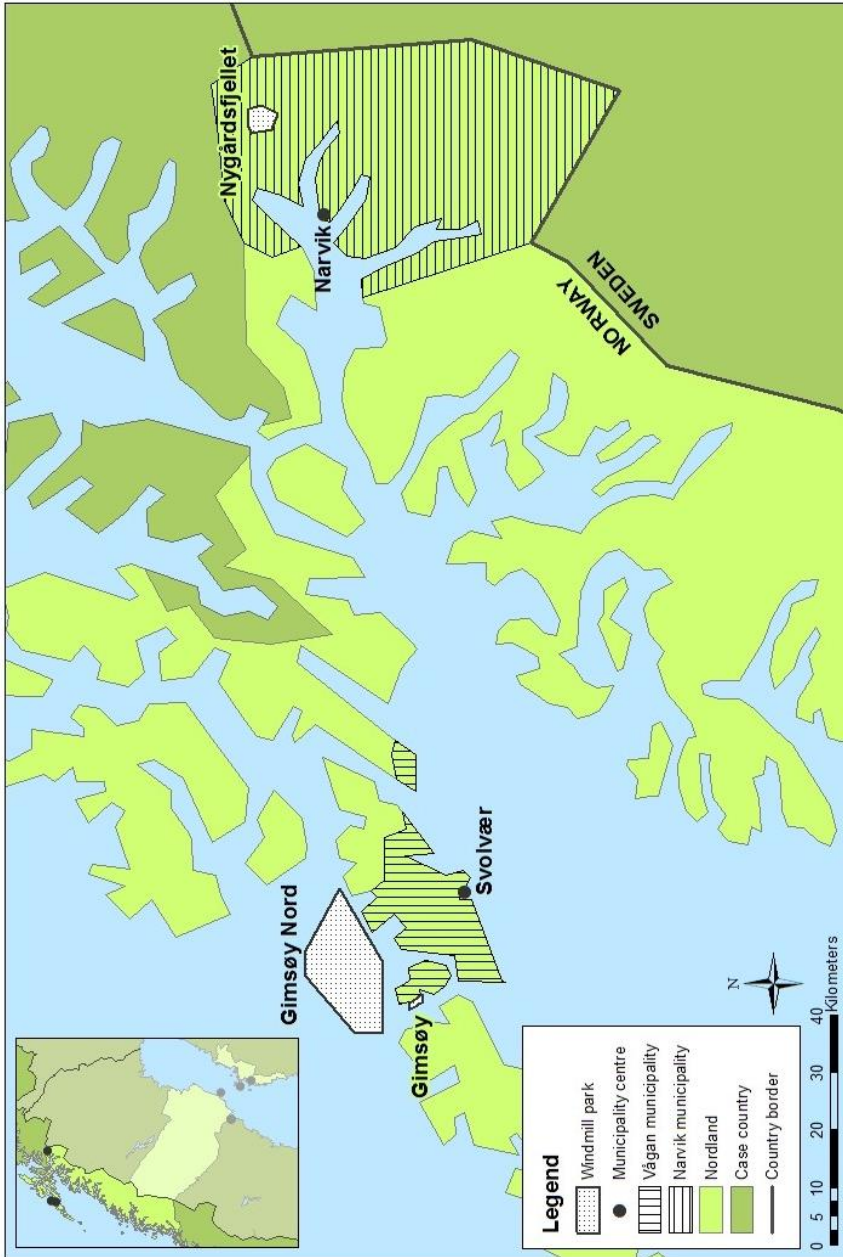
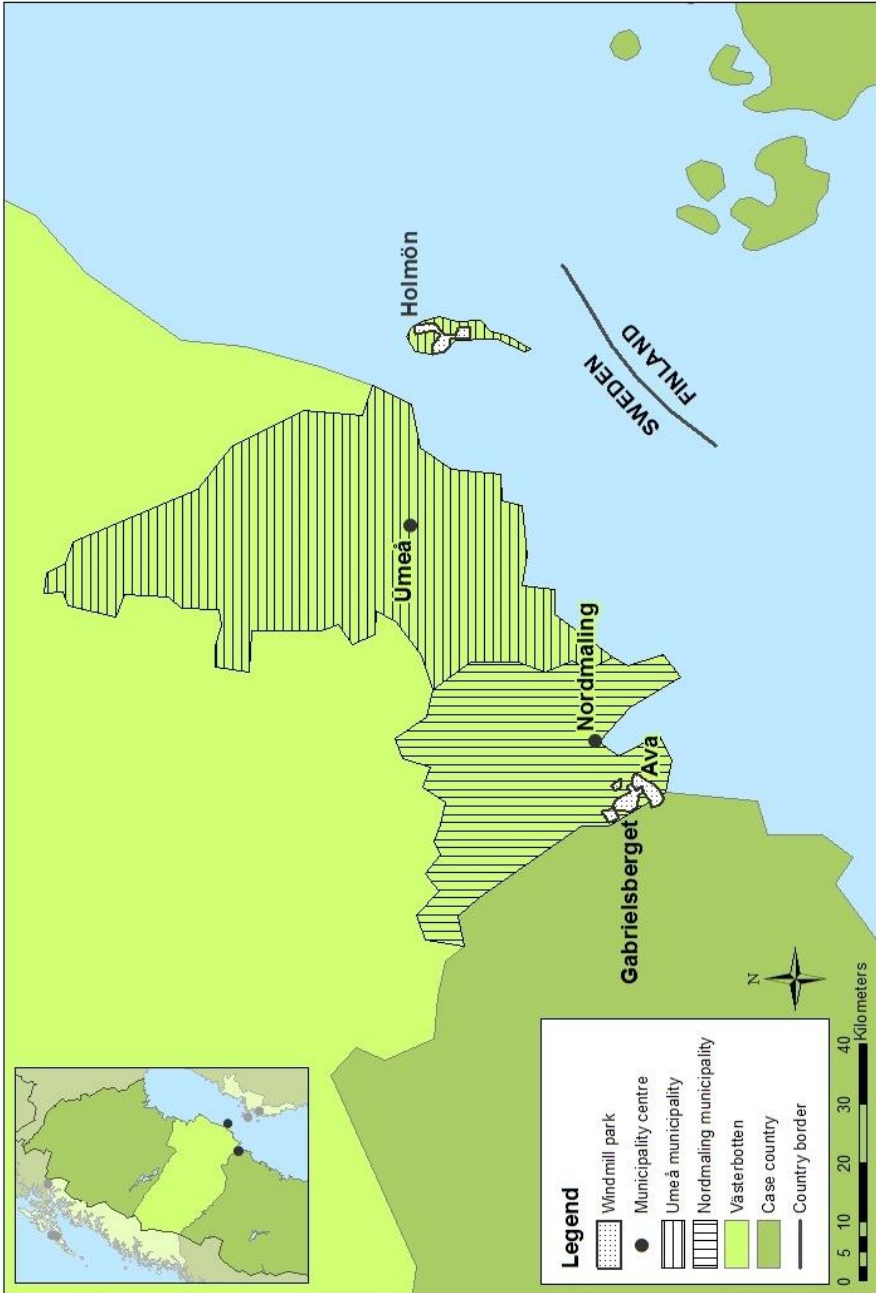**Figure 6: Case-study areas in Norway, Gimsøy/Gimsøy Nord and Nygårdsfjellet.**

Figure 7: Case-study areas in Sweden, Gabrielsberget/Ava and Holmön.
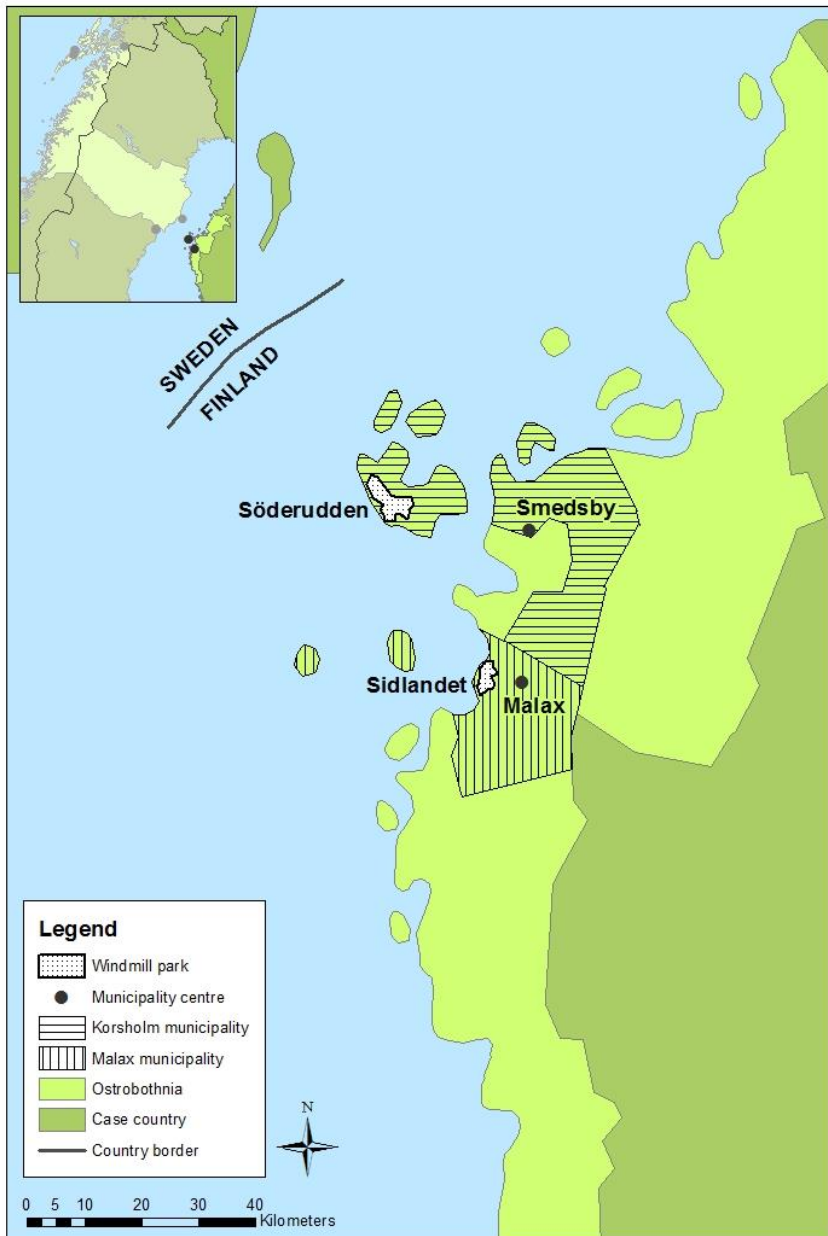
Figure 8: Case-study areas in Finland, Sidlandet and Söderudden.

The three cases selected through extreme case sampling are Söderudden in Finland, Gimsøy in Norway, and Holmön in Sweden. What characterizes these places is that they are contested, in the sense that many different stakeholders at all levels of society have diverse interests in the local land-use development. For instance, Söderudden borders a UNESCO World Heritage Area and Gimsøy is currently under investigation to become one. Söderudden and Holmön are also within or near the EU's Natura 2000 areas, as well as other bird and nature conservation areas. Tourists and second-home owners who frequently visit these areas want to preserve them for their scenic and natural values, while some landowners and residents see an opportunity for profit or regional development in wind power developments. The idea here is that under these circumstances planning and permit procedures are pushed to their limit, and processes of negotiation and contestation of space become, possibly, both more diversified and explicit.

Document Analysis

Two of the papers, I and IV, utilize document analysis within their research design. In relation to the thesis, document analysis is a method often used for triangulating data, such as in mixed methods studies, and is well suited for a qualitative case study (Bowen, 2009). Here, documents can provide rich background information on a phenomenon concerning, for instance how a process has developed over time. The method involves the "skimming (superficial examination), reading (thorough examination), and interpretation" of documents, whereby information is organized "into categories related to the central questions of the research" (Bowen, 2009, p 32). The analytical process here is a combination of both content analysis and thematic analysis, whereby the former is used to identify meaningful and relevant passages of text as well as separating out texts of less importance, while the latter is used to code and categorize the material into different themes (Bowen, 2009). The codes, categories and themes can evolve from the researcher's reading and re-reading of the material, but the researcher can also use predefined themes, categories or codes, for instance from theoretical frameworks or those that have been used in coding other material, such as interview transcripts (Bowen, 2009; Spencer et al., 2014).

In Paper I, the analysed documents consist of the EU's two renewable energy directives (Directive 2001/77/EC and 2009/28/EC) as well as national planning and permit laws, guidelines, and national agency memos on wind power development in Sweden, Finland and Norway. Based on the theoretical frame of the study, two overarching themes structure the analysis: efficiency and legitimacy in the planning processes. These are then

further broken down into the categories of long- and short-term efficiency as concerns the development of wind power, as well as legitimacy, seen as governance for the people or by the people.

Paper IV uses documents specific to wind power development projects in the case-study area, such as EIAs and materials issued in relation to formal public hearings concerning the developments. The thematic analysis here, coded using pen and paper, was focused on the themes 'local economic development opportunities' and 'community benefits' in relation to the development. These themes were broken down into the categories 'employment', 'taxes', 'land rent', 'ownership models', 'community funds' and 'other opportunities', based on literature on the subject.

Semi-Structured In-Depth Interviews

Semi-structured in-depth interviews are part of the research design for Paper I, and the only method used in Paper II for gathering empirical material. In-depth interviews are used to capture people's personal experiences, interpretations and viewpoints regarding a specific research topic (Hennink et al., 2012; Yeo et al. 2014). In line with this understanding, the semi-structured in-depth interviews presented in Papers I and II were conducted with the purpose of gathering this type of experiential information concerning wind power planning and permit processes. *Semi-structured* interviews were selected in order to ensure that certain topics of interest will be discussed but, also, to leave room for 'flexibility in the way issues are addressed by the informants' (Kevin, 2005, p 80).

To some extent, the same interviews are used in Papers I and II, the difference being that the interviews analysed in Paper II are delimited to a subset of those used in Paper I. A critical case sampling technique was used to select respondents for the interviews from the six case-study areas, the aim being to choose respondents on the basis that they 'are pivotal in the delivery of [the] process' and that they will be '"critical" to any understanding offered by the research' (Ritchie et al., 2003, p 80). The critical cases proposed here are officials at local and regional levels involved in the planning and permit processes connected to the case studies, project developers, and, finally, representatives of the public in the form of local oppositional interest groups. Most of these may seem like straightforward selections; public planning officials have a legal role to play in the planning process, and project developers are the ones who initiate the development. Local oppositional interest groups may warrant further explanation, however, as virtually any person can be said to be part of 'the public'. The idea here was that it is pivotal to understand how groups or individuals not

officially involved in the development of wind power projects take part in and relate to the planning process. As different groups and individuals (for example environmental groups, second-home owners, local residents, landowners, local politicians and industry leaders) have different positions in society as concerns power and influence, the list of respondents could be made very long. However, in order to be able to manage the interview material, some form of demarcation had to be made. In the end, the choice came down to the fact that to understand the phenomenon under investigation in both Papers I and II, there was a need to find respondents who a) were likely to be interested in influencing, and thus participating in, the development process; and b) were likely to use both formal and informal settings to try to exert this influence. As previous research has shown this to be the case for local oppositional interest groups (Anderson, 2013; Bell et al., 2013), these types of groups were chosen for the study. It is important to mention here that these local oppositional interest groups should be understood as groups in a local community, and not necessarily (although sometimes possibly) an entire local community as a group.

From the different sampling categories, the respondents selected for interviews were those who had been working on or in charge of the specific wind power project. In the case of the local oppositional interest groups, however, they were contacted via email or telephone with a request that they select a representative to participate in an in-person interview at a location of the respondent's choosing. All contacted local oppositional groups responded positively to participating in the interviews.

The interviews were conducted using the guide found in the Appendix[13], and generally lasted 1-1½ hours. The interviews with the Finnish and Norwegian respondents were carried out between November 2012 and January 2013, while the Swedish interviews were conducted in June 2013 and January 2014. The interviews were recorded and transcribed, and were then coded and categorized, using pen and paper, in relation to the themes of the two papers. The main themes for Paper I were derived from the theory used in the paper, and focused on efficiency and legitimacy in the planning process. These overarching themes were broken down into the categories of long- and short-term efficiency as concerns the development of wind power, as well as legitimacy, seen as governance for the people or by the people (the same as described above for the document analysis). For Paper II the main themes, derived from the research questions and the literature review in the paper, focused on formal and informal ways of gathering information on

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[13] The guide looks slightly different depending on the respondent's position in relation to the planning and permitting processes as well as the national setting, for instance concerning the legal framework in the country.

wind power projects, and formal and informal participation in or influence over the planning process. Based on the information in the interviews, the themes were divided into categories and subcategories encompassing 'information gathering' (formal and informal information as well as lack of information), 'participation in the formal process' (meetings, statements and barriers to participation), and 'trying to influence the process informally' (media, social networks, lobbying, awareness raising etc.).

Observations

Observations are used to systematically record people's behaviour, actions and interactions that, for instance, are too complex for or cannot be captured by other methods (Hennink et al., 2012; McNaughton Nicholls et al., 2014). According to Hennink et al. (2012, p 171), observations are furthermore "particularly useful for providing an introduction to your study context, especially when starting a new project". In line with this, in the beginning phase of the work on this thesis, observations were conducted on two public hearings for the wind power development project in the two Swedish case-study areas to become familiarized with the cases and the planning setting. One meeting was held at a public hall in one of the villages in the vicinity of the site where the wind power project was planned. The meeting, which was conducted after working hours, started with a formal presentation of the project by the developer and their consultants (around 20 min), after which the floor was opened for questions from the audience. After this, the formal presentation setting was left behind and the developers instead invited people to walk around in the hall and look at information boards and ask questions of the project representatives. In total, there were four representatives of the project and around 20 people from the public. The other meeting was also conducted after working hours and took place at a public meeting hall. The place of the meeting, however, was about an hour's trip from the planned building site, as the site itself is on an island with somewhat restricted access times as the only way to get there is by ferry (there had been a meeting on the island earlier, however). This meeting also started with a formal presentation by the project developers and their consultants (four in total), after which the people participating in the meeting (around 40-50 people) could ask questions of the project representative (the formal setting remained throughout the meeting).

The hearings were observed in the form of "moderate participation" (Hennink et al., 2012, p 182) or "observation as participation" (McNaughton Nicholls et al., 2014, p 247), meaning that, as a person attending and taking notes during the hearings, there is a slight engagement in the setting but there are no attempts to take part in it or form contacts beyond this. The

observations during the hearings were recorded as field notes; they were partly open to an exploration of the topics that might arise during the meeting, and partly "focused observation" (McNaughton Nicholls et al., 2014, p 248) in relation to the topic of the thesis and the papers in it. Aside from the details of the hearing setting described above, only verbal interactions and statements were recorded in the field notes.

The discussions during the meeting proved to be particularly informative in relation to the aim of Paper IV concerning local economic development opportunities and community benefits. Thus, it was decided that the field notes from this meeting would be included in the empirical material used in Paper IV. For the paper, they were analysed thematically around the categories 'employment', 'taxes', 'land rent', 'ownership models', 'community funds' and 'other opportunities' (same as described above for the document analysis). As the observations had initially not been intended to be included in any study, the selection of observation site and the number of observations are neither systematic nor representative of all the public hearings conducted in relation to the wind power projects. However, in combination with the document analysis that is also part of the paper, the observations add to a 'thick description' that can provide a more comprehensive picture of how community benefits are negotiated between different actors.

The Quantitative Sequence – Paper III

Paper III is based on an odds ratio analysis of people living near approved and rejected windmill sites in Sweden, in which the socio-economic background of those living near approved windmills is compared to that of those living near rejected ones. The odds ratio analysis is used to determine whether the odds of approval or rejection of windmill applications change depending on the socio-economic characteristics of the inhabitants in the area where a turbine is to be built. However, the analysis also includes a number of control variables related to the property and land-use characteristics of the area.

This paper has a somewhat different geographical focus than Papers I, II and IV. Sweden is chosen as the sole area of interest, meaning that Finland and Norway are excluded from the analysis, as is the specific focus on the six smaller case-study areas used in the other papers. This choice was made based on a convenience sampling, in which Sweden was chosen because the data needed for the study (georeferenced register data on an individual level for the whole country) could only be retrieved for the Swedish population.

Furthermore, the entire Swedish area was chosen as the study area in order to include as many observations as possible in the study.

Data

Three different datasets are used in the odds ratio analysis in Paper III. The first contains information on all approved (planned and built) and rejected windmills in Sweden. The data are used to locate all inhabitants of Sweden living within a specific distance from the approved and rejected windmills (see overlay analysis below). The second dataset contains georeferenced and longitudinal data on the demographic and socio-economic characteristics of all individuals in the Swedish population. These data are used to create both the socio-economic variables and some of the property and land-use variables in the paper. The third, and final, set of data includes land cover data for the Swedish land area and is used to make the remaining property and land-use variables.

The data used in the paper concerning the location of approved and rejected windmills in Sweden were retrieved from a public wind power database managed by the county administrative board of Västra Götaland (Vindbrukskollen, 2016). The information in the database has been constructed on a semi-voluntary basis, with all Swedish county administrative boards and municipalities as well as private project developers being asked to register data and updates on wind power developments in the areas where they are active. The data contain, amongst other things, information on the status of proposed wind turbines (approved, built, or rejected) and geographical coordinates for the windmill sites. At the time the data were accessed (June 1, 2015), 4,647 windmill permits had been registered as approved (of which 2,347 had been built and 2,280 remained unbuilt) and 1,011 permits had been registered as rejected (see Figure 9).

The second dataset comes from the ASTRID database, located at the Department of Geography and Economic History in Umeå, Sweden, which contains data collected and maintained by Statistics Sweden. The database holds a large amount of georeferenced and longitudinal information on the demographic and socio-economic characteristics of all individuals in the Swedish population. The data of interest for the study encompass information on people's sex, age, education level, employment, and income. Since these data are longitudinal, it could have been possible to add a more precise temporal dimension to the analysis (always studying the characteristics of the population before the siting of the windmills), thus overcoming the problem of the causative factor of 'which came first' – the facility or the people – often discussed in this type of study (Byrne &
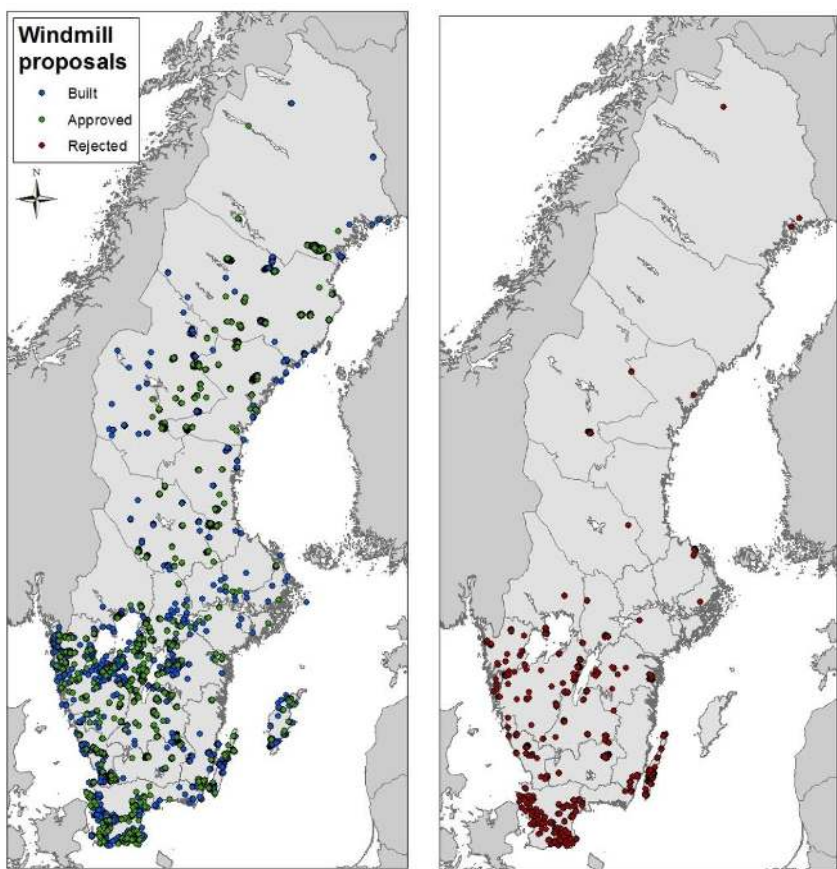
Figure 9: Approved (built and planned) and rejected windmill proposals in Sweden as of June 2015. Source: Vindbrukskollen, 2016

MacCallum, 2013). However, since the information on the decisions regarding permits was insufficient for the data on windmills, this could not be done. Instead, the year 2002 was chosen as the reference year for individuals' socio-economic characteristics. This is because this was when the Swedish government first introduced a national planning goal for wind power development (Mels, 2016), thus laying the foundation for large-scale wind power development in the country. There were of coursewindmills erected in Sweden before 2002, but the majority, around 80 per cent of all windmills up until the end of 2014, were built after 2002 (see Figure 10). It could therefore be argued that using this year could give a good idea in relation to the temporal dimensions of the study. Data were thus retrieved from the database for the entire Swedish population the year 2002, the only limitation being that the individuals had to have been at least 16 years old in

2002. This delimitation of the sample was made based on the idea that up to a certain age children's socio-economic characteristics are largely based on those of their parents. As the age of 16 is when people are allowed to start working full time in Sweden, and is thus the year when they can start developing in their own direction as concerns employment and income, this was the year chosen as the lower limit for inclusion in the population. These data were used to construct the socio-economic variables employed in the odds ratio analysis. A second set of data was also retrieved from the database, and was used to make property and land-use control variables. This set includes information on land ownership, population density, second homes and assessed property values.
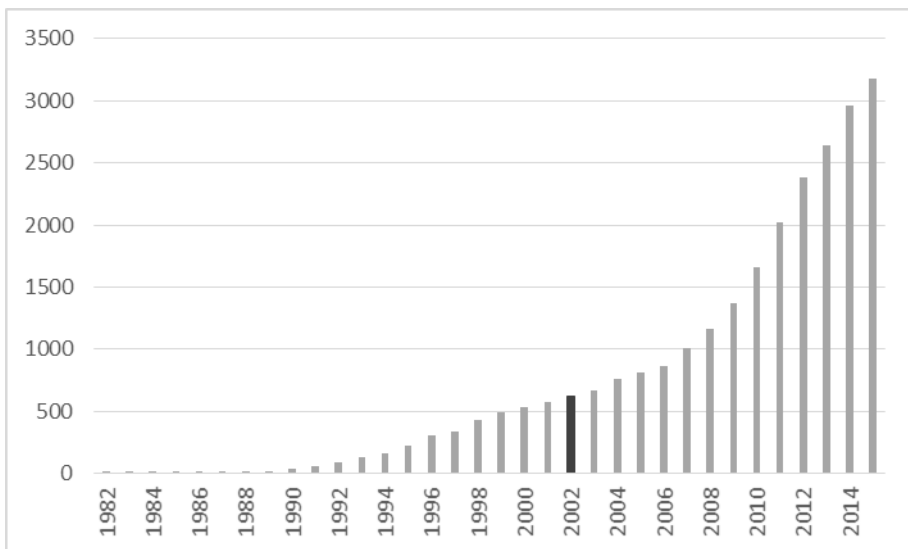

Figure 10: Number of windmills built in Sweden 1982-1914 (accumulated). The study's reference year, 2002, is highlighted in red. Source: The Swedish Energy Agency, 2015

Data for constructing the control variables were also retrieved from a third dataset: the Swedish Land Cover Dataset (SMD). The SMD dataset is a GIS-based raster layer (the units in the raster are 25 x 25 m) in which land use in the whole of Sweden has been classified into 57 different land-use classes with an accuracy of 1-25 hectares depending on the class (Engberg, 2002). The 57 classes in the dataset, which were originally developed based on the EU classification system for CORINE land cover data, were merged into eight less detailed categories (for instance, the original 14 classifications for different kinds of forests were merged into one variable called 'forestry').

Overlay Analysis

An overlay analysis in ArcGIS was used as a form of purposive sampling method for the populations and the property and land-use dataset. The residential coordinates (with an accuracy down to 100 x 100 m) for the individuals registered in ASTRID, as well as the SMD land cover data, were matched with 3 km and 10 km impact zones (i.e. buffers) around the approved (planned and built) and rejected windmills in Sweden (see Figure 11).
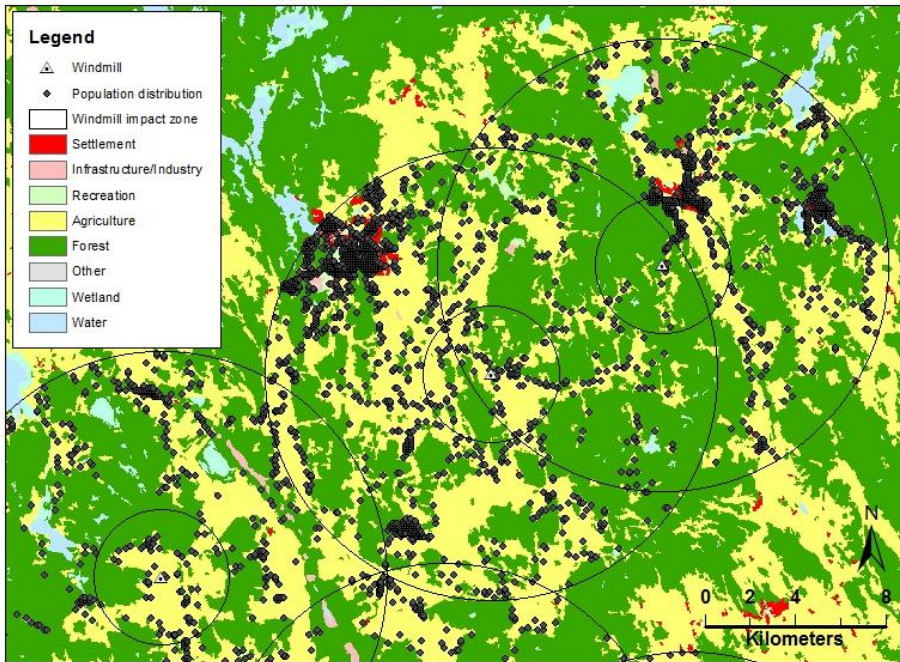
Figure 11: Illustration of an overlay analysis of population distribution (100x100m cells) and land use, using 3 km and 10 km buffers around windmills. Source: ASTRID database

The choice of distances here was based on both theoretical and practical considerations. Studies similar to this one have been criticized for using overly large geographical areas (for instance, zip code areas and census collection districts) to actually say something about the relationship between the studied facilities and the populations in the chosen areas (Bowen, 2002). This led to the idea that suggested injustices in these studies were simply "an artefact of the unit of analysis" (Byrne & MacCallum, 2013, p 165). Thus, in an attempt to improve the possibilities for a direct relationship between the

windmills and the people in the studied area, the point of departure for selecting the area and people for analysis is the windmills themselves (as opposed to pre-existing areal units). The next step is to decide how far the windmills' impacts might be experienced. This is not a simple issue, for as Haggett has shown in the case of noise from wind farms, "apparently objective impacts are deceptively difficult to measure and are experienced differentially by different people" (2012, p 170). Nevertheless, some examples can be given of how far the impact can reach. According to a guidebook on windmill development by the Swedish National Board of Housing, Building and Planning (2012), material impacts from windmills (such as ice-throwing) can reach a few hundred meters from the windmills, while direct visual impacts (such as shadows) can be seen around 2 km from the windmills. However, the visual landscape effects that the windmills themselves cause can be seen at a far greater distance. The visual effect is naturally dependent on the height of the turbines, the local landscape and 'the eye of the beholder', but according to Bishop, visual effects "may well become minimal beyond 5km^7km", and at a distance of 10 km "in 'normal' conditions recognition may have dropped to 1 person out of 5" (2002, p 718). In order, then, to strike a balance between not using overly large areas of analysis and still accounting for the impacts of windmills, a 10 km radius from the windmills was chosen as one of the distances for analysis. The second distance, a 3 km radius from the windmills, was chosen for legal-technical reasons. According to a ruling by the Land and Environment Court of Appeal in Sweden, appeals concerning permits for wind power developments can only be granted to people living within 1.7-3 km from windmills (Nätverket för vindbruk & Ardö, 2016).

Of the total Swedish population in 2002, 913,940 people (around 10 per cent of the total population) were found to live within 3km of the (proposed) windmill sites (780,415 next to approved windmills and 262,622 next to rejected ones) and 3,664,363 people were found to live within 10 km of them (3,541,838 next to approved windmills and 1,302,189 next to rejected ones). The socio-economic characteristics of each individual living in the 3 and 10 km zones were tied to the (proposed) windmills.

Analytical Techniques

Odds ratio, binary logistic regressions are used to examine the relationship between the socio-economic variables and decisions regarding whether or not to approve wind power projects. Four models were constructed: two for the different impact zones (10 km and 3 km) with only the socio-economic characteristics as independent variables; and two for the two different levels, with both socio-economic and land characteristics as independent variables.

Checks for multicollinearity, using the variance inflation factor (VIF) statistics and correlation plots, showed problems in the relationship between a few of the independent variables (concerning both the socio-economic and the land characteristics). To resolve the problems, some of both the socio-economic and the land characteristics variables were removed from the models. Although the multicollinearity problem included slightly more variables in the 10 km models than in the 3 km ones, the same variables were removed in all models to make them comparable. After the variables were removed the VIF values were generally close to 2.5, and in no case were they larger than 4.2; i.e., there were no longer any indications of multicollinearity problems in the models.

The Final Mixed Sequence – Papers I-IV

In a final step, the findings from the qualitative and quantitative strands in Papers I-IV are analysed in comparison to each other through a thematic approach based on the energy justice framework described above. The two major themes here are issues related to 'procedural justice' and 'distributional justice'. The former is focused on the opportunities and barriers concerning the participation of different stakeholders in, and influence over, planning and decision-making processes that are highlighted in the papers, while the latter is concentrated on how the benefits and burdens of these developments are or can be divided in society.

The aim of this final analysis is not to generate some kind of scientific law, but rather to offer an understanding of the procedural process and the distributional outcomes in a more general sense and to tease out the different aspects affecting and affected by the processes that are the same or different between the countries. However, there is potential to use the knowledge emerging from the study to get an idea of how large-scale wind power development processes, as well as other forms of technology development related to low-carbon energy transition, might occur in and affect other countries under similar circumstances; again, not as scientific laws but more in the form of naturalistic generalizations (whereby the research consumers draw on their own experience to evaluate how applicable the study's findings are to their own contexts) or analytical generalizations (whereby possible generalizations are based on whether the results 'fit' with wider theories; Collins, 2011).

Paper Summaries

Paper I: Legitimacy and Efficiency in Planning Processes – (How) Does Wind Power Change the Situation?

Paper I, which engages with procedural justice issues, aims to investigate how aspects concerning 'input-oriented legitimacy' and 'output-oriented efficiency' are managed within the Finnish, Norwegian and Swedish planning systems, as well as in EU directives, when faced with large-scale wind power expansion. The concept of input-oriented legitimacy used here focuses on democracy, equity, and inclusion, while that of output-oriented efficiency places the importance on speedy and predictable processes. A thematic analysis of policy documents and of semi-structured interviews with official planners, project developers and local interest groups is utilized in the study – the respondents were chosen based on a critical case sampling technique. The questions asked are how the formulation, transformation, and implementation of guidelines governing the planning and permit processes for wind power development impact the legitimacy and efficiency of planning procedures as well as the development of wind power.

The results of the policy review show that, both on the EU level and in the national contexts, ideas concerning the need for faster and simplified procedures are emphasized in relation to planning processes for wind power development. In a more practical sense, changes in the EU's renewable energy directives as well as planning laws and guidelines reflect these ideas, with several changes made to clear out perceived barriers in the planning process in order to speed up the phase of wind power development. In comparison, concerns for legitimacy issues are rather vague. In the EU directives, issues of information-sharing, public participation and cooperation are of marginal concern, with little more than a reference to applying EU's laws regulating these issues "where relevant". Furthermore, in the national context, changes in planning laws and guidelines seem to have both shifted procedures away from more bottom-up approaches towards more top-down ones, and from a focus on balancing territorial interest towards a more sectoral, energy-focused perspective. Together, this places the emphasis on efficiently achieving results in the planning process rather than conducting processes that include broad debates on how these results should come about. From the perspective of procedural justice, then, there might be cause for concern in relation to diminishing opportunities for participation in processes of wind power development.

Although some of the interview respondents reaffirm the claim that planning processes are too lengthy and complicated, others also highlight the problem of sidestepping participatory procedures. As concerns the latter, it is indicated that thorough initial investigation, dialogue with stakeholders, and political deliberation for elected officials need to be given time in the planning process for it to function well in the long run. Another argument is that local dialogues about a wind power project can improve the possibilities to find a synergy effect in the local communities from the development project, for instance by building roads to the windmills that can be used for other purposes as well.

Moreover, the efficiency measures implemented in policy are not only problematic from a procedural perspective; as the interviews indicate, they may also be missing the target of what it is that takes up the time in the planning process. The interviews highlight that, in the initial development phase, neither the authorities nor the project developers have a firm grasp on how rules and regulations for wind power development should be handled. This means that some time will be needed for learning and developing new routines for managing these things. Clearer and more unified guidelines are said to assist the learning process here, while new laws introduce new periods of uncertainty and inefficiency in the process (although some respondents do indicate that some of the legal changes for increased efficiency have in fact speeded up the process). Deficiencies in funding in relation to the increase in permit application, and time lags before new administrators will be able to handle these applications, are also mentioned as contributing to efficiency losses. Thus, it can be argued that the legal changes to speed up wind power development not only diminish the room for broad participation and political debate, but also miss the target for what actually needs to be facilitated in order to make the process more effective.

Paper II: The Power of the People: Why Managing Wind Power Disputes by Marginalizing Local Oppositional Groups in Planning Processes May Backfire

Paper II starts from the argument that strategies for facilitating wind power development through the marginalization of local oppositional interest groups are ill-advised. The paper then explores how local interest groups opposing wind power projects engage with the planning process through formal and informal channels in order to both obtain information and have influence over the process. On an overall level, the paper highlights how space is negotiated and produced through social relations, as well as how different power relations work through these processes to restrict or open up arenas for participation and debate. In relation to the energy justice

framework, the paper deals with procedural justice issues concerning information-sharing, participation and recognition.

The study is based on six semi-structured interviews with representatives of local oppositional interest groups that have been active in different windmill siting processes in Finland, Norway, and Sweden. Considering the one-sidedness of the information presented by the groups, any interpretation of their claims needs to take into account their normative and political nature. Thus, it is not the point of the study to take their arguments at face value in order to criticize the planning procedures; the idea is simply to show how the respondents' perceptions of the process lead them to choose specific approaches to participating in or relating to the process.

According to the respondents, the groups have shown interest and taken part in the opportunities for participation that have been offered within the formal planning processes, such as attending public hearings and writing statements to permit authorities. However, the respondents also list a number of perceived irregularities in the formal procedures, and barriers to participation in them, that have made them suspect of the legitimacy of the process. The perceived irregularities differ somewhat between the groups, but in relation to gathering information they include late or no notice of the project to stakeholders as well as difficulties in extracting information related to the projects from both developers and public officials. The respondents also claim that there have been problems with recognition, whereby the groups have been marginalized or people have refrained from participation due to, for instance, misrecognition through NIMBY labels or bullying by developers or other community members. Errors in different planning procedures, for instance relating to how public hearings were conducted or in which sequence land-use plans and project plans were constructed, are also problems mentioned by the respondents. In relation to procedural justice, then, and without judgement as to the level of 'truth' in the statements, the groups make clear claims of procedural injustice in relation to the formal planning processes.

In order to gather more information and find alternative ways of influencing the planning process, the groups also used a number of informal channels to engage in it. These include conducting their own investigations of alternative windmill sites; rallying support and gathering and spreading information through the media, the Internet, the local community and networks of similar oppositional groups; as well as lobbying decision-makers directly. From the perspective of procedural justice, the activities presented here can be seen, on the one hand, as a way of counterbalancing uneven power relations and opening up the planning process for participation, in

favour of possibly marginalized groups. On the other hand, the activities also present new procedural problems as important political discussions are moved from institutionalized settings into more obscure arenas with less, or no, transparency.

It is also notable, concerning the informal activities, that they have a considerable spatial and scalar reach. The groups utilize contacts and resources found anywhere from the local community to the international arena, and from the municipality to international bodies of authority (for example, UNESCO), to gather information and try to exert influence on the outcome of the planning process. By doing so, the groups connect actors in other localities to the production of space at the proposed windmill sites. Furthermore, though, by disseminating information in return on, for example, procedural and policy flaws or strategies for contesting wind power projects, the groups also have the possibility to affect the development of wind power and the production of space in other places. Together, this exemplifies the idea of both a 'global sense of place' and of the relationality of the production of space, and by extension, the importance of connecting place-specific processes to wider, structural transformation (for example, concerning changes in support for wind power expansion).

Paper III: Distributional Justice in Swedish Wind Power Development – an Odds Ratio Analysis of Windmill Localization and Local Residents' Socio-Economic Characteristics

Set within the area of distributional justice, Paper III focuses on how the material impacts of wind power developments in Sweden are divided between different socio-economic groups in society. Through an odds ratio analysis, the aim is to analyse the extent to which the decisions to approve or reject windmill proposals in Sweden can be related to the socio-economic characteristics of people living within 3 and 10 km from the windmill sites. The socio-economic characteristics in the analysis concern sex, age, ethnicity, education level, income, and employment. As it can be assumed that contextual variables other than the population's characteristics will affect development decisions, control variables for land ownership and different types of land use are also included. The regression models in the study include all approved and rejected windmill proposals in Sweden until June 2015.

The distributional justice argument that underlies the paper is that people's social capital or social position in society, concerning for example economic standing or level of education, can affect their possibility and/or

willingness to protest intrusive land-use development – on the one hand, as people with high social standing can utilize their networks and resources to influence decision-making processes. Marginalized groups may, on the other hand, experience difficulties in influencing such decisions, for instance due to a lack of resources and contacts or because they are sidelined in the process. Moreover, the latter groups may also value the possible benefits of these types of developments, for example employment opportunities, over their burdens. Such social differences may in turn lead to an uneven and possibly unjust distribution of windmills between different groups in society.

The results of the regressions show a rather weak relationship between the socio-economic variables and the decisions to approve or reject windmill proposals. Of the models tested in the analysis, those including both socio-economic and land characteristics are the strongest. In these models, the socio-economic variables also generally show weaker and smaller effects on the odds of approval and rejection than the land variables do – with the exception of the variable 'share of highly educated'. Together, this could imply that the argument for distributional injustice, in relation to wind power development in Sweden, has little support in the results.

However, among the socio-economic variables that show some significance for the outcome of windmill proposals, their effect seems to suggest some distributional skewness in line with the distributional injustice argument. The most consistent and strongest effects here are seen for the variables 'share of highly educated people' and 'share of people working in the private sector', which indicates that if there are more such resource-strong people in an area, windmill proposals are more likely to be rejected. The weaker and less consistently significant variables contribute to this argument, as the likelihood of proposals being rejected increases if there are more Nordic-born people and people with higher property values in an area, while the reverse is true if there are more unemployed and non-working people there.

In summary, although the study shows that the relationship between people's socio-economic situation and decisions on windmill proposals is rather weak, the indication of skewness among the socio-economic variables that are shown to be significant lends some merit to the distributional justice argument. Thus, the study warrants further attention to distributional justice issues in relation to wind power development.

Paper IV: Wind Power Development as a Means to Local Economic Development

Paper IV evaluates possibilities for distributing the economic benefits of wind power developments to the communities that are impacted by them. In relation to the thesis, the paper mainly relates to the distributional justice issues and possible ways of balancing benefits and burdens through benefit-sharing, although it also touches upon procedural issues in relation to decisions concerning how and what benefits are to be shared. The aim of the paper is to explore which, if any, community benefits wind power developers offer and discuss in their communication with the public, in relation to two wind power development areas in Västerbotten, Sweden.

Based on a literature review, the paper identifies six categories for possible areas of economic benefit-sharing: employment opportunities (divided into manufacturing, development and installation, and maintenance and service), taxation, land-lease incomes, local ownership of windmills, community benefit funds, and 'other' forms of benefit-sharing (mainly different types of contributions/benefits-in-kind). The six categories are used to thematically analyse the empirical data in the study. The material analysed here is comprised of official project documents as well as observations during public hearings. The former is made up of EIAs and materials distributed by the project developers to the public in relation to public hearings for the projects; the latter are observations from two public hearings held by the developers – one meeting for each area.

The study shows that project developers in the studied areas offer and discuss several types of benefit-sharing opportunities in their communication with the public. The most emphasis is placed on employment opportunities and community funds, while local ownership opportunities and different benefits-in-kind (such as transport and power grid improvements) are mentioned but given less prominence. Land-lease rates are not discussed as such, but for one of the projects it is stated that it is not only the owners of the properties where the windmills will stand who will receive payment but also the owners of adjacent land. Taxation, finally, is not a subject that is discussed by the developers. With respect to these benefit-sharing opportunities, some of the propositions that are mentioned may be somewhat inflated in relation to actual possible delivery (although this may not be the intention from the developer's side). As concerns employment, for instance, the developers stress the number of jobs that can be expected to be generated by the projects. However, the message here can be slightly misleading from the perspective of the local community, as there are no guarantees that any of these jobs will be held by members of that

community. One of the benefits-in-kind mentioned in one project, concerning improved transport connections to the area, is also a somewhat vague proposition as the developers cannot themselves improve this connection, but can only help in lobbying the national authorities to do so. From a distributional perspective, then, there seems to be both an opportunity and a willingness to redistribute some of the benefits from the wind power development to the local economy. However, there is also reason for developers to emphasize what can actually be delivered and what is merely a possible opportunity, so that conditional supporters will not feel misled if their expectations for the project are not met.

As a conclusion in the paper, it is argued that the positive effects of local economic benefit-sharing can be strengthened through measures by the project developers, the local community and national policy alike. Project developers should make efforts to include the local community in discussions of how the wind power project could best contribute to the local community, while the host communities should not only read up on and request different benefits but also develop ideas involving how to make the most out of such benefits. An example of the latter could be to have a plan for how to scale up community funds by applying for additional development funds from, for example, the EU. On the national level, policy changes could help favour both greater revenue returns to host communities through, for instance, the tax system as well as planning systems that are more favourable for local ownership of wind turbines.

Discussion

This section discusses the results of Papers I-IV in relation to the overall aim of the thesis and the research questions addressing this aim. To reiterate what was stated in the introduction, the aim of the thesis is to explore and analyse some of the emerging power relations and socio-economic dynamics, changes and effects in society of the negotiation, planning and realization of new wind power developments. The aim is specified to focus on the opportunities different stakeholders have to take part in and influence wind power development processes ('procedural justice'), and on how the potential benefits and burdens of these developments are divided between stakeholders ('distributional justice'). Although the enquiry is focused on the development of wind power, the idea is that wind power can function as an illustrative case for understanding similar issues in relation to other renewable energy technologies and thus the energy transition more generally.

Procedural Issues

The two first research questions in the thesis concern what kind of power relations structure participation in and influence over wind power planning processes (Question a), as well as how these power relations affect the inclusion and exclusion of different stakeholders in the process (Question b). In relation to these questions, the results of Paper I indicate that transformations in EU directives and national planning laws and guidelines in Finland, Norway and Sweden in recent years have been more focused on speed and efficiency in planning processes than on legitimacy issues. This is due to both the political objectives of urgently mitigating climate change and securing energy supply and the market's requests for more predictable and streamlined planning processes. The changes that have been implemented seem to point to diminishing opportunities for broad participation and debate in wind power planning processes, in favour of more top-down processes with a specific, sectoral focus on developing wind power. Although Paper II shows that stakeholders, in the form of local oppositional interest groups, do have the possibility to formally participate in planning processes, and indeed use this opportunity, the paper also shows some perceived barriers in the process that affect their willingness and ability to participate. The perceived barriers that are mentioned include difficulty getting information about the project, problems involving misrecognition in the process, and procedural errors undermining the legitimacy of the process. Thus, opportunities for participation and debate in the formal planning process, while they do clearly exist, have become smaller through decisions

by the EU and national authorities, and can be even further reduced if stakeholders perceive themselves to be, or in fact are, marginalized or mistreated in planning processes.

Together, the findings from the two papers highlight the power relations on both a more structural level and an actor level that put pressure on the opportunities for participation in planning processes for wind power development. On the more structural level, political and market pressures to develop wind power have resulted in changes in planning policies in Finland, Norway and Sweden that restrict opportunities for stakeholder participation in formal wind power planning processes. These findings are in line with the literature on planning theory (Cowell & Owens, 2006; Mäntysalo et al., 2011, Sager, 2009), as well as previous findings from wind power-related research, which indicate that similar developments have taken place in other countries (Breukers and Wolsink; 2007; Cowell, 2010; Power & Cowell, 2012; Ottinger et al., 2014). On the level of individual actors, the perception of the behaviour of people within the planning process, not least the public officials and developers in charge of it, has worked to further restrict these opportunities for participation. As the literature on energy justice (Fraser, 1999; Schlosberg, 2009) and planning theory (Healey, 1993; Innes & Booher, 2004, 2015; Sager, 2009), as well as previous research on wind power development (Aitken, 2010b; Jenkins et al., 2016), has also shown that these kinds of actor-centred factors can affect participation in planning, there is reason to take the effect of such power dynamics seriously when discussing participatory planning processes in general, and in relation to wind power specifically.

However, participation in formal planning processes is not the only way to influence planning processes. Going outside the formal planning process, Paper II shows that there are a number of more informal channels, such as using the media or the Internet, lobbying, or rallying local support, that can and have been used by stakeholders to tap into the formal planning process to try to affect its outcomes. This affirms previous findings from research on planning theory as well as wind power (Anderson 2013; Anderson & Schirmer, 2015; Hillier, 2000; Metzger et al., 2016), but also extends these findings by showing the considerable spatial and scalar reach of such informal activities. The importance of this vast reach of the informal activities is that they have the possibility to affect not only the local wind power project under debate, but also developments in other places and attitudes towards wind power more generally. From a procedural justice perspective, this kind of informal, networked power can, on the one hand, be a way of evening out unbalanced power relations in the formal planning process (Hillier, 2000, 2002); but, on the other, it can also present a

procedural problem as the channels through which power is exercised can be hidden away from public scrutiny (Mäntysalo et al. 2011, 2015; Mels, 2016). A similar discussion of positive and negative effects can be driven concerning Paper IV and the negotiations of local economic benefits from wind power developments. These negotiations are not officially issues that should be part of the planning process; but since they are part of the negotiation of space, they can be argued to be informally linked to the planning process and its outcomes. From the perspective of the legitimacy of the planning process, and keeping in mind that requests for or offers of economic benefits are sometimes regarded as bribery (Cass et al., 2010; Cowell et al., 2011; Aitken, 2010a), it could be argued that it is a positive thing that discussions concerning economic benefits are conducted in private negotiations. But, seen from the same transparency angle argued above, such private or unofficial negotiations could also be viewed as a problem. An example of this could be if a formal decision-maker or public planner stands to make money as a private citizen from a specific development and this conflict of interest is not openly declared in the planning process.

Seen in conjunction, it seems that trying to expedite planning procedures by omitting participatory aspects of the process does not necessarily mean that the wind power development process will be easier or faster. It simply means that possible debates and contestations, which could take place in transparent, institutionalized settings, might instead be moved to more obscure arenas.

Distributional Issues

Research Questions c and d concern distributional issues related to wind power development. Question c, addressed in Paper III, asks how the material impacts of wind power development are distributed across different socio-economic and demographic groups in society, while Question d, addressed in Paper IV, asks what ways there are to redistribute the impacts of wind power development between those who benefit from and those who are burdened by the developments. Paper III shows some, albeit rather weak, support for uneven distributions of impact on different socio-economic groups from wind power development in Sweden. Although land-use characteristics and ownership structures seem to have a greater effect on development decisions, variables such as the share of highly educated people and people working in the private sector also seem to have an impact on these decisions (in these cases, increasing the odds of rejection). On the one hand, such findings are cause for concern as they can indicate that resourceful groups of people can use their resources, knowledge and networks to avoid unwanted infrastructures being built in their vicinity. On

the other hand, as wind power is not necessarily an unwanted infrastructure (Bell et al., 2005; Brannstrom et al., 2011; Breukers & Wolsink, 2007), it can also be an indication that vulnerable groups see advantages in the developments, such as possible economic benefits to the local community, which might not be as attractive to more advantaged groups. If the latter is the case, and if these benefits are actually delivered to the local communities, then uneven developments of wind power can perhaps be a way of evening out, rather than aggravating, social inequalities.

As shown in Paper IV, there are a number of ways to deliver economic benefits to local communities. In the paper, project developers focus on employment opportunities and community benefits funds as well as, albeit to a lesser extent, ownership opportunities and benefits-in-kind. However, whether the economic benefits advertised by the project developers in relation to the project can actually be delivered to the local community is sometimes unclear. For instance, the fact that wind power developments generate employment opportunities does not necessarily mean that locals will be able to get these jobs. A clear dialog between developers and the local community, concerning what the developments will in actuality result in and what is only a possibility, is important in order to avoid misunderstandings that can generate discontent later in the process.

Taken together, the evidence of distributional inequality concerning wind power development on the national scale in Sweden is not very strong, at least not in the way it has been studied in this thesis; but if such inequalities exist, there are possibilities to redistribute benefits to those who are burdened by the developments. Distributional injustice related to wind power development is thus not an evident problem, generally speaking, in Sweden today. However, if this state is to remain, procedural aspects related to the continued development of wind power need to be kept in mind, as procedural and distributional inequalities are intimately related (Jenkins et al., 2016; McCauley et al., 2013; Schlosberg, 2013, Walker, 2012). Of specific concern is of course the need to address formal and informal procedures that marginalize stakeholder participation in planning and decision-making processes (as discussed above), but it is equally important to also consider who is to be included in or excluded from negotiations and the distribution of local economic benefits. This is especially important concerning community benefit funds, as it is not always evident just who should be included in this 'community', and as perceptions of unfair outcomes can result in divisions within the community (Aitken, 2010a; Cowell et al., 2011; Gross, 2007; Munday et al., 2011).

Negotiating Space and Building New Energy Landscapes

This thesis has shown that developing wind power is not simply an issue of good technology, economic feasibility and policy incentives; it also concerns negotiating spaces and social relations in the places where windmills are to be erected. This could perhaps be seen as specific to the case of wind power, but as many other renewable energy technologies – such as bio fuels as well as hydro- and solar power – require a great deal of space, it is likely that this is an aspect that should be related to the energy transition more generally. Here, the formal planning process can offer an institutionalized setting for conducting this negotiation. However, if the process does not function well or if participation is restricted, it can both have effects on the democratic values in society, with more informal channels of negotiation in use, as well as delay the low-carbon energy transition, if contestation leads to lower support for renewable energy infrastructure in development areas or more generally. Thus, in relation to the energy transition it could be argued that, in order for it to be successful, the planning process and its procedures for participation need to be taken seriously. Good planning and stakeholder participation are not simply things that need to be done because the law says so; they are an integral part of *getting* things done. Or, as Ottinger et al. have stated regarding wind power development, "fair decision-making processes should be seen as a cornerstone of timely wind development – not a hinderance to it" (2014: 663).

In negotiating developments of new energy infrastructure, it can be useful to remember how social relations and space are interlinked and co-productive of each other (Massey, 2005). As has been highlighted in this thesis, and in line with the idea of 'a global sense of place', what goes on in one specific place will also impact, and be impacted by, what happens in other places. In the thesis, it is shown how different power relations are used to exert power and influence over the planning process for wind power development. Politicians in EU institutions alter policies that are implemented in national legislation, which in turn has consequences for which opportunities stakeholders have to participate in planning processes. Local stakeholders, on the other hand, can spread information gathered through the local siting process to actors in other places, even as far as to actors in other countries, which in the long run can have effects on developments in other places or even on a policy level. Thus, developing a new energy landscape through the power of authority can be a way of achieving results in an initial phase, but there is always a risk that not giving room to contestations of this development will, in the long run, lead to diminishing support for the whole endeavour.

What is furthermore relevant concerning the relationality of space is that when we are planning for new energy infrastructure in a particular place, we are not simply considering the specific infrastructure and its impacts in space but are also negotiating the alternative uses of that space and the social impacts that one way of using it has in relation to another. Here there is a multiplicity of possible development paths, with the trajectories of different actors tangled up in the various possible futures these paths entail. Thus, implying that someone who questions an energy infrastructural project is a NIMBYist simply because they question the project can be seen as somewhat simplistic (which is indeed what previous research has shown: Aitken, 2010b; Wolsink, 2000) as it offers no understanding of what intentions, understandings or future aspirations have led to this questioning. Through investigating these underlying aspects and how they are tied up with space in the planning process, instead of merely dismissing people as naysayers, there is a greater possibility to find solutions that can be seen as appropriate and work to the benefit of as many stakeholders as possible (though this does not necessarily mean that there needs to be a consensus decision for the process). Perhaps support for the project can be gained by meeting certain specific conditions, such as safeguarding natural values or offering some form of benefit in return for the impacts of the development. Or, equally importantly, it can be made clear that a specific development, be it the energy infrastructure or an alternative land use, is not appropriate in the area in question. Here it is important to keep in mind that, because of the differences in trajectories among various actors, what works in one place may not necessarily work in another.

Differentiation across space will always exist; indeed, it is the essence of geography. Furthermore, what will be seen as just and unjust differentiation is a matter of perspective. This is true for where energy infrastructure is placed in space and what impacts it has, just as it is true for any other way of using space. This does not mean we should not discuss perceived injustices, or that we should not try to avoid inequalities that might cause people concern. On the contrary, questions and contestations should be brought to the fore so that we as a society can together come up with solutions and plan for better, fairer, more sustainable energy systems – from economic, ecological and social perspectives alike.

Further Research

The starting point for the thesis was to explore the power relations and socio-economic dynamics and effects, framed as procedural and distributional justice, of wind power development and, by extension, the energy transition. Although a number of aspects of such dynamics were

brought to the fore in the thesis, there is naturally – as with any exploration – reason to believe that there are more interesting aspects to be found and more research to be done.

In relation to procedural issues, for instance, the findings in Paper II, which was specifically focused on local oppositional interest groups, beg the question of whether – and if so, how – other stakeholders, such as developers, authorities or other interest groups, engage with informal channels in order to tap into and gain influence over wind power planning processes. There is research that suggests such informal activity (Gradén, 2016; Jobert et al., 2007; Mels, 2016), but further investigation is needed to determine the extent to which such channels are used and whether the spatial reach of such activities are as extensive as in the case of the local oppositional groups. Such enquiries are an important complement to the findings here, as they can shed further light not only on the power relations that influence planning processes, but also on the relative strengths and capacities of different stakeholder groups in relation to each other. This is of interest not least in the light of pressure to streamline and speed up planning procedures, in relation to wind power and more generally, which reduces the room for political debate and negotiations within formal planning processes.

The distributional aspects of wind power development scrutinized in this thesis also give rise to avenues for further investigation. For example, the thesis highlighted the fact that local acceptance of wind power projects, or at least non-opposition, is often a conditioned matter, for instance reliant on the belief that such developments will generate economic benefits to the local area. Keeping the conditionality of support in mind, distributional justice research should be broadened to also focus on whether the conditions for acceptance are met after the windmills have been erected – as local claims concerning distributional injustice may come about not as a consequence of the development itself, but because of later emerging perceptions of deception concerning its impacts and final trade-offs. Such enquiries could also of course include monetary and non-monetary compensatory measures for intrusions that developers are legally obliged to take in order to obtain a permit for a development. For instance, compensatory measures can be warranted in relation to wind power projects that are built in areas used for reindeer herding by the Sami or in areas of recreational or environmental importance. Whether such compensation matches up to the potential losses due to the developments is not always evident from the outset, but by gathering more data on the issue, we gain a better understanding of perceptions of the fairness of the trade-offs between impacts and compensation before new energy infrastructures are built, rather than after.

The issues investigated in this thesis could also be expanded upon on a more general level. The topics studied here in relation to wind power could, and should, be investigated in relation to other energy technologies, and in relation to different mixes of energy production. Indeed, calls for studies like these are expressed in a forthcoming special edition on energy justice in the scientific journal *Energy Policy* (Jenkins et al., forthcoming) – for instance, in order to contrast and compare the effects of different technologies in an energy system. Such comparisons are important in order for decision-makers to make well-founded policy decisions, but also because possible inequalities found in one technology might not be perceived as particularly negative if they are compared to inequalities related to alternative technologies. Furthermore, in light of the EU's intentions to form an Energy Union, there is a need for more attention to transnational enquiries related to the issues under scrutiny in this thesis. Such enquiries are already quite common when it comes to fossil energies, such as gas and oil, but are still somewhat absent when it comes to renewable energy technologies. Of course, on one level the thesis includes such cross-national perspectives, for example focusing on EU policy in a comparison of the policies in Finland, Norway and Sweden, and showing how local interest groups operate in cross-border networks. On another level, however, the focus of the study's analysis remains within the borders of countries, for instance concerning planning policies and procedures and their effect on development in the specific countries. Thus, the understanding of procedural and distributional justice issues studied in the thesis could be further developed by moving away from the spatial fixes of country borders and instead focusing on, for instance, cross-national patterns of production and consumption of renewable energy.

Sammanfattning (Swedish summary)

Bakgrunden till avhandlingen är att storskalig vindkraftsutbyggnad har varit på frammarsch de senaste åren i Finland, Norge och Sverige såväl som i andra länder. Denna utbyggnad, samt utbyggnad av annan energiinfrastruktur, har haft och kommer att ha märkbar påverkan på samhället i både fysisk och socio-politisk bemärkelse. Fysiskt innebär utbyggnaden att stora land- och vattenområden tas i anspråk och förändras för att göra rum för den nya infrastrukturen. Socialt kan dessa förändringar leda till att fördelnings- och rättvisefrågor uppstår mellan de som känner sig negativt påverkade av den nya infrastrukturen och de som kan dra fördelar av den.

Vindkraftsutbyggnaden innebär också att markanvändning, såväl som politiska strategier och handlingsprogram gällande denna infrastruktur, kommer att behöva omförhandlas, planeras och beslutas om. Detta innebär i sin tur att aktörer från flera olika sektorer (offentligt, privat och civilt) på flera olika samhällsnivåer (från det internationella och nationella, till det regionala, lokala och individuella) kommer att behöva samarbeta, debattera och förhandla om hur de nya strategierna och markanvändningen skall ta sig uttryck. Maktrelationer av olika slag spelar en betydande roll här då olika aktörer kan tänkas försöka positionera sig själva så att de kan påverka utbyggnadsprocessen och det nya energilandskapet – på bekostnad av eller till fördel för andra aktörer.

Planeringen och utbyggnad av storskalig vindkraft är alltså inte en obetydlig process i samhället. Tvärtom kan vindkraftsutbyggnaden, tillsammans med den mer generella fossilfria energiomställningen som vindkraften utgör en delkomponent av, ses som ett av vår tids största infrastrukturprojekt. För att få ett bra resultat av denna utbyggnadsprocess, där utfallet åtminstone uppfattas som tillfredsställande för en så stor andel som möjligt av befolkningen, är det viktigt att vi har en god förståelse för vilken effekt denna typ av utbyggnad kan tänkas ha på människor och platser och på olika typer av relationer mellan dessa. Eftersom att det är inom den formella planeringsprocessen som olika aktörer debatterar och förhandlar om effekterna, önskvärdheten och förutsättningarna för denna typ av utbyggnad, och eftersom att det slutligen är här beslut tas om vindkraftverkens varande eller icke-varande på olika platser, utgör denna process en bra utgångspunkt för att studera hur vindkraften kan tänkas påverka samhället.

Syftet med den här avhandlingen är att utforska och analysera de nya maktrelationer och socio-ekonomiska förhållanden som framträder i förhandlingen, planeringen och realiseringen av ny vindkraftsutbyggnad. Mer specifikt så analyseras, å ena sidan, möjliga ojämlikheter mellan olika aktörer i samhället vad gäller makt, inflytande och deltagande i vindkraftens planerings- och utbyggnadsprocesser (processrättvisa), å andra sidan, ojämlikheter i förhållande till hur de potentiella positiva och negativa effekterna av utbyggnaden påverkar olika aktörer (distributionsrättvisa). Genomgående i avhandlingen ses vindkraften som en fallstudie för att förstå hur den här typen av utbyggnadsprocesser faller ut i förhållande till det större sammanhanget av en generell övergång till fossilfri energiproduktion i samhället.

Avhandlingen utgörs av en inledande sektion (en kappa) samt fyra artiklar. Kappan innehåller det teoretiska, metodologiska och kontextuella ramverket för avhandlingen, medan det är i de fyra artiklarna som största delen av det empiriska materialet presenteras.

Analysen i avhandlingen struktureras och baseras huvudsakligen på två teoretiska ramverk: energirättvisa och planeringsteori. Det första ramverket fokuserar på rättviseaspekter i förhållande till dels vilka möjligheter och begränsningar som olika aktörer och grupper har gällande deltagande i och inflytande över vindkraftsutbyggnadsprocesser (processrättvisa), dels vilken positiv eller negativ påverkan denna utbyggnad kan ha på dessa aktörer och grupper (distributionsrättvisa). I det andra ramverket presenteras teorier gällande hur inkluderande och exkluderande planeringsprocesser kan skapas eller uppstår, samt hur aktörer på olika sätt kan utöva makt över planeringsprocesser. Dessa mer generellt hålla teoretiska ramverk kompletteras även med forskningsresultat på samma områden från studier som är direkt relaterade till vindkraftsplanering och –utbyggnad.

Avhandlingens forskningsdesign består av en mix av olika metoder, innefattande kvalitativa analyser av dokument, intervjuer och observationer samt kvantitativa analyser av registerbaserad populationsdata. Finland, Norge och Sverige utgör den övergripande geografiska kontexten för studien. Dock förändras fokus något i olika delar av studien; från att studera landsomfattande aspekter till att studera processer i olika fallstudieområden i länderna, samt från att studera alla tre länder till att endast fokusera på den svenska kontexten. Orsaken till att Sverige får speciellt fokus i delar av studien är dels för att vindkraftsutbyggnaden varit mer omfattande i Sverige än i Finland och Norge, dels för att det empiriska material som behövdes i en av delstudierna inte gick att få tag på i de andra länderna.

Av de fyra artiklarna i avhandlingen, fokuserar den första och andra artikeln på processfrågor, så som aktörers deltagande i planeringsprocesser, medan den tredje och fjärde artikeln riktar in sig på distributionsfrågor gällande vindkraftsutbyggnaden positiva och negativa påverkan på omgivningen (dessa två senare artiklar omfattar endast den svenska kontexten). I den första, mer processinriktade artikeln analyseras hur legitimitetsfrågor, gällande exempelvis demokrati, rättvisa och deltagande, och effektivitetsfrågor, såsom vikten av snabba och förutsägbara processer, hanteras inom de finska, norska och svenska planeringssystemen, såväl som i EU-direktiv, i relation till storskalig vindkraftsutbyggnad. Den andra artikeln flyttar fokus från den nationella nivån till sex fallstudieområden i de tre länderna (två områden i varje land). Studien utforskar hur lokala oppositionella intressegrupper går till väga för att samla information om specifika vindkraftsprojekt, samt för att försöka påverka utgången av planerings- och beslutsprocesserna för dessa projekt, med hjälp av formella och informella kommunikationskanaler.

I den tredje artikel, som i huvudsak gäller distributionsfrågor, studeras om det är någon skillnad i socio-ekonomisk bakgrund mellan människor som bor i områden där vindkraftverk har byggts eller blivit beviljade byggtillstånd och de människor som bor i områden där vindkraftsprojekt blivit nekade byggtillstånd. Den fjärde och sista artikeln fokuserar på hur vindkraftsprojektörer och lokalbefolkningen formulerar och förhandlar om olika typer av samhällsnyttor kopplat till vindkraftsutbyggnad samt vilka utvecklingsmöjligheter detta utgör för den lokala ekonomin. Som sådan är artikeln alltså centrerad kring distributionsfrågor, men den behandlar också delvis mer processinriktade frågor.

I relation till processfrågor visar resultatet av avhandlingen att olika typer av maktrelationer, på en strukturell nivå såväl som på individnivå, har haft och kan ha en begränsande inverkan på möjligheterna till brett deltagande och debatt i formella planeringsprocesser gällande vindkraftsutbyggnad i Finland, Norge och Sverige. På den mer strukturella nivån har önskemål från politiker och företag om att snabba på och förenkla vindkraftsutbyggnadsprocessen inneburit att direktiv, lagar och riktlinjer som styr denna process, på Eu- och nationell nivå, har formulerats eller omformulerats så att effektivitetsaspekter i planeringsregelverken främjats framom legitimitetsaspekter.

På den individuella nivån kan dessa möjligheter och viljan till deltagande begränsas ytterligare utifrån hur olika aktörer i planeringssammanhang, inte minst planerar och projektörer, beter sig eller uppfattas bete sig gentemot andra aktörer i de samma. Sådant beteende kan till exempel utgöras av att

personer uppfattar det som svårt eller begränsas i att få tag i information om vindkraftsprojekt, att individer eller grupper pratas om i dåliga ordalag eller att procedurfel underminerar legitimiteten i processen. Eftersom att liknande resultat har beskrivits i litteraturen om energirättvisa och planeringsteori samt i tidigare vindkraftsstudier, finns det skäl att ta effekten av en sådan maktdynamik på allvar när deltagandeprocesser diskuteras i planeringssammanhang så som detta.

Den formella planeringsprocessen är dock inte det enda sättet för människor att påverka planeringen och besluten i dessa. Informella kommunikationskanaler, så som användning av media och internet, lobbyarbete och etablerande av lokala intressegrupper, kan och har använts för att påverka den formella planeringsprocessen i vindkraftssammanhang. Resultaten visar att sådana informella aktiviteter kan ha en stor rumslig utbredning som når olika platser både inom och utanför nationella gränser samt aktörer i lokala sammanhang såväl som inom internationella institutioner. Betydelsen av detta är att dessa aktiviteter har potential att påverka inte bara lokala vindkraftsprojekt, utan även projekt på andra platser och attityder till utbyggnaden som helhet.

Sammantaget kan man säga att åtgärder för att snabba på vindkraftsutbyggnaden som innebär att deltagandeprocesser begränsas innebär inte nödvändigtvis att denna utbyggnad kommer att ske enklare eller snabbare. Det innebär snarare att debatter och ifrågasättanden av utbyggnaden flyttar till mer otillgängliga och mindre transparenta diskussionsforum.

Gällande distributionsfrågor så visar avhandlingen att det finns ett litet, men svagt, stöd för att fördelningen av vindkraftverk, och därmed effekterna av dessa, är skevt distribuerade mellan olika socio-ekonomiska grupper i Sverige. Även om resultatet visar att markanvändningsaspekter och ägarstrukturer verkar spela en större roll för huruvida vindkraftverk får byggtillstånd eller inte, så påverkar även faktorer så som andelen högutbildade och andelen personer som arbetar i privatsektor i ett område dessa beslut (i detta fall så ökar dessa faktorer oddsen för att tillstånd nekas). Detta kan, å ena sidan, indikera att resursstarka personer kan använda sina resurser, kunskap och nätverk för att se till att oönskad infrastruktur inte byggs. Å andra sidan kan det också indikera att mer utsatta grupper ser större fördelar i att välkomna den här typen av infrastruktur, till exempel för att det kan medföra ekonomiska fördelar. Om det senare är fallet, och dessa ekonomiska fördelar existerar, så kan vindkraften eventuellt vara ett sätt att utjämna existerande ojämlikheter snarare än att förvärra dessa.

Avhandlingen visar vidare att det finns ett stort antal sätt på vilket vindkraften kan bidra med samhällsnyttor till lokala samhällen, exempelvis genom att erbjuda nya jobbtillfällen, bygdemedel eller ägarandelar i vindkraftverken. Huruvida dessa samhällsnyttor faktiskt kan förmedlas till lokalsamhällena är dock inte alltid tydligt. En tydlig dialog mellan projektörer och det lokala samhället, gällande vad vindkraftsutbyggnaden i realitet kommer att resultera i för nyttor och vad som bara är en eventuell, möjlig utgång, är viktig för att undvika missförstånd som senare kan resultera i missnöje.

Ojämlikheter gällande distributionen av vindkraftverk på den nationella nivån i Sverige verkar sammantaget inte ha något starkt stöd av resultaten i den här avhandlingen, men om sådana ojämlikheter skulle finnas så finns det möjligheter för att omfördela de positiva och negativa effekterna av denna utbyggnad. Distributiv orättvisa relaterat till vindkraftsutbyggnad är därmed inte ett uppenbart problem, generellt sätt, i Sverige idag. För att det ska fortsätta att vara så bör dock processaspekterna som diskuterades tidigare hållas i åtanke eftersom att problem med planeringsprocesser ofta leder till problem med dess utfall. Här är det förstås angeläget att hantera de formella och informella processer som marginaliserar deltagandet i planerings- och beslutsprocesser, men det är lika viktigt i sammanhanget att fundera på vilka som inkluderas i och exkluderas från förhandlingar och fördelningen av lokala samhällsnyttor.

På en mer generell nivå så visar de sammantagna resultaten av avhandlingen att vindkraftsutbyggnad inte bara handlar om bra teknologi, ekonomisk genomförbarhet och politiska incitament; det handlar även om förhandlingar om rummet och de sociala relationer som redan finns på de platser där vindkraftverken skall byggas. Detta är ett faktum som sannolikt även är gällande för utbyggnad av all annan storskalig energiinfrastruktur. Den formella planeringsprocessen kan utgöra ett institutionaliserat forum för att förhandla om utformningen av ett nytt energilandskap. Om planeringsprocessen däremot inte fungerar bra eller om deltagandet i denna begränsas, så kan det underminera demokratiska och rättighetsbaserade värden i samhället såväl som att det kan leda till förhinder i omställningen till ett fossil-oberoende samhälle. För att vindkraftsutbyggnaden såväl som energiomställningen skall bli framgångsrik kan det därmed argumenteras för att planeringsprocessen och dess deltagandeförfaranden måste tas på allvar. Bra planering och brett deltagande är inte bara saker som bör hanteras för att lagen föreskriver detta, utan det är aspekter som är av stor betydelse för att överhuvudtaget få saker gjorda.

Avslutningsvis så bör det sägas att rumslig differentiering alltid kommer att finnas i en eller annan form – detta är i princip själva grunden för vår geografi. Vad som uppfattas som rättvist eller orättvist gällande denna differentiering är vidare en fråga om perspektiv. Detta gäller för var energiinfrastruktur placeras i rummet såväl som för all annan markanvändning. Detta innebär inte att vi inte skall diskutera saker som uppfattas som orättvisa eller att vi inte skall undvika ojämlikheter som kan skapa problem för människor. Tvärtom så bör problem och ifrågasättanden lyftas fram så att vi som samhälle kan ta fram lösningar och planer på bättre, rättvisare och mer hållbara energisystem.

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Appendix

Interview Guide

Bracketed words indicate that the question is only posed to a specific type of respondent, or that the specific wording changes depending on the respondent. The words in parentheses are used to clarify the question if necessary.

Background and the organization's role
- Can you describe your background and role in relation to wind power planning and development? (How and for how long have you been involved in the matter?)
- Why is your organization engaged in wind power development processes - what does your organization want to accomplish?
    - o Have these goals been the same throughout, or have they changed over time?
- [To local oppositional groups] Has your opinion about wind power changed over time?
    - o [To local oppositional groups] Do you have the same opinion about the issue as national-level oppositional groups?
- [To authorities and project developers] Where do you get knowledge and information about wind power?

The planning process
- [To authorities] The [regional/local] authorities have pointed out areas on the [regional/local] level for wind power development. Can you describe why these areas have been of interest for wind power development?
- [To project developers] Can you describe why this specific wind power site has been of interest to you for wind power development?
- [To local oppositional groups] How did you first get information about the wind power plans in the area?
    - o How did you react? What thoughts did you have concerning the plans?
    - o Is there a common opinion among the people living in the area or are there different opinions? Why?
- [To local oppositional groups] Where do you get knowledge and information about wind power in general and about this development project in particular?
    - o Has the information been sufficient?

- Can you describe how you think the whole planning process for wind power development has worked so far? (From land-use planning to project development)
    o [To local oppositional groups] What type of contact have you had with the project developers? How did you perceive this contact? (How about information meetings or formal public hearings?)
    o [To local oppositional groups] What type of contact have you had with the public authorities? How did you perceive this contact? (How about information meetings or formal public hearings?)
    o [To authorities and project developers] Which actors or groups have been engaged in the planning process?
        ▪ When have they been engaged? (Early/late in the process, right/wrong occasion from a formal planning perspective?)
    o Do you perceive that you have been able to discuss all the questions you have wanted to talk about?
    o Are there any questions that have generated specific interest? Why do you think they have generated interest?
        ▪ Are there any questions that have gotten too little interest? Why do you think they have generated little interest?
    o [To local oppositional groups] Have you tried to influence the siting of windmills in informal ways? (Outside the formal planning process.)
    o [To authorities and project developers] Are there any remarks that have changed your plans? (If so, what types of questions and from whom?)
        ▪ [To authorities and project developers] Are there any remarks that have been made that have not changed your plans?
    o [To authorities] What type of contact have you had with the project developers? What has the contact concerned?
    o How have you perceived the interaction with different stakeholders throughout the process?
        ▪ How about (each stakeholder is asked in turn): national authorities [Sweden: the regional wind power coordinators], regional authorities, local authorities, industry organizations, wind power developers, the public (landowners, homeowners, second-home owners, oppositional groups, environmental organizations), and

[in Sweden and Norway] Sami reindeer herding villages?
- Has any of these stakeholders specifically tried to contact you, or you them? Why?
- [To authorities or project developers] Is there a common opinion among the people living in the area or are there different opinions? Why?
- [To authorities] There are different national authorities in charge of energy issues and planning issues. Which national authority have you been in contact with concerning wind power development?
- How have you perceived the media coverage of the process for wind power development?
- [To project developers] Have you tried to influence the siting of windmills in informal ways? (Outside the formal planning process.)

Planning reforms
- There have been propositions for changes and actual changes in the planning and permit process for wind power development in order to make it simpler and more efficient – have you noticed this in some way?
    o [To local oppositional groups] Do you have an opinion about this?
    o [To project developers] Do these changes affect your project in some way or are there other things that are more important?
    o [To authorities] Does this change the national, regional or local level's position in relation to the other levels? How?
    o [To authorities] Does the EU/EEA play any role in or have influence over the planning process for wind power development?
    o [To authorities] How do you understand "efficiency" in the context of the planning process – how do you work with the concept?
    o [To authorities and project developers] What does an efficient planning and permit process mean to you; i.e. what does efficiency mean in this context?

Stakeholders in the planning process for wind power development
- If you were to list the groups that are relevant to include as participants in the planning process for wind power development, which groups would that be?
    o Have all of these stakeholders participated in the process?
    o Is there any stakeholder that should have more influence over the planning processes than others, for example based on how

they are affected by the project or what kind of interest they have in the area?
- o Has your organization been able to influence the process in a way you feel you have the right to?
- o Is there anything you think you should have been able to influence that you have not been able to?

Local benefits
- Has there been any discussion of some form of local benefit in relation to the wind power project? (For example, money to the community, employment opportunities or improvements to the infrastructure.)
  - o How has this been perceived?
  - o Who took the initiative to discuss this question? Why?
  - o Are the benefits warranted in relation to the impact of the wind power development?
  - o Are the benefits sufficient in relation to the impact of the wind power development?
- Is there any form of local benefit that could be suitable to offer in relation to wind power development in general?
  - o Who should be the one to take the initiative to discuss these types of questions? (The project developer, the municipality, the regional agencies, the state, the local community)
  - o Should these issues be regulated in some way (for example, by the municipality or the state) or should this be an issue of negotiation between the developer and the stakeholders?

Concluding questions
- In general, do you think the planning process for wind power development (in the country as a whole) has been conducted in the right way, or are there problems?
- If you could suggest changes in the planning process to make it better, what would these be?
- Do you have suggestions of others who should be interviewed?
- Is there anything else you would like to add to these questions?